

MONTHLY CLIMATIC TIME SERIES DATA FOR THE PACIFIC OCEAN AND WESTERN AMERICAS

By Daniel R. Cayan, Scripps Institution of Oceanography, La Jolla, CA 92093
Douglas R. McLain, National Ocean Service, NOAA, Monterey, CA 93943
William D. Nichols, U.S. Geological Survey, Carson City, NV 89701
Jeanne S. DiLeo-Stevens, U.S. Geological Survey, Menlo Park, CA 94025

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MANUEL LUJAN, JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

**For additional information
write to:**

**William D. Nichols
U.S. Geological Survey
705 N. Plaza Street
Carson City, NV 89701**

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CONVERSION FACTORS

Both inch-pound and metric (Internal System units of measure are used in this report. Units may be converted from one system to the other by using the following factors:

<u>Multiply metric unit</u>	<u>by</u>	<u>To obtain inch-pound unit</u>
centimeter (cm)	.3937	inches
cubic meters per second (m ³ /s)	35.3107	cubic feet per second (ft ³ /s)
degrees Celsius (°C)	1.8 x (°C) + 32.0	degrees Fahrenheit (°F)
kilopascal (kPa)	10.0	millibar (mb)
liter (l)	2.641 x 10 ⁻¹	gallons
meter (m)	3.281	feet (ft)
milliliter (ml)	2.641 x 10 ⁻⁴	gallons (gal)
millimeter (mm)	3.937 x 10 ⁻²	inches

ABBREVIATIONS

The following abbreviations are used on the figures of this report:

<u>Abbreviations</u>	<u>Definition</u>
CM	Centimeter
DEG C	Degrees Celcius
HRS	Hours
L	Liter
M	Meter
MB	Millibar
MILLE	Parts per thousand
ML	Milliliter
MM	Millimeter
Mo	Month
n	Monthly mean
PNA	Pacific North American Index
PPM	Parts per million
SOI	Southern Oscillation Index

MONTHLY CLIMATIC TIME SERIES DATA FOR THE PACIFIC OCEAN AND WESTERN AMERICAS

By Daniel R. Cayan, Scripps Institution of Oceanography, La Jolla, CA 92093
Douglas R. McLain, National Ocean Service, NOAA, Monterey, CA 93943
William D. Nichols, U.S. Geological Survey, Carson City, NV 89701
Jeanne S. DiLeo-Stevens, U.S. Geological Survey, Menlo Park, CA 92093

ABSTRACT

Graphs of standardized monthly anomaly time-series data for several climatic variables are presented for locations in the eastern Pacific Ocean and the western Americas. The variables include: air temperature, barometric pressure, precipitation, streamflow, sunshine, sea-level height, sea-surface temperature, sea-surface salinity, several atmospheric indices and biological variables, miscellaneous ocean subsurface temperature and salinity. The time series of annual values, and basic statistics of the monthly mean data are also shown for each variable.

INTRODUCTION

The last decade has exhibited a rich assortment of climatic fluctuations. Not only is this short-period variability apparent in observations from the atmosphere and the upper ocean, but it is also present in many connected systems, both physical and biological (Peterson, 1989). A body of recent studies indicates that the influence of climate variability can be detected in a broad range of physical and biological systems. There is a growing emphasis on time series data as a means to study the dynamics of ecological systems and their physical influences (for example, Chelton and others, 1982; Venrick and others, 1987; Wiebe and others, 1987). Long climatological records allow comparison of various components of physical and biological systems, determination of whether recent variability is typical of a longer period, and a glimpse at multiyear variability. Given the possibility of significant man-caused perturbations to the *global* climate (McCracken and Luther, 1985), the need to define the natural variability of the system is even greater. To characterize global climate variability, it is important to examine its *regional* components. Most regions have an assortment of long-standing records of physical and biological variables. Such records are usually so numerous and so diverse that no single group is able to manage and comprehend the entire multidisciplinary picture. In this case, a project developed from a gathering of scientists representing diverse disciplines, but all with an interest in climate variations within the eastern Pacific Ocean and western Americas. The Workshops on Climate Variability of the Eastern North Pacific and The Western Americas (PACLIM 1984, 1985, 1986, 1987, 1988; Mooers and others, 1986) was convened to study aspects of climate variability in this region (the "PACLIM region") and its interactions in the geosphere, biosphere, and hydrosphere. This workshop provided the opportunity to collaborate and share individual resources; one outgrowth was to assemble a data base of physical and biological records over the PACLIM region for easy access and intercomparison. The array of time series compiled in this report reflects this collaboration.

This report presents graphs of normalized monthly anomalies, annual means, and some basic statistics for each of the time series, all of which are plotted on the same time scale. The time series plot format was patterned after graphs of monthly sea surface temperature anomalies for Atlantic Coast Stations by Stearns (1964) of the United States Fish and Wildlife Service. Time series of monthly coastal temperature and salinity were presented by the Scripps Institution of Oceanography (Scripps Institution of

Oceanography, 1960) at shore stations along the west coast of North America; many of these are updated here. In addition, the scope of this report has been broadened to include several other oceanographic and terrestrial variables. Instrumental records such as these, for the most part, do not begin until the mid 1800's or later (for example, see Roden 1966; Bradley and others, 1982; Goodridge, written commun., 1984). Proxy records of climate variability, such as provided by tree rings and varved sediments, offer a longer climate record but generally are not well resolved in time intervals of less than 1 year and may also represent a variety of climate elements. Proxy records are not presented in this report, but a second volume containing these climate indices may be prepared at a later date.

DESCRIPTION OF DATA AND STATISTICS

This report is a compilation of time series of monthly physical and biological data from the Pacific Ocean and the western Americas. The length of the series for particular records vary considerably, some variables beginning as early as the mid 1800's and some beginning only in the 1970's. For each of the time series, normalized monthly anomalies are graphed on a common time scale so that the fluctuations of different variables can be compared.

Stations were selected to achieve a long continuous record and to make a broad distribution of stations as uniformly distributed as possible. This is the case for precipitation over North America from Alaska southward to Baja, Mexico. For most variables, however, this was not possible in many regions where reasonably long high quality data are hard to obtain or simply do not exist. By and large, coverage is sparse south of the United States.

The variable name and the station or city name are shown at the top of each plot. The latitude and longitude of the station are given in the tables. Most stations are from the United States, in which case only the state named is in the title. For stations outside the United States, the country is named. In addition, the period of record, description of the data or the station (if any), and the donor's name and address are provided in the upper left hand corner of each plot.

The row of panels on the upper right hand side of the first page of each time series shows the annual means, the annual cycle of some basic statistics, and the autocorrelation of the monthly anomalies. The leftmost panel shows the time series of annual means of the monthly values as departures from their overall long-term annual mean. For precipitation, the annual total, rather than the annual mean value, is plotted. If data for one or more months of a given year are missing, then the annual value for that year is not plotted. Whenever possible, these data are presented in standard metric units. The units are noted below the title and on the annual mean and annual cycle panels. The original data, which are provided in digital form, are preserved in the original units. Because there is a disparity of record lengths among the suite of variables presented, no common climatological period was applied; the long-term mean and other statistics were computed over the entire length of record, whatever that happened to be.

The middle panel at the top shows the annual cycle, which is given by the solid curve, which connects the monthly long-term means. The dashed horizontal line shows the annual long-term mean. In addition to the monthly long-term mean, this panel also characterizes the monthly anomalous variability by nonparametric measures: the extremes

are shown by dots, the 25th and 75th percentiles are represented by short horizontal bars, and the median is given by a longer horizontal bar.

The rightmost panel at the top shows two calculations of the autocorrelation of the monthly anomalies. The solid curve is the autocorrelation of traditional monthly anomalies, where the monthly anomaly is simply the difference between a monthly value and its long-term mean. Because some of the observations have undergone significant long period changes, the second version of the autocorrelation (dashed curve) is the autocorrelation of detrended anomalies with the linear trend over the length of record removed. Both versions of the autocorrelation are shown for lags of 0 to 47 months.

The time series of standardized monthly anomalies is shown in 50-year intervals. The 50-year periods chosen for these segments are fixed (1940–1989, 1890–1939, and 1840–1889) and all of the data are shown on a single page to allow easy comparison between given plots. The dashed vertical line delineating the years is in December of each year. Because several of the variables do not closely approximate normal or symmetric distributions about their mean values, the monthly standardized anomalies plotted here are nonparametric. These anomalies are constructed from each monthly value by removing the median and are standardized by dividing by the difference between the 75th and the 25th percentile values for that particular month. For variables such as sea-surface temperature and sea level at many stations, which approximate a normal distribution, this scheme is little different from removing the mean and dividing by the standard deviation, although one standard deviation of a normal distribution is smaller than the 75th minus 25th percentile difference (usually the values lie between the mean and one standard deviation). Monthly anomalies for some parameters such as precipitation, streamflow, and some biological variables commonly are not normally distributed; in this case, the anomalies are constructed differently from those of the other variables. To reduce the skewness in their distribution, the monthly data were first transformed by taking the logarithm of each data value. Because precipitation, streamflow, and some biological variables can have a value of zero, a small value was added before the logarithm was calculated. Not all the stations for these variables were log-transformed; the transformation was applied only to those time series whose untransformed standardized anomalies had at least one value in excess of 4.

The station names and variables presented are listed in tables 1–9, along with the period of record, latitude and longitude of the station, and the name of the individual or institution who provided the data. In several cases, closely-spaced stations have been included to allow for intercomparison and to provide a feeling for small-scale variability and long time-scale stability. As is immediately apparent, there are many more physical data (temperature, precipitation, etc.) than biological data. Physical measurements are most commonly available over a reasonably long history, so they make up the bulk of the plots presented here. This imbalance occurred not by design, but because of the lack of available biological time series data. The most prominent physical variables presented include air temperature, barometric pressure, precipitation, streamflow, sea-level height, sea-surface temperature, and sea-surface salinity. Maps are provided (fig. 1, 62, 89, 170, 190, 199, 233, 276, and 303) to show the station locations for each of these variables. Almost all of the time series are direct observations at a single point, but a few derived variables were included because of their general utility to a broad spectrum of users. These variables include the large scale atmospheric indices such as the Southern Oscillation Index (SOI) and the Pacific North American Pattern (PNA), the Bakun Upwelling Index, and selected area average hydrographic and biological data off the

California Coast from the CalCOFI (California Cooperative Oceanic Fisheries Investigations) data set. Coordinates of atmospheric indices having several remote locations are not mapped, but their locations are identified in the appropriate table. Certain variables are lacking in this report even though they are important; for example, the surface wind is a crucial element for many purposes, but there are few reliable long historical wind records at single stations due to the sensitivity of wind to station moves and urban growth. For sea-level height a few stations have two different plots, corresponding to distinct periods of the record from separate tide gauges. This reflects either a move of the station location or a change in the observing agency (or both). The sea-level heights were not adjusted for barometric pressure effects.

Among the biological data are chlorophyll, phytoplankton, zooplankton, and fish catch. Only a limited number of fish catch time series are included in the report; although a large number of such series are available on several spatial scales. Some of the fish catch time series, for example California bonito catches, are reasonable indices of the population size within an area and may be useful as climatic indicators. Others, such as the California anchovy catches, are more representative of economic and regulatory factors than of the condition of the population. Note that the annual values shown for these biological variables are the annual mean of the monthly values, not the annual total.

The time series in this report are ordered by variable, and for each variable by latitude and longitude, as listed in tables 1-9. The land surface meteorological and hydrologic variables are presented first, then the oceanographic physical variables, and finally the atmospheric indices and biological variables.

USING THESE DATA AND CAUTIONS

It is hard to find climatic time series that are flawless, because most records are flawed by some non-natural effects. For instance, although the San Diego air temperature record extends back to 1850, it is marked by several changes in station location and probably from urban influences (for example, Cayan and Douglas 1984; Karl and others, 1988). As a result, the apparent upward trend in air temperature at some stations is highly suspect. For example, the increase in air temperature at San Diego since the 1930's is not consistent with other air temperature and sea-surface temperature records in southern California. In another example, air temperature at Honolulu shows the result of a station move in the early 1960's, which shows up as a step function in the temperature anomaly series. In this case, a companion air temperature history at Honolulu Observatory provides an apparently uncontaminated record of the variability through much of this period. For sea-level height, due to moves in the tide gauge and differences in sea level datum, separate plots are presented for two different periods at a single station (at Buenaventura, Columbia, La Libertad, Ecuador, and Antofagasta, Chile). The user is strongly advised to investigate the station history, and not to accept the data at face value.

There is no uniform period of coverage for these time series, although an attempt was made to provide stations that have data are nearly up-to-date. Some data are unique in that they were collected only during an earlier period. Others are obtained from stations that have been relocated. In many cases, there are records might be updated from other sources, but this effort was beyond our abilities. It is emphasized that there was not time to carry out a rigorous quality control operation. We have relied on the donating organizations to provide good quality data. This graphical information should be carefully inspected and, perhaps, compared with plots from nearby stations where

possible. We might point out, however, that the time series plots of these data allow for a visual quality control of the data in highlighting outliers, discontinuities, and trends. Users are encouraged to report any errors that they discover to any of the authors. In addition to the citations herein, a list of references, although not comprehensive, is included to provide insight into the history and interpretation of the data presented, as well as introducing related data that were not included in this report.

SUMMARY

This volume can be viewed as a first attempt to compile and present time series of a broad range of variables over a large region. Because of the many problems associated with such a project, there is much room for improvement. Further efforts might attempt to include more diverse data, to be more selective in choosing representative time series, to secure up-to-date information, and to carry out more quality control activities. There could be more emphasis on colocating records for different variables. For instance, it would be useful to have barometric pressure records of each sea-level height station to determine the barometric influence on sea level. The user can obtain updated data for many of these stations from standard sources such as the state climatologists, the National Ocean Data Center, the National Climate Data Center, or the Western Region Climate Data Center in the United States.

A copy of these data in digital form is contained on the IBM-compatible¹ floppy disk that is included in the jacket of this report. The data have been left in the original units, as received from its donor, to preserve accuracy and so as not to introduce errors. The files are written in ASCII characters, and missing data are coded as -99999. Again, it is cautioned that these data have not been subjected to quality control measures.

ACKNOWLEDGMENTS

This report could not have been assembled without competent, perseverant observers, and without organizations that have archived, updated and distributed their data sets. We want to especially thank each of the individuals who contributed time series and information to this volume. In many cases, the donor is an individual or agency who has received these data second or even third hand. In order to carry out this effort, we have obtained data sets from sources who offered to provide them or from standard sources where they were most conveniently available. We regret the omission of any individual or agency who rightfully should be acknowledged, but was not.

Of particular importance to this effort were the agencies who collected, archived, and distributed these data such as the National Climate Data Center of NOAA, the U.S. Geological Survey, the Institute of Ocean Sciences (I.O.S.) in British Columbia, and the National Center for Atmospheric Research (NCAR). Valuable comments were provided by Gunnar Roden, University of Washington, a pioneer in archiving and interpreting instrumental climatic records, who supplied his monthly data set; by Sus Tabata, Institute of Ocean Sciences, who generously made available the extensive I.O.S. west coast data set; and by Arnold Mantyla, who provided Scripps Institution of Oceanography shore station data. Klaus Wyrтки of the University of Hawaii generously provided many of the sea-level data. This report benefited from skillful work by Mary Ray, Emelia Bainto, Robin

¹The use of brand names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

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Variable I: Air Temperature

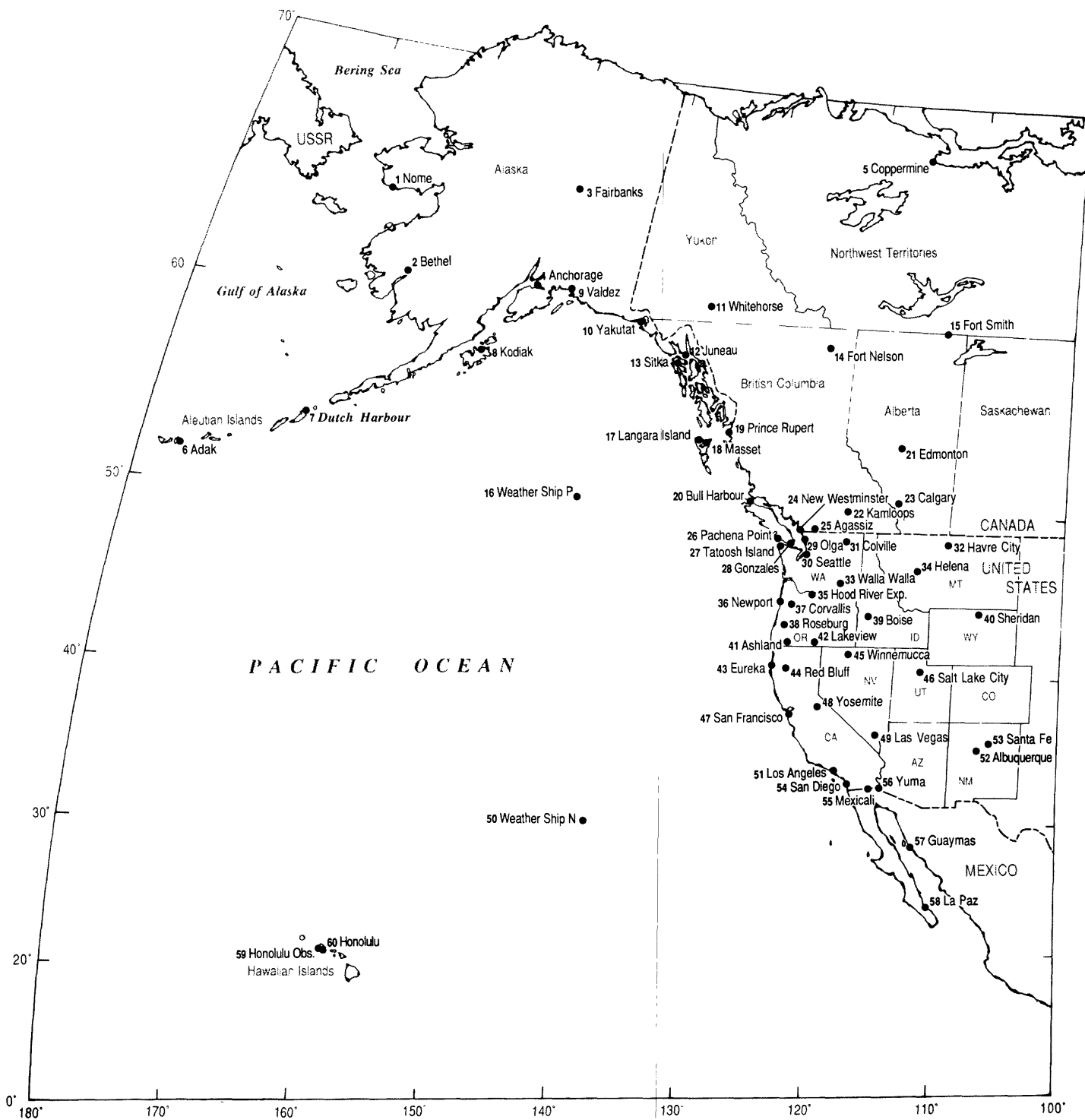


Figure 1. Map showing locations of air temperature stations.

Table 1.--Index to air temperature stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	2	Nome, AK	64°30'N.	165°24'W.	1907-1985	NCAR
2	3	Bethel, AK	60°48'N.	162°12'W.	1924-1875	NCAR
3	4	Fairbanks, AK	64°54'N.	147°42'W.	1931-1985	NCAR
4	5	Anchorage, AK	61°48'N.	149°53'W.	1941-1984	Tabata
5	6	Coppermine, CAN	67°48'N.	115°12'W.	1931-1985	NCAR
6	7	Adak, AK	51°51'N.	176°39'W.	1942-1984	Tabata
7	8	Dutch Harbour, AK	53°54'N.	166°32'W.	1872-1984	Tabata
8	9	Kodiak, AK	57°47'N.	152°24'W.	1869-1984	Tabata
9	10	Valdez, AK	61°07'N.	146°16'W.	1909-1984	Tabata
10	11	Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Tabata
11	12	Whitehorse, CAN	60°42'N.	135°06'W.	1942-1985	NCAR
12	13	Juneau, AK	58°15'N.	134°25'W.	1881-1984	Tabata
13	14	Sitka, AK	57°03'N.	135°20'W.	1867-1984	Tabata
14	15	Fort Nelson, CAN	58°48'N.	122°36'W.	1937-1985	NCAR
15	16	Fort Smith, CAN	60°00'N.	111°54'W.	1931-1985	NCAR
16	17	Weather Ship P	50°00'N.	145°00'W.	1950-1981	Tabata
17	18	Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Tabata
18	19	Masset, CAN	54°02'N.	132°08'W.	1897-1968	Tabata
19	20	Prince Rupert, CAN	54°18'N.	130°26'W.	1908-1984	Tabata
20	21	Bull Harbour, CAN	50°55'N.	127°57'W.	1921-1984	Tabata
21	22	Edmonton, CAN	53°36'N.	113°30'W.	1883-1985	NCAR
22	23	Kamloops, CAN	50°42'N.	120°30'W.	1891-1970	NCAR
23	24	Calgary, CAN	51°00'N.	114°00'W.	1884-1970	NCAR
24	25	New Westminster, CAN	49°13'N.	122°56'W.	1874-1978	Tabata
25	26	Agassiz, CAN	49°17'N.	121°46'W.	1889-1983	Tabata
26	27	Pachena Point, CAN	48°43'N.	125°06'W.	1924-1978	Tabata
27	28	Tatoosh Island, WA	48°23'N.	124°44'W.	1883-1966	Tabata
28	29	Gonzales, CAN	48°25'N.	123°19'W.	1898-1984	Tabata
29	30	Olga, WA	48°37'N.	122°48'W.	1892-1983	Roden
30	31	Seattle, WA	47°36'N.	122°20'W.	1892-1982	Roden
31	32	Colville, WA	48°33'N.	117°54'W.	1900-1963	Roden
32	33	Havre City, MT	48°36'N.	109°42'W.	1880-1983	NCAR
33	34	Walla Walla, WA	46°08'N.	118°20'W.	1872-1977	NCAR
34	35	Helena, MT	46°36'N.	112°06'W.	1880-1983	NCAR
35	36	Hood River Experi- mental Station, OR	45°41'N.	121°31'W.	1891-1986	Redmond
36	37	Newport, OR	44°38'N.	124°03'W.	1891-1986	Redmond
37	38	Corvallis, OR	44°38'N.	123°12'W.	1890-1986	Redmond
38	39	Roseburg, OR	43°14'N.	123°22'W.	1877-1986	Redmond
39	40	Boise, ID	43°36'N.	116°12'W.	1864-1985	NCAR
40	41	Sheridan, WY	44°48'N.	107°00'W.	1908-1985	NCAR
41	42	Ashland, OR	42°13'N.	122°43'W.	1889-1986	Redmond
42	43	Lakeview, OR	42°13'N.	120°22'W.	1896-1986	Redmond
43	44	Eureka, CA	40°48'N.	124°10'W.	1886-1984	Tabata
44	45	Red Bluff, CA	40°09'N.	122°15'W.	1878-1982	Roden
45	46	Winnemucca, NV	41°00'N.	117°42'W.	1885-1985	NCAR
46	47	Salt Lake City, UT	40°48'N.	111°54'W.	1875-1985	NCAR
47	48	San Francisco, CA	37°48'N.	122°22'W.	1847-1984	Tabata
48	49	Yosemite, CA	37°45'N.	119°35'W.	1918-1980	Roden
49	50	Las Vegas, NV	36°06'N.	115°12'W.	1937-1985	NCAR
50	51	Weather Ship N	30°00'N.	140°00'W.	1954-1974	Roden
51	52	Los Angeles, CA	33°43'N.	118°16'W.	1877-1984	Tabata
52	53	Albuquerque, NM	35°06'N.	106°36'W.	1931-1985	NCAR
53	54	Santa Fe, NM	35°42'N.	106°00'W.	1849-1977	NCAR
54	55	San Diego, CA	32°42'N.	117°14'W.	1849-1984	Tabata
55	56	Mexicali, MEX	32°39'N.	115°27'W.	1943-1983	Vogel

Table 1.--*Index to air temperature stations and figures.*--continued

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
56	57	Yuma, AZ	32°44'N.	114°37'W.	1878-1982	Roden
57	58	Guaymas, MEX	27°55'N.	110°53'W.	1935-1984	Vogel
58	59	La Paz, MEX	24°10'N.	110°17'W.	1933-1983	Vogel
59	60	Honolulu Obs., HI	21°18'N.	158°06'W.	1906-1963	NCAR
60	61	Honolulu, HI	21°18'N.	157°54'W.	1883-1985	NCAR

*Refers to map location on Figure 1.

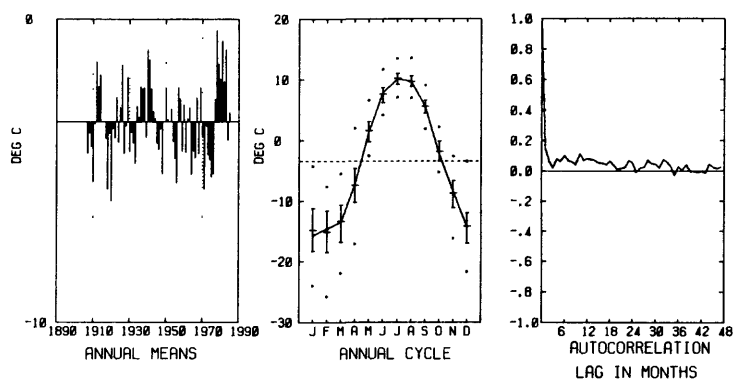
**See Contributors List, p. 379.

AIR TEMP NOME ALASKA

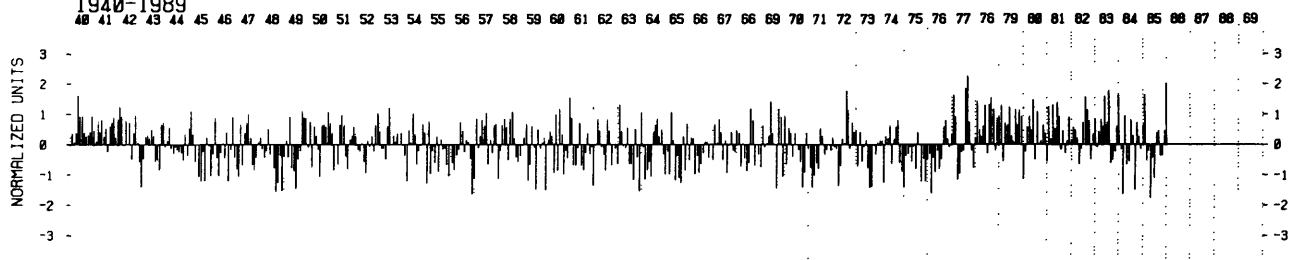
UNITS ARE DEG C

1907-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

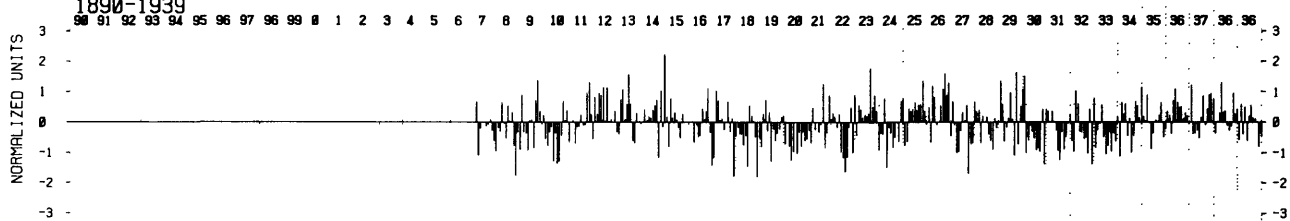


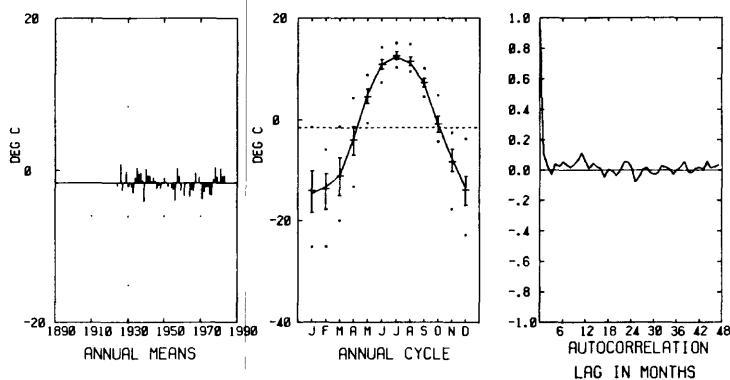
Figure 2. Graphs of standardized monthly anomaly and selected statistics for air temperature at Nome, AK, 1907-1985.

AIR TEMP BETHEL ALASKA

UNITS ARE DEG C

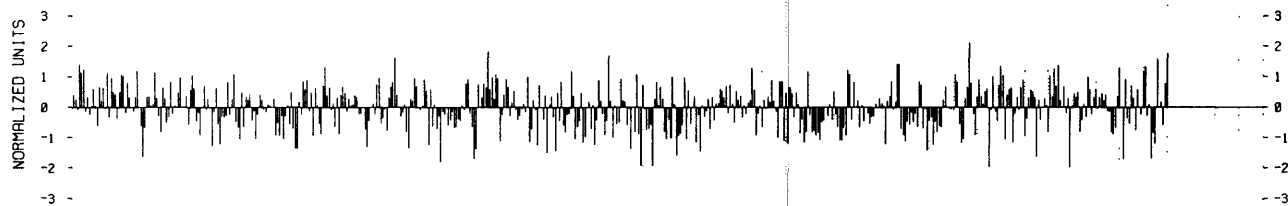
1924-1985

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307



1940-1989

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1890-1939

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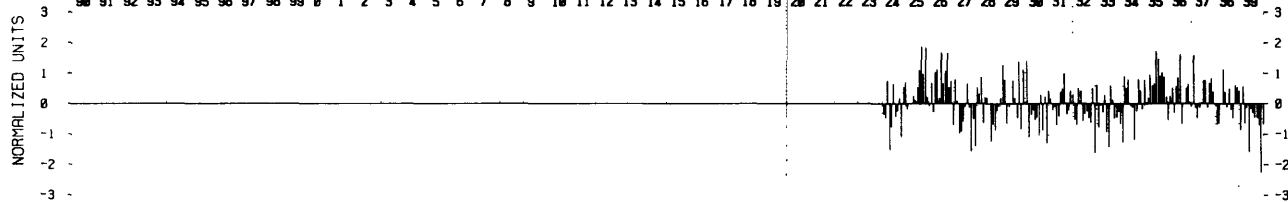


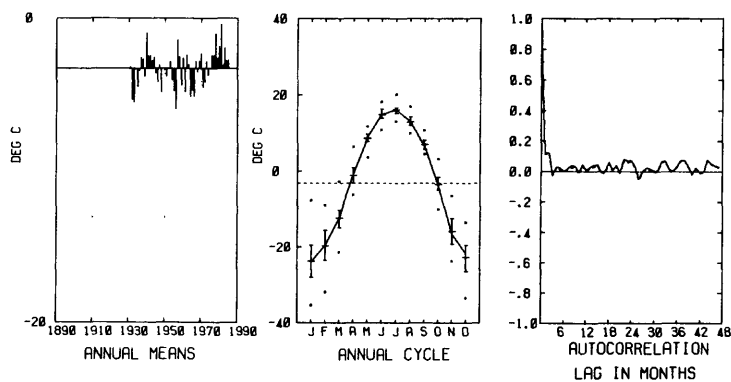
Figure 3. Graphs of standardized monthly anomaly and selected statistics for air temperature at Bethel, AK, 1924-1875.

AIR TEMP FAIRBANKS ALASKA

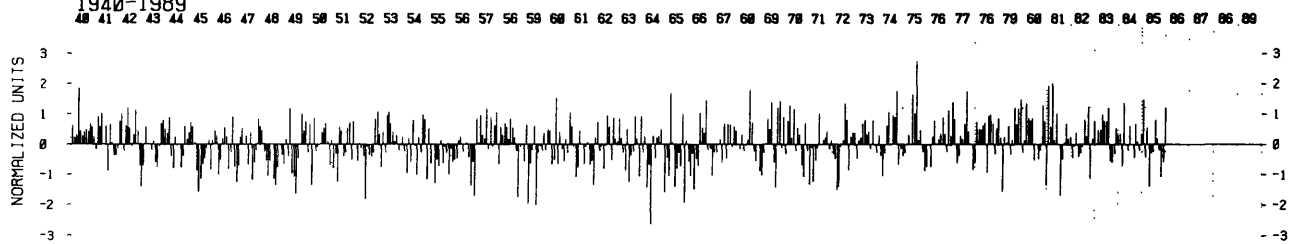
UNITS ARE DEG C

1931-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

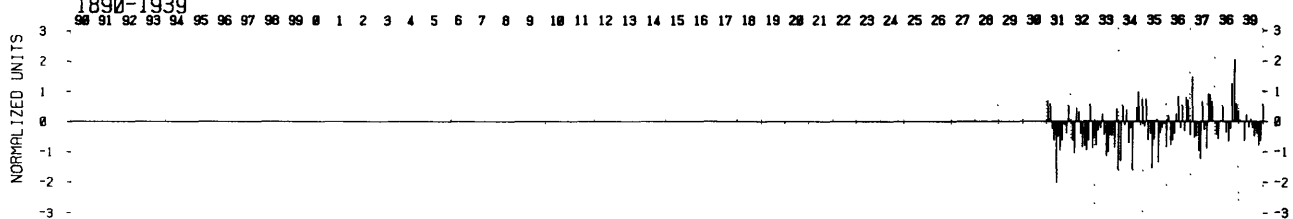


Figure 4. Graphs of standardized monthly anomaly and selected statistics for air temperature at Fairbanks, AK, 1931-1985.

AIR TEMP ANCHORAGE ALASKA

UNITS ARE DEG C

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

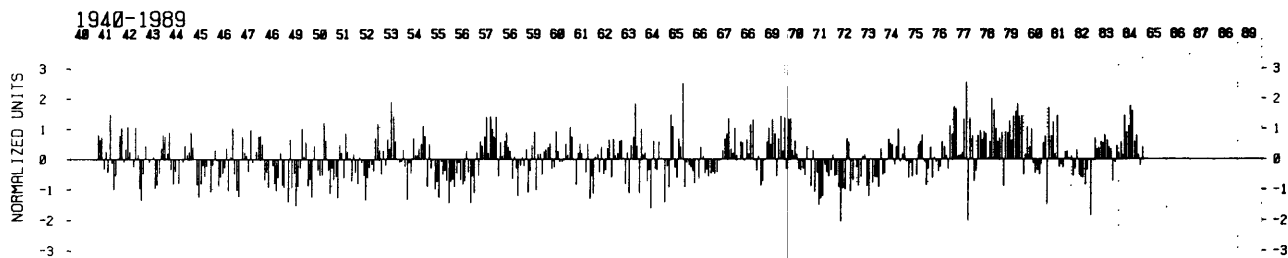
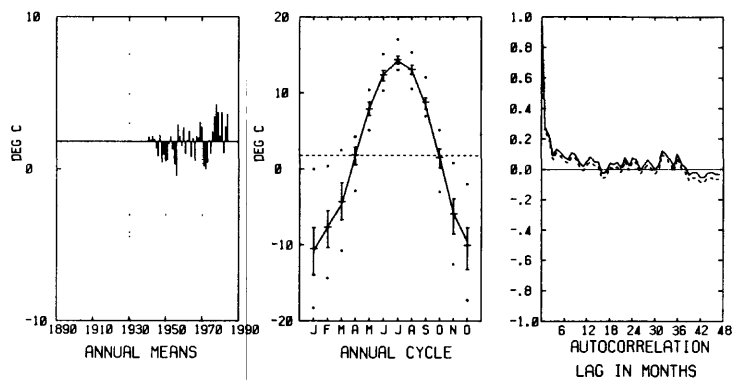


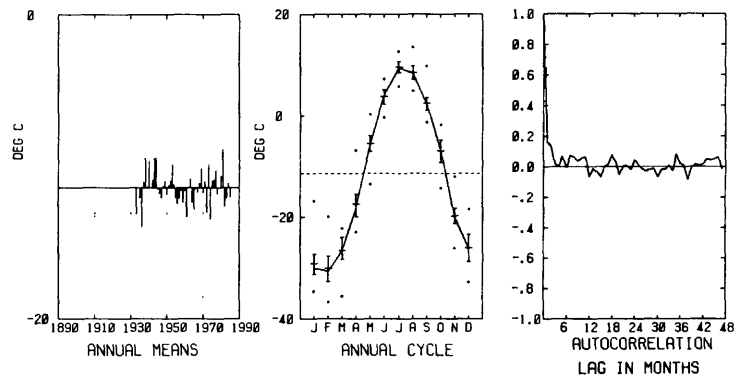
Figure 5. Graphs of standardized monthly anomaly and selected statistics for air temperature at Anchorage, AK, 1941-1984.

AIR TEMP COPPERMINE CANADA

UNITS ARE DEG C

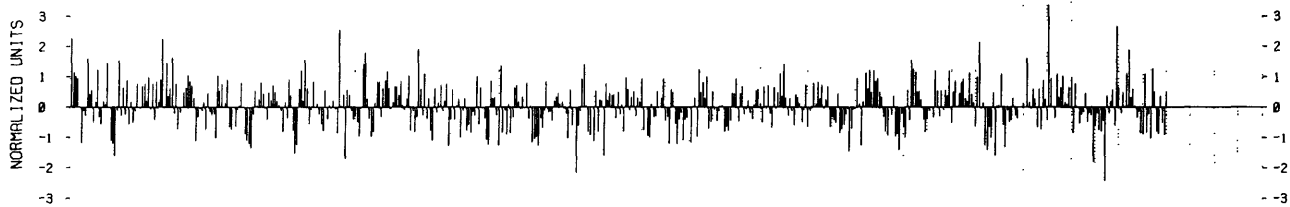
1931-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989

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1890-1939

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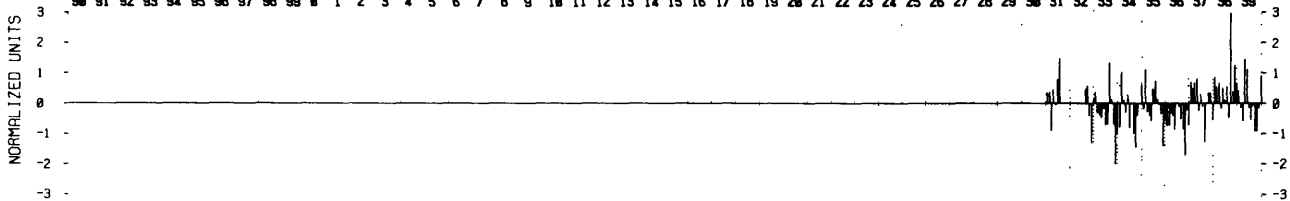


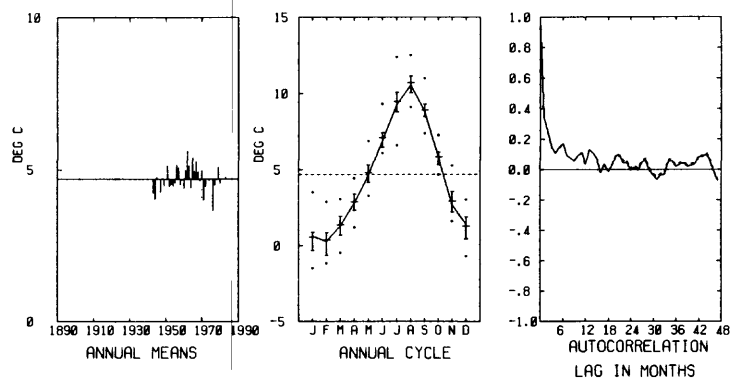
Figure 6. Graphs of standardized monthly anomaly and selected statistics for air temperature at Coppermine, CAN, 1931-1985.

AIR TEMP ADAK ALASKA

UNITS ARE DEG C

1942-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

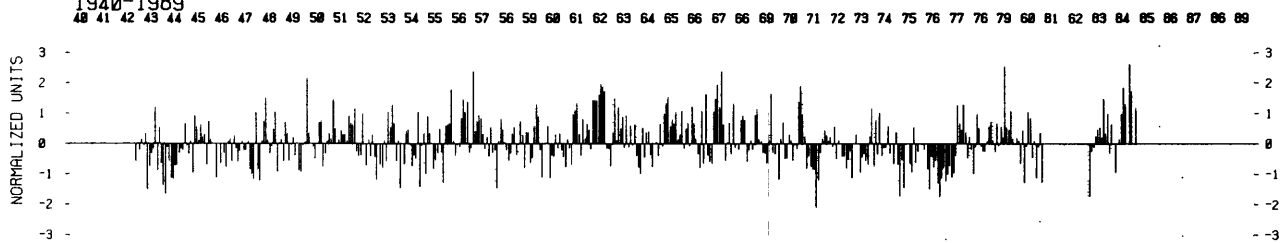


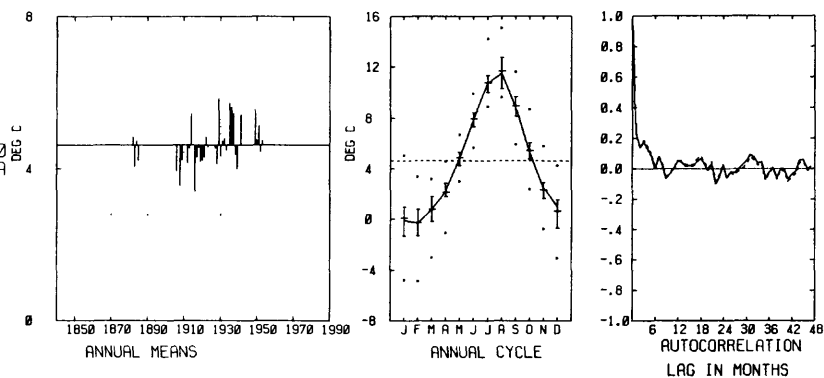
Figure 7. Graphs of standardized monthly anomaly and selected statistics for air temperature at Adak, AK, 1942-1984.

AIR TEMP DUTCH HARBOUR ALASKA

UNITS ARE DEG C

1872-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 60000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



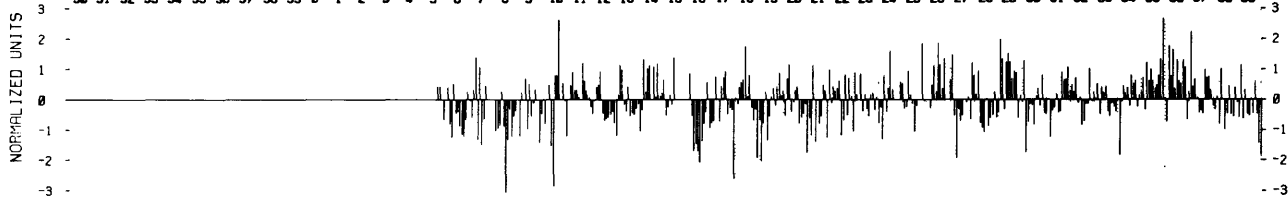
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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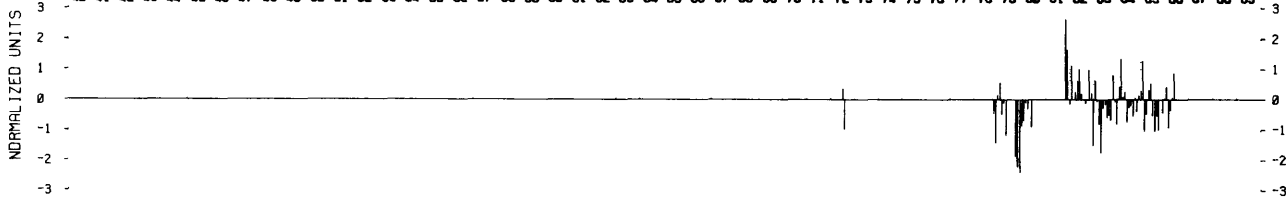


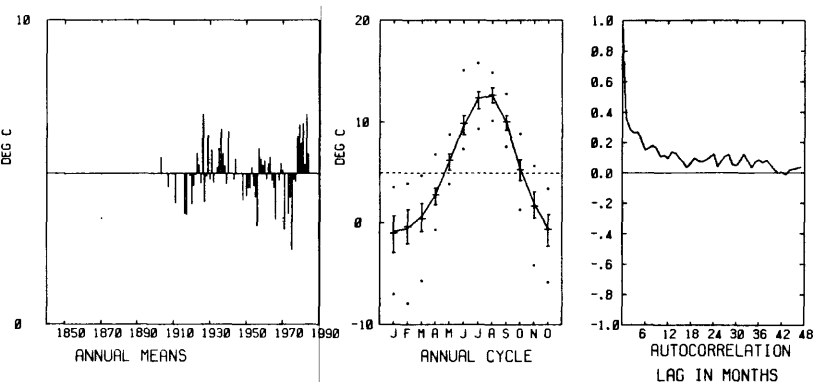
Figure 8. Graphs of standardized monthly anomaly and selected statistics for air temperature at Dutch Harbour, AK, 1872-1984.

AIR TEMP KODIAK ALASKA

UNITS ARE DEG C

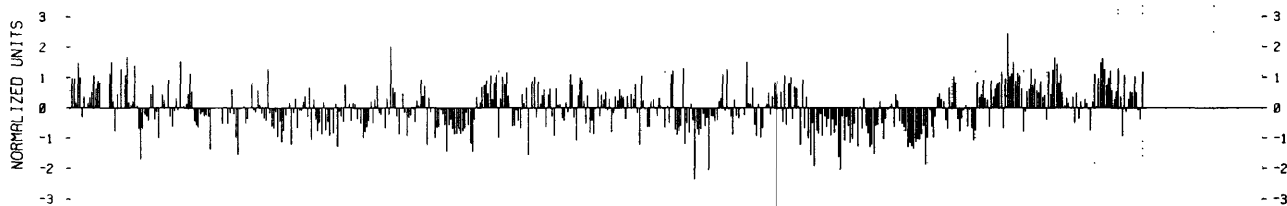
1869-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V6L 4B2, CANADA



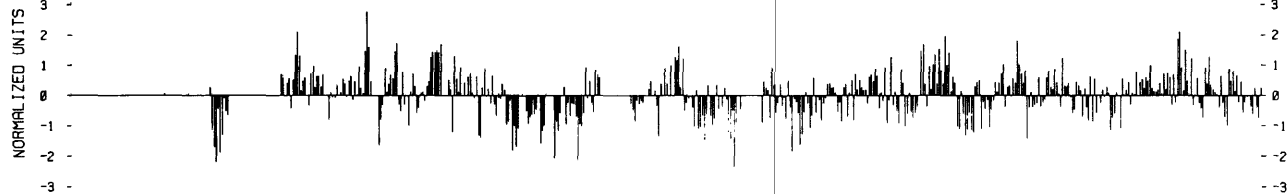
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



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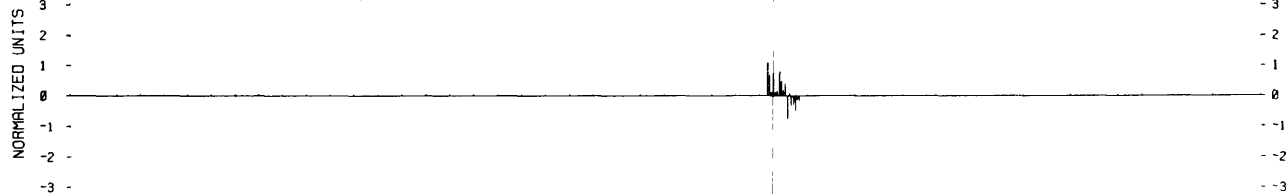


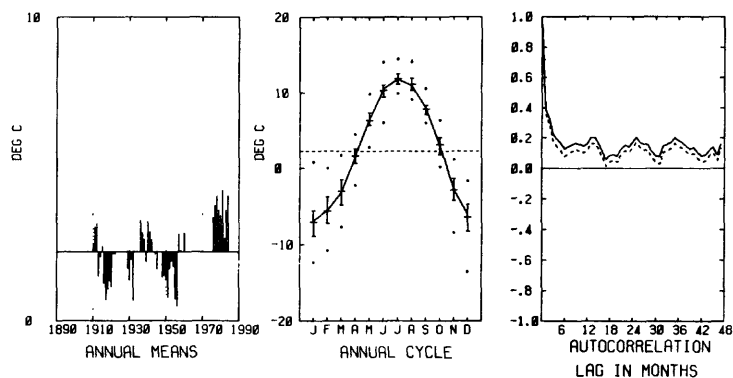
Figure 9. Graphs of standardized monthly anomaly and selected statistics for air temperature at Kodiak, AK, 1869-1984.

AIR TEMP VALDEZ ALASKA

UNITS ARE DEG C

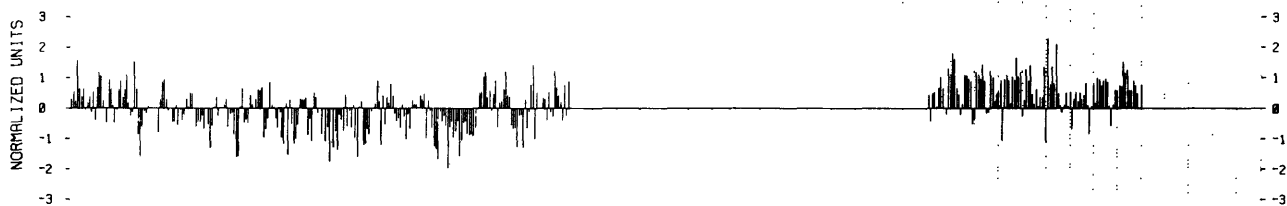
1909-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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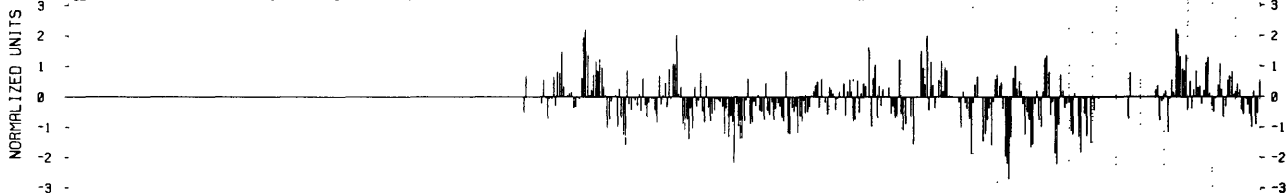


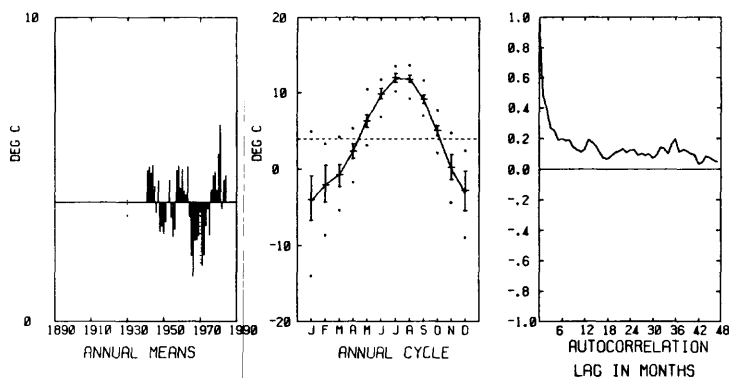
Figure 10. Graphs of standardized monthly anomaly and selected statistics for air temperature at Valdez, AK, 1909-1984.

AIR TEMP YAKUTAT ALASKA

UNITS ARE DEG C

1941-1984

SUS TABATA, INST. OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

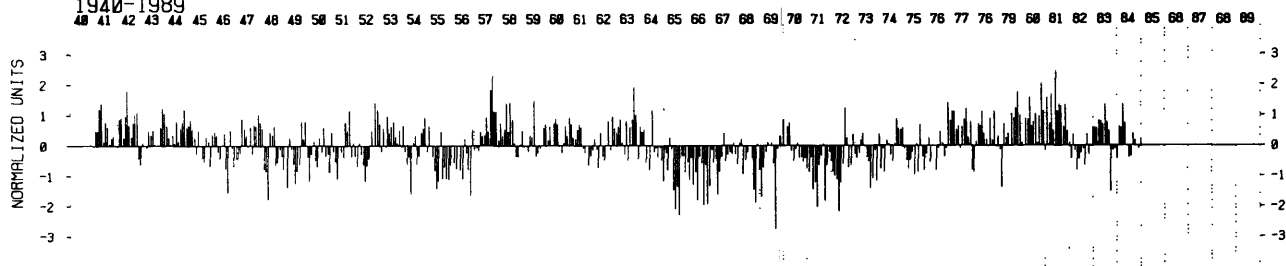


Figure 11. Graphs of standardized monthly anomaly and selected statistics for air temperature at Yakutat, AK, 1941-1984.

AIR TEMP WHITEHORSE CANADA

UNITS ARE DEG C

1942-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307

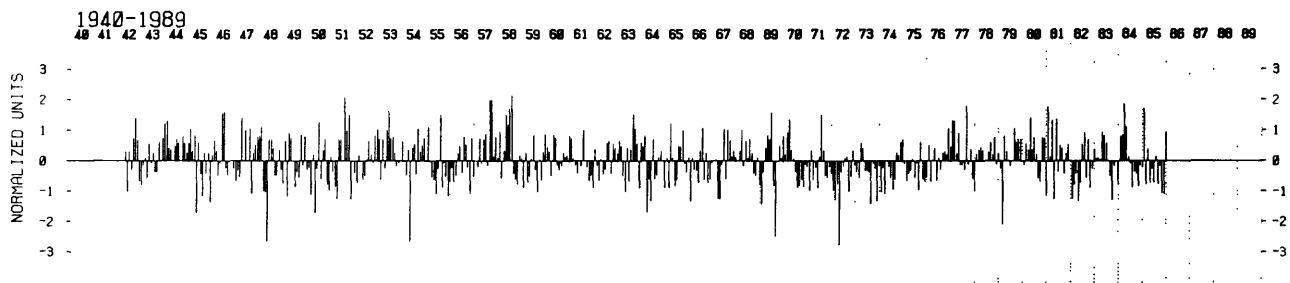
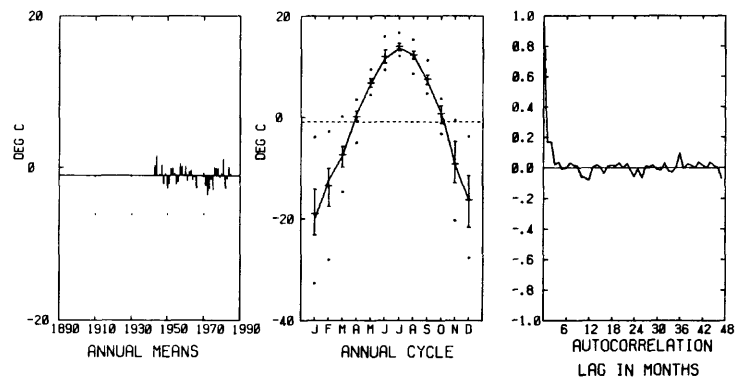


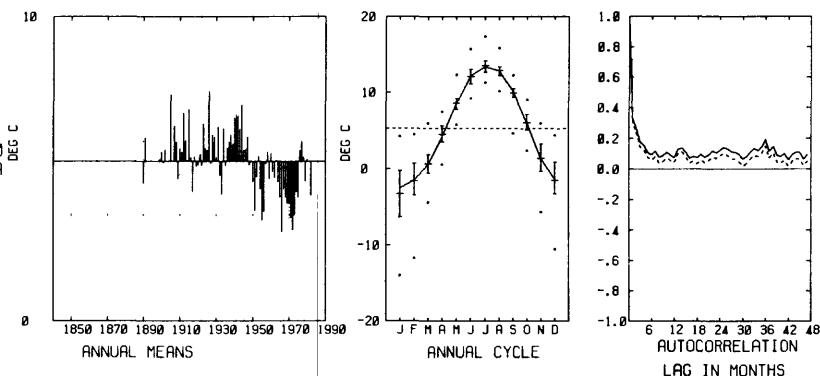
Figure 12. Graphs of standardized monthly anomaly and selected statistics for air temperature at Whitehorse, CAN, 1942-1985.

AIR TEMP JUNEAU ALASKA

UNITS ARE DEG C

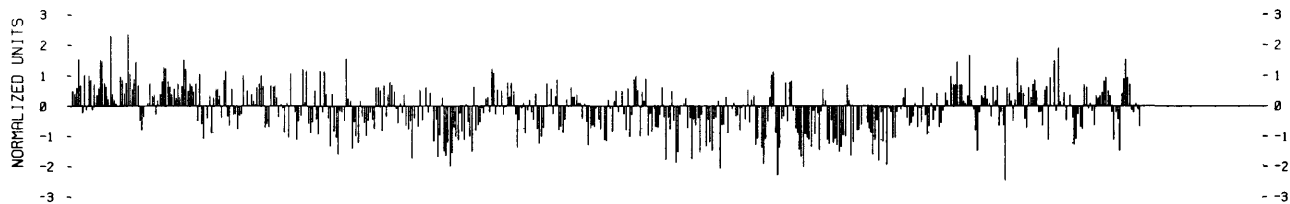
1881-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 60000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



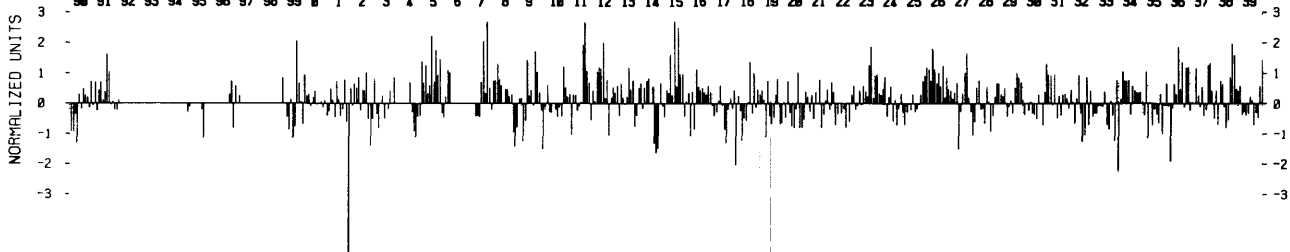
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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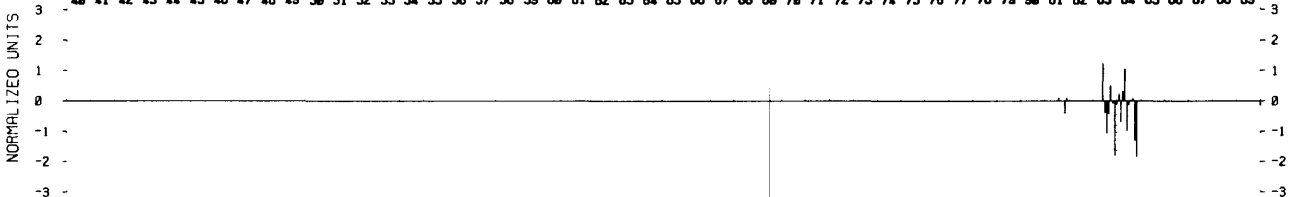


Figure 13. Graphs of standardized monthly anomaly and selected statistics for air temperature at Juneau, AK, 1881-1984.

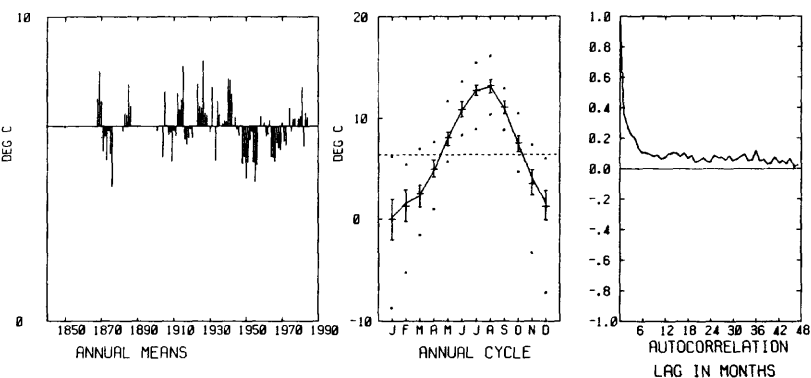
AIR TEMP SITKA ALASKA

UNITS ARE DEG C

1867-1984

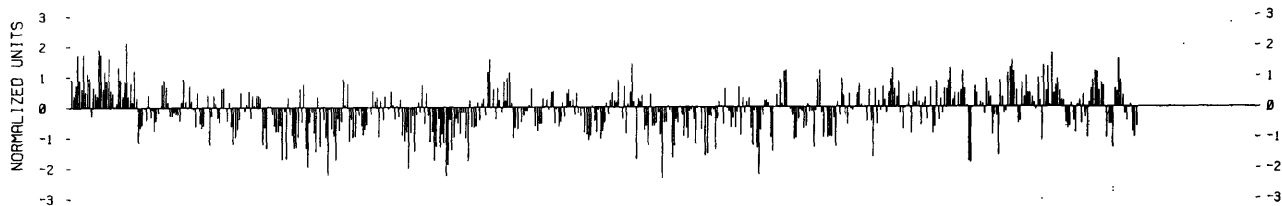
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SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



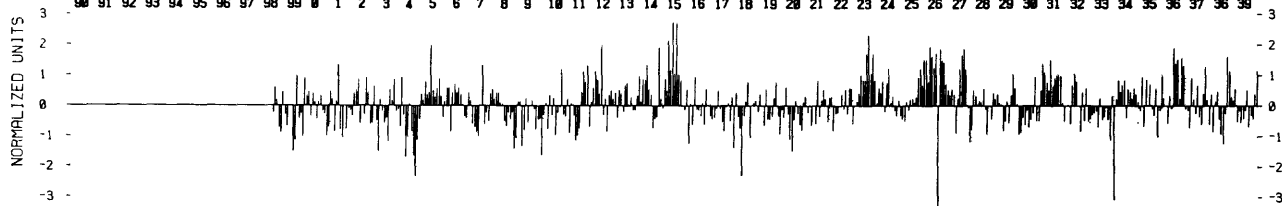
1940-1989

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1890-1939

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1840-1889

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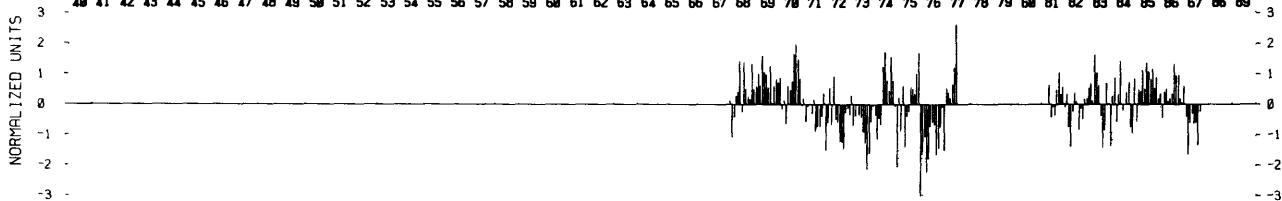


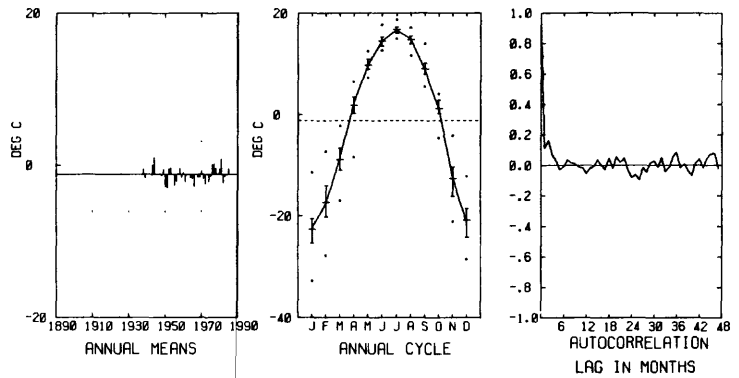
Figure 14. Graphs of standardized monthly anomaly and selected statistics for air temperature at Sitka, AK, 1867-1984.

AIR TEMP FORT NELSON CANADA

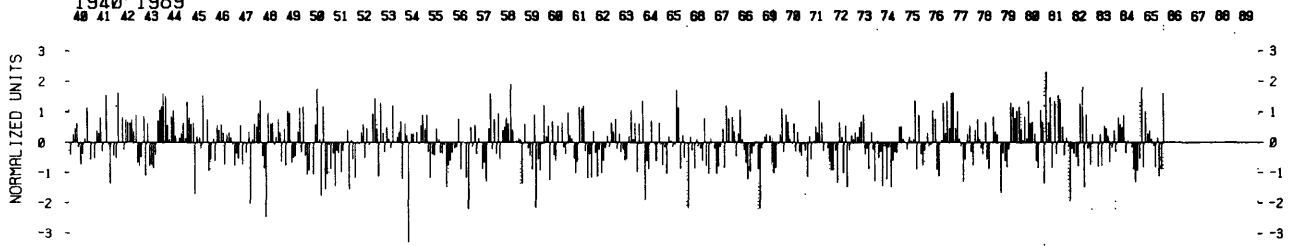
UNITS ARE DEG C

1937-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

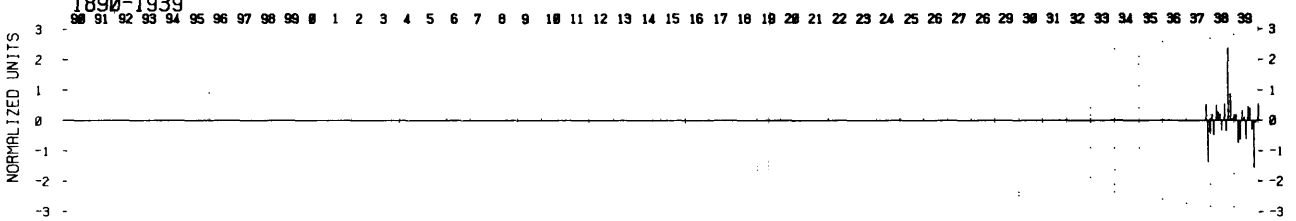


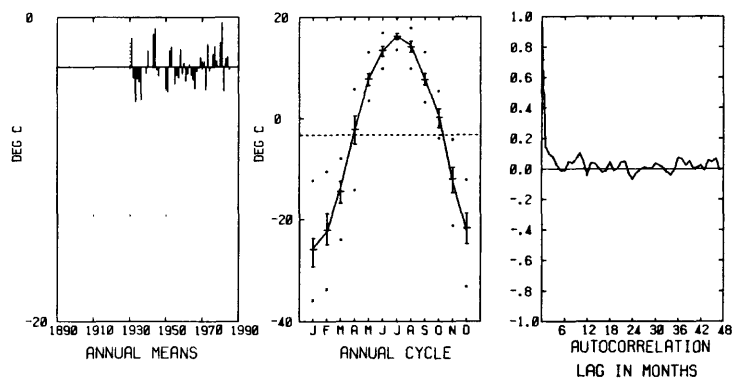
Figure 15. Graphs of standardized monthly anomaly and selected statistics for air temperature at Fort Nelson, CAN, 1937-1985.

AIR TEMP FORT SMITH CANADA

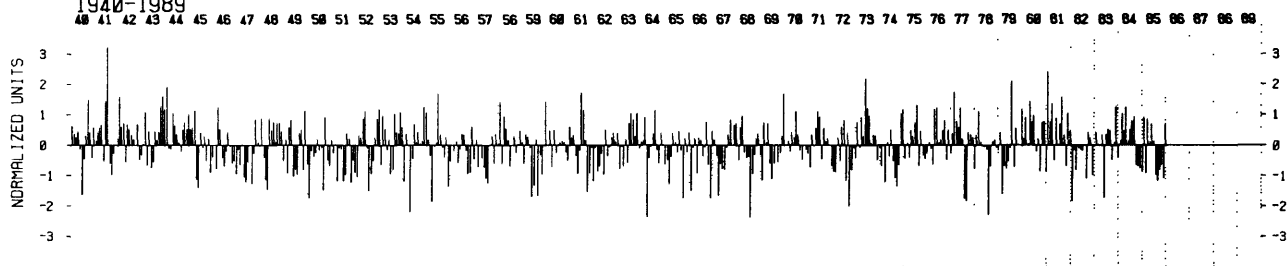
UNITS ARE DEG C

1931-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

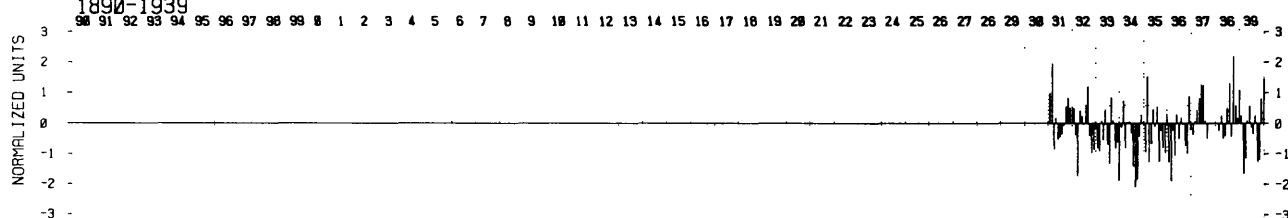


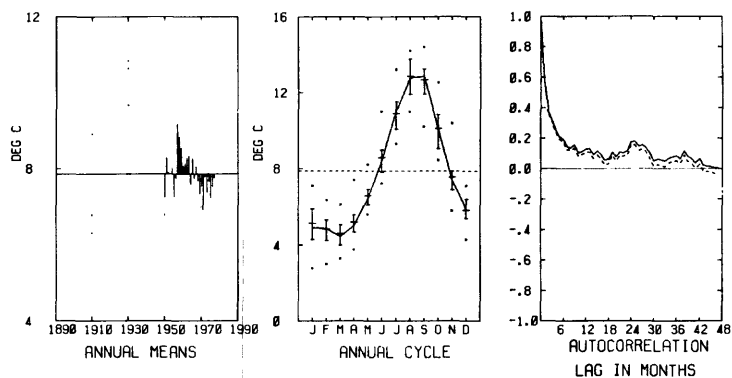
Figure 16. Graphs of standardized monthly anomaly and selected statistics for air temperature at Fort Smith, CAN, 1931-1985.

AIR TEMP WEATHER SHIP P

UNITS ARE DEG C

1950-1981

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9B60 W SARNICH, SIDNEY, BC, VBL 4B2, CANADA



1940-1989

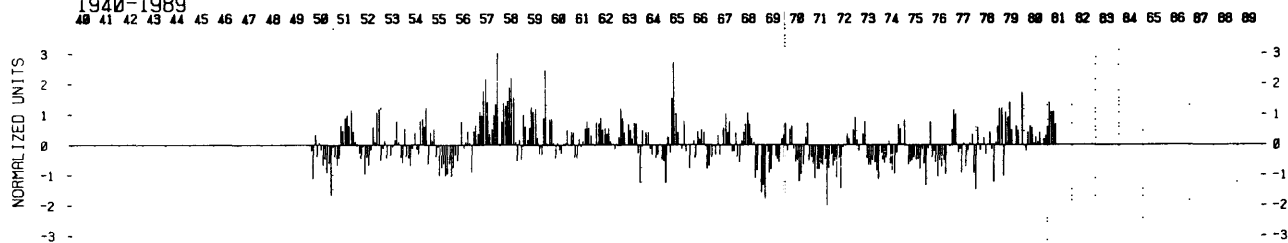


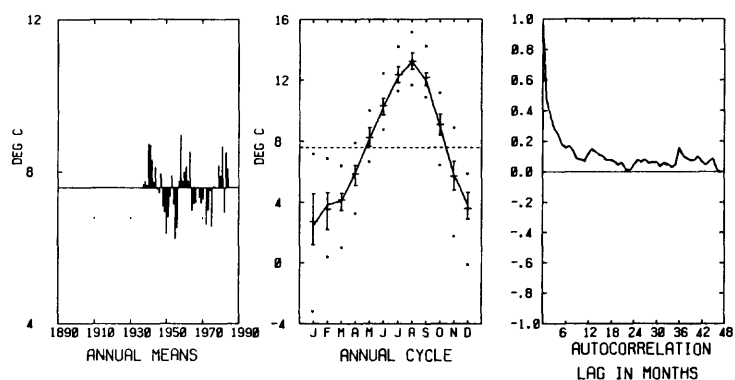
Figure 17. Graphs of standardized monthly anomaly and selected statistics for air temperature at Weather Ship P, 1950-1981.

AIR TEMP LANGARA ISLAND BC CANADA

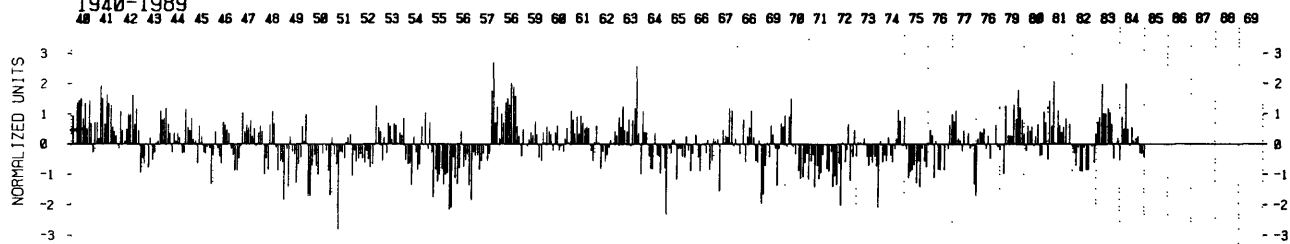
UNITS ARE DEG C

1936-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

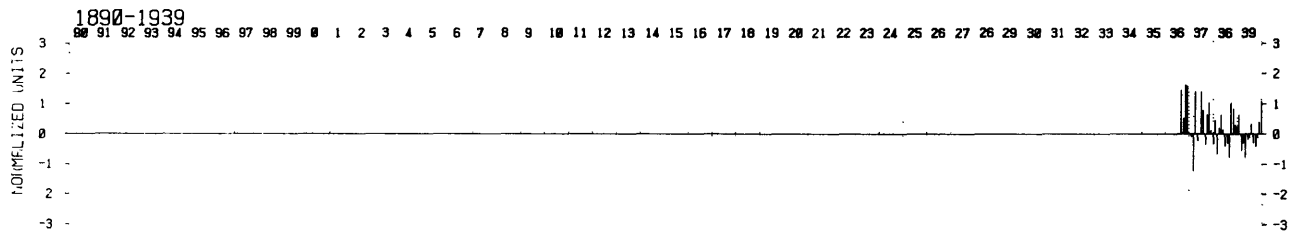


Figure 18. Graphs of standardized monthly anomaly and selected statistics for air temperature at Langara Island, CAN, 1936-1984.

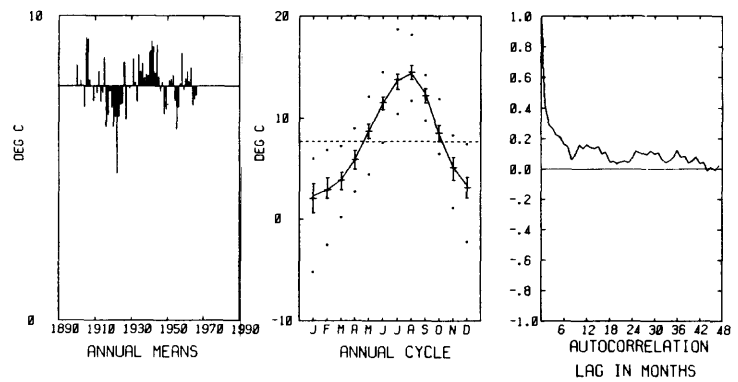
AIR TEMP MASSET BC CANADA

UNITS ARE DEG C

1897-1968

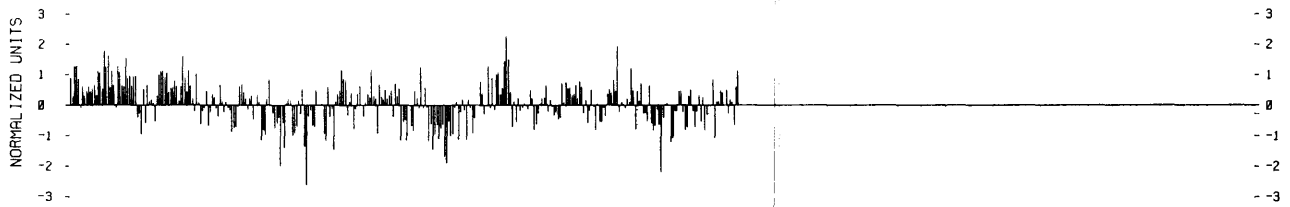
1898 DATA & JULY 1902 ARE FROM NCAR

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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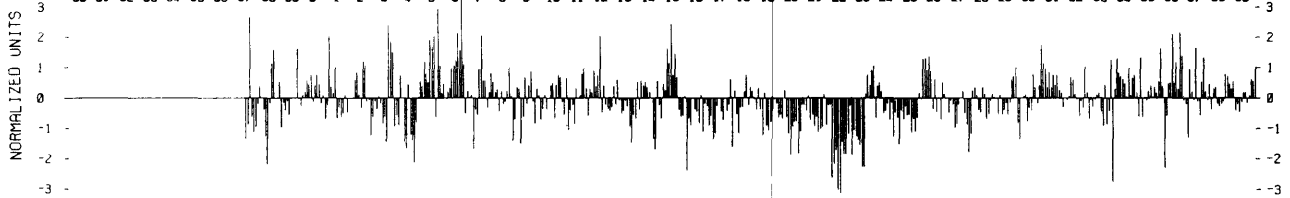


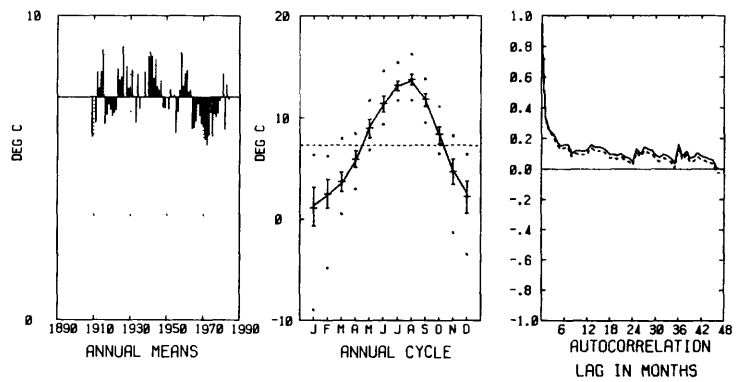
Figure 19. Graphs of standardized monthly anomaly and selected statistics for air temperature at Masset, CAN, 1897-1968.

AIR TEMP PRINCE RUPERT BC CANADA

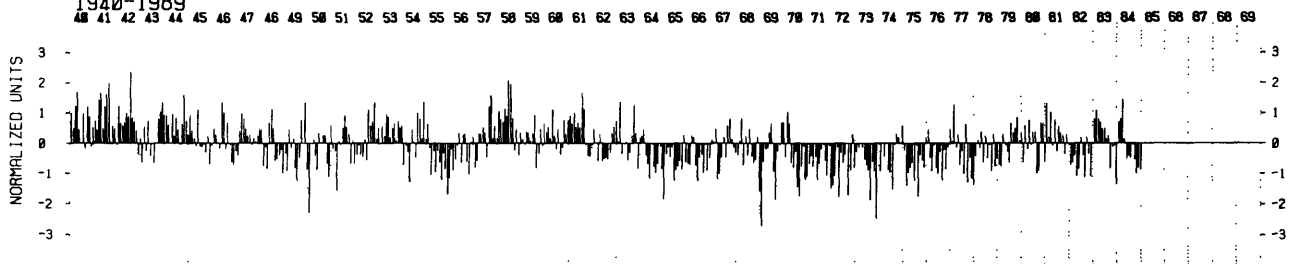
UNITS ARE DEG C

1908-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

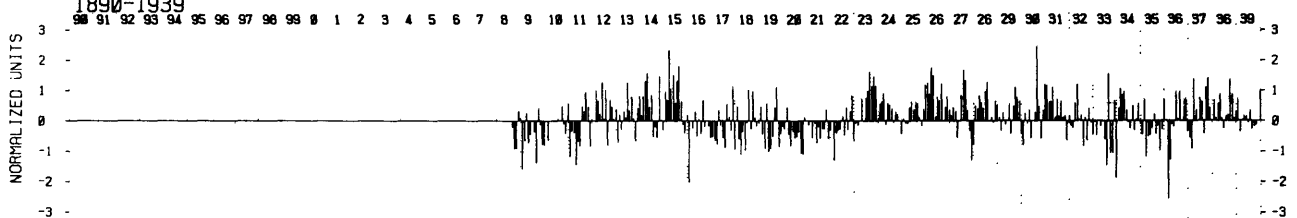


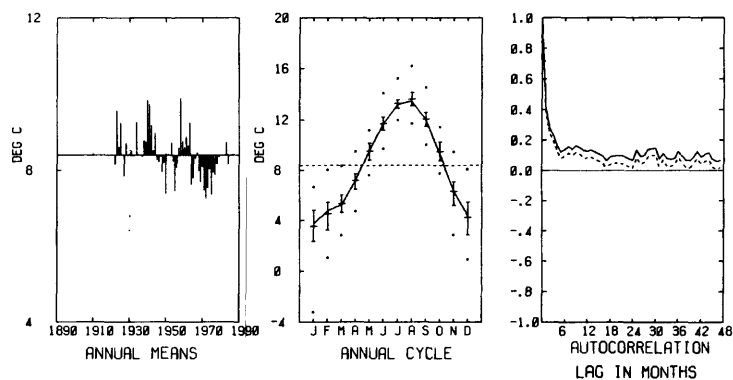
Figure 20. Graphs of standardized monthly anomaly and selected statistics for air temperature at Prince Rupert, CAN, 1908-1984.

AIR TEMP BULL HARBOUR BC CANADA

UNITS ARE DEG C

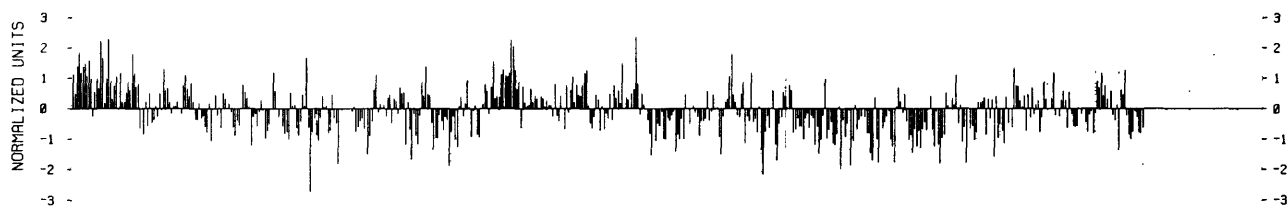
1921-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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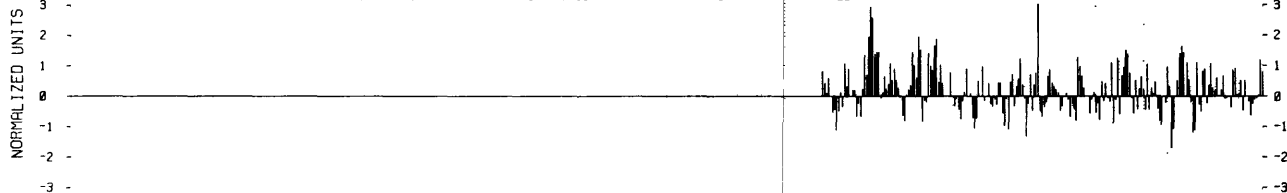


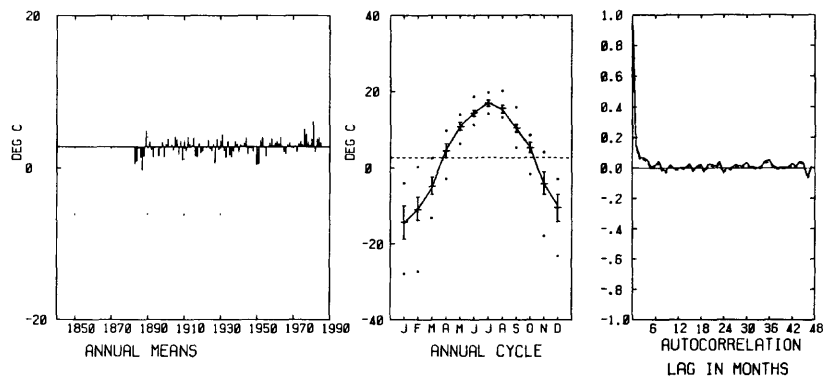
Figure 21. Graphs of standardized monthly anomaly and selected statistics for air temperature at Bull Harbour, CAN, 1921-1984.

AIR TEMP EDMONTON CANADA

UNITS ARE DEG C

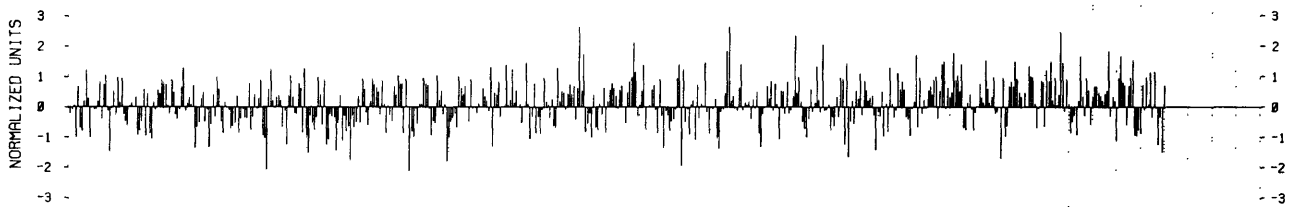
1883-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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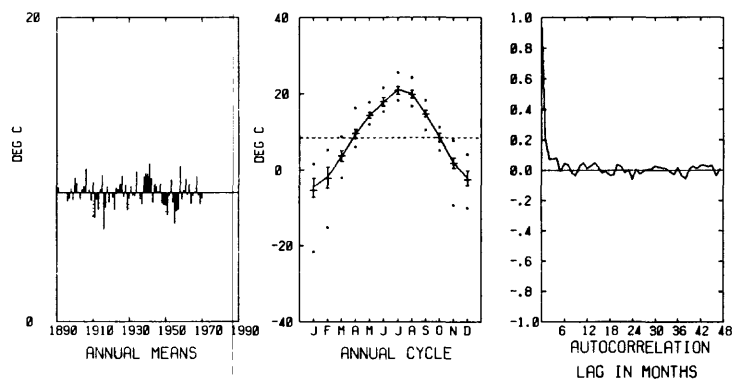
Figure 22. Graphs of standardized monthly anomaly and selected statistics for air temperature at Edmonton, CAN, 1883-1985.

AIR TEMP KAMLOOPS (BC) CANADA

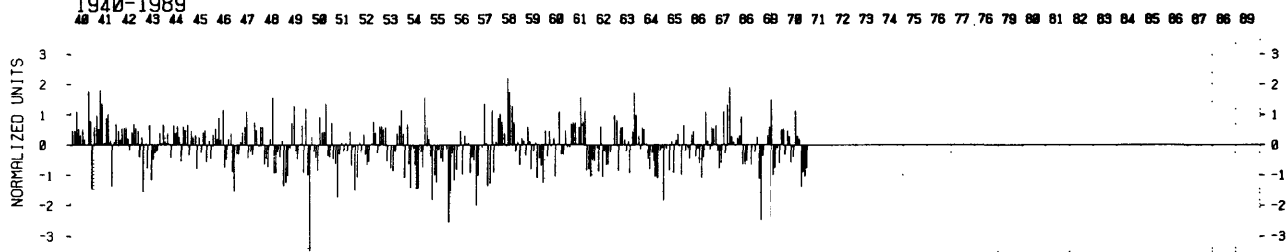
UNITS ARE DEG C

1891-1970

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

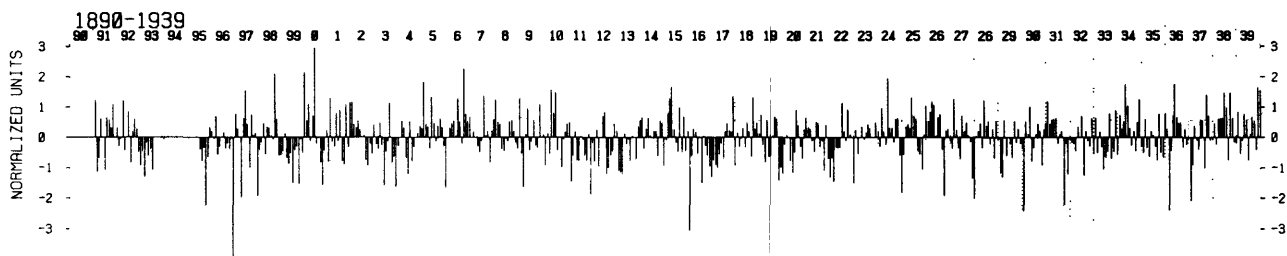


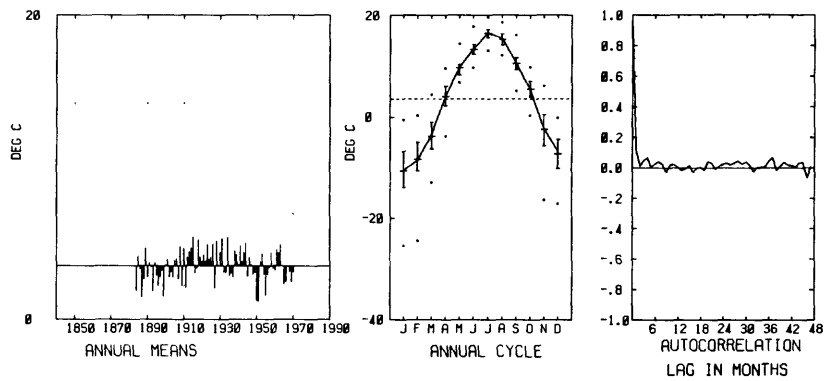
Figure 23. Graphs of standardized monthly anomaly and selected statistics for air temperature at Kamloops, CAN, 1891-1970.

AIR TEMP CALGARY (ALTA) CANADA

UNITS ARE DEG C

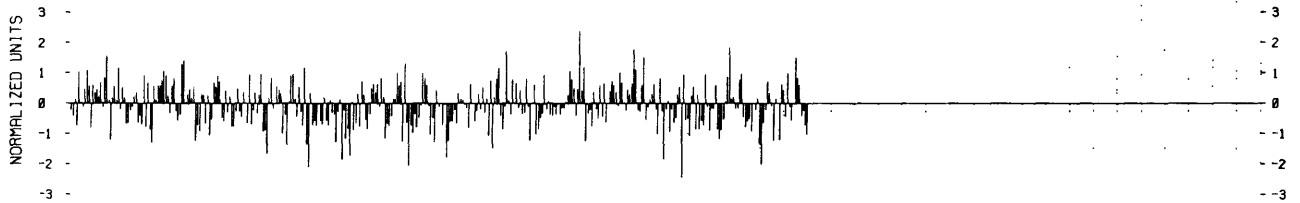
1884-1970

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



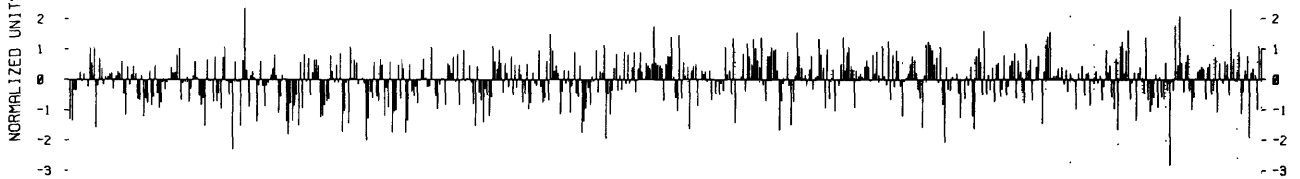
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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1840-1889

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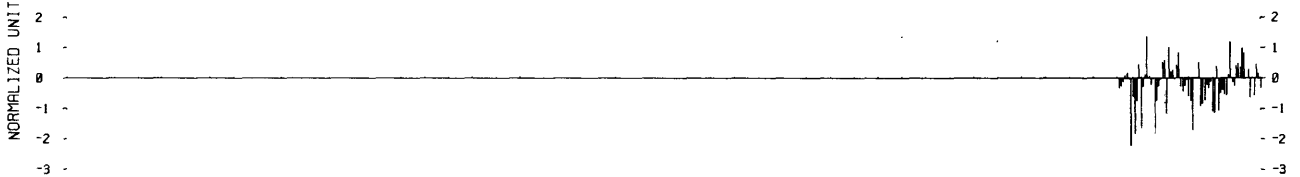


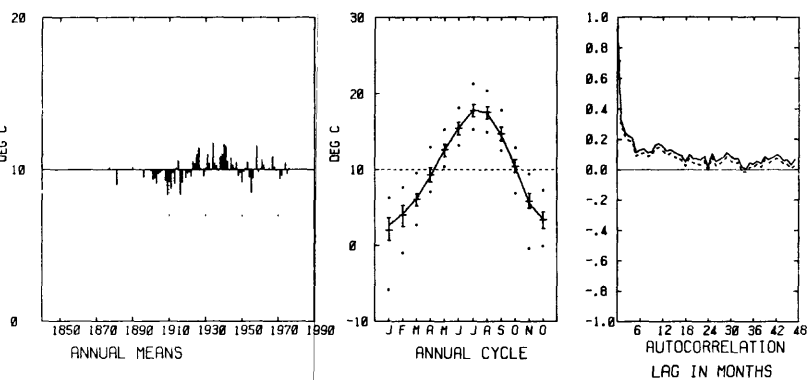
Figure 24. Graphs of standardized monthly anomaly and selected statistics for air temperature at Calgary, CAN, 1884-1970.

AIR TEMP NEW WESTMINSTER BC CANADA

UNITS ARE DEG C

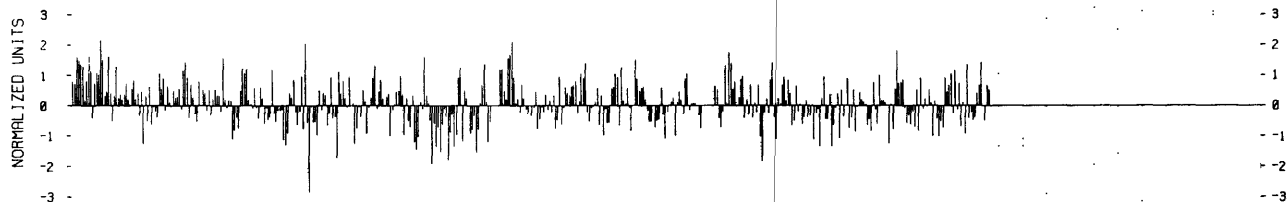
1874-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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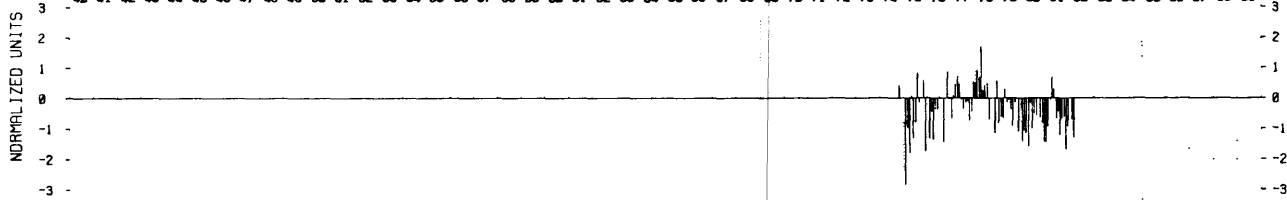


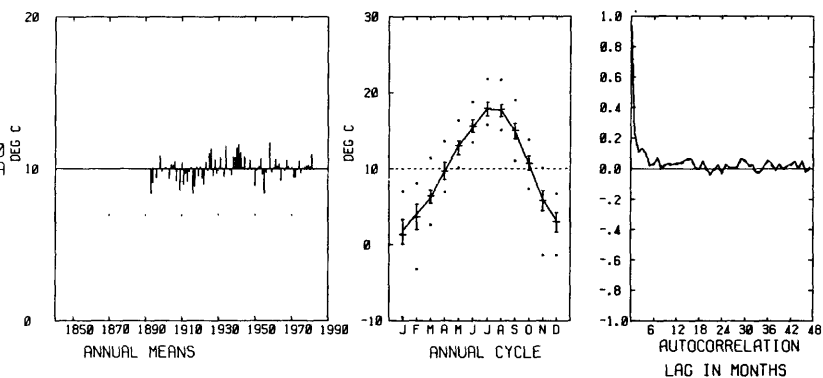
Figure 25. Graphs of standardized monthly anomaly and selected statistics for air temperature at New Westminster, CAN, 1874-1978.

AIR TEMP AGASSIZ BC CANADA

UNITS ARE DEG C

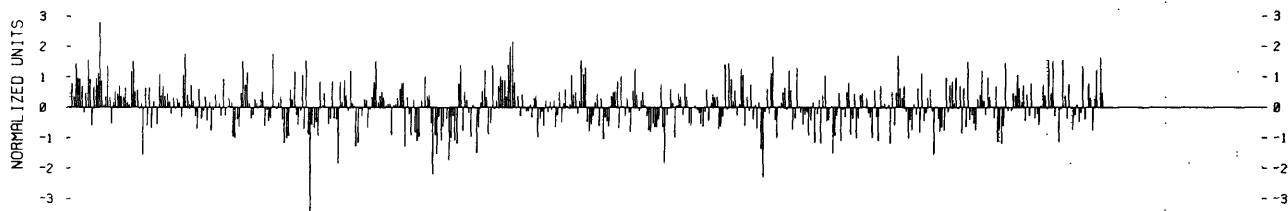
1889-1983

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



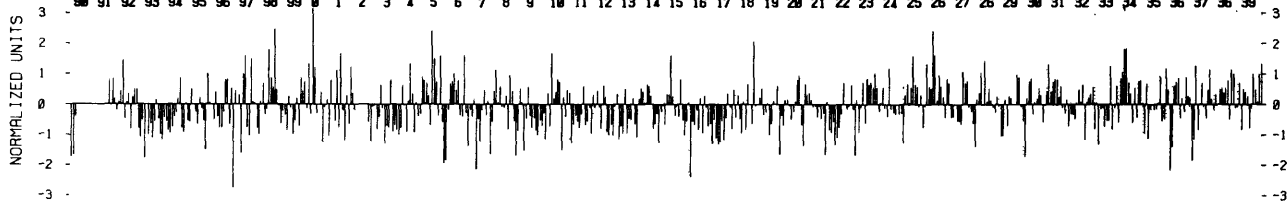
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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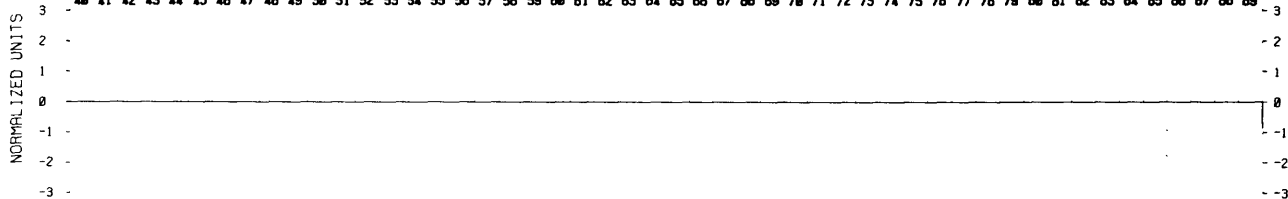


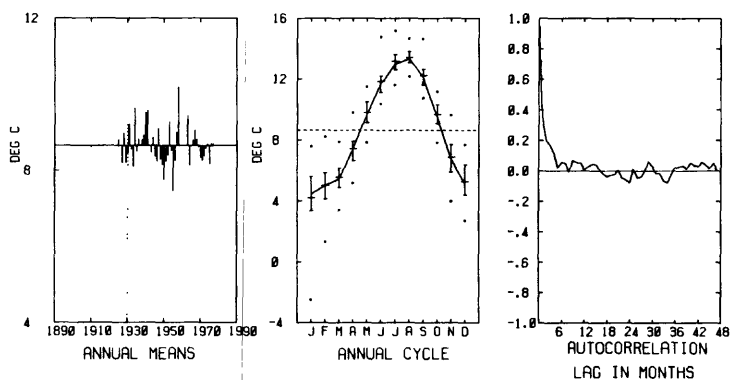
Figure 26. Graphs of standardized monthly anomaly and selected statistics for air temperature at Agassiz, CAN, 1889-1983.

AIR TEMP PACHENA POINT BC CANADA

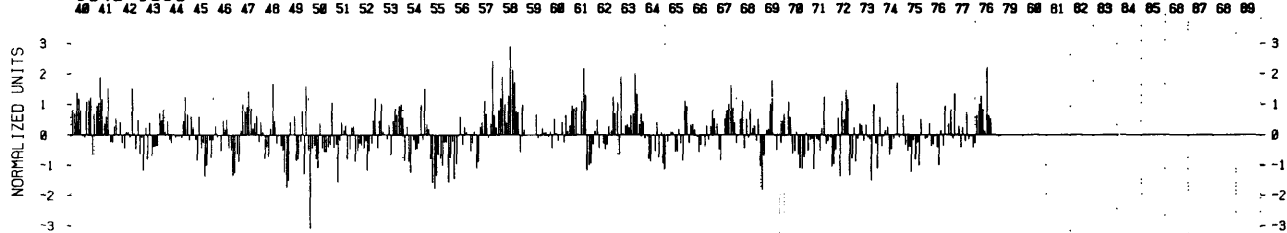
UNITS ARE DEG C

1924-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

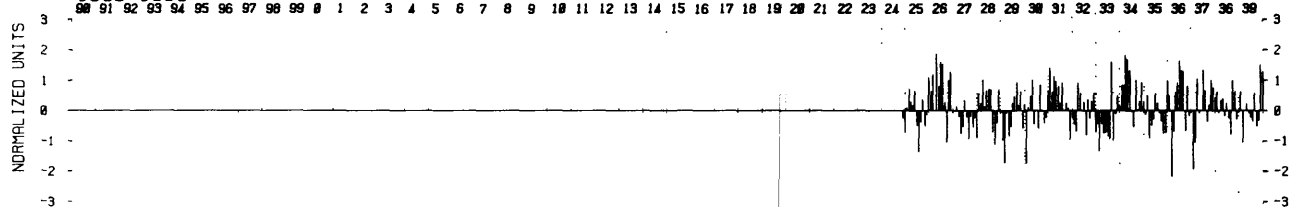


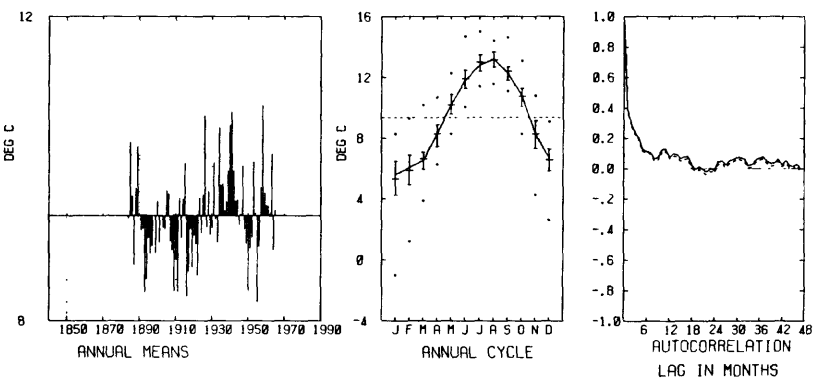
Figure 27. Graphs of standardized monthly anomaly and selected statistics for air temperature at Pachena Point, CAN, 1924-1978.

AIR TEMP TATOOSH ISLAND WASHINGTON

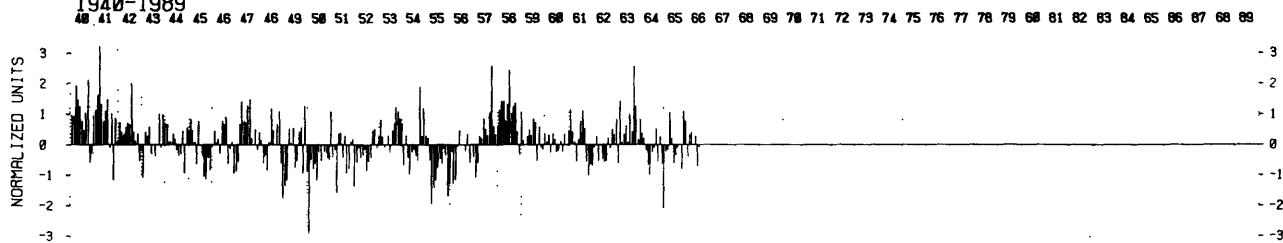
UNITS ARE DEG C

1883-1966

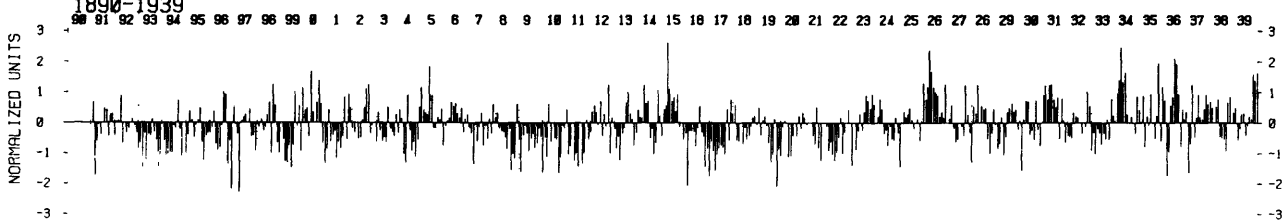
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939



1840-1889

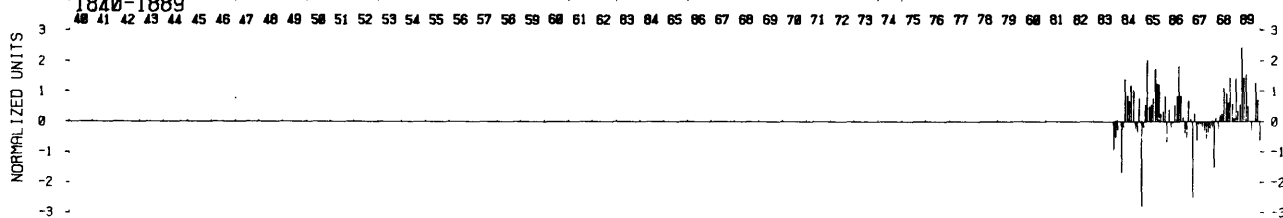


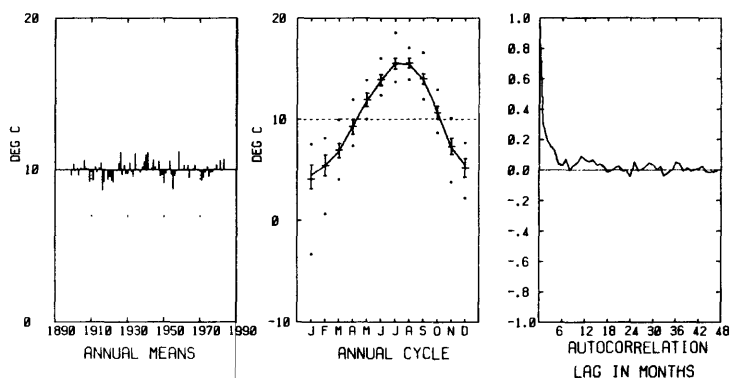
Figure 28. Graphs of standardized monthly anomaly and selected statistics for air temperature at Tatoosh Island, WA, 1883-1966.

AIR TEMP GONZALES VICTORIA BC CANADA

UNITS ARE DEG C

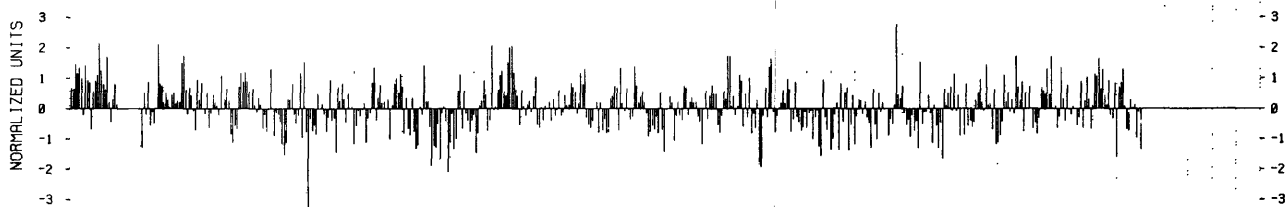
1898-1904

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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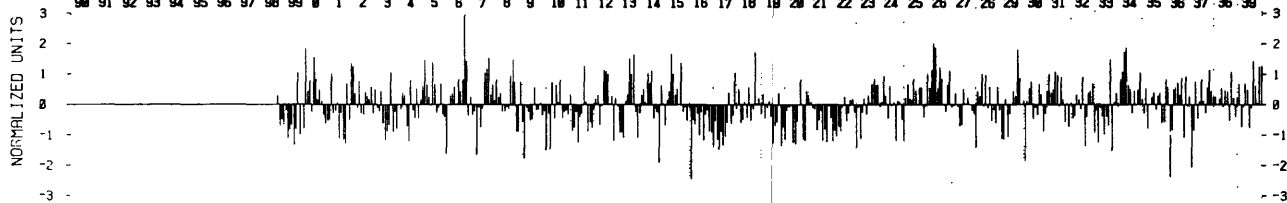


Figure 29. Graphs of standardized monthly anomaly and selected statistics for air temperature at Gonzales, CAN, 1898-1984.

AIR TEMP OLGA WASHINGTON

UNITS ARE DEG C

1892-1983

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

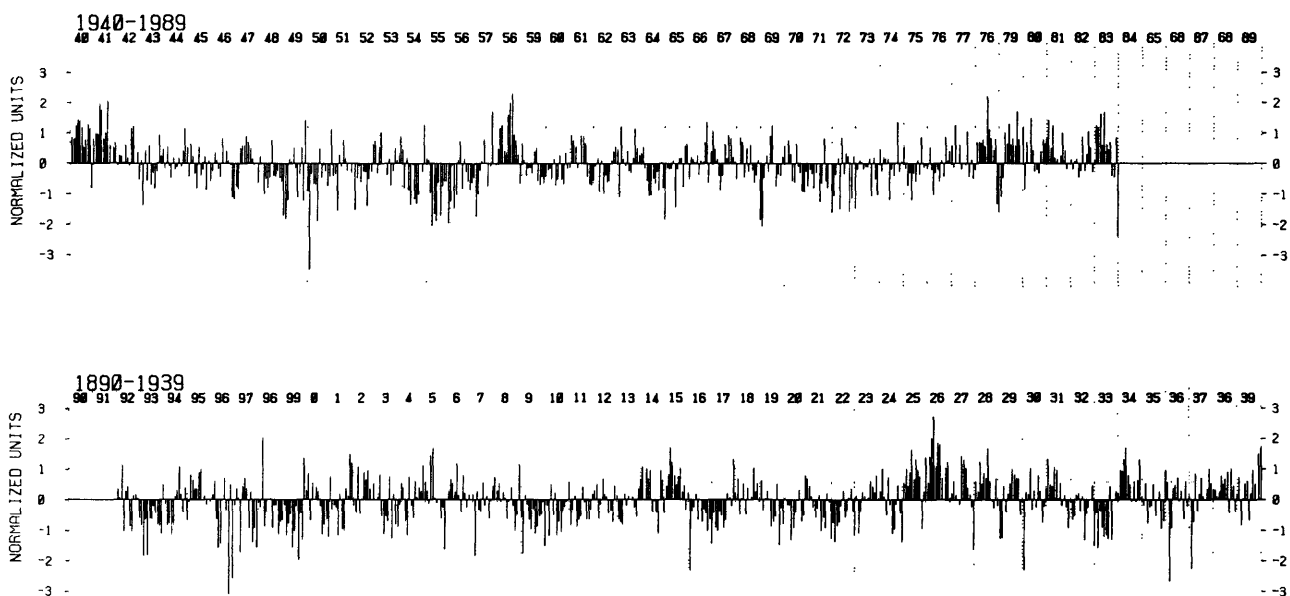
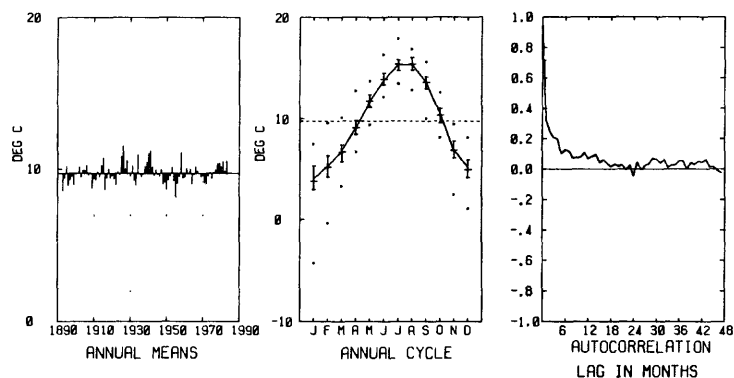


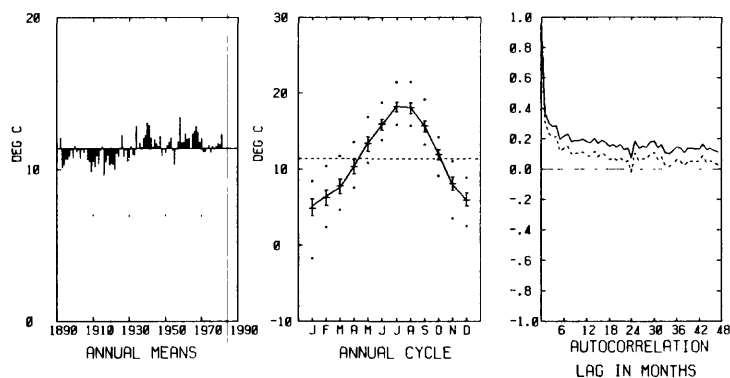
Figure 30. Graphs of standardized monthly anomaly and selected statistics for air temperature at Olga, WA, 1892-1983.

AIR TEMP SEATTLE WASHINGTON

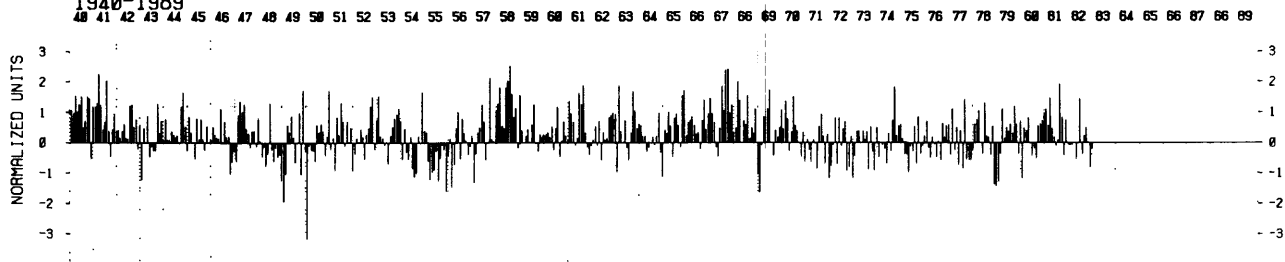
UNITS ARE DEG C

1892-1982

UPDATED DATA USING NOAA LCD 1963-1982
GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989



1890-1939

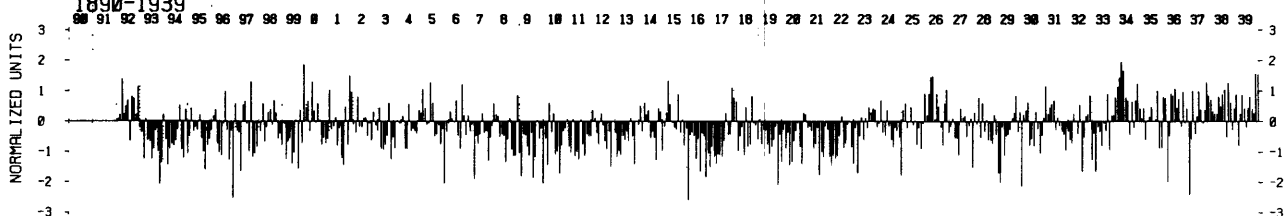


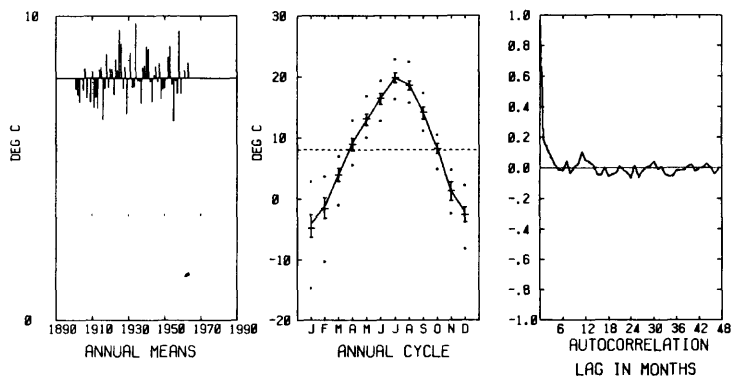
Figure 31. Graphs of standardized monthly anomaly and selected statistics for air temperature at Seattle, WA, 1892-1982.

AIR TEMP COLVILLE WASHINGTON

UNITS ARE DEG C

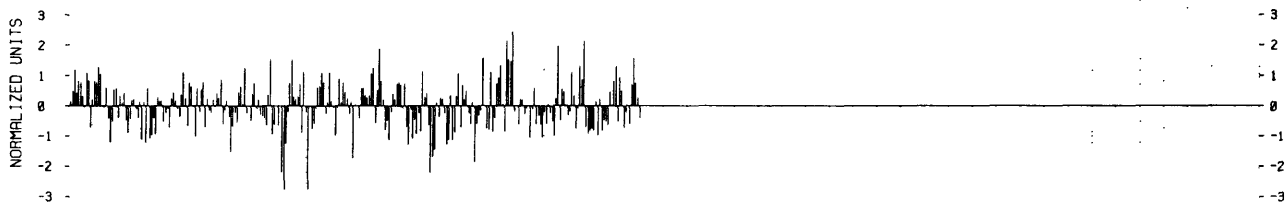
1900-1963

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

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1890-1939

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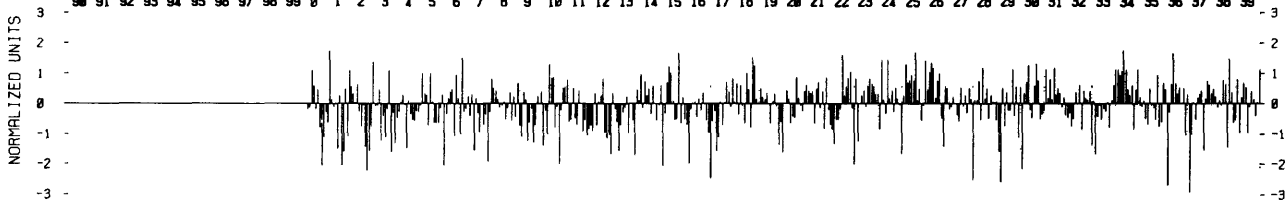


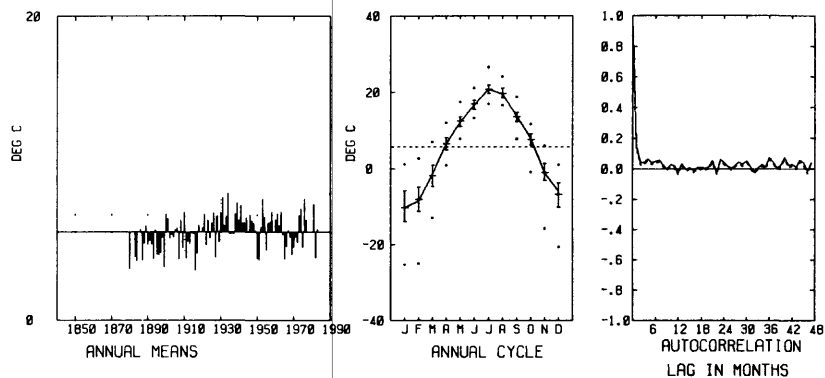
Figure 32. Graphs of standardized monthly anomaly and selected statistics for air temperature at Colville, WA, 1900-1963.

AIR TEMP HAVRE/CTY CNTY MONTANA

UNITS ARE DEG C

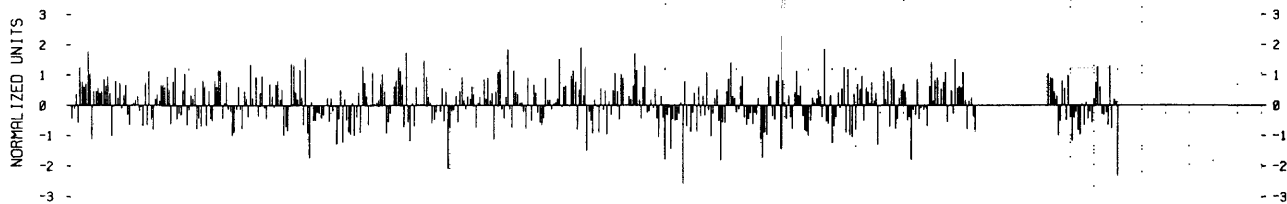
1880-1983

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



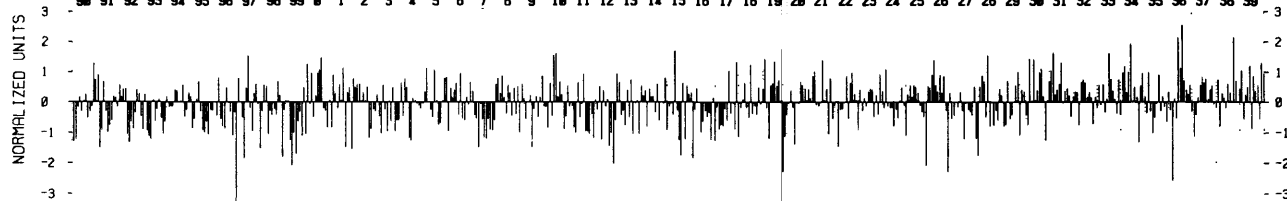
1940-1989

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1890-1939

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1840-1889

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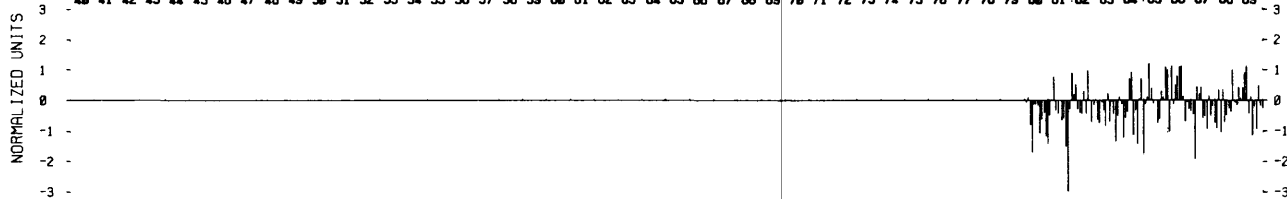


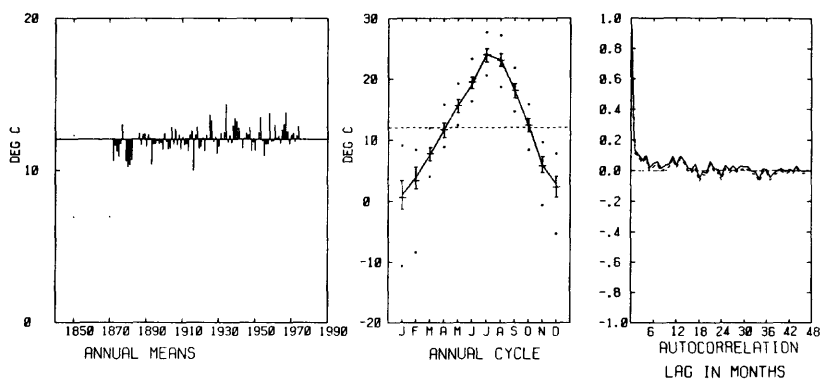
Figure 33. Graphs of standardized monthly anomaly and selected statistics for air temperature at Havre City, MT, 1880-1983.

AIR TEMP WALLA WALLA WASHINGTON

UNITS ARE DEG C

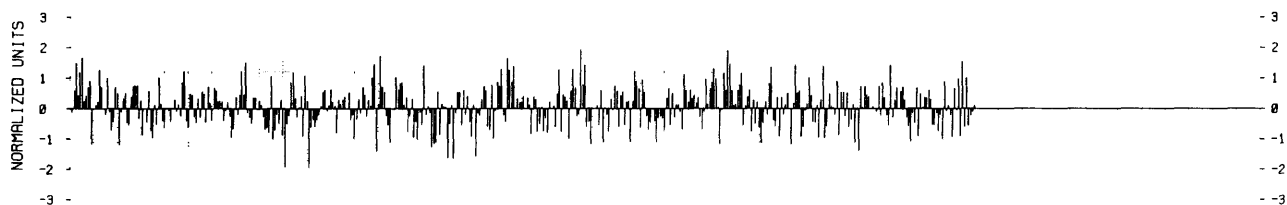
1872-1977

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



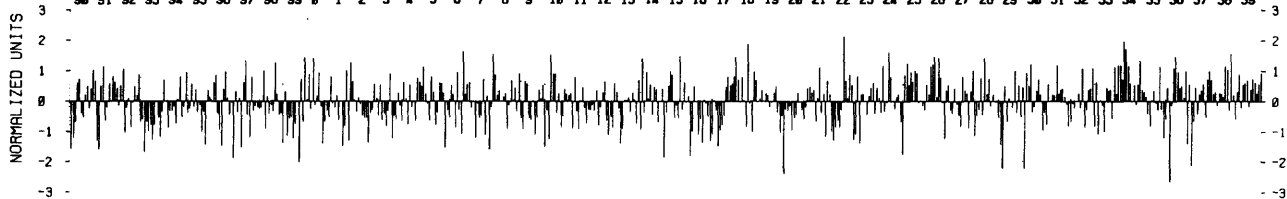
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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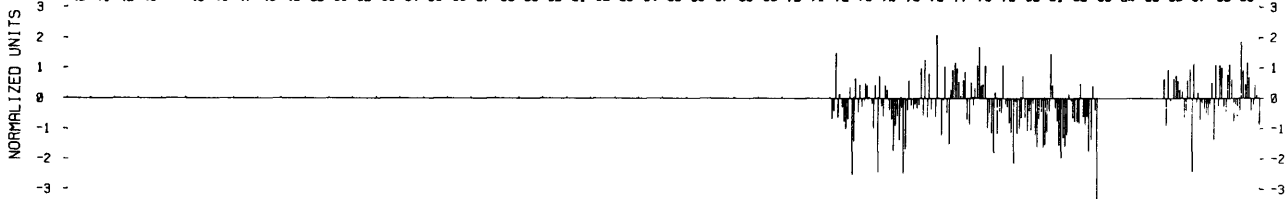


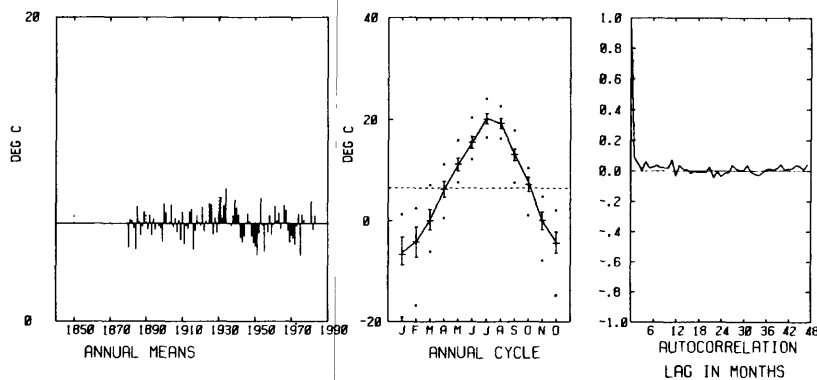
Figure 34. Graphs of standardized monthly anomaly and selected statistics for air temperature at Walla Walla, WA, 1872-1977.

AIR TEMP HELENA MONTANA

UNITS ARE DEG C

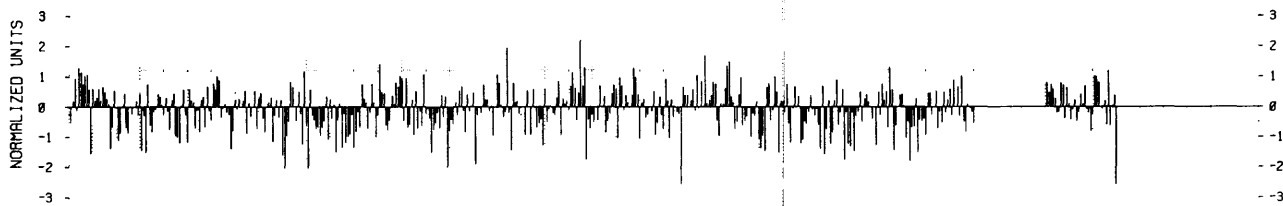
1880-1983

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



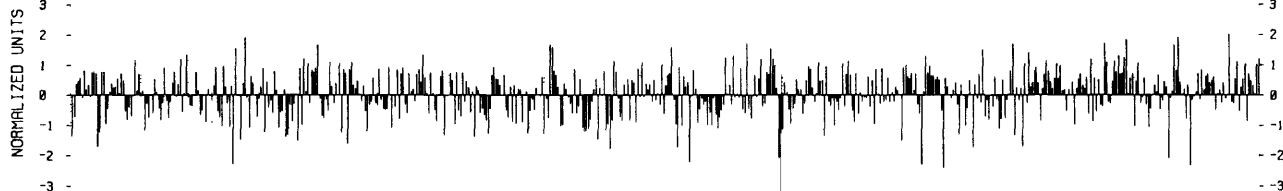
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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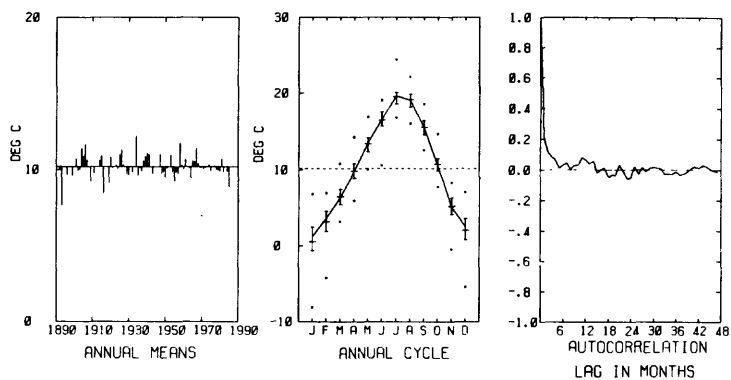
Figure 35. Graphs of standardized monthly anomaly and selected statistics for air temperature at Helena, MT, 1880-1983.

AIR TEMP HOOD RIVER EXPERIMENTAL STATION OREGON

UNITS ARE DEG C

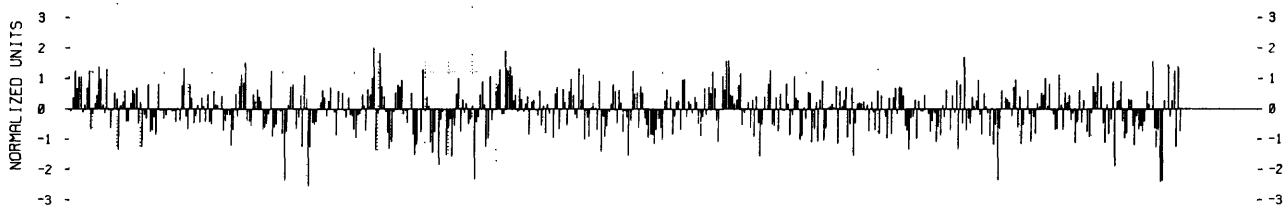
1891-1986

KELLY REDMOND, OREGON ST UNIV, ATMOS-
PHERIC SCIENCES, CORVALLIS, OR 97331



1940-1989

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1890-1939

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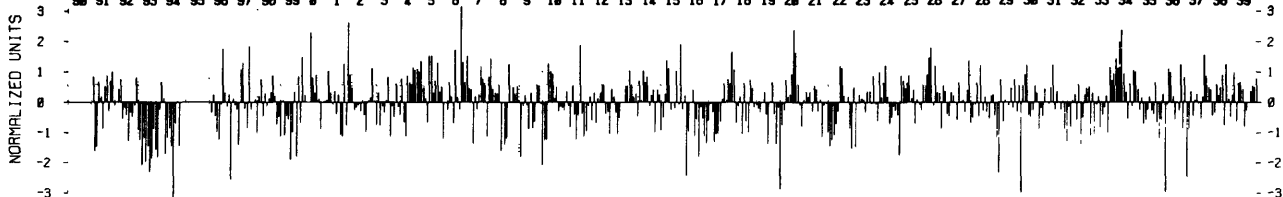


Figure 36. Graphs of standardized monthly anomaly and selected statistics for air temperature at Hood River Experiment Station, OR, 1891-1986.

AIR TEMP NEWPORT OREGON

UNITS ARE DEG C

1891-1986

KELLY REDMOND, OREGON ST UNIV, ATMOSPHERIC SCIENCES, CORVALLIS, OR 97331

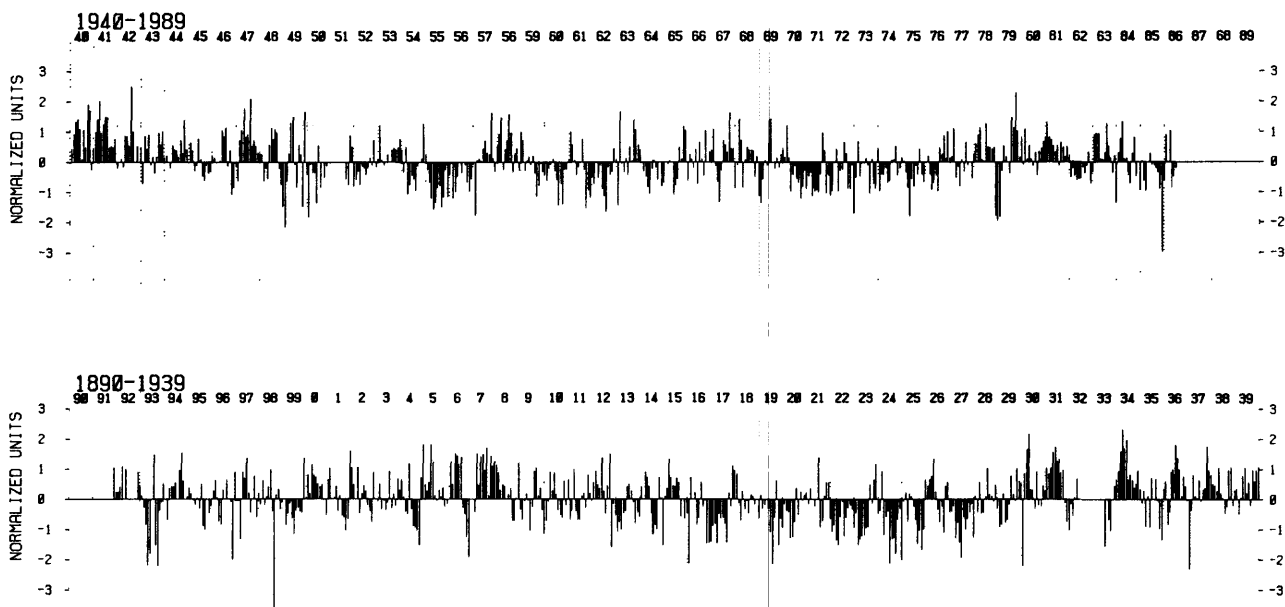
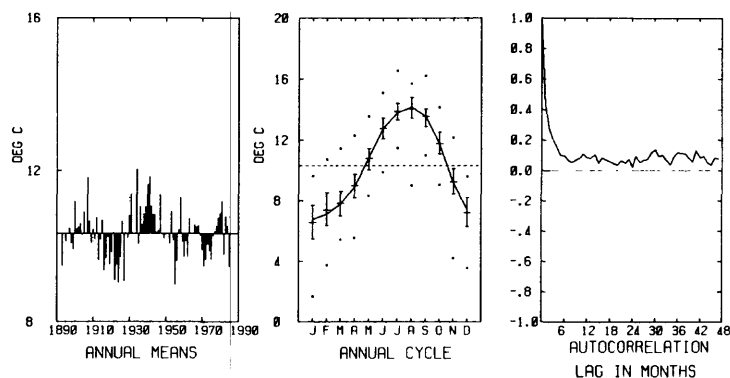


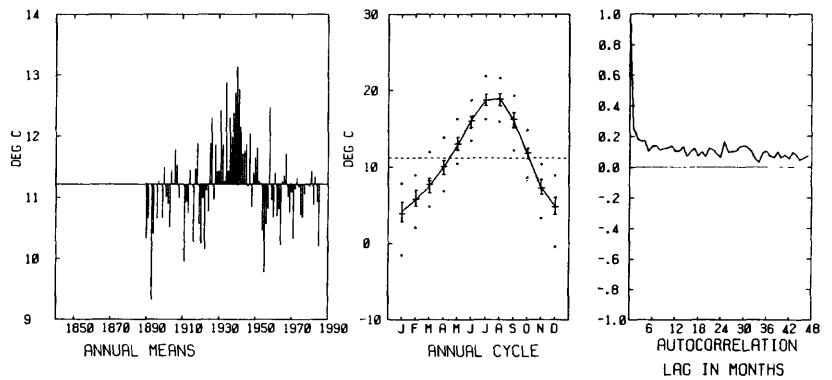
Figure 37. Graphs of standardized monthly anomaly and selected statistics for air temperature at Newport, OR, 1891-1986.

AIR TEMP CORVALLIS OREGON

UNITS ARE DEG C

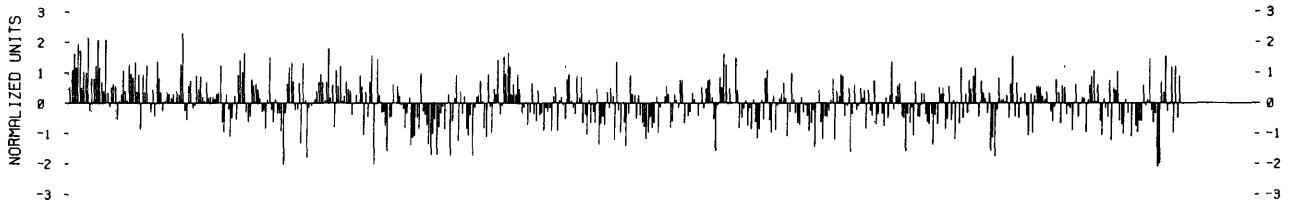
1890-1986

KELLY REDMOND, OREGON ST UNIV, ATMOSPHERIC SCIENCES, CORVALLIS, OR 97331



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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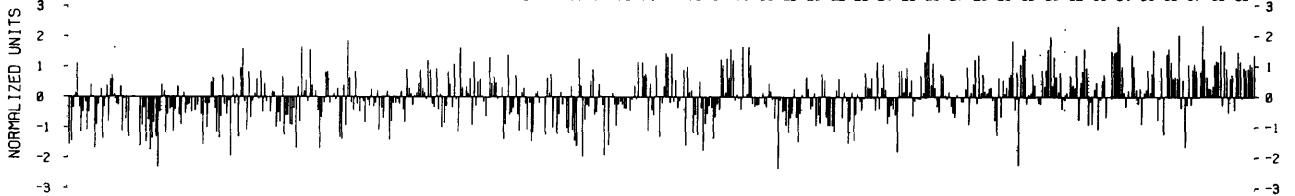


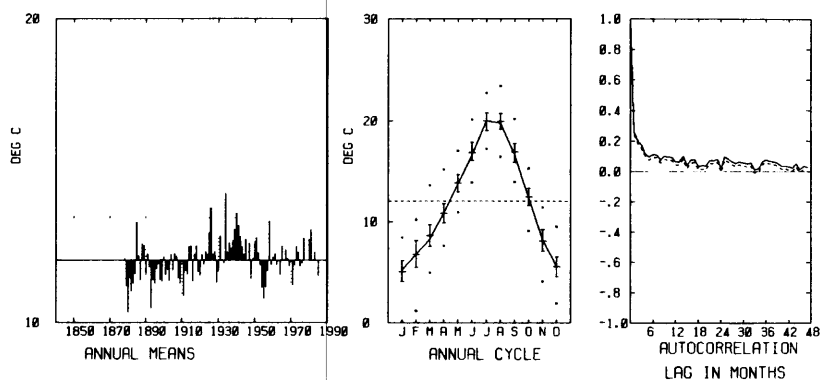
Figure 38. Graphs of standardized monthly anomaly and selected statistics for air temperature at Corvallis, OR, 1890-1986.

AIR TEMP ROSEBURG OREGON

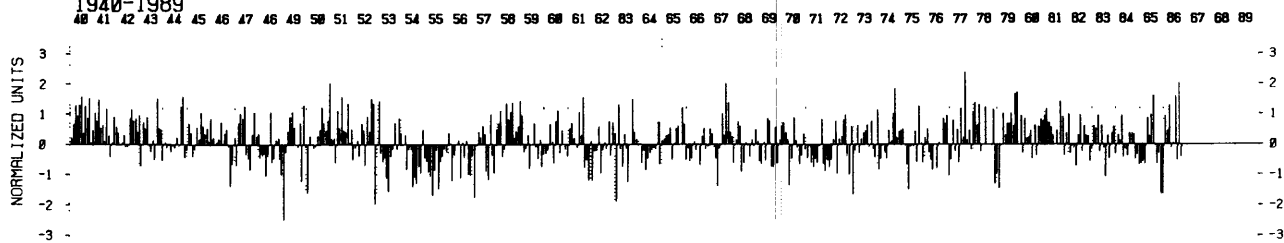
UNITS ARE DEG C

1877-1986

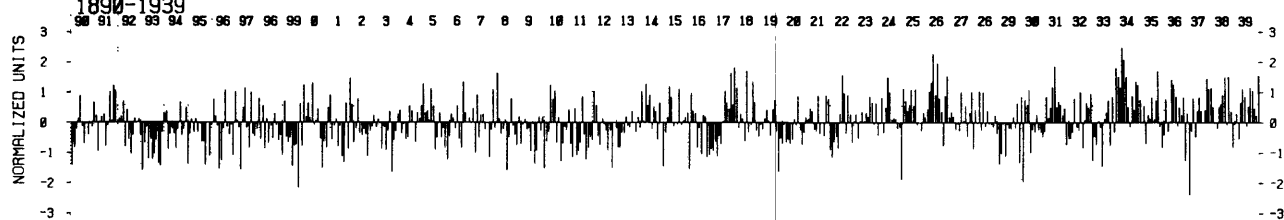
KELLY REDMOND, OREGON ST UNIV. ATMOSPHERIC SCIENCES, CORVALLIS, OR 97331



1940-1989



1890-1939



1840-1889

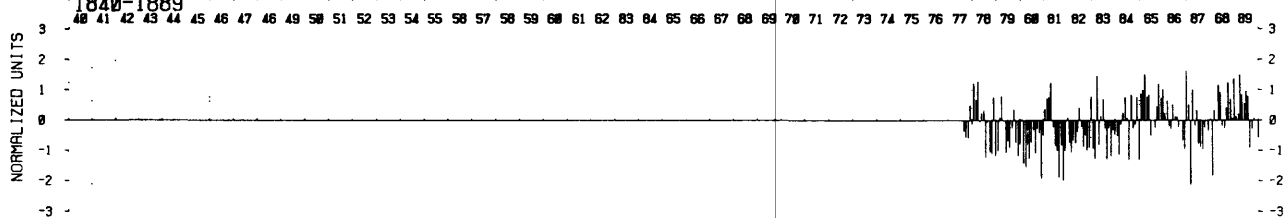


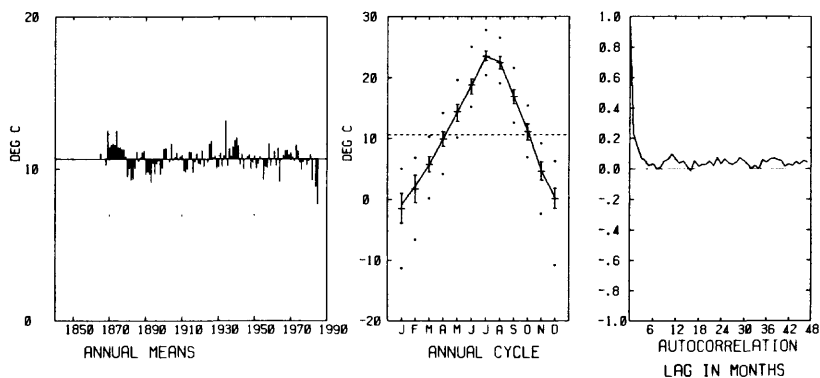
Figure 39. Graphs of standardized monthly anomaly and selected statistics for air temperature at Roseburg, OR, 1877-1986.

AIR TEMP BOISE IDAHO

UNITS ARE DEG C

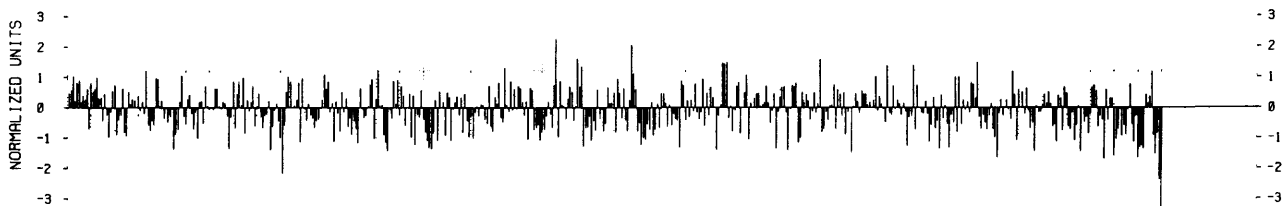
1864-1985

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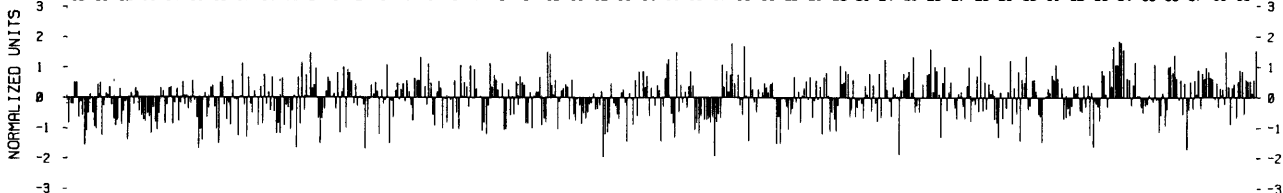
1940-1989

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1890-1939

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1840-1889

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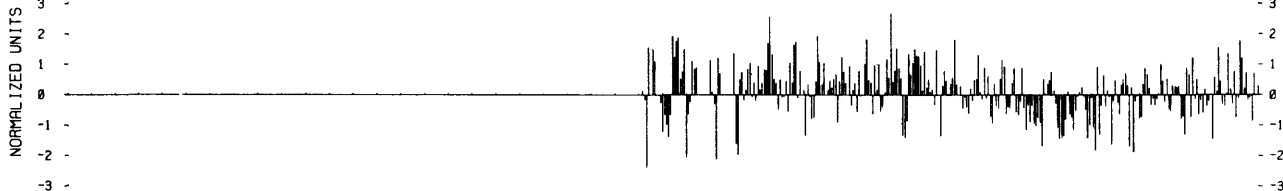


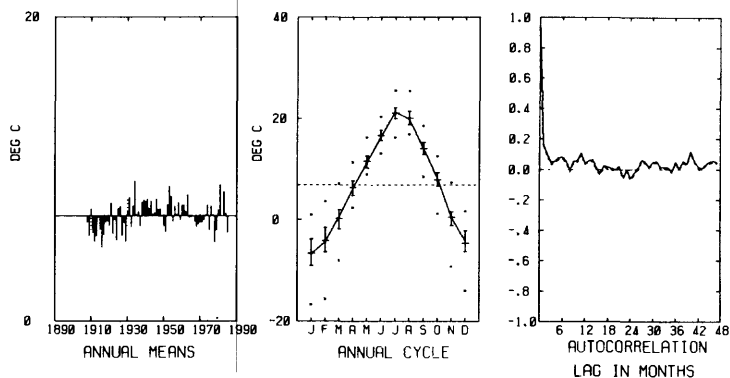
Figure 40. Graphs of standardized monthly anomaly and selected statistics for air temperature at Boise, ID, 1864-1985.

AIR TEMP SHERIDAN WYOMING

UNITS ARE DEG C

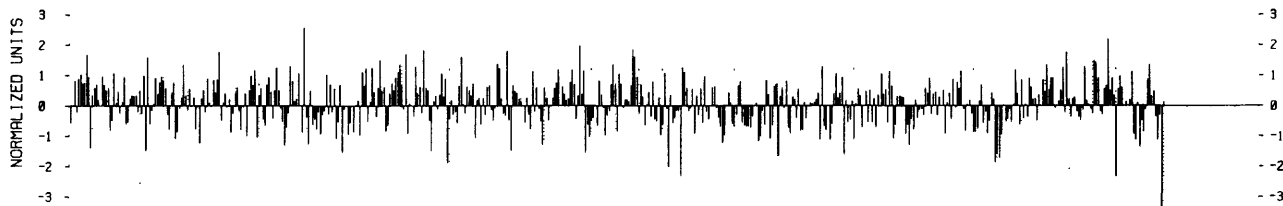
1908-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989

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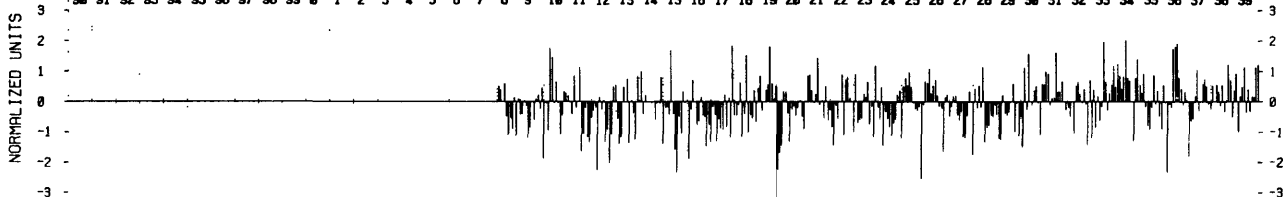


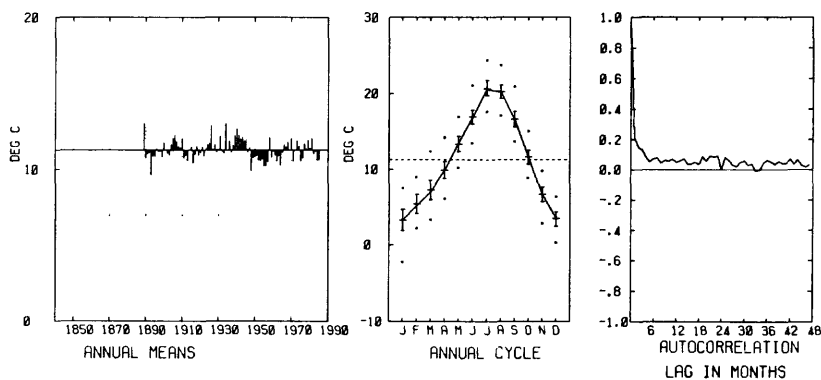
Figure 41. Graphs of standardized monthly anomaly and selected statistics for air temperature at Sheridan, WY, 1908-1985.

AIR TEMP ASHLAND OREGON

UNITS ARE DEG C

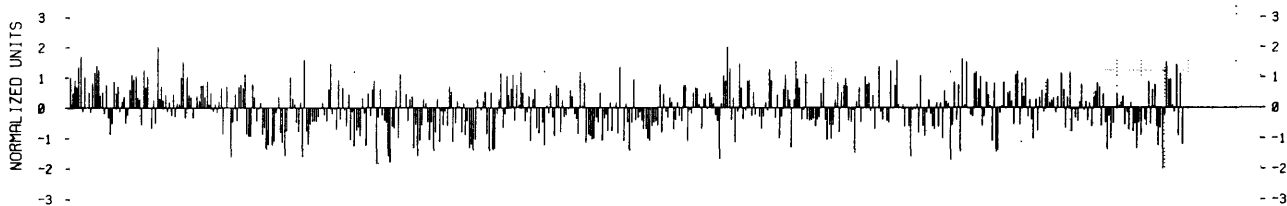
1889-1986

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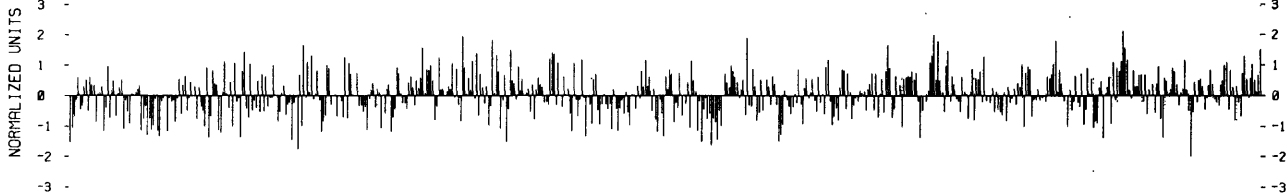
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



Figure 42. Graphs of standardized monthly anomaly and selected statistics for air temperature at Ashland, OR, 1889-1986.

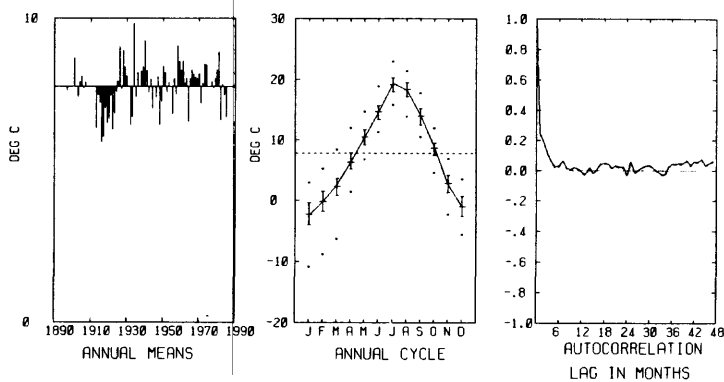
AIR TEMP LAKEVIEW OREGON

UNITS ARE DEG C

1896-1986

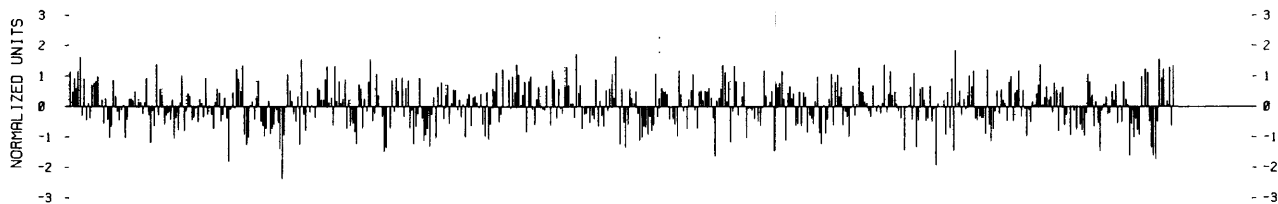
COOPERATIVE OBSERVING STATION
LAKEVIEW 2 NNN

KELLY REDMOND, OREGON ST UNIV. ATMOS-
PHERIC SCIENCES, CORVALLIS, OR 97331



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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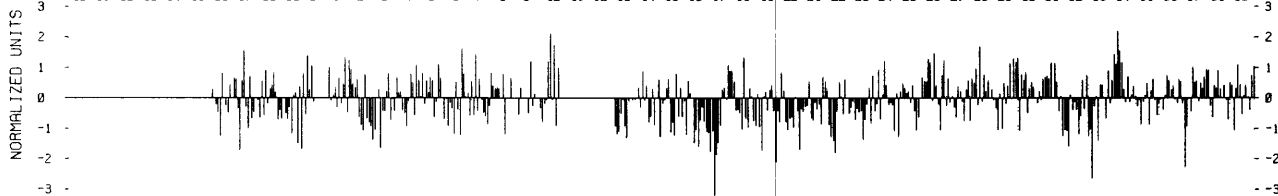


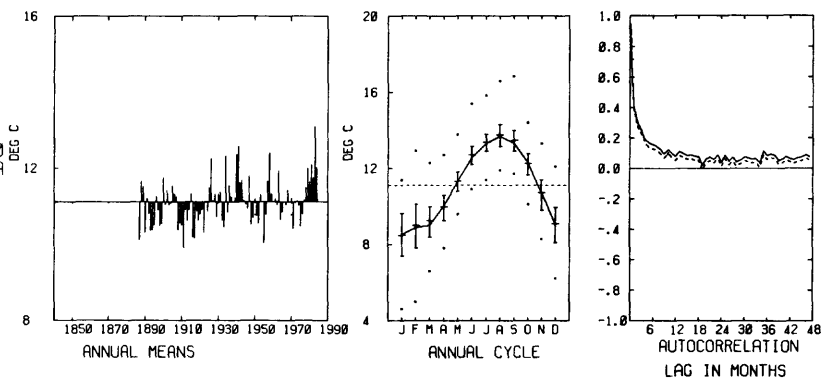
Figure 43. Graphs of standardized monthly anomaly and selected statistics for air temperature at Lakeview, OR, 1896-1986.

AIR TEMP EUREKA CALIFORNIA

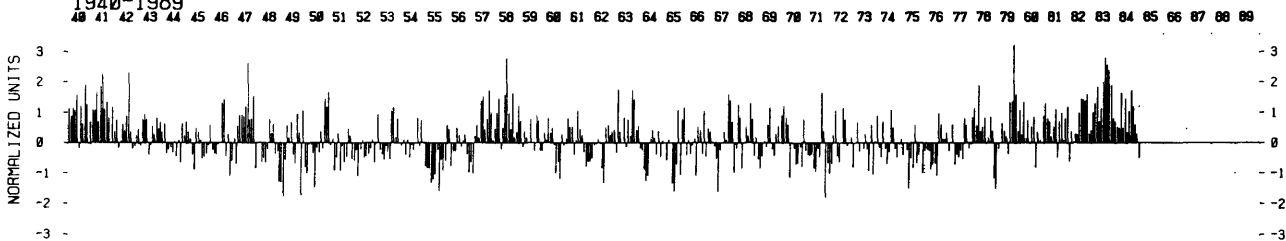
UNITS ARE DEG C

1886-1984

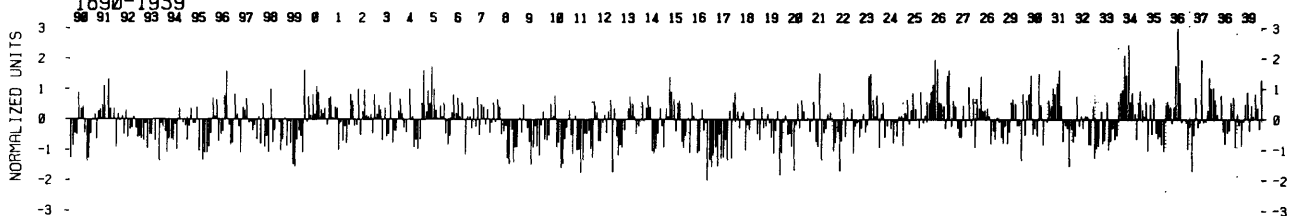
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939



1840-1889

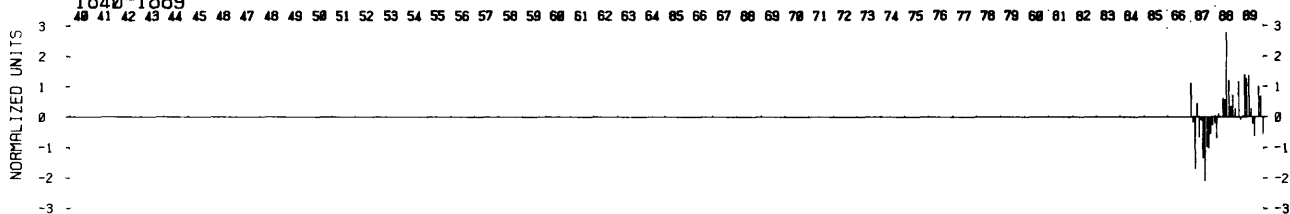


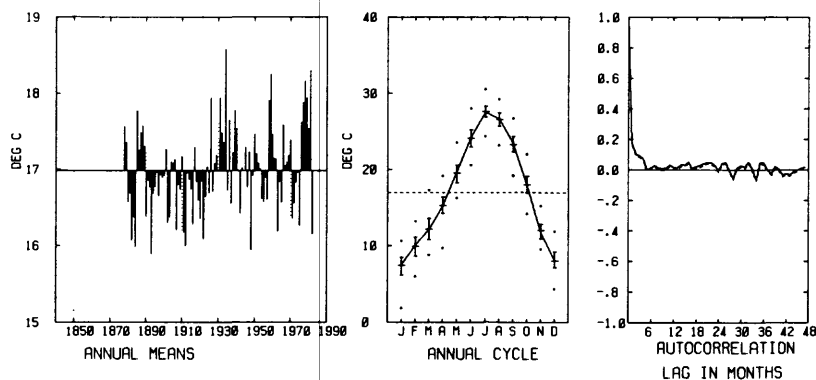
Figure 44. Graphs of standardized monthly anomaly and selected statistics for air temperature at Eureka, CA, 1886-1984.

AIR TEMP RED BLUFF CALIFORNIA

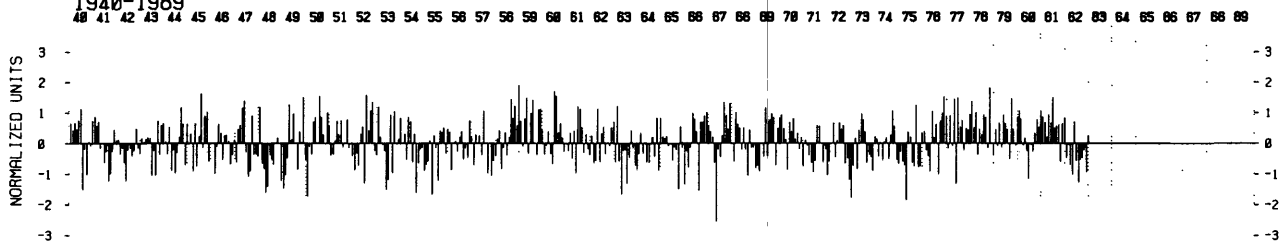
UNITS ARE DEG C

1878-1982

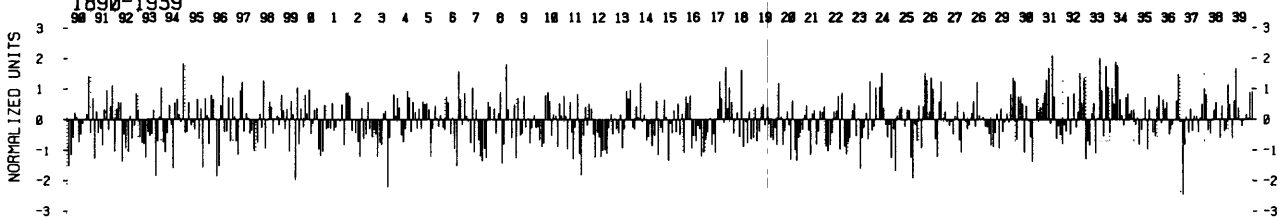
UPDATED DATA USING NOAA LCD 1963-1982
GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989



1890-1939



1840-1889

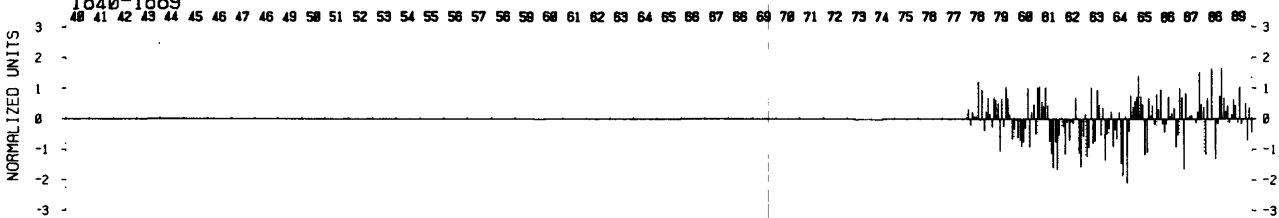


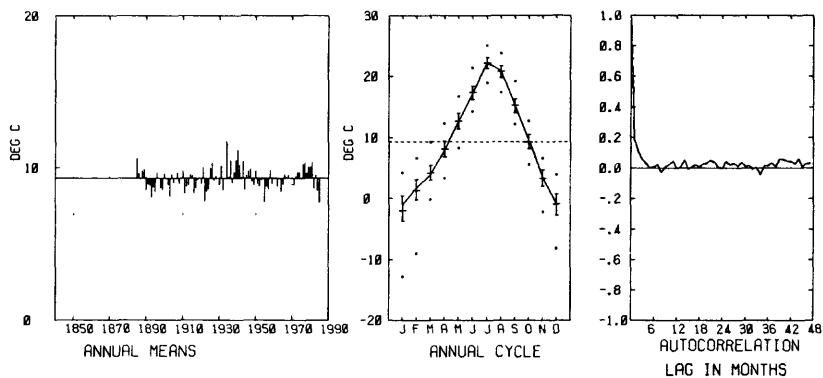
Figure 45. Graphs of standardized monthly anomaly and selected statistics for air temperature at Red Bluff, CA, 1878-1982.

AIR TEMP WINNEMUCCA NEVADA

UNITS ARE DEG C

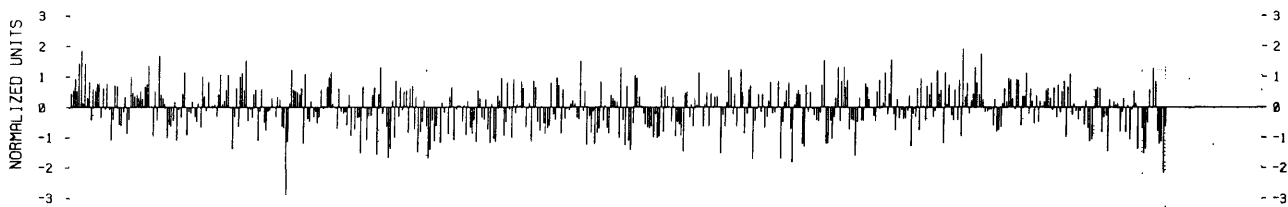
1885-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



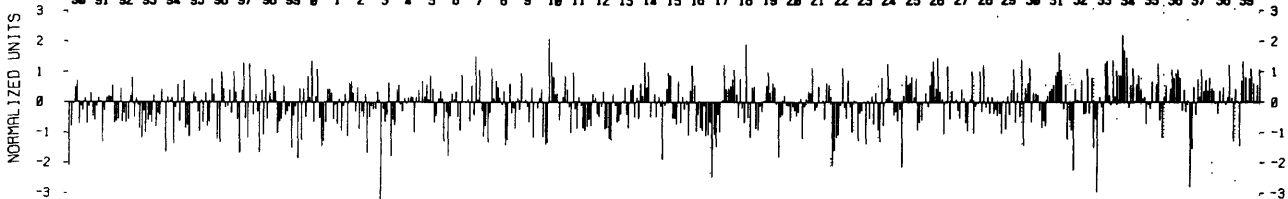
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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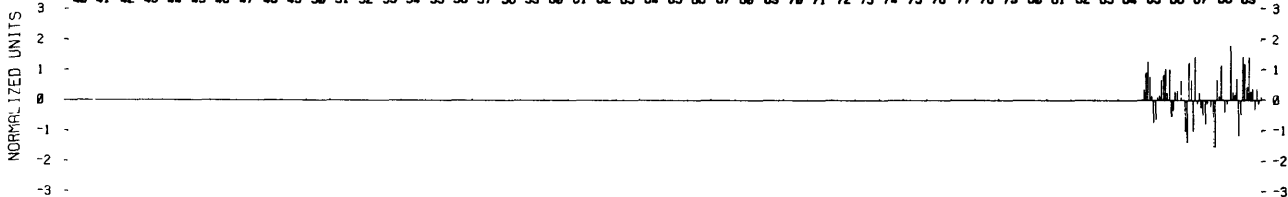


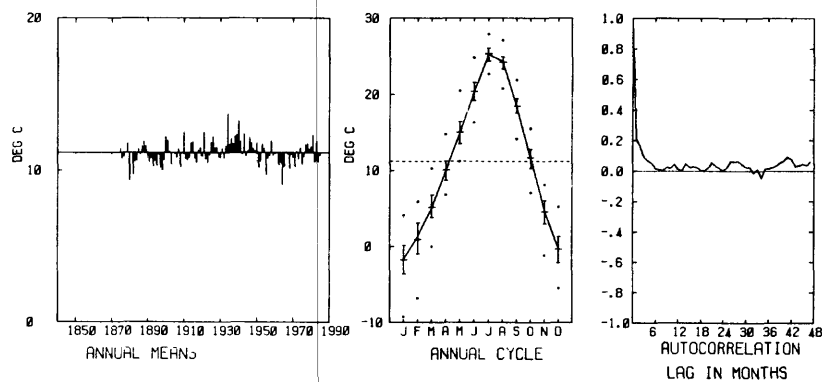
Figure 46. Graphs of standardized monthly anomaly and selected statistics for air temperature at Winnemucca, NV, 1885-1985.

AIR TEMP SALT LAKE CITY UTAH

UNITS ARE DEG C

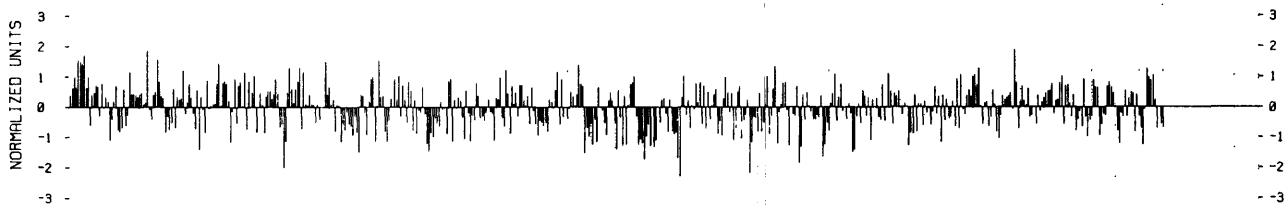
1875-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



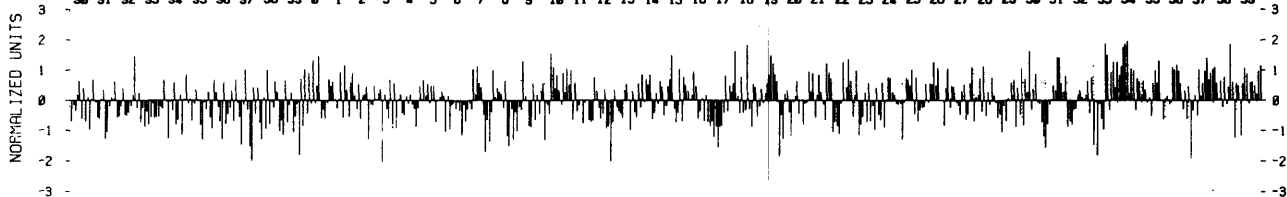
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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1840-1889

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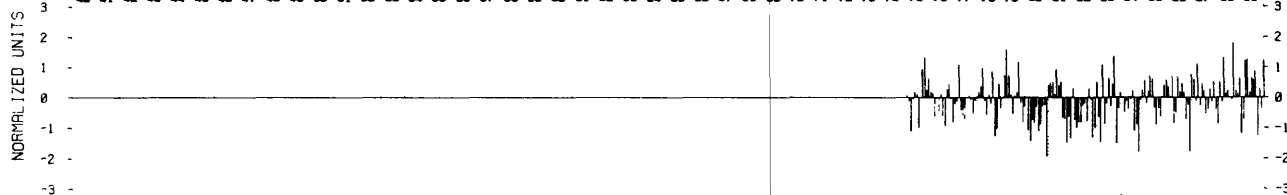


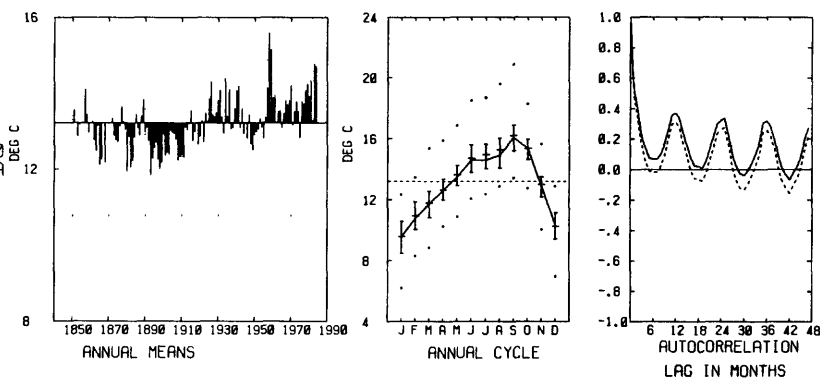
Figure 47. Graphs of standardized monthly anomaly and selected statistics for air temperature at Salt Lake City, UT, 1875-1985.

AIR TEMP SAN FRANCISCO CALIFORNIA

UNITS ARE DEG C

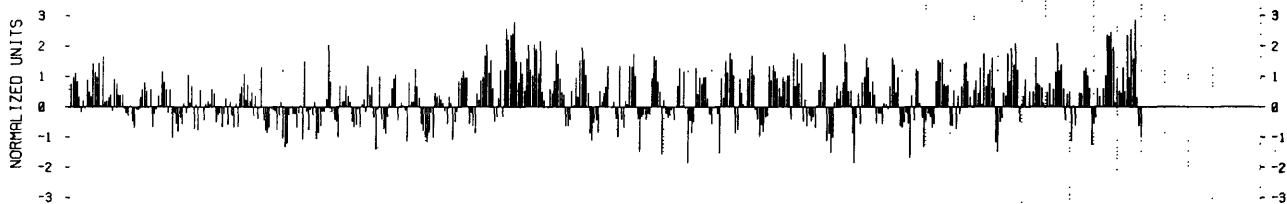
1847-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 60000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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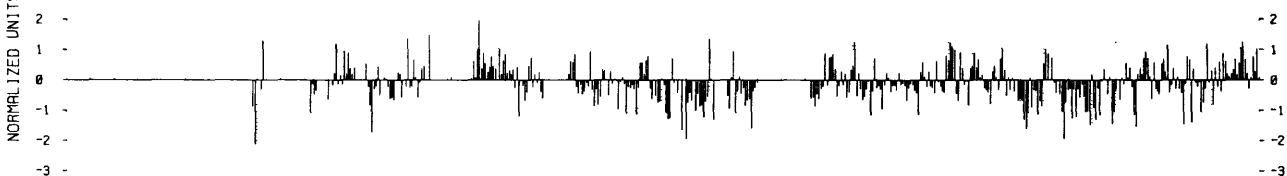


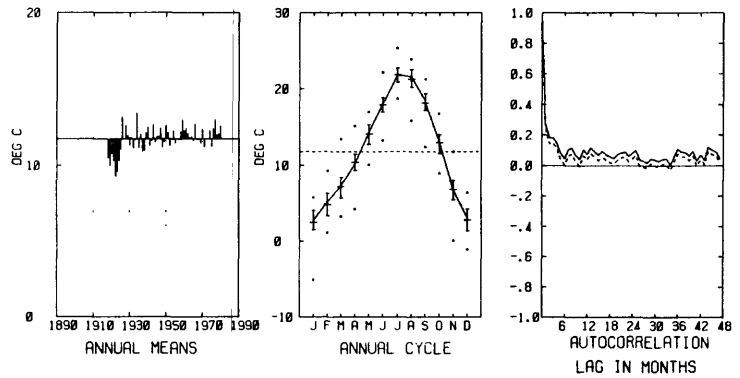
Figure 48. Graphs of standardized monthly anomaly and selected statistics for air temperature at San Francisco, CA, 1847-1984.

AIR TEMP YOSEMITE NATIONAL PARK CALIFORNIA

UNITS ARE DEG C

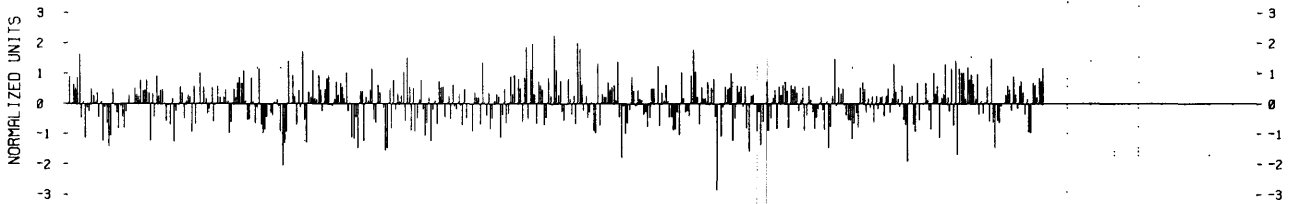
1918-1980

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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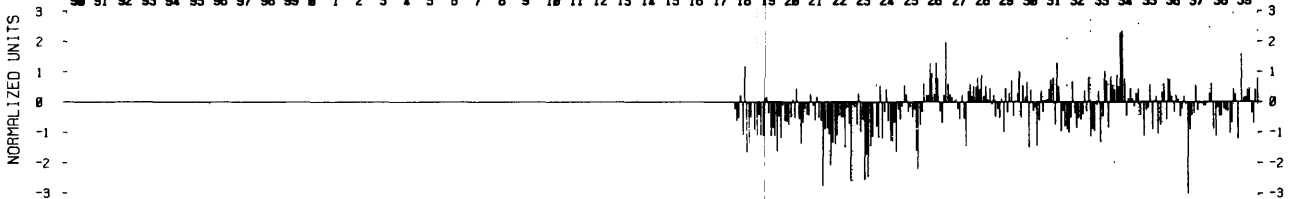


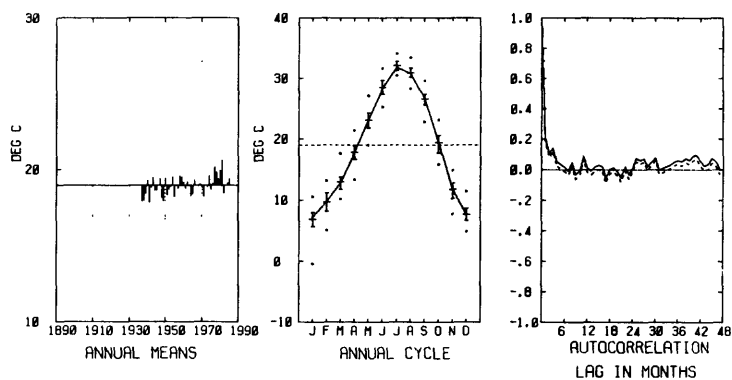
Figure 49. Graphs of standardized monthly anomaly and selected statistics for air temperature at Yosemite, CA, 1918-1980.

AIR TEMP LAS VEGAS NEVADA

UNITS ARE DEG C

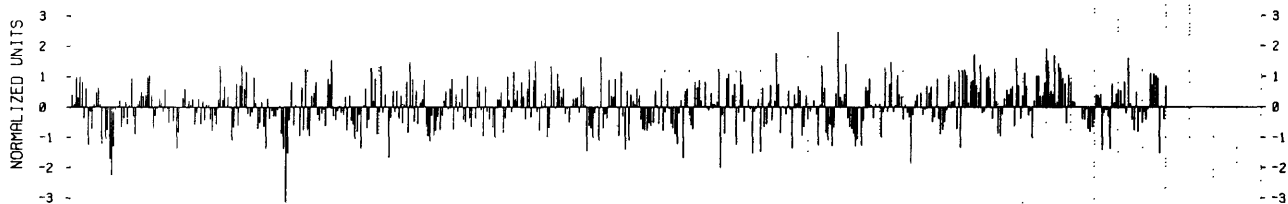
1937-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989

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1890-1939

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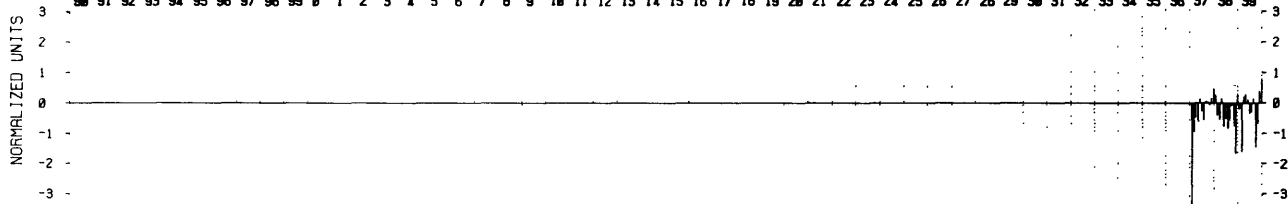


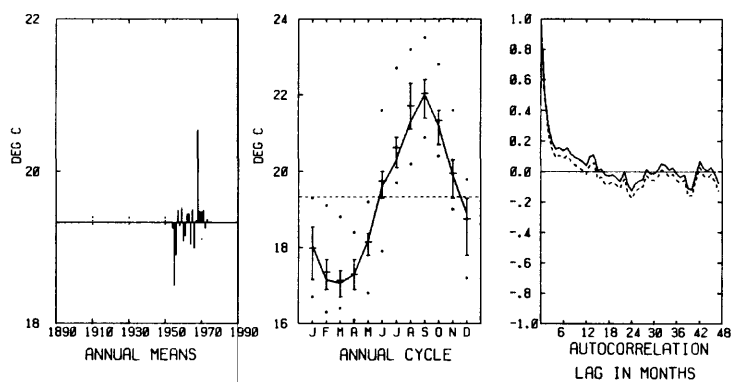
Figure 50. Graphs of standardized monthly anomaly and selected statistics for air temperature at Las Vegas, NV, 1937-1985.

AIR TEMP WEATHER SHIP N

UNITS ARE DEG C

1954-1974

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

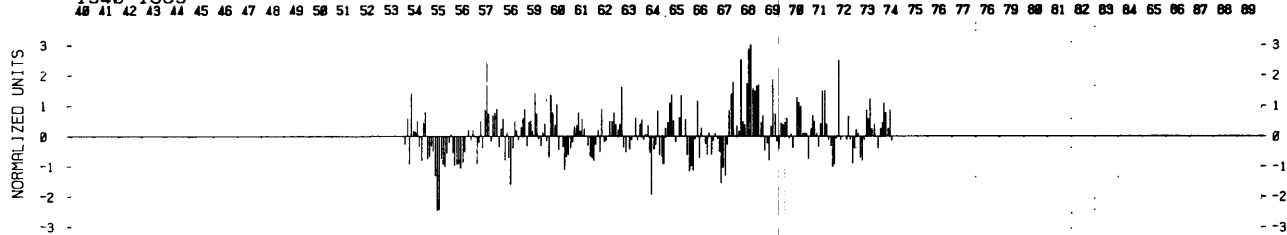


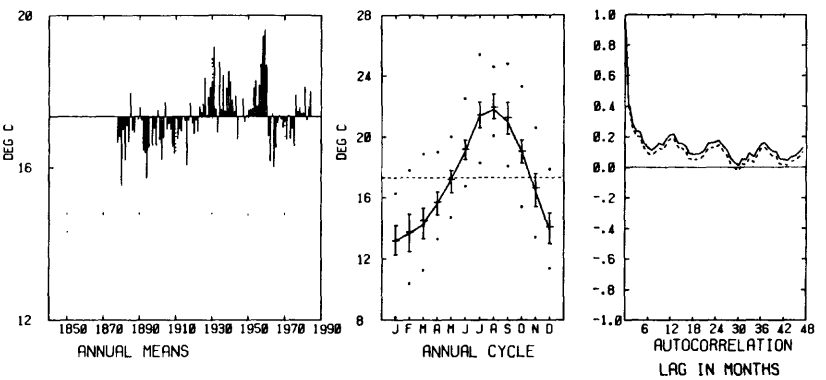
Figure 51. Graphs of standardized monthly anomaly and selected statistics for air temperature at Weather Ship N, 1954-1974.

AIR TEMP LOS ANGELES CALIFORNIA

UNITS ARE DEG C

1877-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

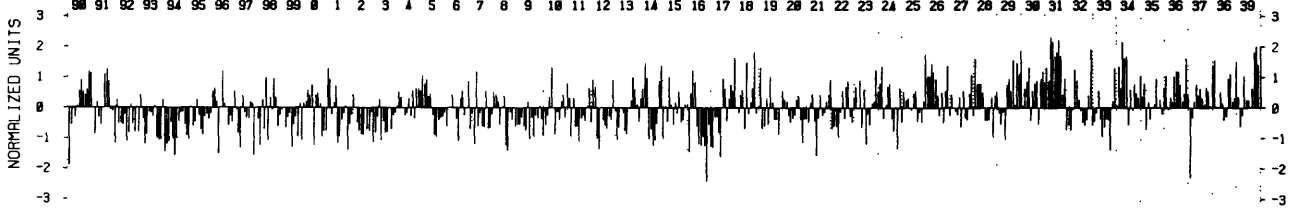


1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939



1840-1889

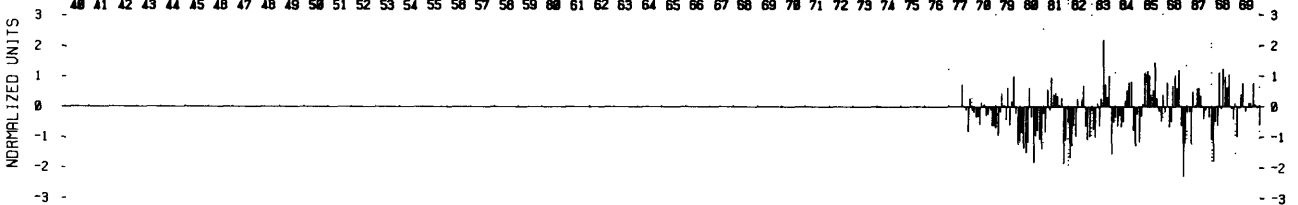


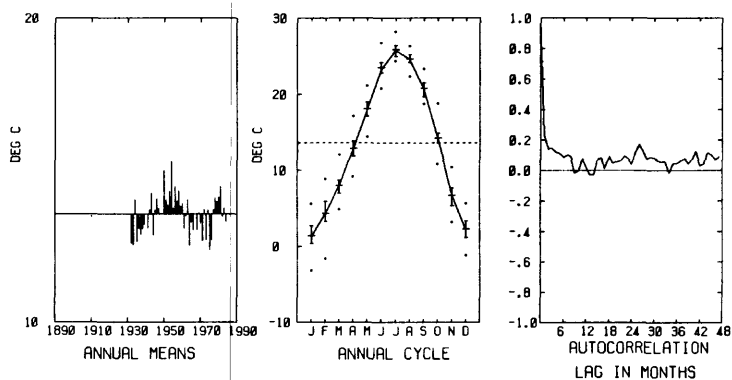
Figure 52. Graphs of standardized monthly anomaly and selected statistics for air temperature at Los Angeles, CA, 1877-1984.

AIR TEMP ALBUQUERQUE NEW MEXICO

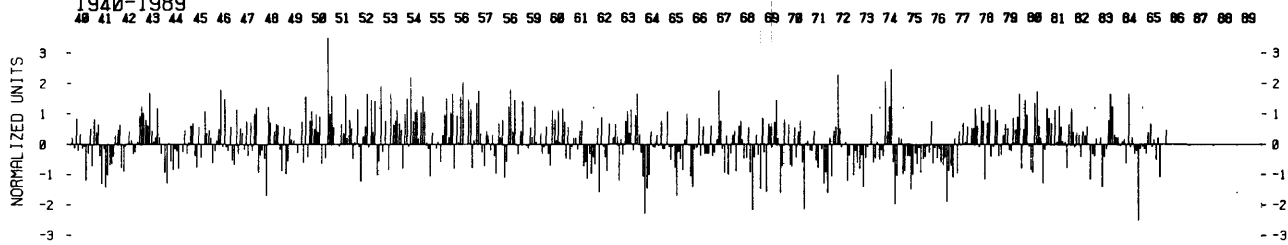
UNITS ARE DEG C

1931-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

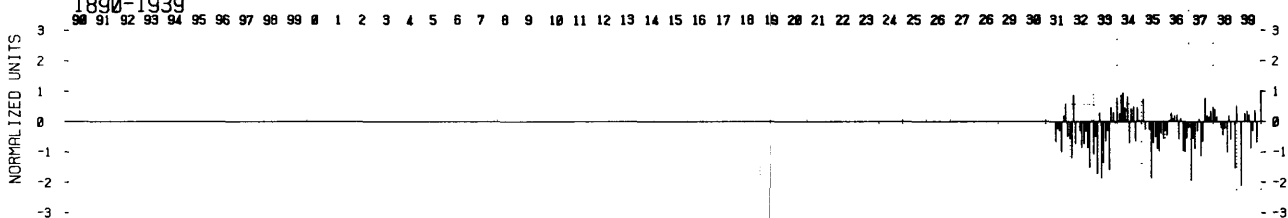


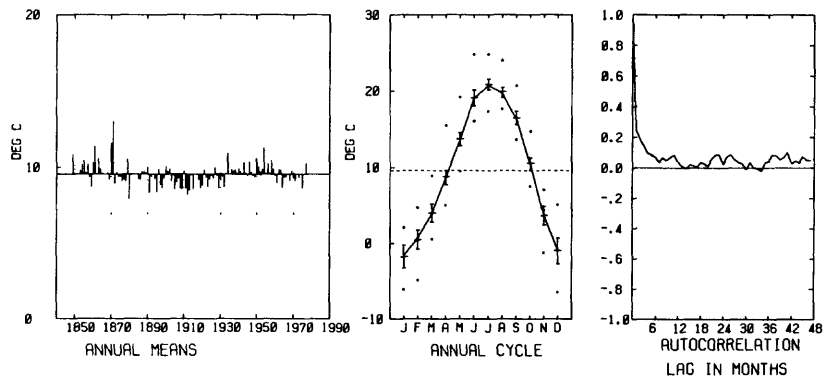
Figure 53. Graphs of standardized monthly anomaly and selected statistics for air temperature at Albuquerque, NM, 1931-1985.

AIR TEMP SANTA FE NEW MEXICO

UNITS ARE DEG C

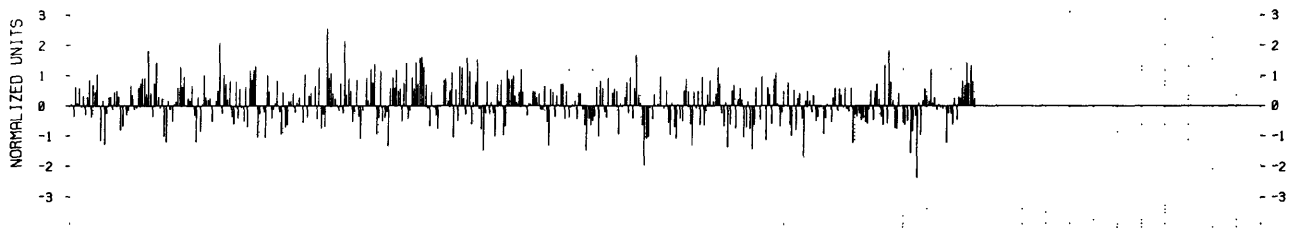
1849-1977

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939



1840-1889

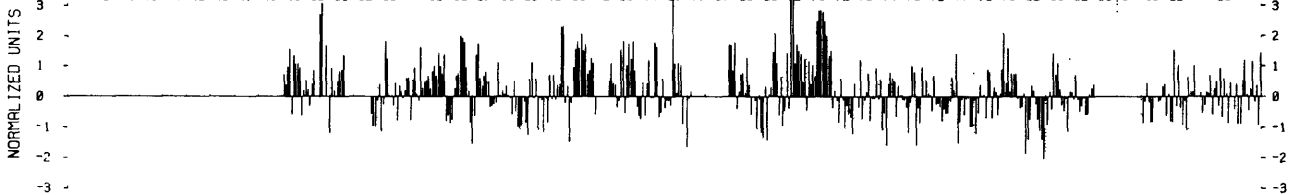


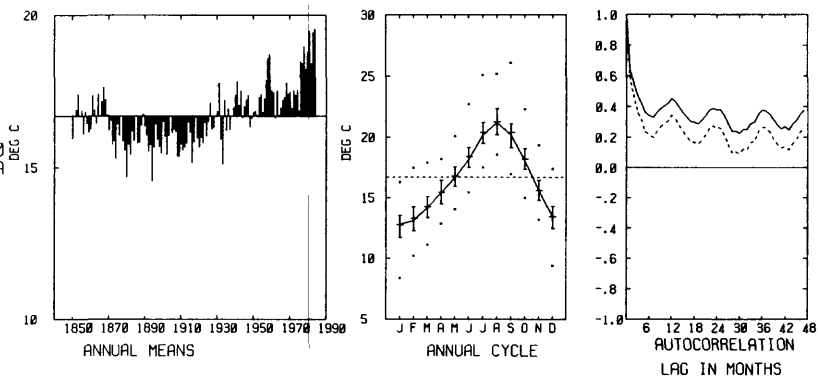
Figure 54. Graphs of standardized monthly anomaly and selected statistics for air temperature at Santa Fe, NM, 1849-1977.

AIR TEMP SAN DIEGO CALIFORNIA

UNITS ARE DEG C

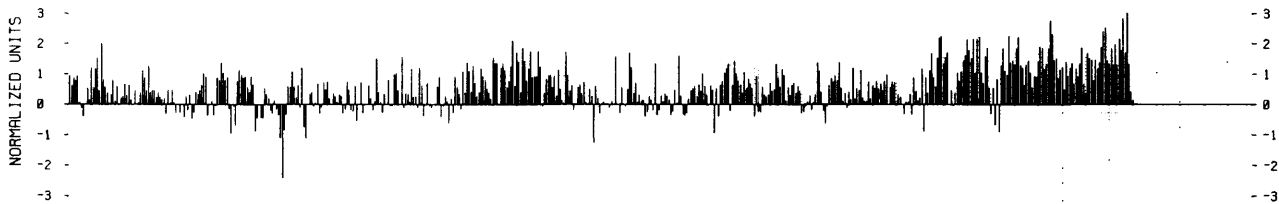
1849-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



Figure 55. Graphs of standardized monthly anomaly and selected statistics for air temperature at San Diego, CA, 1849-1984.

AIR TEMP MEXICALI BAJA CALIF MEXICO

UNITS ARE DEG C

1943-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

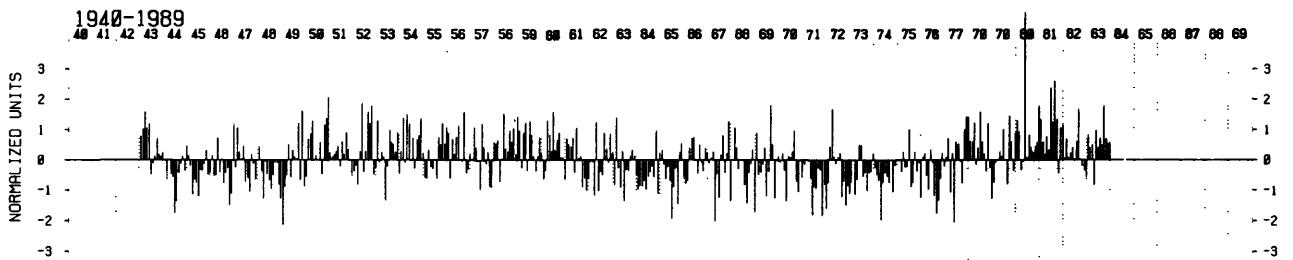
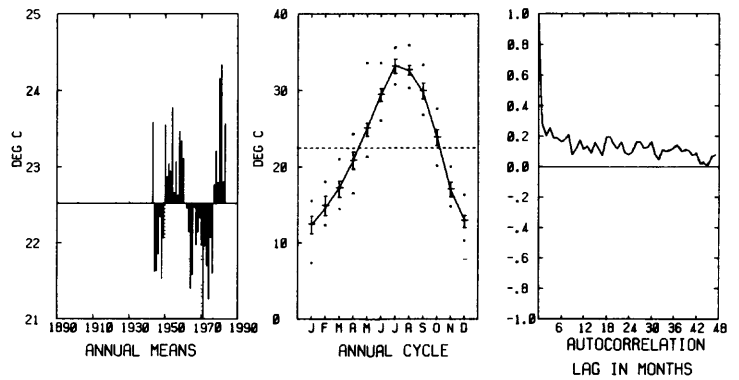


Figure 56. Graphs of standardized monthly anomaly and selected statistics for air temperature at Mexicali, MEX, 1943-1983.

AIR TEMP YUMA ARIZONA

UNITS ARE DEG C

1878-1982

UPDATED DATA USING NOAA LCD 1963-1982
GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

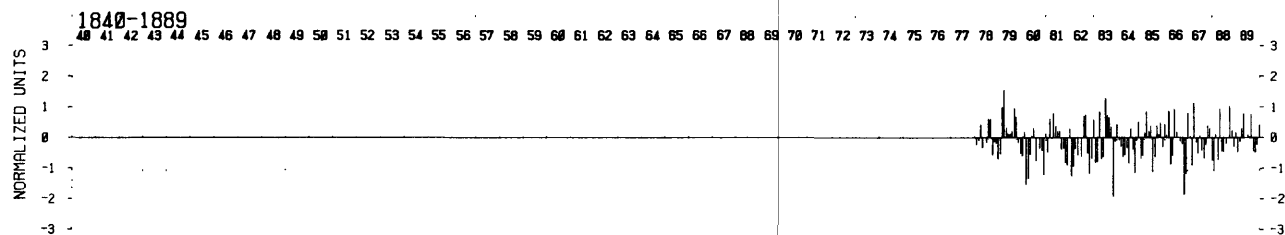
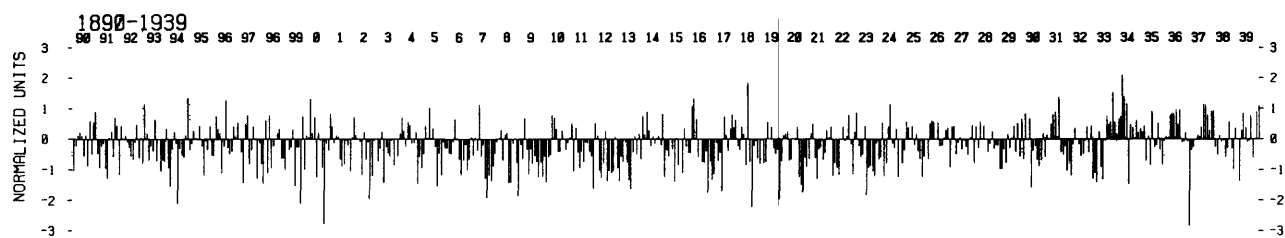
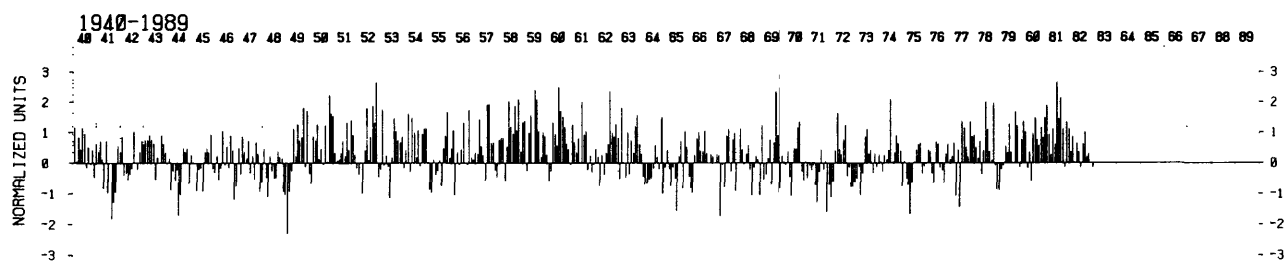
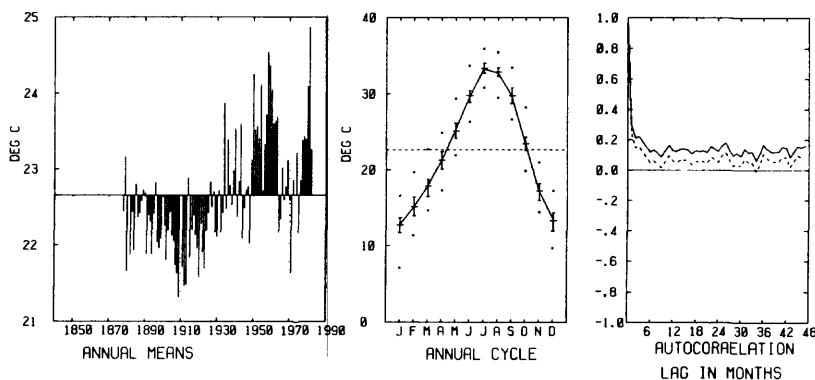


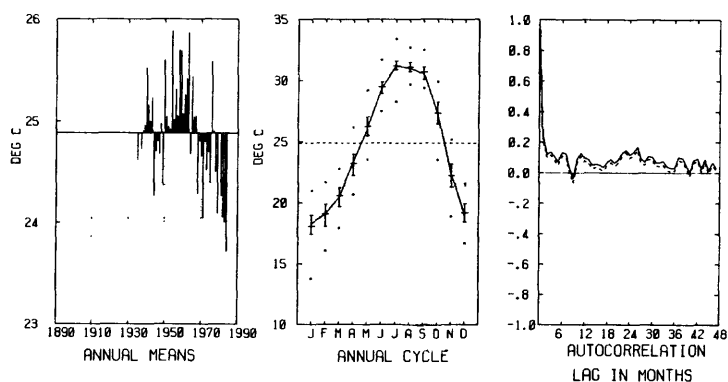
Figure 57. Graphs of standardized monthly anomaly and selected statistics for air temperature at Yuma, AZ, 1878-1982.

AIR TEMP GUAYMAS SONORA MEXICO

UNITS ARE DEG C

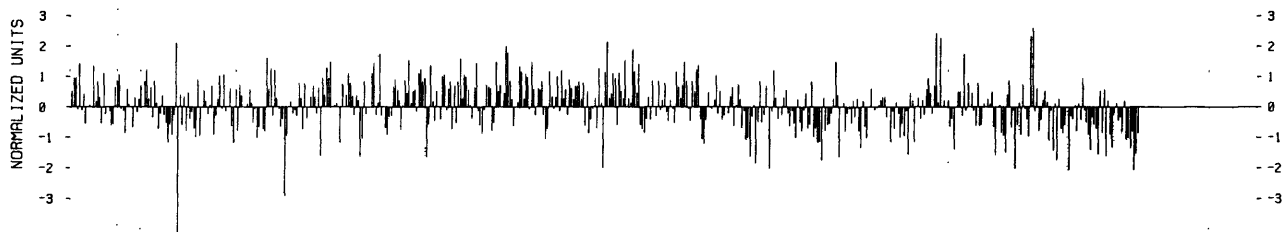
1935-1984

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005



1940-1989

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1890-1939

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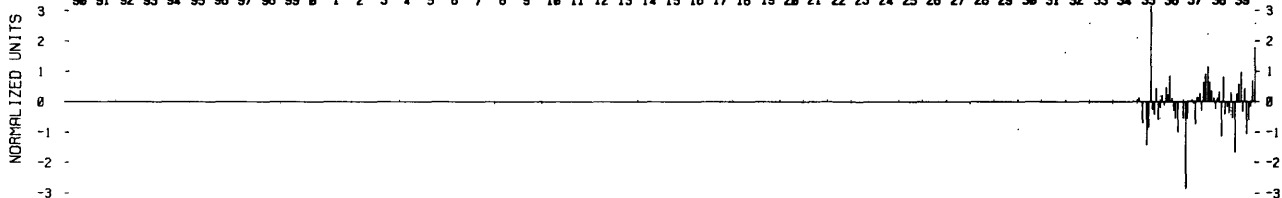


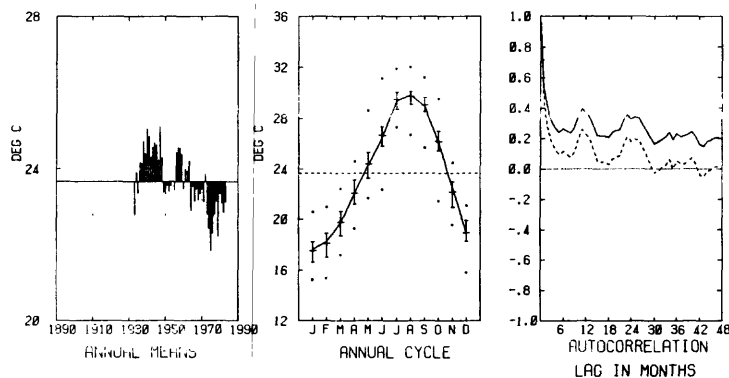
Figure 58. Graphs of standardized monthly anomaly and selected statistics for air temperature at Guaymas, MEX, 1935-1984.

AIR TEMP LA PAZ BAJA CALIF MEXICO

UNITS ARE DEG C

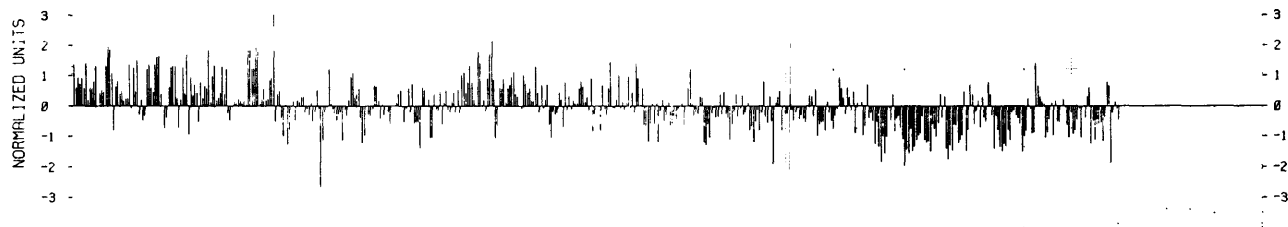
1933-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005



1940-1989

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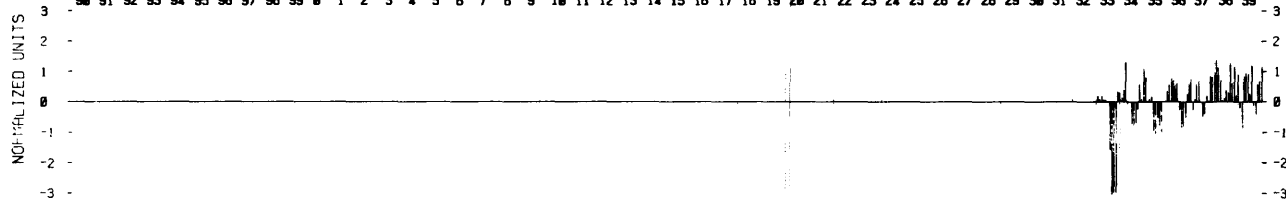


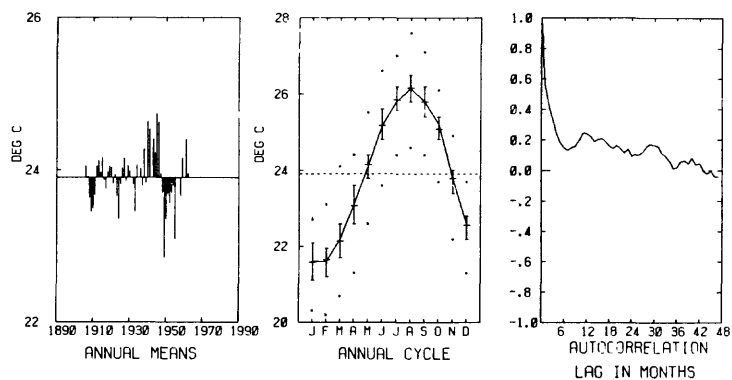
Figure 59. Graphs of standardized monthly anomaly and selected statistics for air temperature at La Paz, MEX, 1933-1983.

AIR TEMP HONOLULU OBS OAHU

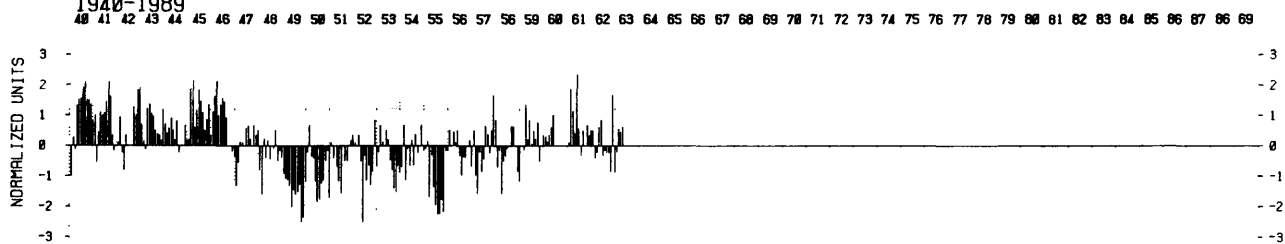
UNITS ARE DEG C

1906-1963

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

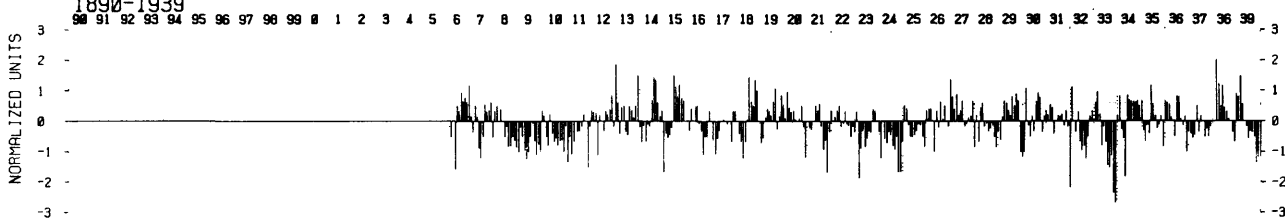


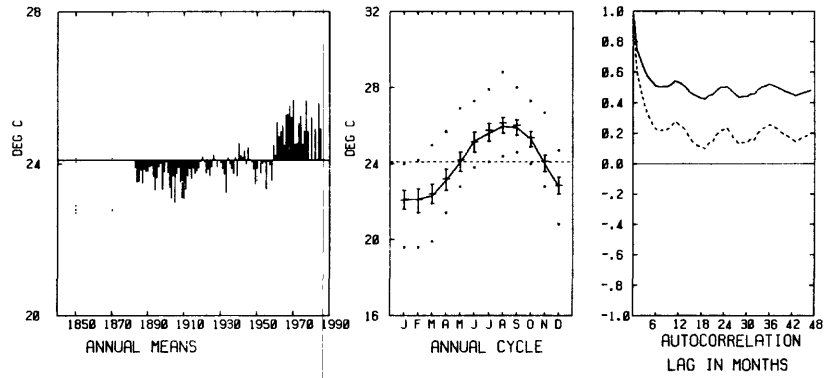
Figure 60. Graphs of standardized monthly anomaly and selected statistics for air temperature at Honolulu Obs., HI, 1906-1963.

AIR TEMP HONOLULU OAHU HAWAII

UNITS ARE DEG C

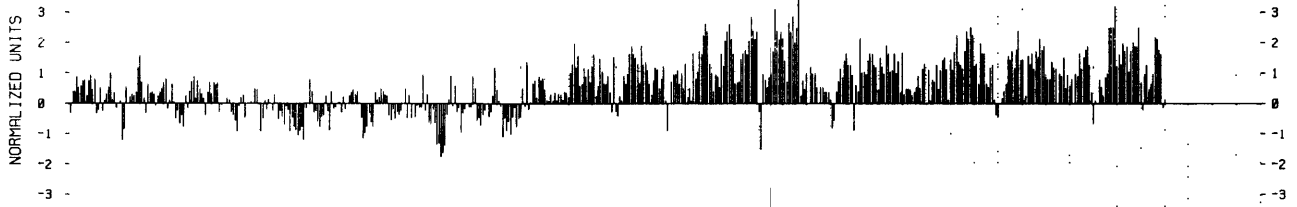
1883-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



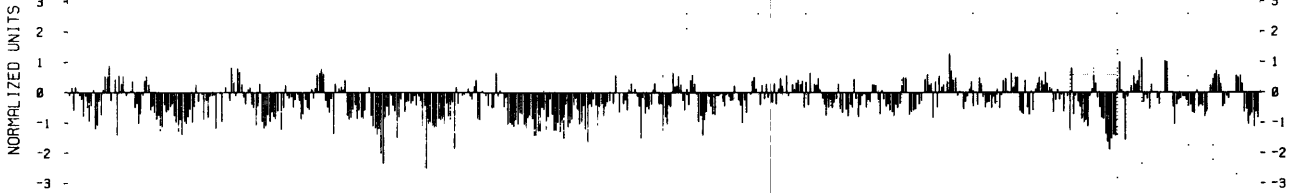
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



Figure 61. Graphs of standardized monthly anomaly and selected statistics for air temperature at Honolulu, HI, 1883-1985.

Variable II: Barometric Pressure

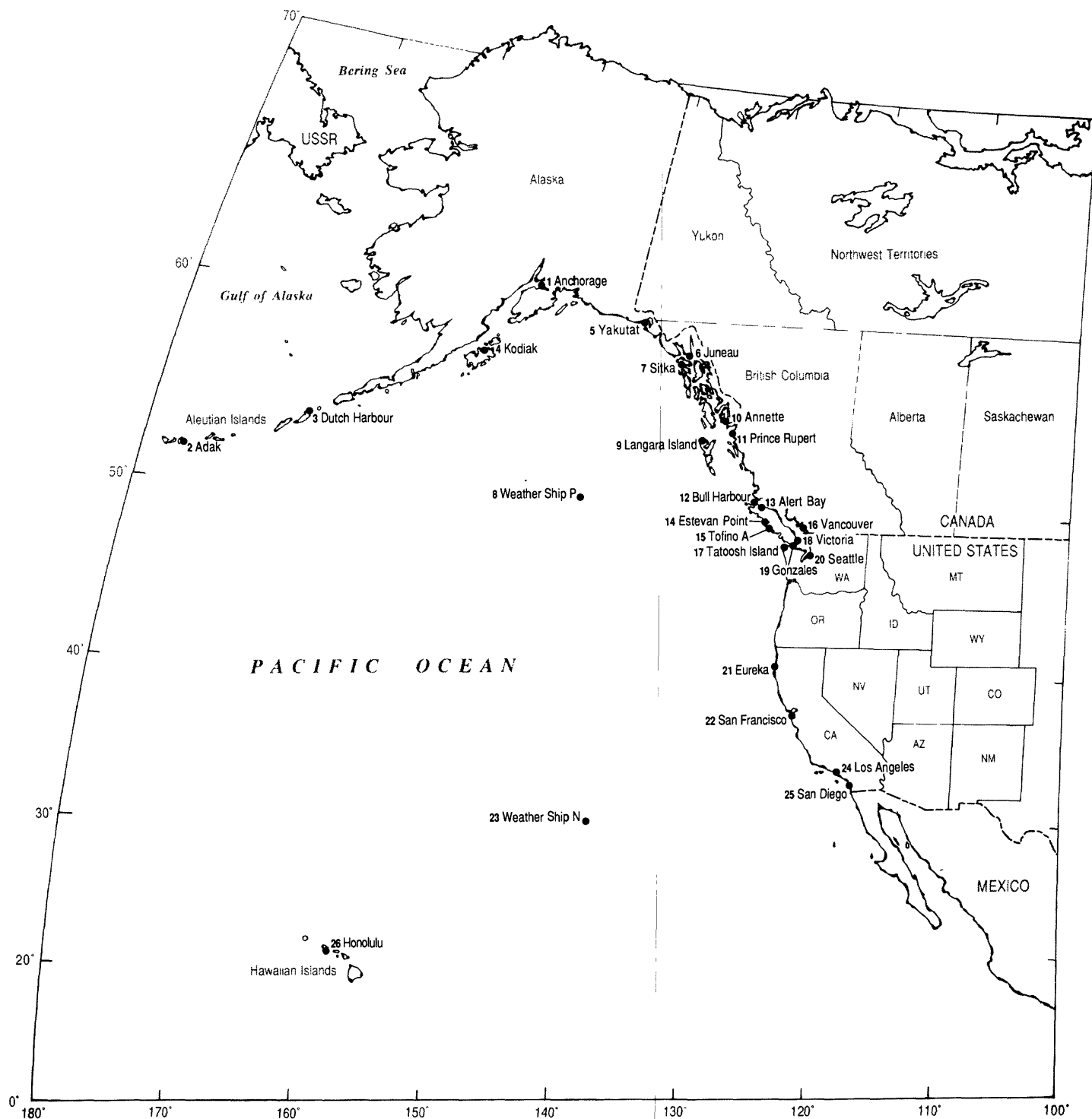


Figure 62. Map showing locations of barometric pressure stations.

Table 2.--Index to barometric pressure and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	63	Anchorage, AK	61°13'N.	149°53'W.	1939-1984	Tabata
2	64	Adak, AK	51°51'N.	176°39'W.	1946-1978	Tabata
3	65	Dutch Harbour, AK	53°54'N.	166°32'W.	1917-1978	Tabata
4	66	Kodiak, AK	57°47'N.	152°24'W.	1917-1978	Tabata
5	67	Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Tabata
6	68	Juneau, AK	58°15'N.	134°25'W.	1917-1984	Tabata
7	69	Sitka, AK	57°03'N.	135°20'W.	1881-1978	Tabata
8	70	Weather Ship P	50°00'N.	145°00'W.	1946-1981	Tabata
9	71	Langara Island, CAN	54°15'N.	133°03'W.	1946-1984	Tabata
10	72	Annette, CAN	52°09'N.	131°06'W.	1941-1984	Tabata
11	73	Prince Rupert, CAN	54°18'N.	130°26'W.	1909-1984	Tabata
12	74	Bull Harbour, CAN	50°55'N.	127°57'W.	1939-1984	Tabata
13	75	Alert Bay, CAN	50°35'N.	126°56'W.	1939-1984	Tabata
14	76	Estevan Point, CAN	49°23'N.	126°32'W.	1923-1978	Tabata
15	77	Tofino A, CAN	49°05'N.	125°46'W.	1943-1984	Tabata
16	78	Vancouver, CAN	49°11'N.	123°10'W.	1920-1984	Tabata
17	79	Tatoosh Island, WA	48°23'N.	124°44'W.	1884-1978	Tabata
18	80	Victoria, CAN	48°39'N.	123°26'W.	1940-1984	Tabata
19	81	Gonzales, CAN	48°25'N.	123°19'W.	1909-1984	Tabata
20	82	Seattle, WA	47°36'N.	122°20'W.	1893-1942	Tabata
21	83	Eureka, CA	40°48'N.	124°10'W.	1886-1978	Tabata
22	84	San Francisco, CA	37°48'N.	122°28'W.	1873-1984	Tabata
23	85	Weather Ship N	30°00'N.	140°00'W.	1954-1974	Roden
24	86	Los Angeles, CA	34°03'N.	118°15'W.	1877-1978	Tabata
25	87	San Diego, CA	32°43'N.	117°09'W.	1873-1984	Tabata
26	88	Honolulu, HI	21°18'N.	157°54'W.	1883-1985	NCAR

*Refers to map location on Figure 62.

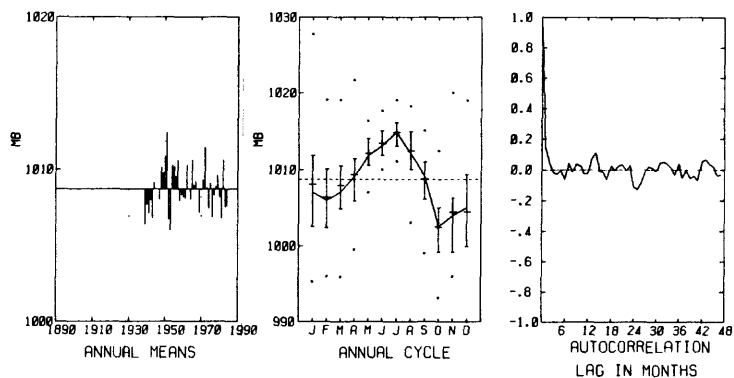
**See Contributors List, p. 379.

BARO PRESS ANCHORAGE ALASKA

UNITS ARE MB

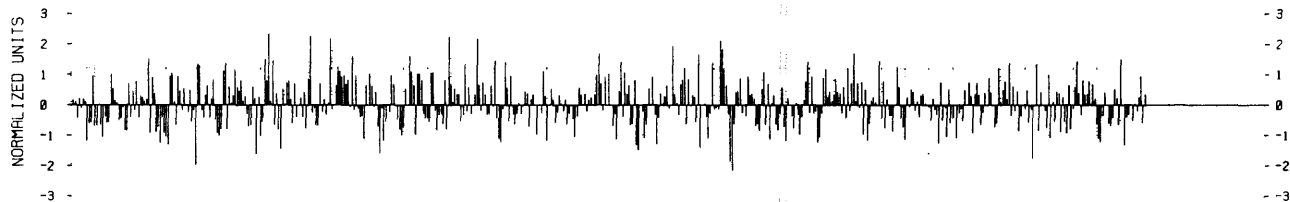
1939-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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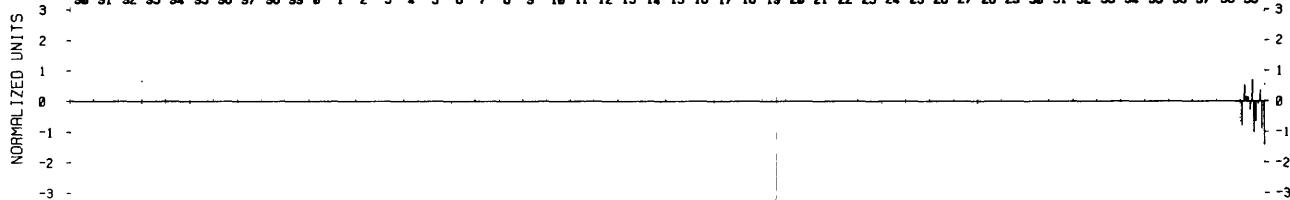


Figure 63. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Anchorage, AK, 1939-1984.

BARO PRESS ADAK ALASKA

UNITS ARE MB

1946-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

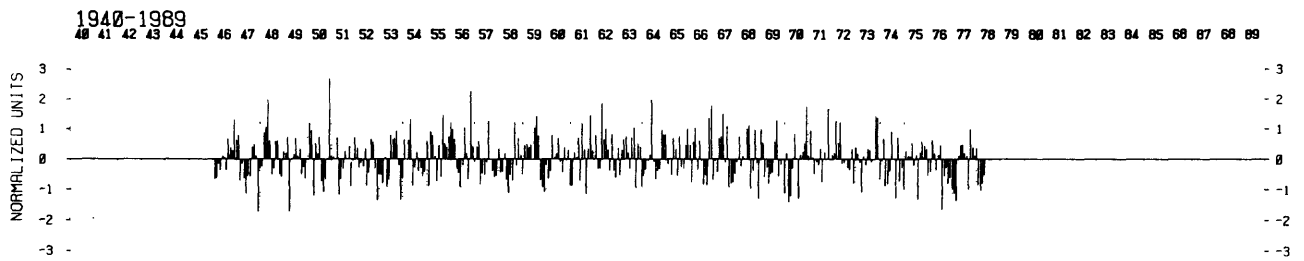
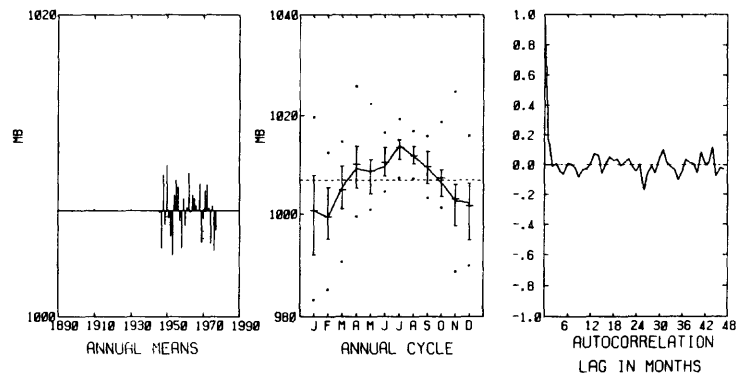


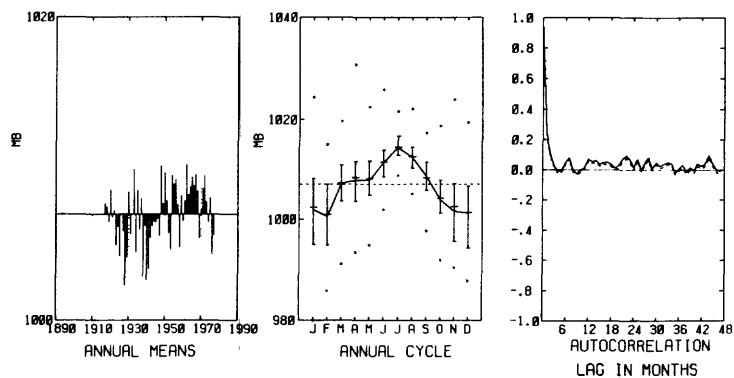
Figure 64. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Adak, AK, 1946-1978.

BARO PRESS DUTCH HARBOUR ALASKA

UNITS ARE MB

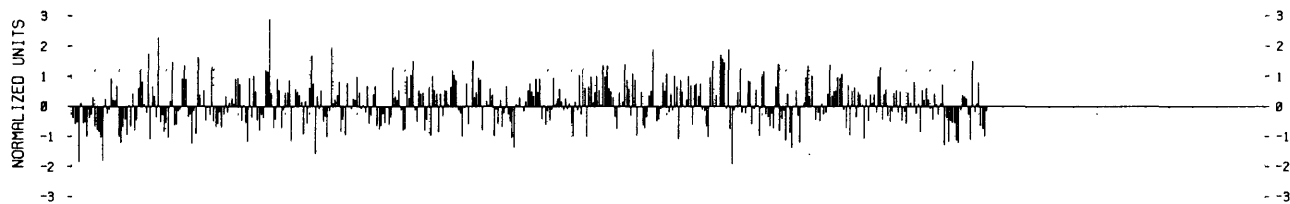
1917-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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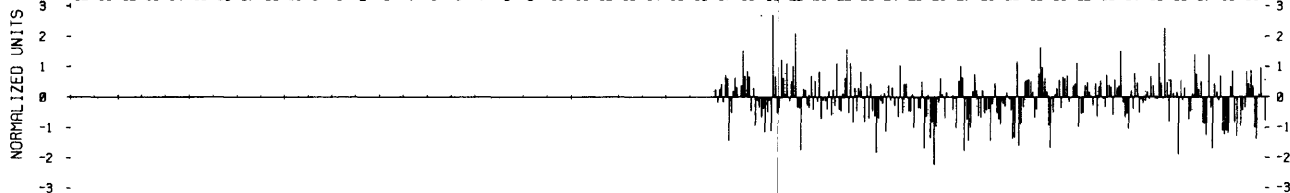


Figure 65. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Dutch Harbour, AK, 1917-1978.

BARO PRESS KODIAK ALASKA

UNITS ARE MB

1917-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

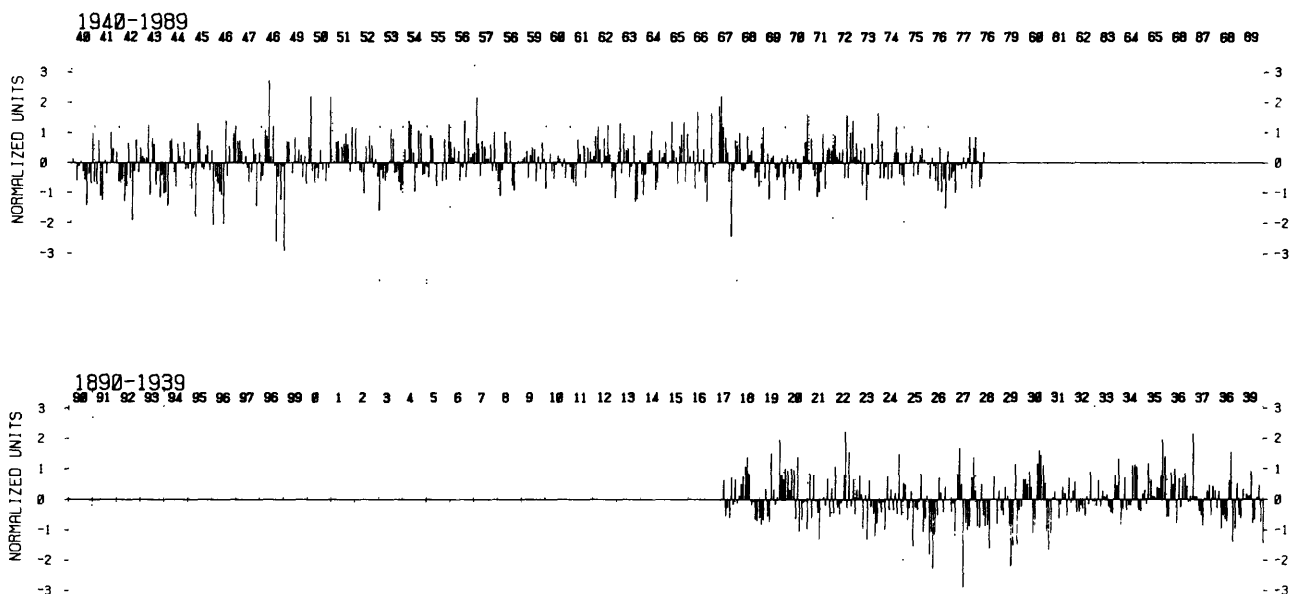
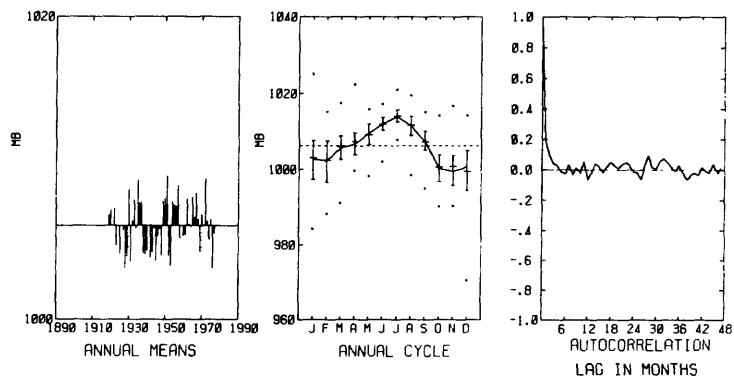


Figure 66. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Kodiak, AK, 1917-1978.

BARO PRESS YAKUTAT ALASKA

UNITS ARE MB

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

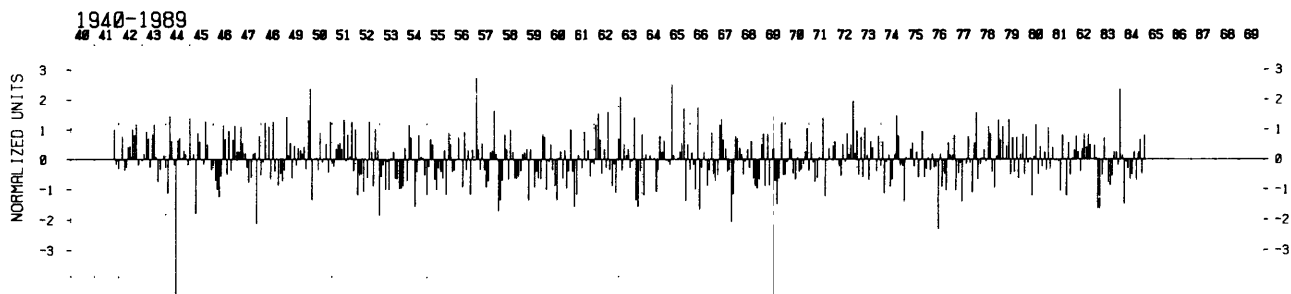
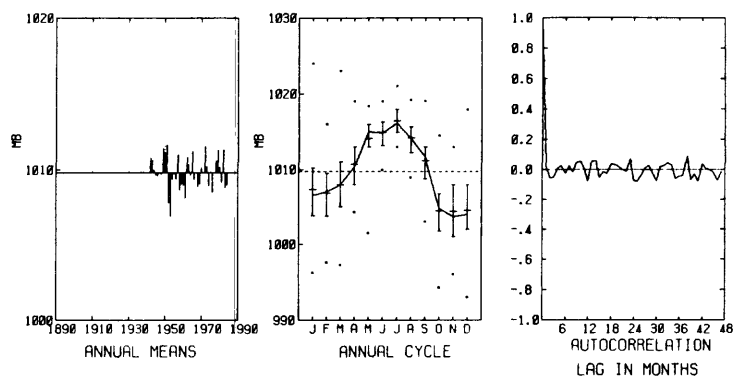


Figure 67. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Yakutat, AK, 1941-1984.

BARO PRESS JUNEAU ALASKA

UNITS ARE MB

1917-1984

SUS TABATA, INST. OF OCEAN SCI., PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

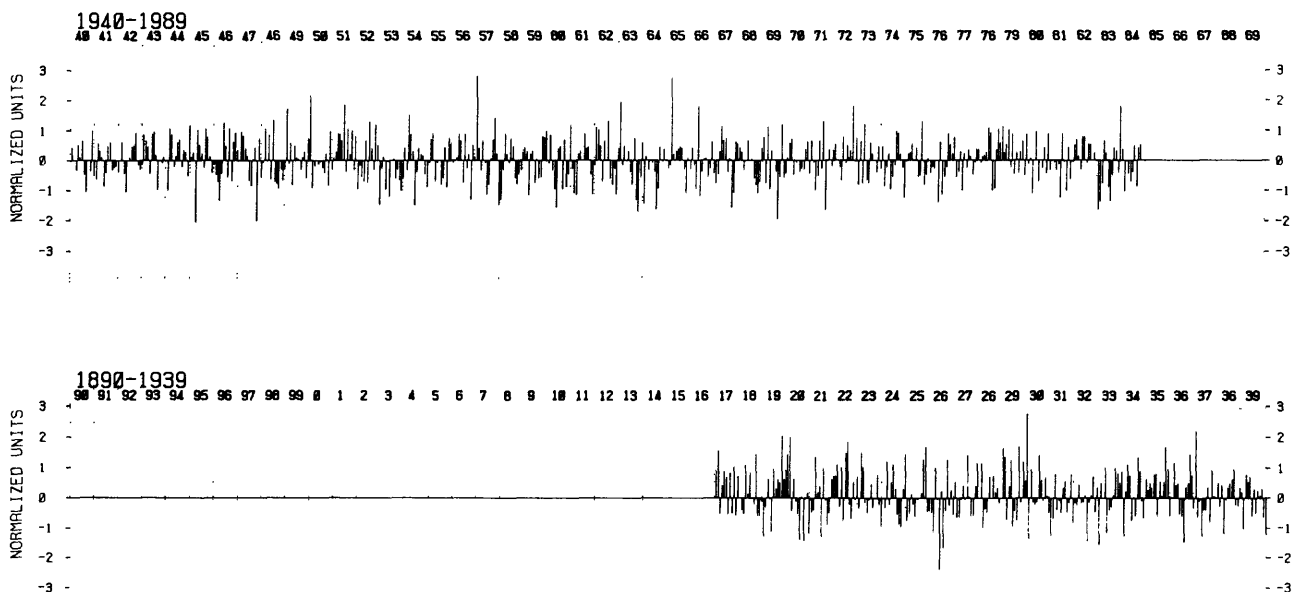
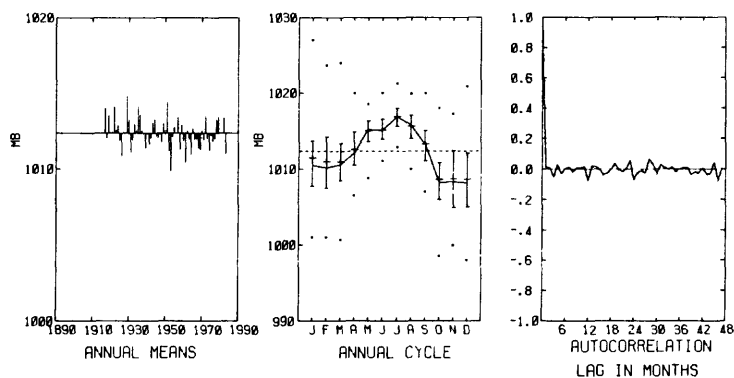


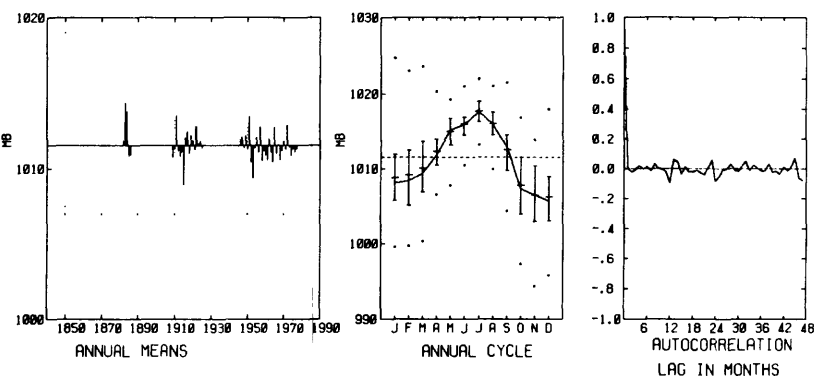
Figure 68. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Juneau, AK, 1917-1984.

BARO PRESS SITKA ALASKA

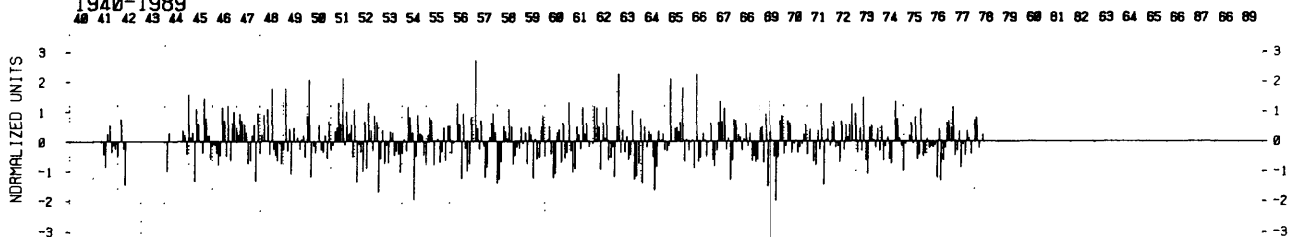
UNITS ARE MB

1881-1978

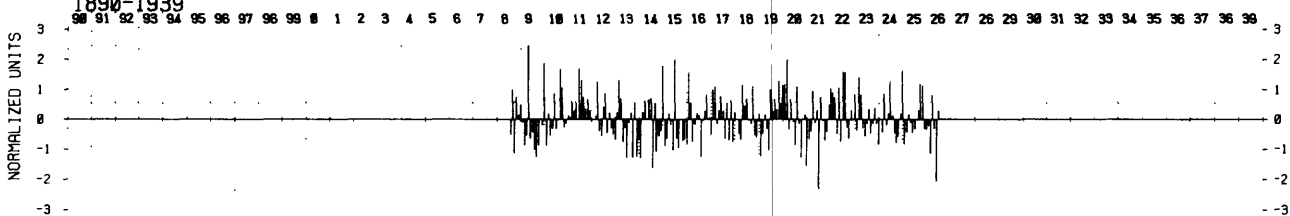
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9B60 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939



1840-1889

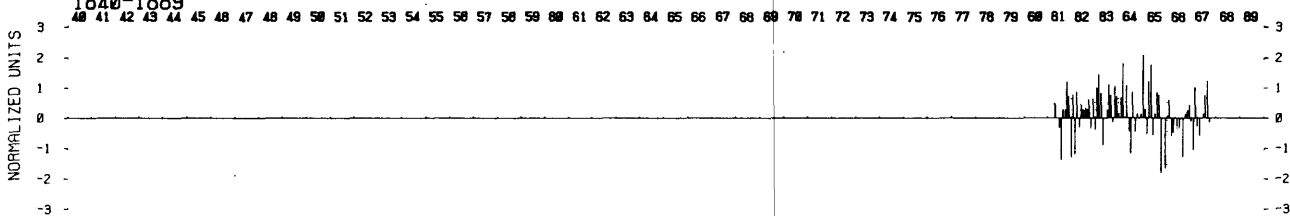


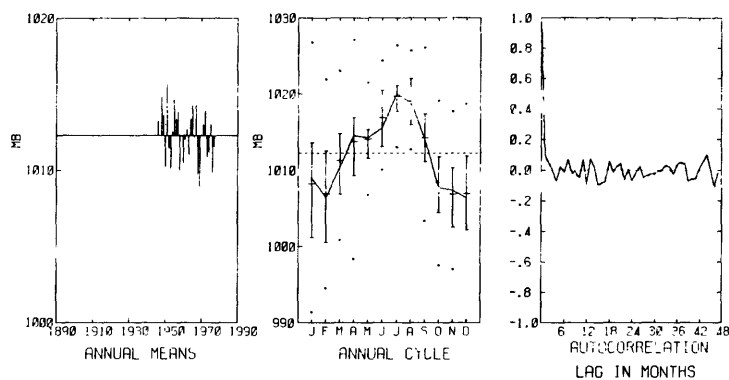
Figure 69. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Sitka, AK, 1881-1978.

BARO PRESS STATION P

UNITS ARE MB

1946-1981

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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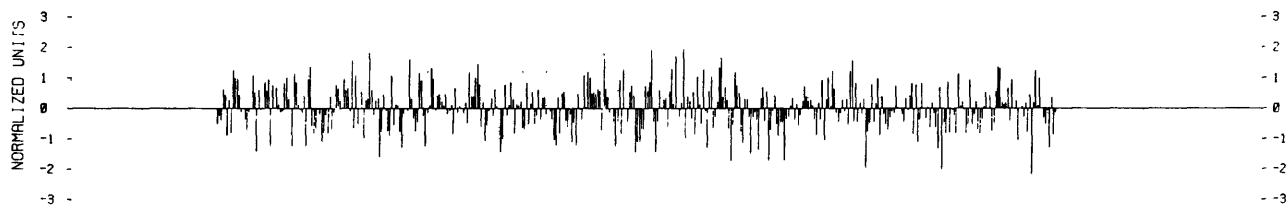


Figure 70. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Weather Ship P, 1946-1981.

BARO PRESS LANGARA ISLAND BC CANADA

UNITS ARE MB

1946-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

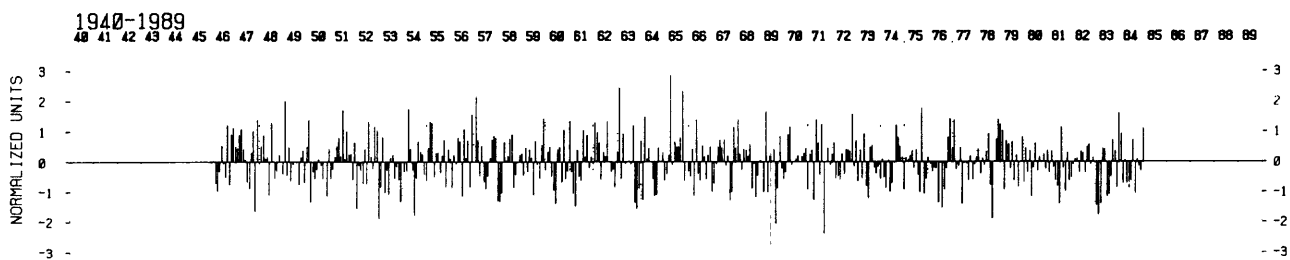
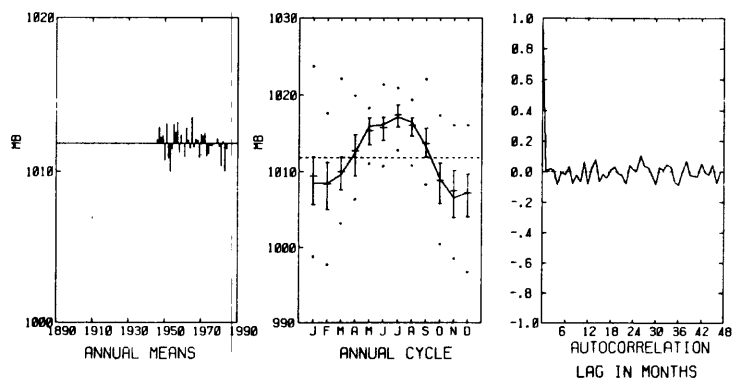


Figure 71. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Langara Island, CAN, 1946-1984.

BARO PRESS ANNETTE BC CANADA

UNITS ARE MB

1941-1984

SUS TABATA, INST. OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

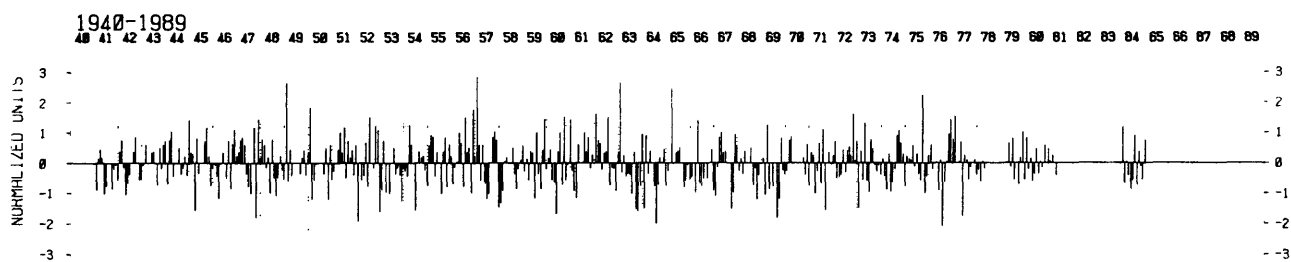
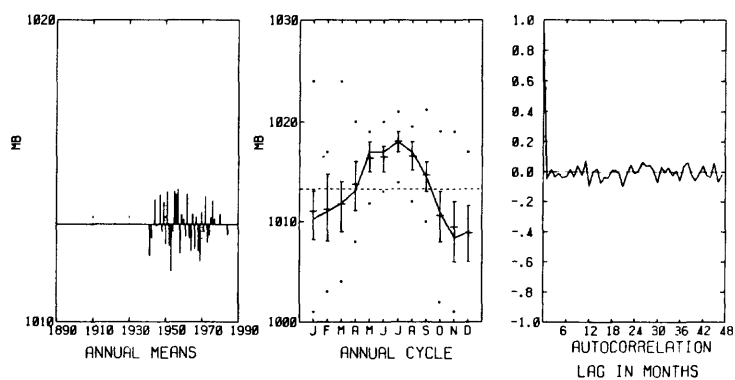


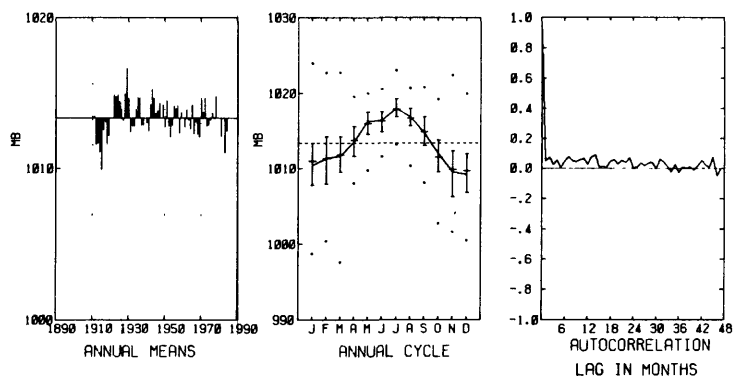
Figure 72. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Annette, CAN, 1941-1984.

BARO PRESS PRINCE RUPERT BC CANADA

UNITS ARE MB

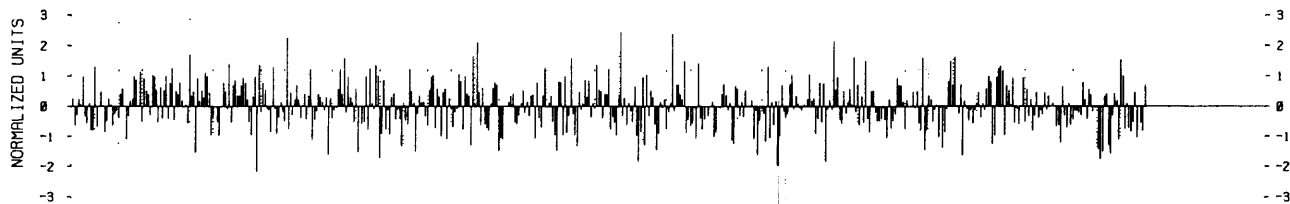
1909-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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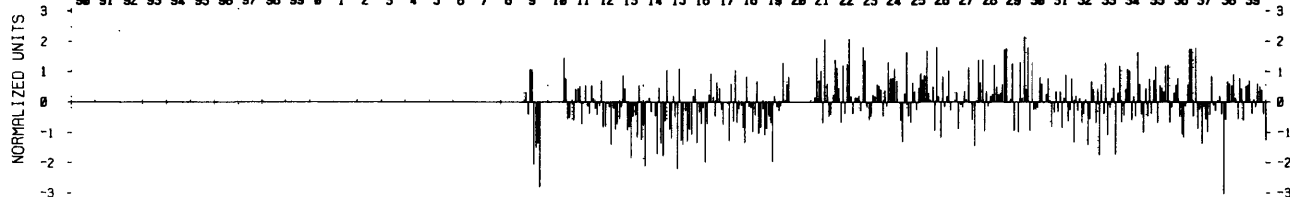


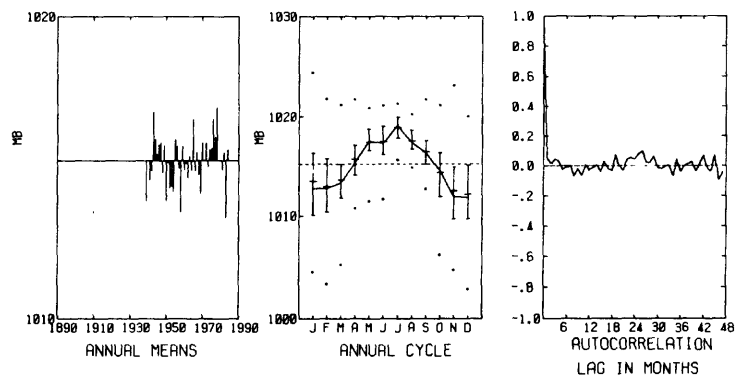
Figure 73. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Prince Rupert, CAN, 1909-1984.

BARO PRESS BULL HARBOUR BC CANADA

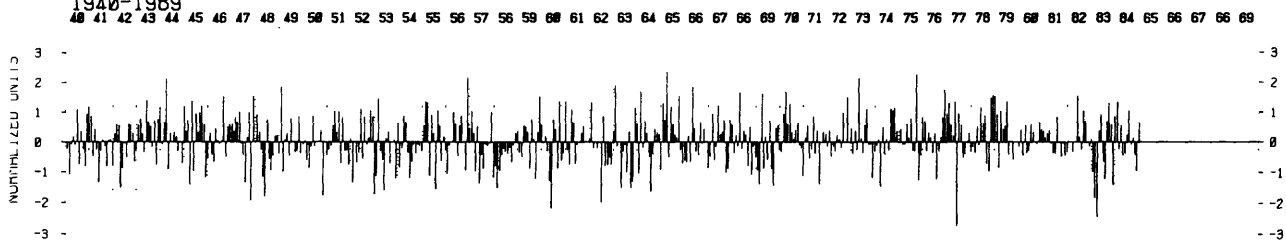
UNITS ARE MB

1939-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

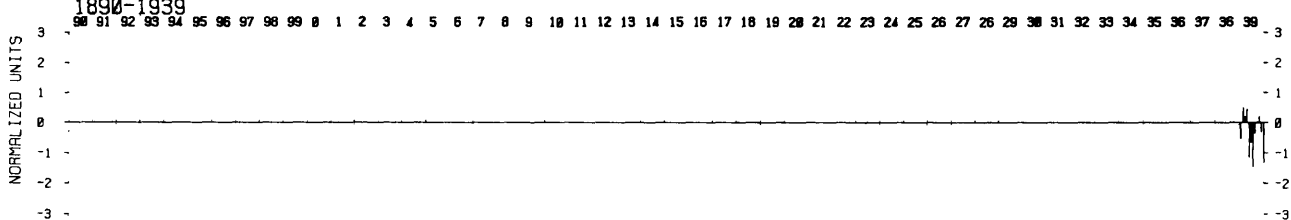


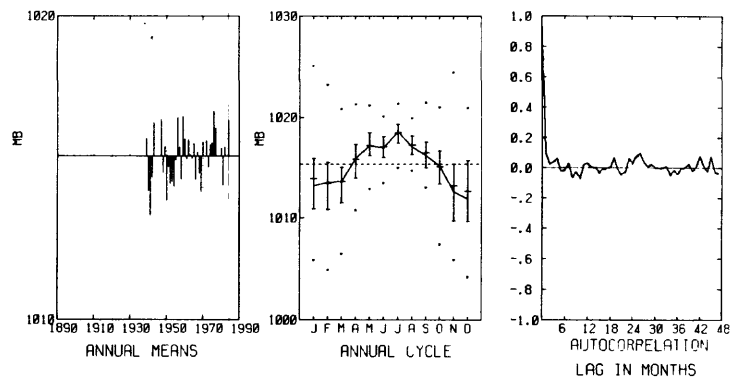
Figure 74. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Bull Harbour, CAN, 1939-1984.

BARO PRESS ALERT BAY BC CANADA

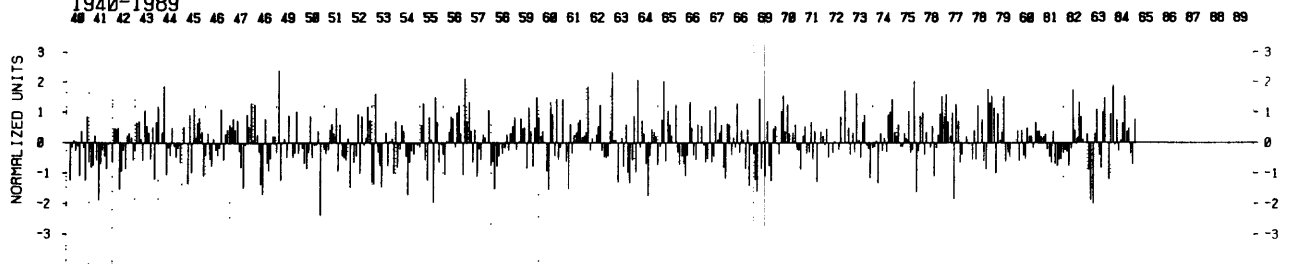
UNITS ARE MB

1939-1984

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9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

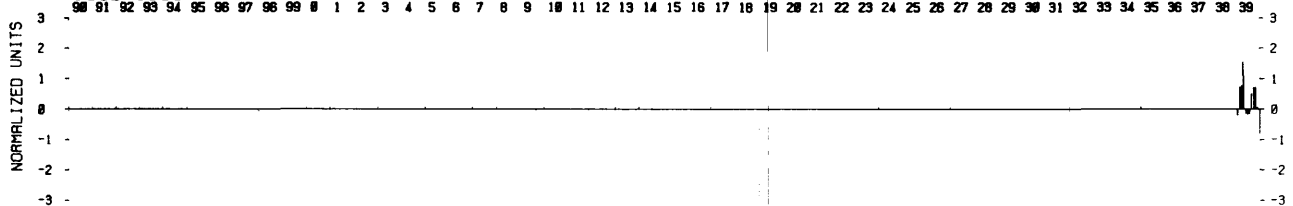


Figure 75. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Alert Bay, CAN, 1939-1984.

BARO PRESS ESTEVAN POINT BC CANADA

UNITS ARE MB

1923-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

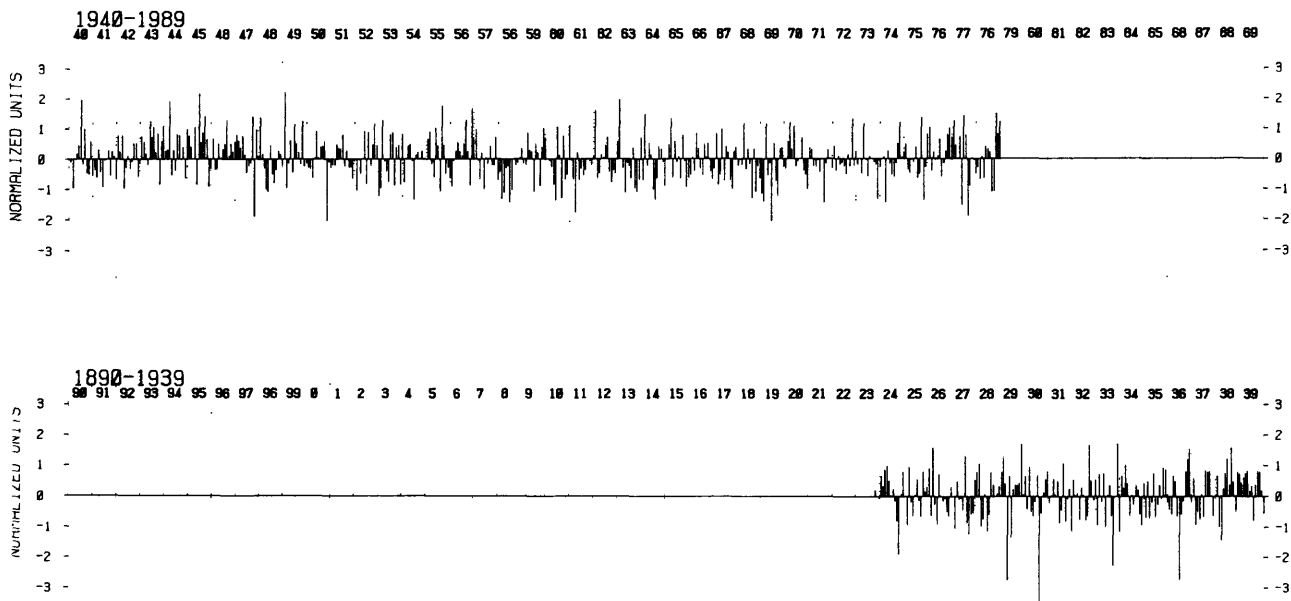
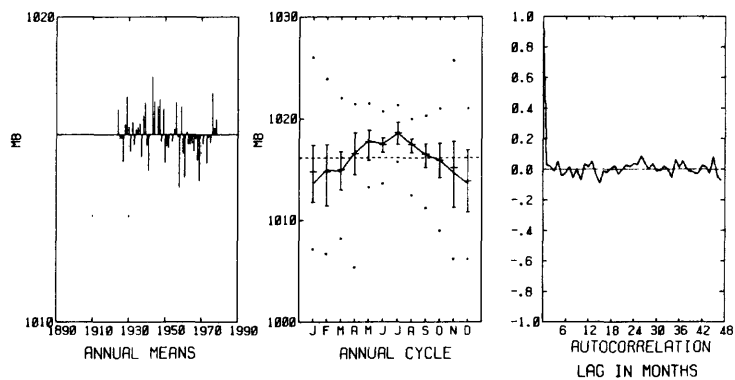


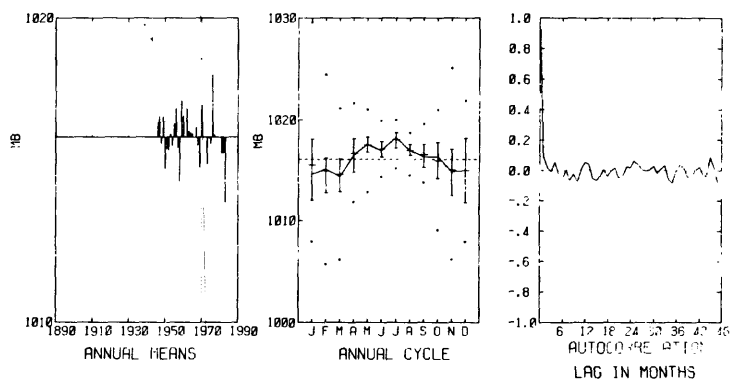
Figure 76. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Estevan Point, CAN, 1923-1978.

BARO PRESS TOFINO A BC CANADA

UNITS ARE MB

1943-1984

SUS TABATA, INST OF OCEAN SCI. PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

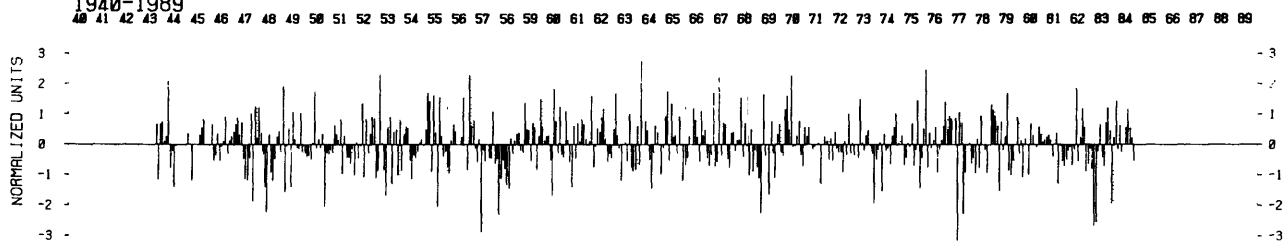


Figure 77. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Tofino A, CAN, 1943-1984.

BARO PRESS VANCOUVER IA BC CANADA

UNITS ARE MB

1920-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

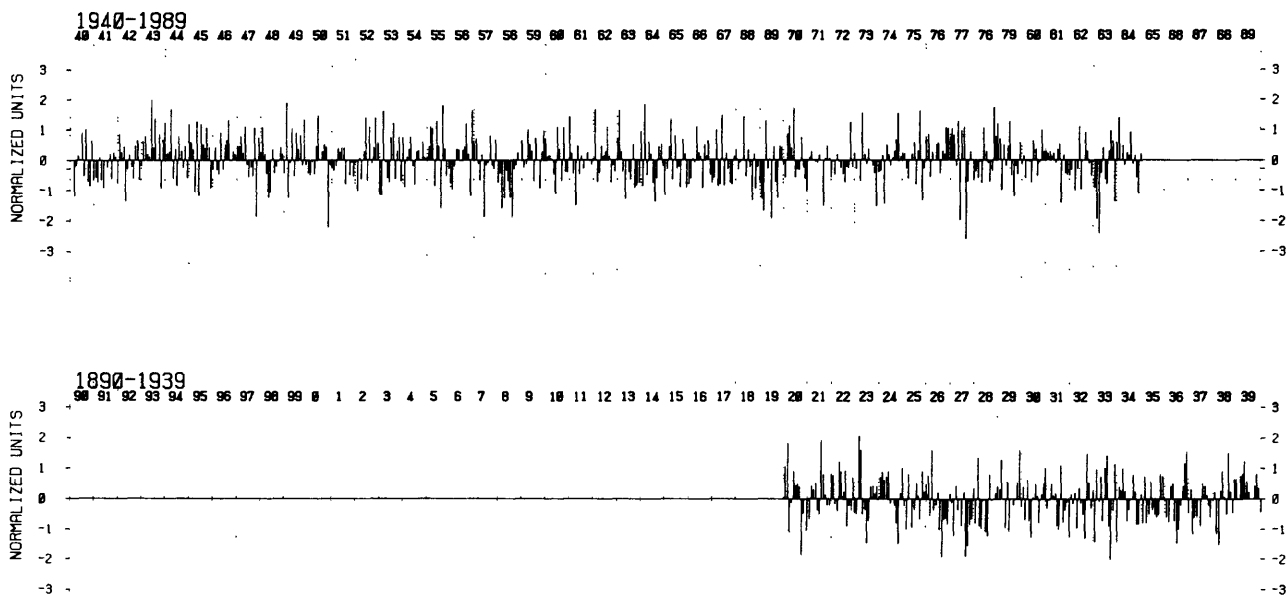
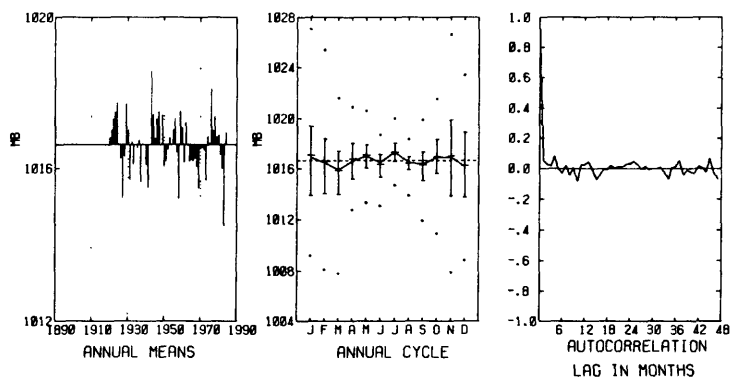


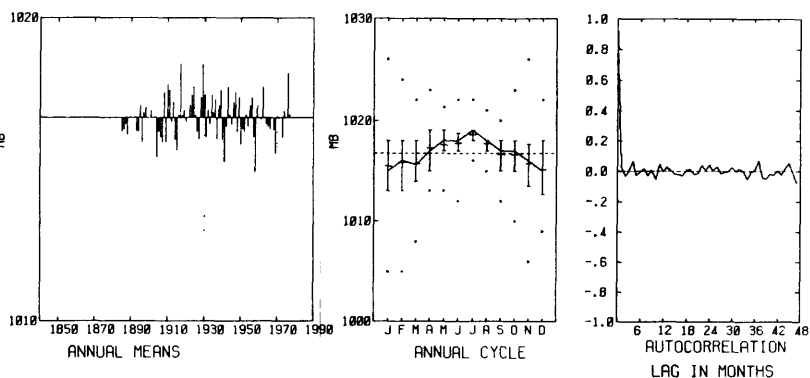
Figure 78. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Vancouver, CAN, 1920-1984.

BARO PRESS TATOOSH ISLAND WASHINGTON

UNITS ARE MB

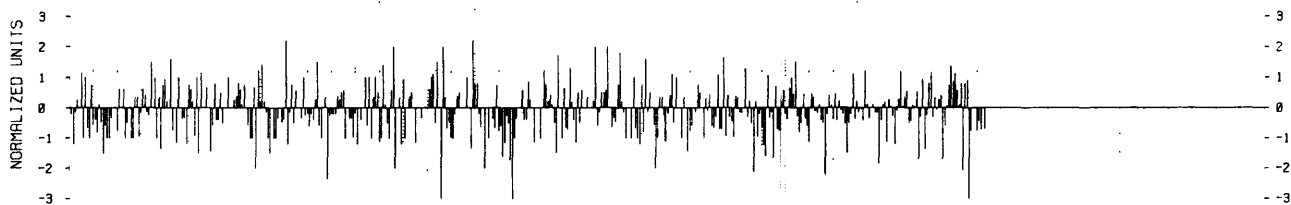
1884-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



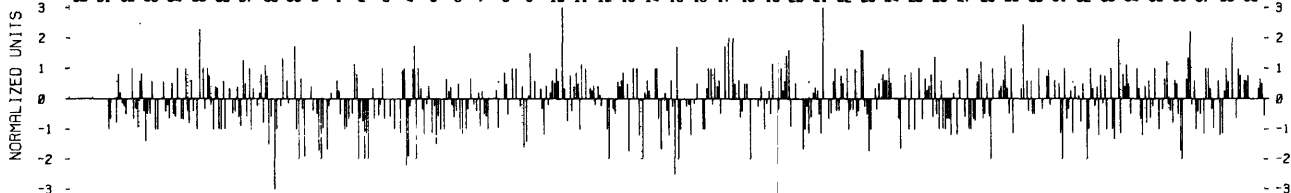
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

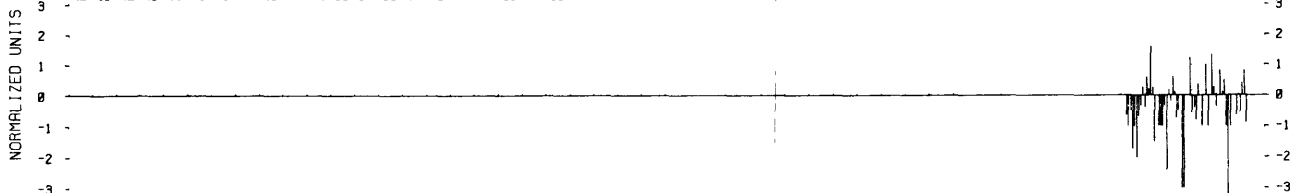


Figure 79. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Tatoosh Island, WA, 1884-1978.

BARO PRESS VICTORIA IA BC CANADA

UNITS ARE MB

1940-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

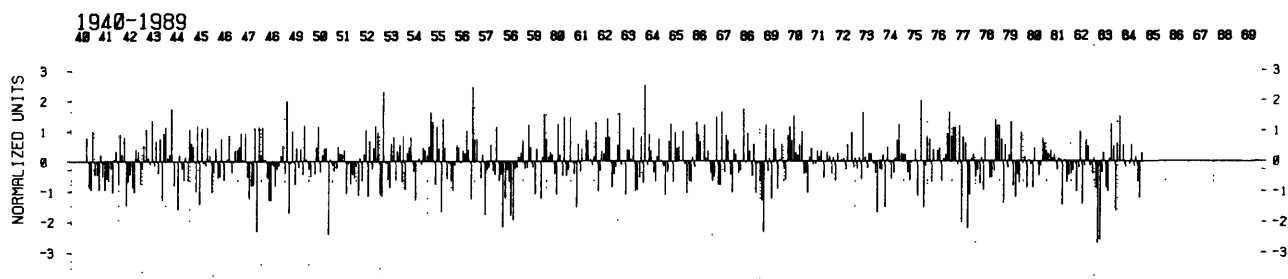
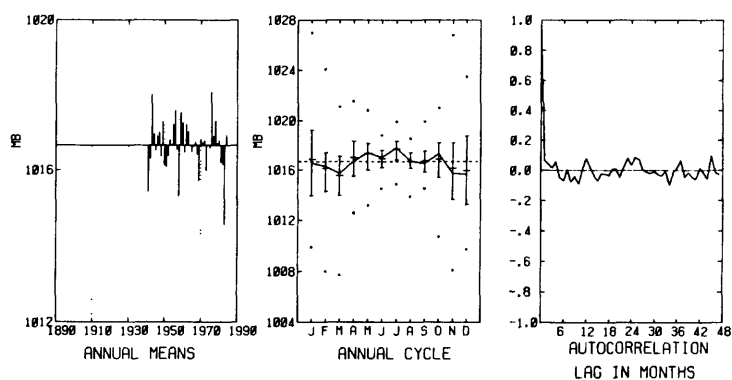


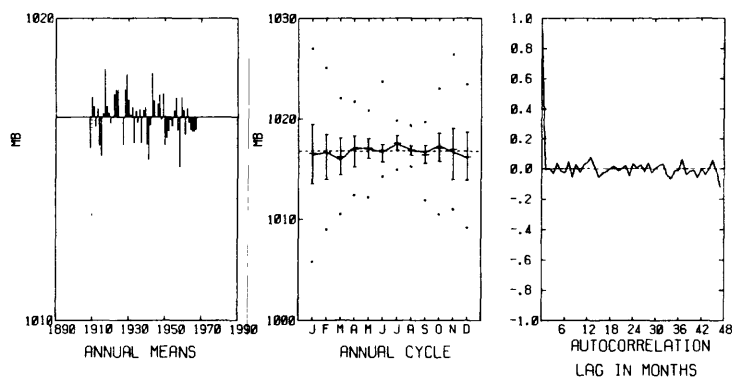
Figure 80. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Victoria, CAN, 1940-1984.

BARO PRESS GONZALES VICTORIA BC CANADA

UNITS ARE MB

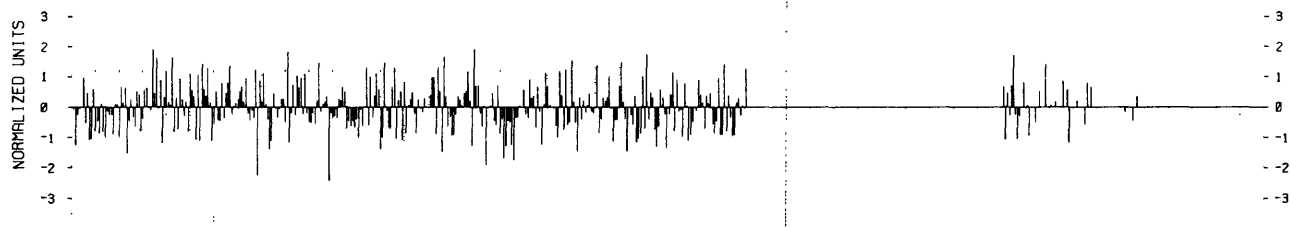
1909-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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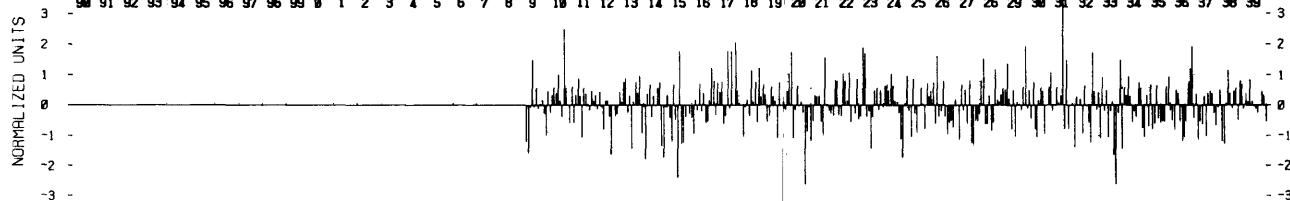


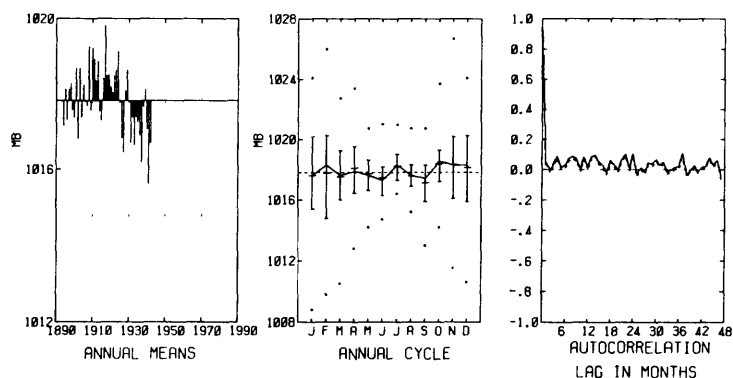
Figure 81. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Gonzles, CAN, 1909-1984.

BARO PRESS SEATTLE WASHINGTON

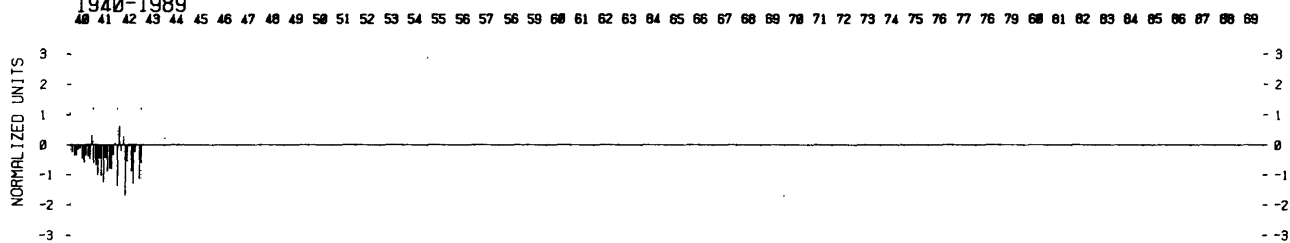
UNITS ARE MB

1893-1942

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

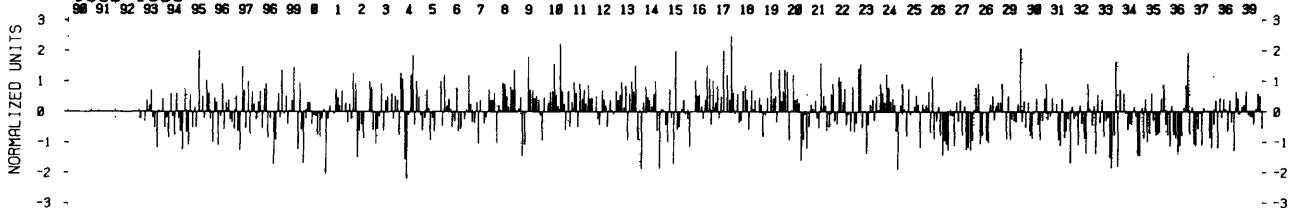


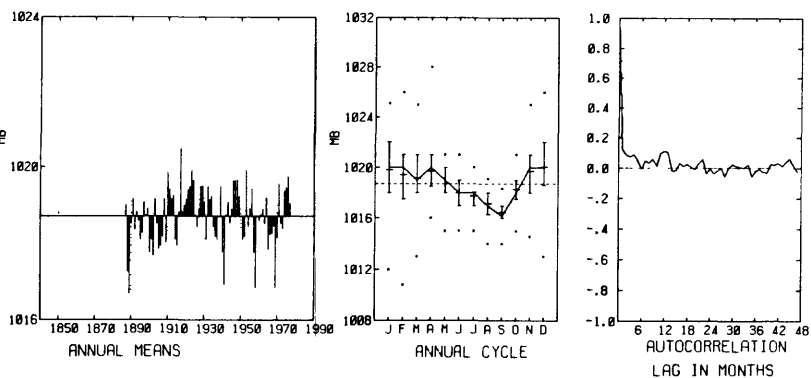
Figure 82. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Seattle, WA, 1893-1942.

BARO PRESS EUREKA CALIFORNIA

UNITS ARE MB

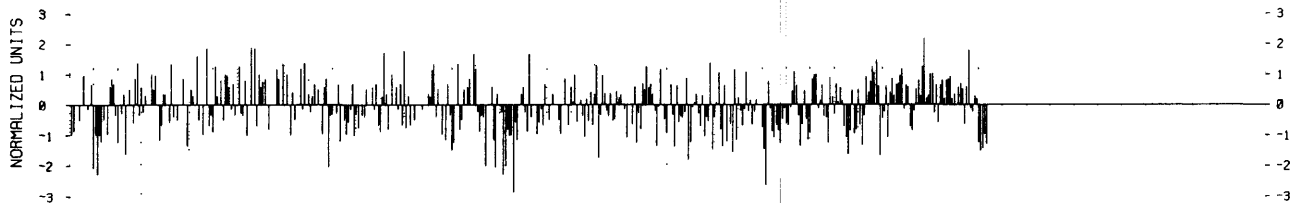
1886-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

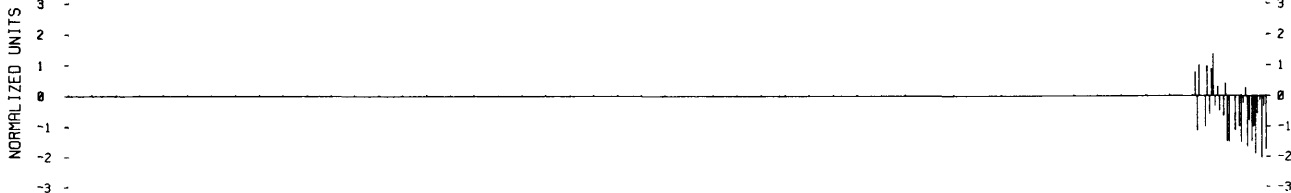


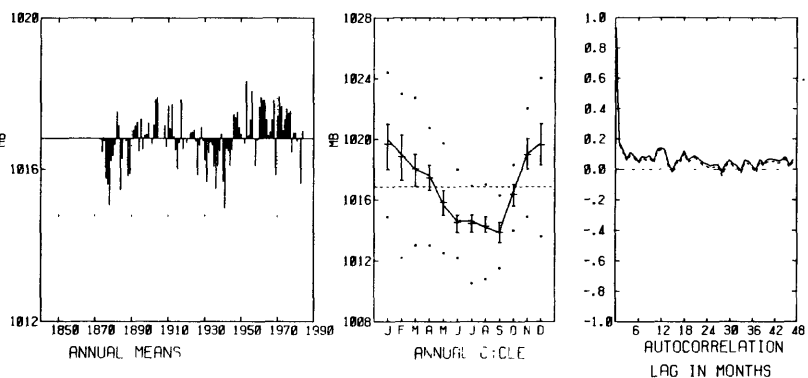
Figure 83. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Eureka, CA, 1886-1978.

BARO PRESS SAN FRANCISCO CALIFORNIA

UNITS ARE MB

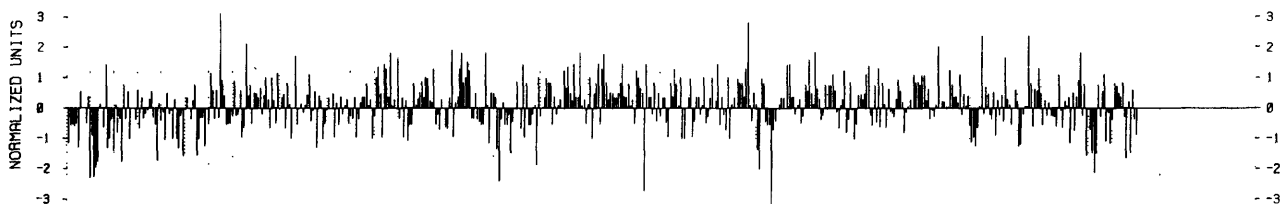
1873-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



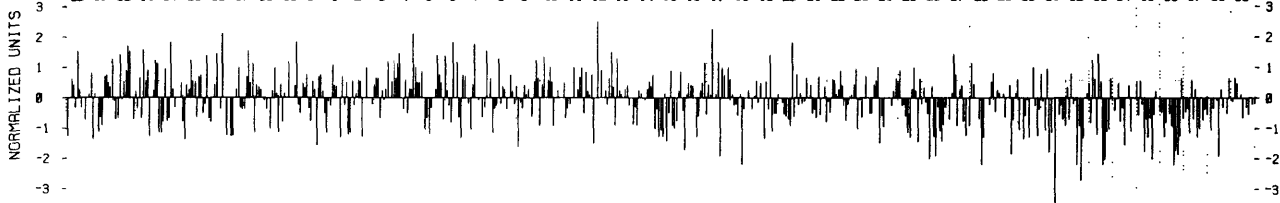
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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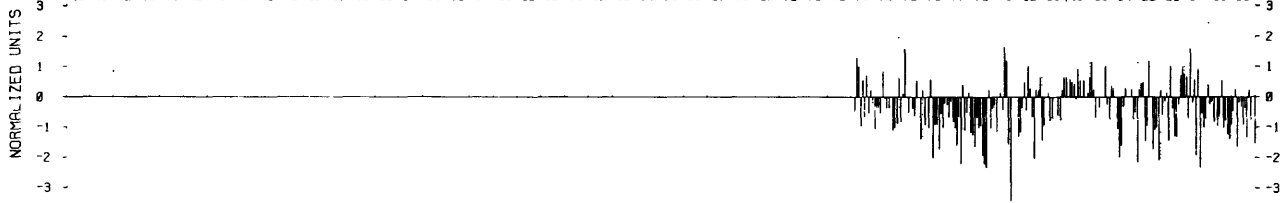


Figure 84. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at San Francisco, CA, 1873-1984.

BARO PRESS WEATHER SHIP N

UNITS ARE MB

1954-1974

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

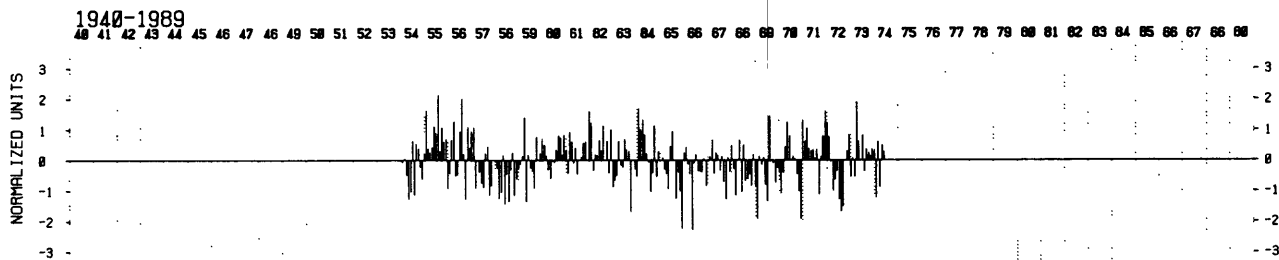
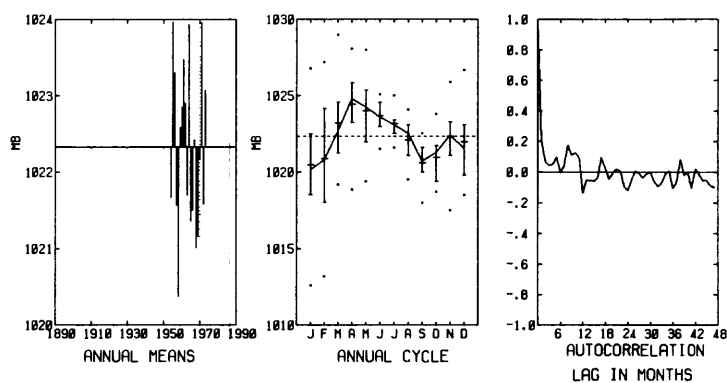


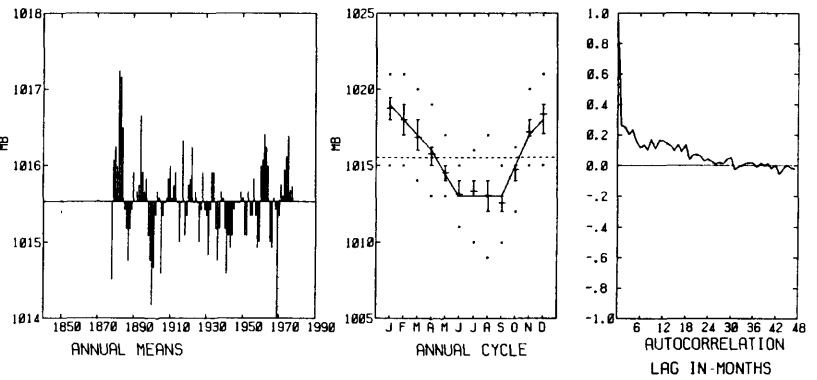
Figure 85. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Weather Ship N, 1954-1974.

BARO PRESS LOS ANGELES CALIFORNIA

UNITS ARE MB

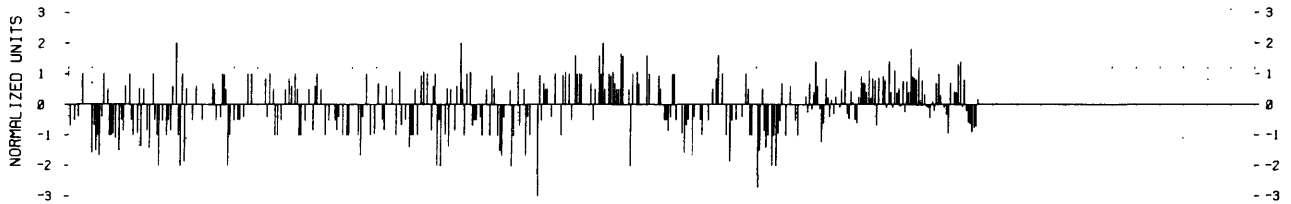
1877-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



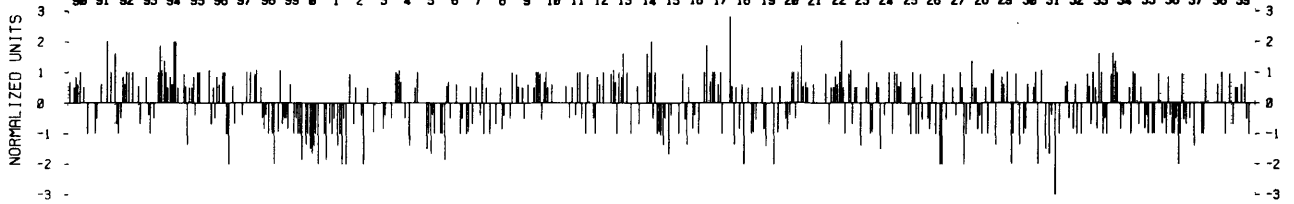
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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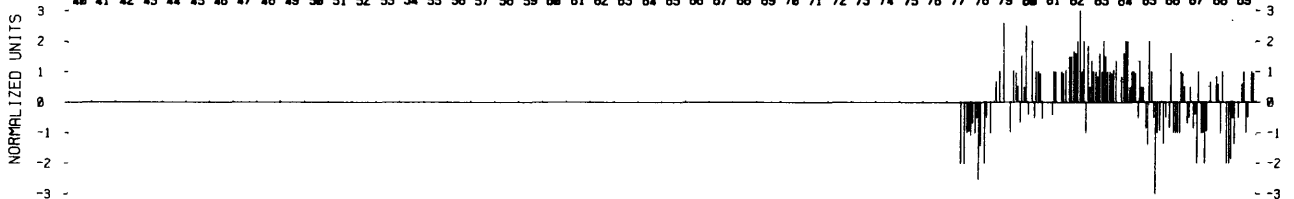


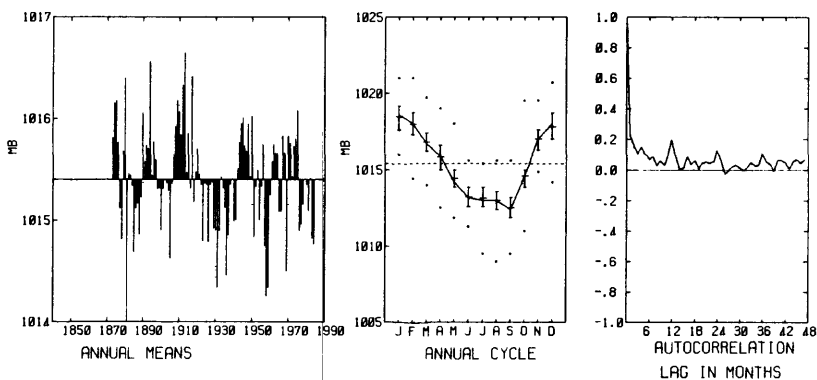
Figure 86. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Los Angeles, CA, 1877-1978.

BARO PRESS SAN DIEGO CALIFORNIA

UNITS ARE MB

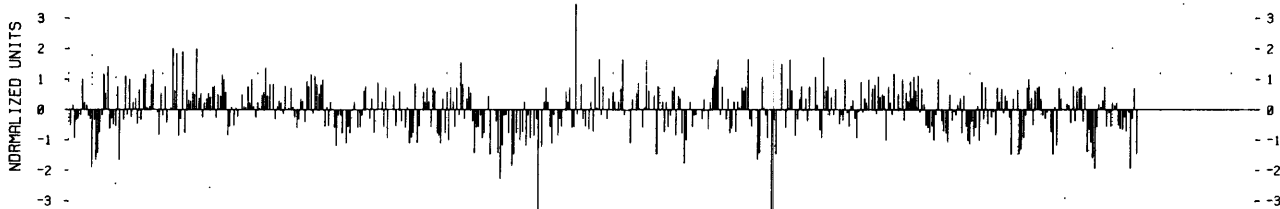
1873-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



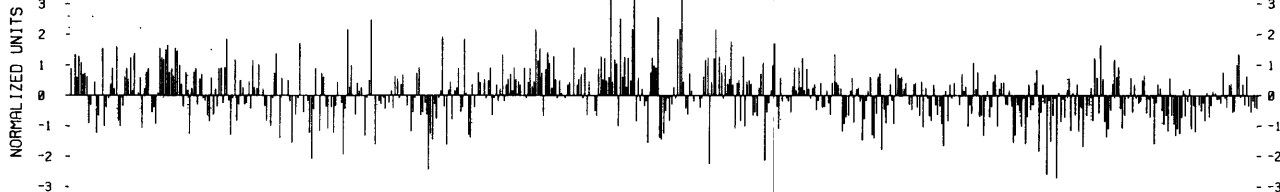
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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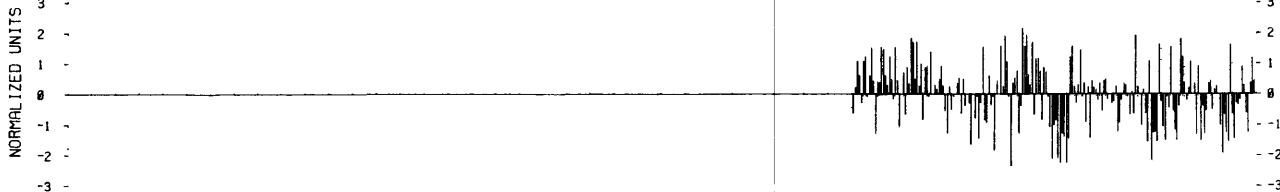


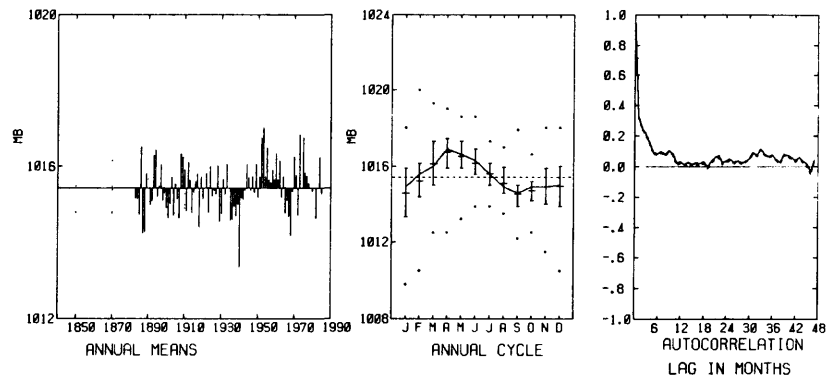
Figure 87. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at San Diego, CA, 1873-1984.

BARO PRESS HONOLULU OAHU HAWAII

UNITS ARE MB

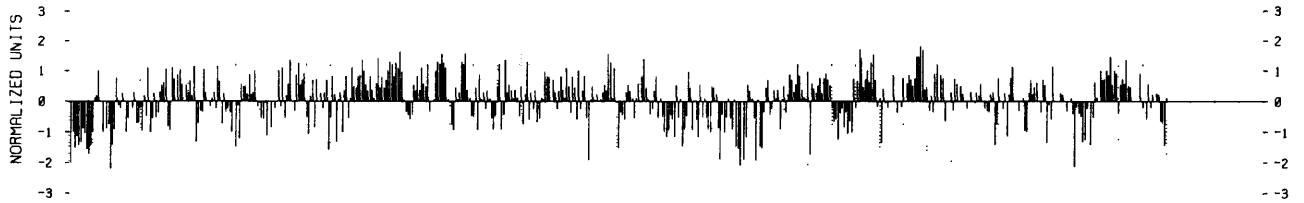
1883-1985

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



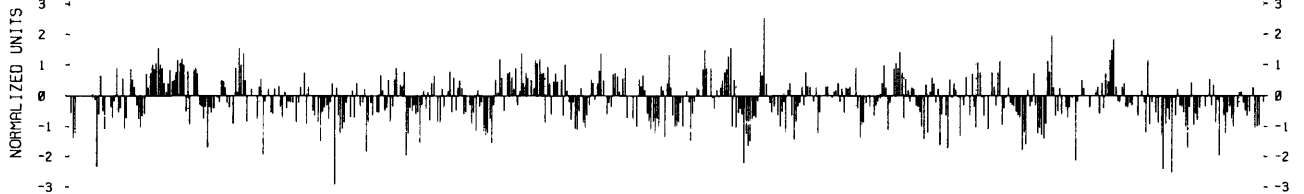
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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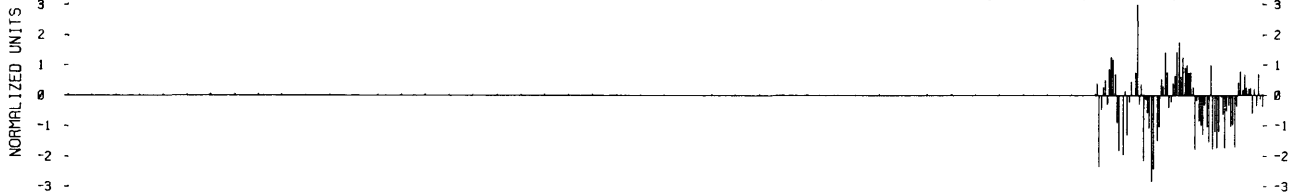


Figure 88. Graphs of standardized monthly anomaly and selected statistics for barometric pressure at Honolulu, HI, 1883-1985.

Variable III: Precipitation



Figure 89. Map showing locations of precipitation stations.

Table 3.--Index to precipitation stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	90	Nome, AK	64°30'N.	165°24'W.	1907-1985	NCAR
2	91	Bethel, AK	60°48'N.	162°12'W.	1924-1875	NCAR
3	92	Fairbanks, AK	64°54'N.	147°42'W.	1931-1985	NCAR
4	93	Anchorage, AK	61°48'N.	149°53'W.	1941-1984	Tabata
5	94	Adak, AK	51°51'N.	176°39'W.	1942-1984	Tabata
6	95	Dutch Harbour, AK	53°54'N.	166°32'W.	1905-1984	Tabata
7	96	Kodiak, AK	57°47'N.	152°24'W.	1869-1984	Tabata
8	97	Valdez, AK	61°07'N.	146°16'W.	1909-1984	Tabata
9	98	Coppermine, CAN	67°48'N.	115°12'W.	1931-1985	NCAR
10	99	Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Tabata
11	100	Whitehorse, CAN	60°42'N.	135°06'W.	1942-1985	NCAR
12	101	Juneau, AK	58°15'N.	134°25'W.	1881-1984	Tabata
13	102	Sitka, AK	57°03'N.	135°20'W.	1842-1984	Tabata
14	103	Fort Nelson, CAN	58°48'N.	122°36'W.	1937-1985	NCAR
15	104	Fort Smith, CAN	60°00'N.	111°54'W.	1931-1985	NCAR
16	105	Weather Ship P	50°00'N.	145°00'W.	1953-1981	Tabata
17	106	Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Tabata
18	107	Masset, CAN	54°02'N.	132°08'W.	1897-1968	Tabata
19	108	Prince Rupert, CAN	54°18'N.	130°26'W.	1911-1984	Tabata
20	109	Edmonton, CAN	53°36'N.	113°30'W.	1883-1985	NCAR
21	110	Kamloops, CAN	50°42'N.	120°30'W.	1895-1970	NCAR
22	111	Calgary, CAN	51°00'N.	114°00'W.	1885-1970	NCAR
23	112	Vancouver City, CAN	49°17'N.	123°07'W.	1905-1983	Tabata
24	113	New Westminster, CAN	49°13'N.	122°56'W.	1874-1978	Tabata
25	114	Agassiz, CAN	49°17'N.	121°46'W.	1889-1983	Tabata
26	115	Pachena Point, CAN	48°43'N.	125°06'W.	1924-1978	Tabata
27	116	Gonzales, CAN	48°25'N.	123°19'W.	1898-1984	Tabata
28	117	Olga, WA	48°37'N.	122°48'W.	1890-1983	Roden
29	118	Tatoosh Island, WA	48°23'N.	124°44'W.	1883-1966	Tabata
30	119	Seattle, WA	47°32'N.	122°19'W.	1878-1984	Tabata
31	120	Havre City, MT	48°36'N.	109°42'W.	1880-1983	NCAR
32	121	Walla Walla, WA	46°00'N.	118°18'W.	1873-1977	NCAR
33	122	Helena, MT	46°36'N.	112°06'W.	1880-1983	NCAR
34	123	Boise, ID	43°36'N.	116°12'W.	1896-1985	NCAR
35	124	Corvallis, OR	44°38'N.	123°12'W.	1889-1986	Redmond
36	125	Newport, OR	44°38'N.	124°03'W.	1891-1986	Redmond
37	126	Sheridan, WY	44°48'N.	107°00'W.	1908-1985	NCAR
38	127	Ashland, OR	42°13'N.	122°43'W.	1879-1986	Redmond
39	128	Lakeview, OR	42°13'N.	120°22'W.	1910-1986	Redmond
40	129	Eureka, CA	40°48'N.	124°10'W.	1886-1984	Tabata
41	130	Fort Bidwell, CA	41°51'N.	120°08'W.	1866-1985	Michaelsen
42	131	Winnemucca, NV	41°00'N.	117°42'W.	1884-1985	NCAR
43	132	Red Bluff, CA	40°09'N.	122°15'W.	1871-1984	Roos
44	133	Chico, CA	39°45'N.	121°50'W.	1870-1984	Roos
45	134	Beowawe, NV	40°36'N.	116°29'W.	1870-1985	Michaelsen
46	135	Salt Lake City, UT	40°48'N.	111°54'W.	1875-1985	NCAR
47	136	Nevada City, CA	39°14'N.	121°01'W.	1863-1984	Roos
48	137	McGill, NV	39°24'N.	114°46'W.	1888-1986	Michaelsen
49	138	Sacramento, CA	38°35'N.	121°30'W.	1849-1987	Michaelsen
50	139	Napa, CA	38°17'N.	122°16'W.	1877-1985	Michaelsen
51	140	San Francisco, CA	37°48'N.	122°22'W.	1850-1984	Tabata
52	141	Livermore, CA	37°40'N.	121°46'W.	1871-1985	Michaelsen
53	142	Stockton, CA	38°00'N.	121°19'W.	1850-1987	Michaelsen
54	143	Santa Cruz, CA	36°59'N.	122°01'W.	1878-1987	Michaelsen
55	144	Las Vegas, NV	36°06'N.	115°12'W.	1937-1985	NCAR
56	145	Santa Barbara, CA	34°25'N.	119°42'W.	1868-1987	Michaelsen

Table 3.--Index to precipitation stations and figures.--continued.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
57	146	Los Angeles, CA	33°43'N.	118°16'W.	1877-1984	Tabata
58	147	San Bernardino, CA	34°08'N.	117°16'W.	1870-1985	Michaelsen
59	148	Indio, CA	33°43'N.	116°15'W.	1900-1985	Michaelsen
60	149	Prescott, AZ	34°34'N.	112°38'W.	1876-1986	Michaelsen
61	150	Walnut Grove, AZ	34°18'N.	112°33'W.	1890-1986	Michaelsen
62	151	Holbrook, AZ	34°54'N.	110°10'W.	1887-1986	Michaelsen
63	152	Albuquerque, NM	35°06'N.	106°36'W.	1931-1985	NCAR
64	153	San Diego, CA	32°42'N.	117°14'W.	1850-1984	Tabata
65	154	Buckeye, AZ	33°23'N.	112°35'W.	1889-1986	Michaelsen
66	155	Phoenix, AZ	33°30'N.	112°00'W.	1896-1985	NCAR
67	156	Cuyamaca, CA	32°59'N.	116°35'W.	1887-1987	Michaelsen
68	157	Mexicali, MEX	32°39'N.	115°27'W.	1943-1983	Vogel
69	158	Yuma, AZ	32°40'N.	114°36'W.	1870-1982	Roden
70	159	Tucson, AZ	32°15'N.	110°50'W.	1867-1986	Michaelsen
71	160	San Felipe, MEX	31°00'N.	114°50'W.	1949-1983	Vogel
72	161	Bisbee, AZ	31°27'N.	109°55'W.	1889-1984	Michaelsen
73	162	Guaymas, MEX	27°55'N.	110°53'W.	1935-1984	Vogel
74	163	San Ignacio, MEX	27°27'N.	112°50'W.	1939-1983	Vogel
75	164	Loreto, MEX	26°00'N.	111°20'W.	1949-1983	Vogel
76	165	La Paz, MEX	24°10'N.	110°17'W.	1933-1983	Vogel
77	166	Cabo San Lucas, MEX	22°52'N.	109°54'W.	1949-1983	Vogel
78	167	Honolulu, HI	21°18'N.	157°54'W.	1874-1985	NCAR
79	168	Honolulu Obs., HI	21°18'N.	158°06'W.	1901-1970	NCAR

*Refers to map location on Figure 89.

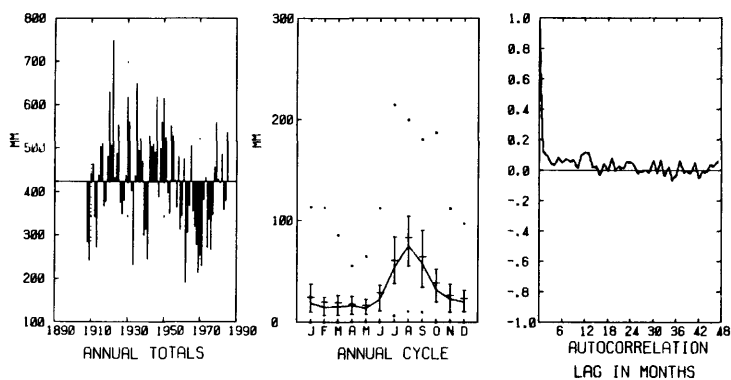
**See Contributors List, p. 379.

PRECIP NOME ALASKA

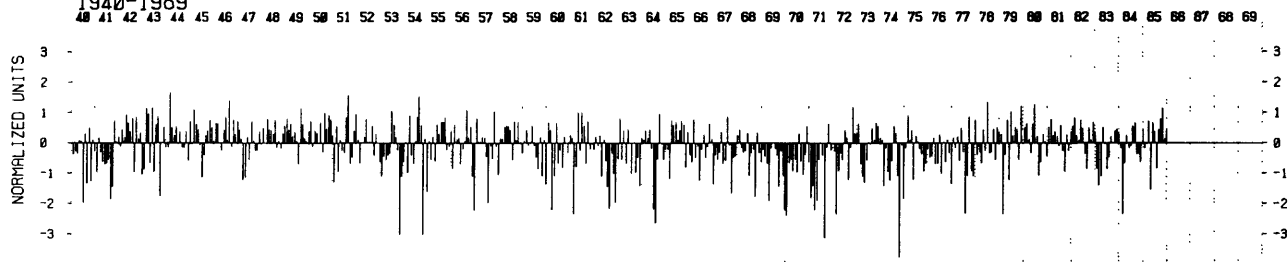
UNITS ARE MM

1907-1985

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1940-1989



1890-1939

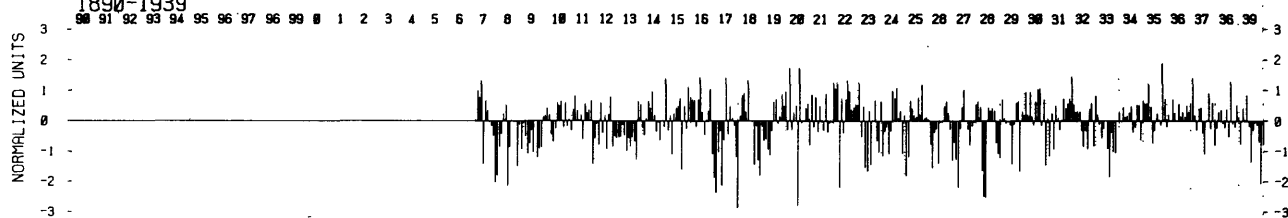


Figure 90. Graphs of standardized monthly anomaly and selected statistics for precipitation at Nome, AK, 1907-1985.

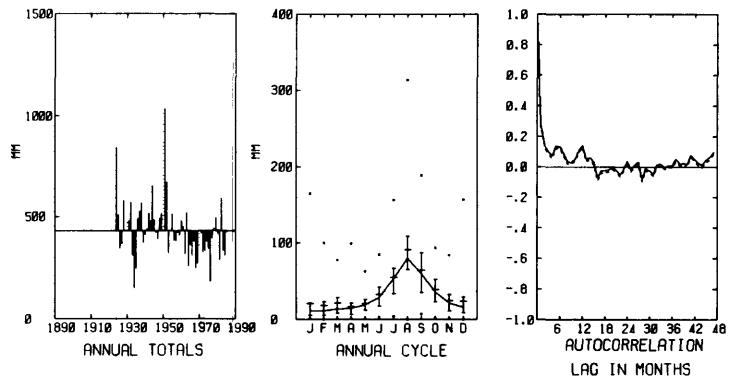
PRECIP BETHEL ALASKA

UNITS ARE MM

1924-1985

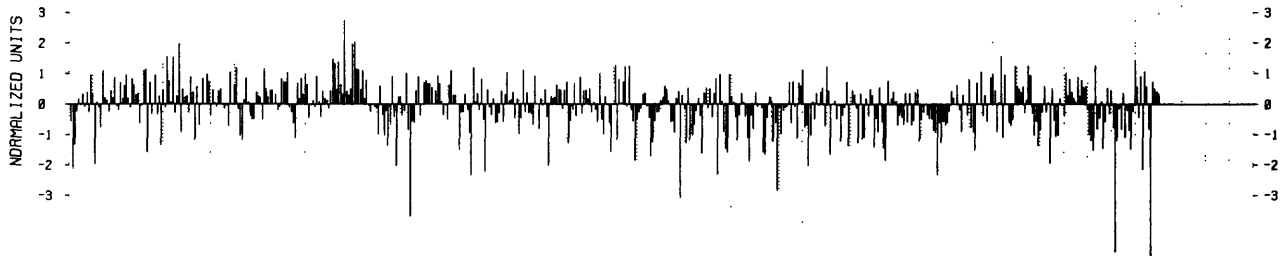
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1940-1989

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1890-1939

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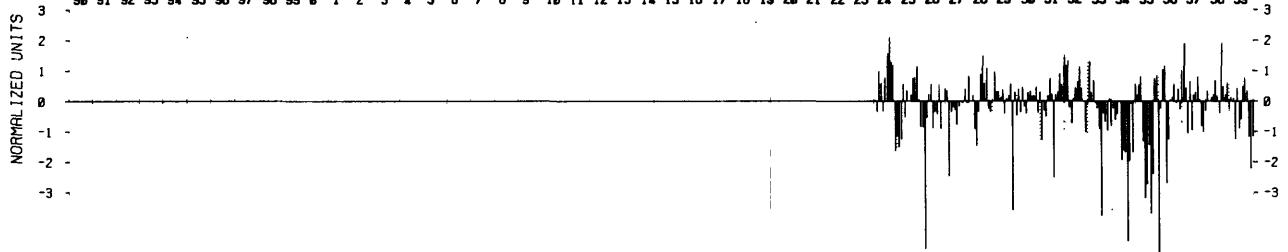


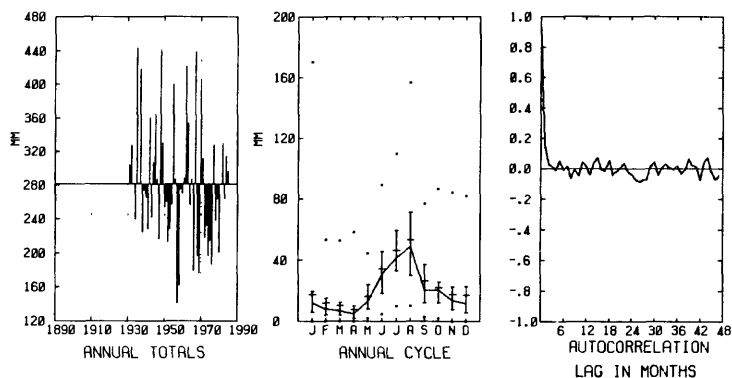
Figure 91. Graphs of standardized monthly anomaly and selected statistics for precipitation at Bethel, AK, 1924-1875.

PRECIP FAIRBANKS ALASKA

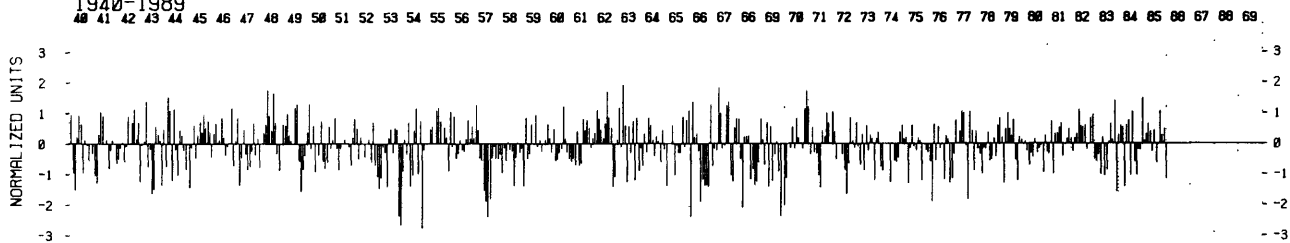
UNITS ARE MM

1931-1985

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1940-1989



1890-1939

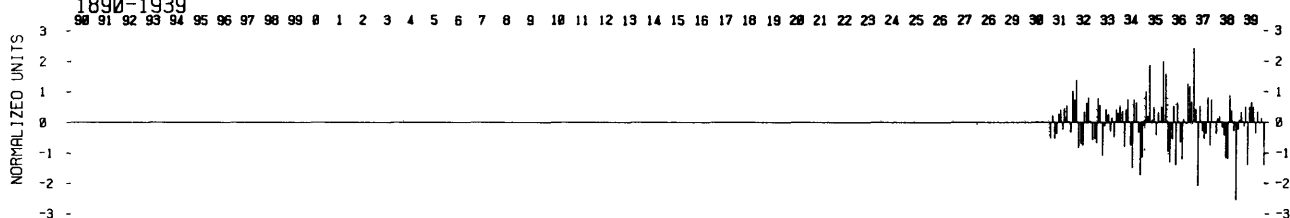


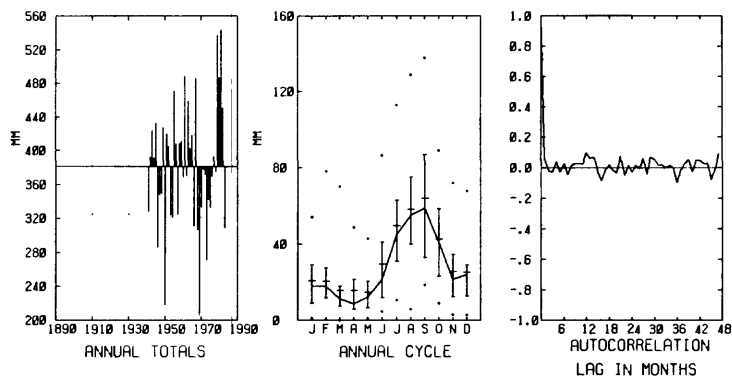
Figure 92. Graphs of standardized monthly anomaly and selected statistics for precipitation at Fairbanks, AK, 1931-1985.

PRECIP ANCHORAGE ALASKA

UNITS ARE MM

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
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1940-1989

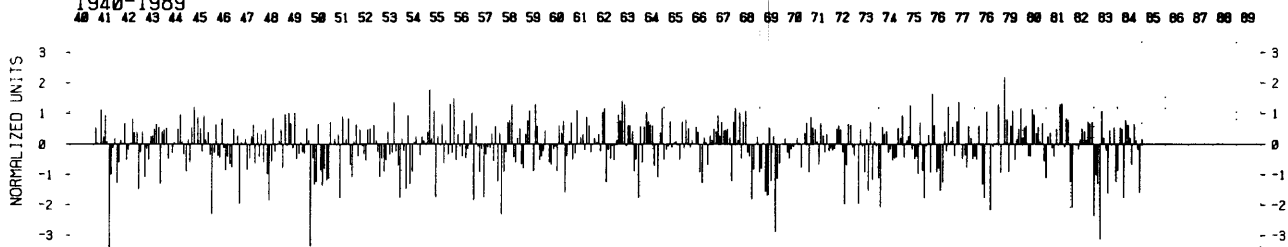


Figure 93. Graphs of standardized monthly anomaly and selected statistics for precipitation at Anchorage, AK, 1941-1984.

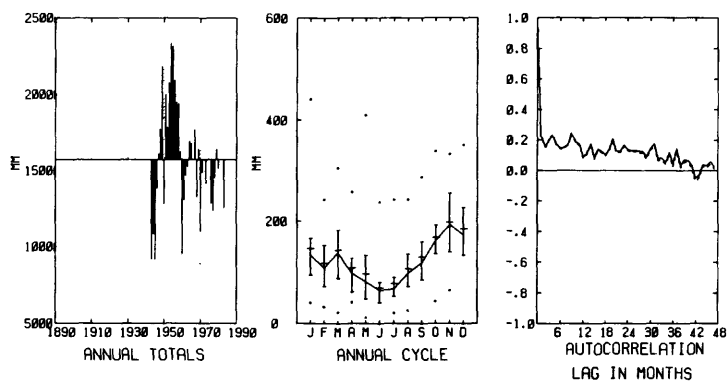
PRECIP ADAK ALASKA

UNITS ARE MM X 10

1942-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

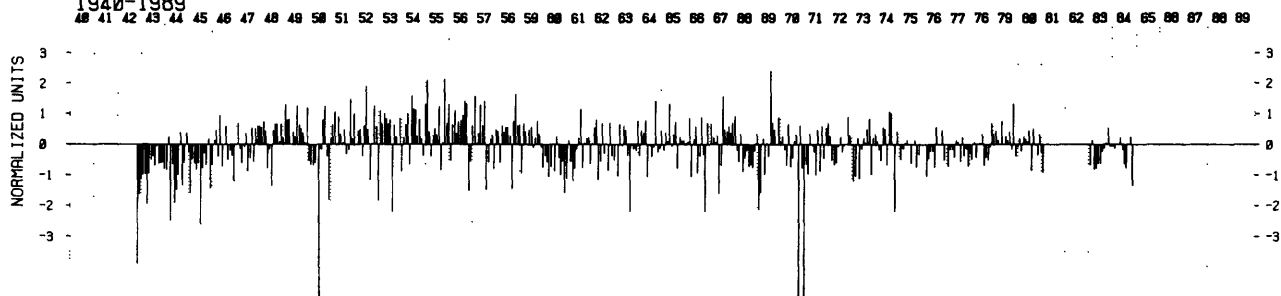


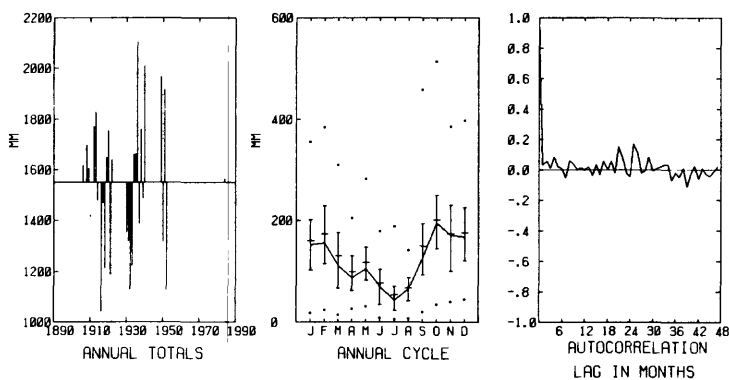
Figure 94. Graphs of standardized monthly anomaly and selected statistics for precipitation at Adak, AK, 1942-1984.

PRECIP DUTCH HARBOUR ALASKA

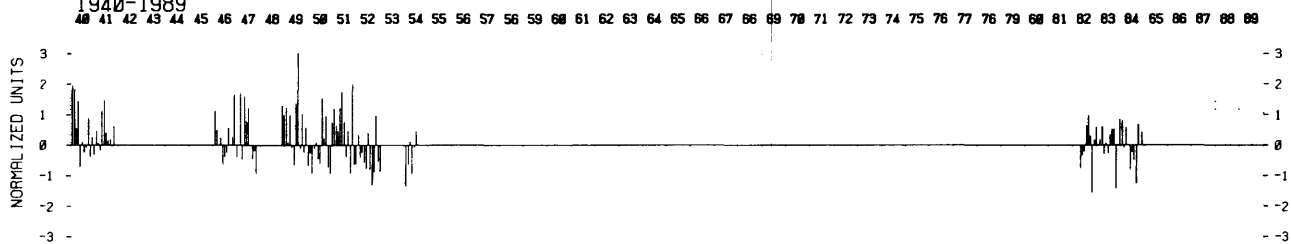
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9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

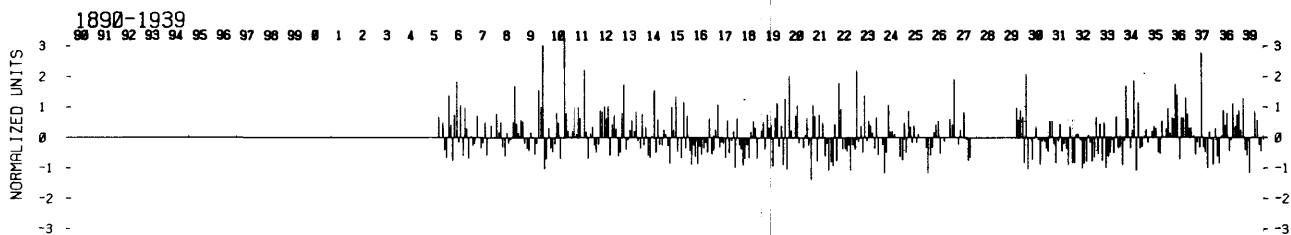


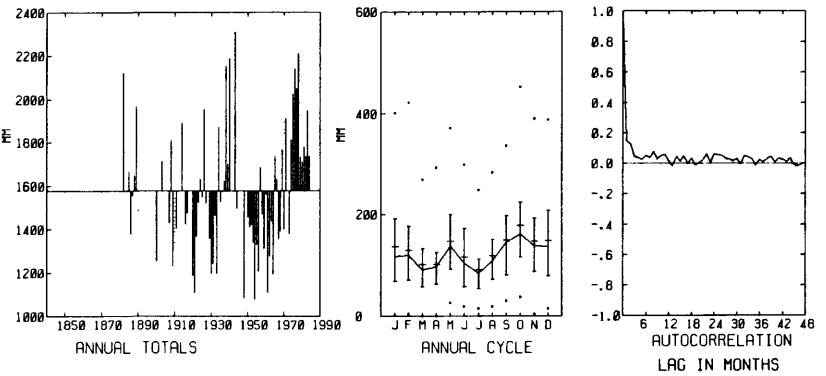
Figure 95. Graphs of standardized monthly anomaly and selected statistics for precipitation at Dutch Harbour, AK, 1905-1984.

PRECIP KODIAK ALASKA

UNITS ARE MM

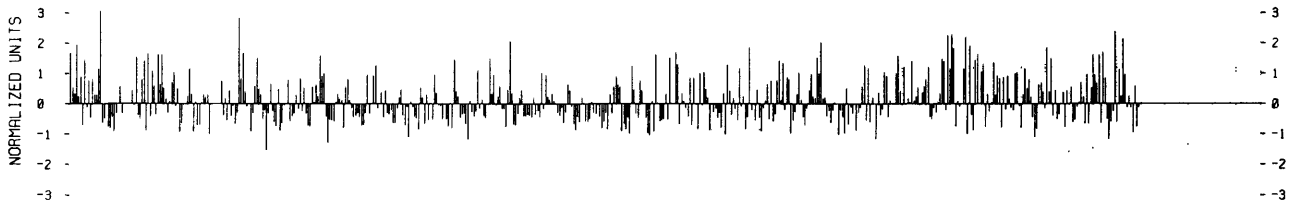
1869-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



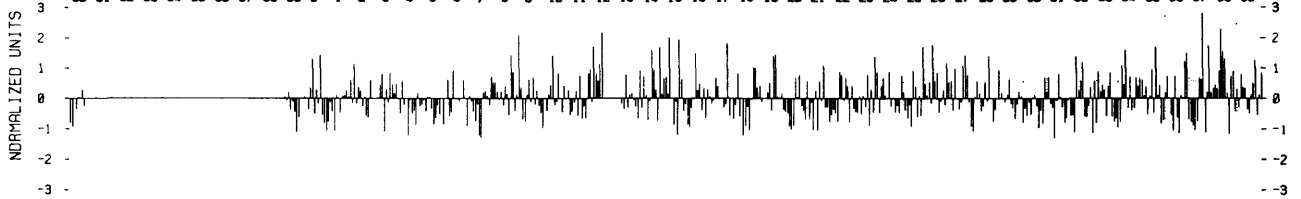
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1890-1939

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1840-1889

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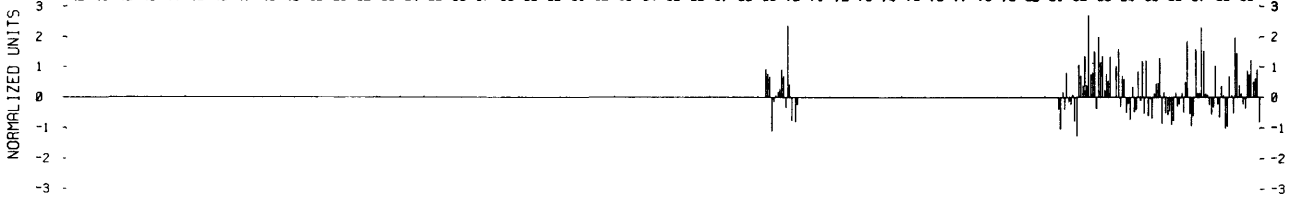


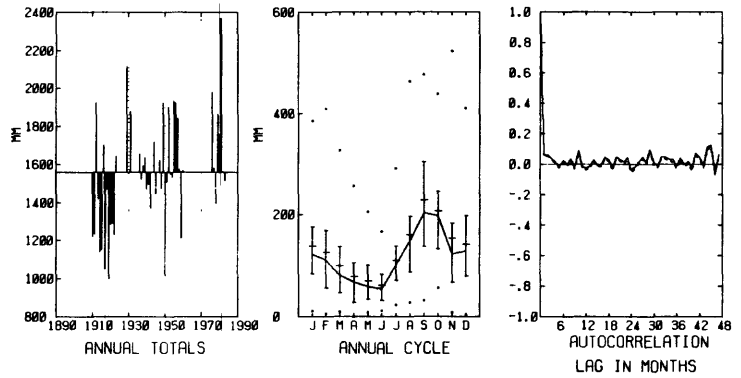
Figure 96. Graphs of standardized monthly anomaly and selected statistics for precipitation at Kodiak, AK, 1869-1984.

PRECIP VALDEZ ALASKA

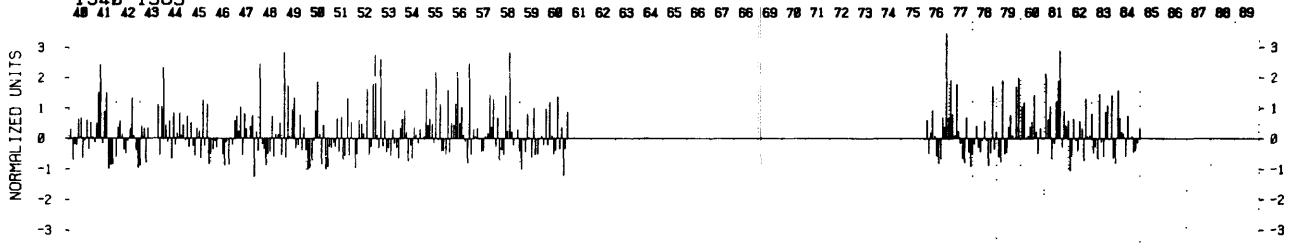
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1909-1984

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1940-1989



1890-1939

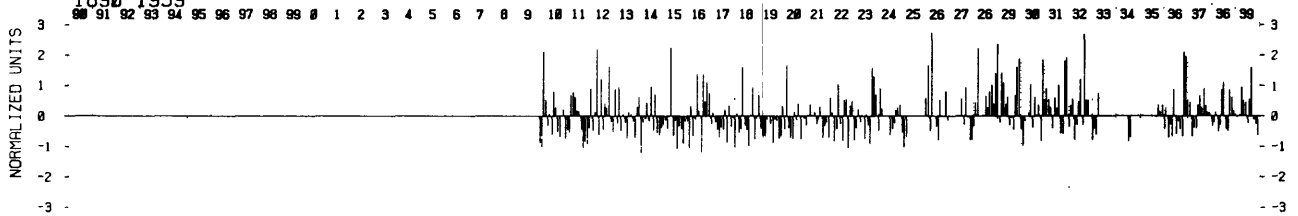


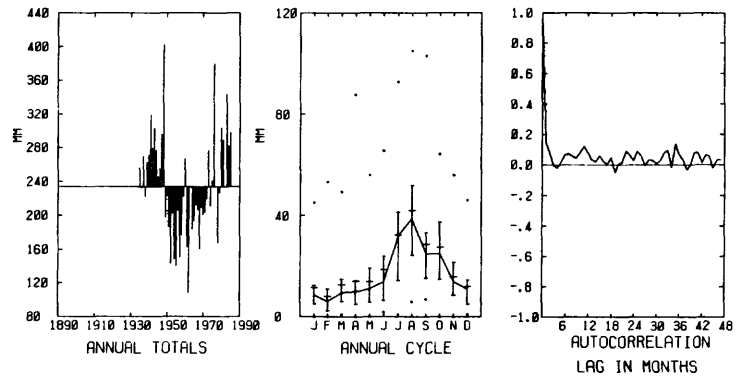
Figure 97. Graphs of standardized monthly anomaly and selected statistics for precipitation at Valdez, AK, 1909-1984.

PRECIP COPPERMINE CANADA

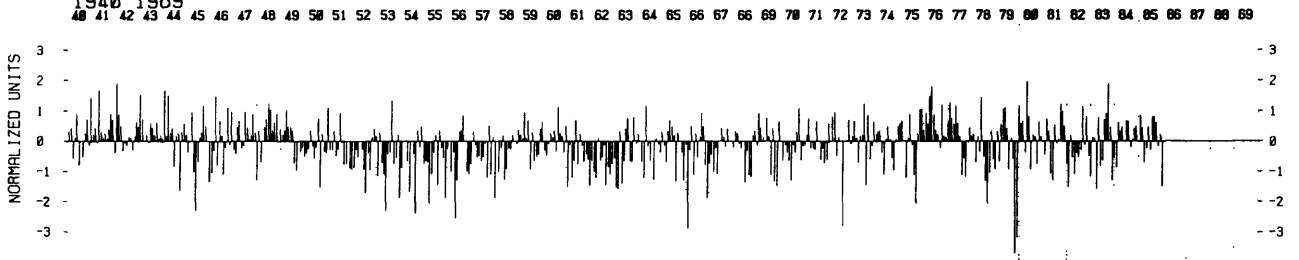
UNITS ARE MM

1931-1985

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1940-1989



1890-1939

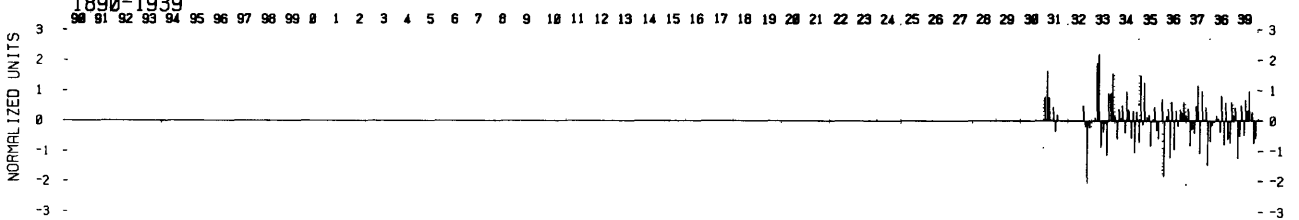


Figure 98. Graphs of standardized monthly anomaly and selected statistics for precipitation at Coppermine, CAN, 1931-1985.

PRECIP YAKUTAT ALASKA

UNITS ARE MM

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
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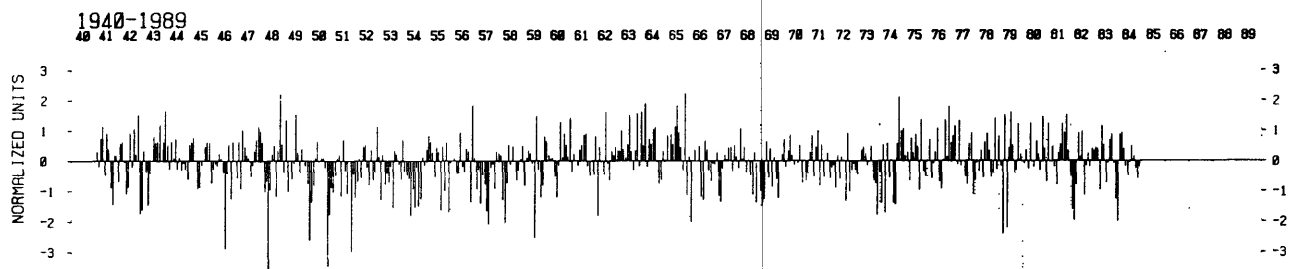
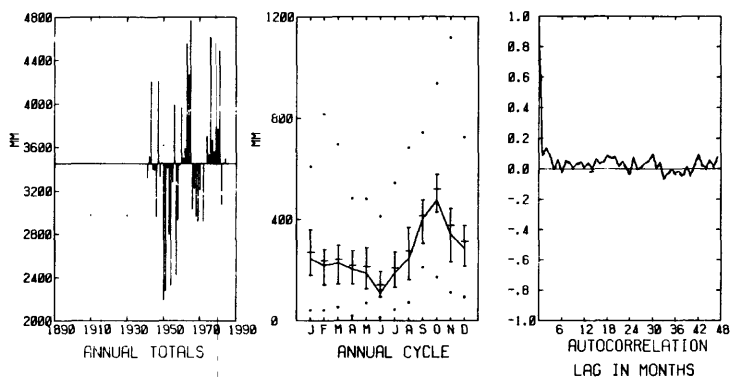


Figure 99. Graphs of standardized monthly anomaly and selected statistics for precipitation at Yakutat, AK, 1941-1984.

PRECIP WHITEHORSE CANADA

UNITS ARE MM

1942-1985

NCAR, DATA SUPPORT SECTION
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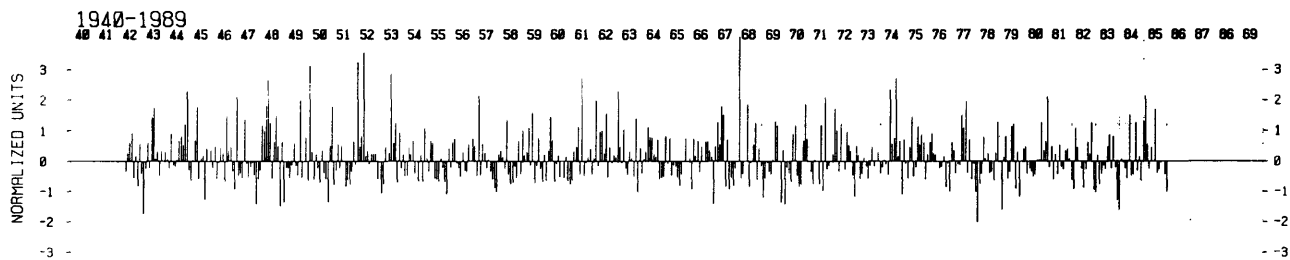
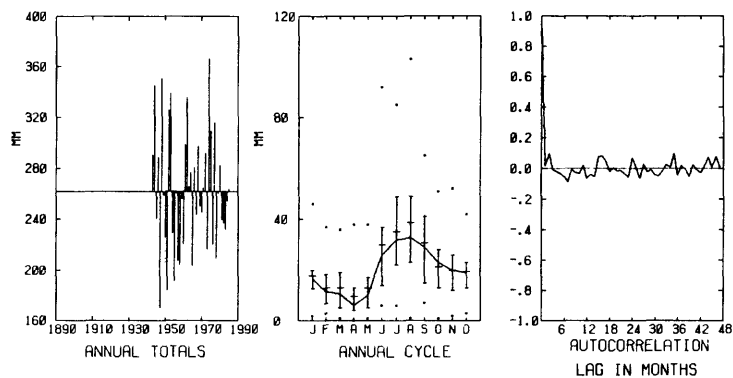


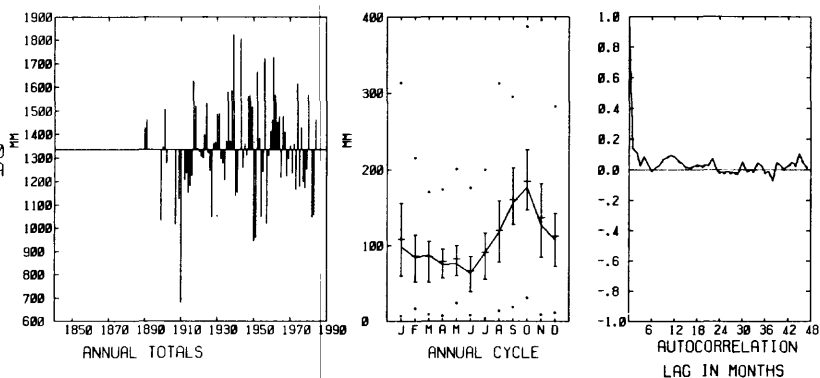
Figure 100. Graphs of standardized monthly anomaly and selected statistics for precipitation at Whitehorse, CAN, 1942-1985.

PRECIP JUNEAU ALASKA

UNITS ARE MM

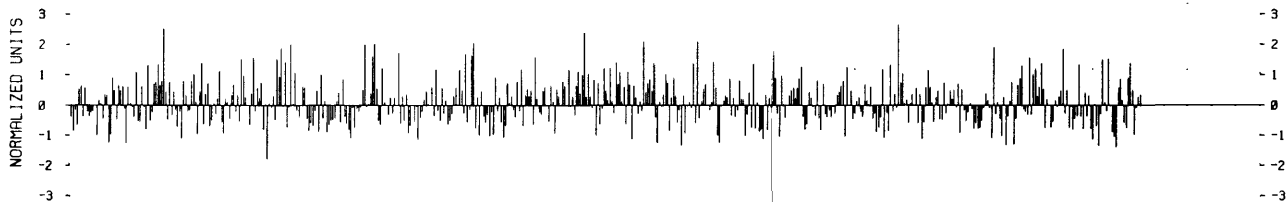
1881-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



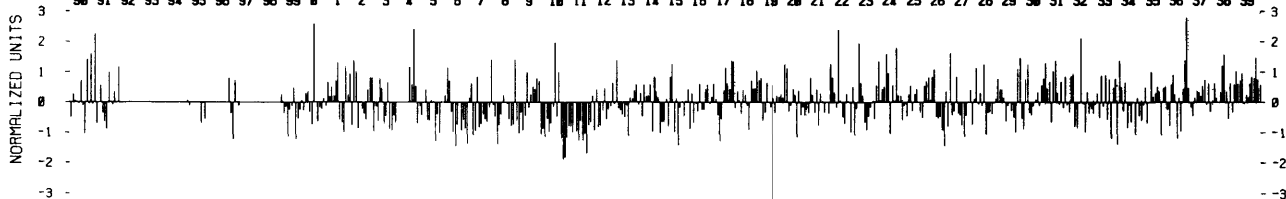
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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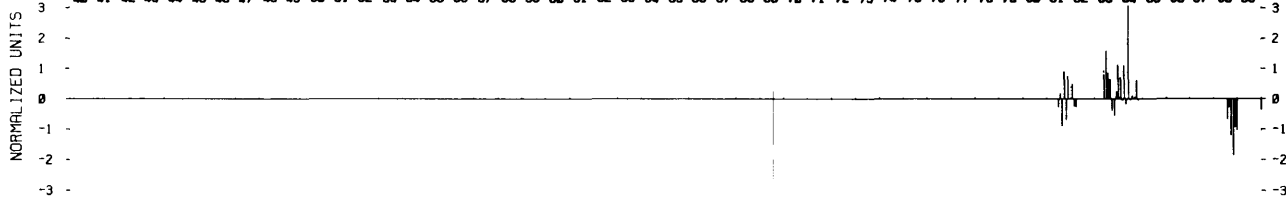


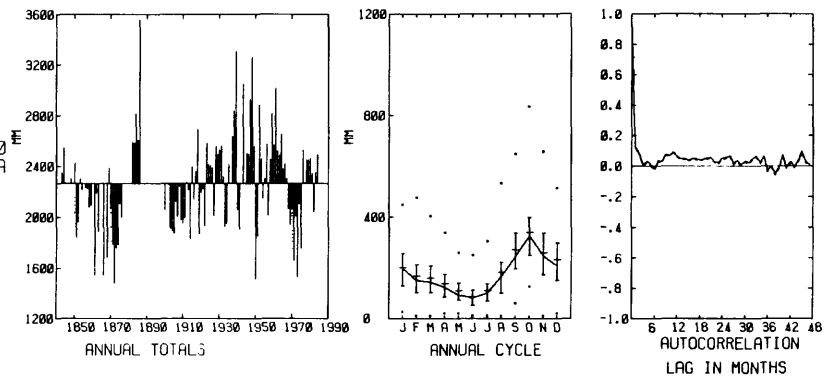
Figure 101. Graphs of standardized monthly anomaly and selected statistics for precipitation at Juneau, AK, 1881-1984.

PRECIP SITKA ALASKA

UNITS ARE MM

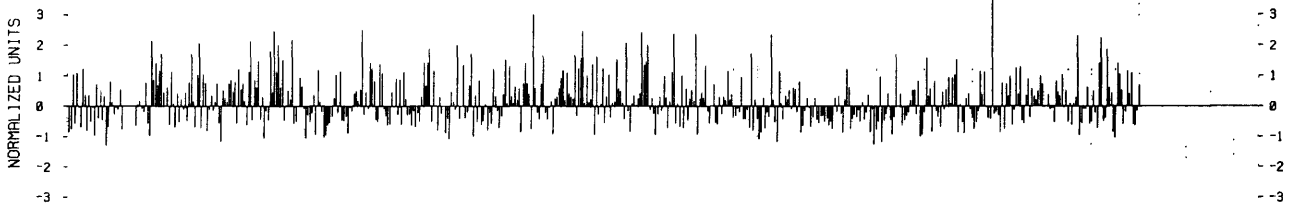
1842-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



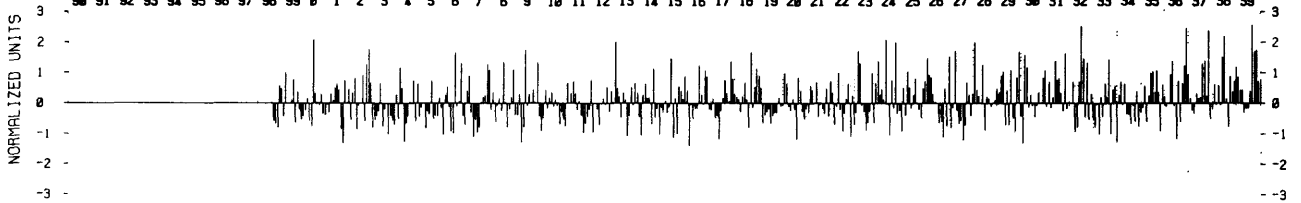
1940-1989

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1890-1939

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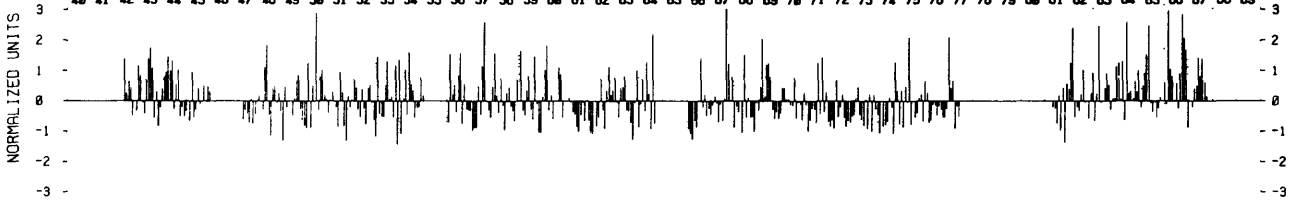


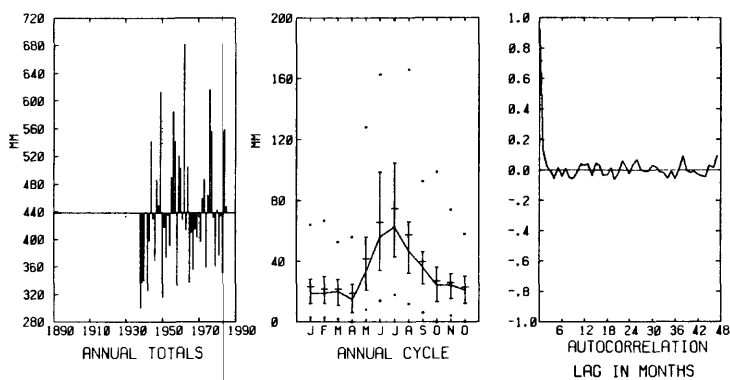
Figure 102. Graphs of standardized monthly anomaly and selected statistics for precipitation at Sitka, AK, 1842-1984.

PRECIP FORT NELSON CANADA

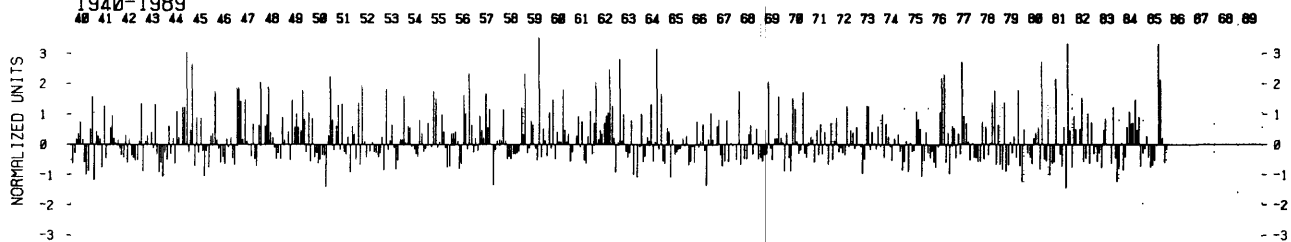
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1937-1985

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1940-1989



1890-1939

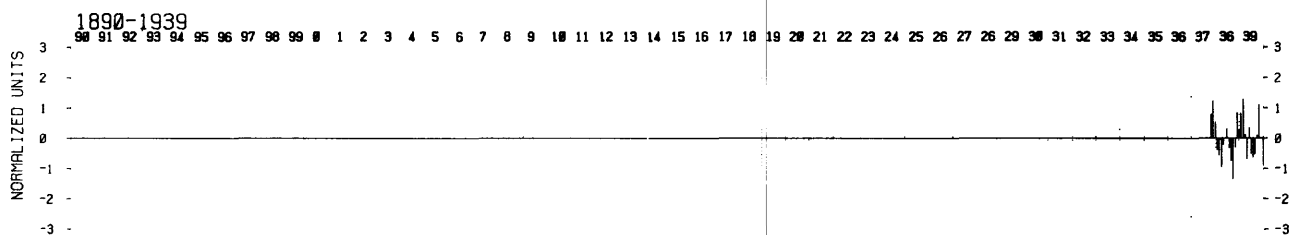


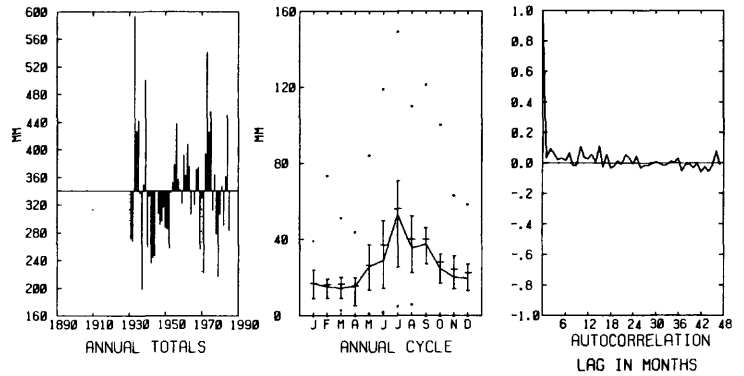
Figure 103. Graphs of standardized monthly anomaly and selected statistics for precipitation at Fort Nelson, CAN, 1937-1985.

PRECIP FORT SMITH CANADA

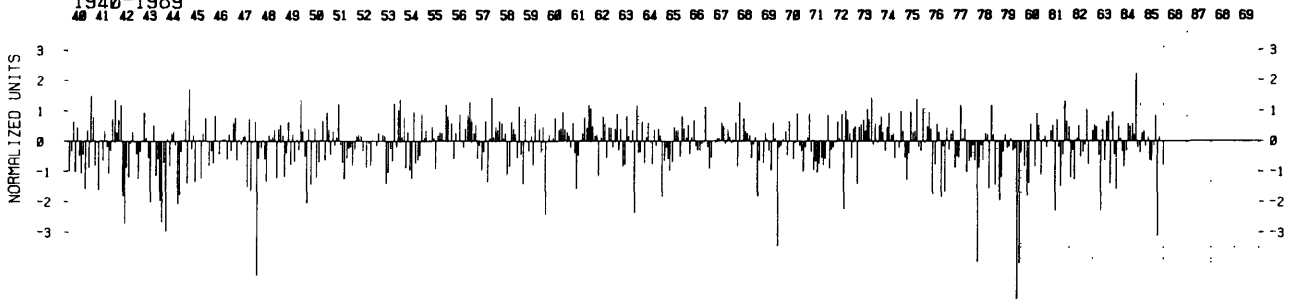
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1931-1985

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1940-1989



1890-1939

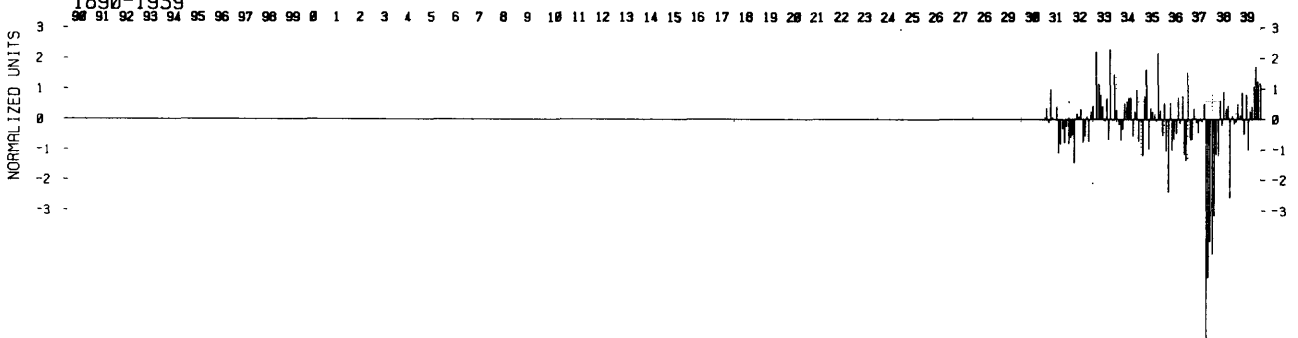


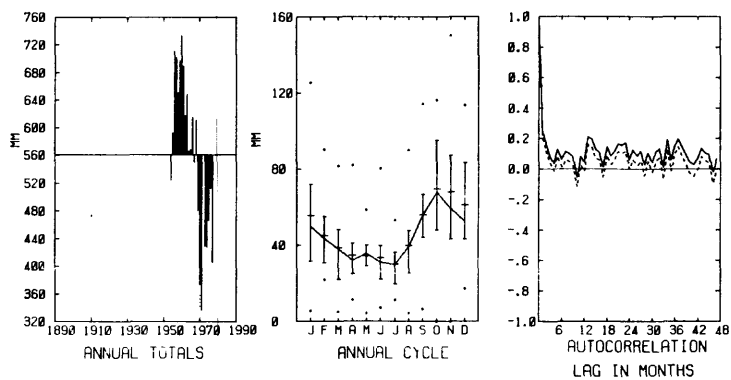
Figure 104. Graphs of standardized monthly anomaly and selected statistics for precipitation at Fort Smith, CAN, 1931-1985.

PRECIP WEATHER SHIP P

UNITS ARE MM

1953-1981

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

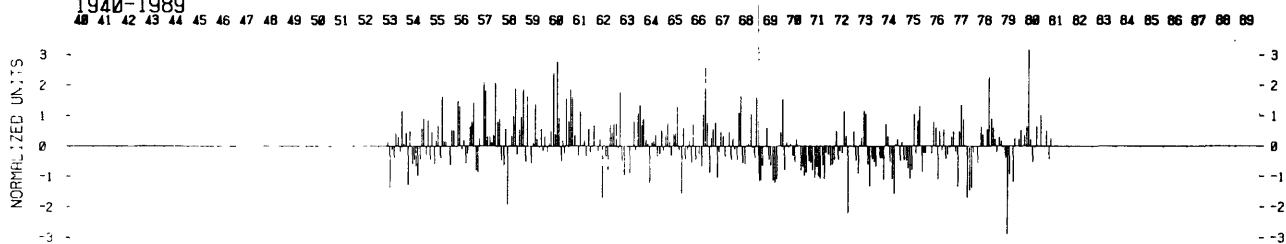


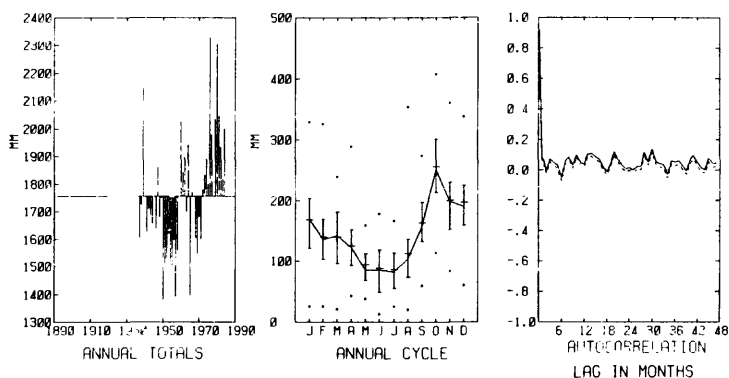
Figure 105. Graphs of standardized monthly anomaly and selected statistics for precipitation at Weather Ship P 1953-1981.

PRECIP LANGARA ISLAND BC CANADA

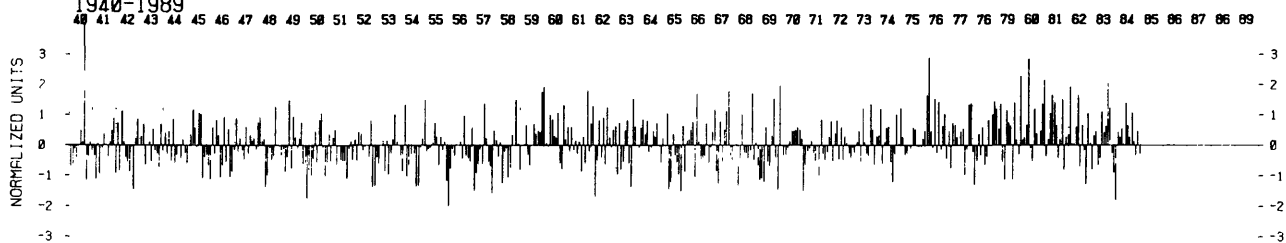
UNITS ARE MM

1936-1984

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9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

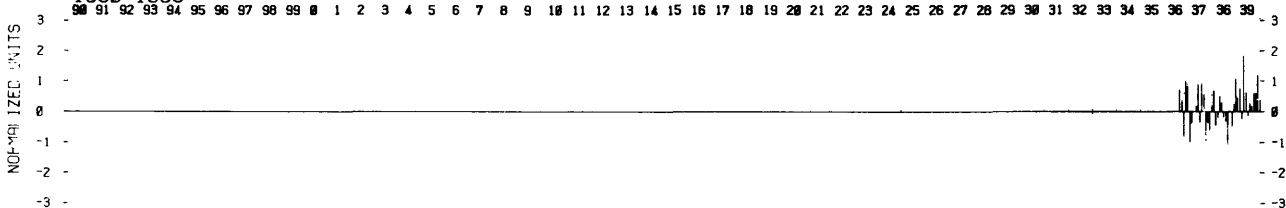


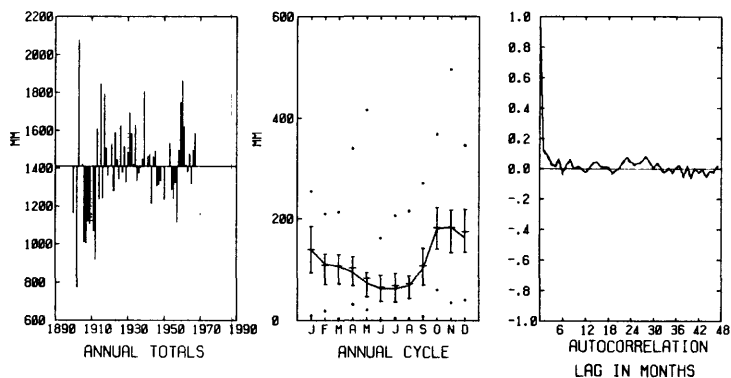
Figure 106. Graphs of standardized monthly anomaly and selected statistics for precipitation at Langara Island, CAN, 1936-1984.

PRECIP MASSET BC CANADA

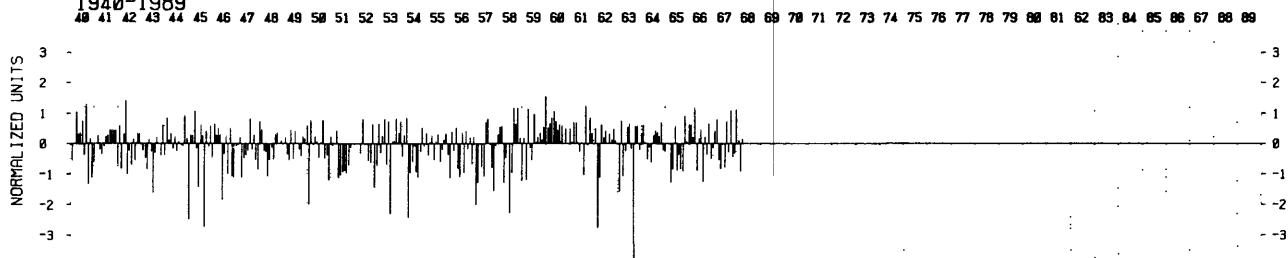
UNITS ARE MM

1897-1968

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA
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1940-1989



1890-1939

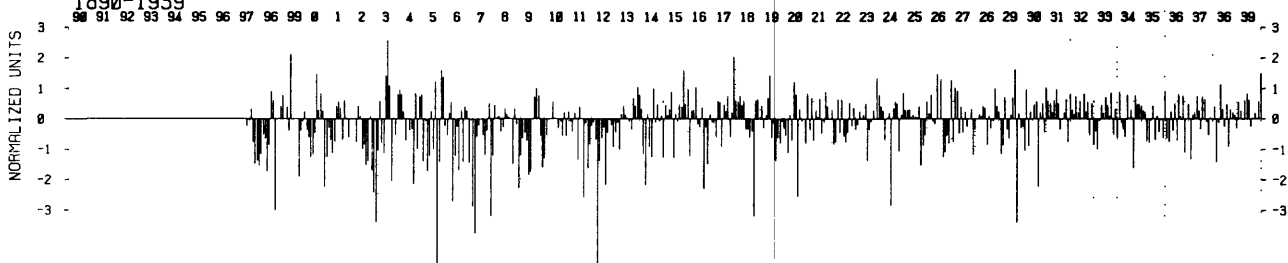


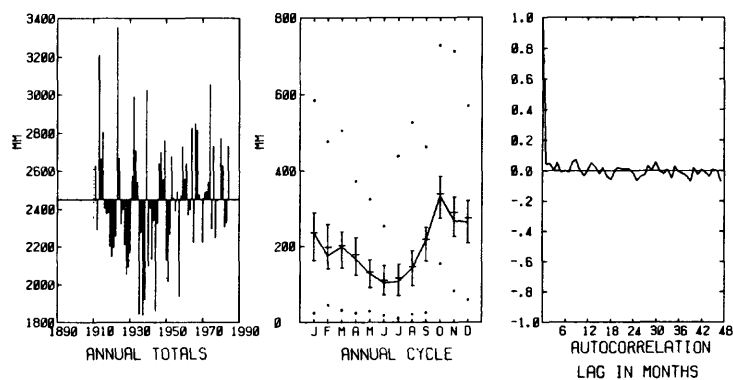
Figure 107. Graphs of standardized monthly anomaly and selected statistics for precipitation at Masset, CAN, 1897-1968.

PRECIP PRINCE RUPERT BC CANADA

UNITS ARE MM

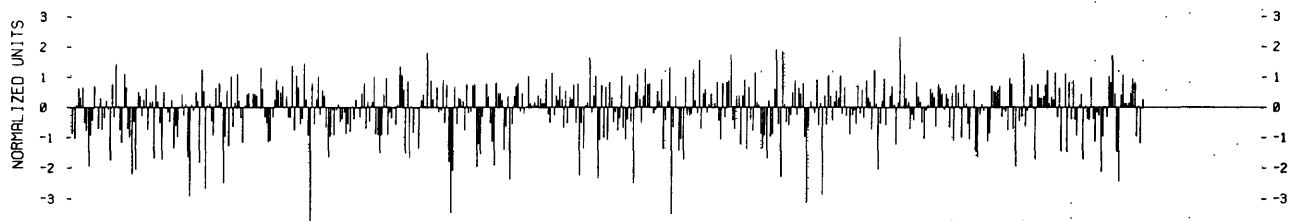
1911-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

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1890-1939

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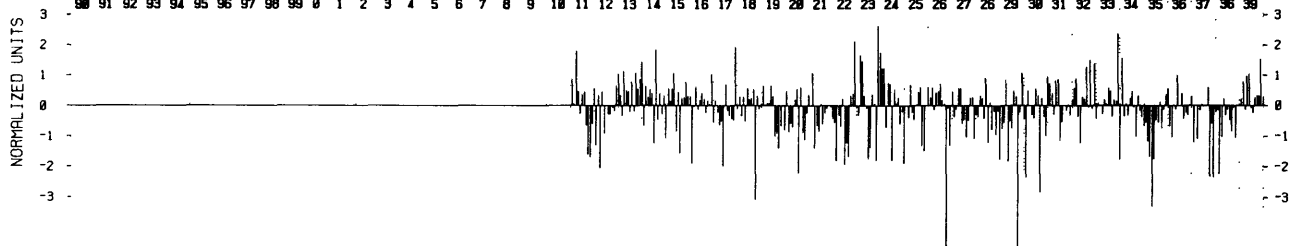


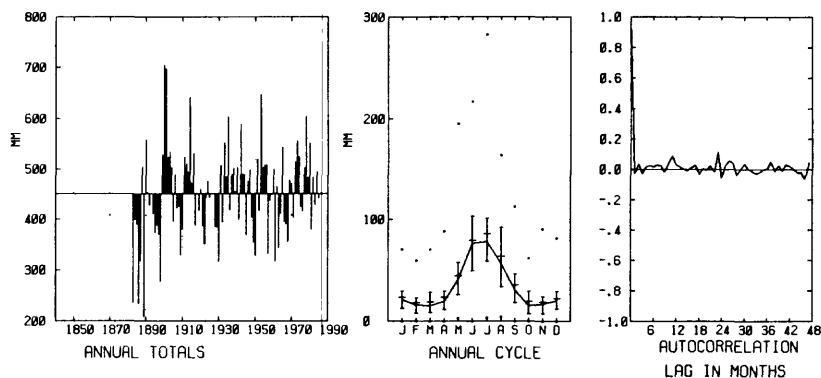
Figure 108. Graphs of standardized monthly anomaly and selected statistics for precipitation at Prince Rupert, CAN, 1911-1984.

PRECIP EDMONTON CANADA

UNITS ARE MM

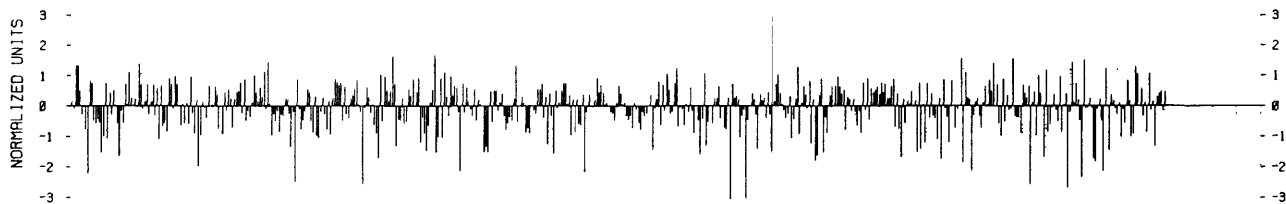
1883-1985

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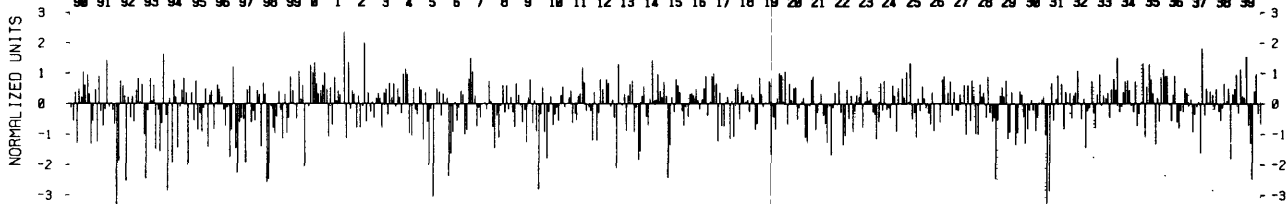
1940-1989

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1890-1939

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1840-1889

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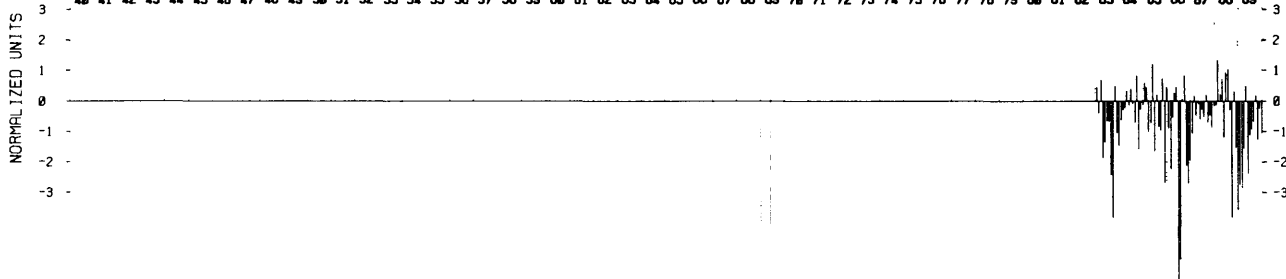


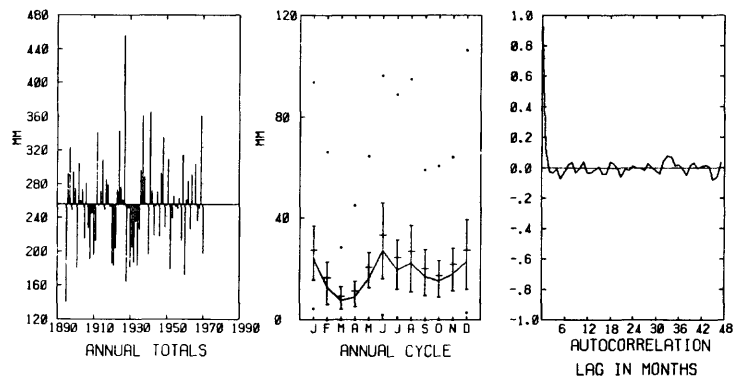
Figure 109. Graphs of standardized monthly anomaly and selected statistics for precipitation at Edmonton, CAN, 1883-1985.

PRECIP KAMLOOPS (BC) CANADA

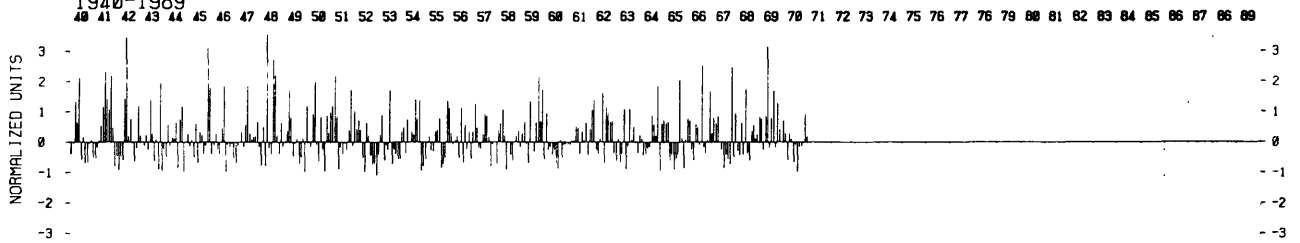
UNITS ARE MM

1895-1970

NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307



1940-1989



1890-1939

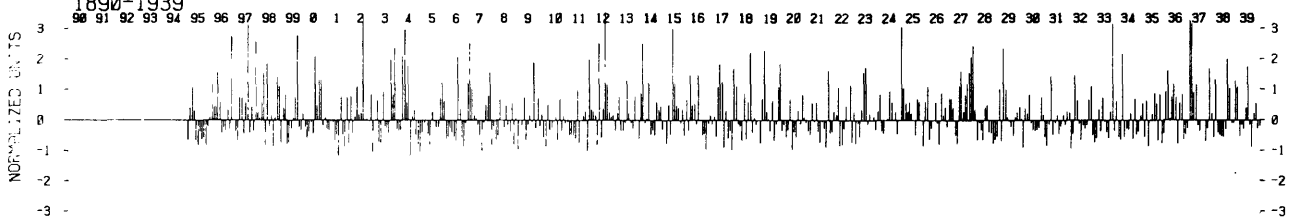


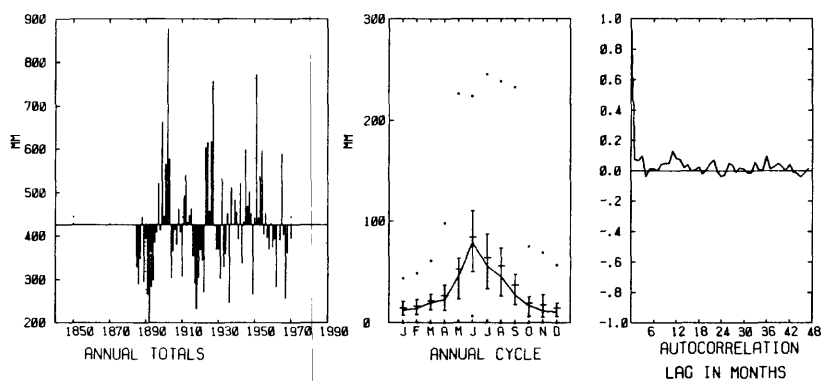
Figure 110. Graphs of standardized monthly anomaly and selected statistics for precipitation at Kamloops, CAN, 1895-1970.

PRECIP CALGARY (ALTA) CANADA

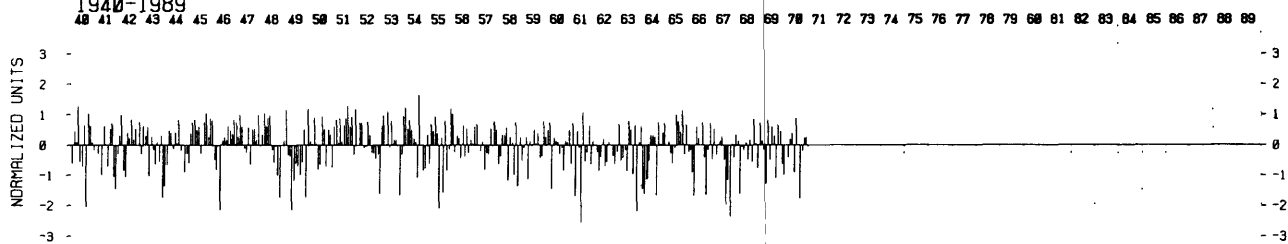
UNITS ARE MM

1885-1970

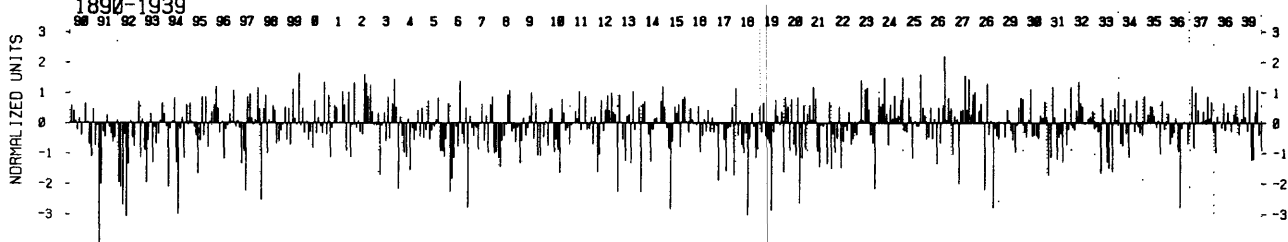
NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

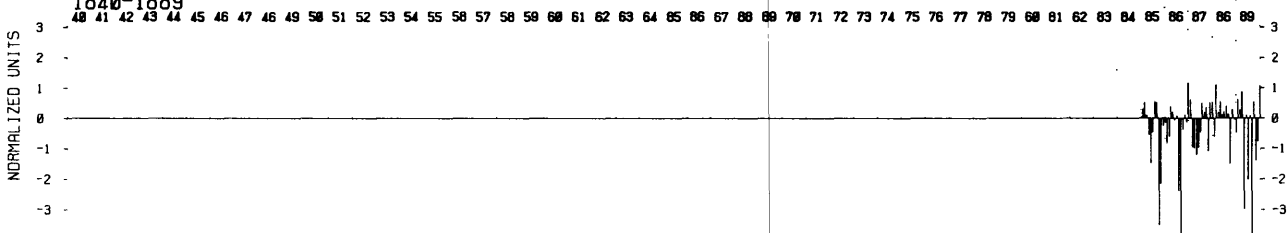


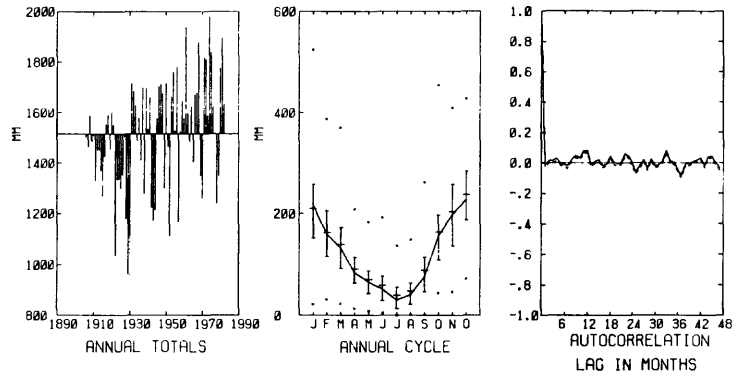
Figure 111. Graphs of standardized monthly anomaly and selected statistics for precipitation at Calgary, CAN, 1885-1970.

PRECIP VANCOUVER CITY BC CANADA

UNITS ARE MM

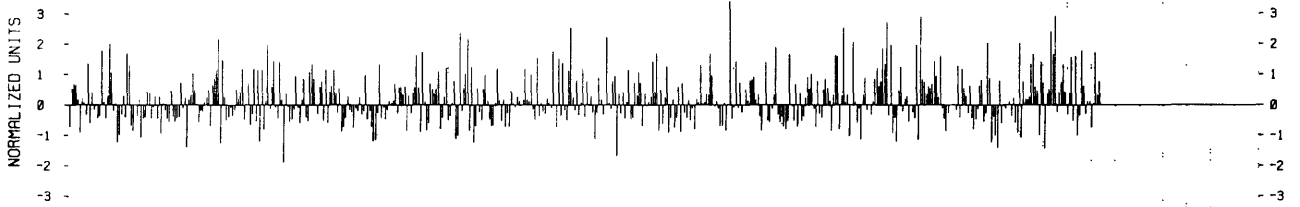
1905-1983

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

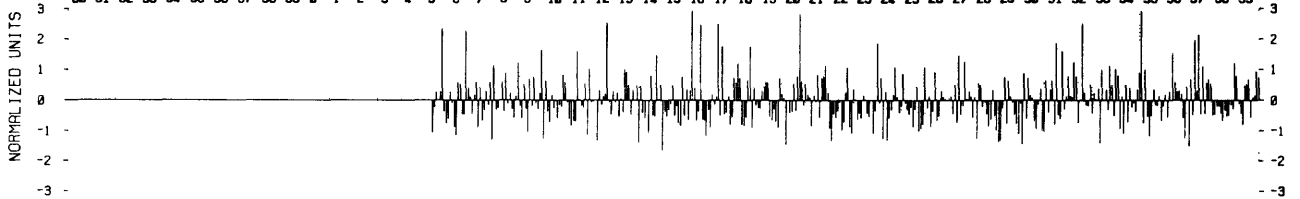


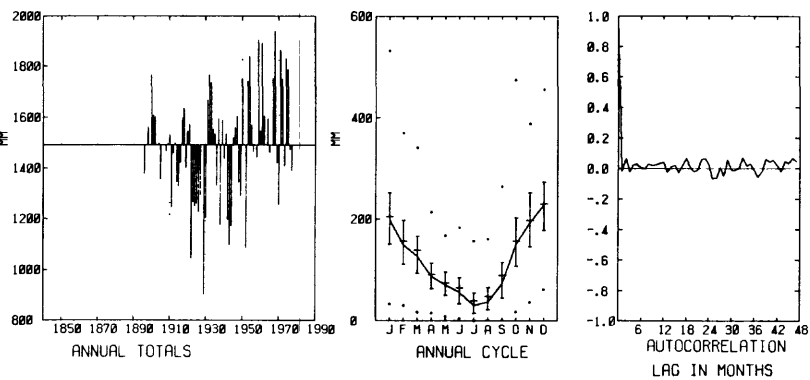
Figure 112. Graphs of standardized monthly anomaly and selected statistics for precipitation at Vancouver City, CAN, 1905-1983.

PRECIP NEW WESTMINSTER BC CANADA

UNITS ARE MM

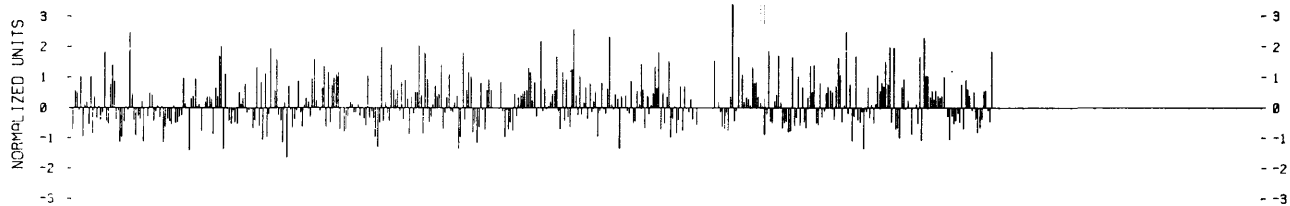
1874-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



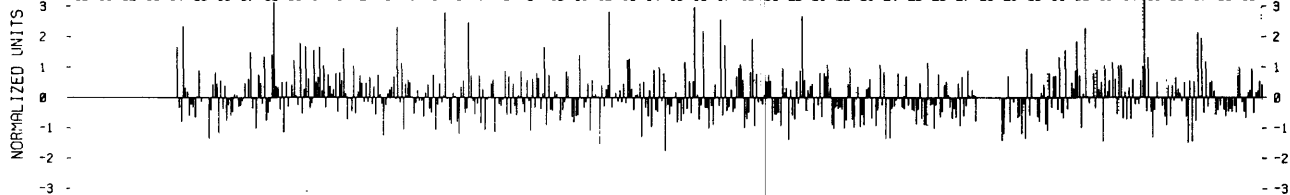
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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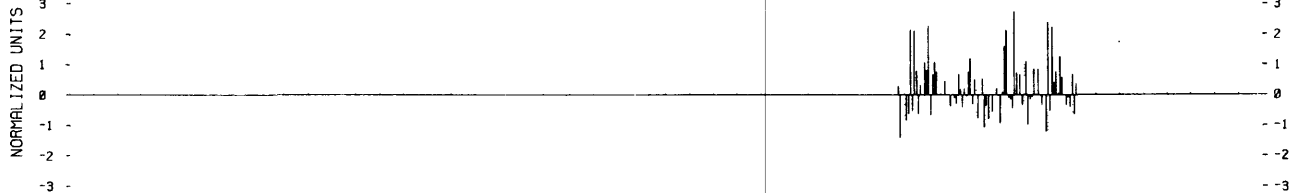


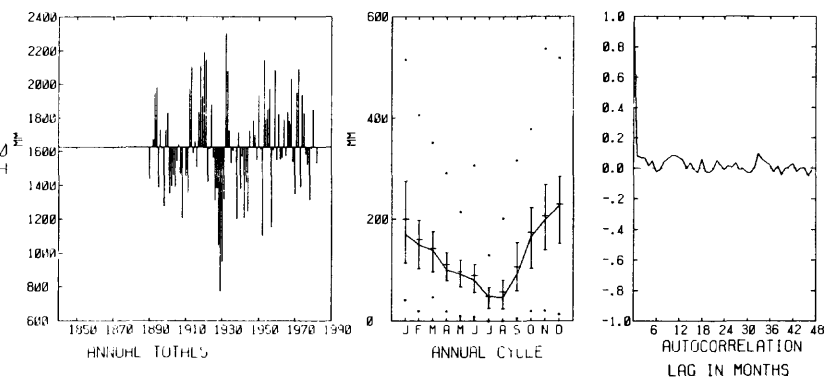
Figure 113. Graphs of standardized monthly anomaly and selected statistics for precipitation at New Westminster, CAN, 1874-1978.

PRECIP AGASSIZ BC CANADA

UNITS ARE MM

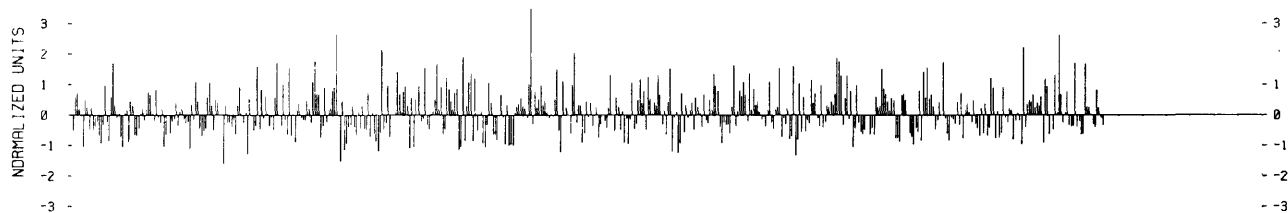
1889-1983

SUS. TAPPAH, INST. OF OCEAN SCI., P.O. BX 6000
9860 W. BARNICH, STONEY, BC, V6L 4K2, CANADA



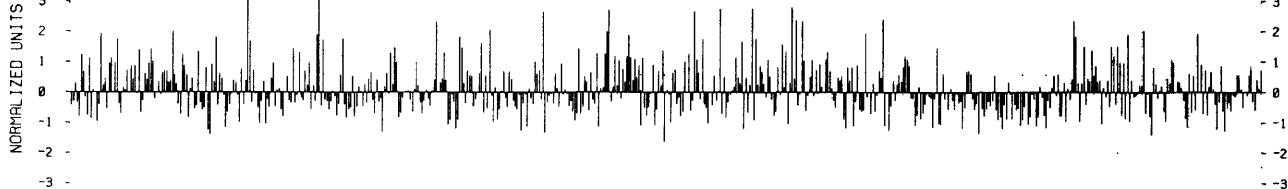
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



Figure 114. Graphs of standardized monthly anomaly and selected statistics for precipitation at Agassiz, CAN, 1889-1983.

PRECIP PACHENA POINT BC CANADA

UNITS ARE MM

1924-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

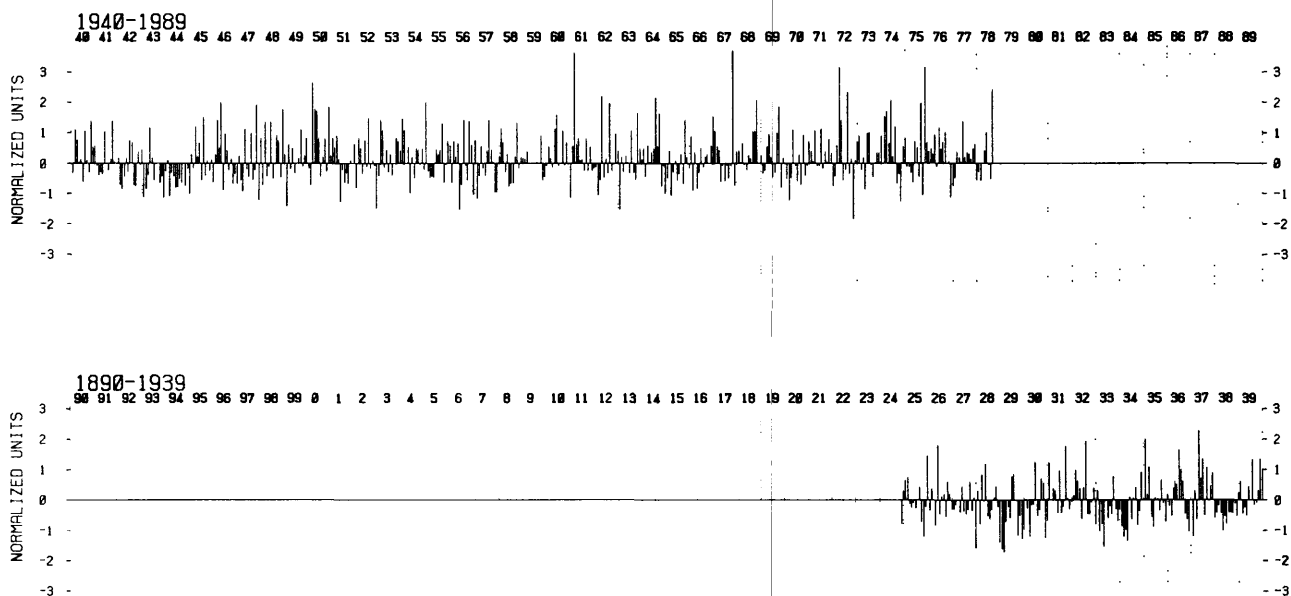
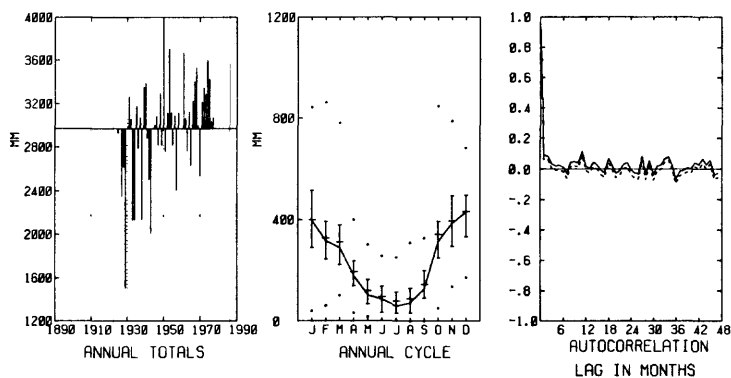


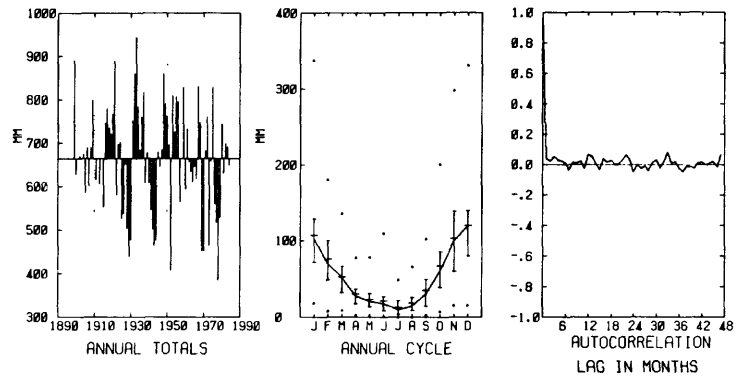
Figure 115. Graphs of standardized monthly anomaly and selected statistics for precipitation at Pachena Point, CAN, 1924-1978.

PRECIP GONZALES VICTORIA BC CANADA

UNITS ARE MM

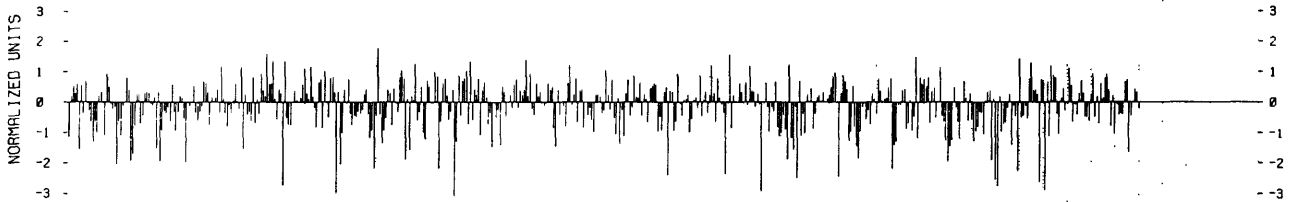
1898-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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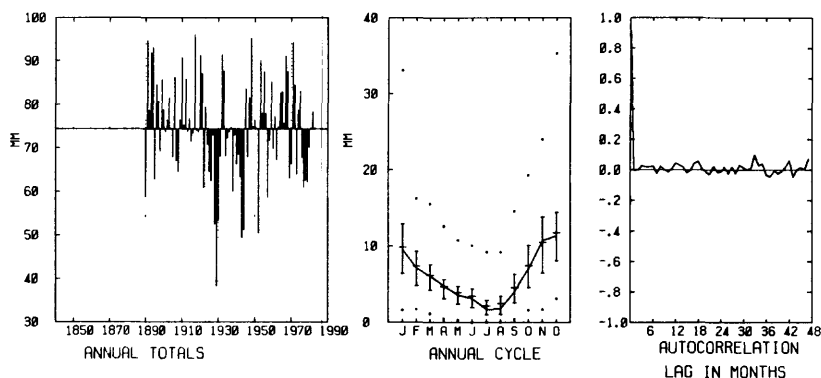
Figure 116. Graphs of standardized monthly anomaly and selected statistics for precipitation at Gonzales, CAN, 1898-1984.

PRECIP OLGA WASHINGTON

UNITS ARE MM

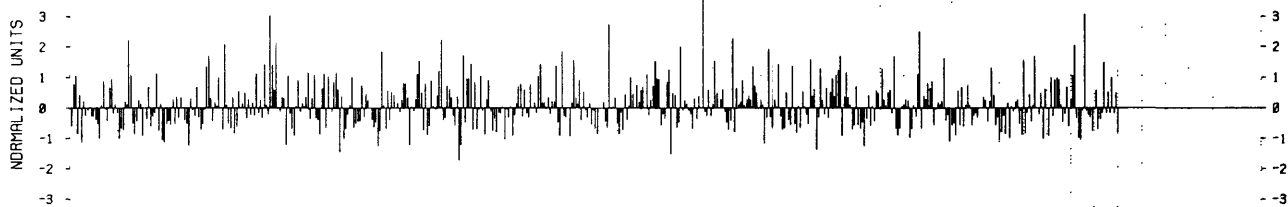
1890-1983

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

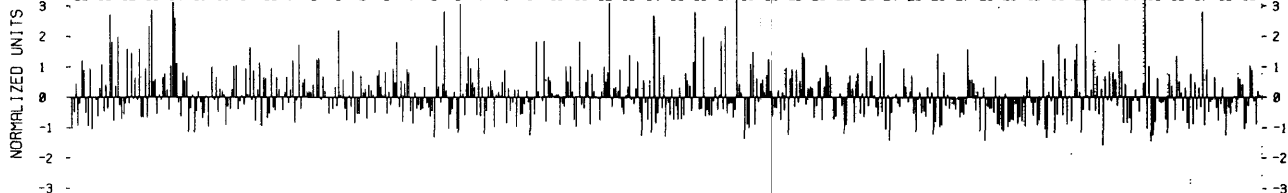


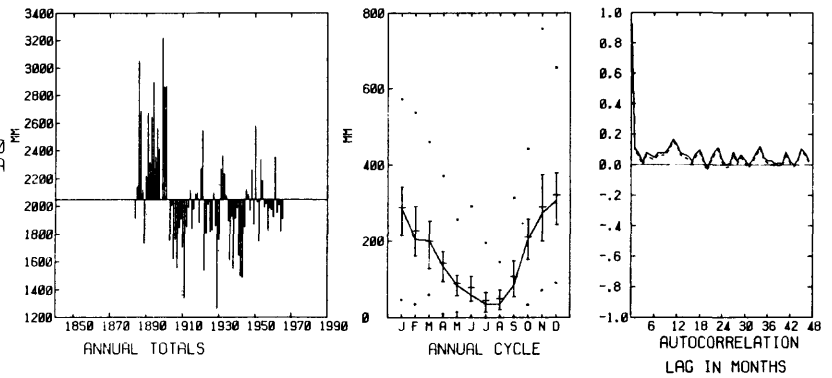
Figure 117. Graphs of standardized monthly anomaly and selected statistics for precipitation at Olga, WA, 1890-1983.

PRECIP TATOOSH ISLAND WASHINGTON

UNITS ARE MM

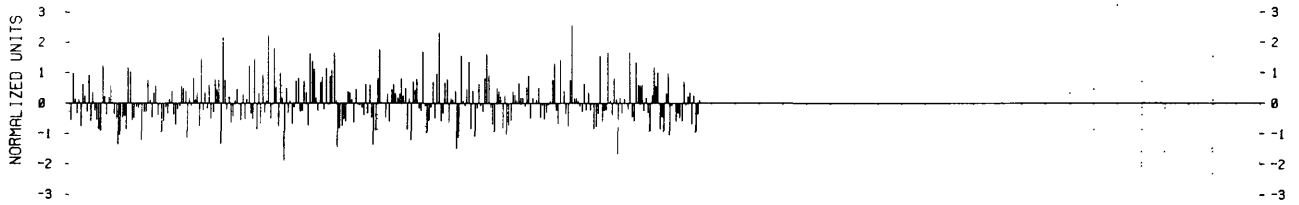
1883-1966

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



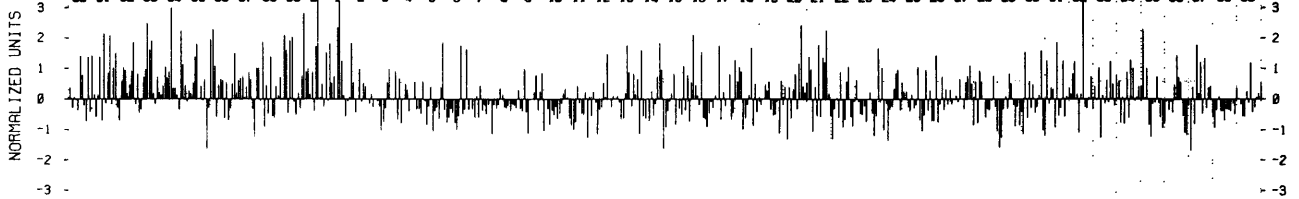
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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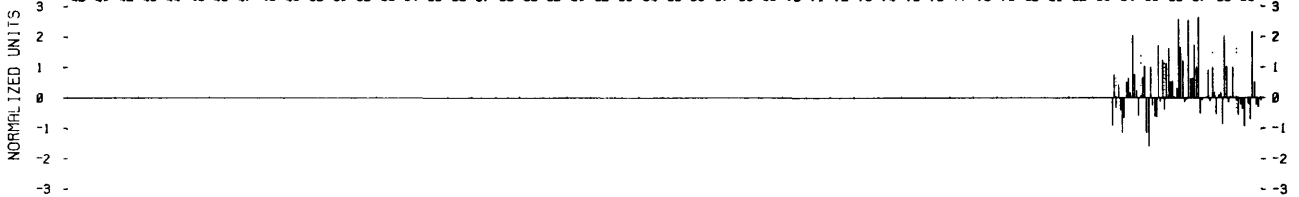


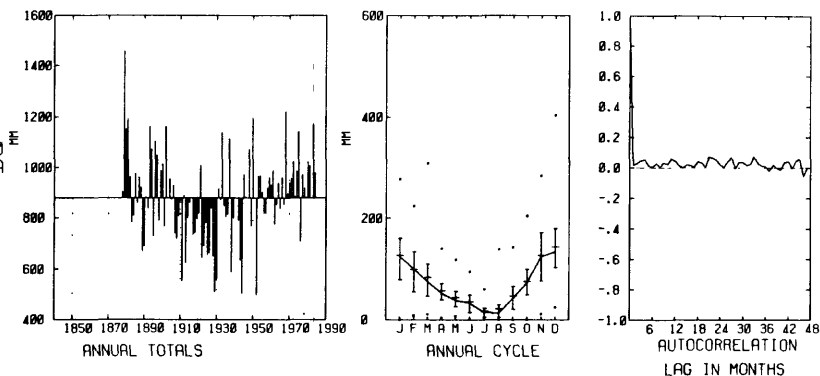
Figure 118. Graphs of standardized monthly anomaly and selected statistics for precipitation at Tatoosh Island, WA, 1883-1966.

PRECIP SEATTLE WASHINGTON

UNITS ARE MM

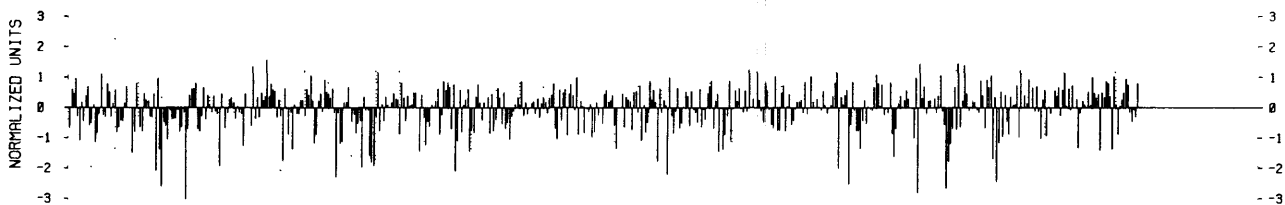
1878-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



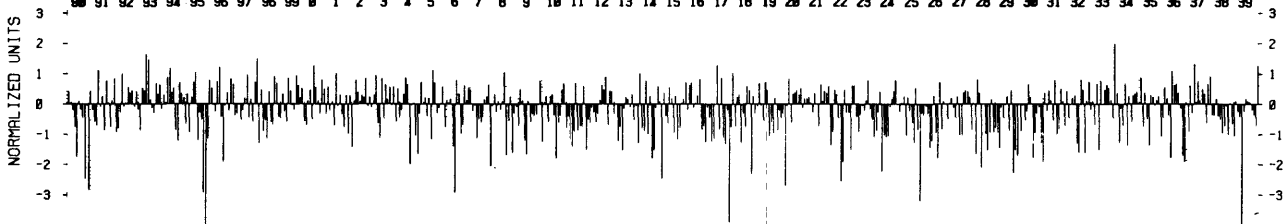
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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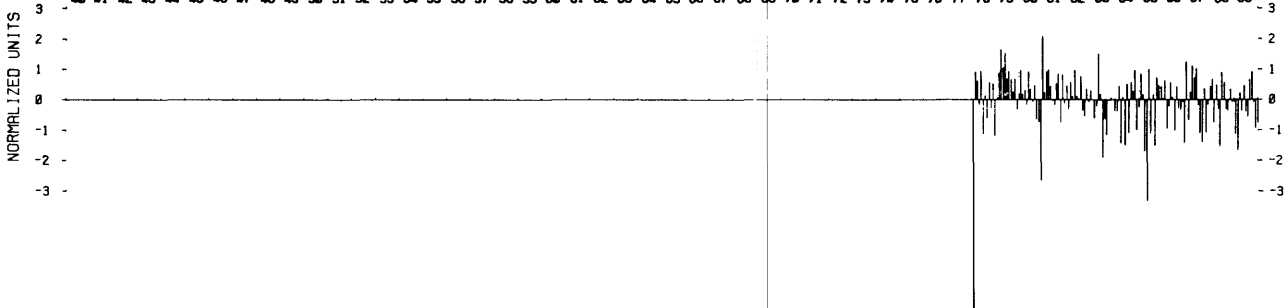


Figure 119. Graphs of standardized monthly anomaly and selected statistics for precipitation at Seattle, WA, 1878-1984.

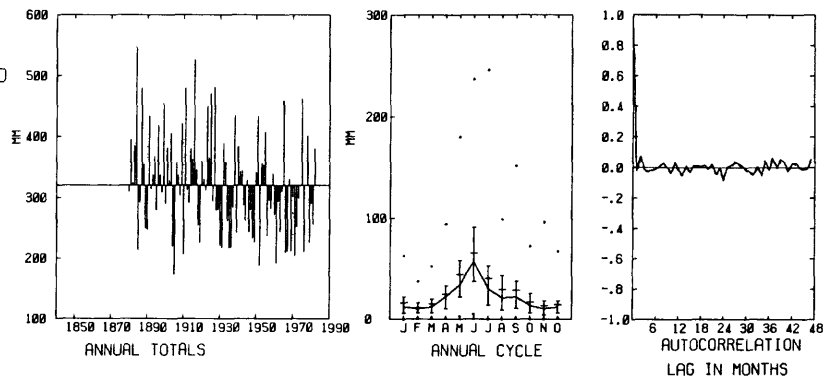
PRECIP HAVRE/CTY CNTY MONTANA

UNITS ARE MM

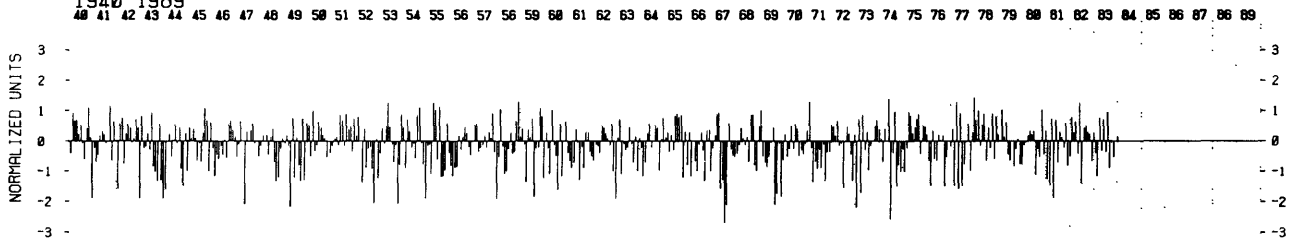
1880-1983

1978-1982 VALUES PROVIDED FROM NOAA LCD

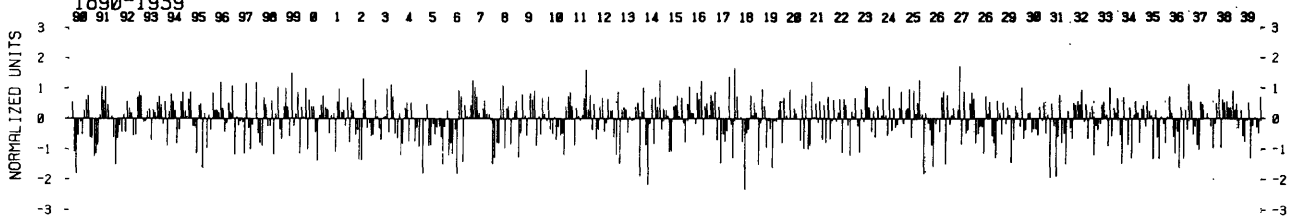
NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

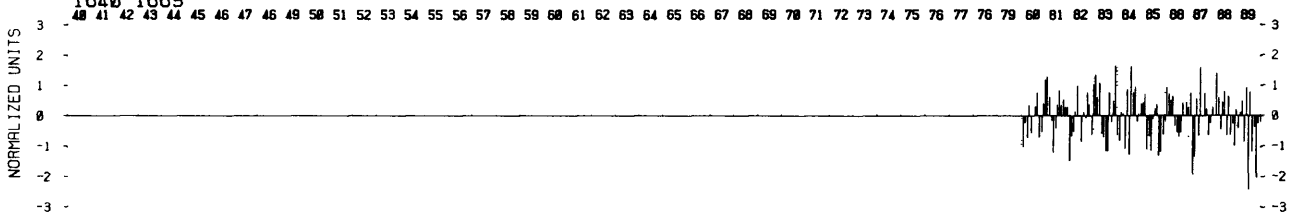


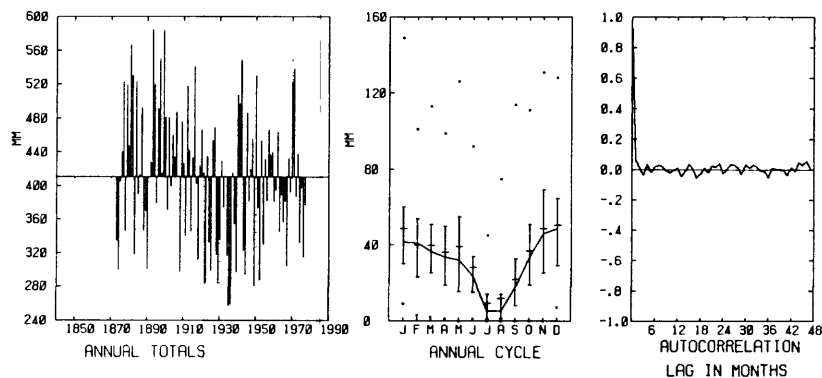
Figure 120. Graphs of standardized monthly anomaly and selected statistics for precipitation at Havre City, MT, 1880-1983.

PRECIP WALLA WALLA WASHINGTON

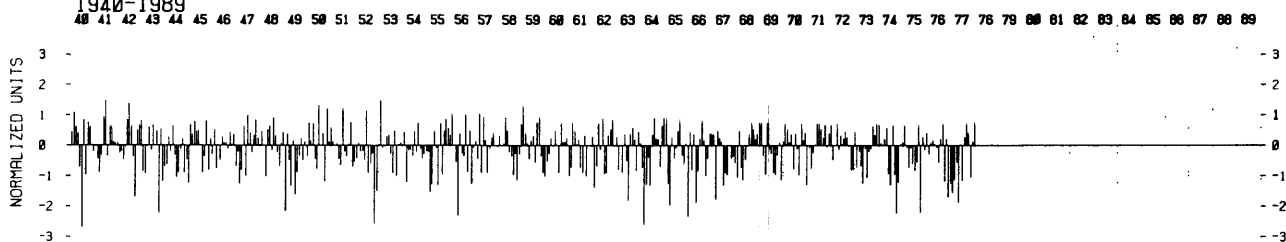
UNITS ARE MM

1873-1977

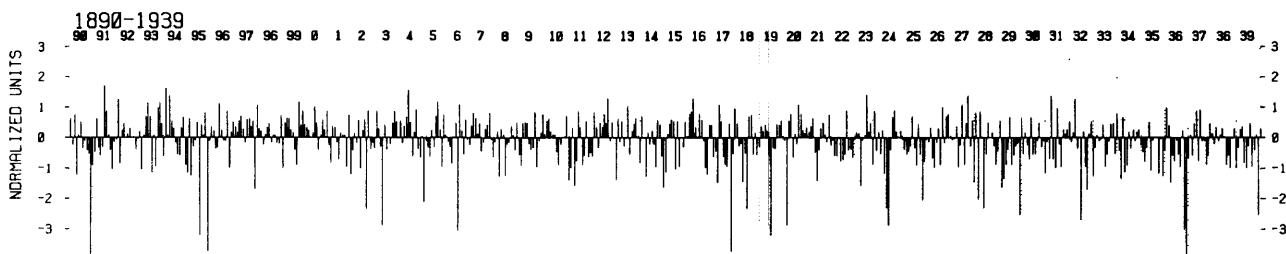
NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

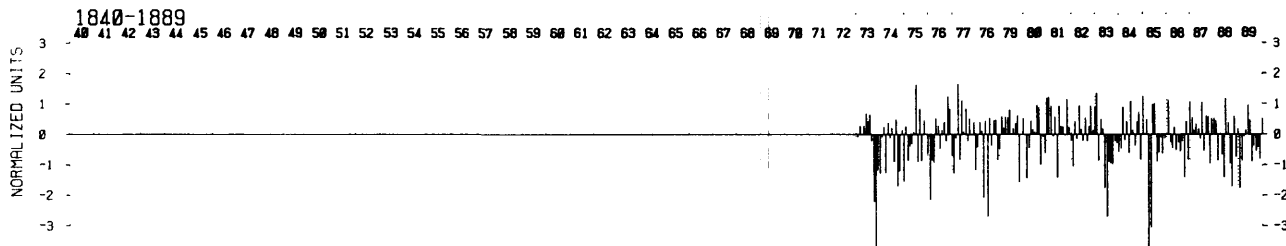


Figure 121. Graphs of standardized monthly anomaly and selected statistics for precipitation at Walla Walla, WA, 1873-1977.

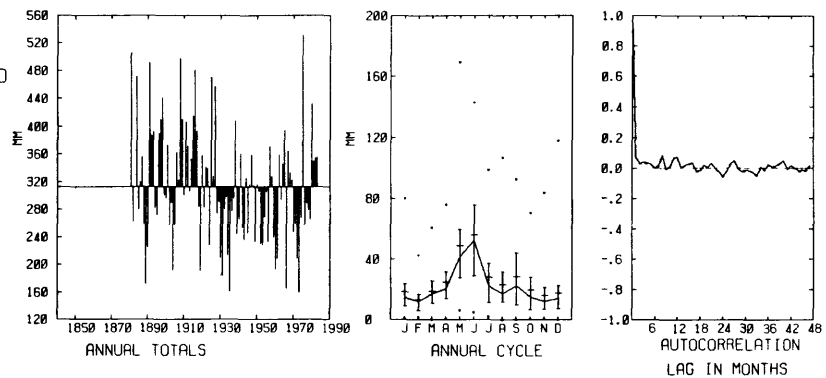
PRECIP HELENA MONTANA

UNITS ARE MM

1880-1983

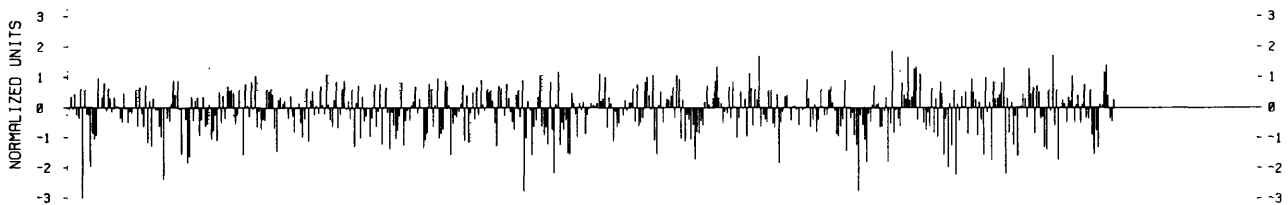
1978-1982 VALUES PROVIDED FROM NOAA LCO

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



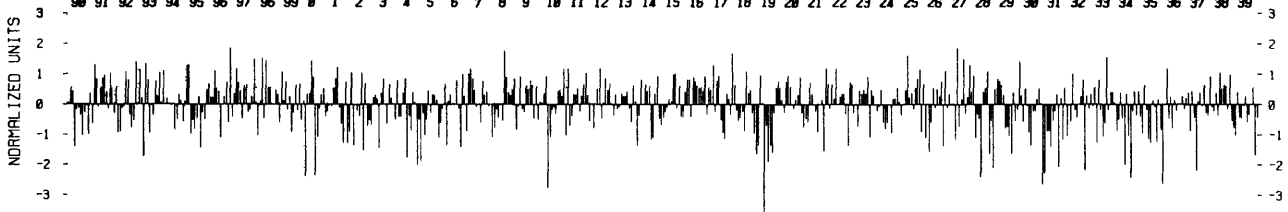
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

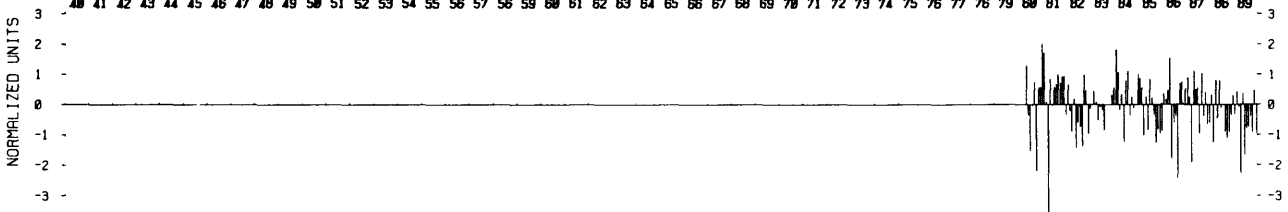


Figure 122. Graphs of standardized monthly anomaly and selected statistics for precipitation at Helena, MT, 1880-1983.

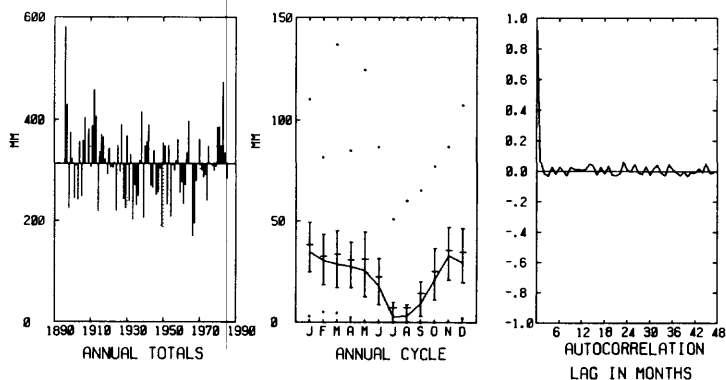
PRECIP BOISE IDAHO

UNITS ARE MM

1896-1985

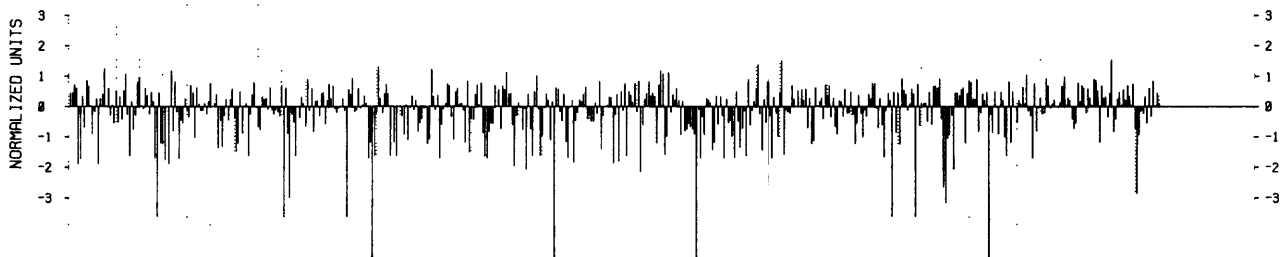
NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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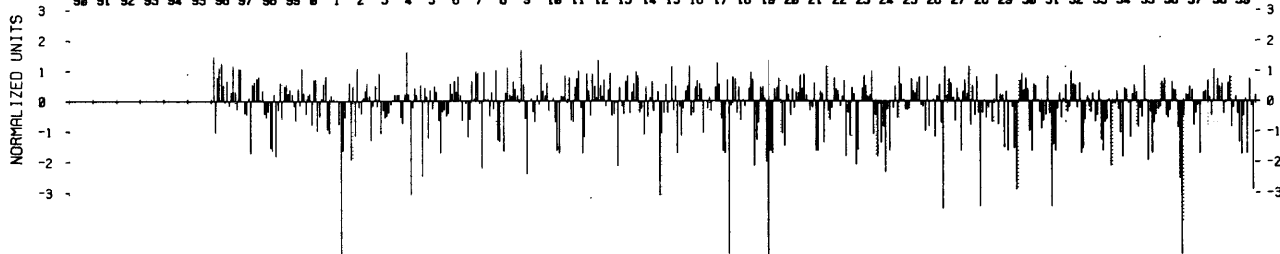


Figure 123. Graphs of standardized monthly anomaly and selected statistics for precipitation at Boise, ID, 1896-1985.

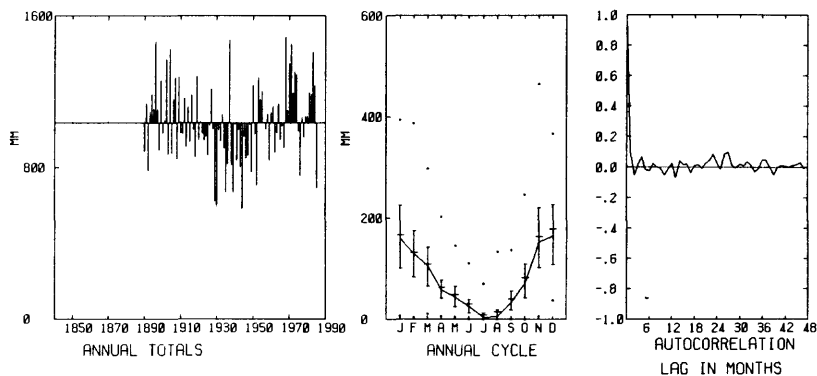
PRECIP CORVALLIS OREGON

UNITS ARE MM

1889-1986

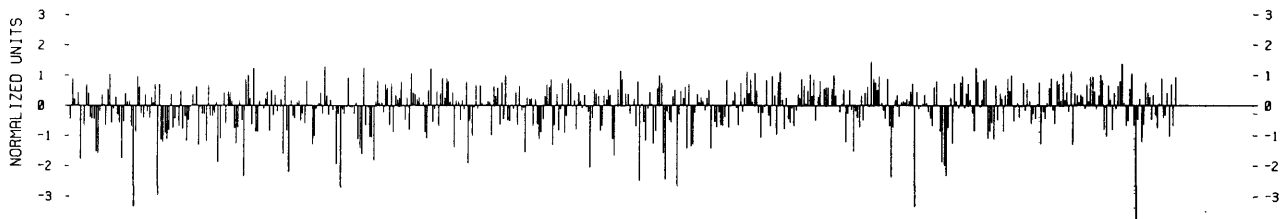
COOPERATIVE OBSERVING STATION
OREGON STATE UNIVERSITY

KELLY REDMOND, OREGON ST UNIV, ATMOS-
PHERIC SCIENCES, CORVALLIS, OR 97331
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



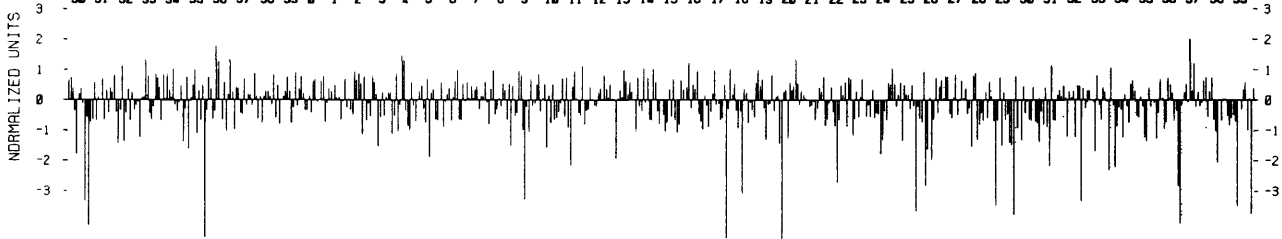
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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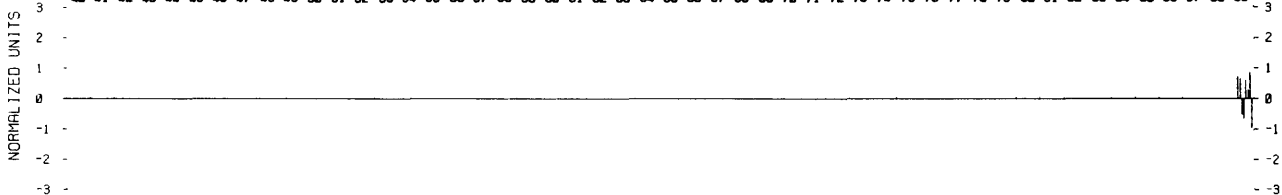


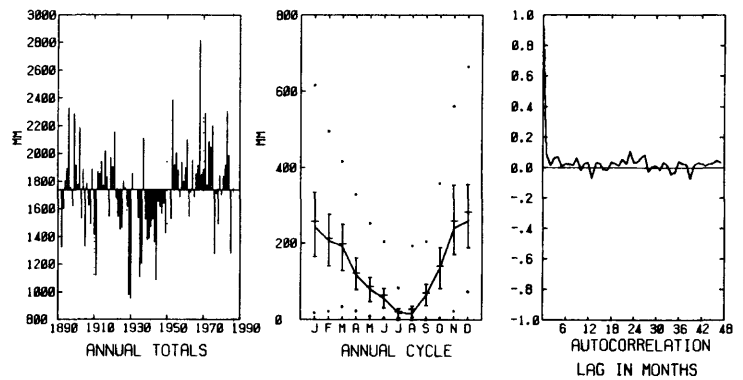
Figure 124. Graphs of standardized monthly anomaly and selected statistics for precipitation at Corvallis, OR, 1889-1986.

PRECIP NEWPORT OREGON

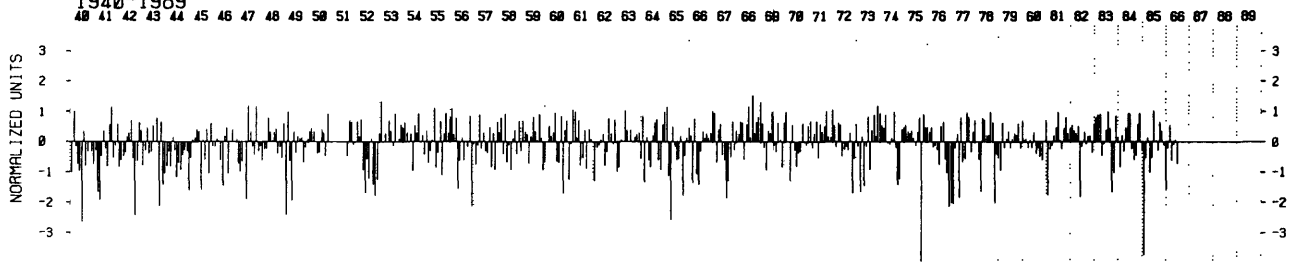
UNITS ARE MM

1891-1986

KELLY REDMOND, OREGON ST UNIV. ATMOSPHERIC SCIENCES, CORVALLIS, OR 97331
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989



1890-1939

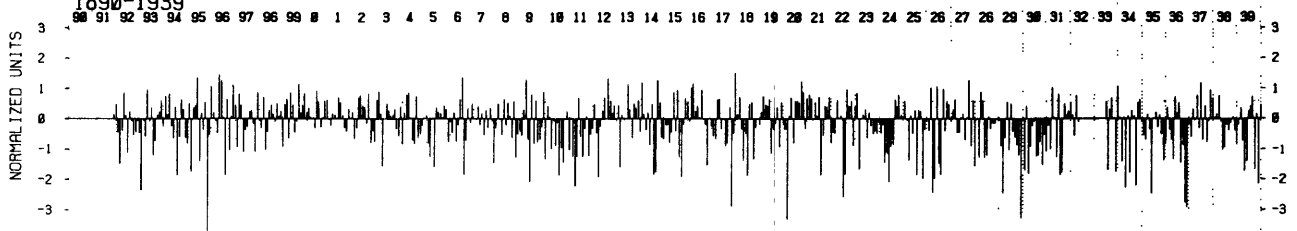


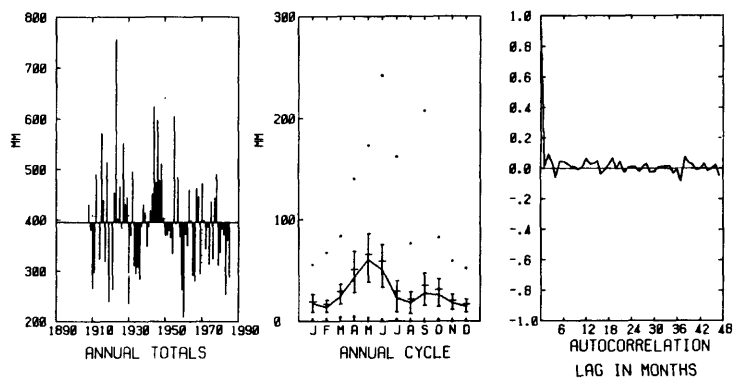
Figure 125. Graphs of standardized monthly anomaly and selected statistics for precipitation at Newport, OR, 1891-1986.

PRECIP SHERIDAN WYOMING

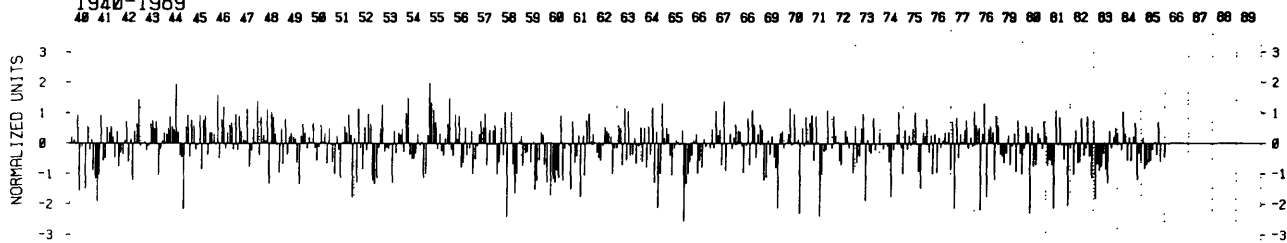
UNITS ARE MM

1908-1985

NCAR, DATA SUPPORT SECTION
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DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

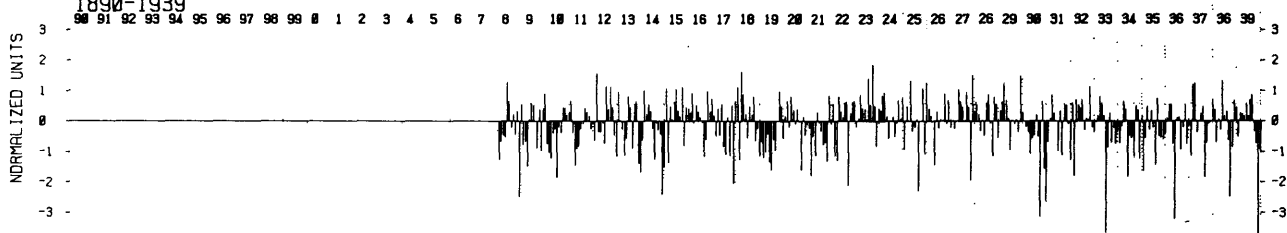


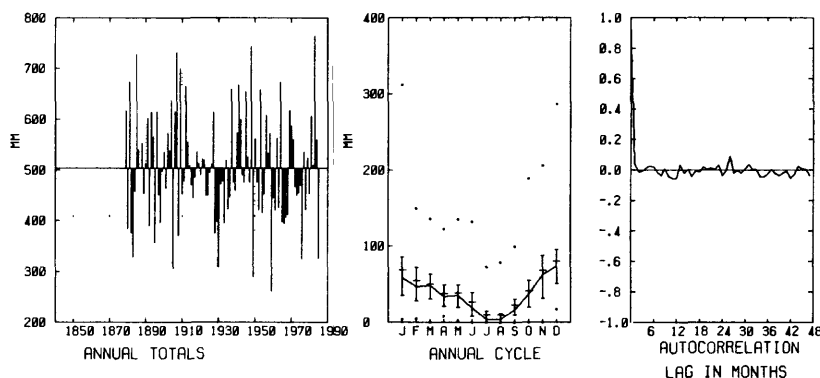
Figure 126. Graphs of standardized monthly anomaly and selected statistics for precipitation at Sheridan, WY, 1908-1985.

PRECIP ASHLAND OREGON

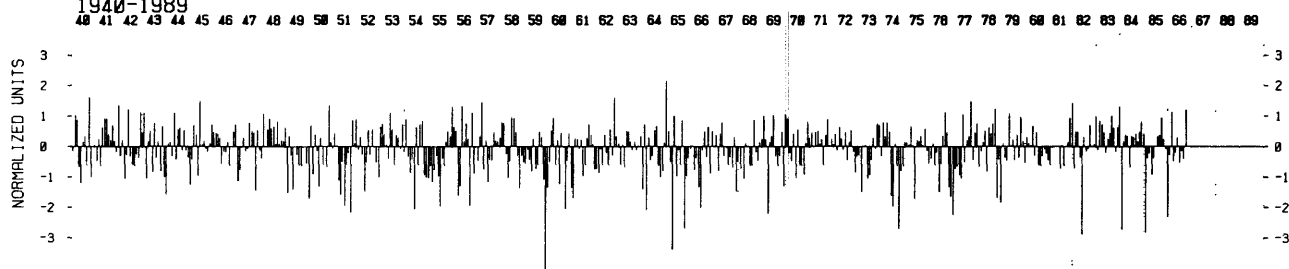
UNITS ARE MM

1879-1986

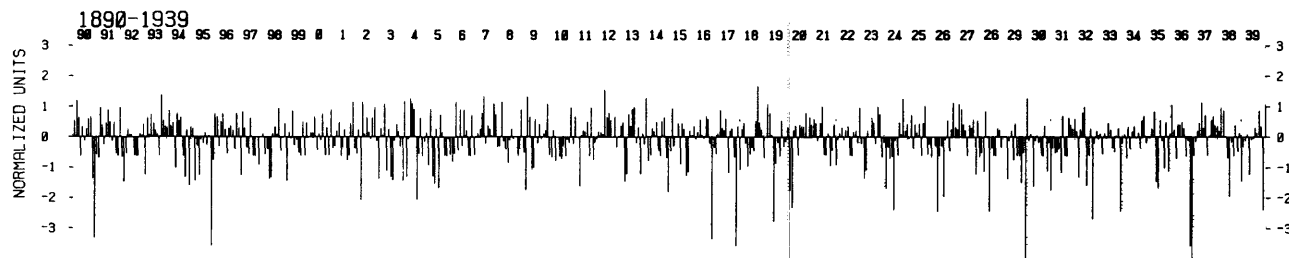
KELLY REDMOND, OREGON ST UNIV, ATMOSPHERIC SCIENCES, CORVALLIS, OR 97331
DATA TRANSFORMED BY LOGARITHM BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

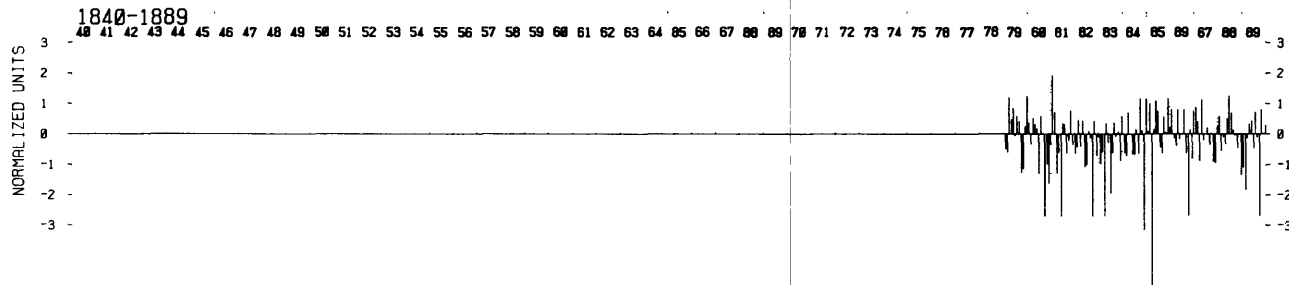


Figure 127. Graphs of standardized monthly anomaly and selected statistics for precipitation at Ashland, OR, 1879-1986.

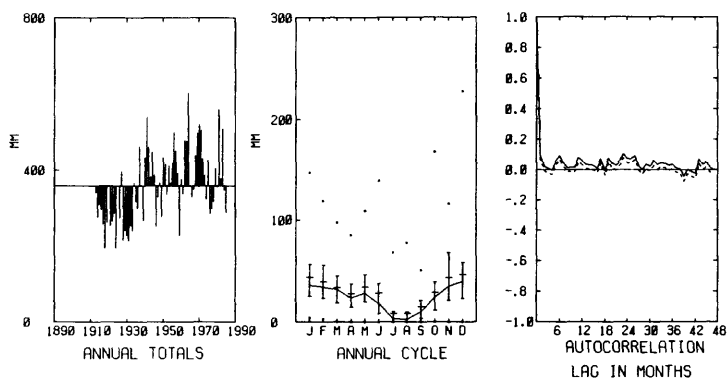
PRECIP LAKEVIEW OREGON

UNITS ARE MM

1910-1986

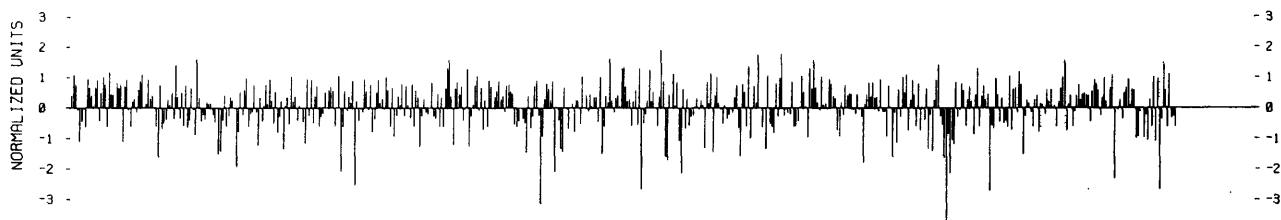
COOPERATIVE OBSERVING STATION
LAKEVIEW 2 NNN

KELLY REDMOND, OREGON ST UNIV, ATMOS-
PHERIC SCIENCES, CORVALLIS, OR 97331
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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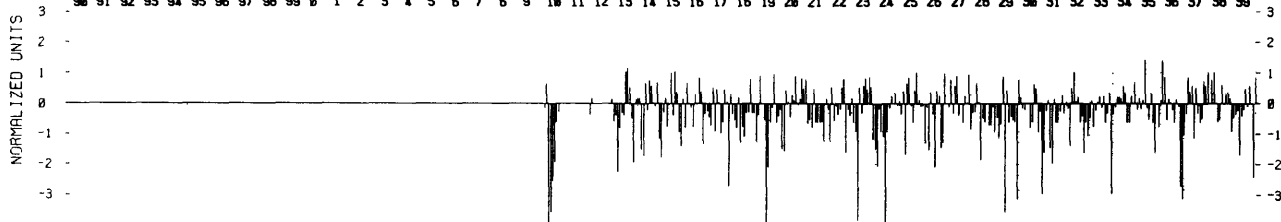


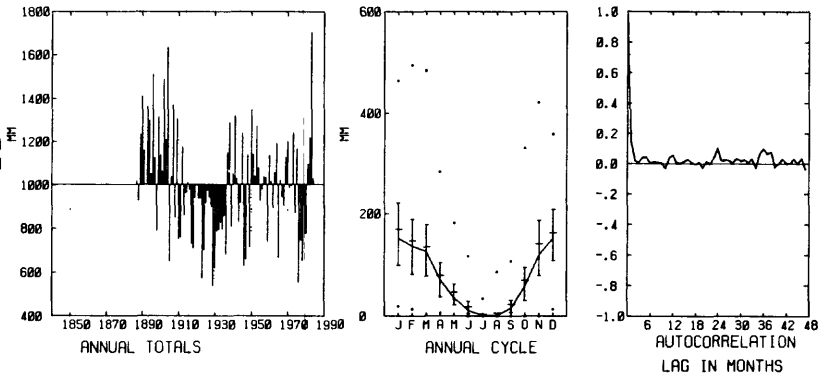
Figure 128. Graphs of standardized monthly anomaly and selected statistics for precipitation at Lakeview, OR, 1910-1986.

PRECIP EUREKA CALIFORNIA

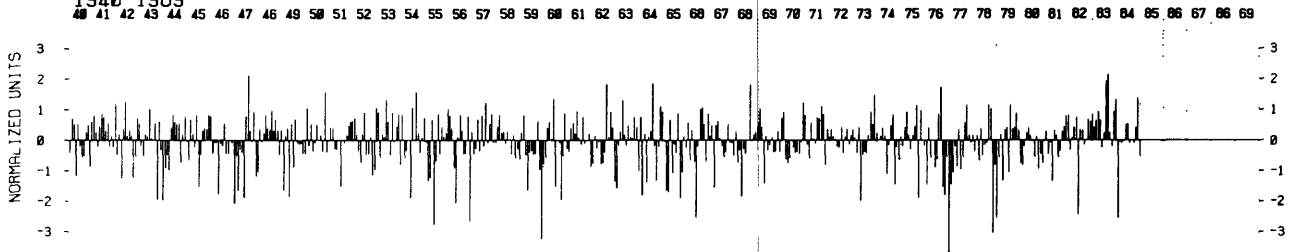
UNITS ARE MM

1886-1984

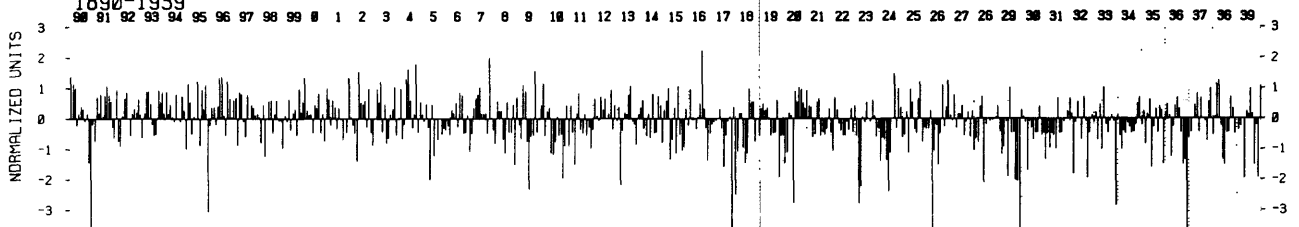
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

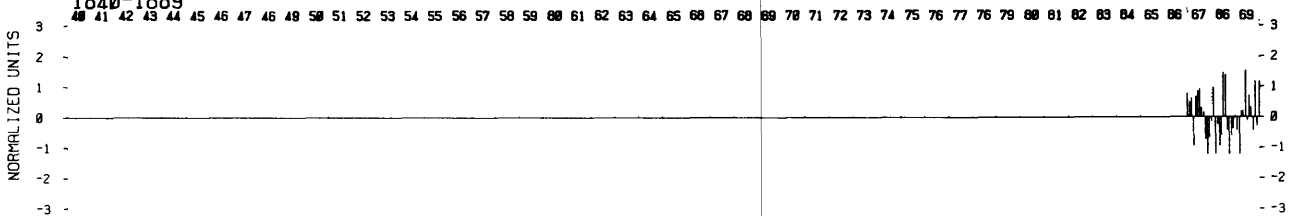


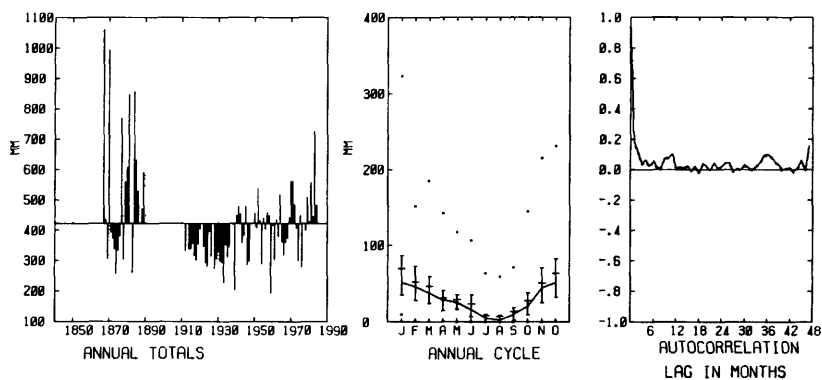
Figure 129. Graphs of standardized monthly anomaly and selected statistics for precipitation at Eureka, CA, 1886-1984.

PRECIP FORT BIDWELL CALIFORNIA

UNITS ARE MM

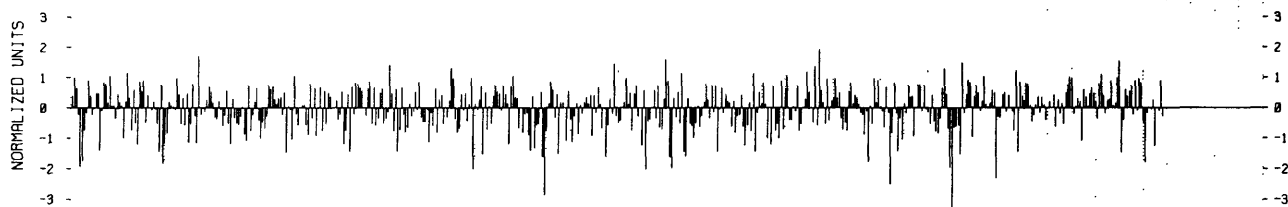
1866-1985

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DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



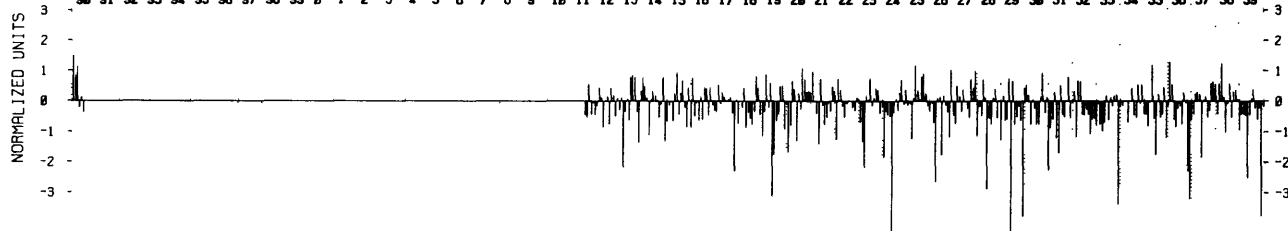
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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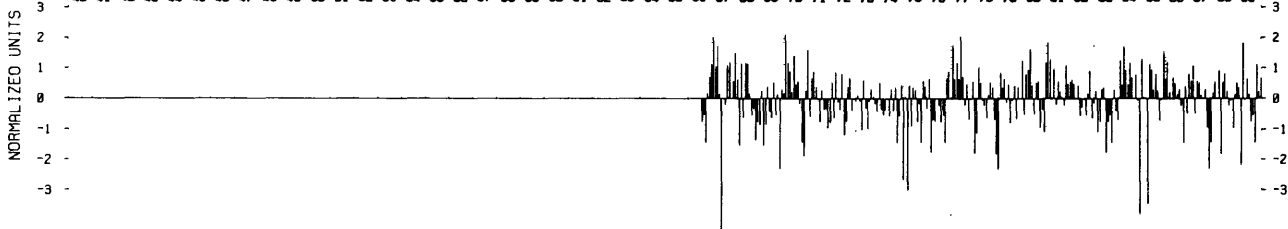


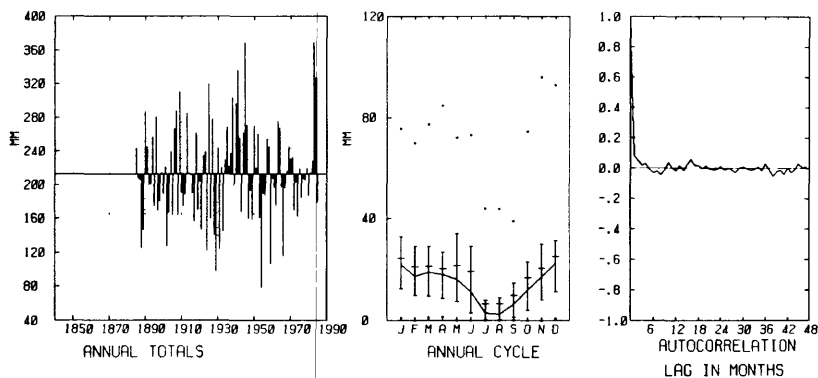
Figure 130. Graphs of standardized monthly anomaly and selected statistics for precipitation at Fort Bidwell, CA, 1866-1985.

PRECIP WINNEMUCCA NEVADA

UNITS ARE MM

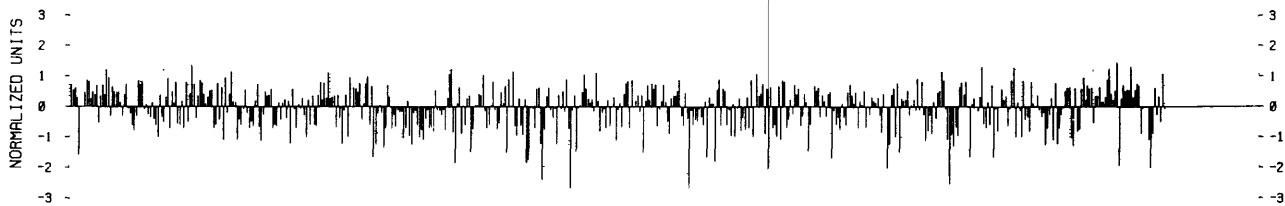
1884-1985

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PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



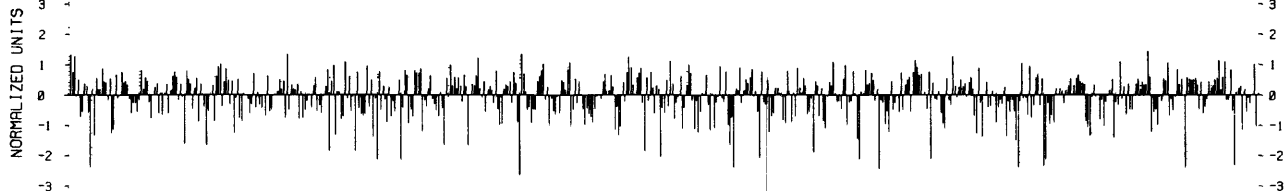
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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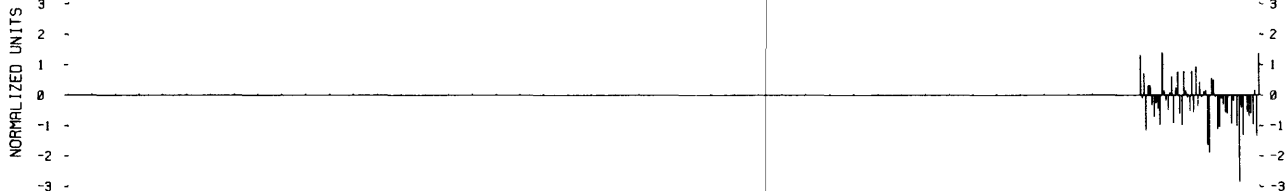


Figure 131. Graphs of standardized monthly anomaly and selected statistics for precipitation at Winnemucca, NV, 1884-1985.

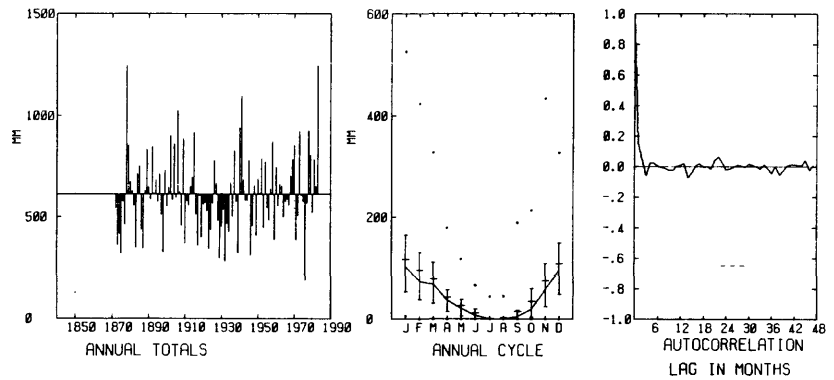
PRECIP RED BLUFF CALIFORNIA

UNITS ARE MM

1871-1984

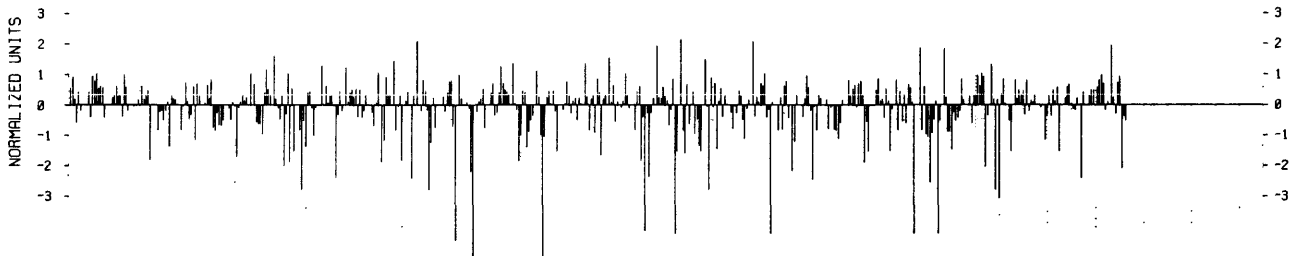
MAURICE ROOS, CA DEPT WATER RESOURCES
PO BOX 942836, SACRAMENTO, CA 94236

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



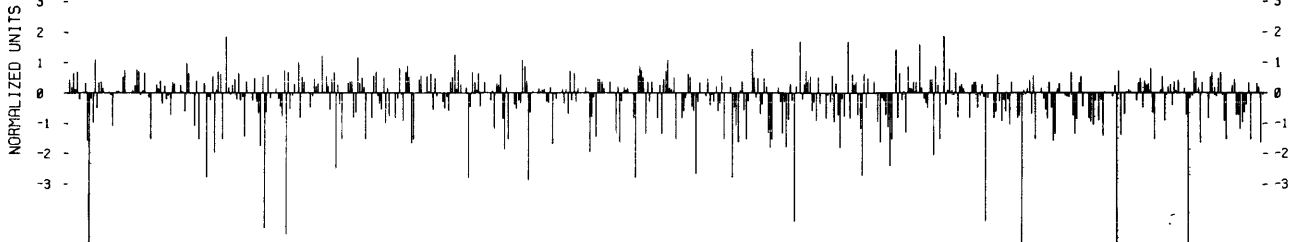
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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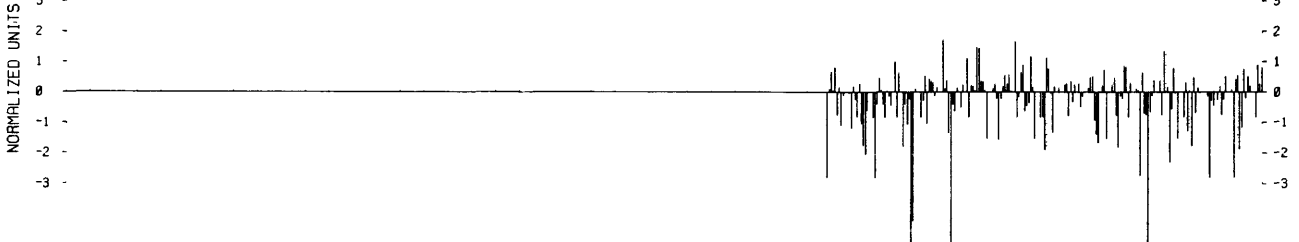


Figure 132. Graphs of standardized monthly anomaly and selected statistics for precipitation at Red Bluff, CA, 1871-1984.

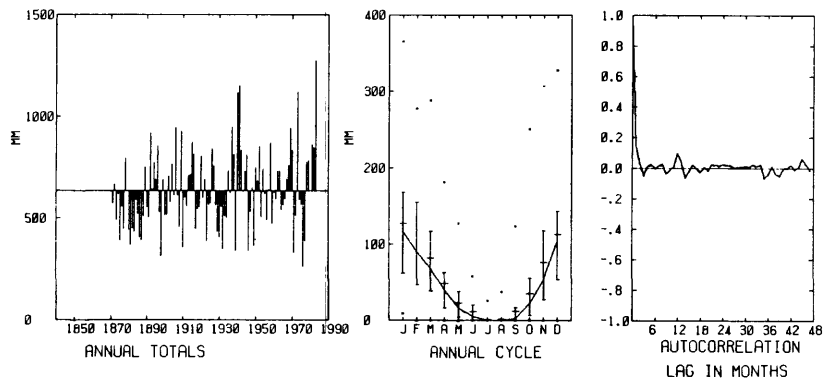
PRECIP CHICO CALIFORNIA

UNITS ARE MM

1870-1984

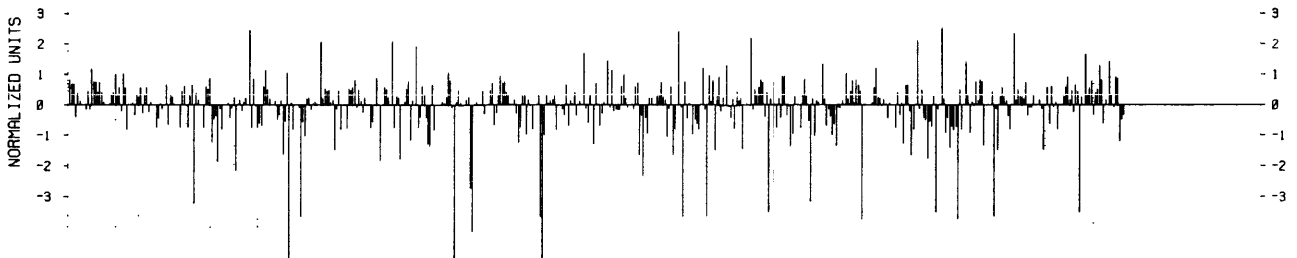
MAURICE ROOS, CA DEPT WATER RESOURCES,
PO BOX 942836, SACRAMENTO, CA 94236

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



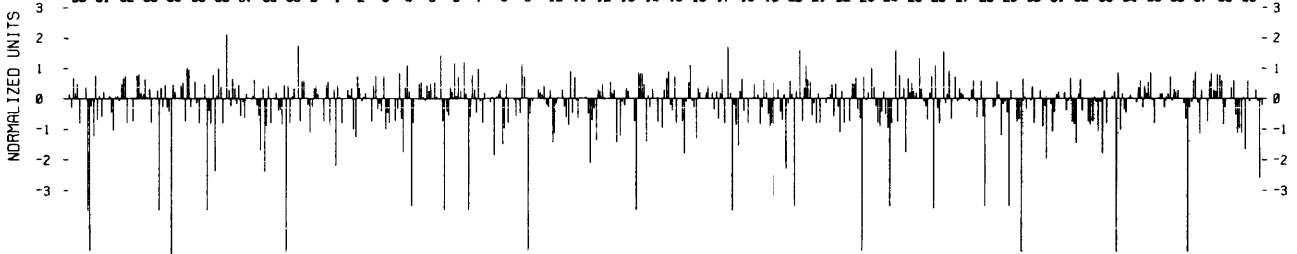
1940-1989

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1890-1939

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1840-1889

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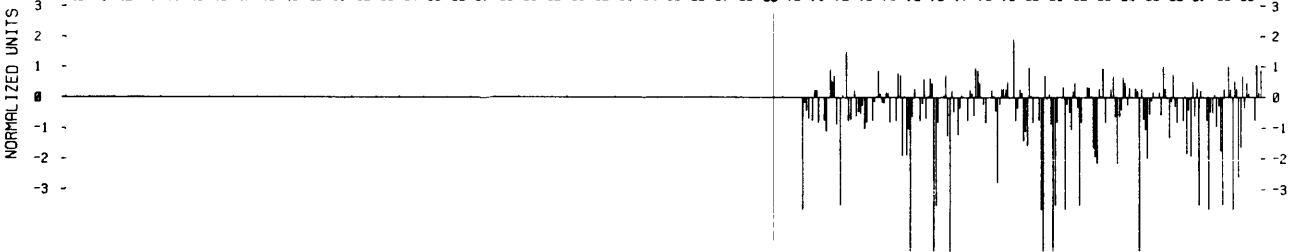


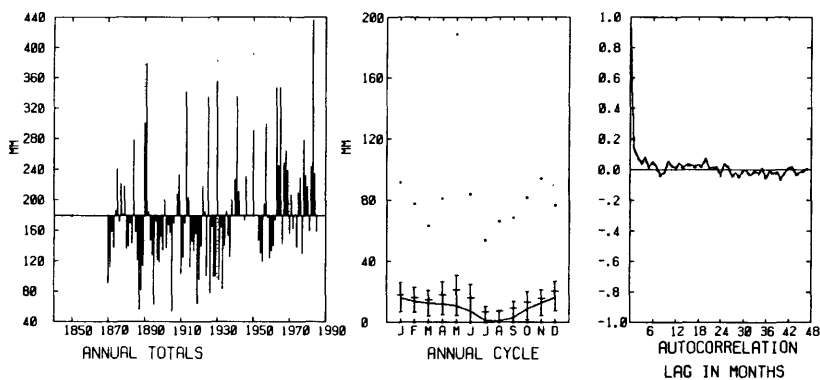
Figure 133. Graphs of standardized monthly anomaly and selected statistics for precipitation at Chico, CA, 1870-1984.

PRECIP BEOWAVE NEVADA

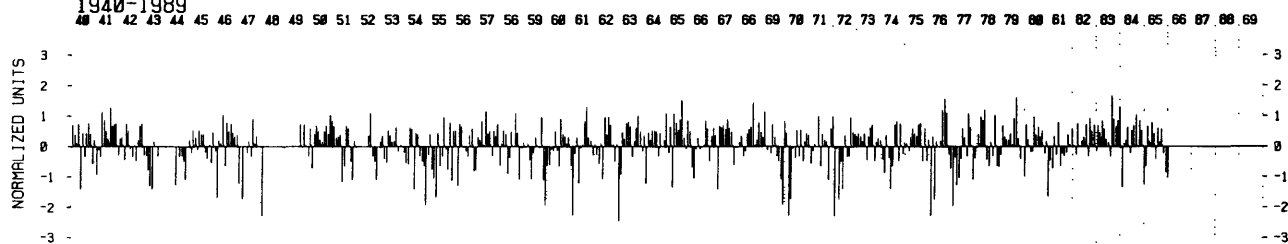
UNITS ARE MM

1870-1985

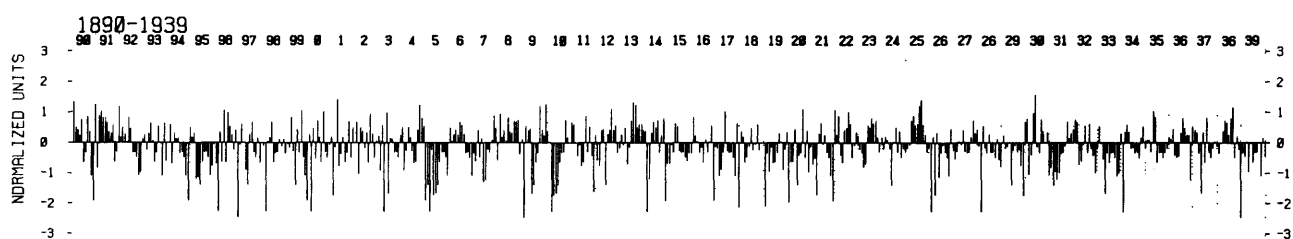
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DEPT OF GEOGRAPHY
U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

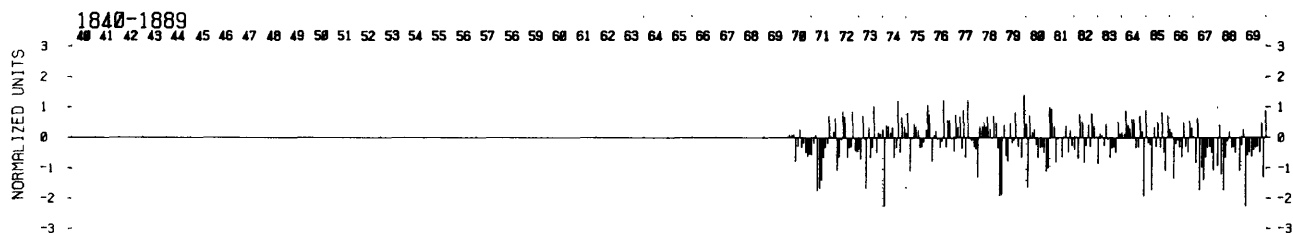


Figure 134. Graphs of standardized monthly anomaly and selected statistics for precipitation at Beowave, NV, 1870-1985.

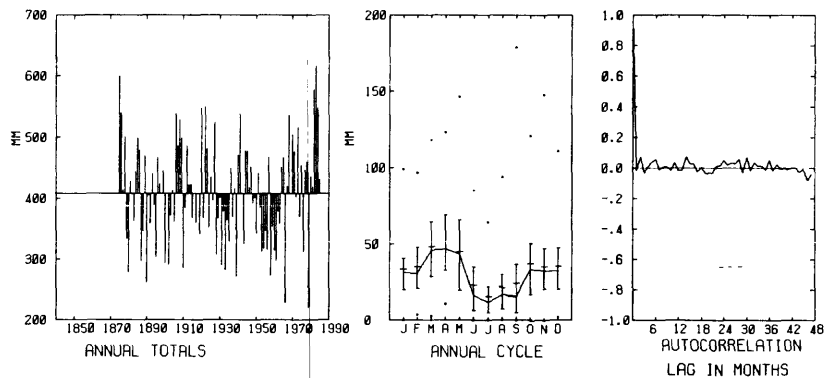
PRECIP SALT LAKE CITY UTAH

UNITS ARE MM

1875-1985

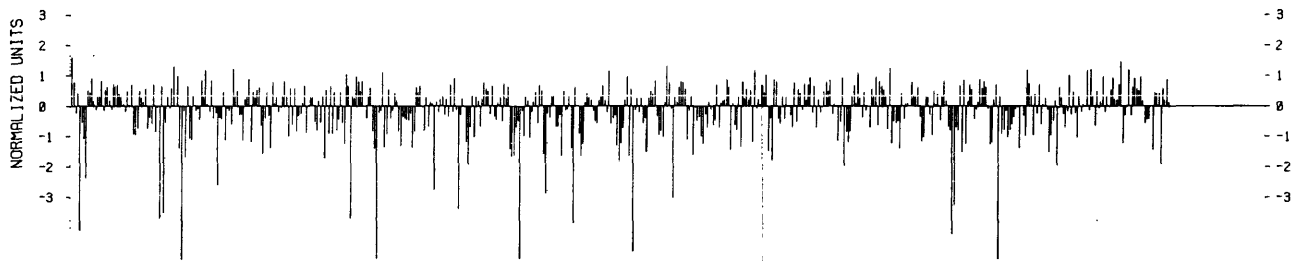
NCAR, DATA SUPPORT SECTION
PO BX 3000, BOULDER, CO. 80307

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



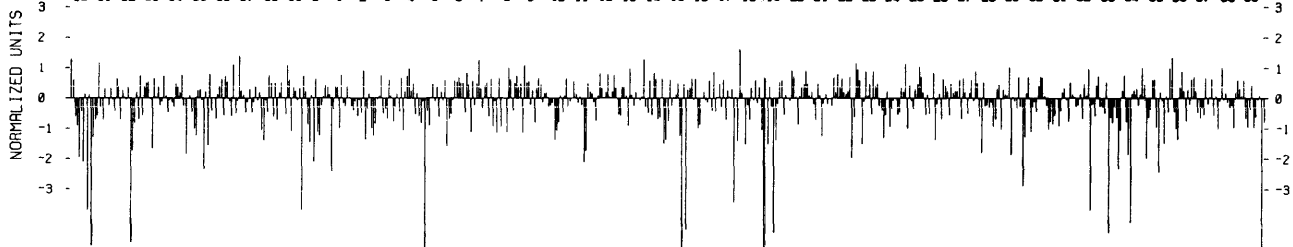
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



Figure 135. Graphs of standardized monthly anomaly and selected statistics for precipitation at Salt Lake City, UT, 1875-1985.

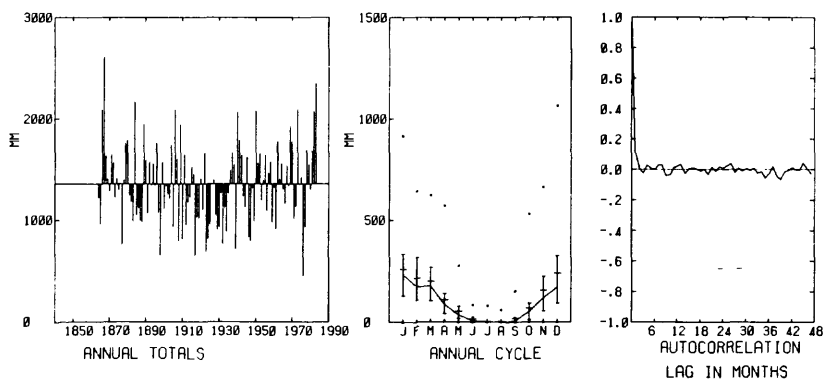
PRECIP NEVADA CITY CALIFORNIA

UNITS ARE MM

1863-1984

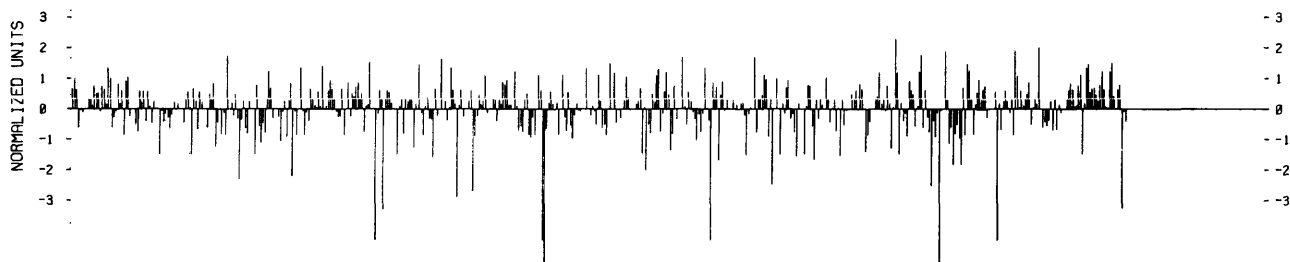
MAURICE ROOS, CA DEPT WATER RESOURCES,
PO BOX 942836, SACRAMENTO, CA 94236

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



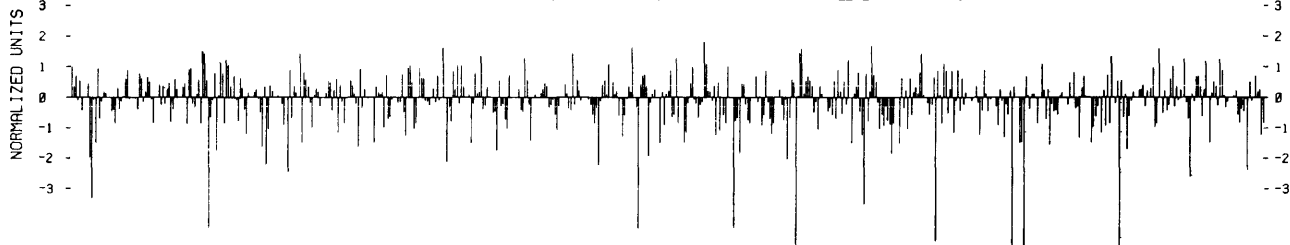
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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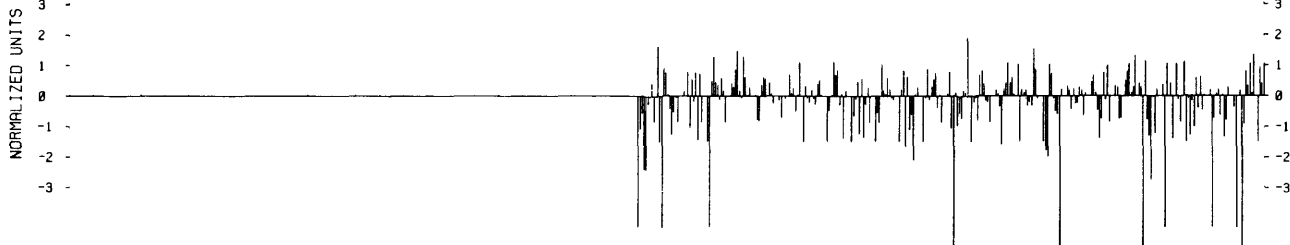


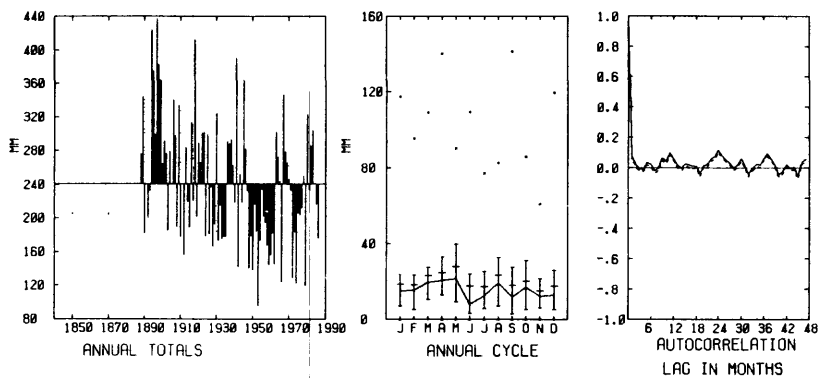
Figure 136. Graphs of standardized monthly anomaly and selected statistics for precipitation at Nevada City, CA, 1863-1984.

PRECIP MC GILL NEVADA

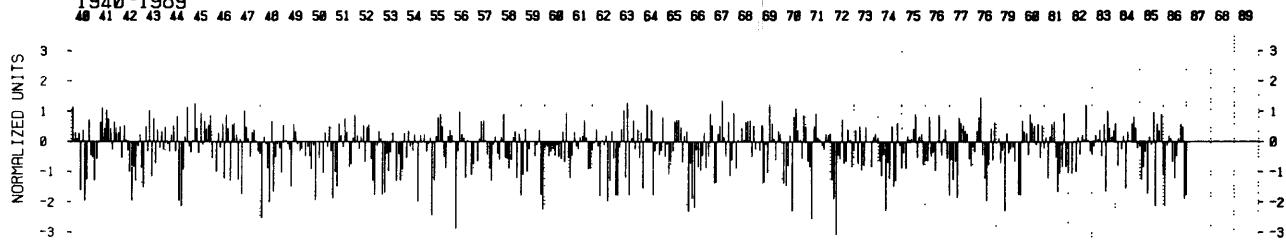
UNITS ARE MM

1888-1966

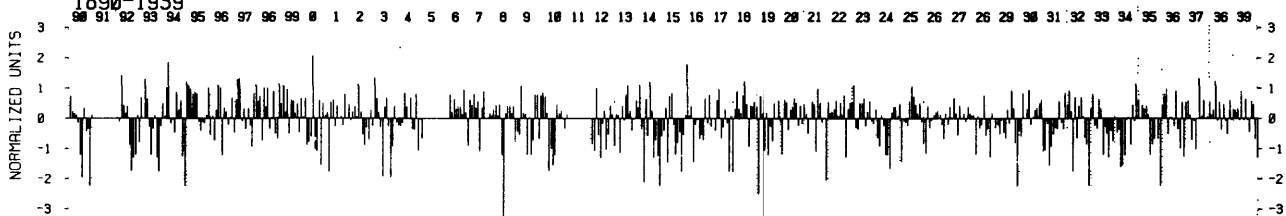
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BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

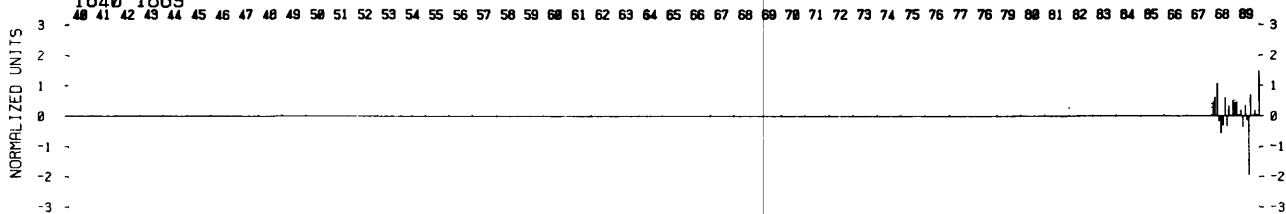


Figure 137. Graphs of standardized monthly anomaly and selected statistics for precipitation at McGill, NV, 1888-1986.

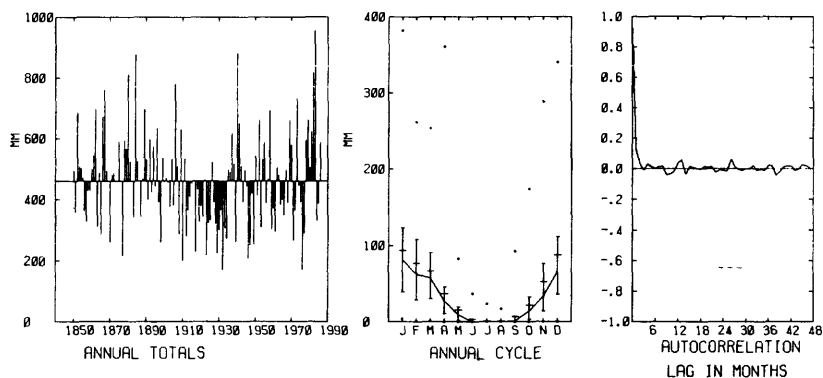
PRECIP SACRAMENTO CALIFORNIA

UNITS ARE MM

1849-1987

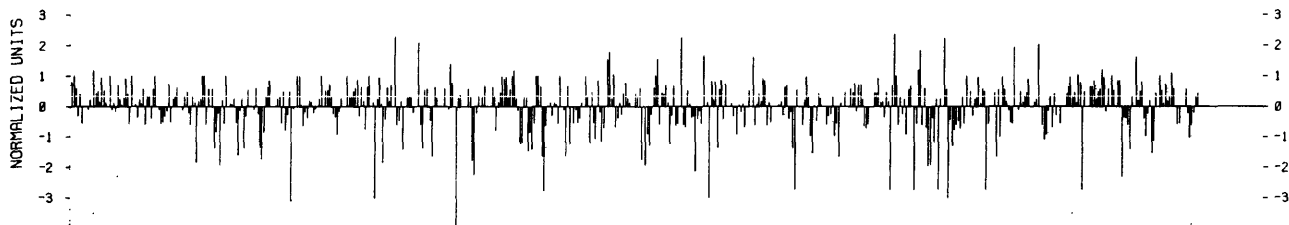
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DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



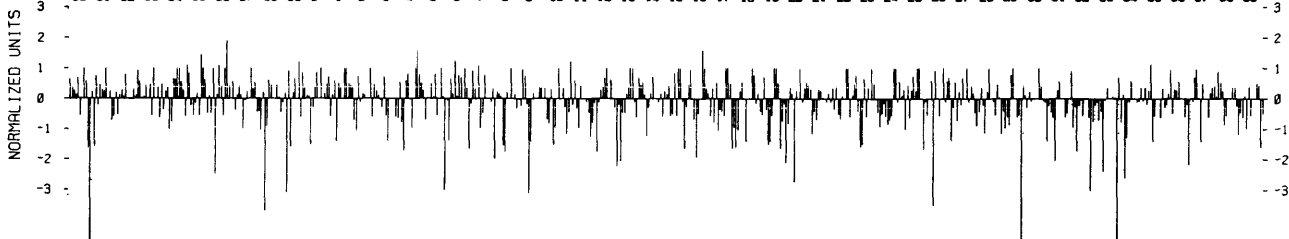
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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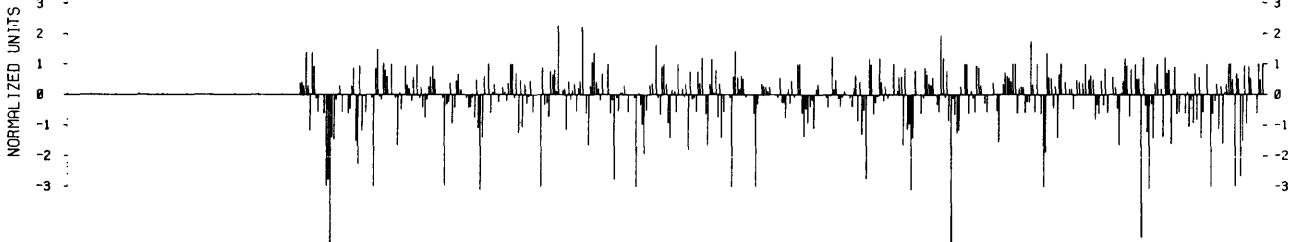


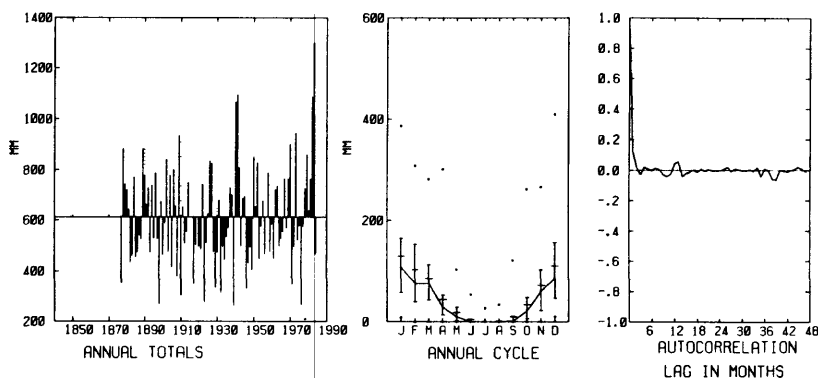
Figure 138. Graphs of standardized monthly anomaly and selected statistics for precipitation at Sacramento, CA, 1849-1987.

PRECIP NAPA CALIFORNIA

UNITS ARE MM

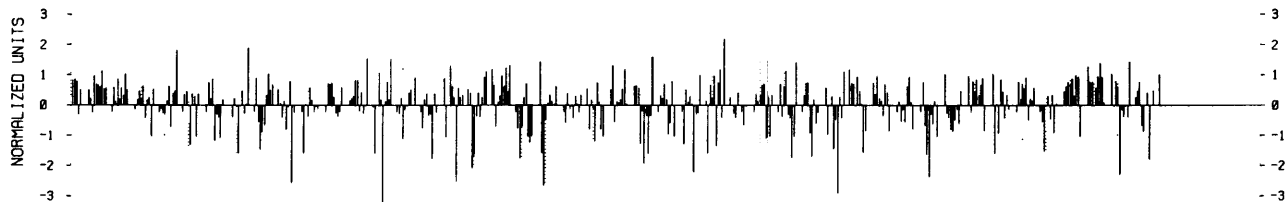
1877-1985

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BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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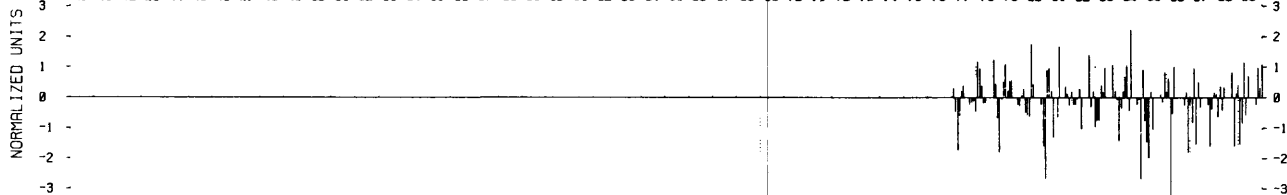


Figure 139. Graphs of standardized monthly anomaly and selected statistics for precipitation at Napa, CA, 1877-1985.

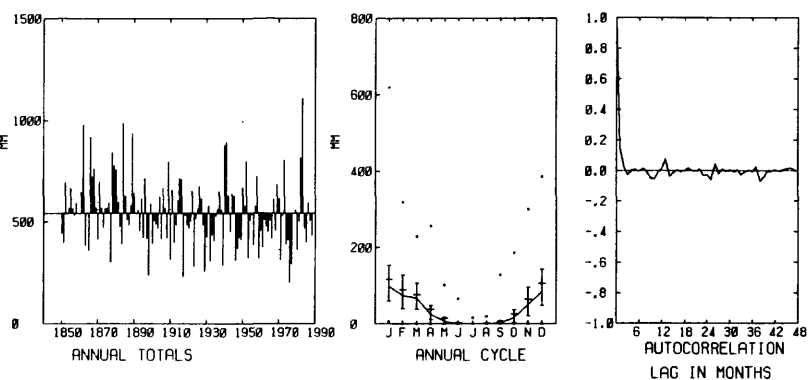
PRECIP SAN FRANCISCO CALIFORNIA

UNITS ARE MM

1850-1988

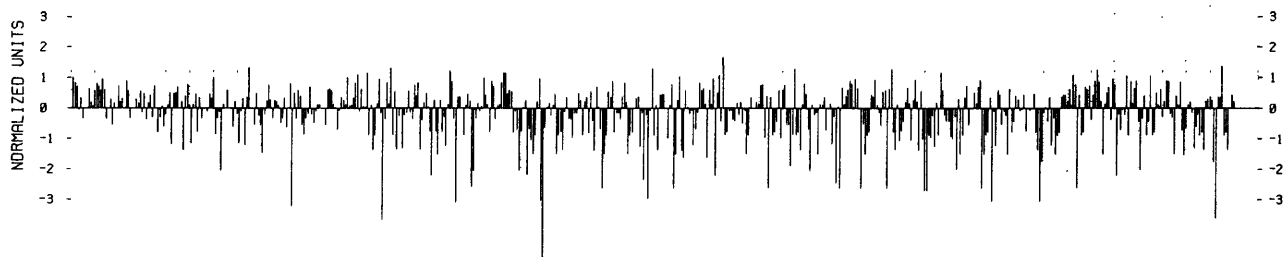
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
1951 THRU 1988 DATA CORRECTED/UPDATED BY
CLIMATE RESEARCH DIV, SIO, UCSD

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



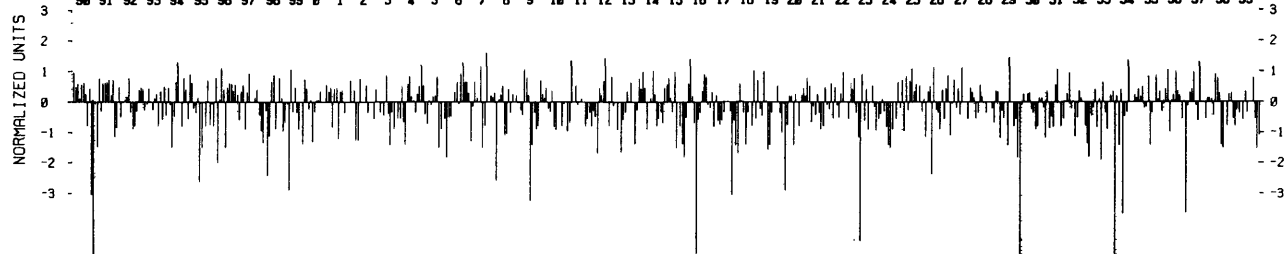
1940-1989

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1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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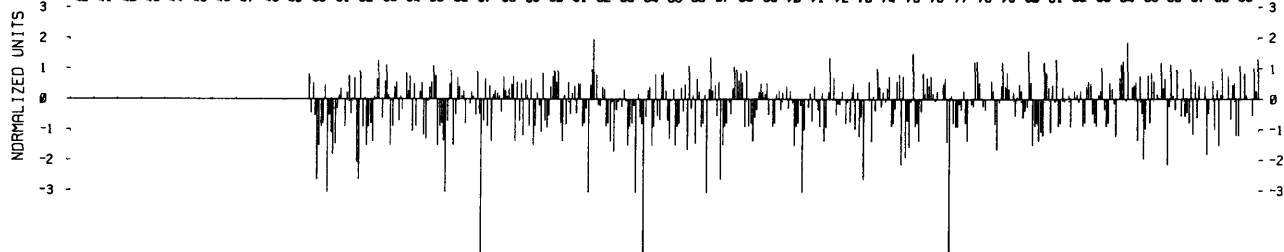


Figure 140. Graphs of standardized monthly anomaly and selected statistics for precipitation at San Francisco, CA, 1850-1984.

PRECIP LIVERMORE CALIFORNIA

UNITS ARE MM

1871-1985

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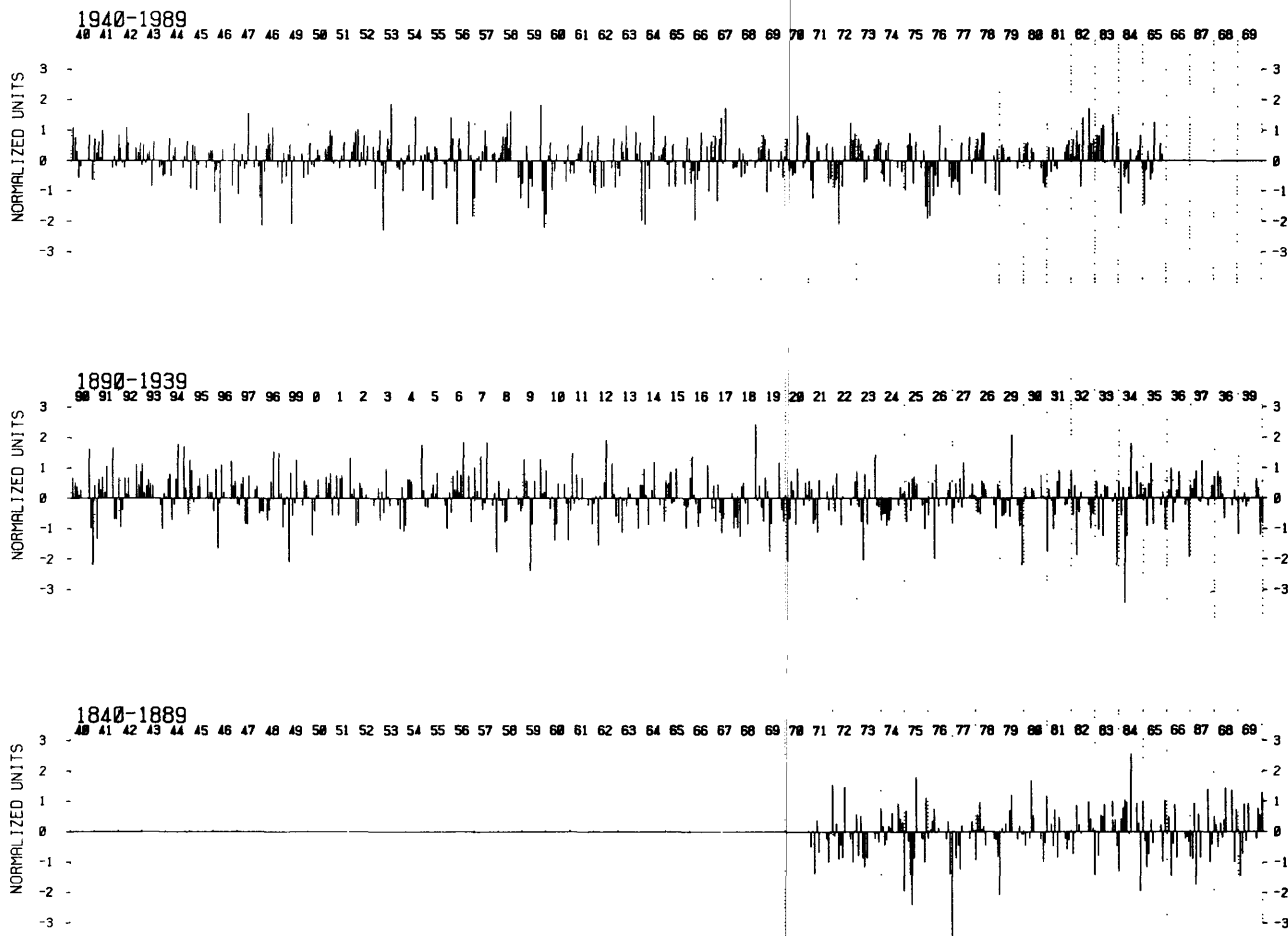
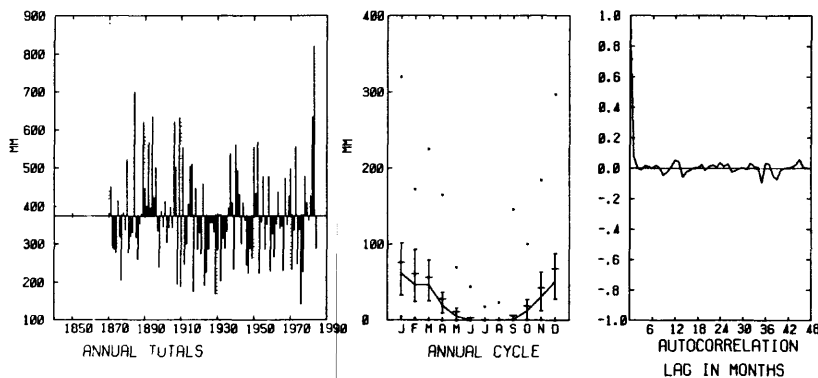


Figure 141. Graphs of standardized monthly anomaly and selected statistics for precipitation at Livermore, CA, 1871-1985.

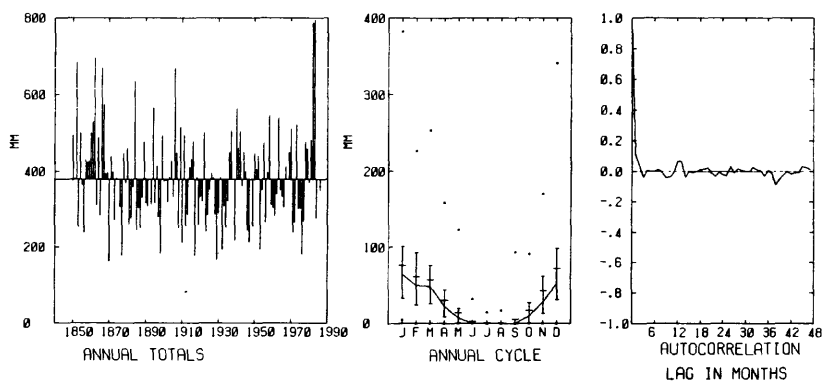
PRECIP STOCKTON CALIFORNIA

UNITS ARE MM

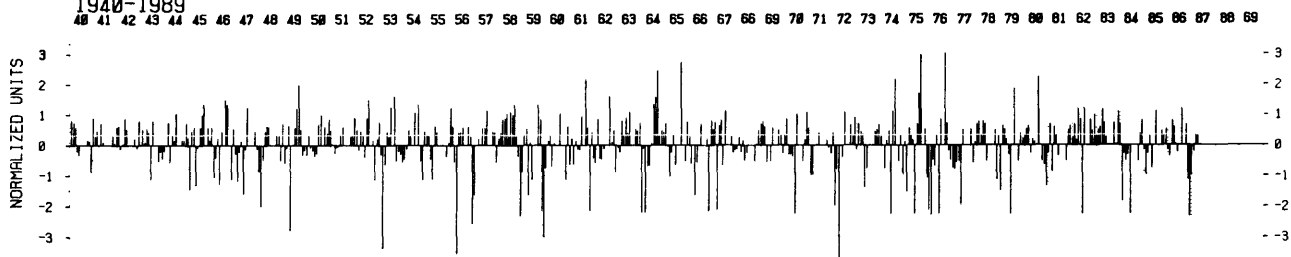
1850-1987

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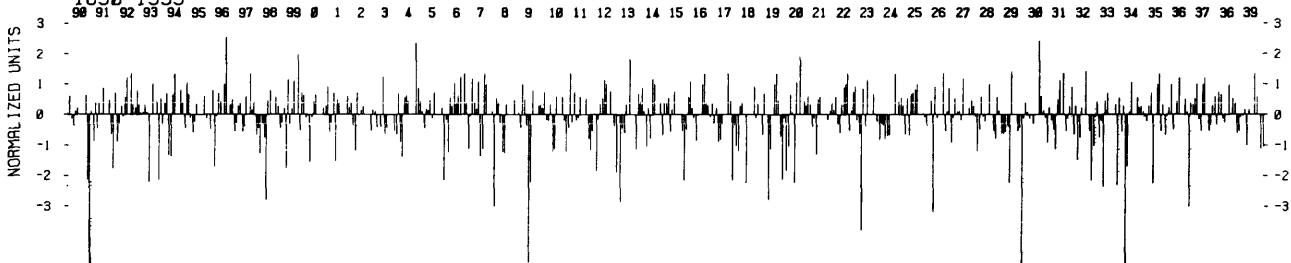
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

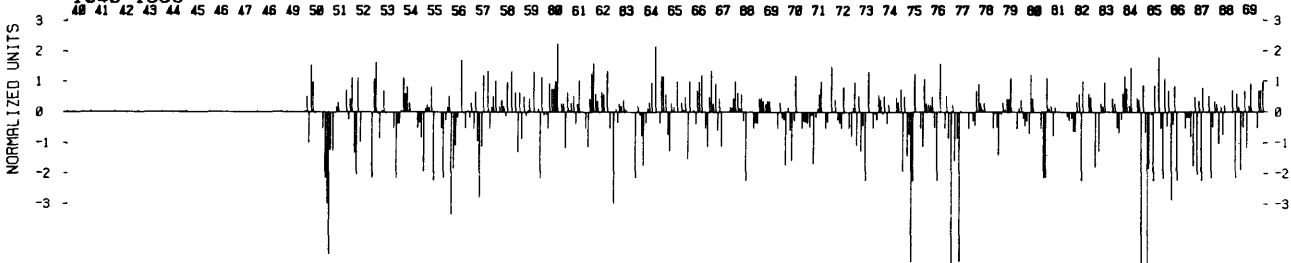


Figure 142. Graphs of standardized monthly anomaly and selected statistics for precipitation at Stockton, CA, 1850-1987.

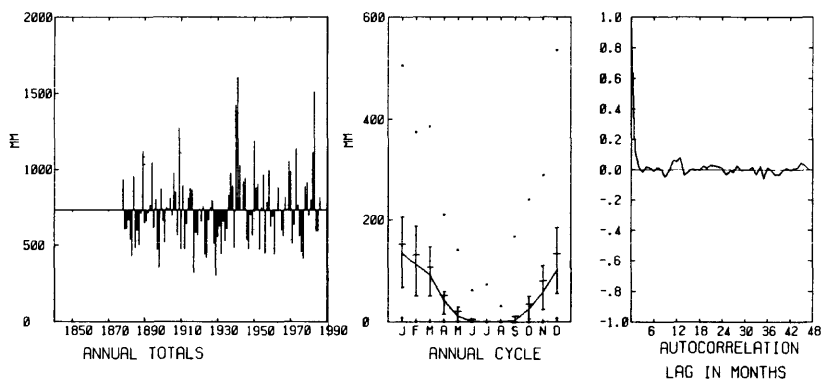
PRECIP SANTA CRUZ CALIFORNIA

UNITS ARE MM

1878-1987

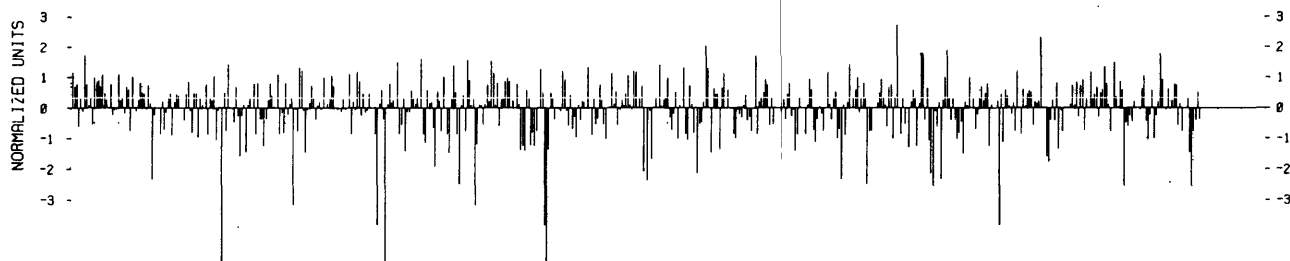
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U.C. SANTA BARBARA 94720

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



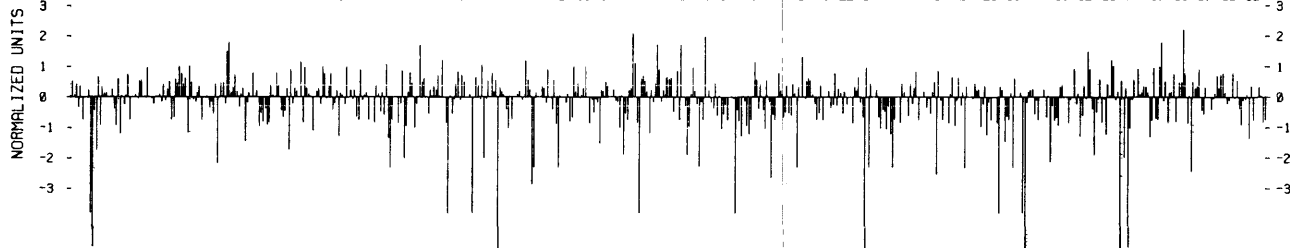
1940-1989

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1890-1939

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1840-1889

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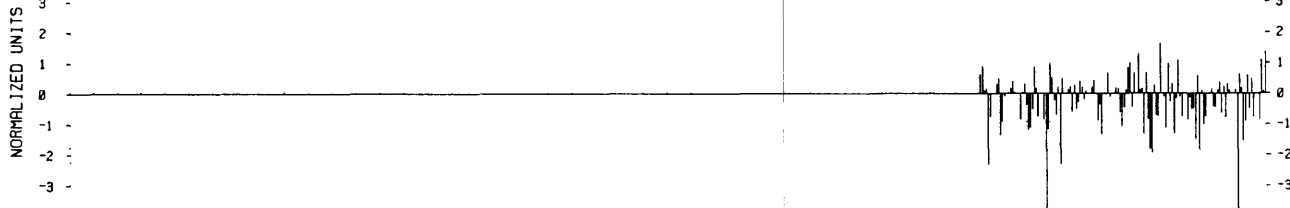


Figure 143. Graphs of standardized monthly anomaly and selected statistics for precipitation at Santa Cruz, CA, 1878-1987.

PRECIP LAS VEGAS NEVADA

UNITS ARE MM

1937-1985

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
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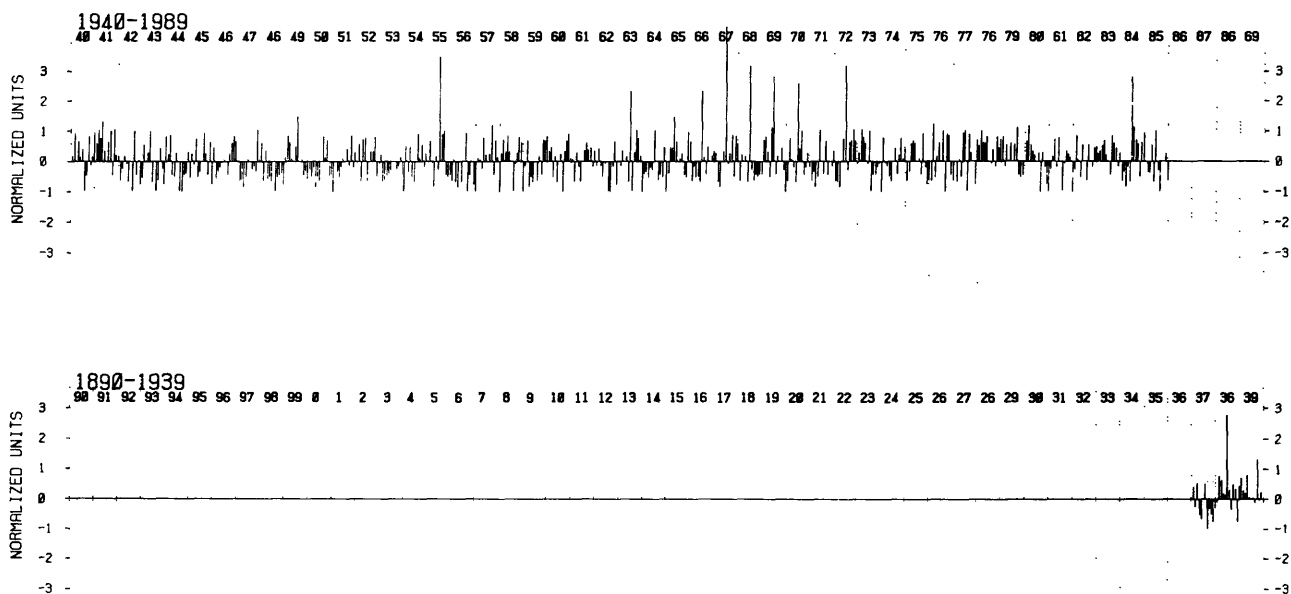
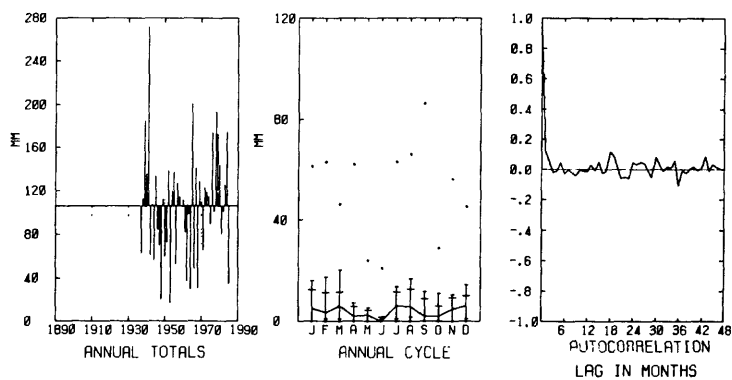


Figure 144. Graphs of standardized monthly anomaly and selected statistics for precipitation at Las Vegas, NV, 1937-1985.

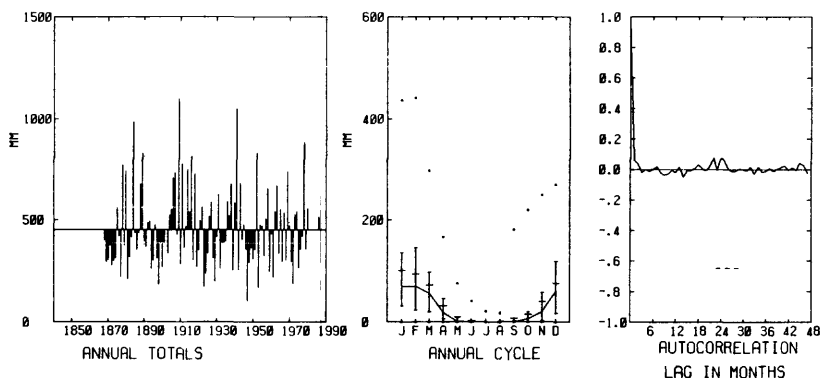
PRECIP SANTA BARBARA CALIFORNIA

UNITS ARE MM

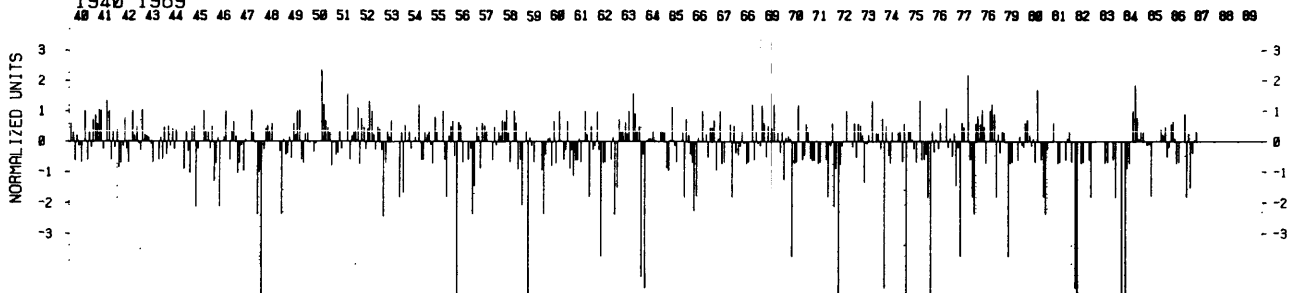
1868-1987

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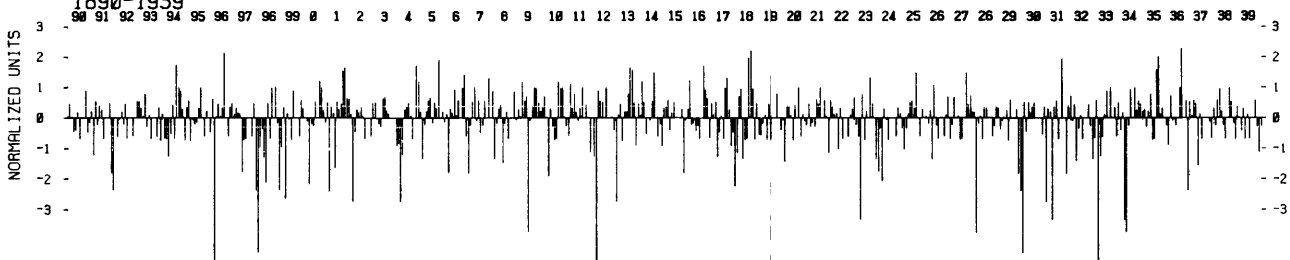
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BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

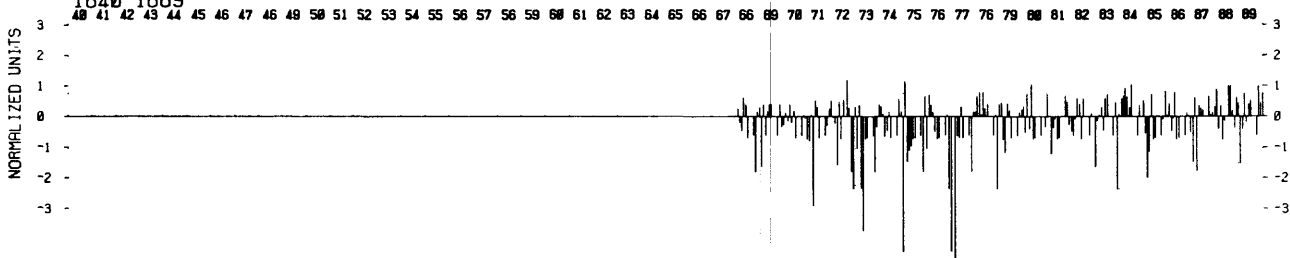


Figure 145. Graphs of standardized monthly anomaly and selected statistics for precipitation at Santa Barbara, CA, 1868-1987.

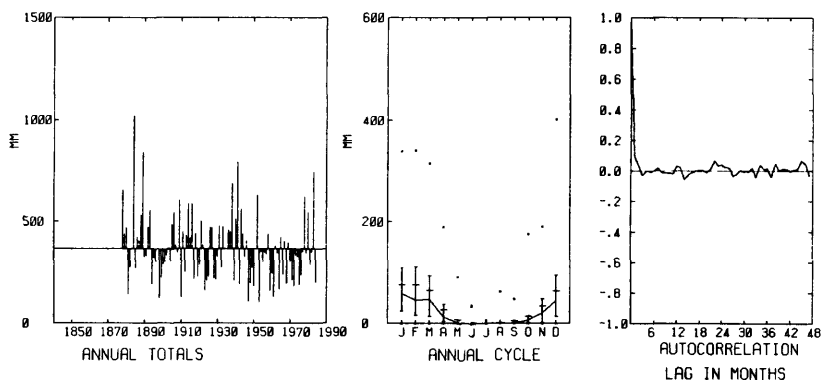
PRECIP LOS ANGELES CALIFORNIA

UNITS ARE MM

1877-1984

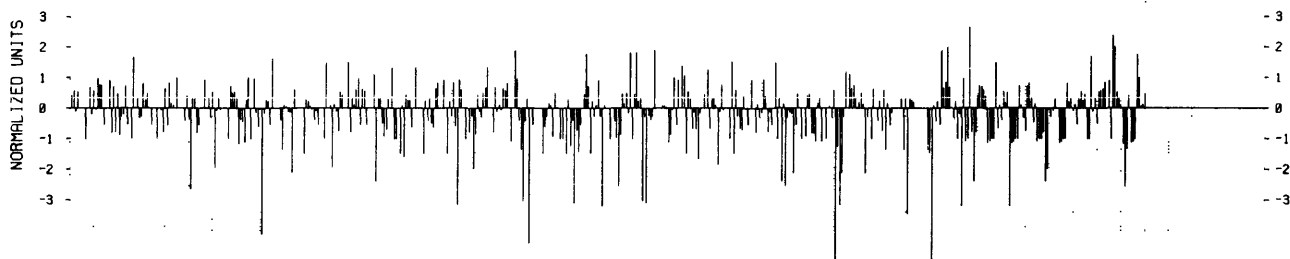
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



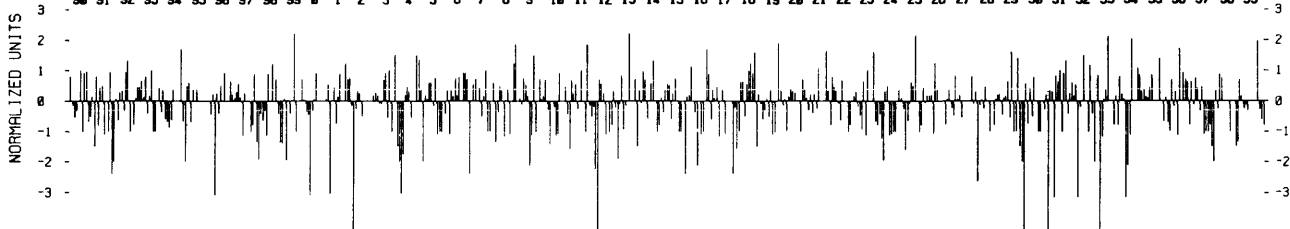
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1890-1939

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1840-1889

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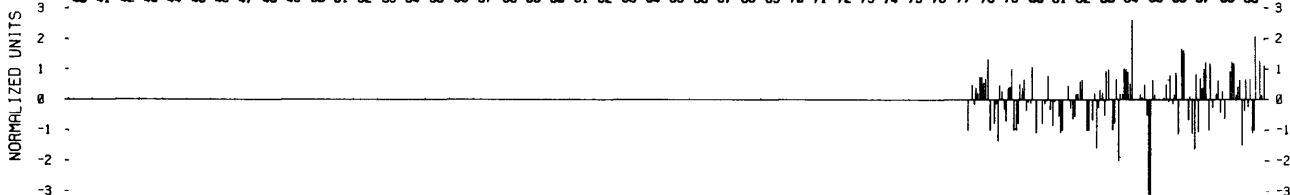


Figure 146. Graphs of standardized monthly anomaly and selected statistics for precipitation at Los Angeles, CA, 1877-1984.

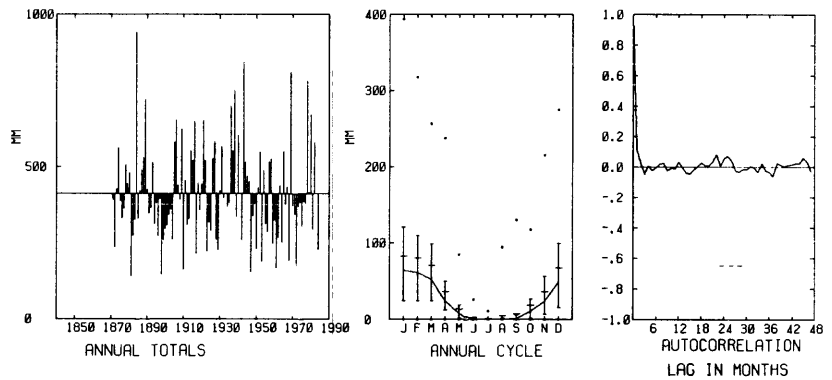
PRECIP SAN BERNARDINO CALIFORNIA

UNITS ARE MM

1870-1985

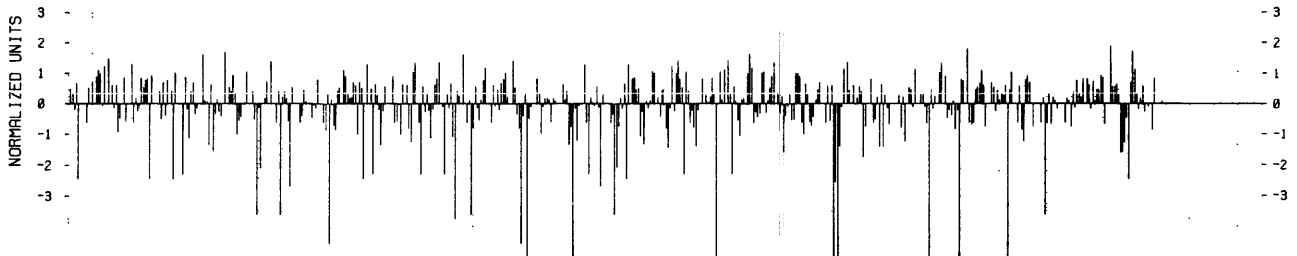
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DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



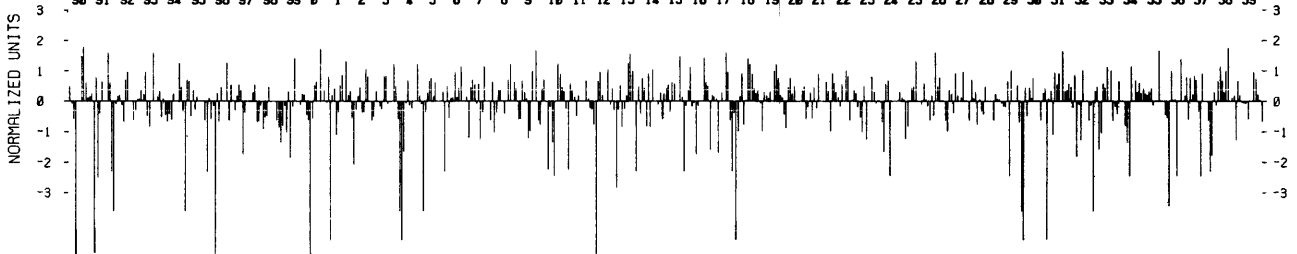
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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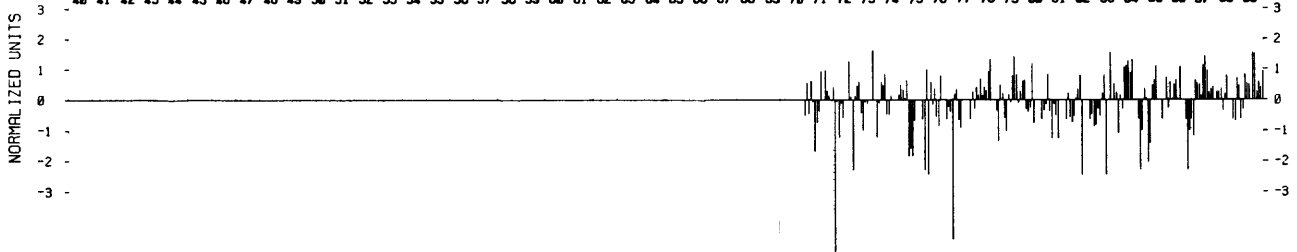


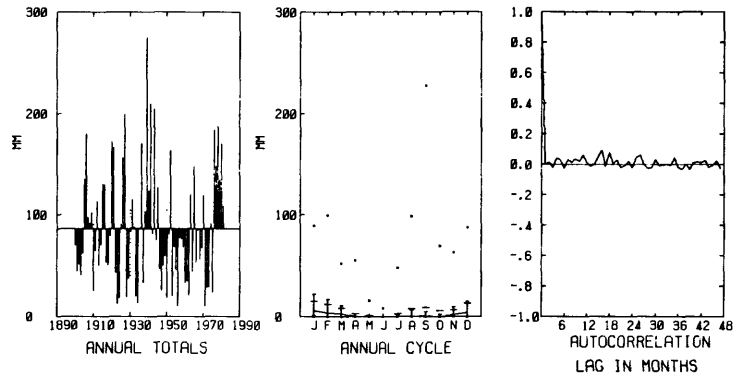
Figure 147. Graphs of standardized monthly anomaly and selected statistics for precipitation at San Bernardino, CA, 1870-1985.

PRECIP INDIO CALIFORNIA

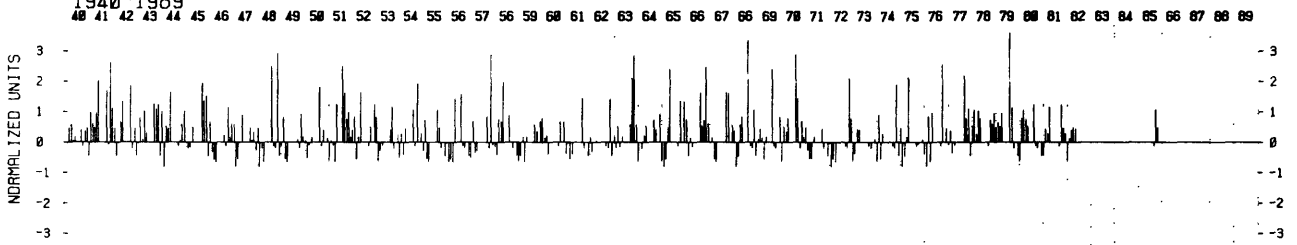
UNITS ARE MM

1900-1985

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U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

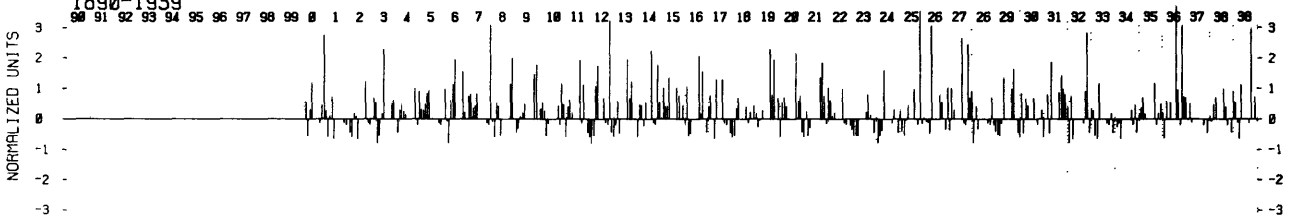


Figure 148. Graphs of standardized monthly anomaly and selected statistics for precipitation at Indio, CA, 1900-1985.

PRECIP PRESCOTT ARIZONA

UNITS ARE MM

1876-1986

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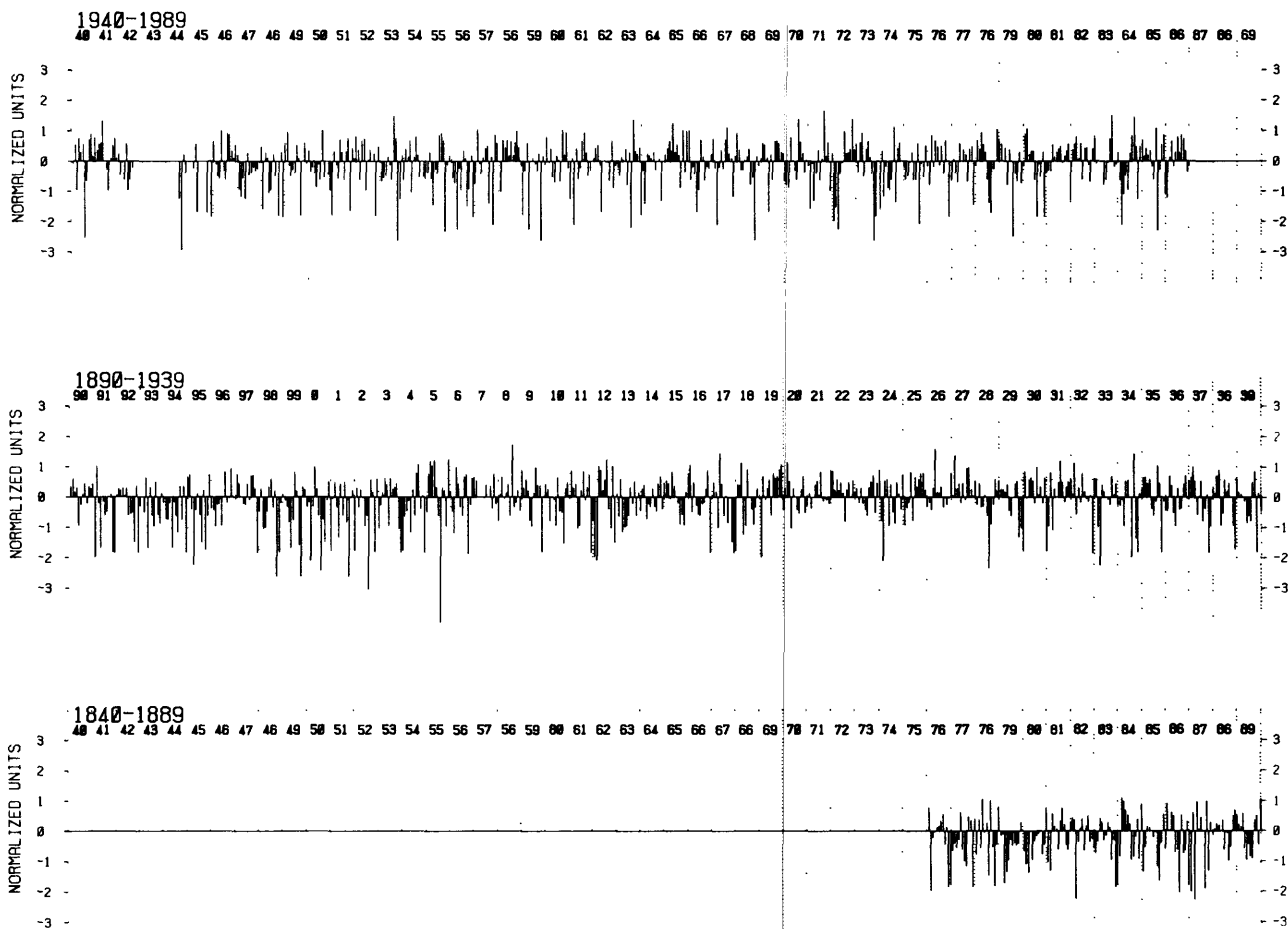
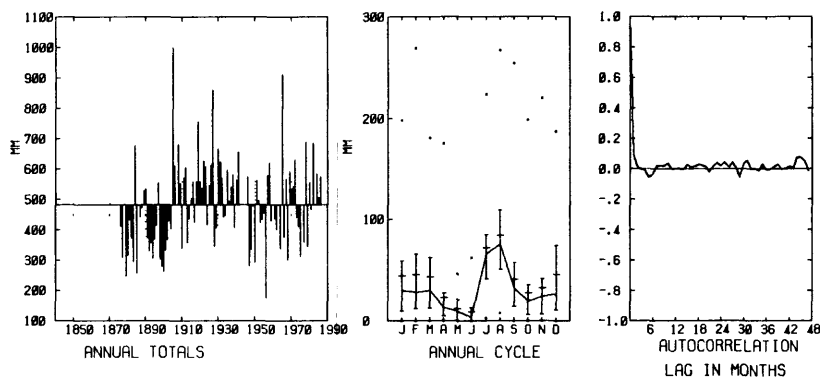


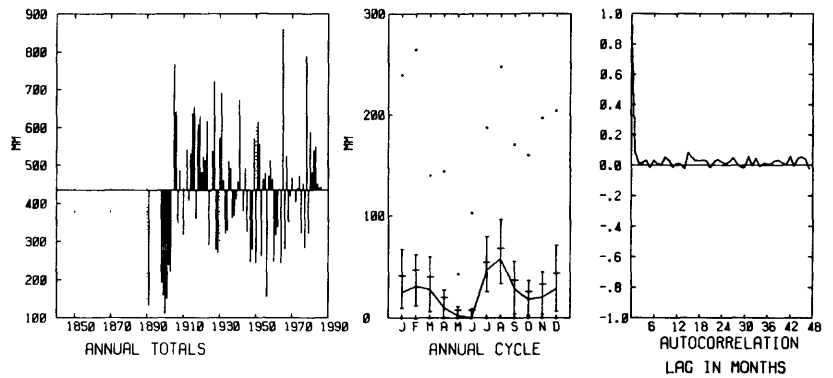
Figure 149. Graphs of standardized monthly anomaly and selected statistics for precipitation at Prescott, AZ, 1876-1986.

PRECIP WALNUT GROVE ARIZONA

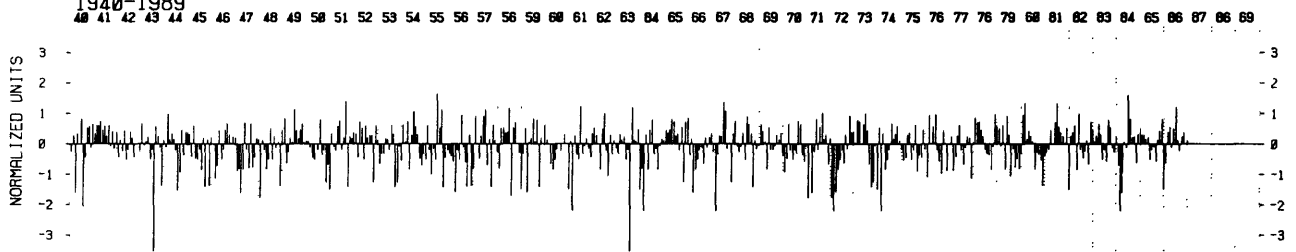
UNITS ARE MM

1890-1986

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DEPT OF GEOGRAPHY
U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

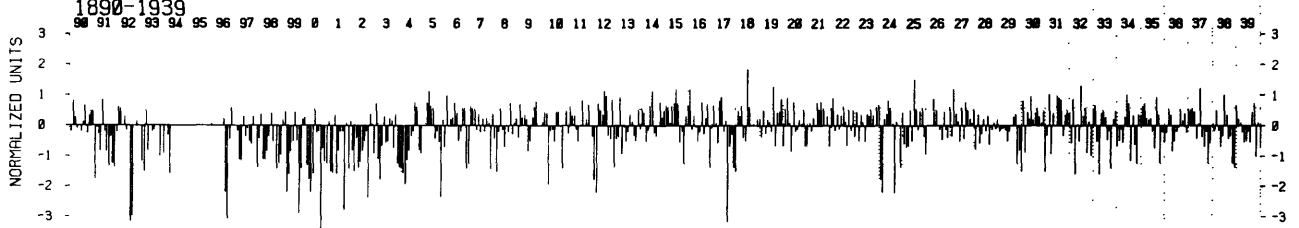


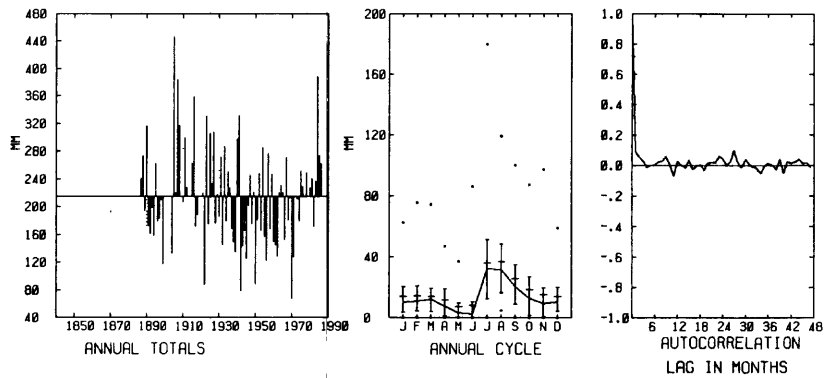
Figure 150. Graphs of standardized monthly anomaly and selected statistics for precipitation at Walnut Grove, AZ, 1890-1986.

PRECIP HOLBROOK ARIZONA

UNITS ARE MM

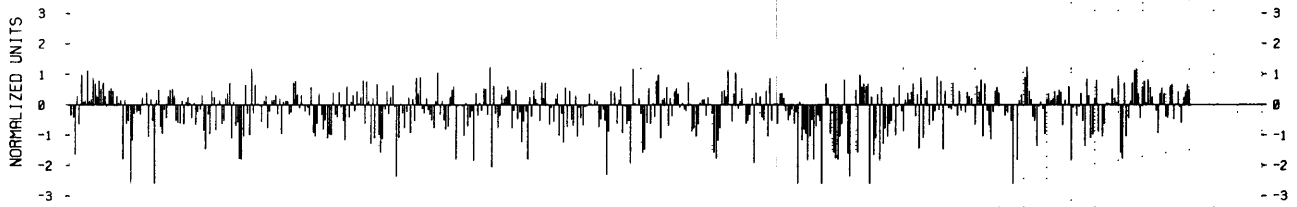
1887-1986

JOEL MICHAELSEN
DEPT OF GEOGRAPHY
U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
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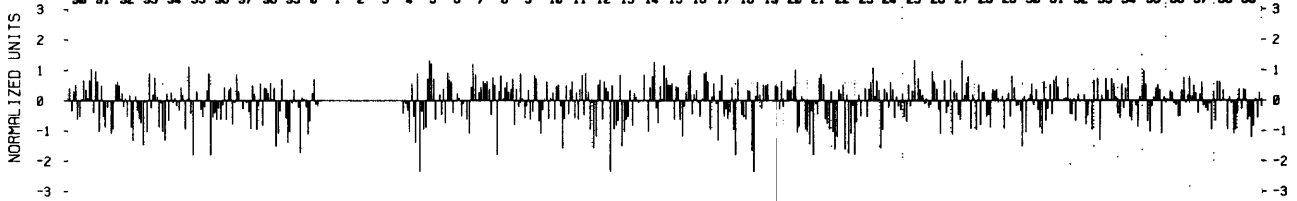
1940-1989

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1890-1939

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1840-1889

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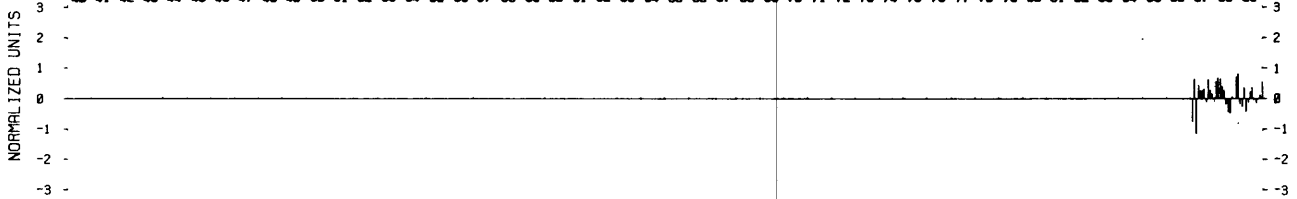


Figure 151. Graphs of standardized monthly anomaly and selected statistics for precipitation at Holbrook, AZ, 1887-1986.

PRECIP ALBUQUERQUE NEW MEXICO

UNITS ARE MM

1931-1985

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PO BOX 3000, BOULDER, CO. 80307

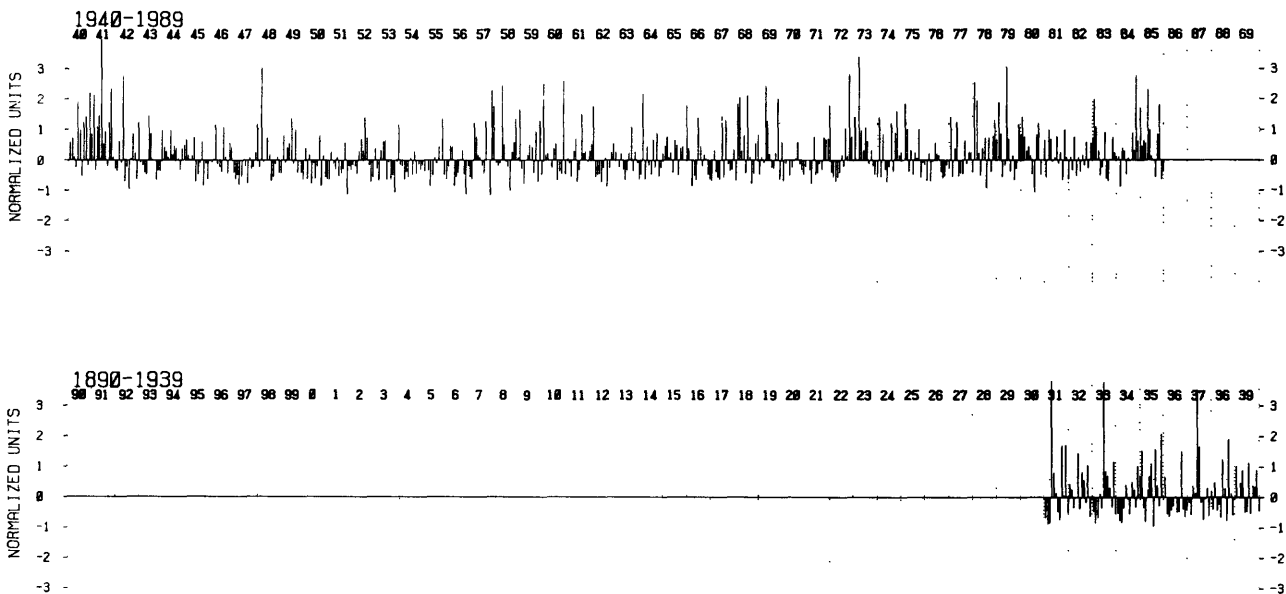
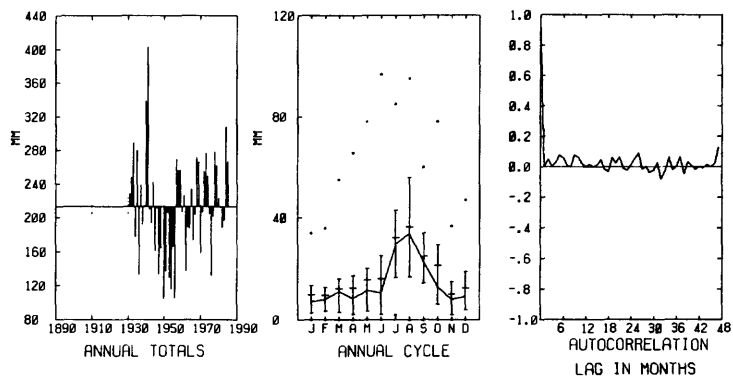


Figure 152. Graphs of standardized monthly anomaly and selected statistics for precipitation at Albuquerque, NM, 1931-1985.

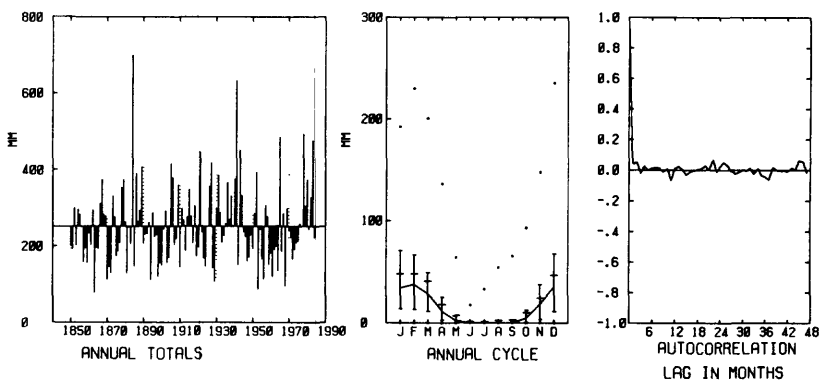
PRECIP SAN DIEGO CALIFORNIA

UNITS ARE MM

1850-1984

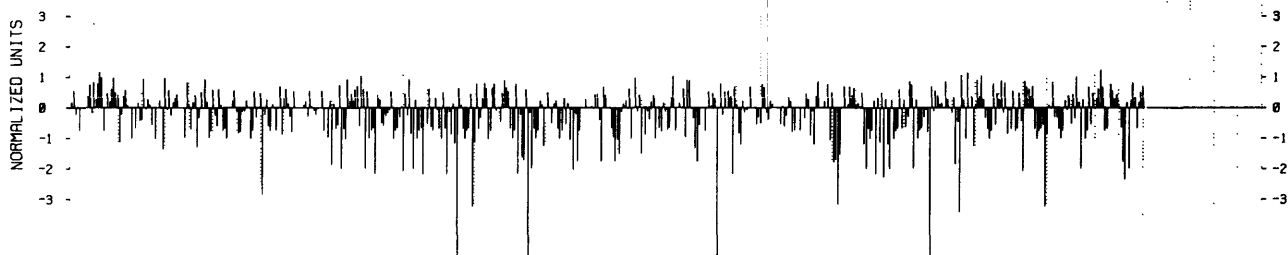
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



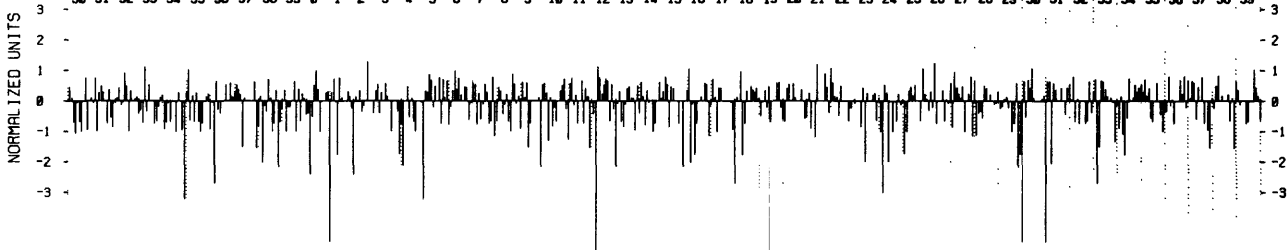
1940-1989

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1890-1939

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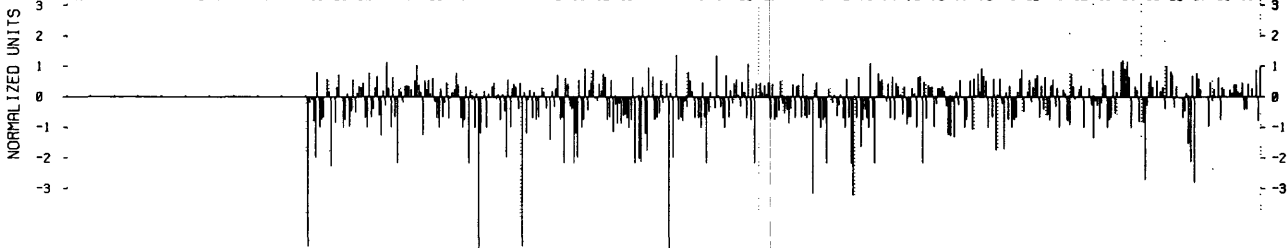


Figure 153. Graphs of standardized monthly anomaly and selected statistics for precipitation at San Diego, CA, 1850-1984.

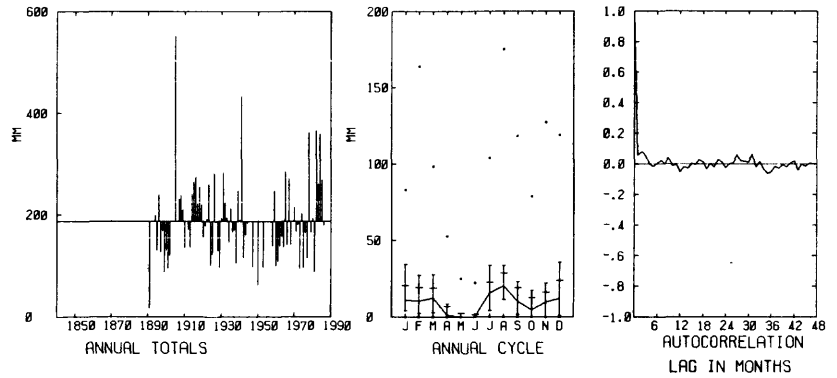
PRECIP BUCKEYE ARIZONA

UNITS ARE MM

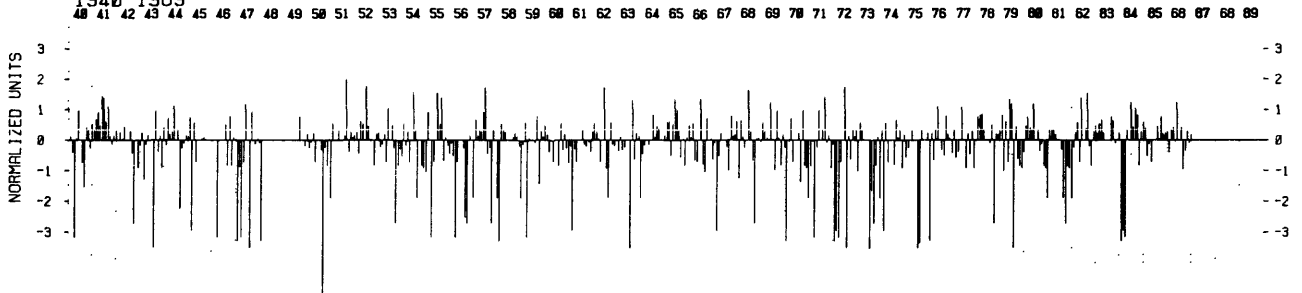
1889-1986

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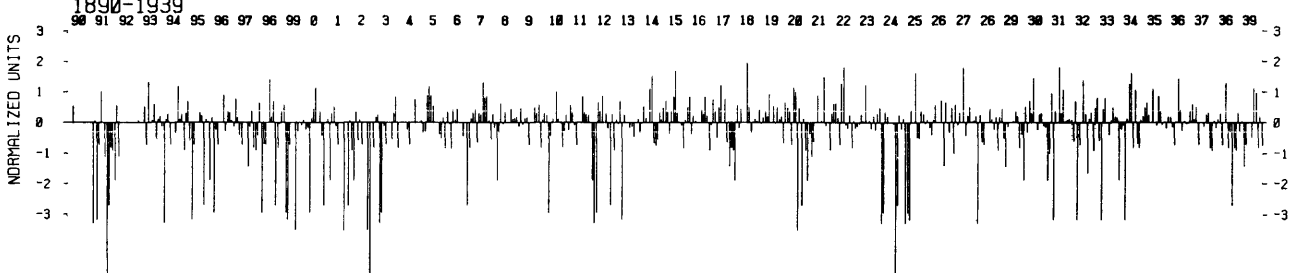
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BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

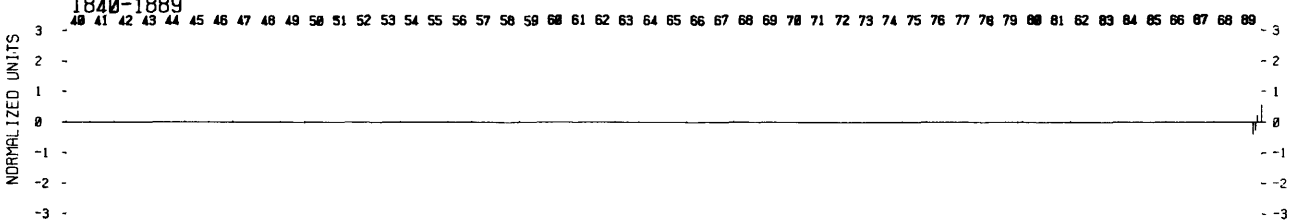


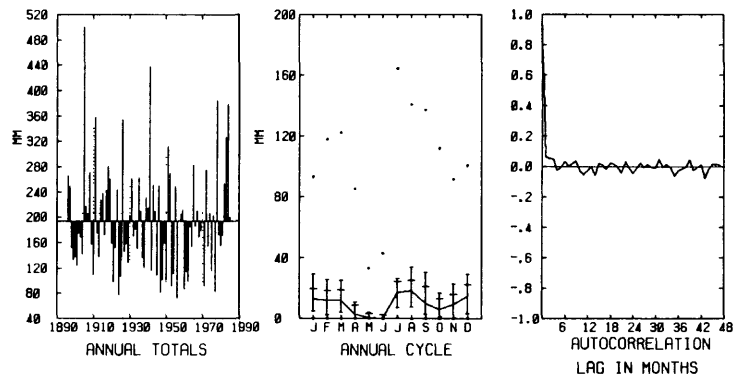
Figure 154. Graphs of standardized monthly anomaly and selected statistics for precipitation at Buckeye, AZ, 1889-1986.

PRECIP PHOENIX ARIZONA

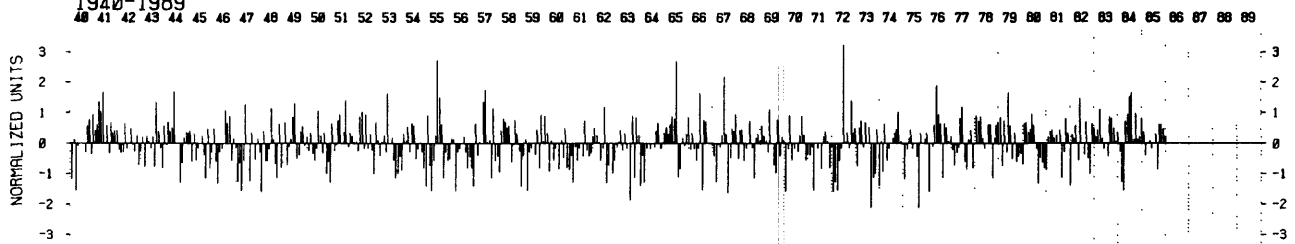
UNITS ARE MM

1896-1985

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

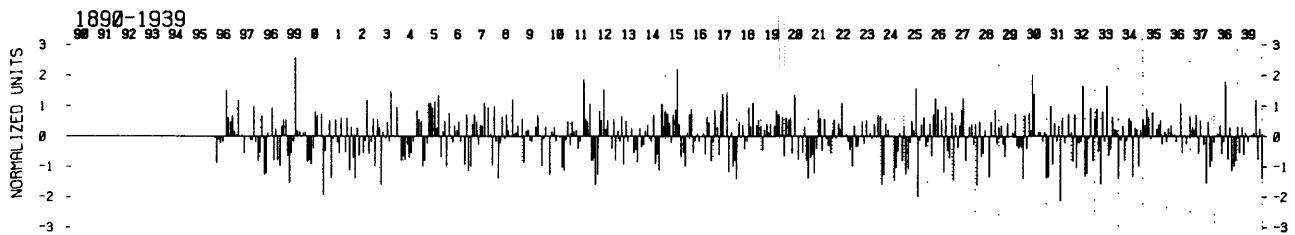


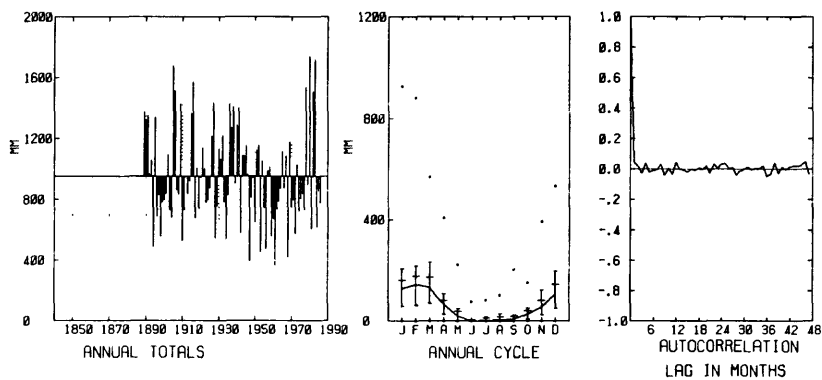
Figure 155. Graphs of standardized monthly anomaly and selected statistics for precipitation at Phoenix, AZ, 1896-1985.

PRECIP CUYAMACA CALIFORNIA

UNITS ARE MM

1887-1987

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DEPT OF GEOGRAPHY
U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
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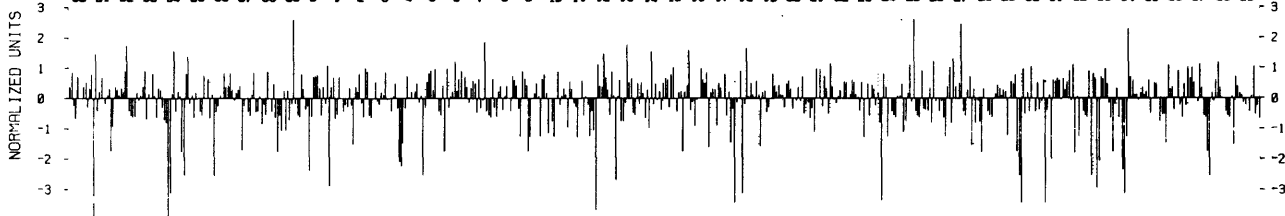
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1890-1939

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1840-1889

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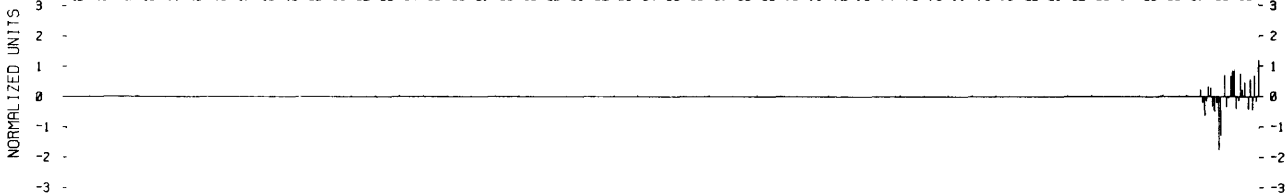


Figure 156. Graphs of standardized monthly anomaly and selected statistics for precipitation at Cuyamaca, CA, 1887-1987.

PRECIP MEXICALI

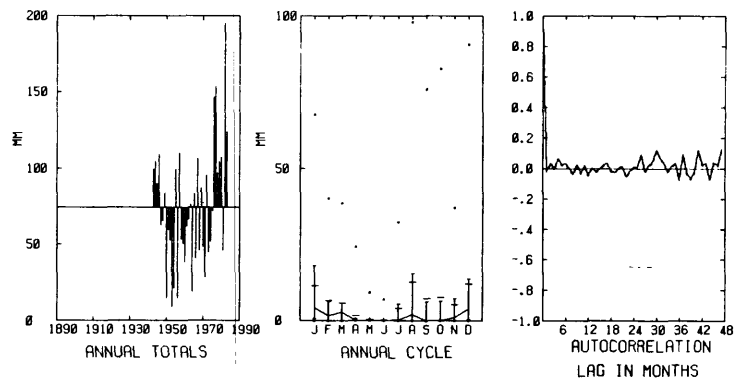
BAJA CALIF MEXICO

UNITS ARE MM

1943-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

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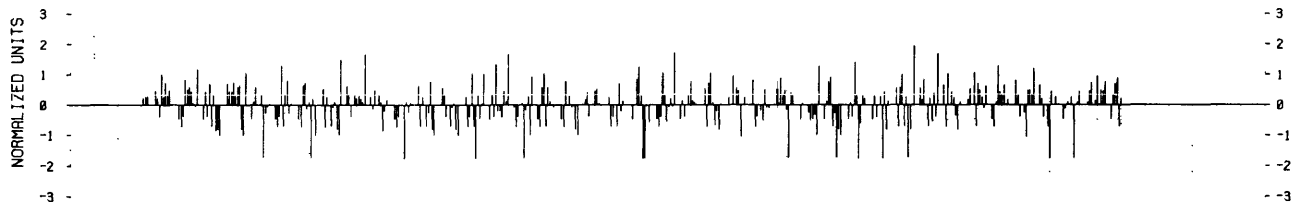


Figure 157. Graphs of standardized monthly anomaly and selected statistics for precipitation at Mexicali, MEX, 1943-1983.

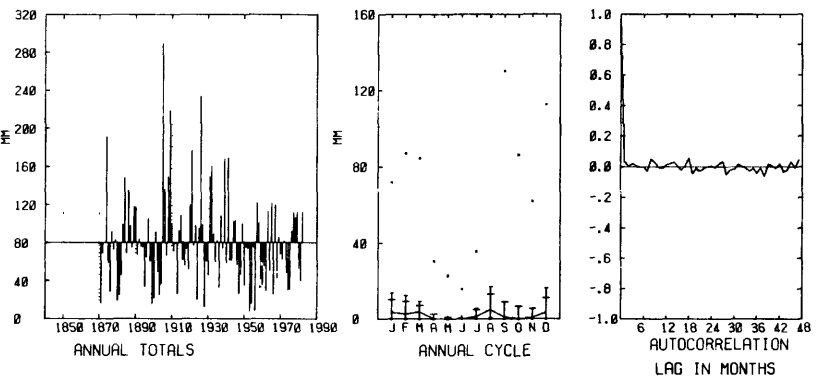
PRECIP YUMA ARIZONA

UNITS ARE MM

1870-1982

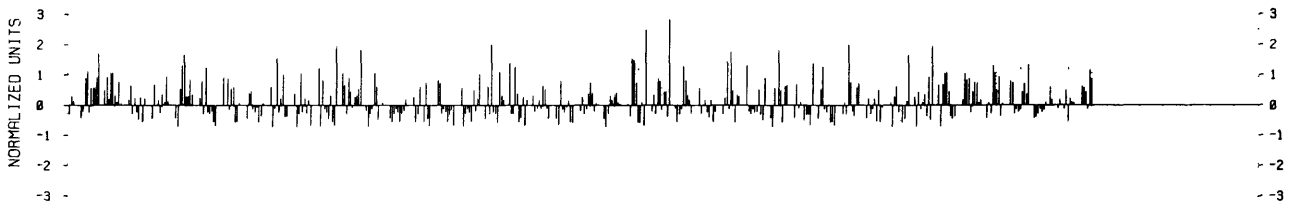
UPDATED FROM LCD ANNUAL SUMMARY, NOAA

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



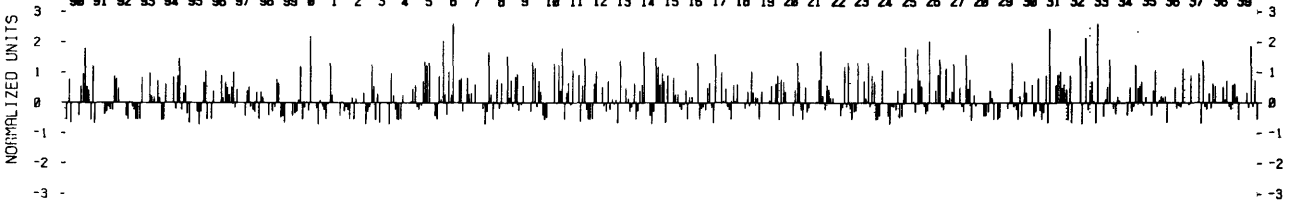
1940-1989

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1890-1939

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1840-1889

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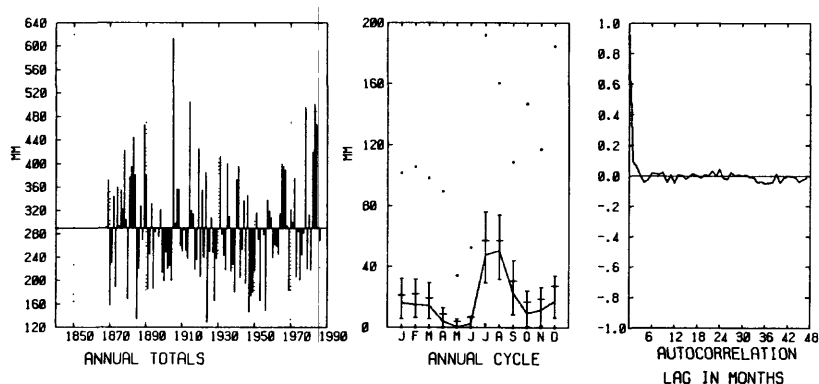
Figure 158. Graphs of standardized monthly anomaly and selected statistics for precipitation at Yuma, AZ, 1870-1982.

PRECIP TUCSON ARIZONA

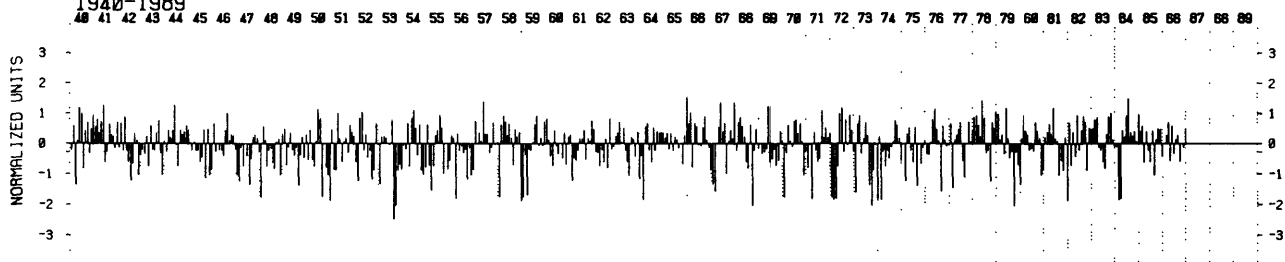
UNITS ARE MM

1867-1986

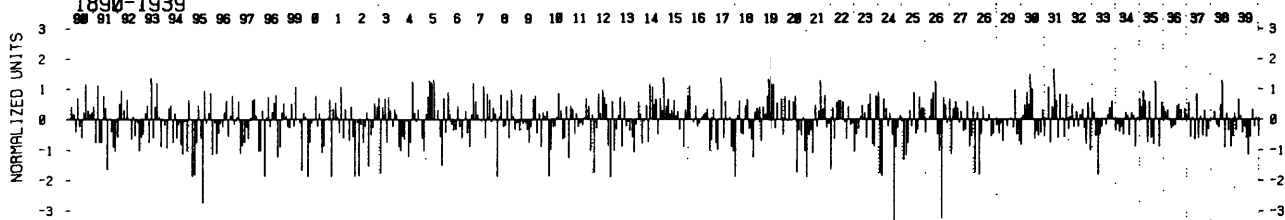
JOEL MICHAELSEN
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U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

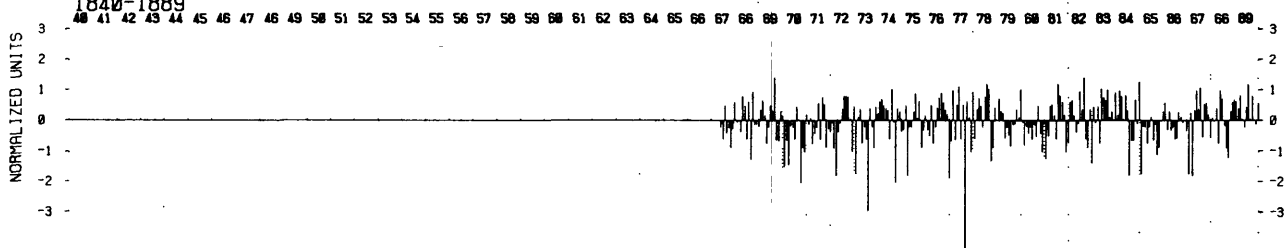


Figure 159. Graphs of standardized monthly anomaly and selected statistics for precipitation at Tucson, AZ, 1867-1986.

PRECIP SAN FELIPE

BAJA CALIF MEXICO

UNITS ARE MM

1949-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

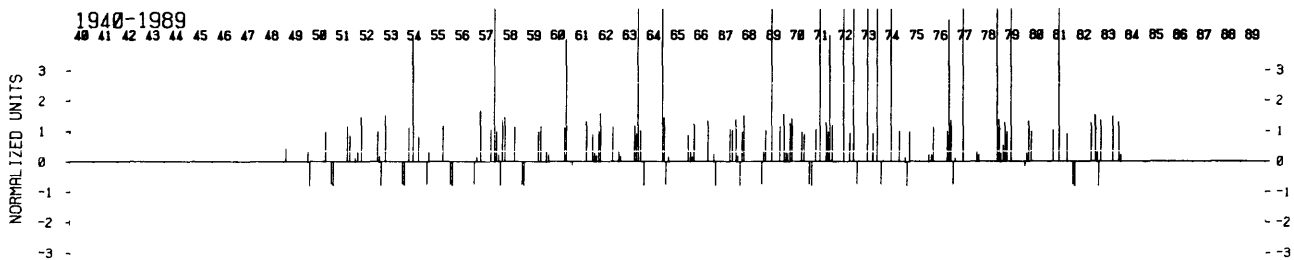
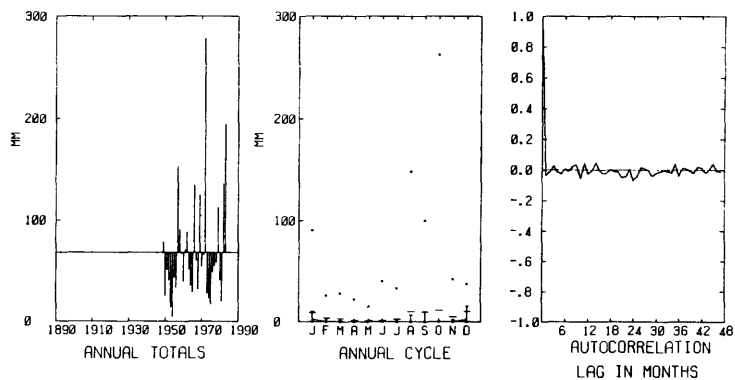


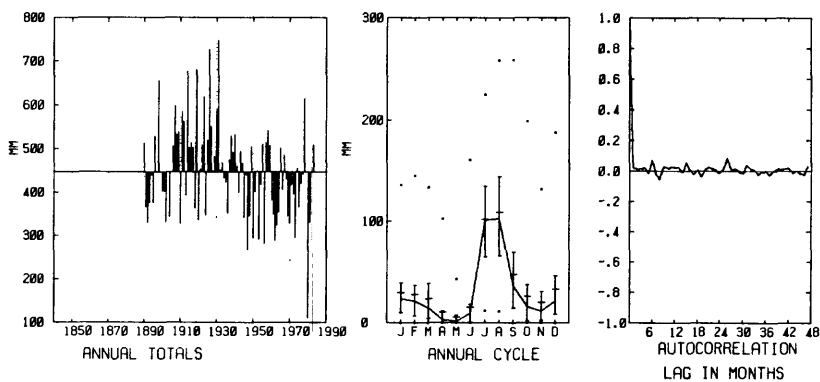
Figure 160. Graphs of standardized monthly anomaly and selected statistics for precipitation at San Felipe, MEX, 1949-1983.

PRECIP BISBEE ARIZONA

UNITS ARE MM

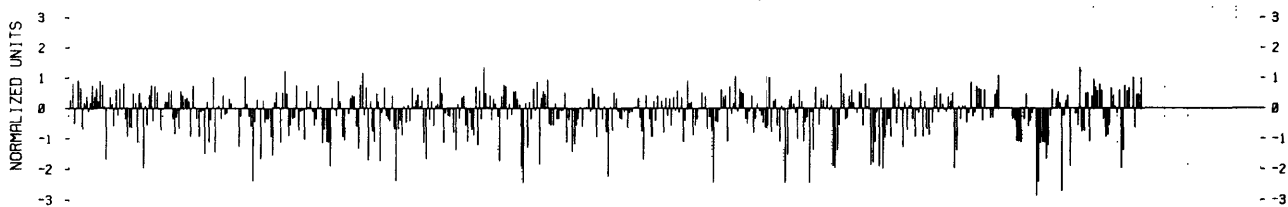
1889-1984

JOEL MICHAELSEN
DEPT OF GEOGRAPHY
U.C. SANTA BARBARA 94720
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



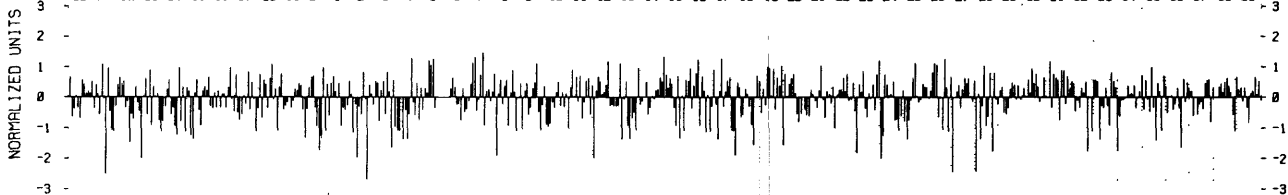
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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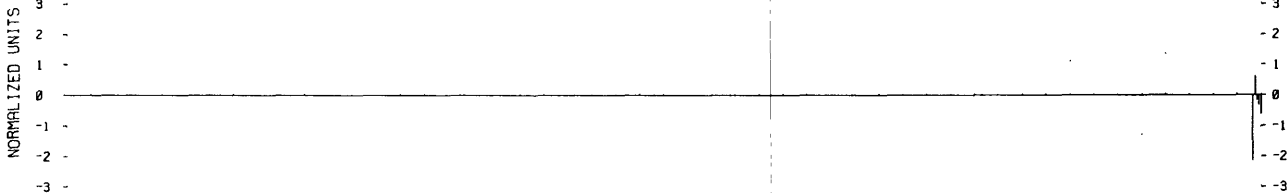


Figure 161. Graphs of standardized monthly anomaly and selected statistics for precipitation at Bisbee, AZ, 1889-1984.

PRECIP GUAYMAS

SONORA

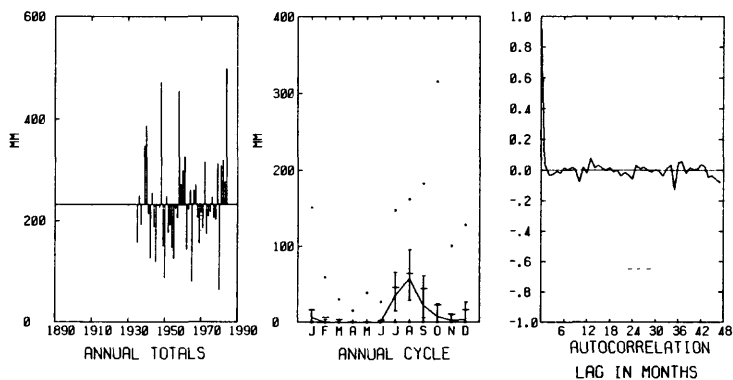
MEXICO

UNITS ARE MM

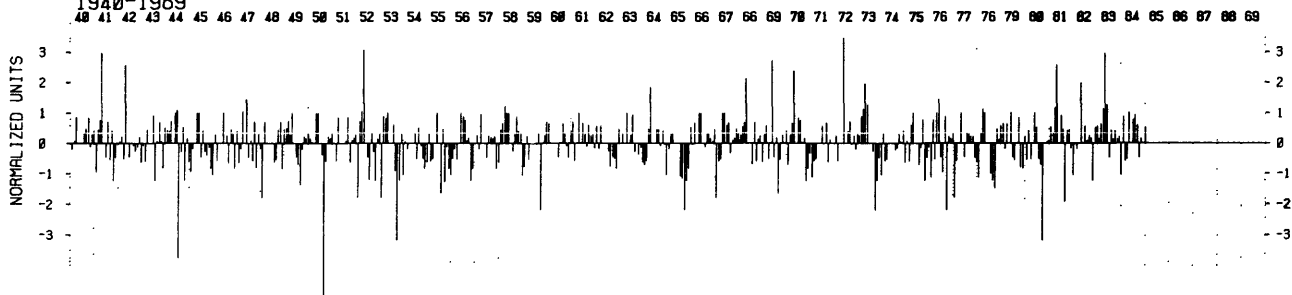
1935-1984

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

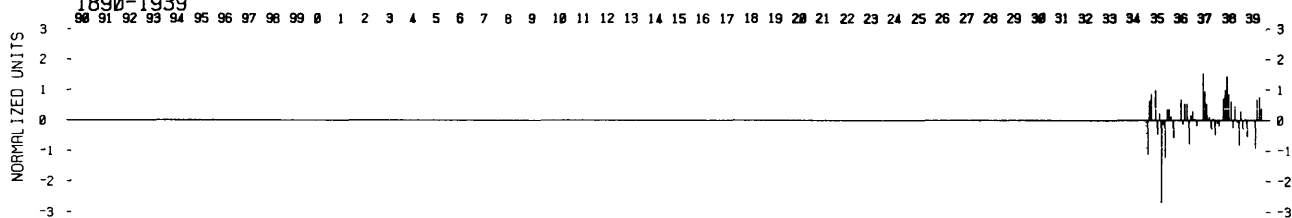


Figure 162. Graphs of standardized monthly anomaly and selected statistics for precipitation at Guaymas, MEX, 1935-1984.

PRECIP SAN IGNACIO

BAJA CALIF MEXICO

UNITS ARE MM

1939-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

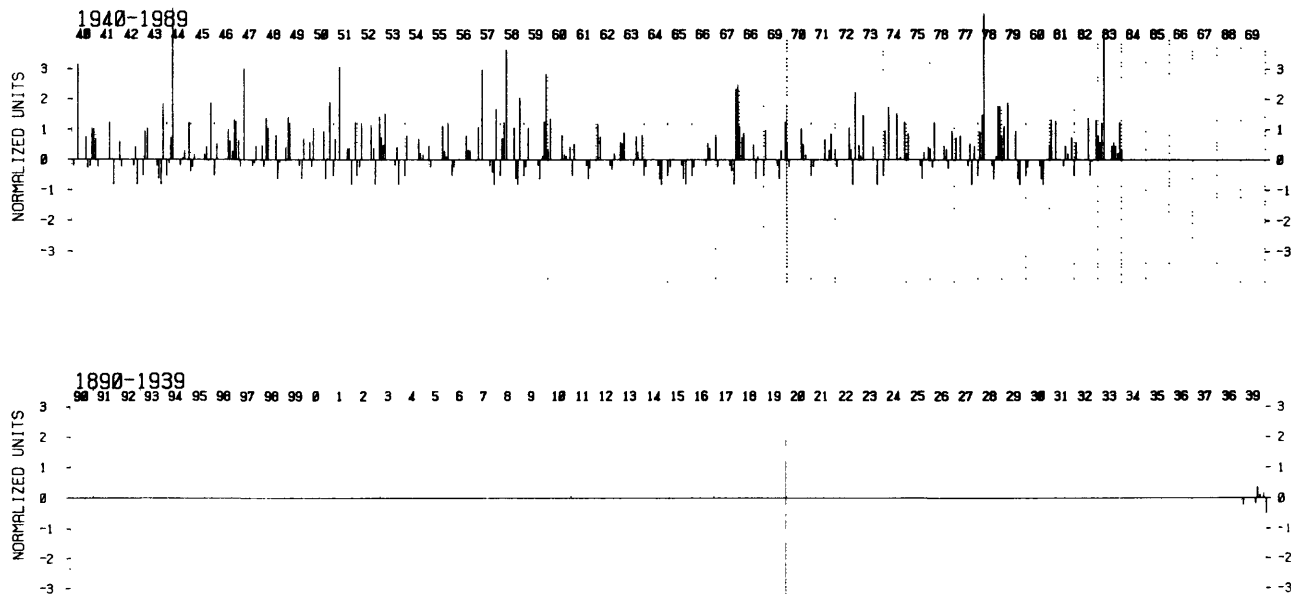
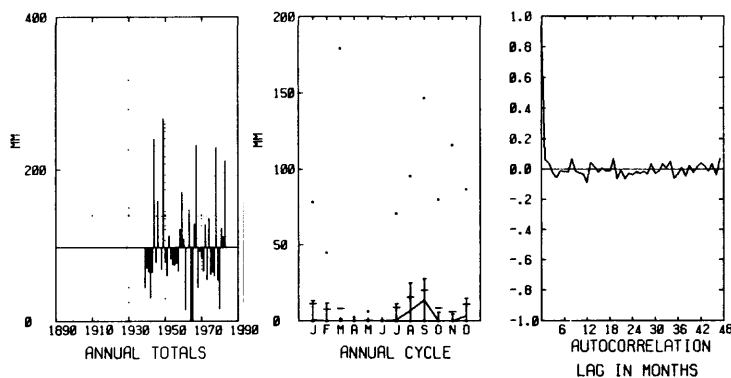


Figure 163. Graphs of standardized monthly anomaly and selected statistics for precipitation at San Ignacio, MEX, 1939-1983.

PRECIP LORETO

BAJA CALIF MEXICO

UNITS ARE MM

1949-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

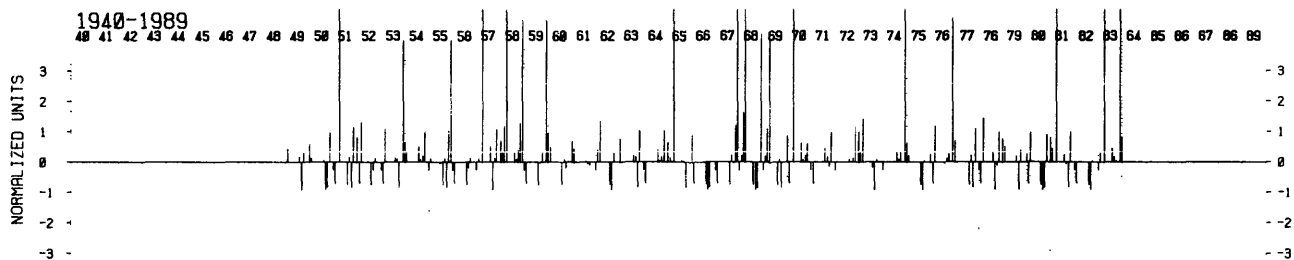
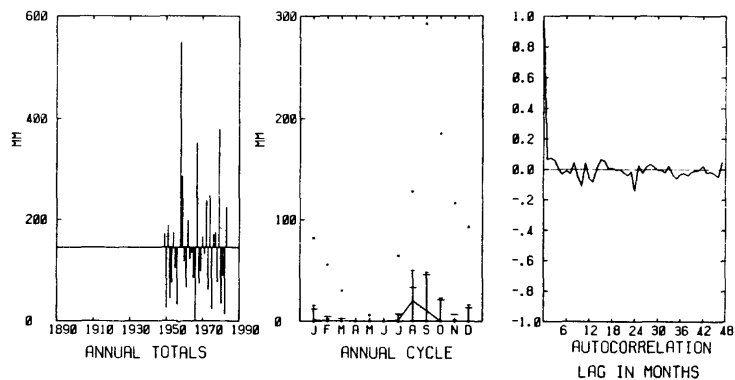


Figure 164. Graphs of standardized monthly anomaly and selected statistics for precipitation at Loreto, MEX, 1949-1983.

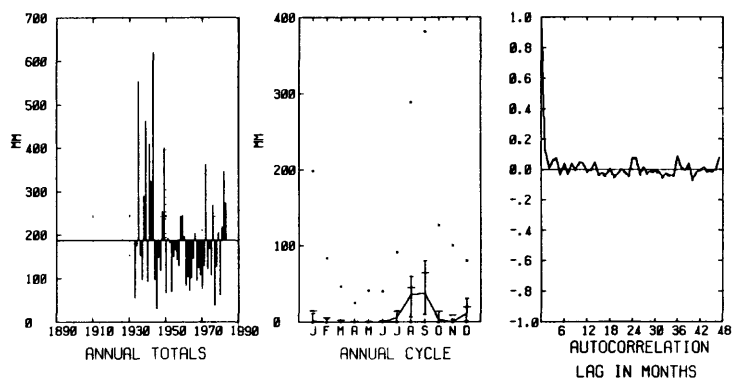
PRECIP LA PAZ

BAJA CALIF MEXICO

UNITS ARE MM

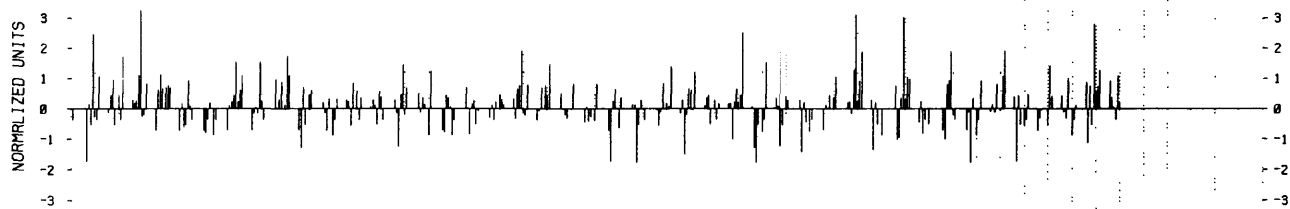
1933-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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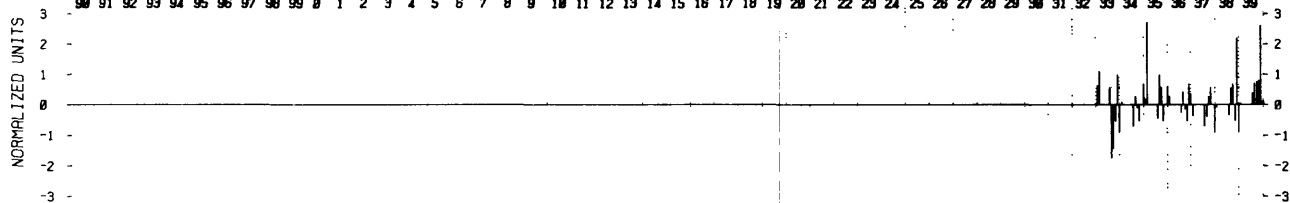


Figure 165. Graphs of standardized monthly anomaly and selected statistics for precipitation at La Paz, MEX, 1933-1983.

PRECIP CABO SAN LUCAS BAJA CALIF MEXICO

UNITS ARE MM

1949-1983

GERARD VOGEL, NAVAL POSTGRAD SCHOOL
NEPRF, MONTEREY, CA 93943-5005

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

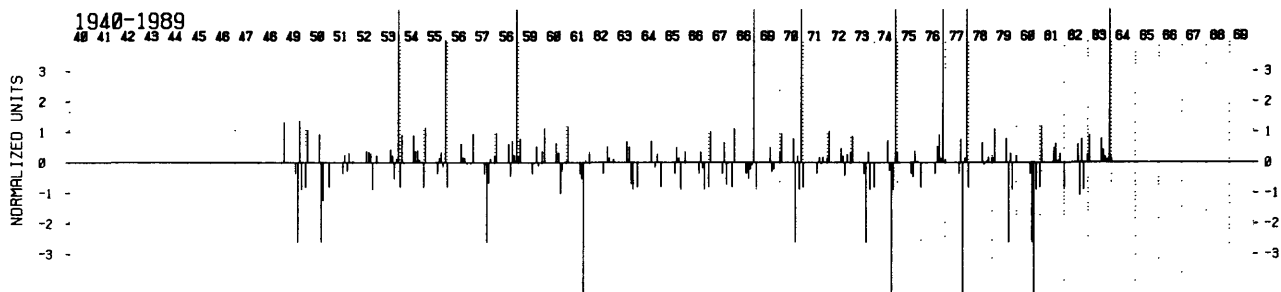
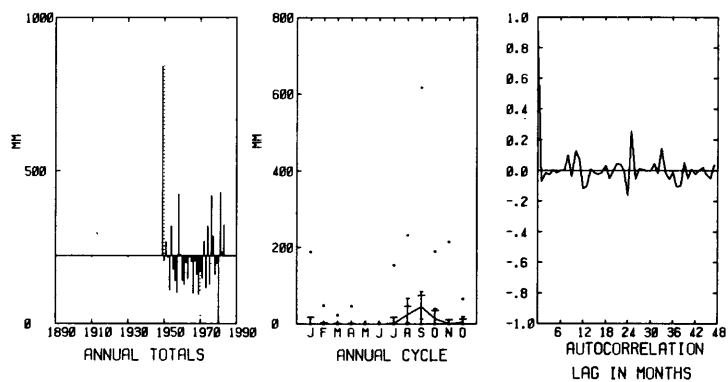


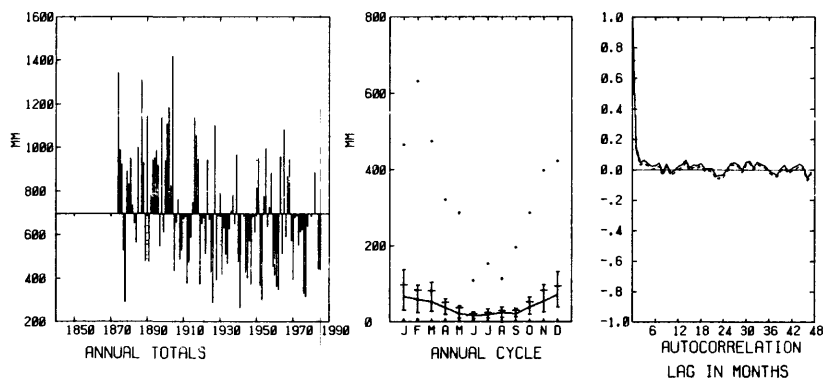
Figure 166. Graphs of standardized monthly anomaly and selected statistics for precipitation at Cabo San Lucas, MEX, 1949-1983.

PRECIP HONOLULU, OAHU, HAWAII

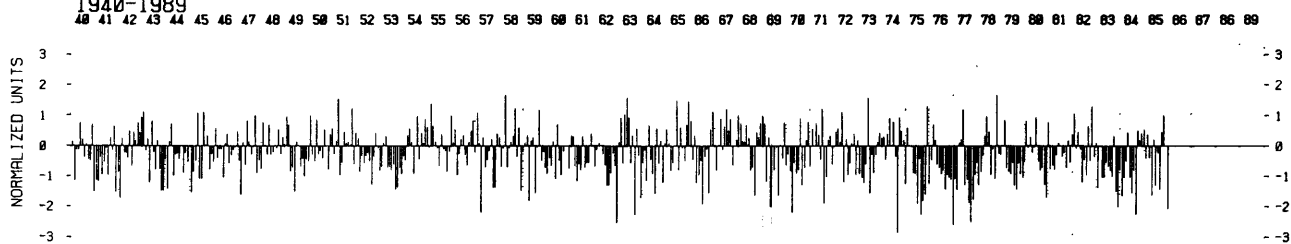
UNITS ARE MM

1874-1985

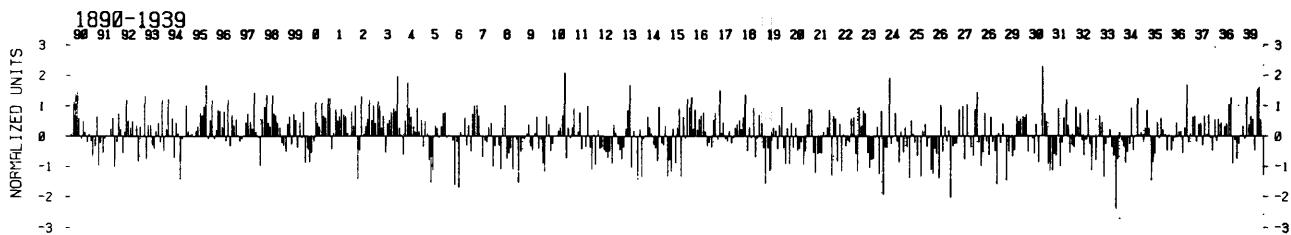
NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939



1840-1889

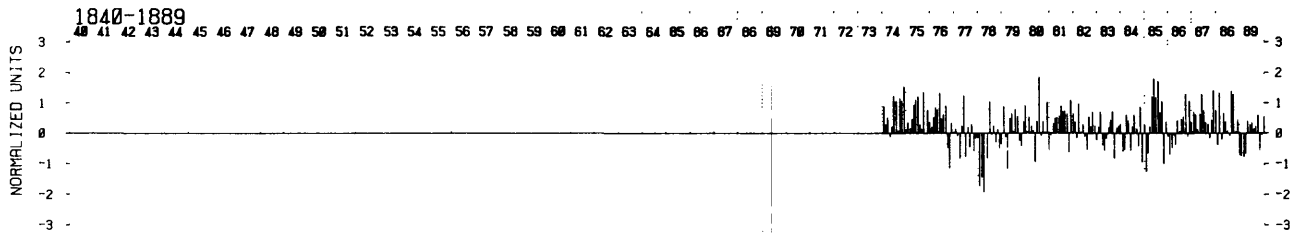


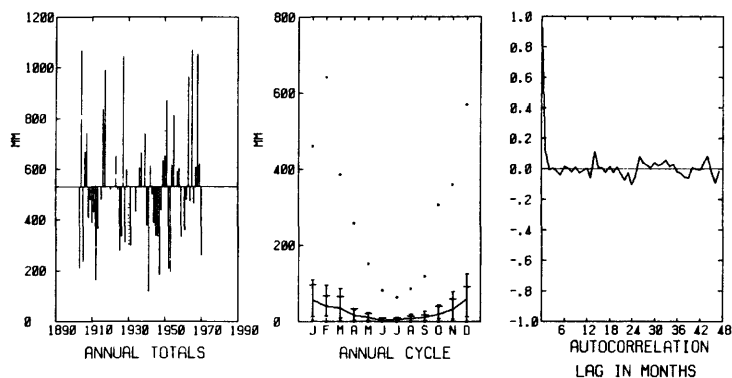
Figure 167. Graphs of standardized monthly anomaly and selected statistics for precipitation at Honolulu, HI, 1874-1985.

PRECIP HONOLULU OBS OAHU

UNITS ARE MM

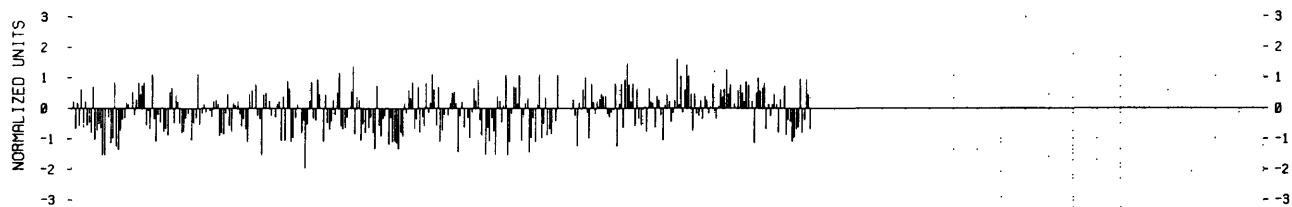
1901-1970

NCAR, DATA SUPPORT SECTION
PO BOX 3000, BOULDER, CO. 80307
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

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1890-1939

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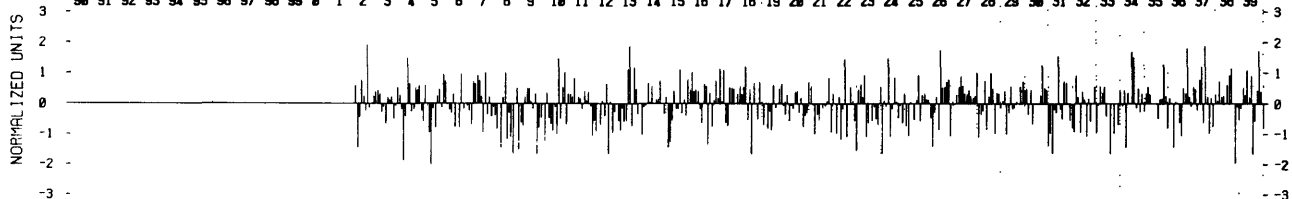


Figure 168. Graphs of standardized monthly anomaly and selected statistics for precipitation at Honolulu Obs., HI, 1901-1970.

Variable IV: Streamflow

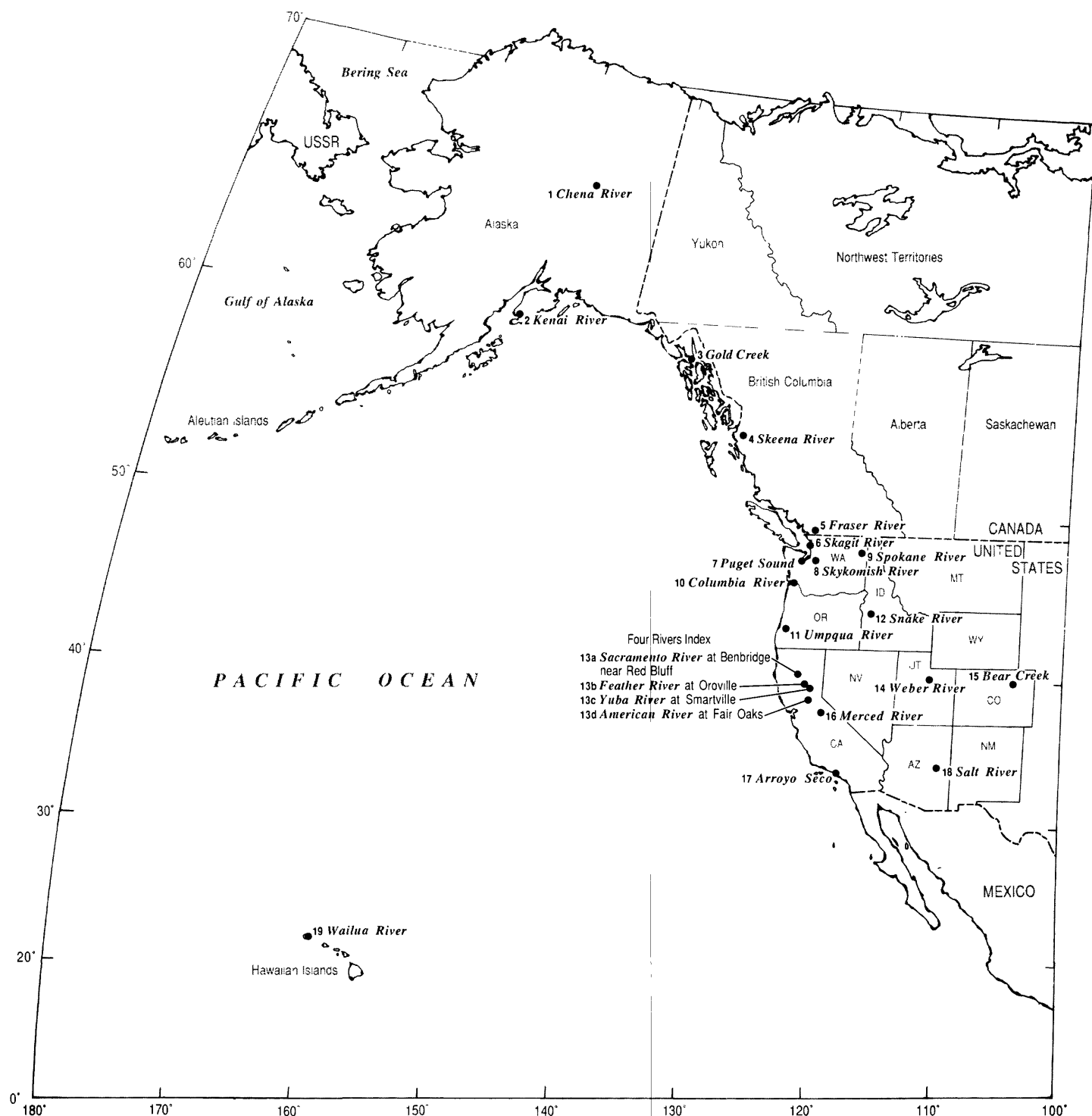


Figure 169. Map showing locations of streamflow stations.

Table 4.--Index to streamflow stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	170	Chena River, AK	64°50'N.	147°42'W.	1948-1985	Peterson
2	171	Kenai River, AK	60°29'N.	149°48'W.	1947-1985	Peterson
3	172	Gold Creek, AK	58°18'N.	134°24'W.	1917-1982	Slack
4	173	Skeena River, CAN	54°37'N.	128°25'W.	1928-1984	Peterson
5	174	Fraser River, CAN	49°20'N.	121°27'W.	1912-1984	Tabata
6	175	Skagit River, WA	48°20'N.	122°45'W.	1941-1984	Tabata
7	176	Puget Sound, WA	47°05'N.	122°25'W.	1930-1983	Ebbesmeyer
8	177	Skykomish River, WA	47°30'N.	121°24'W.	1929-1983	Lins
9	178	Spokane River, WA	47°39'N.	117°27'W.	1891-1985	Peterson
10	179	Columbia River, OR	46°11'N.	124°11'W.	1927-1984	Tabata
11	180	Umpqua River, OR	43°35'N.	123°33'W.	1905-1985	Peterson
12	181	Snake River, ID	44°14'N.	116°58'W.	1910-1986	Peterson
FOUR RIVERS INDEX						
	182	<i>(Sacramento Basin Unimpaired Runoff)</i>			1905-1986	Roos
13a		Sacramento River at Benbridge near Red Bluff, CA	40°17'N.	122°11'W.		
13b		Feather River at Oroville, CA	39°31'N.	121°32'W.		
13c		Yuba River at Smartville, CA	39°13'N.	121°17'W.		
13d		American River at Fair Oaks, CA	38°38'N.	121°13'W.		
14	183	Weber River, UT	40°44'N.	111°14'W.	1904-1984	Peterson
15	184	Bear Creek, CO	39°23'N.	105°07'W.	1920-1983	Lins
16	185	Merced River, CA	37°44'N.	119°33'W.	1915-1985	Peterson
17	186	Arroyo Seco, CA	34°13'N.	118°10'W.	1911-1985	Peterson
18	187	Salt River, AZ	33°37'N.	110°55'W.	1913-1985	Peterson
19	188	Wailua River, HI	22°04'N.	159°25'W.	1912-1985	Peterson

*Refers to map location on Figure 169.

**See Contributors List, p. 379.

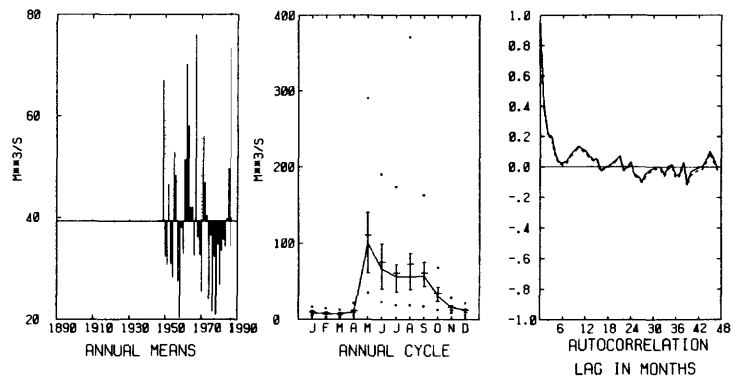
STREAMFLOW CHENA RIVER FAIRBANKS ALASKA

UNITS ARE M³/S

1948-1985

STN NO 15514000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

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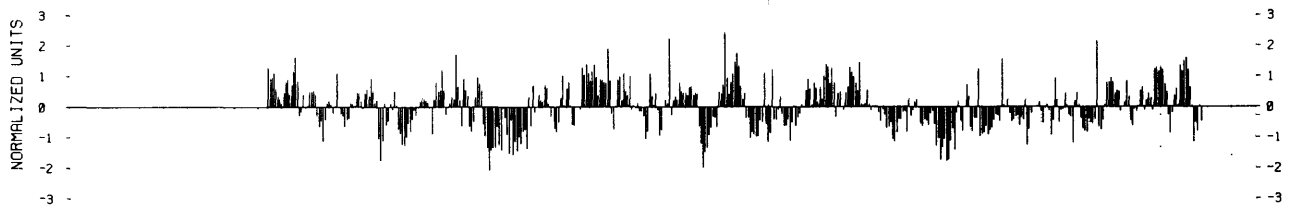


Figure 170. Graphs of standardized monthly anomaly and selected statistics for streamflow at Chena River, AK, 1948-1985.

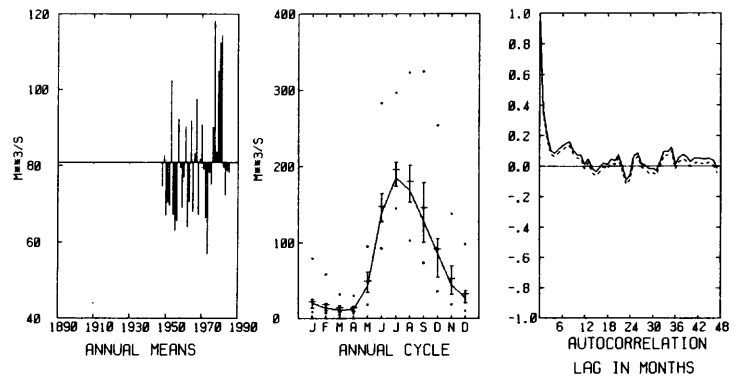
STREAMFLOW KENAI RIVER COOPER LANDING ALASKA

UNITS ARE M³/S

1947-1985

STN NO 15258000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

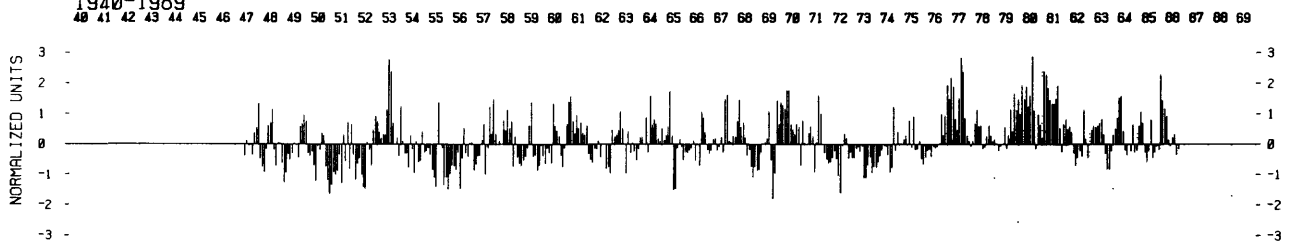


Figure 171. Graphs of standardized monthly anomaly and selected statistics for streamflow at Kenai River, AK, 1947-1985.

STREAMFLOW GOLD CREEK JUNEAU ALASKA

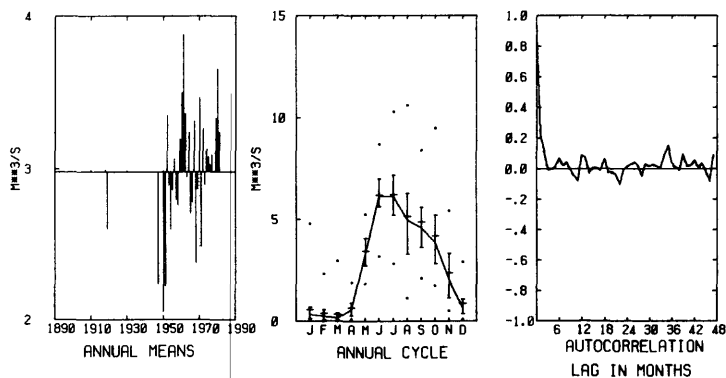
UNITS ARE M³/S

1917-1982

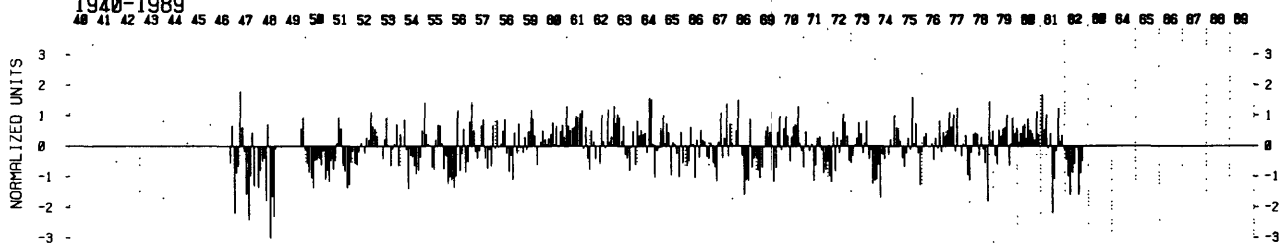
STN NO 15050000

J.R. SLACK, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

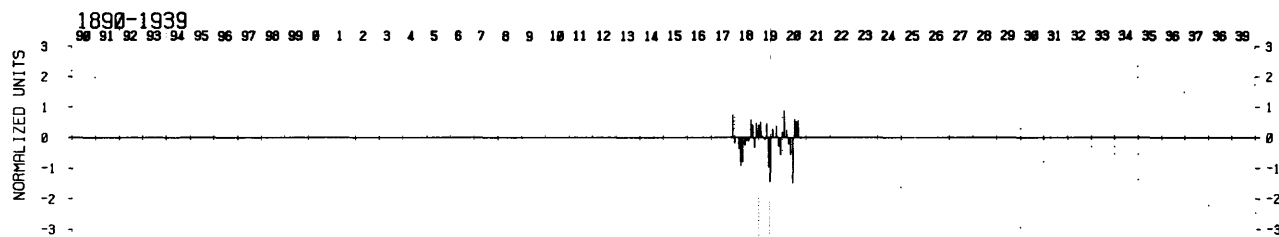


Figure 172. Graphs of standardized monthly anomaly and selected statistics for streamflow at Gold Creek, AK, 1917-1982.

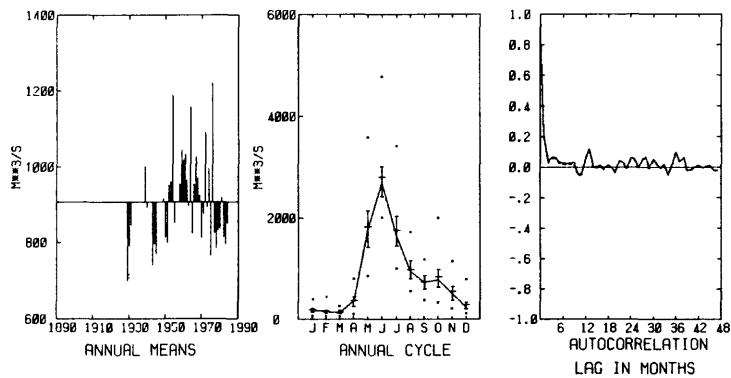
STREAMFLOW SKEENA RIVER BRITISH COLUMBIA

UNITS ARE M³/S

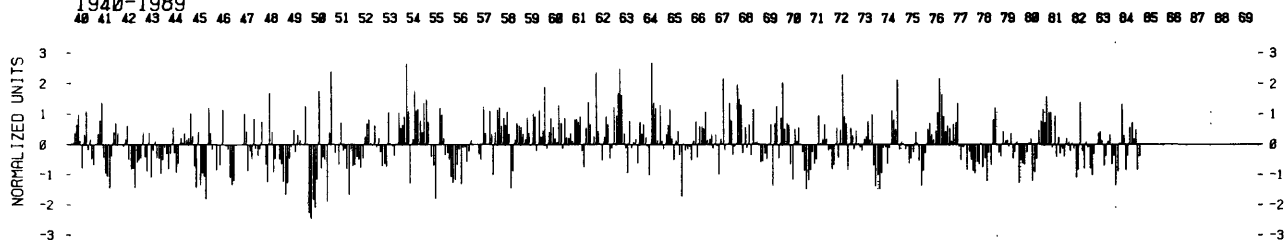
1928-1984

STN NO 08EF001

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

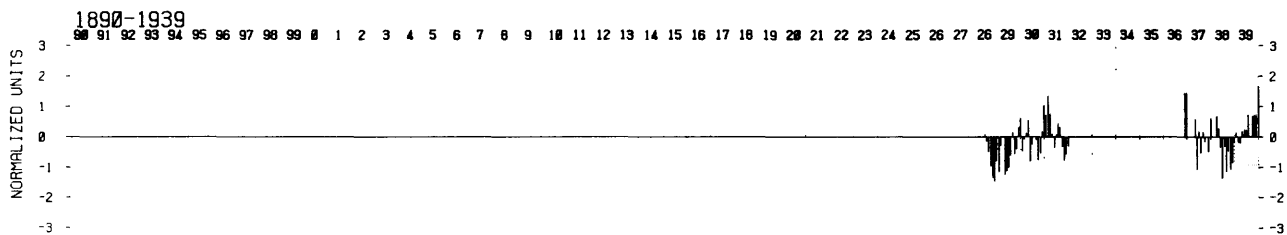


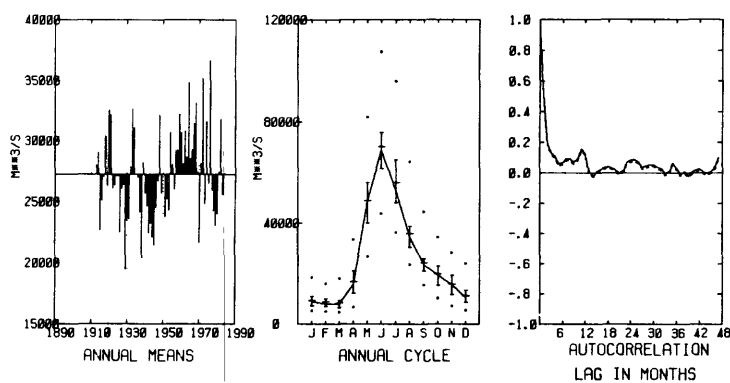
Figure 173. Graphs of standardized monthly anomaly and selected statistics for streamflow at Skeena River, CAN, 1928-1984.

STREAMFLOW FRASER RIVER BC CANADA

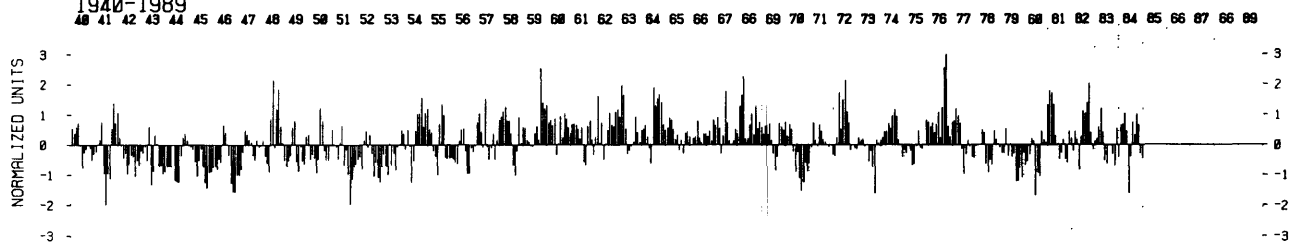
UNITS ARE M^3/S

1912-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989



1890-1939

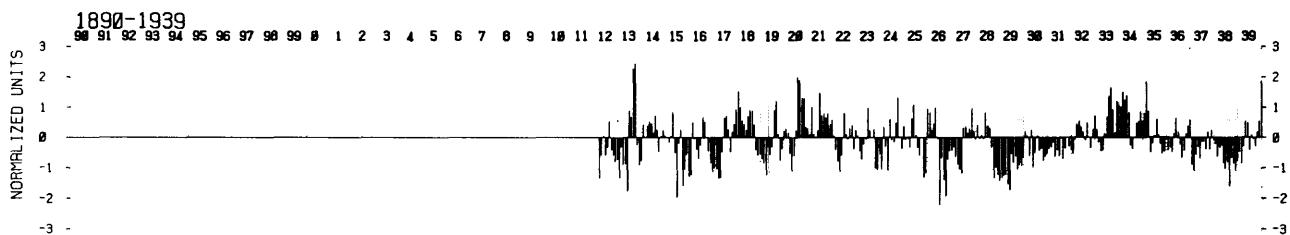


Figure 174. Graphs of standardized monthly anomaly and selected statistics for streamflow at Fraser River, CAN, 1912-1984.

STREAMFLOW SKAGIT RIVER WASHINGTON

UNITS ARE M³/S

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

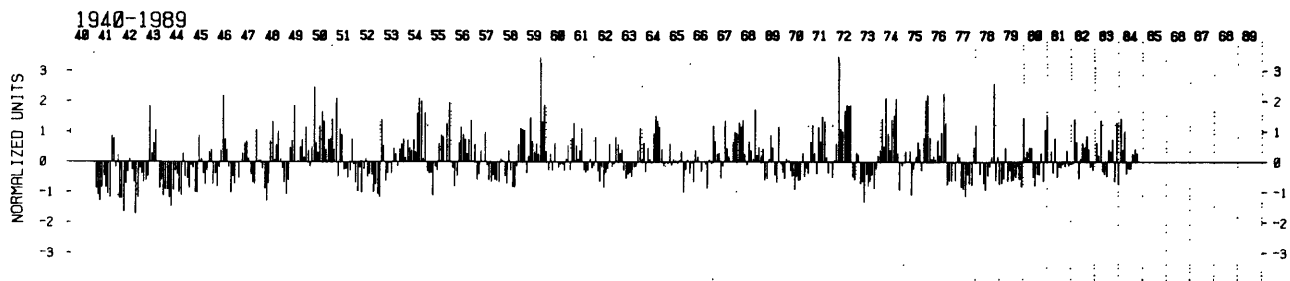
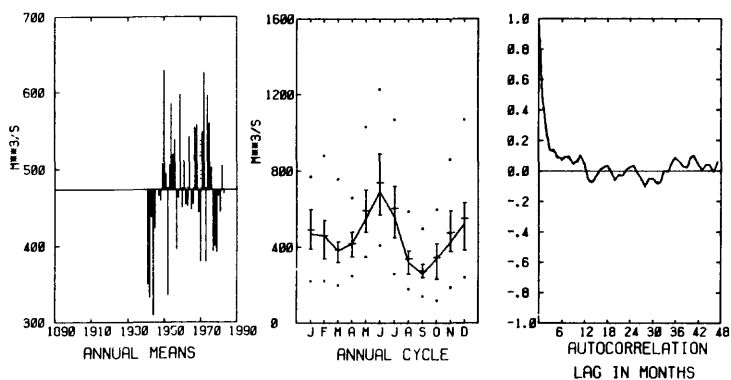


Figure 175. Graphs of standardized monthly anomaly and selected statistics for streamflow at Skagit River, WA, 1941-1984.

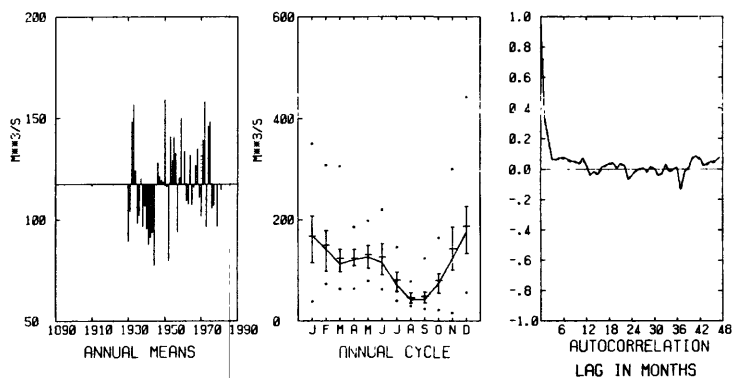
RUNOFF PUGET SOUND WASHINGTON

UNITS ARE M^3/S

1930-1983

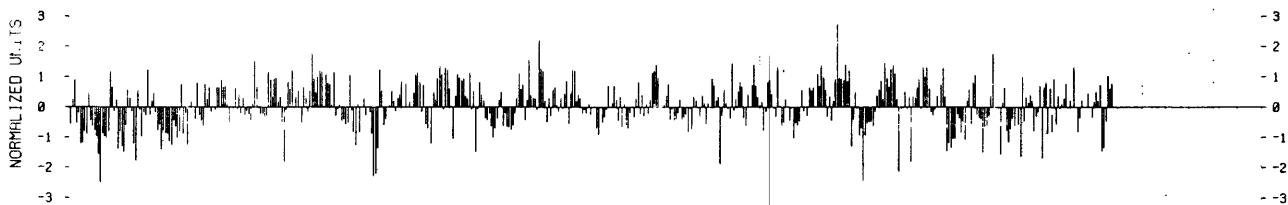
INTEGRATED RUNOFF FOR ALL OF
PUGET SOUND DRAINAGE BASIN

CURT EBBESMEYER, EVANS-HAMILTON, 4717
24TH AVE NE, STE 303, SEATTLE WA 98105
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

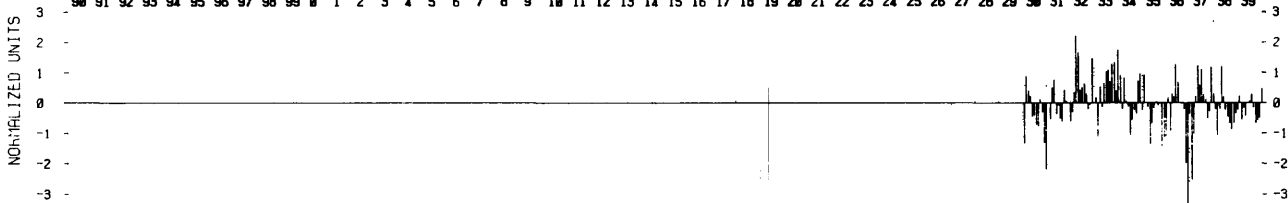


Figure 176. Graphs of standardized monthly anomaly and selected statistics for streamflow at Puget Sound, WA, 1930-1983.

STREAMFLOW SKYKOMISH RIVER WASHINGTON

UNITS ARE M³/S

1929-1983
STN NO 12134500
REFERENCE: U.S. GEOLOGICAL SURVEY
WATER DATA REPORT WA-83-1
DATA CONTRIBUTED BY HARRY F. LINS
U.S. GEOLOGICAL SURVEY
410 NATIONAL CENTER
RESTON, VIRGINIA 22092
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

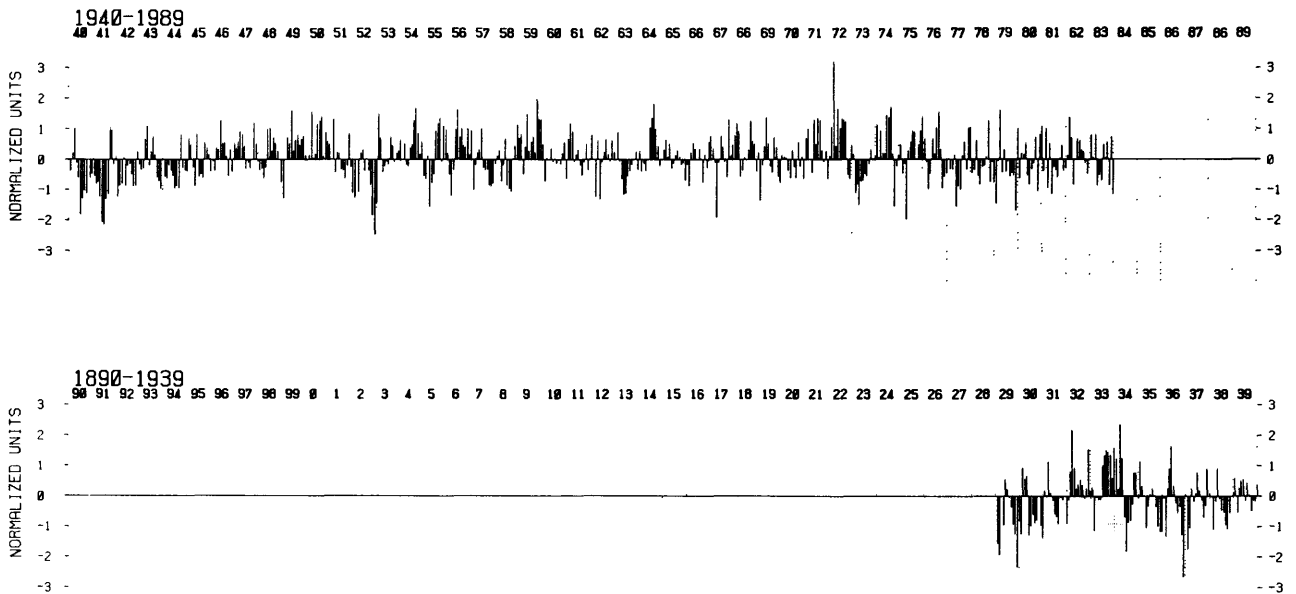
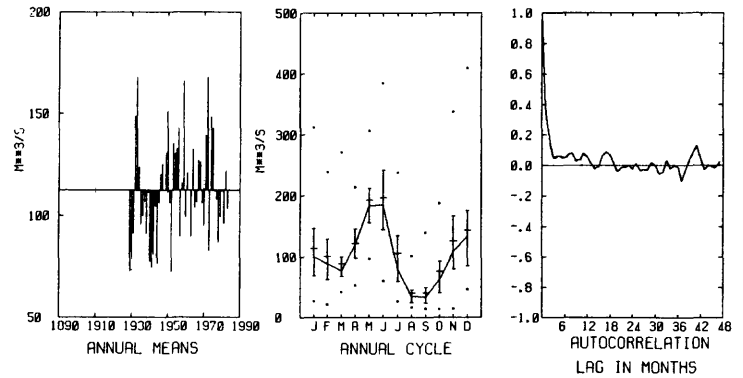


Figure 177. Graphs of standardized monthly anomaly and selected statistics for streamflow at Skykomish River, WA, 1929-1983.

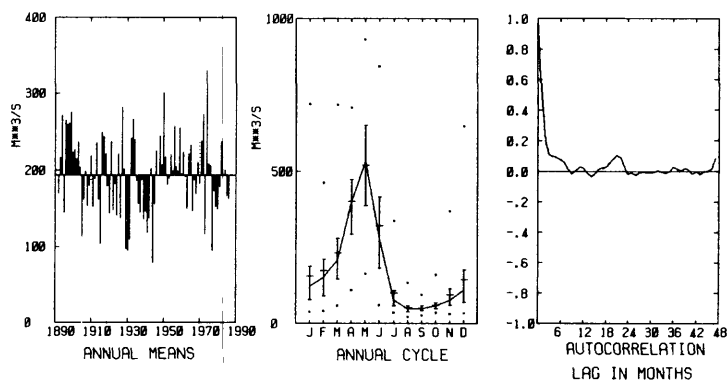
STREAMFLOW SPOKANE RIVER SPOKANE WASHINGTON

UNITS ARE M³/S

1891-1985

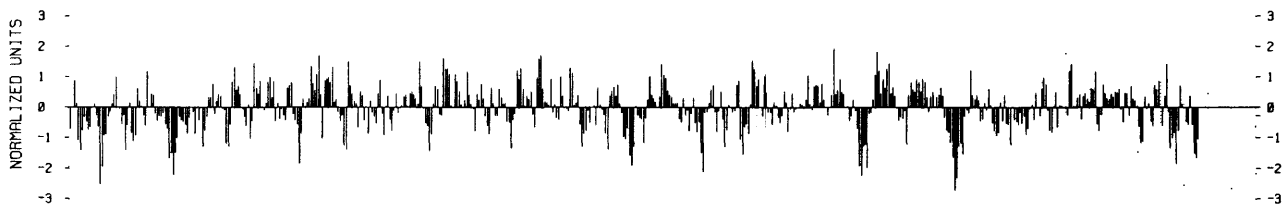
STN NO 12422500

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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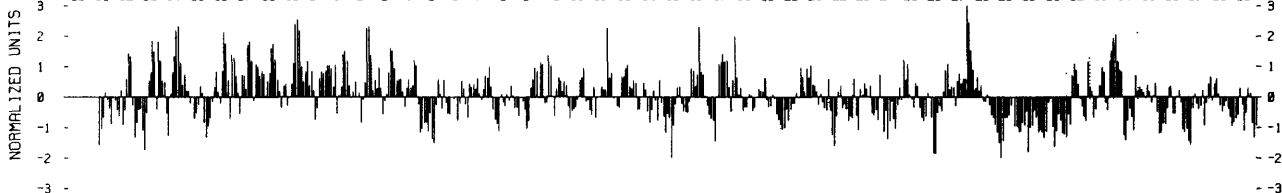


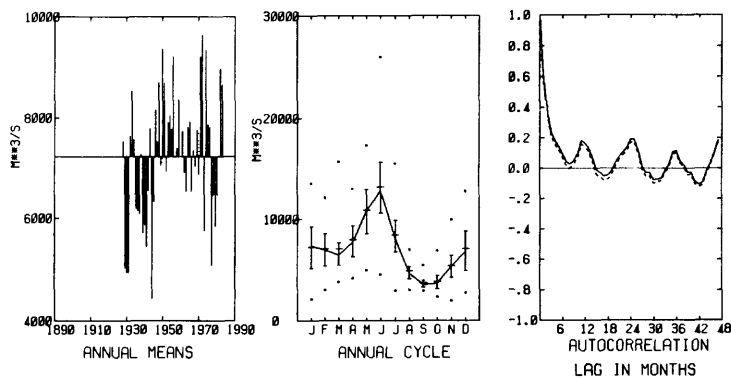
Figure 178. Graphs of standardized monthly anomaly and selected statistics for streamflow at Spokane River, WA, 1891-1985.

STREAMFLOW COLUMBIA RIVER OREGON

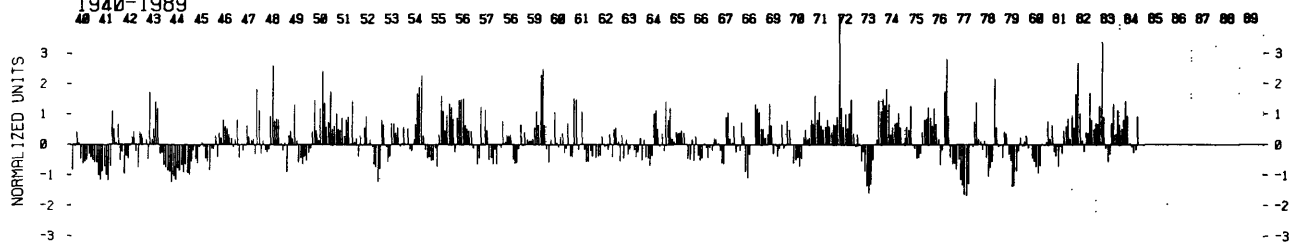
UNITS ARE M³/S

1927-1984

SUS. TABATA, INST. OF OCEAN SCI., P.O. BOX 6000
9860 W. SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

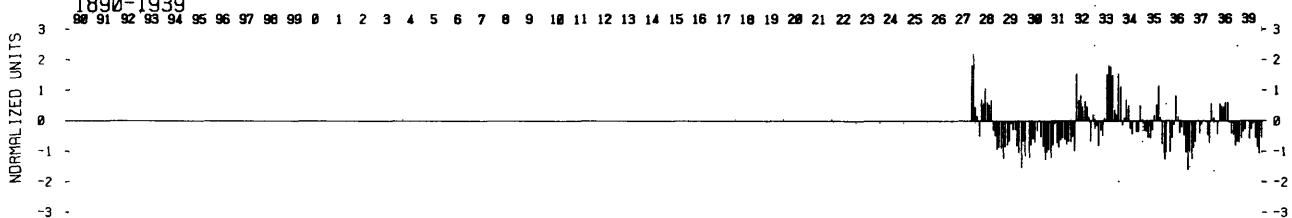


Figure 179. Graphs of standardized monthly anomaly and selected statistics for streamflow at Columbia River, OR, 1927-1984.

STREAMFLOW UMPQUA RIVER ELKTON OREGON

UNITS ARE M³/S

1905-1985

STN NO 14321000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

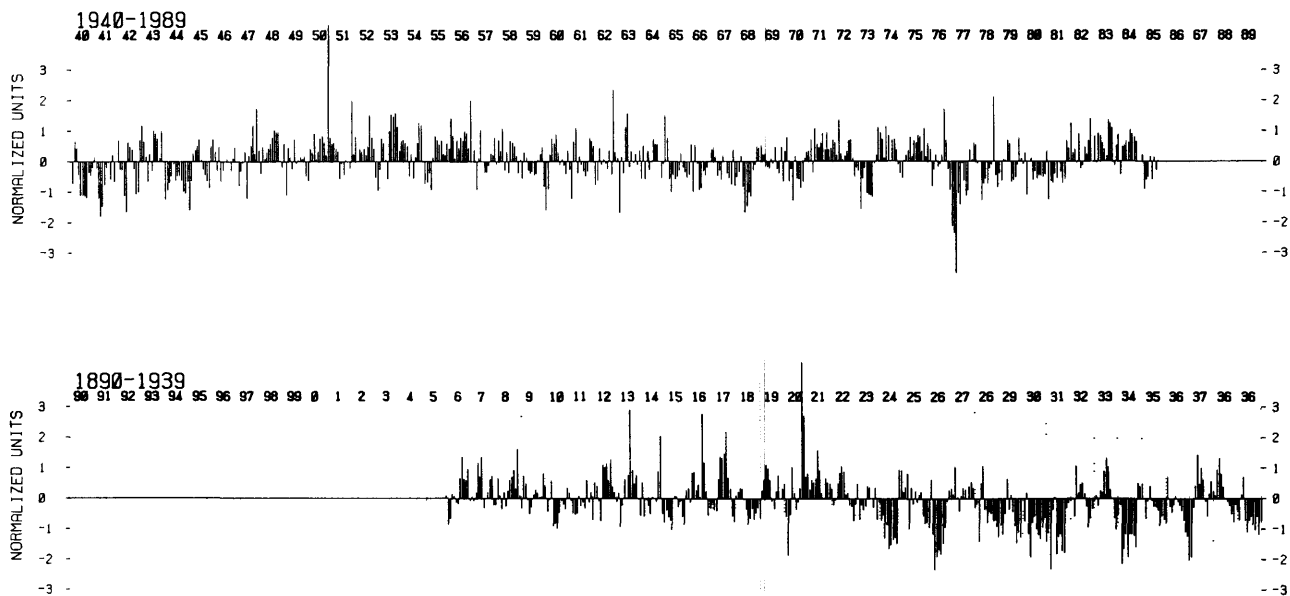
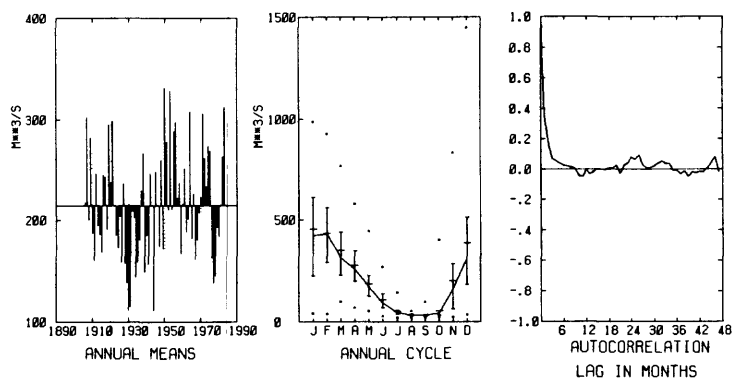


Figure 180. Graphs of standardized monthly anomaly and selected statistics for streamflow at Umpqua River, OR, 1905-1985.

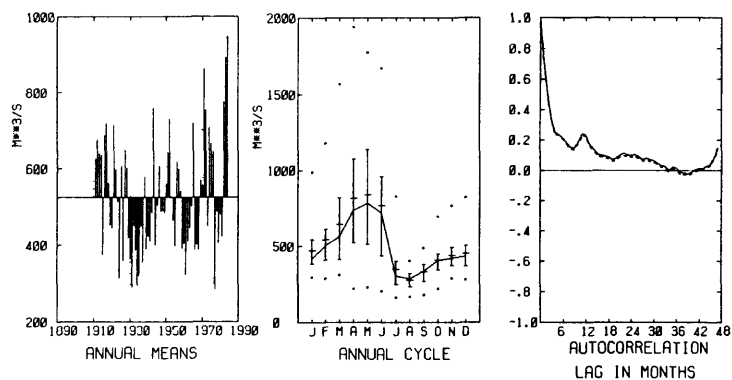
STREAMFLOW SNAKE RIVER WEISER IDAHO

UNITS ARE M³/S

1910-1986

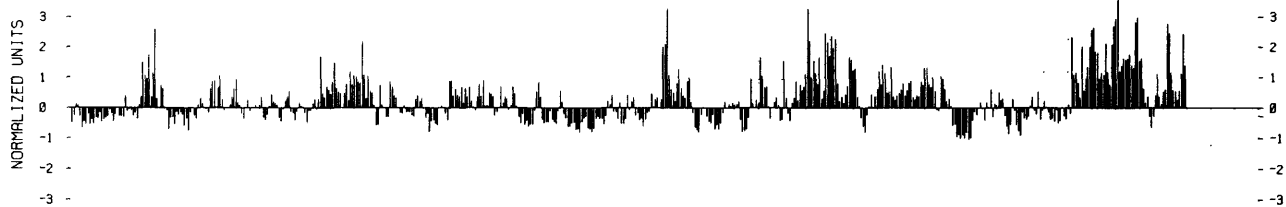
STN NO 13269000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

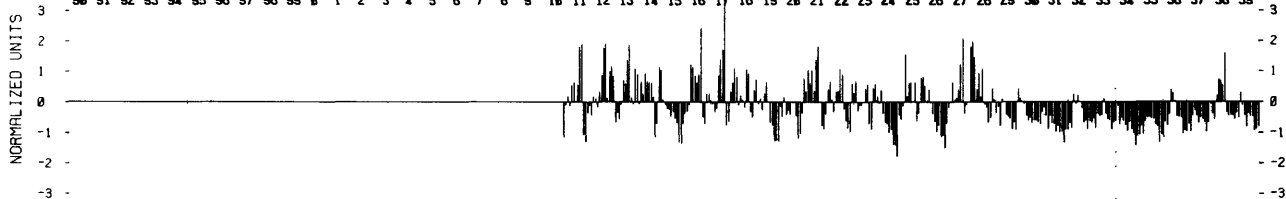


Figure 181. Graphs of standardized monthly anomaly and selected statistics for streamflow at Snake River, ID, 1910-1986.

SACRAMENTO BASIN UNIMPAIRED RUNOFF

UNITS ARE M³/S

1905-1986
EST UNIMPAIRED RUNOFF OF FOUR MAJOR
RIVERS OF SACRAMENTO BASIN: SACRAMENTO
R. ABOVE BEND BRIDGE NEAR RED BLUFF,
FEATHER R. AT OROVILLE, YUBA R. AT
SMARTVILLE, & AMERICAN R. AT FAIR OAKS.
MAURICE ROOS, CA DEPT WATER RESOURCES
BOX 942B36, SACRAMENTO, CA 94236-0001

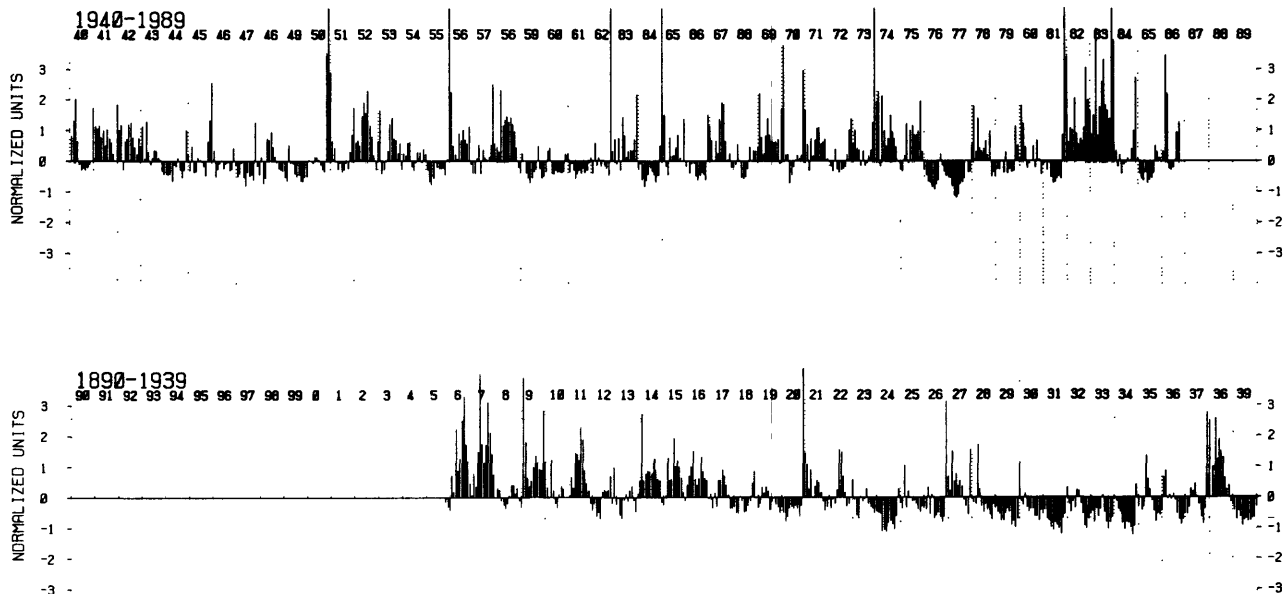
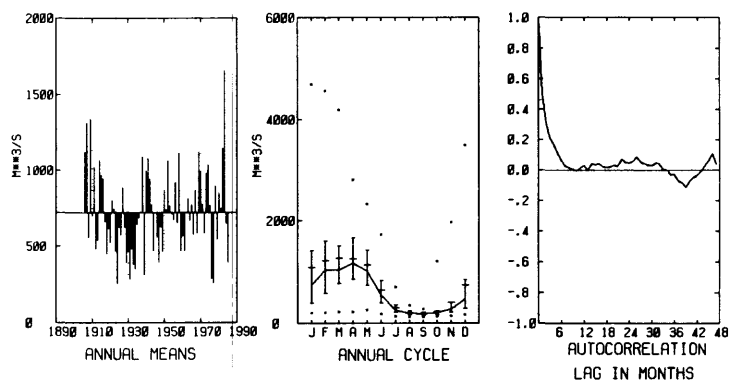


Figure 182. Graphs of standardized monthly anomaly and selected statistics for Four Rivers Index (Sacramento Basin Unimpaired Runoff), 1905-1986 at (a) Sacramento River at Benbridge near Red Bluff, CA; (b) Feather River at Oroville, CA; (c) Yuba River at Smartville, CA; and (d) American River at Fair Oaks, CA.

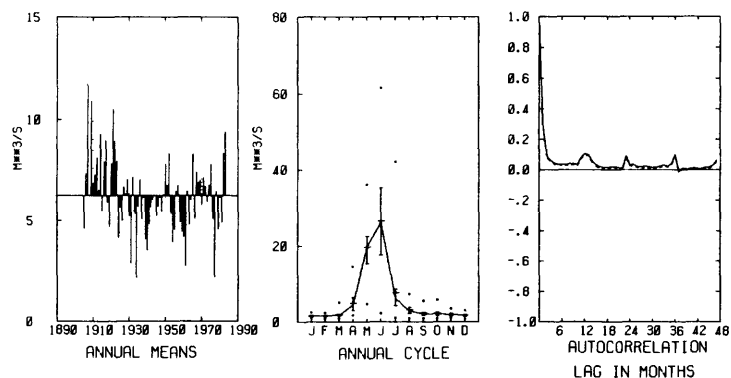
STREAMFLOW WEBER RIVER OAKLEY UTAH

UNITS ARE M³/S

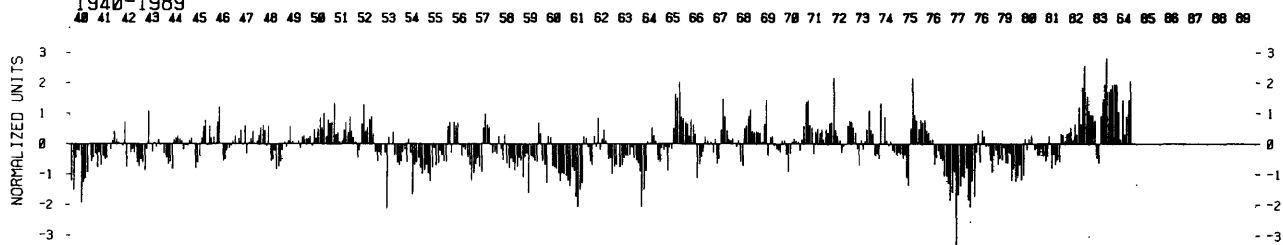
1904-1984

STN NO 10128500

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989



1890-1939

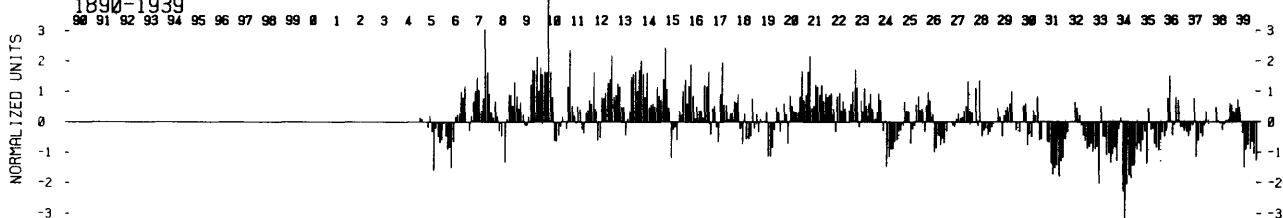


Figure 183. Graphs of standardized monthly anomaly and selected statistics for streamflow at Weber River, UT, 1904-1984.

STREAMFLOW BEAR CREEK COLORADO

UNITS ARE M^3/S

1920-1983

REFERENCE: U.S. GEOLOGICAL SURVEY
WATER DATA REPORT CO-84-1
DATA CONTRIBUTED BY HARRY F. LINS
U.S. GEOLOGICAL SURVEY
410 NATIONAL CENTER
RESTON, VIRGINIA 22092

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

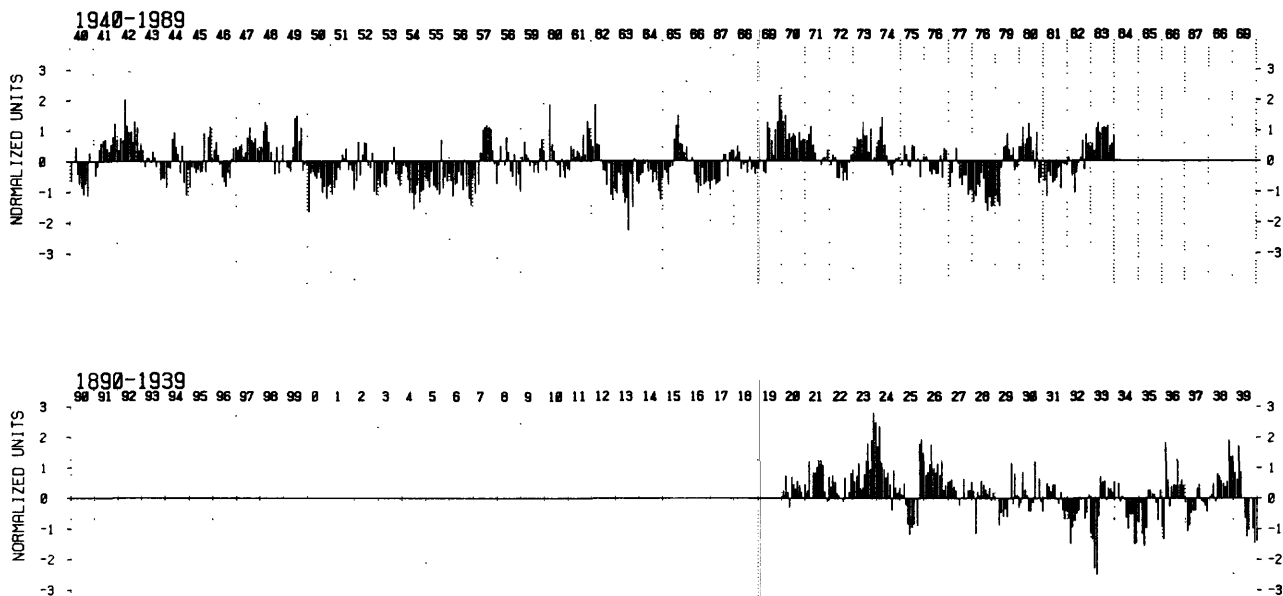
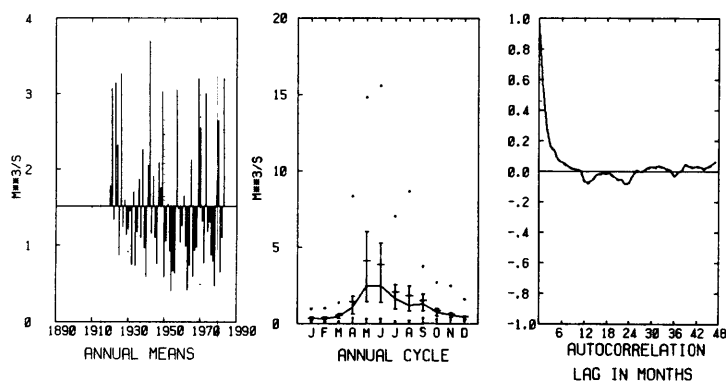


Figure 184. Graphs of standardized monthly anomaly and selected statistics for streamflow at Bear Creek, CO, 1920-1983.

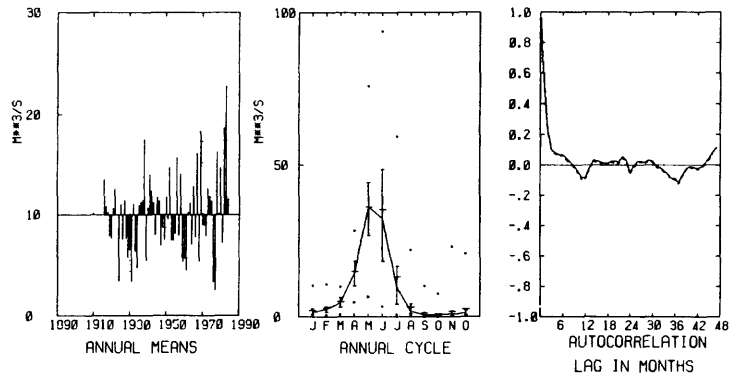
STREAMFLOW MERCED RIVER YOSEMITE CALIFORNIA

UNITS ARE M³/S

1915-1985

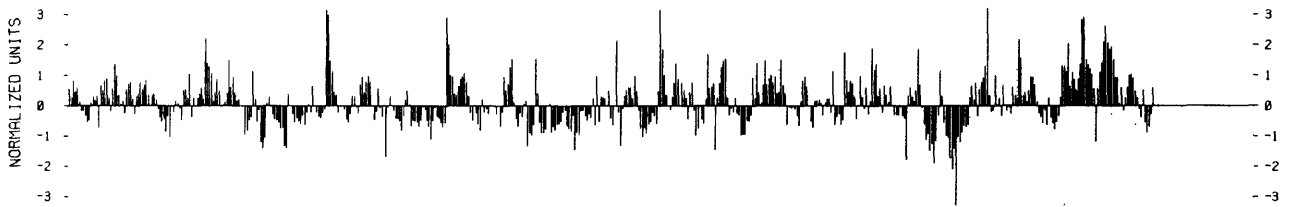
STN NO 11264500

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



Figure 185. Graphs of standardized monthly anomaly and selected statistics for streamflow at Merced River, CA, 1915-1985.

STREAMFLOW ARROYO SECO PASADENA CALIFORNIA

UNITS ARE M^3/S

1911-1985

STN NO 11098000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

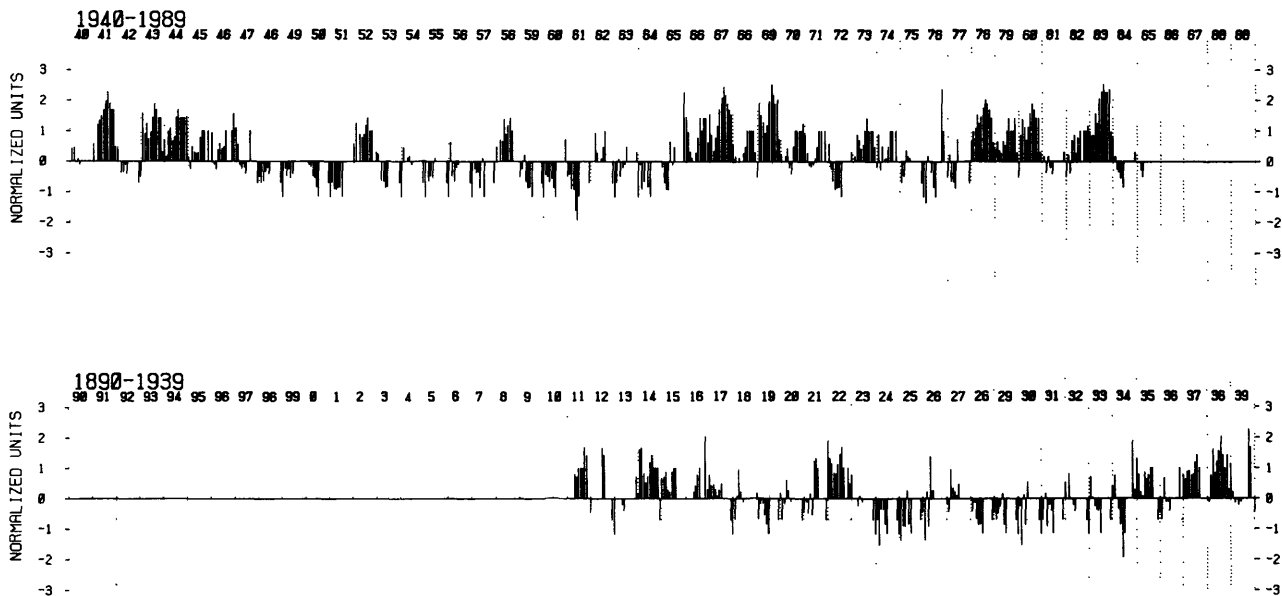
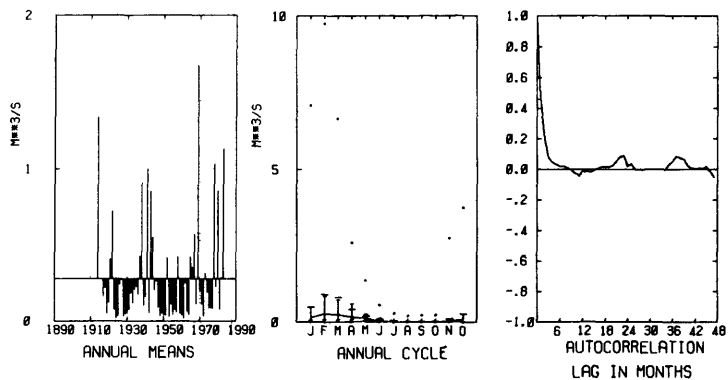


Figure 186. Graphs of standardized monthly anomaly and selected statistics for streamflow at Arroyo Seco, CA, 1911-1985.

STREAMFLOW SALT RIVER ROOSEVELT ARIZONA

UNITS ARE M^3/S

1913-1985

STN NO 09498500

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025

DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES

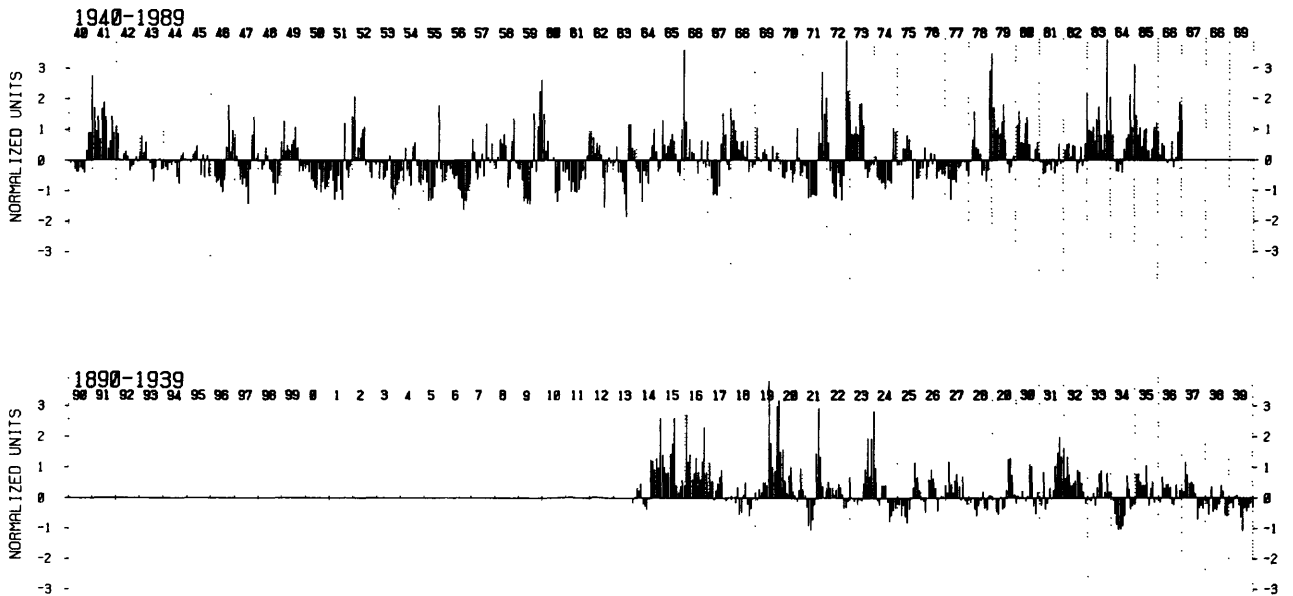
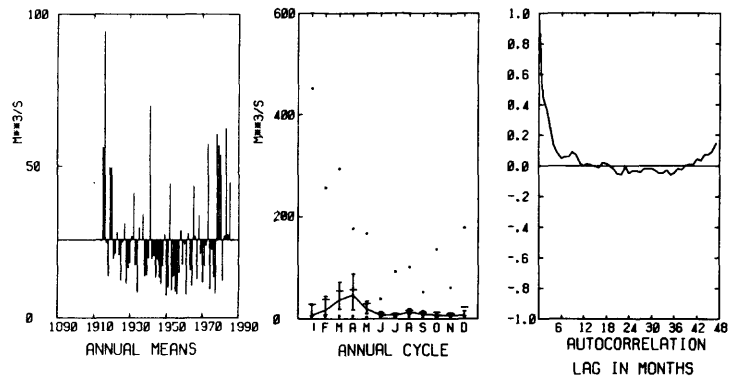


Figure 187. Graphs of standardized monthly anomaly and selected statistics for streamflow at Salt River, AZ, 1913-1985.

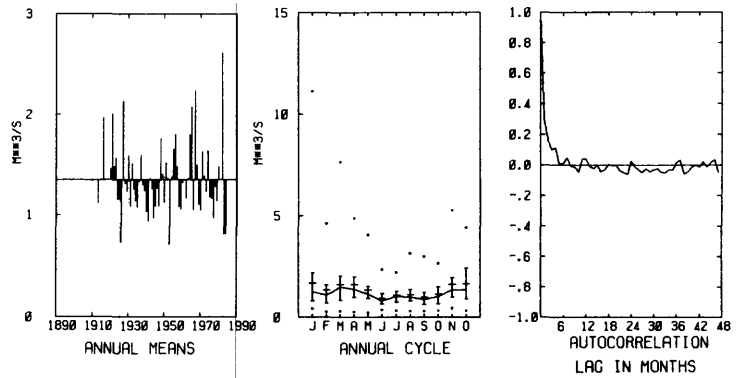
STREAMFLOW WAILUA RIVER LUHUE KANAI HAWAII

UNITS ARE M^3/S

1912-1985

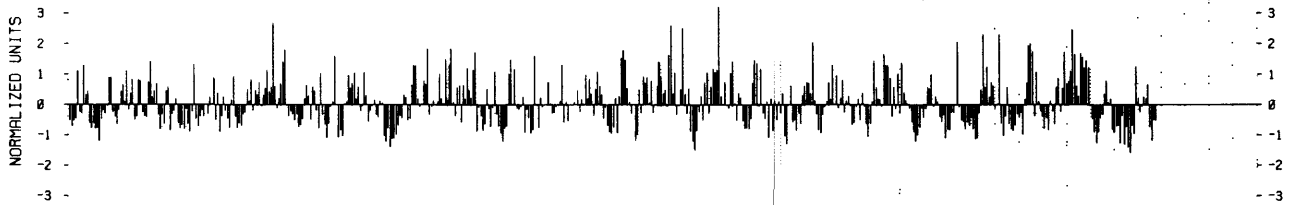
STN NO 16068000

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CA 94025
DATA TRANSFORMED BY LOGARITHM
BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

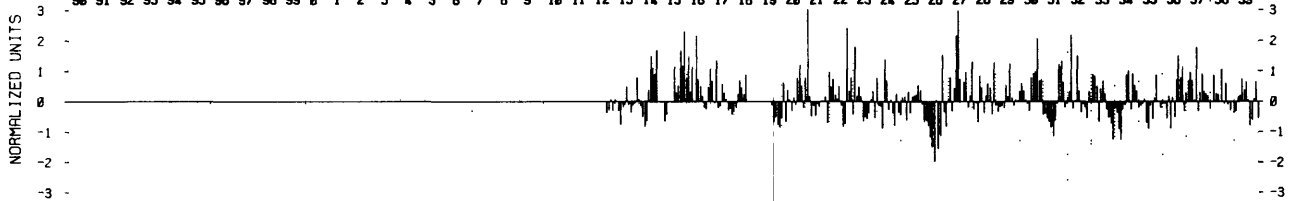


Figure 188. Graphs of standardized monthly anomaly and selected statistics for streamflow at Wailua River, HI, 1912-1985.

Variable V: Sunshine

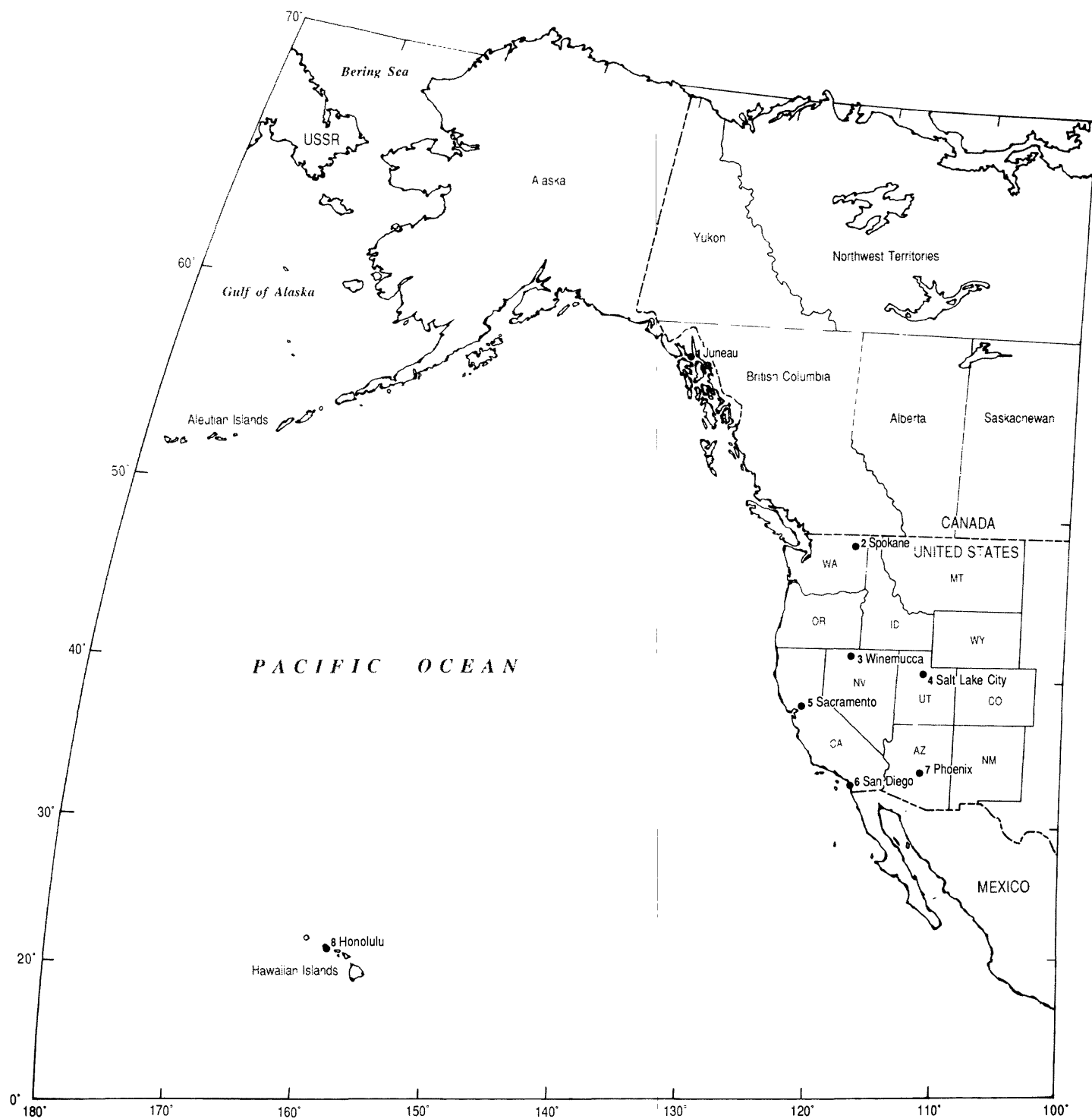


Figure 189. Map showing locations of sunshine stations.

Table 5.--*Index to sunshine stations and figures.*

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	190	Juneau, AK	58°22'N.	134°35'W.	1917-1979	Karl
2	191	Spokane, WA	47°38'N.	117°32'W.	1894-1984	Karl
3	192	Winnemucca, NV	40°54'N.	117°48'W.	1908-1984	Karl
4	193	Salt Lake City, UT	40°46'N.	111°58'W.	1891-1984	Karl
5	194	Sacramento, CA	38°31'N.	121°30'W.	1905-1984	Karl
6	195	San Diego, CA	32°44'N.	117°10'W.	1891-1984	Karl
7	196	Phoenix, AZ	33°28'N.	112°01'W.	1895-1984	Karl
8	197	Honolulu, HI	21°20'N.	157°55'W.	1908-1984	Karl

*Refers to map location on Figure 189.

**See Contributors List, p. 379.

SUNSHINE JUNEAU ALASKA

UNITS ARE HRS/MO

1917-1979
SUNSHINE RECORDER INSTRUMENTATION HAS CHANGED OVER THE YEARS; SEE DOEHRING & KARL, 1981. A HISTORY OF SUNSHINE DATA IN U.S. 1891-1980. FROM NATIONAL CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NDC, FEDERAL BLDG, ASHEVILLE, NC 28801

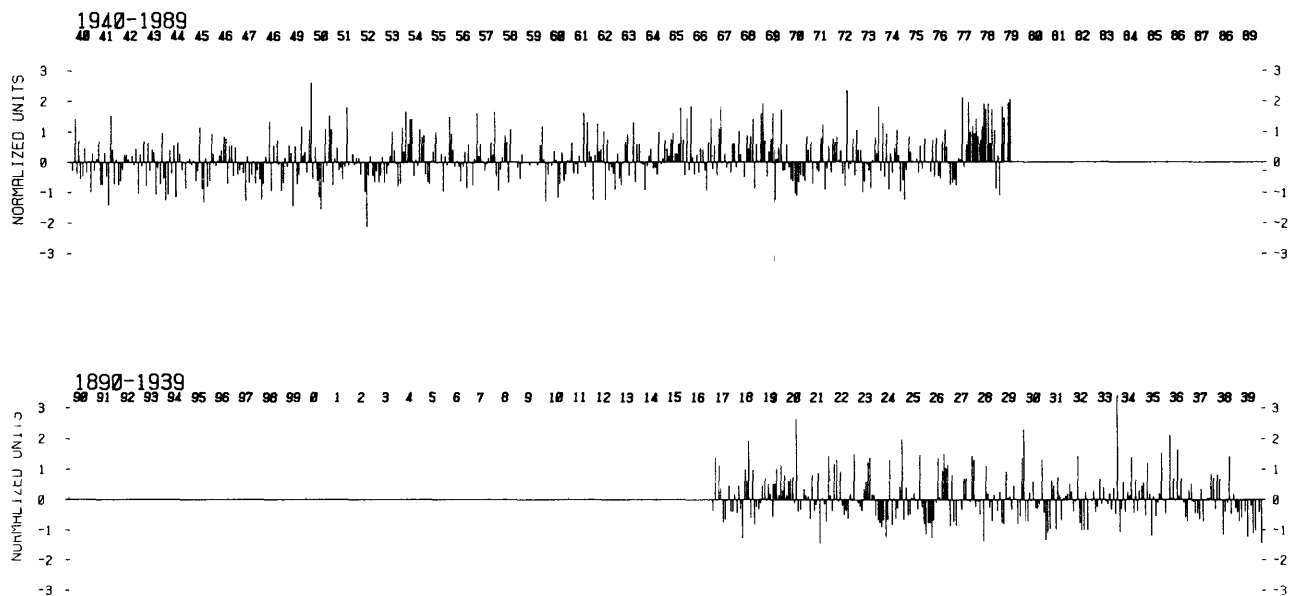
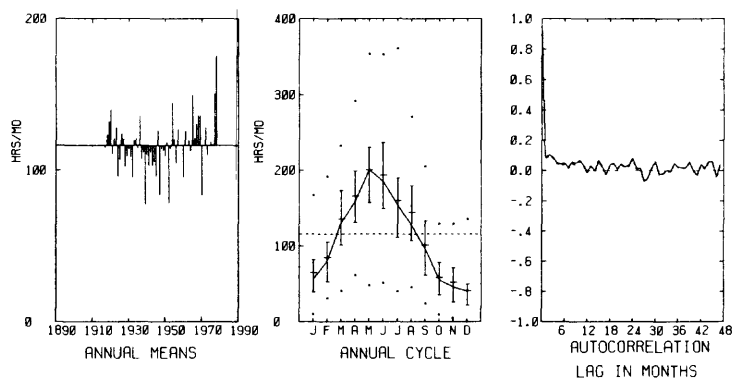
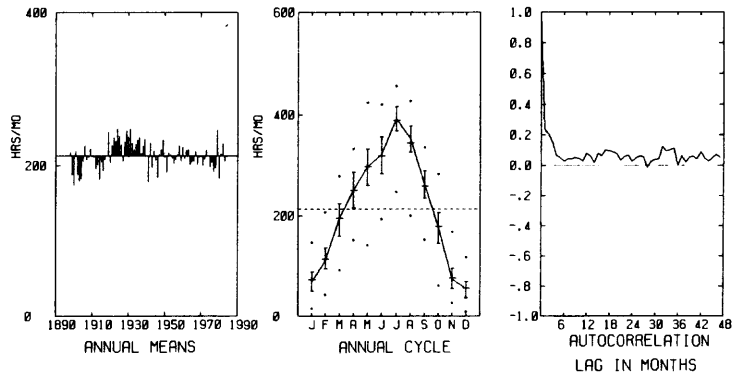


Figure 190. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Juneau, AK, 1917-1979.

SUNSHINE SPOKANE WASHINGTON

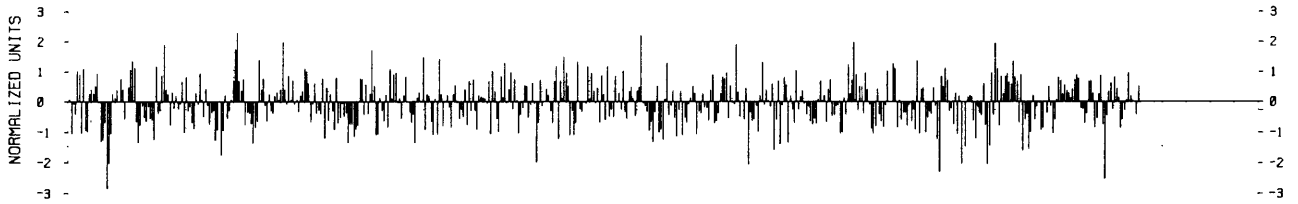
UNITS ARE HRS/MO

1894-1984
SUNSHINE RECORDER INSTRUMENTATION HAS CHANGED OVER THE YEARS; SEE DOEHRING & KARL, 1981. *A HISTORY OF SUNSHINE DATA IN U.S. 1891-1980.* FROM NATIONAL CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC, FEDERAL BLDG, ASHEVILLE, NC 28801



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

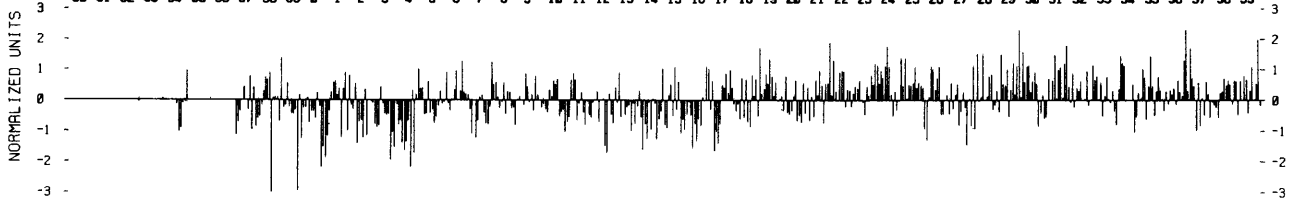
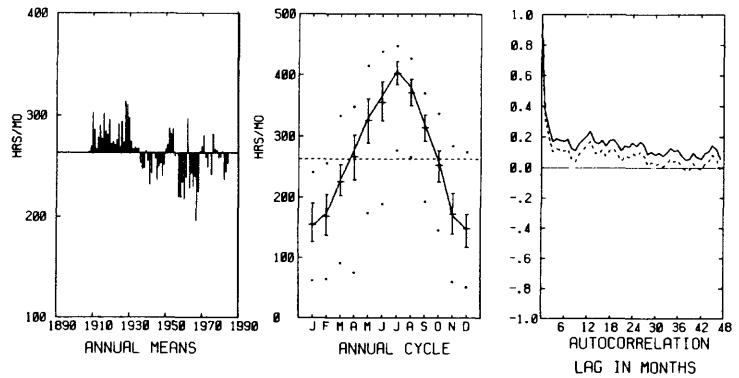


Figure 191. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Spokane, WA, 1894-1984.

SUNSHINE WINNEMUCCA NEVADA

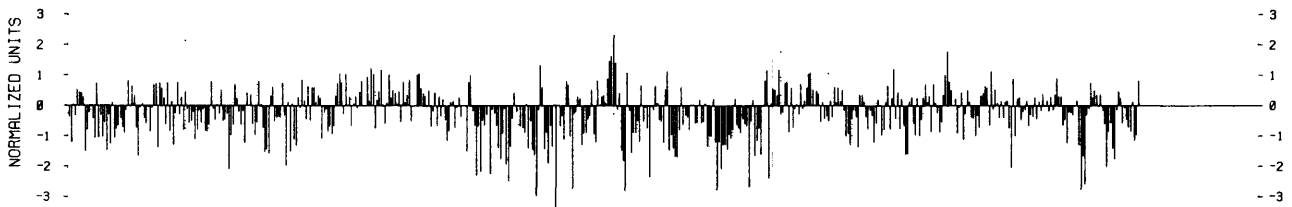
UNITS ARE HRS/MO

1908-1984
SUNSHINE RECORDER INSTRUMENTATION HAS CHANGED OVER THE YEARS, SEE DOERING & KARL, 1981. A HISTORY OF SUNSHINE DATA IN U.S. 1891-1980, FROM NATIONAL CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC, FEDERAL BLDG, ASHEVILLE, NC 28801



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



Figure 192. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Winnemucca, NV, 1908-1984.

SUNSHINE SALT LAKE CITY UTAH

UNITS ARE HRS/MO

1891-1984
SUNSHINE RECORDER INSTRUMENTATION HAS
CHANGED OVER THE YEARS; SEE DOEHRING ^
KARL, 1981. *A HISTORY OF SUNSHINE
DATA IN U.S. 1891-1980. * FROM NATIONAL
CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC,
FEDERAL BLDG, ASHEVILLE, NC 28801

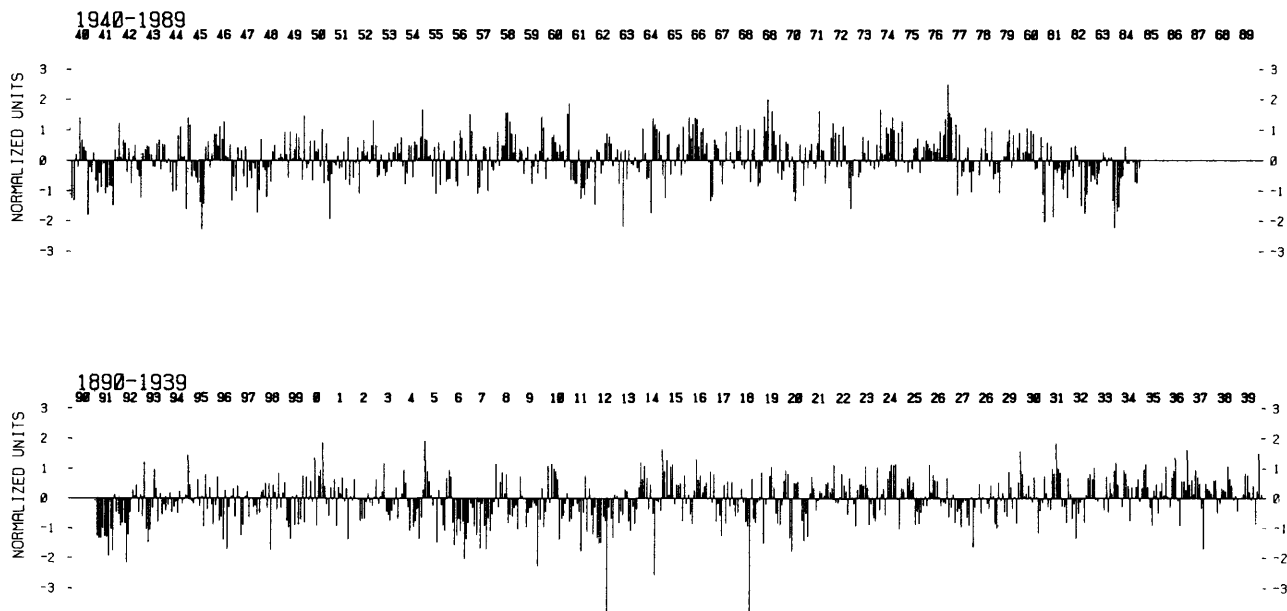
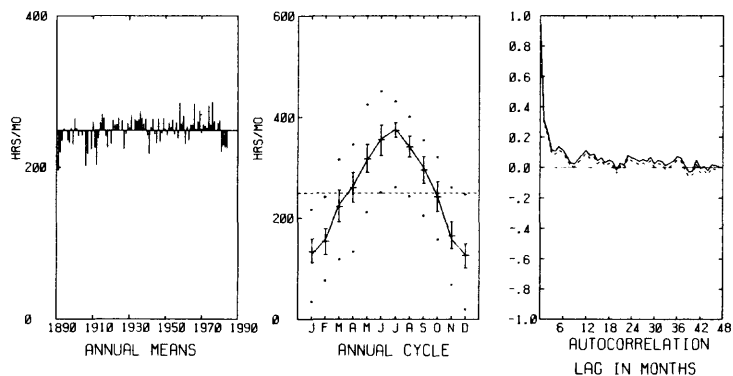
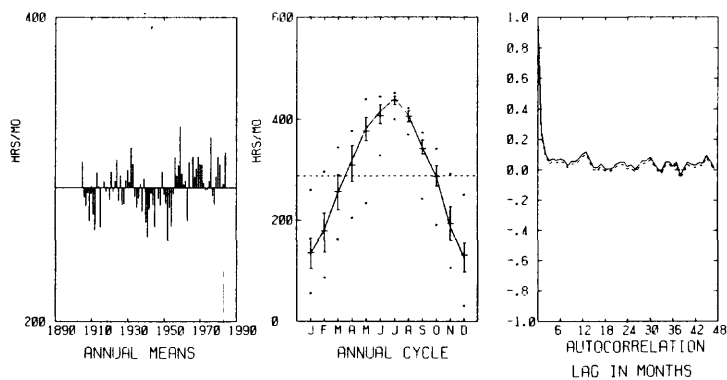


Figure 193. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Salt Lake City, UT, 1891-1984.

SUNSHINE SACRAMENTO CALIFORNIA

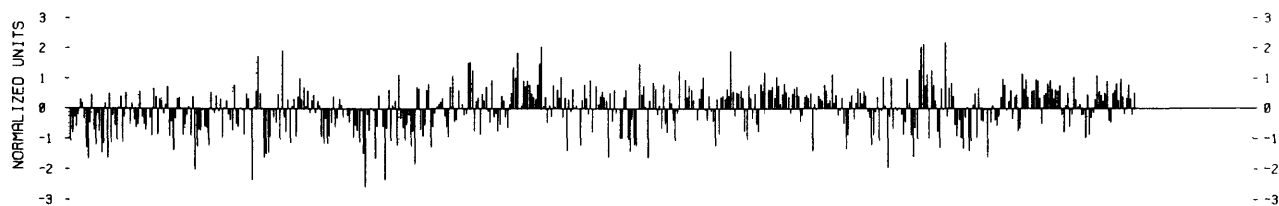
UNITS ARE HRS/MO

1905-1984
SUNSHINE RECORDER INSTRUMENTATION HAS
CHANGED OVER THE YEARS; SEE DOEHRING ^
KARL, 1981, "A HISTORY OF SUNSHINE
DATA IN U.S. 1891-1980," FROM NATIONAL
CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC,
FEDERAL BLDG, ASHEVILLE, NC 28801



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

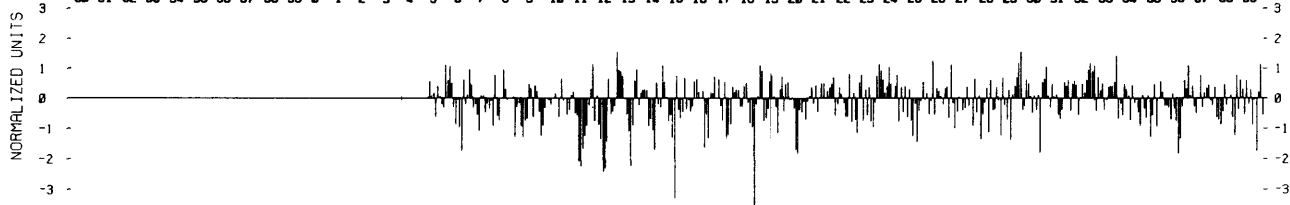
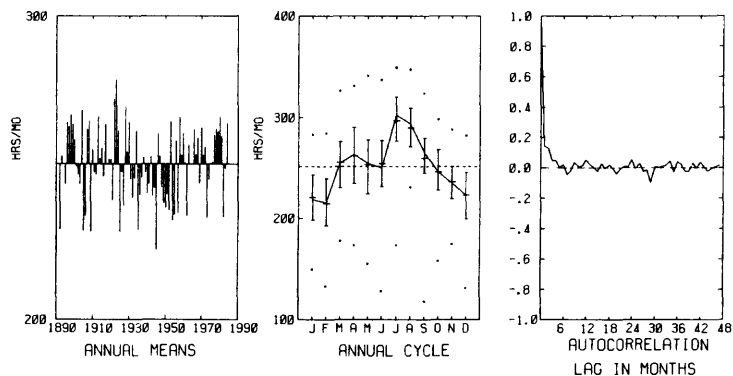


Figure 194. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Sacramento, CA, 1905-1984.

SUNSHINE SAN DIEGO CALIFORNIA

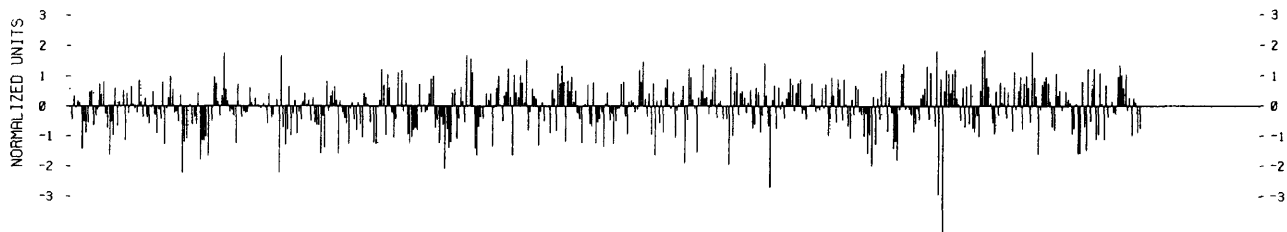
UNITS ARE HRS/MO

1891-1984
SUNSHINE RECORDER INSTRUMENTATION HAS CHANGED OVER THE YEARS; SEE DOEHRING & KARL, 1981, "A HISTORY OF SUNSHINE DATA IN U.S. 1891-1980," FROM NATIONAL CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC, FEDERAL BLDG, ASHEVILLE, NC 28801



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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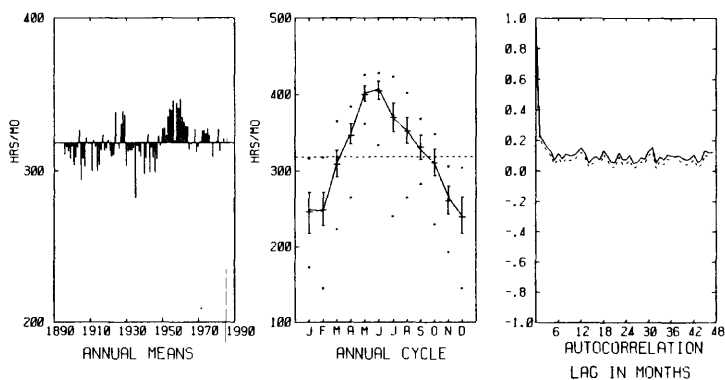


Figure 195. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at San Diego, CA, 1891-1984.

SUNSHINE PHOENIX ARIZONA

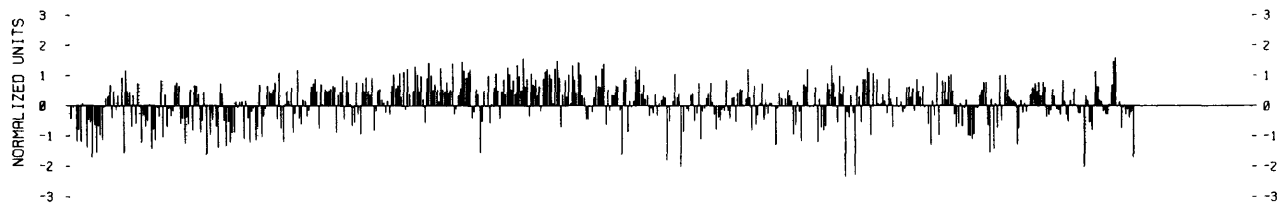
UNITS ARE HRS/MO

1895-1984
SUNSHINE RECORDER INSTRUMENTATION HAS CHANGED OVER THE YEARS; SEE DOEHRING & KARL, 1981, "A HISTORY OF SUNSHINE DATA IN U.S. 1891-1980," FROM NATIONAL CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCDC, FEDERAL BLDG, ASHEVILLE, NC 28801



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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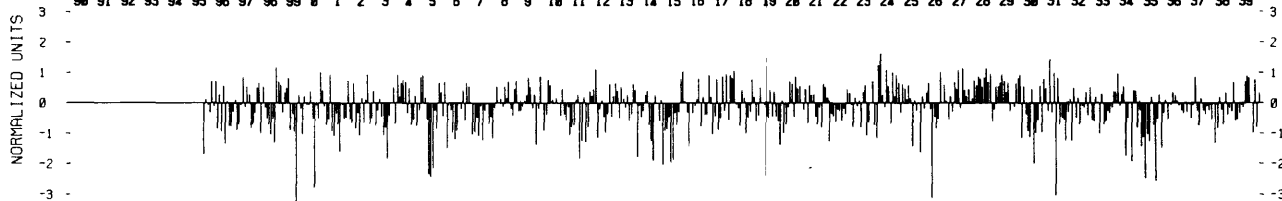


Figure 196. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Phoenix, AZ, 1895-1984.

SUNSHINE HONOLULU HAWAII

UNITS ARE HRS/MO

1908-1984
SUNSHINE RECORDER INSTRUMENTATION HAS
CHANGED OVER THE YEARS; SEE DOERING &
KARL, 1981. *A HISTORY OF SUNSHINE
DATA IN U.S. 1891-1980, * FROM NATIONAL
CLIMATIC DATA CENTER
THOMAS KARL, US DEPT OF COMMERCE, NCD, C,
FEDERAL BLDG, ASHEVILLE, NC 28801

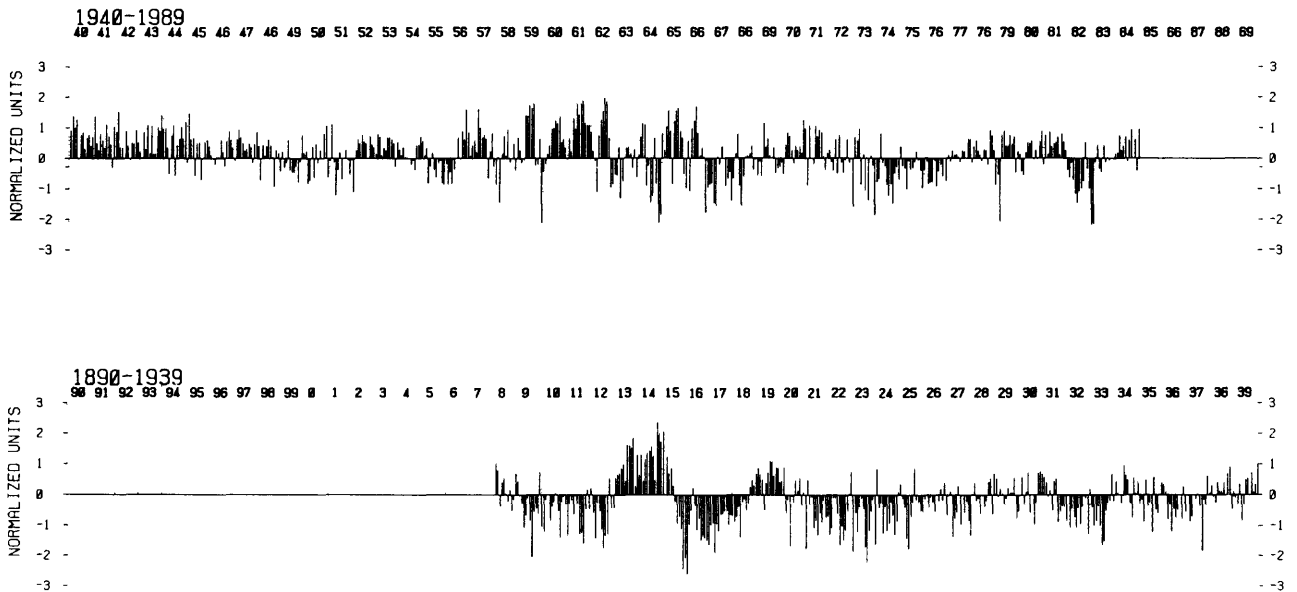
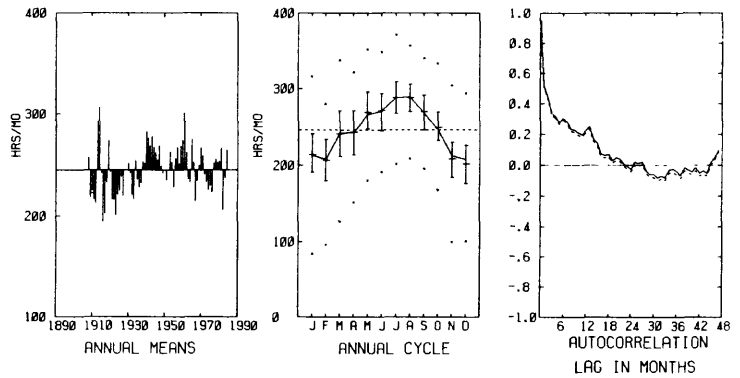


Figure 197. Graphs of standardized monthly anomaly and selected statistics for sunshine hours per month at Honolulu, HI, 1908-1984.

Variable VI: Sea-level Height



Figure 198. Map showing locations of sea-level height stations.

Table 6.--Index to sea-level height stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	199	Massacre Bay, AK	52°50'N.	173°12'E.	1943-1966	Tabata
2	200	Unalaska, AK	53°53'N.	166°32'W.	1955-1975	Tabata
3	201	Seward, AK	60°06'N.	149°27'W.	1925-1983	Tabata
4	202	Yakutat, AK	59°33'N.	139°44'W.	1940-1985	Tabata
5	203	Juneau, AK	58°15'N.	134°25'W.	1936-1985	Tabata
6	204	Sitka, AK	57°03'N.	135°20'W.	1938-1985	Tabata
7	205	Prince Rupert, CAN	54°18'N.	130°26'W.	1909-1984	Tabata
8	206	Tofino A, CAN	49°05'N.	125°46'W.	1910-1984	Tabata
9	207	Neah Bay, WA	48°22'N.	124°37'W.	1934-1985	Tabata
10	208	Victoria, CAN (Downtown)	48°26'N.	123°22'W.	1909-1984	Tabata
11	209	Seattle, WA	47°36'N.	122°20'W.	1899-1985	Tabata
12	210	Crescent City, CA	41°45'N.	124°12'W.	1933-1985	Tabata
13	211	San Francisco, CA	37°48'N.	122°24'W.	1854-1986	Tabata
14	212	Los Angeles, CA	34°03'N.	118°15'W.	1923-1986	Tabata
15	213	Santa Monica, CA	34°00'N.	118°16'W.	1933-1987	Tabata
16	214	La Jolla, CA	32°52'N.	117°15'W.	1924-1986	Tabata
17	215	San Diego, CA	32°43'N.	117°09'W.	1906-1986	Tabata
18	216	Guaymas, MEX	27°55'N.	110°54'W.	1952-1984	Wyrтки
19	217	La Paz, MEX	24°10'N.	110°21'W.	1952-1984	Wyrтки
20	218	Honolulu, HI	21°18'N.	157°52'W.	1905-1986	Wyrтки
21	219	Acapulco, MEX	16°50'N.	99°56'W.	1949-1986	Wyrтки
22	220	Salina Cruz, MEX	16°10'N.	95°12'W.	1952-1986	Wyrтки
23	221	Balboa, CANAL ZONE	8°58'N.	79°36'W.	1909-1985	Wyrтки
24	222	Buenaventura, COLOMBIA	3°54'N.	77°06'W.	1941-1969	Wyrтки
24	223	Buenaventura, COLOMBIA	3°54'N.	77°06'W.	1969-1985	Wyrтки
25	224	La Libertad, ECUADOR	2°12'S.	80°55'W.	1948-1970	Wyrтки
25	225	La Libertad, ECUADOR	2°12'S.	80°55'W.	1969-1984	Wyrтки
26	226	Talara, PERU	4°37'S.	81°17'W.	1942-1979	Wyrтки
27	227	Callao, PERU	12°03'S.	77°09'W.	1942-1985	Wyrтки
28	228	Antofagasta, CHILE	23°39'S.	70°24'W.	1946-1970	Wyrтки
28	229	Antofagasta, CHILE	23°39'S.	70°24'W.	1970-1985	Wyrтки
29	230	Valparaiso, CHILE	33°02'S.	71°38'W.	1941-1970	Wyrтки

*Refers to map location on Figure 198.

**See Contributors List, p. 379.

SEA LEVEL MASSACRE BAY ALASKA

UNITS ARE CM

1943-1966

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

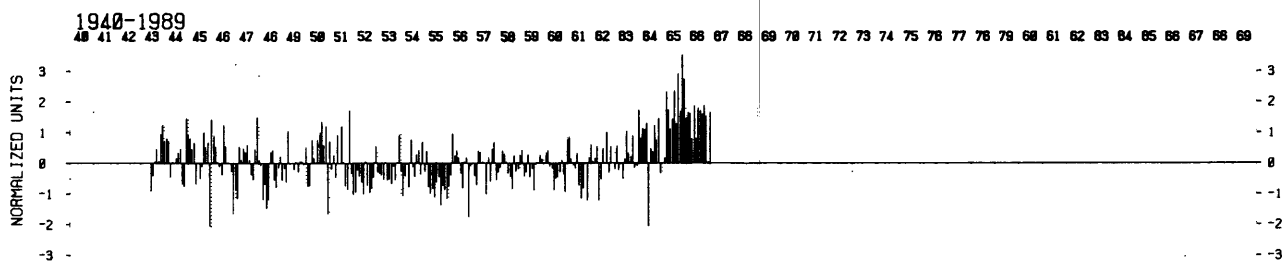
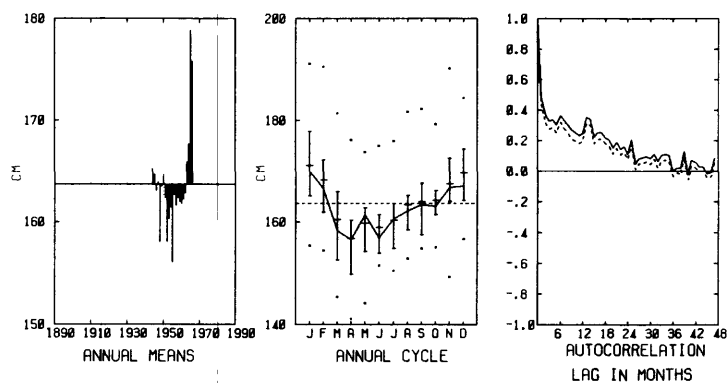


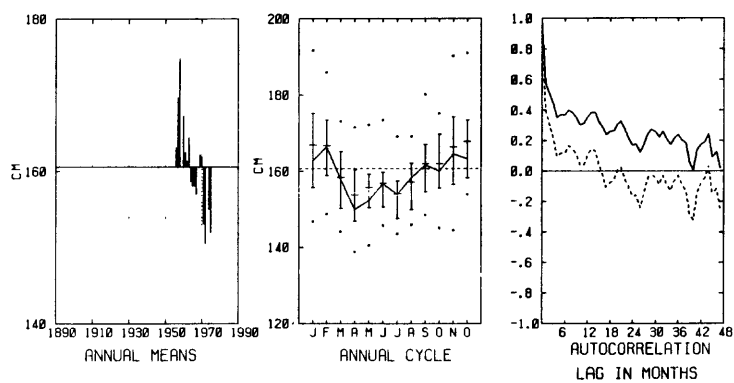
Figure 199. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Massacre Bay, AK, 1943-1966.

SEA LEVEL UNALASKA ALASKA

UNITS ARE CM

1955-1975

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

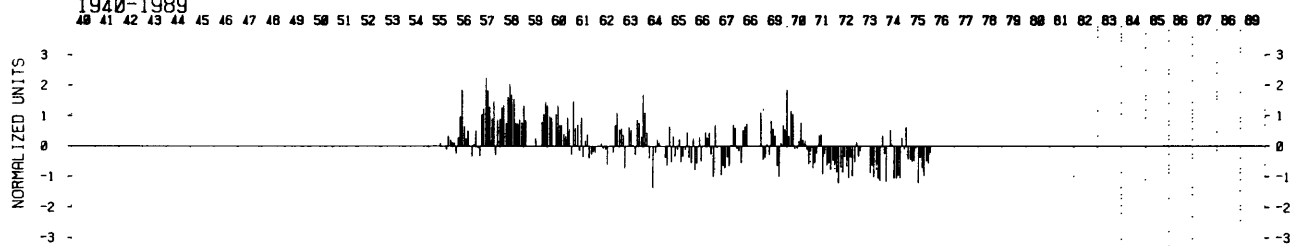


Figure 200. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Unalaska, AK, 1955-1975.

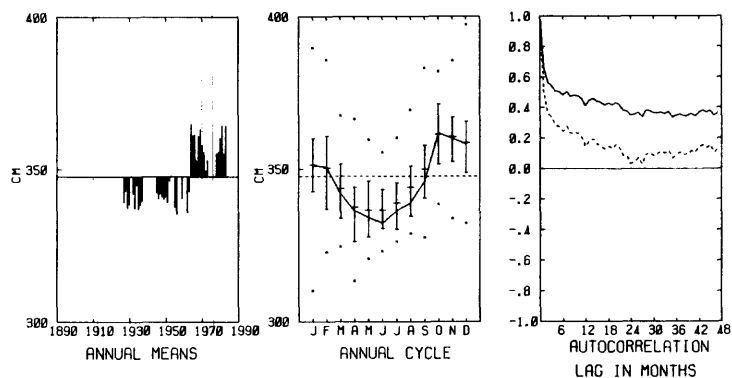
SEA LEVEL SEWARD ALASKA

UNITS ARE CM

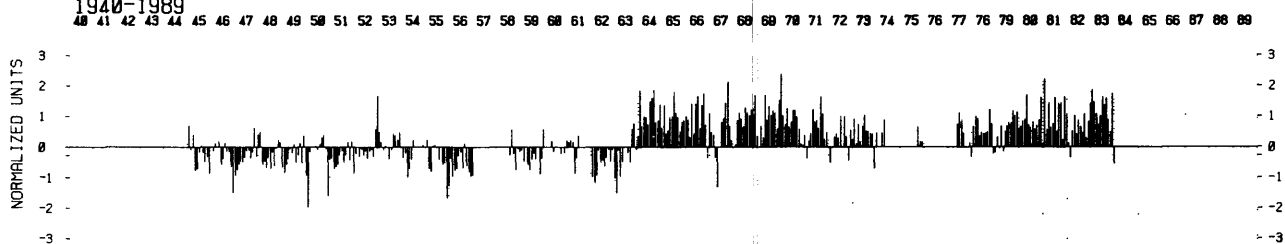
1925-1983

1979-1983 UPDATED WITH DATA SUPPLIED BY
DOUG MCCLAIN, NOAA/NOS, MONTEREY, CA

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

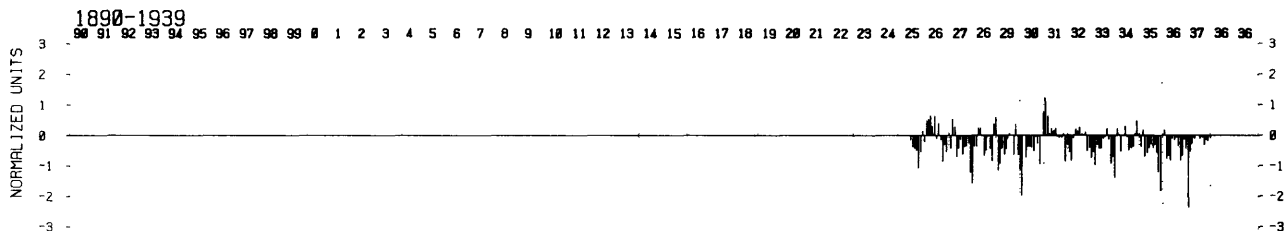


Figure 201. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Seward, AK, 1925-1983.

SEA LEVEL YAKUTAT ALASKA

UNITS ARE CM

1940-1985

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

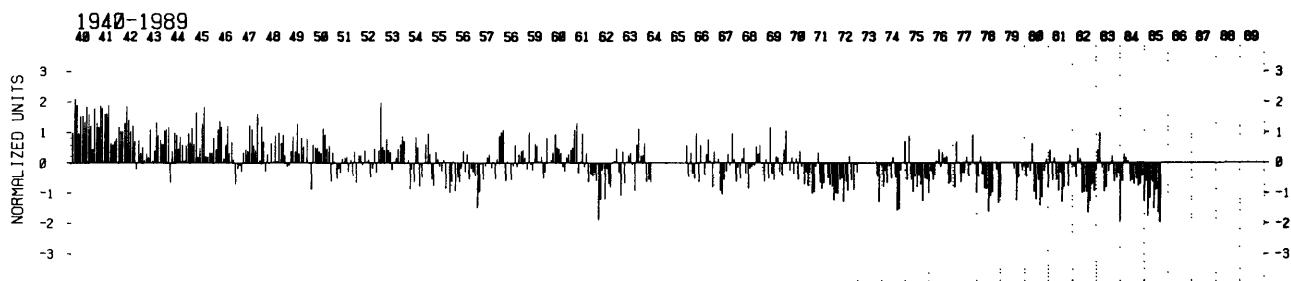
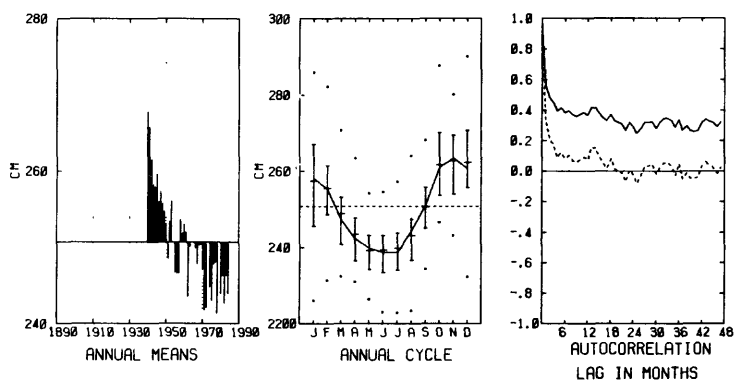


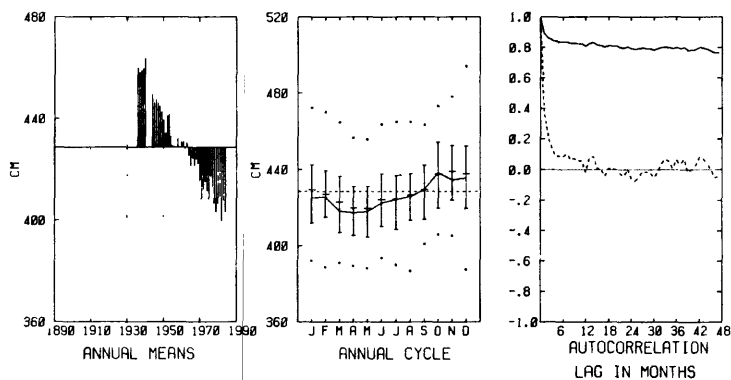
Figure 202. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Yakutat, AK, 1940-1985.

SEA LEVEL JUNEAU ALASKA

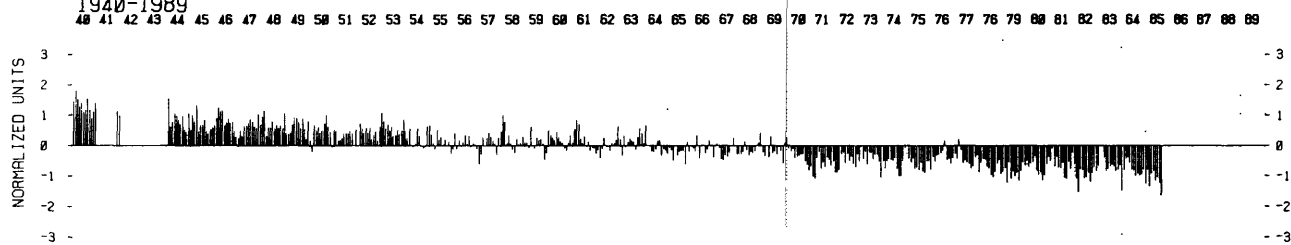
UNITS ARE CM

1936-1985

SUS TABATA, INST OF OCEAN SCI, PO BX 60000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

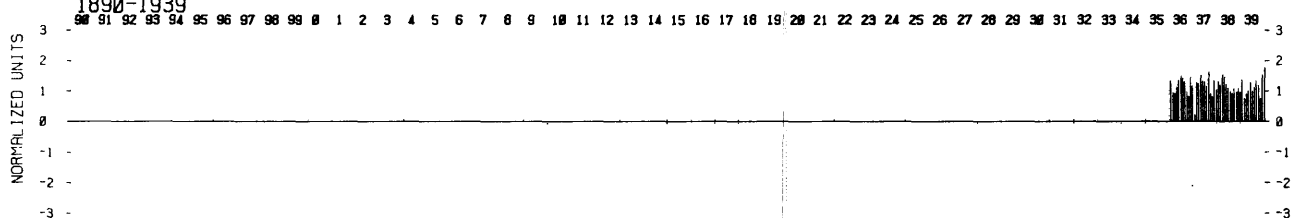


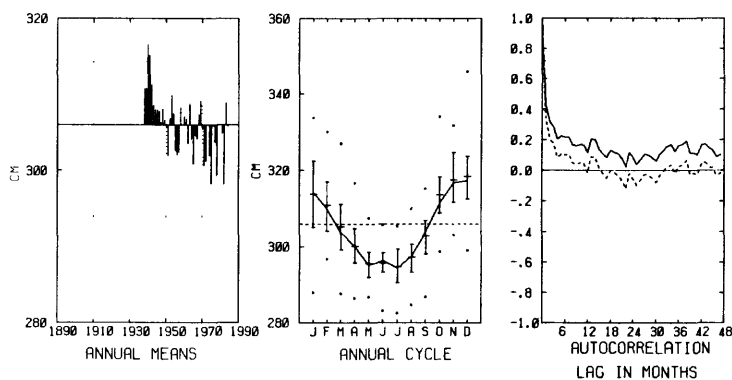
Figure 203. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Juneau, AK, 1936-1985.

SEA LEVEL SITKA ALASKA

UNITS ARE CM

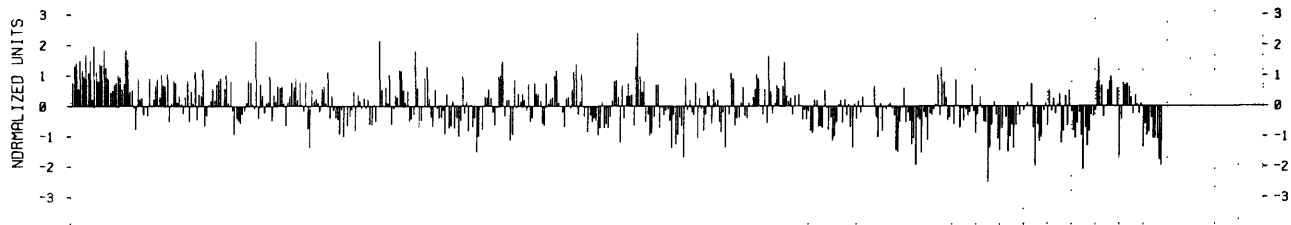
1938-1985

SUS TABATA, INST. OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

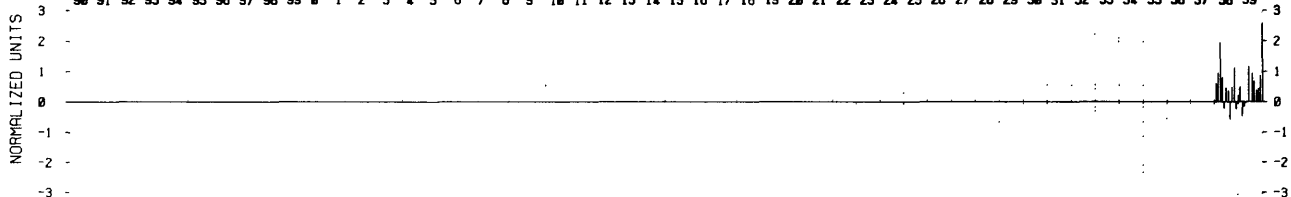


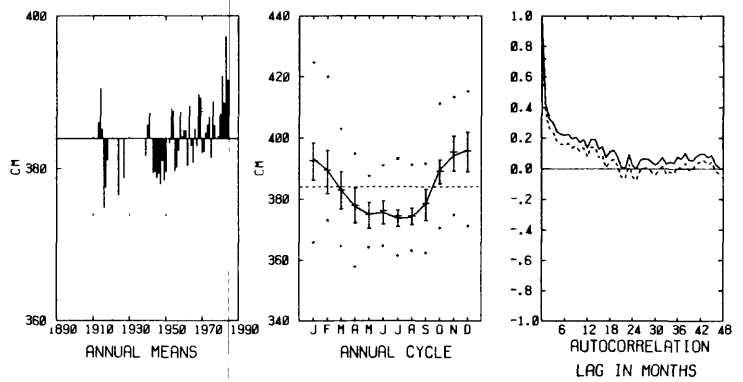
Figure 204. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Sitka, AK, 1938-1985.

SEA LEVEL PRINCE RUPERT BC CANADA

UNITS ARE CM

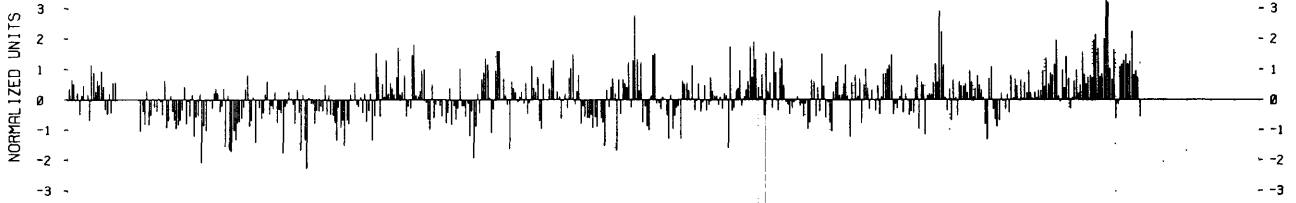
1909-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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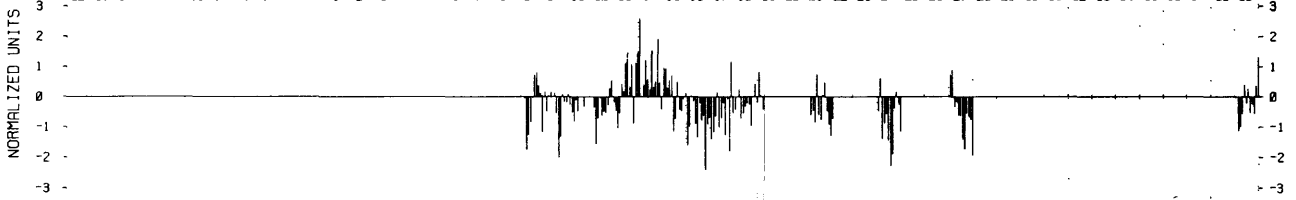


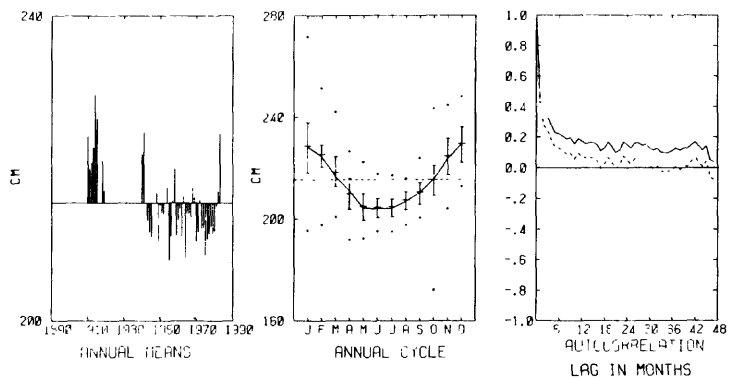
Figure 205. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Prince Rupert, CAN, 1909-1984.

SEA LEVEL TOFINO A BC CANADA

UNITS ARE CM

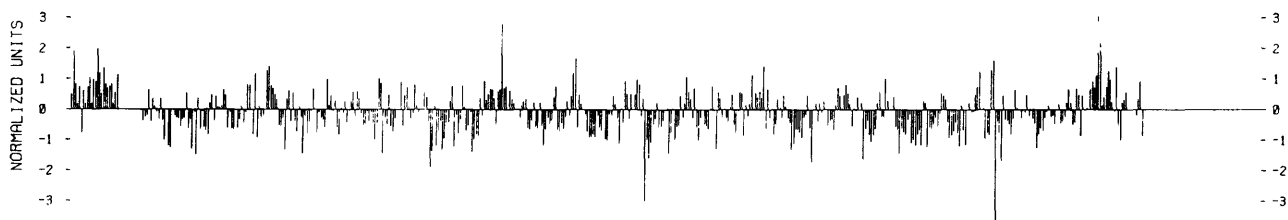
1910-1984

SUS. TABATA, INST. OF OCEAN SCI., PO BX 6000
9860 W. SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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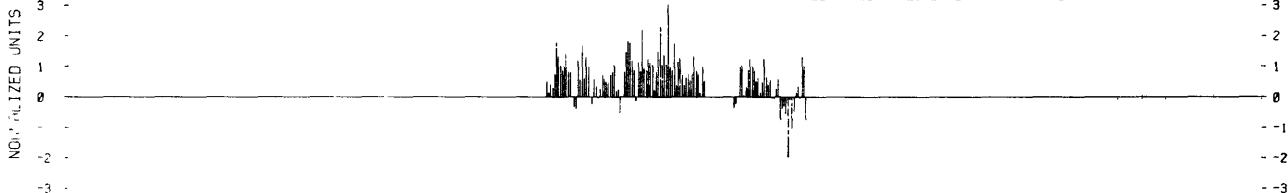


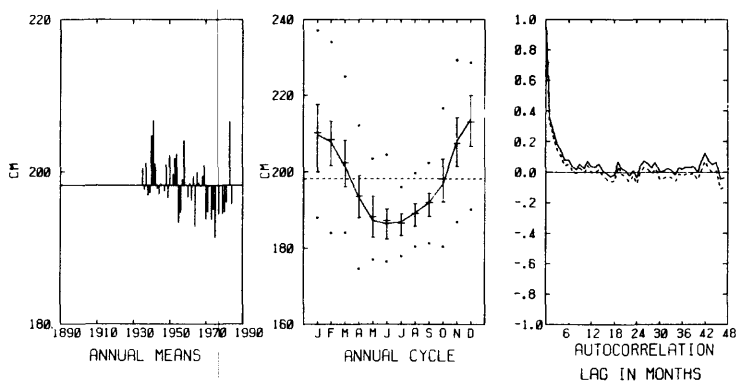
Figure 206. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Tofino A, CAN, 1910-1984.

SEA LEVEL NEAH BAY WASHINGTON

UNITS ARE CM

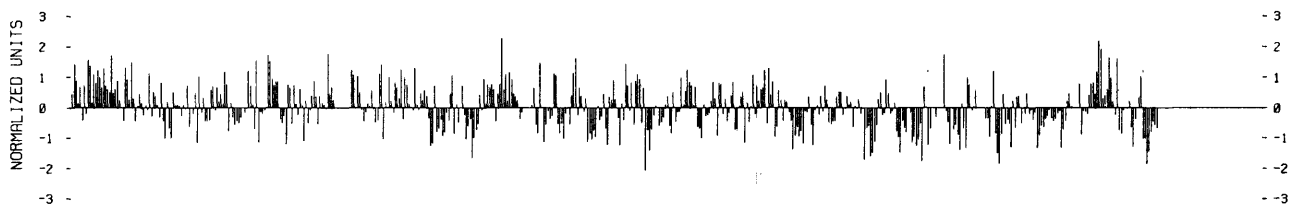
1934-1985

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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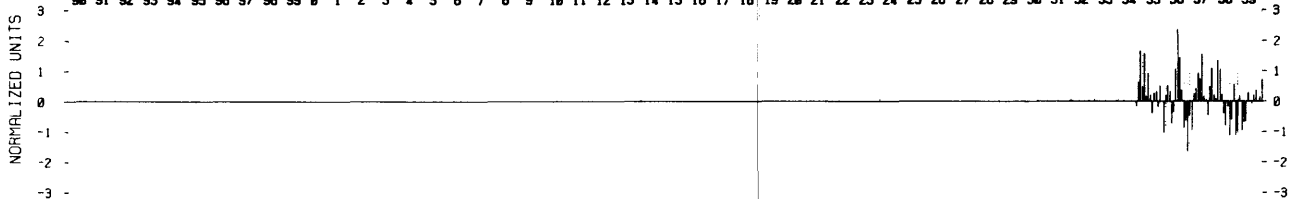


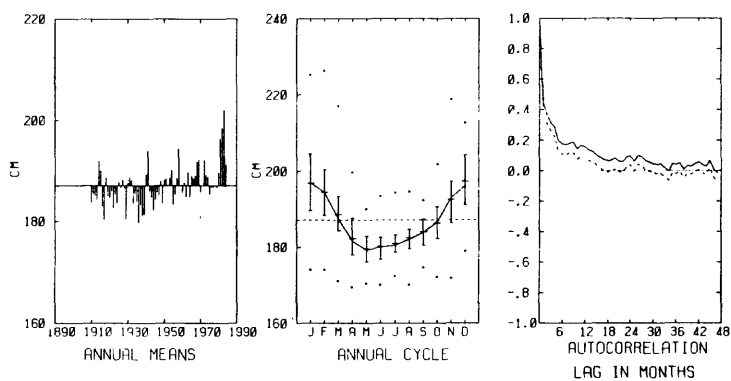
Figure 207. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Neah Bay, WA, 1934-1985.

SEA LEVEL VICTORIA DOWNTOWN BC CANADA

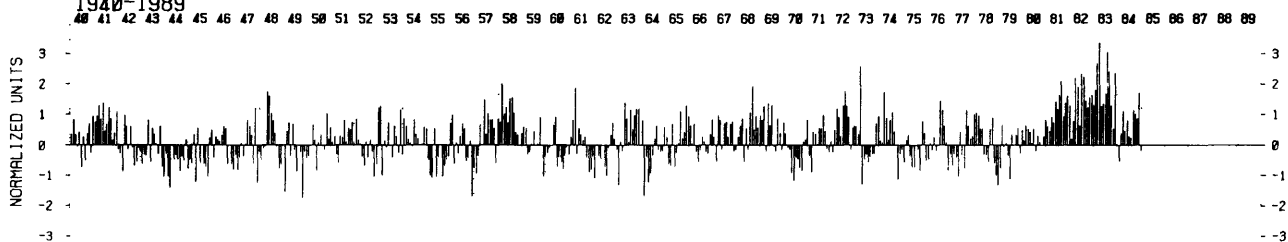
UNITS ARE CM

1909-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

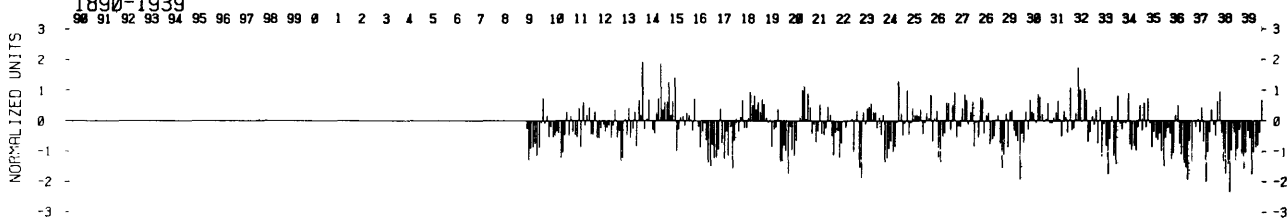


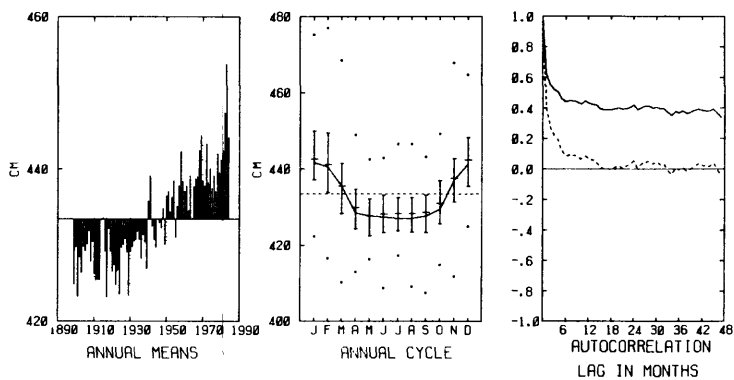
Figure 208. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Victoria (Downtown), CAN, 1909-1984.

SEA LEVEL SEATTLE WASHINGTON

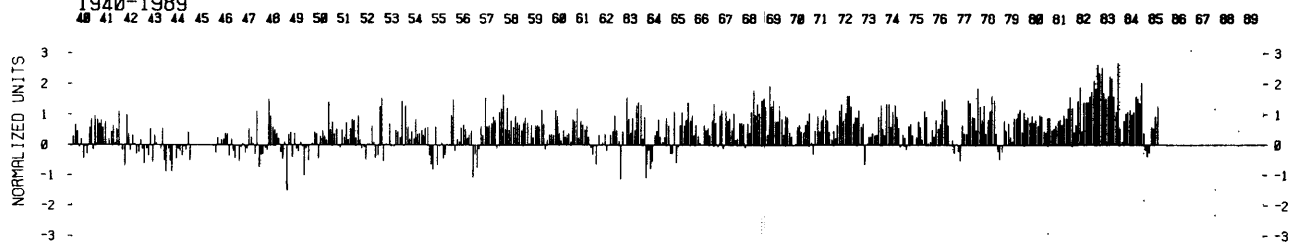
UNITS ARE CM

1899-1985

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

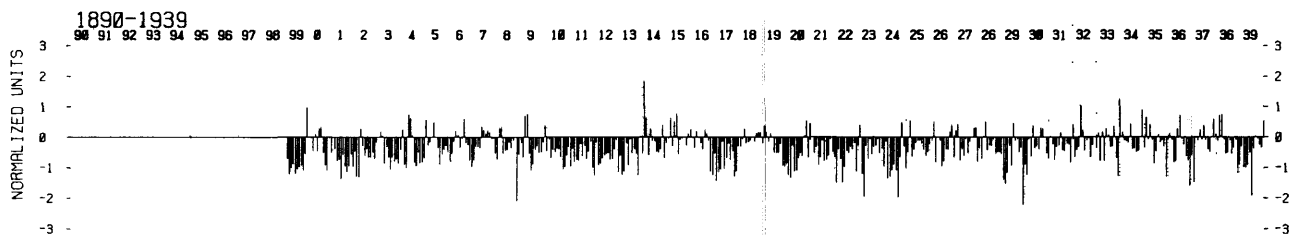


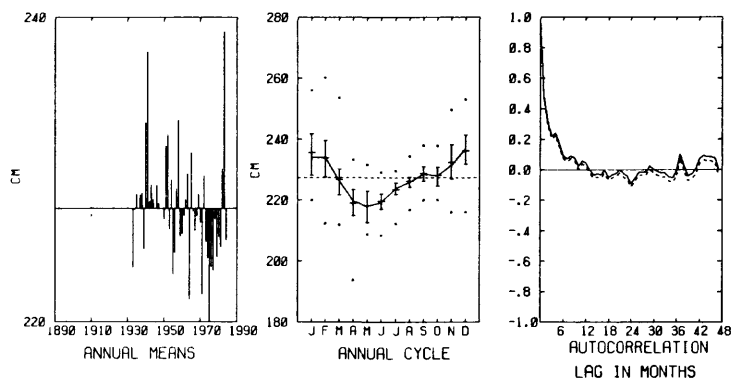
Figure 209. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Seattle, WA, 1899-1985.

SEA LEVEL CRESCENT CITY

UNITS ARE CM

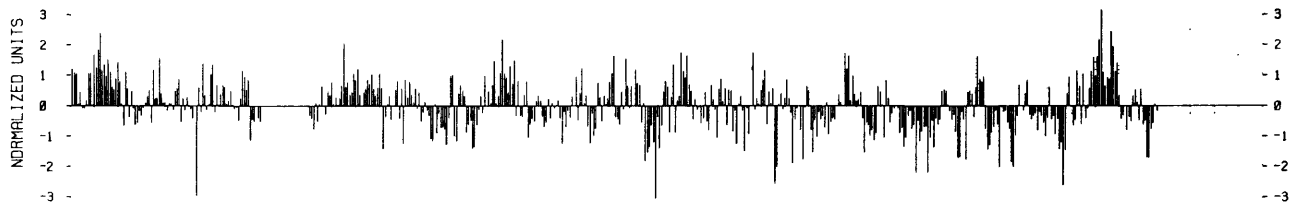
1933-1985

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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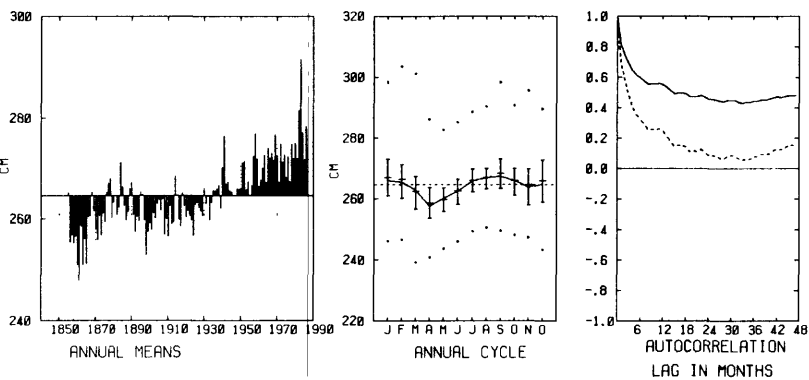
Figure 210. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Crescent City, CA, 1933-1985.

SEA LEVEL SAN FRANCISCO CALIFORNIA

UNITS ARE CM

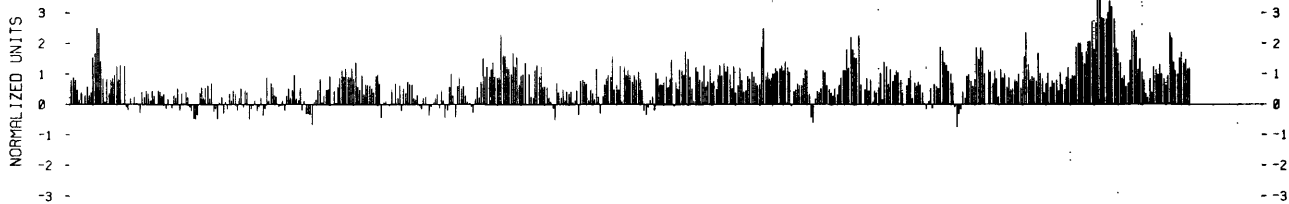
1854-1986

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA ☎



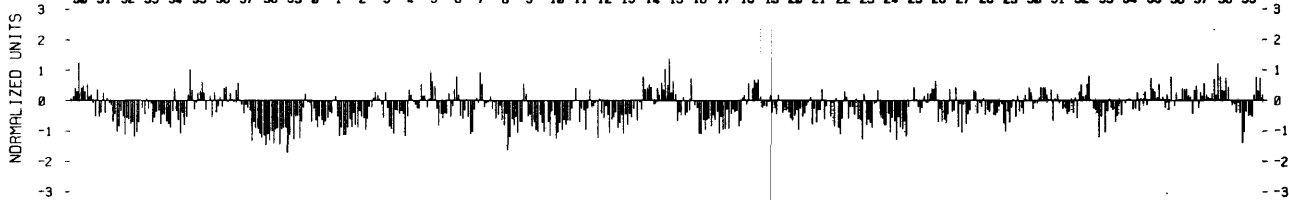
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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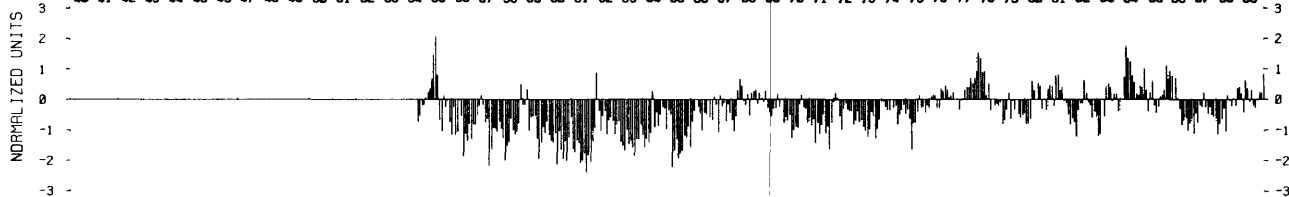


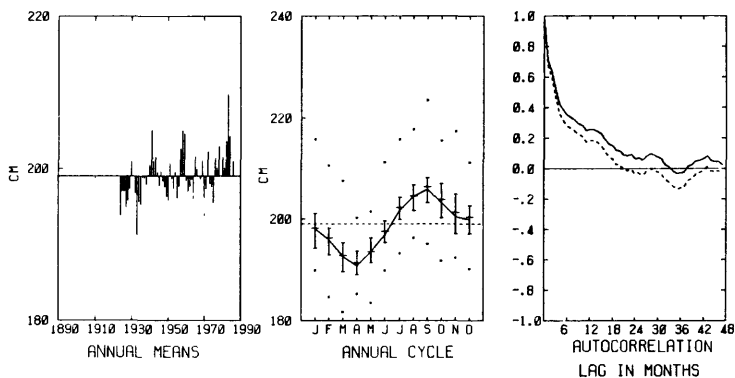
Figure 211. Graphs of standardized monthly anomaly and selected statistics for sea-level height at San Francisco, CA, 1854-1986.

SEA LEVEL LOS ANGELES CALIFORNIA

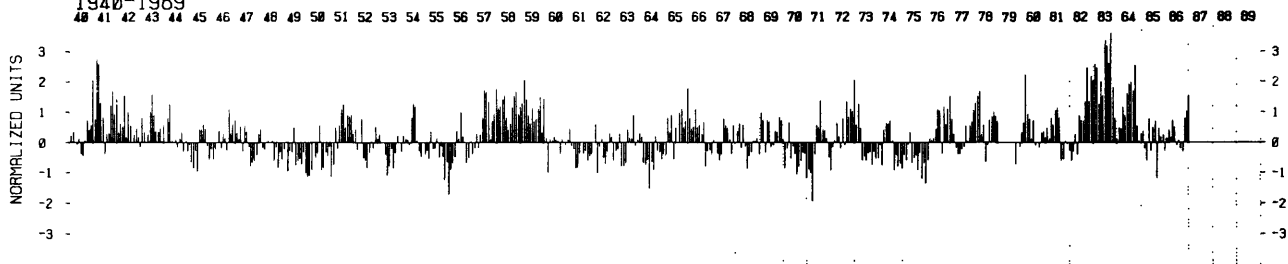
UNITS ARE CM

1923-1986

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, VBL 4B2, CANADA



1940-1989



1890-1939

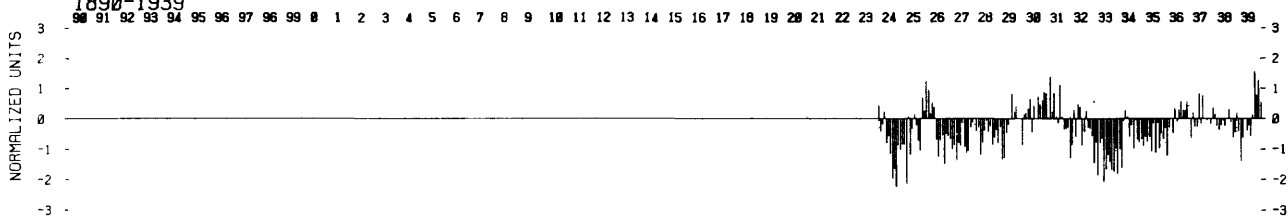


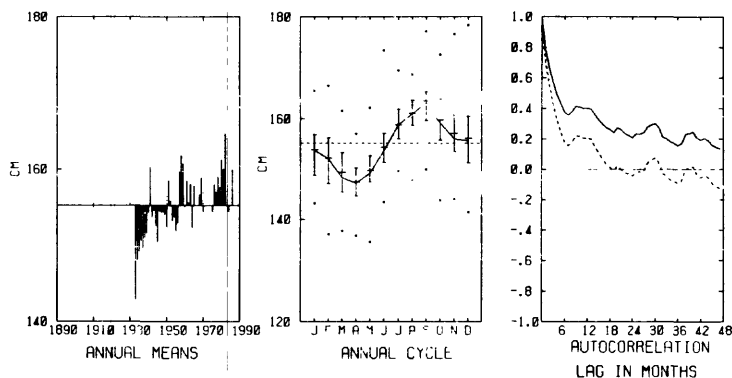
Figure 212. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Los Angeles, CA, 1923-1986.

SEA LEVEL SANTA MONICA CALIFORNIA

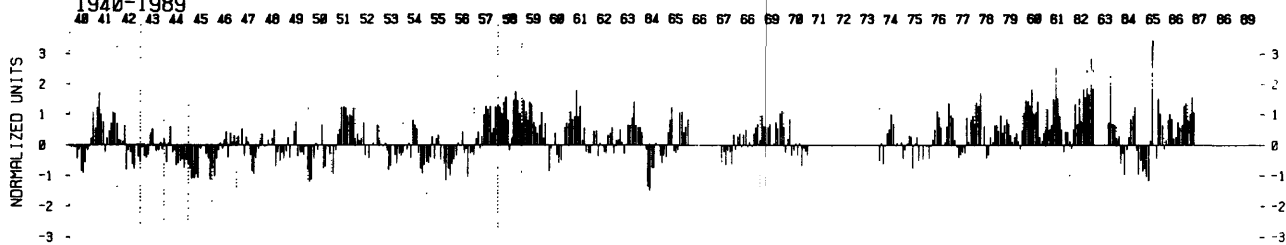
UNITS ARE CM

1933-1987

SUS TABATA, INST OF OCEAN SCI., PO 3X 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA
(NOTE: 1978-87 UPDATED WITH DATA SUPPLIED BY
DOUG MCLAIN, NOAA/NOS, MONTEREY, CA)



1940-1989



1890-1939

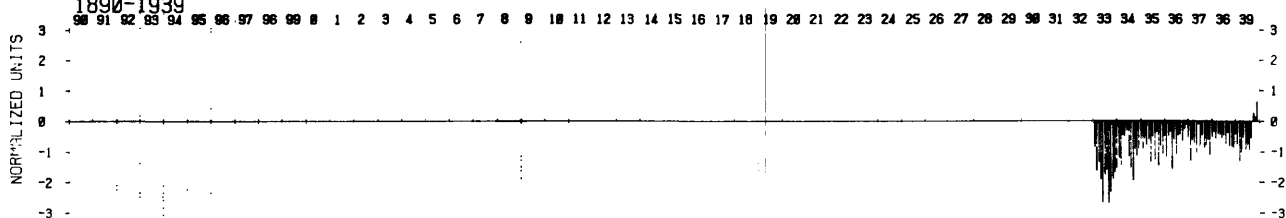


Figure 213. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Santa Monica, CA, 1933-1987.

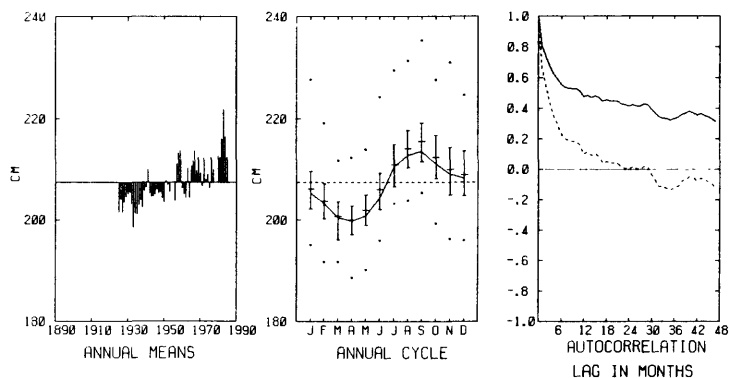
SEA LEVEL LA JOLLA CALIFORNIA

UNITS ARE CM

1924-1986

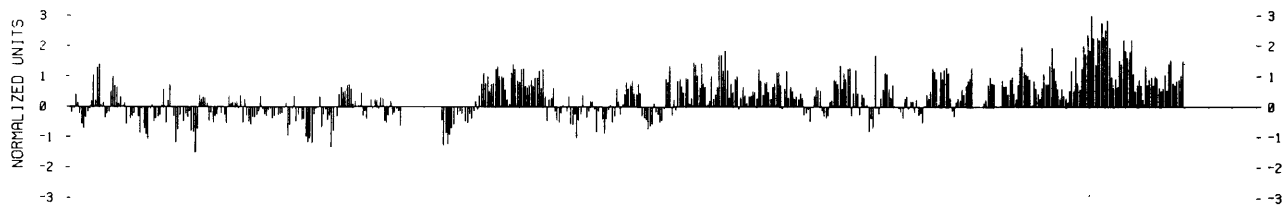
OBSERVATIONS TAKEN AT THE PIER AT
SCRIPPS INSTITUTION OF OCEANOGRAPHY

SUS. TABATA. INST. OF OCEAN SCI., PO. BX 6000
9860 W. SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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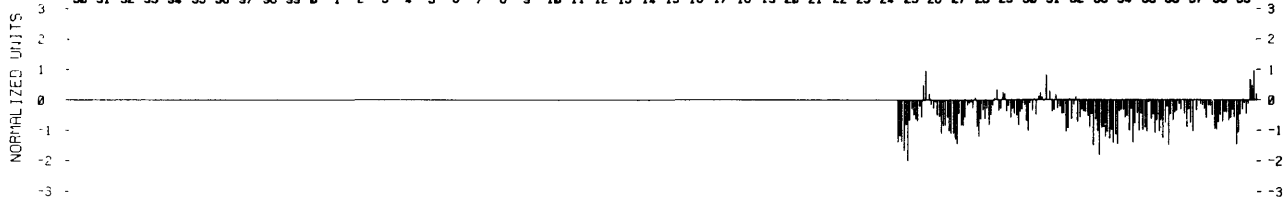


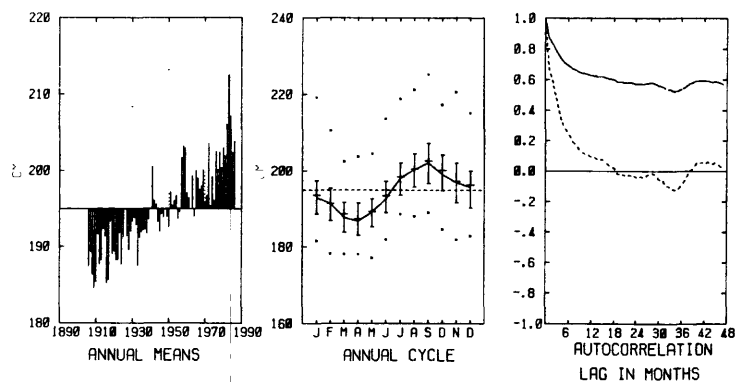
Figure 214. Graphs of standardized monthly anomaly and selected statistics for sea-level height at La Jolla, CA, 1924-1986.

SEA LEVEL SAN DIEGO CALIFORNIA

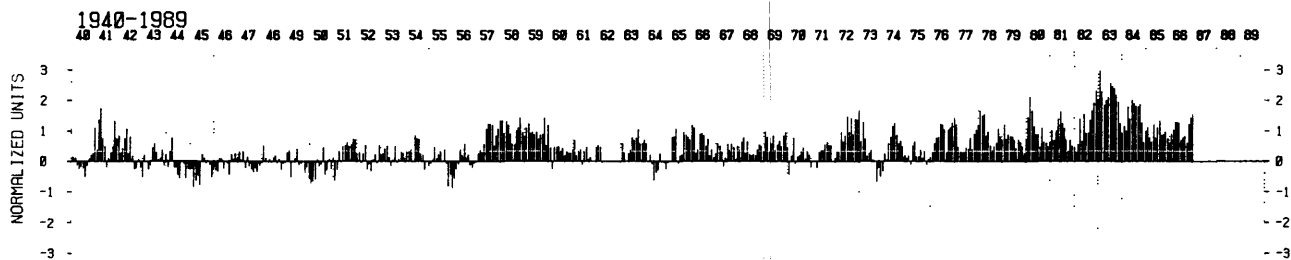
UNITS ARE CM

1906-1986

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

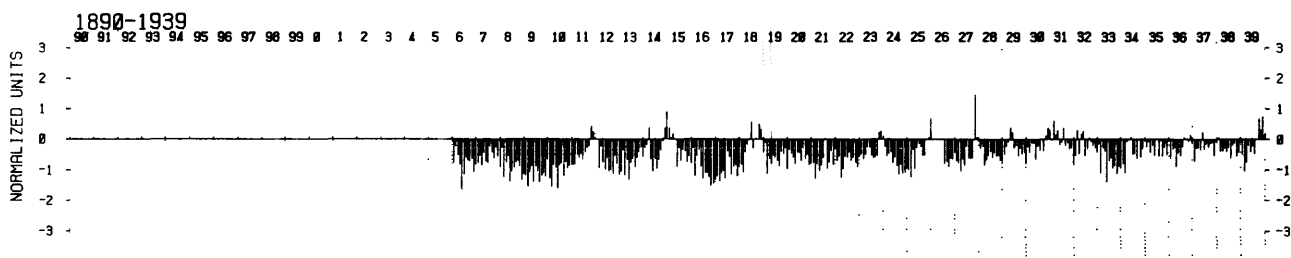


Figure 215. Graphs of standardized monthly anomaly and selected statistics for sea-level height at San Diego, CA, 1906-1986.

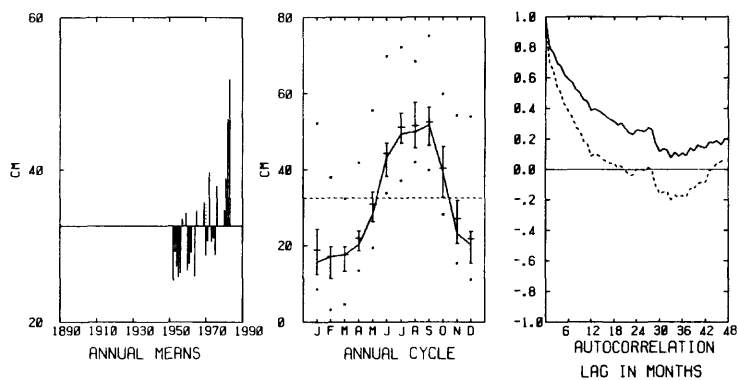
SEA LEVEL GUAYMAS SONORA MEXICO

UNITS ARE CM

1952-1984

DATA FROM IUGG,MSL,UM

KLAUS WYRTKI,UNIV HAWAII,DEPT OCEANOGR-
APHY,1000 POPE RD,HONOLULU,HAWAII 96822



1940-1989

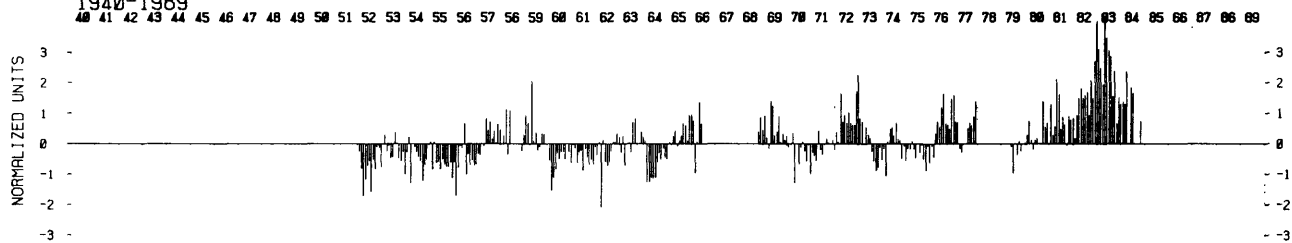


Figure 216. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Guaymas, MEX, 1952-1984.

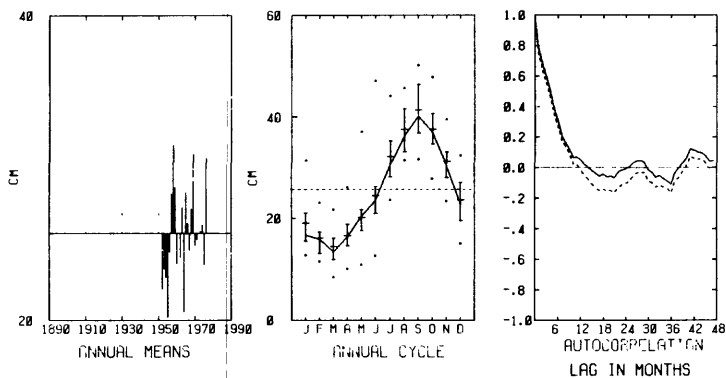
SEA LEVEL LA PAZ BAJA CALIF MEXICO

UNITS ARE CM

1952-1984

DATA FROM IUGG,MSL,UM

KLAUS WYRTKI,UNIV HAWAII,DEPT OCEANOGR-
APHY,1000 POPE RD,HONOLULU,HAWAII 96822
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

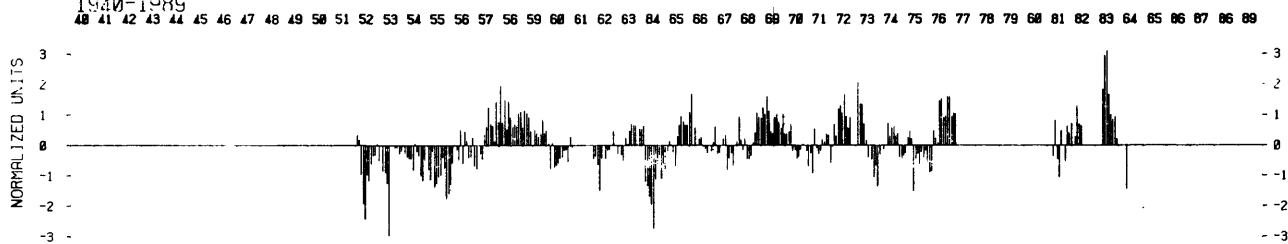


Figure 217. Graphs of standardized monthly anomaly and selected statistics for sea-level height at La Paz, MEX, 1952-1984.

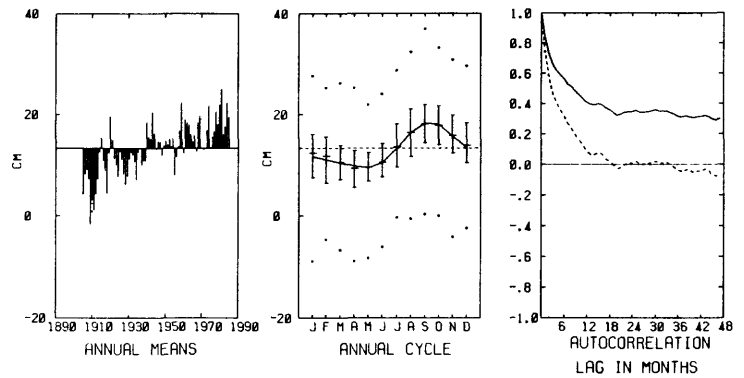
SEA LEVEL HONOLULU HAWAII

UNITS ARE CM

1905-1986

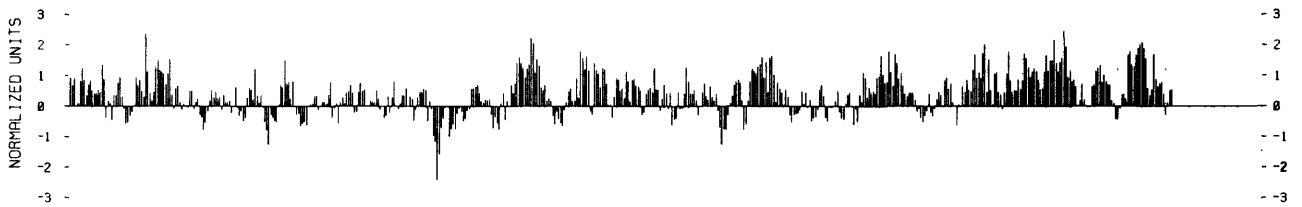
DATA FROM NOAA, 57

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

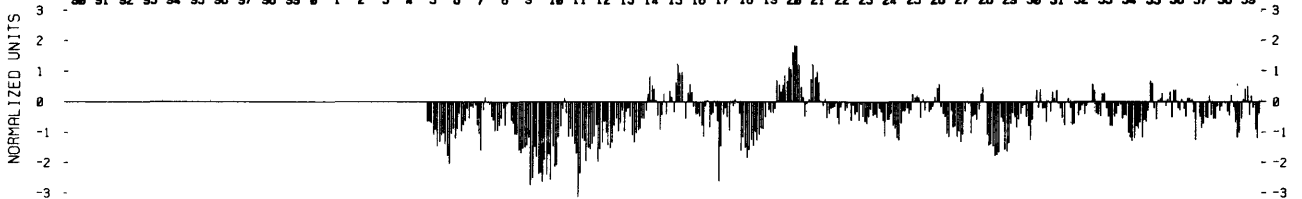


Figure 218. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Honolulu, HI, 1905-1986.

SEA LEVEL ACAPULCO

UNITS ARE CM

1949-1986

DATA FROM UM

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822

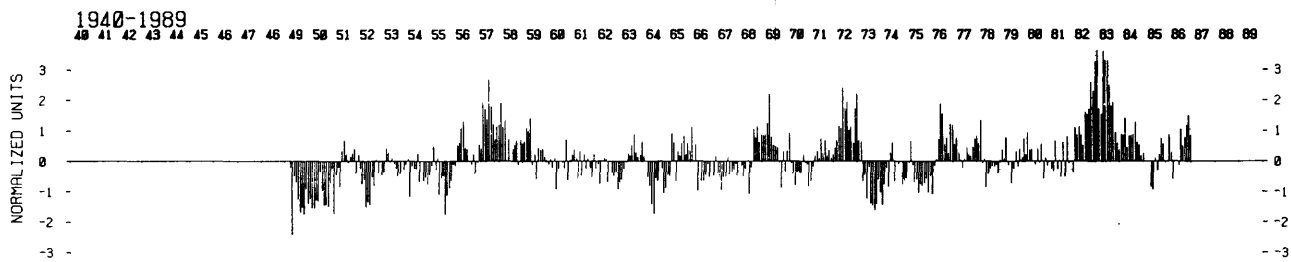
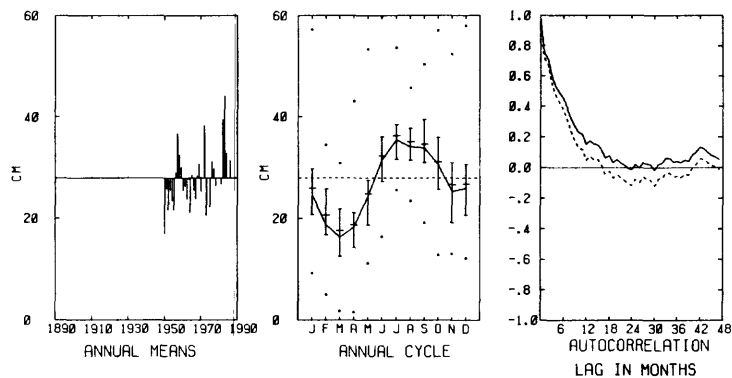


Figure 219. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Acapulco, MEX, 1949-1986.

SEA LEVEL SALINA CRUZ MEXICO

UNITS ARE CM

1952-1986

DATA FROM UM

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822

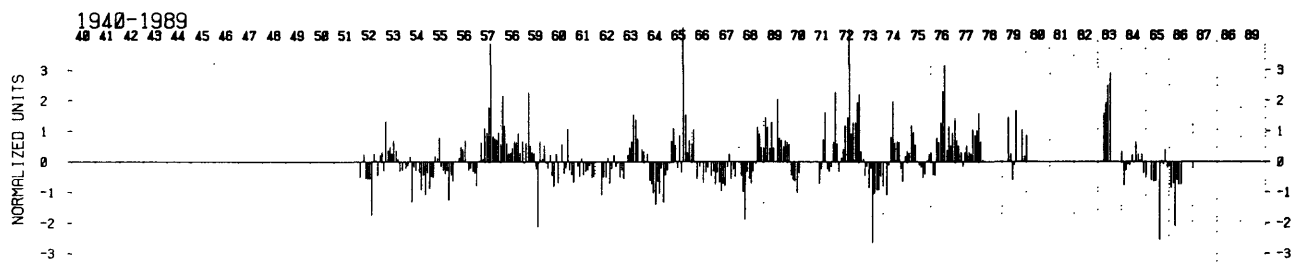
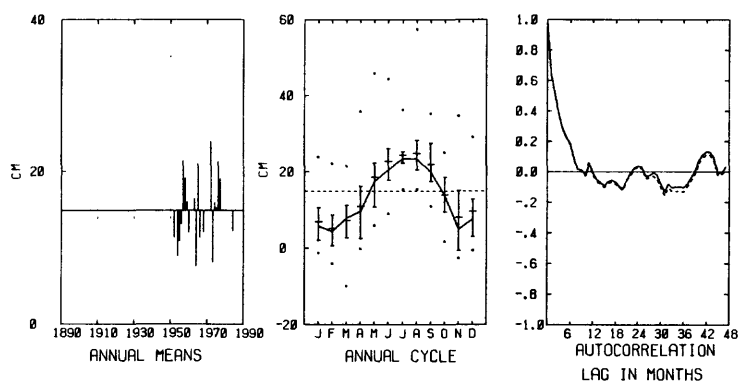


Figure 220. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Salina Cruz, MEX, 1952-1986.

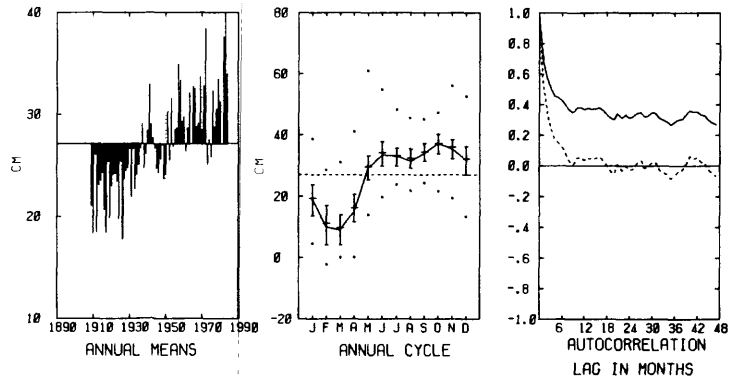
SEA LEVEL BALBOA CANAL ZONE

UNITS ARE CM

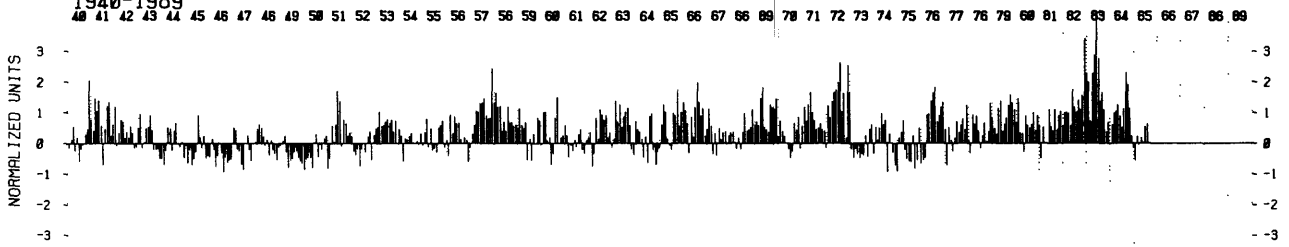
1909-1985

DATA FROM NOAA, IUGG, OS
A CONSTANT OF -12 FT WAS
ADDED TO THE ORIGINAL DATA

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822



1940-1989



1890-1939

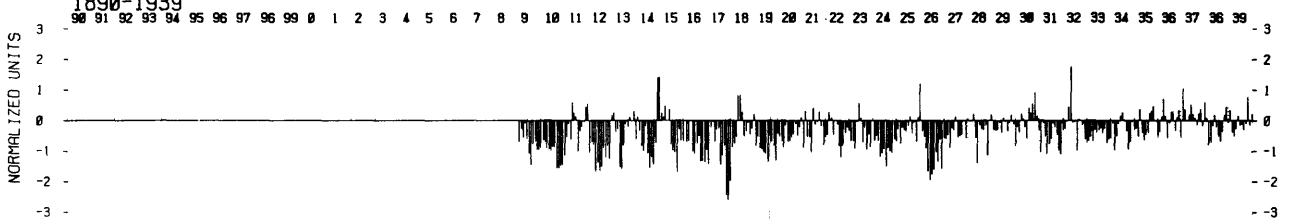


Figure 221. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Balboa, CANAL ZONE, 1909-1985.

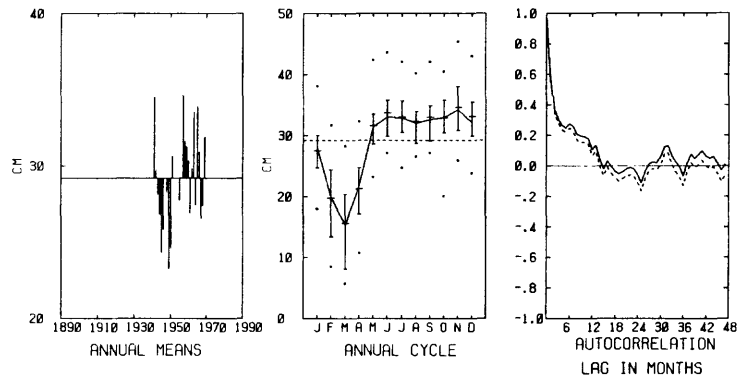
SEA LEVEL BUENAVENTURA COLOMBIA

UNITS ARE CM

1941-1969

DATA FROM NOAA

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822



1940-1989

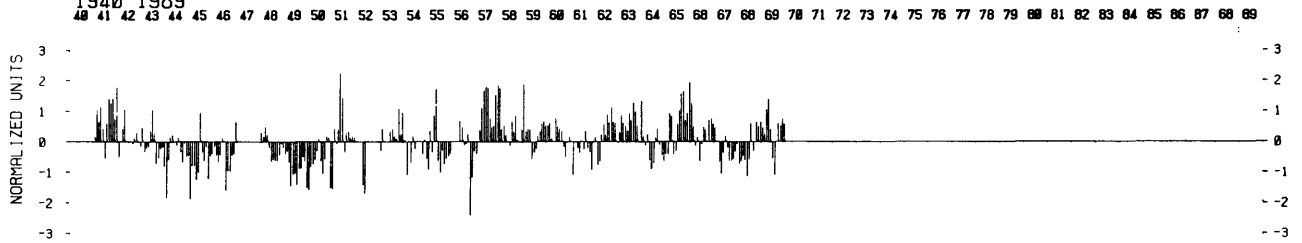


Figure 222. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Buenaventura, COLOMBIA, 1941-1969.

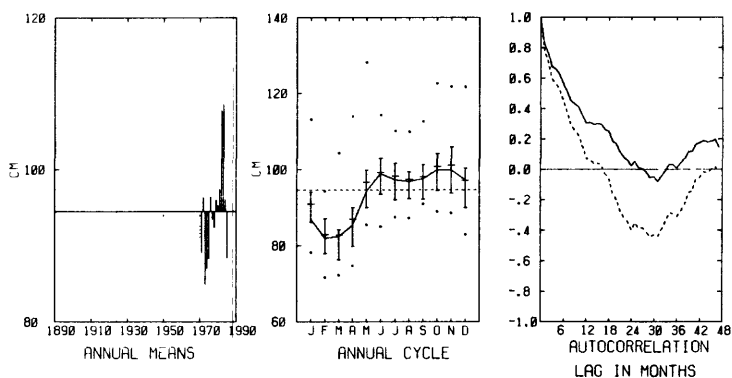
SEA LEVEL BUENAVENTURA COLOMBIA

UNITS ARE CM

1969-1985

DATA FROM OSU

KLAUS WYRTKI, UNIV. HAWAII, DEPT. OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

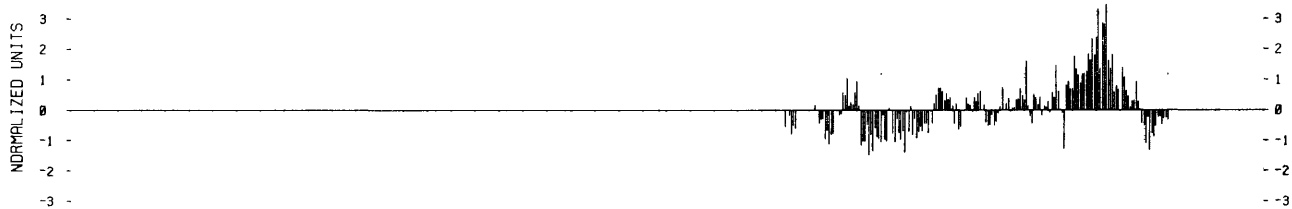


Figure 223. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Buenaventura, COLOMBIA, 1969-1985.

SEA LEVEL LA LIBERTAD

ECUADOR

UNITS ARE CM

1948-1970

DATA FROM NOAA

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822

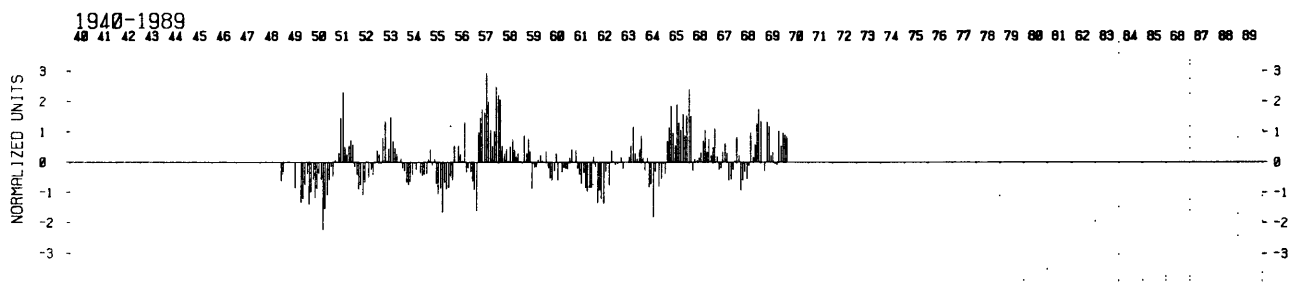
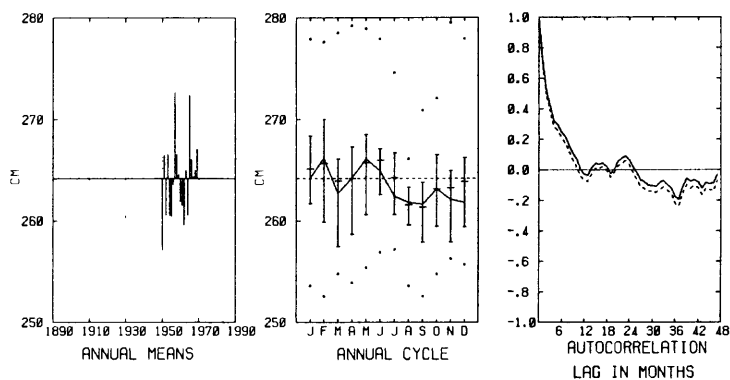


Figure 224. Graphs of standardized monthly anomaly and selected statistics for sea-level height at La Libertad, ECUADOR, 1948-1970.

SEA LEVEL LA LIBERTAD ECUADOR

UNITS ARE CM

1969-1984

DATA FROM UH91

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822

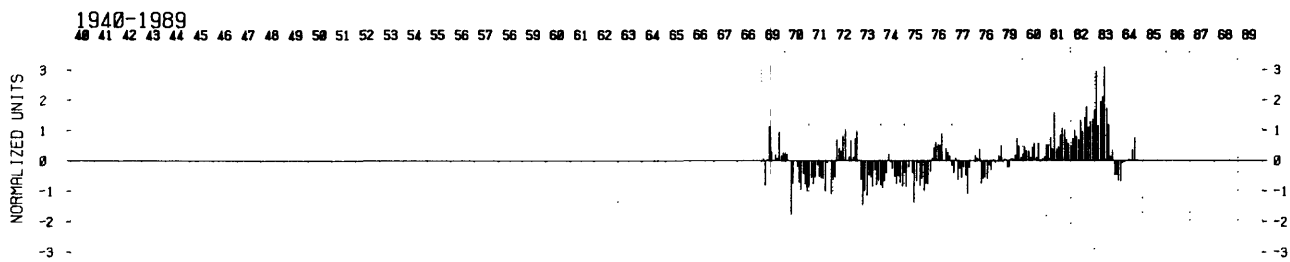
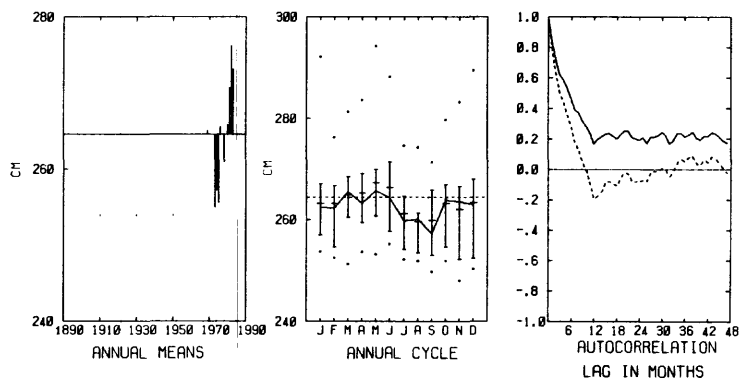


Figure 225. Graphs of standardized monthly anomaly and selected statistics for sea-level height at La Libertad, ECUADOR, 1969-1984.

SEA LEVEL TALARA PERU

UNITS ARE CM

1942-1979

DATA FROM NOAA, OSU, PER

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822

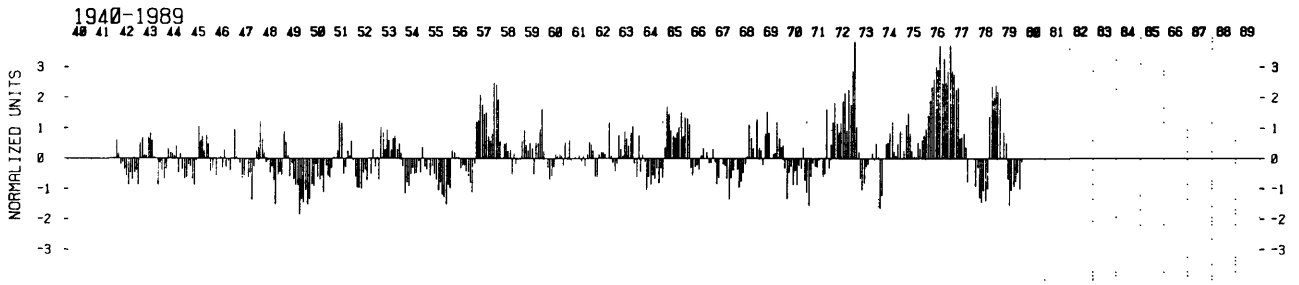
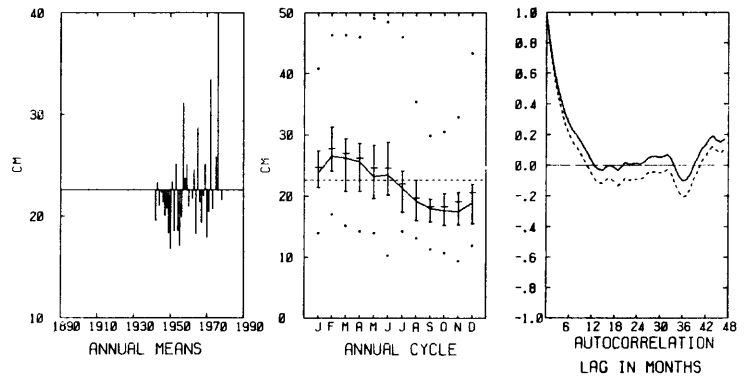


Figure 226. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Talara, PERU, 1942-1979.

SEA LEVEL CALLAO

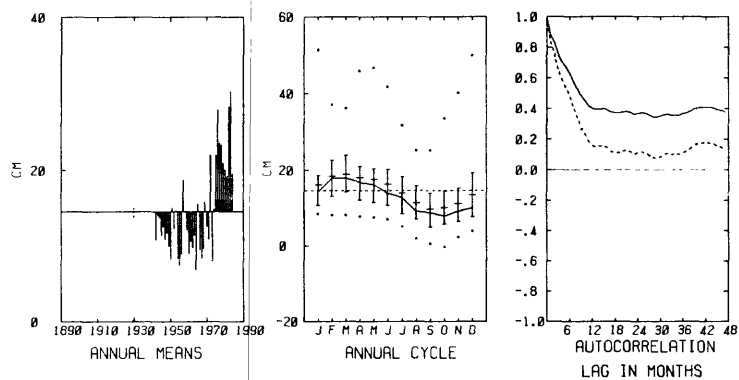
PERU

UNITS ARE CM

1942-1985

DATA FROM NOAA, PERU

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822
DATA TRANSFORMED BY LOGARITHM BEFORE COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

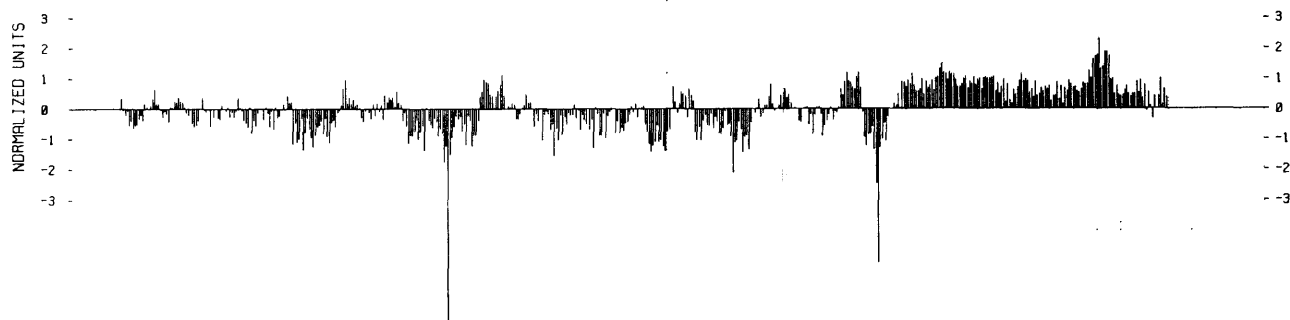


Figure 227. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Callao, PERU, 1942-1985.

SEA LEVEL ANTOFAGASTA

CHILE

UNITS ARE CM

1946-1970

DATA FROM MSL

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822

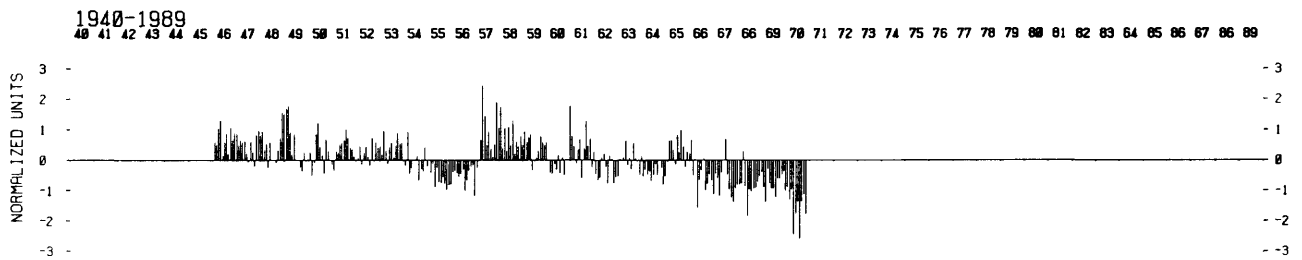
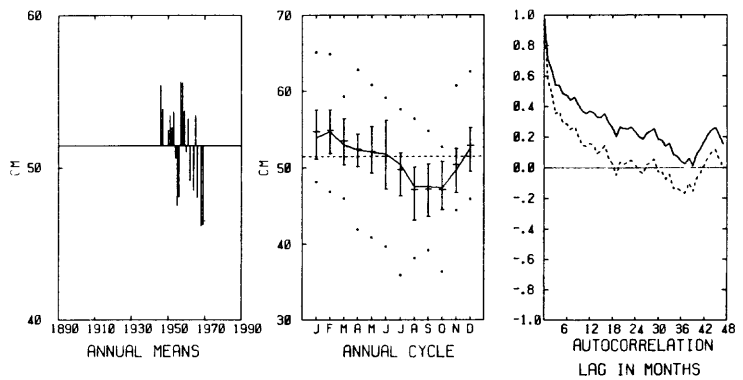


Figure 228. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Antofagasta, CHILE, 1946-1970.

SEA LEVEL ANTOFAGASTA

CHILE

UNITS ARE CM

1970-1985

DATA FROM CHILE

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGR-
APHY, 1000 POPE RD, HONOLULU, HAWAII 96822
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

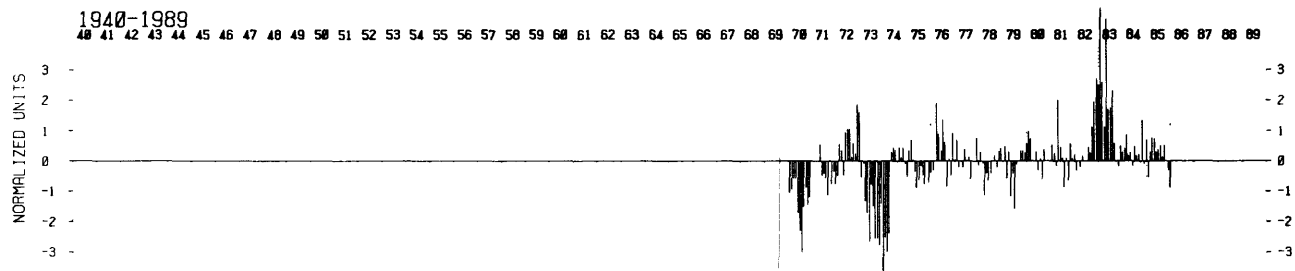
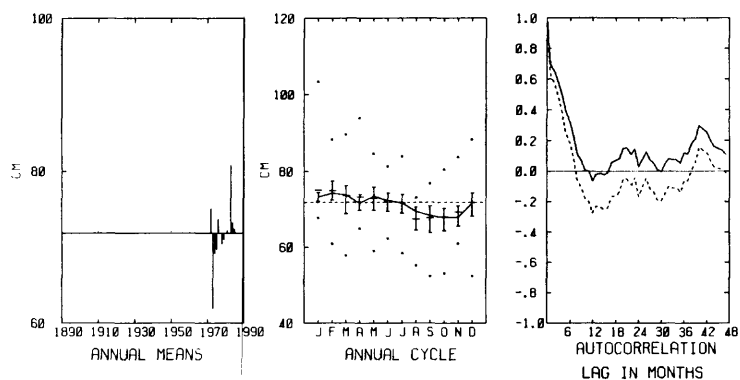


Figure 229. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Antofagasta, CHILE, 1970-1985.

SEA LEVEL VALPARAISO CHILE

UNITS ARE CM

1941-1970

DATA FROM IUGG, CHILE

KLAUS WYRTKI, UNIV HAWAII, DEPT OCEANOGRAPHY, 1000 POPE RD, HONOLULU, HAWAII 96822

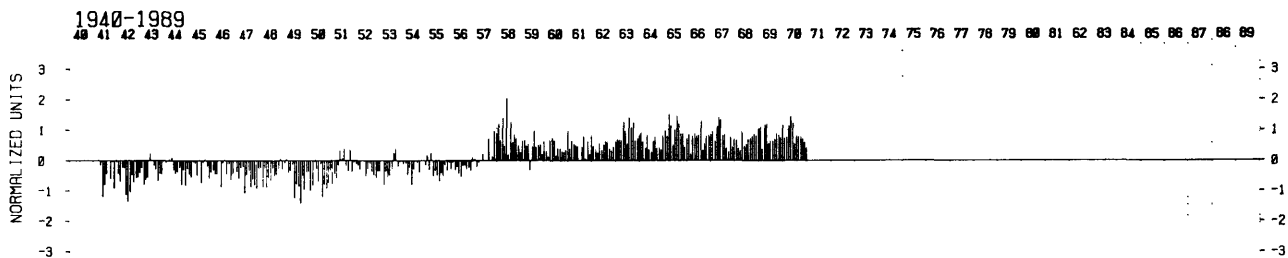
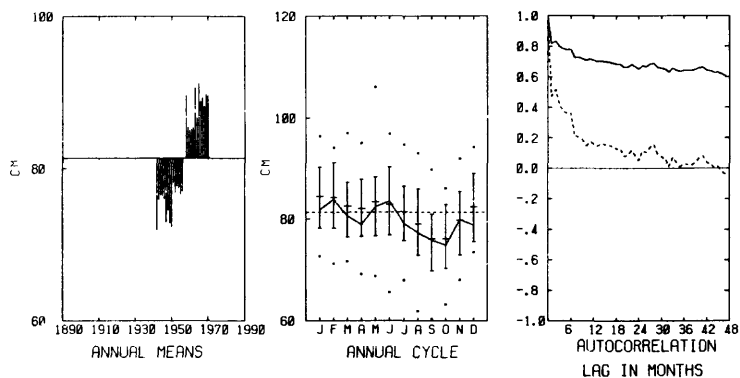


Figure 230. Graphs of standardized monthly anomaly and selected statistics for sea-level height at Valparaiso, CHILE, 1941-1970.

Variable VII: Sea-surface Temperature (SST)

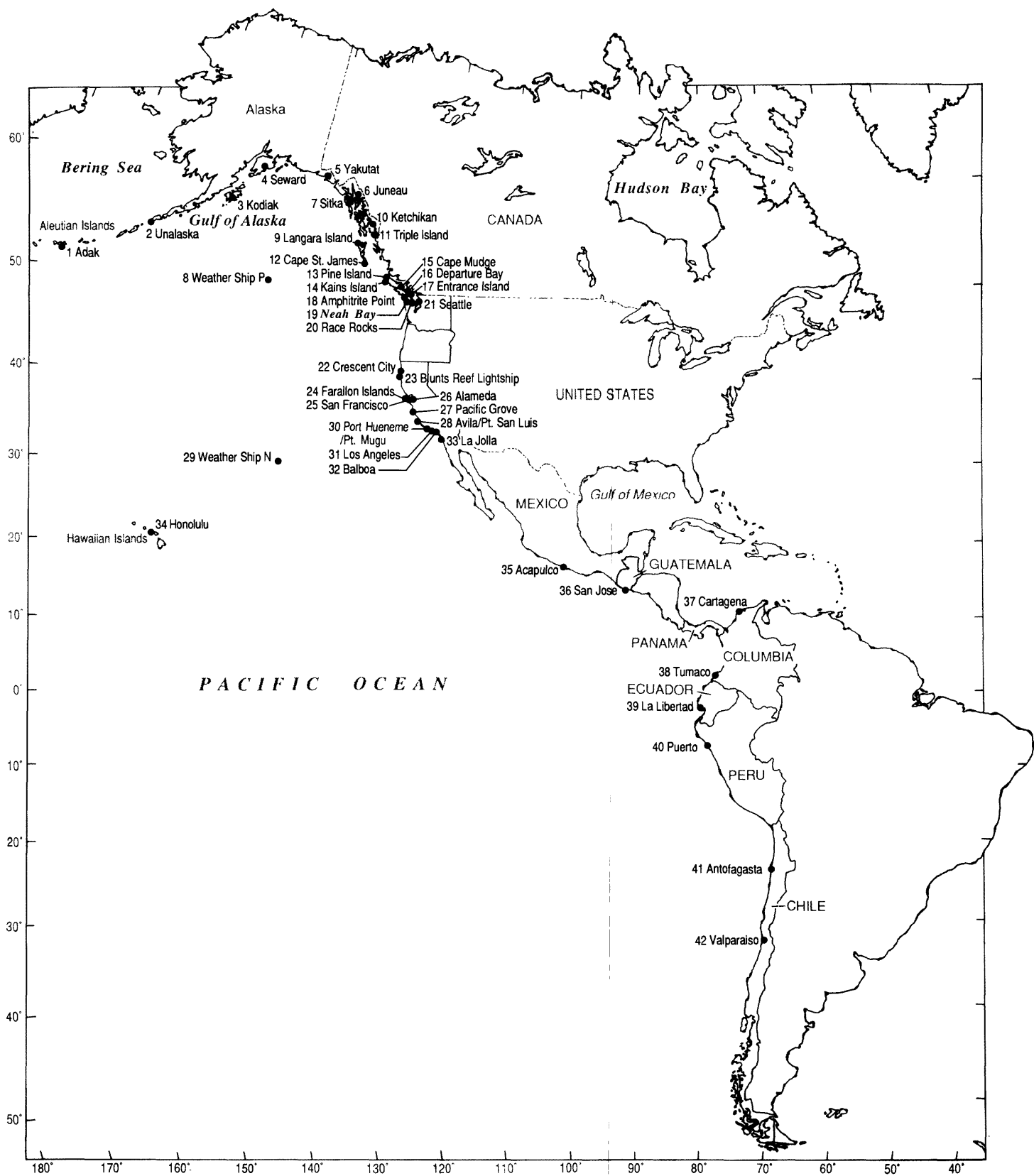


Figure 231. Map showing locations of sea-surface temperature (SST) stations.

Table 7.--Index to Sea-surface Temperature (SST) stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	232	Adak, AK	51°51'N.	176°39'W.	1943-1978	Tabata
2	233	Unalaska, AK	53°53'N.	166°32'W.	1955-1982	Tabata
3	234	Kodiak, AK	57°47'N.	152°24'W.	1950-1978	Tabata
4	235	Seward, AK	60°06'N.	149°27'W.	1925-1982	Tabata
5	236	Yakutat, AK	59°33'N.	139°44'W.	1940-1983	Tabata
6	237	Juneau, AK	58°15'N.	134°25'W.	1936-1978	Tabata
7	238	Sitka, AK	57°03'N.	135°20'W.	1924-1983	Tabata
8	239	Weather Ship P	50°00'N.	145°00'W.	1950-1982	Tabata
9	240	Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Tabata
10	241	Ketchikan, AK	55°20'N.	131°38'W.	1921-1978	Tabata
11	242	Triple Island, CAN	54°18'N.	130°53'W.	1940-1970	Tabata
12	243	Cape St. James, CAN	51°56'N.	131°01'W.	1934-1984	Tabata
13	244	Pine Island, CAN	50°58'N.	127°44'W.	1937-1984	Tabata
14	245	Kains Island, CAN	50°26'N.	128°02'W.	1935-1984	Tabata
15	246	Cape Mudge, CAN	50°00'N.	125°12'W.	1937-1982	Tabata
16	247	Departure Bay, CAN	49°13'N.	123°57'W.	1915-1982	Tabata
17	248	Entrance Island, CAN	49°12'N.	123°56'W.	1936-1982	Tabata
18	249	Amphitrite Point, CAN	48°55'N.	125°32'W.	1934-1984	Tabata
19	250	Neah Bay, WA	48°22'N.	124°37'W.	1935-1986	Mantyla
20	251	Race Rocks, CAN	48°18'N.	123°32'W.	1941-1984	Tabata
21	252	Seattle, WA	47°36'N.	122°20'W.	1922-1978	Tabata
22	253	Crescent City, CA	41°45'N.	124°12'W.	1933-1985	Mantyla
23	254	Blunts Reef Lightship, CA	40°26'N.	124°30'W.	1922-1971	Mantyla
24	255	Farallon Islands, CA	37°25'N.	122°36'W.	1925-1986	Manatyla
25	256	San Francisco, CA	37°48'N.	122°28'W.	1855-1987	Peterson
26	257	Alameda, CA	37°47'N.	122°18'W.	1939-1978	Tabata
27	258	Pacific Grove, CA	36°38'N.	121°55'W.	1919-1986	Mantyla
28	259	Avila/Pt. San Luis, CA	35°10'N.	120°45'W.	1945-1986	Mantyla
29	260	Weather Ship N	30°00'N.	140°00'W.	1954-1974	Roden
30	261	Port Hueneme/Pt. Mugu, CA	34°09'N.	119°12'W.	1919-1986	Mantyla
31	262	Los Angeles, CA	34°03'N.	118°15'W.	1923-1978	Tabata
32	263	Balboa, CA	33°36'N.	117°54'W.	1924-1986	Mantyla
33	264	La Jolla, CA	32°52'N.	117°15'W.	1916-1987	Mantyla
34	265	Honolulu, HI	21°18'N.	157°52'W.	1945-1978	Tabata
35	266	Acapulco, MEX	16°51'N.	99°56'W.	1950-1972	McLain
36	267	San Jose, GUATEMALA	13°55'N.	90°50'W.	1949-1970	McLain
37	268	Cartagena, COLOMBIA	10°27'N.	75°31'W.	1948-1972	McLain
38	269	Tumaco, COLOMBIA	1°38'N.	78°46'W.	1951-1972	McLain
39	270	La Libertad, ECUADOR	2°12'S.	80°55'W.	1948-1973	McLain
40	271	Puerto Chicama, PERU	7°42'S.	79°27'W.	1925-1988	McLain
41	272	Antofagasta, CHILE	23°28'S.	70°26'W.	1945-1969	McLain
42	273	Valparaiso, CHILE	33°02'S.	71°38'W.	1944-1969	McLain

*Refers to map location on Figure 231.

**See Contributors List, p. 379.

SEA SURF TEMP ADAK ALASKA

UNITS ARE DEG C

1943-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

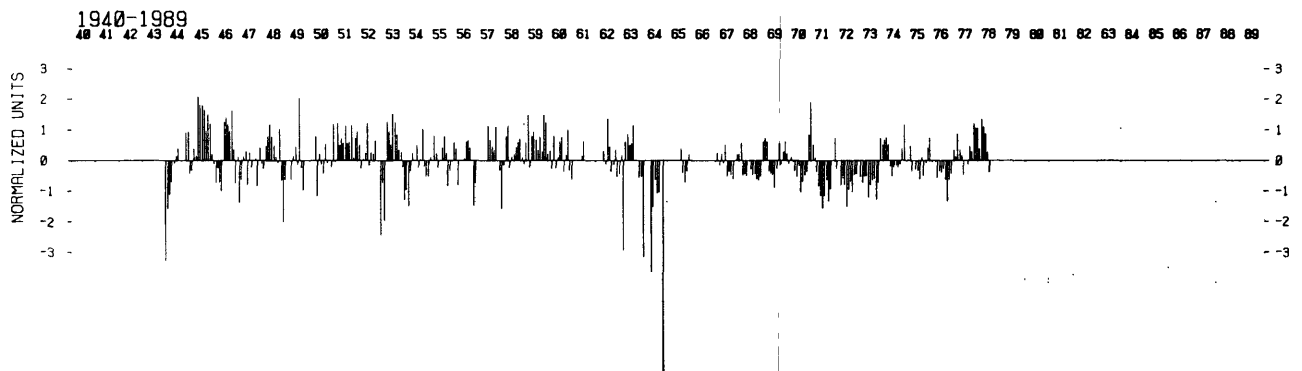
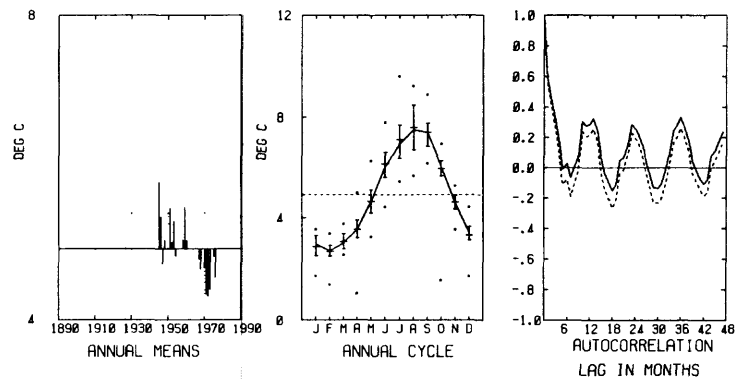


Figure 232. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Adak, AK, 1943-1978.

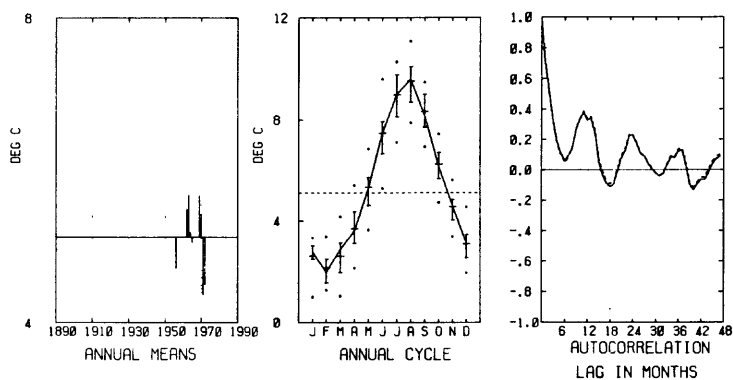
SEA SURF TEMP UNALASKA ALASKA

UNITS ARE DEG C

1955-1982

8/78 TO 8/82 DATA SUPPLIED FROM
DOUGLAS MCCLAIN, NOAA

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

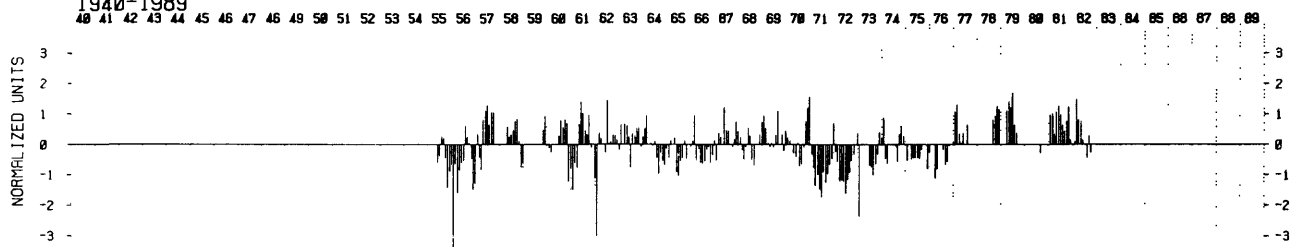


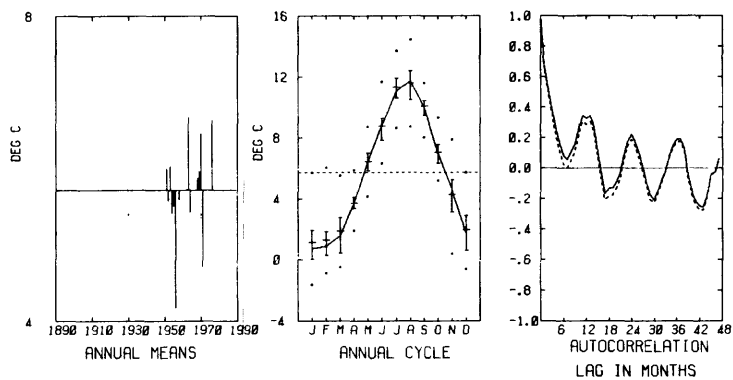
Figure 233. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Unalaska, AK, 1955-1982.

SEA SURF TEMP KODIAK ALASKA

UNITS ARE DEG C

1950-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

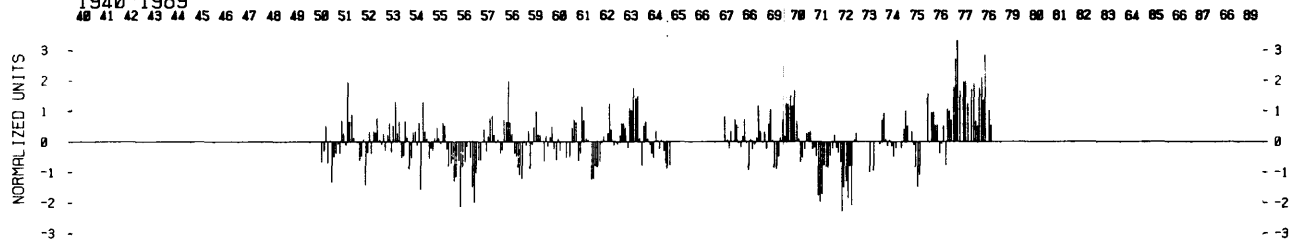


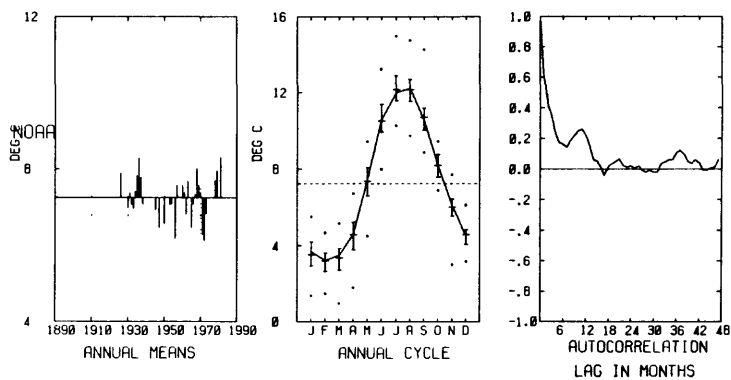
Figure 234. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Kodiak, AK, 1950-1978.

SEA SURF TEMP SEWARD ALASKA

UNITS ARE DEG C

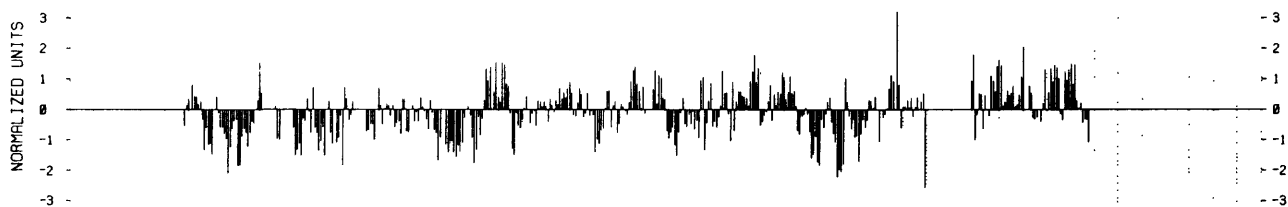
1925-1982

DATA FROM 8/78 TO 8/82 SUPPLIED BY DOUG MCLAIN,
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

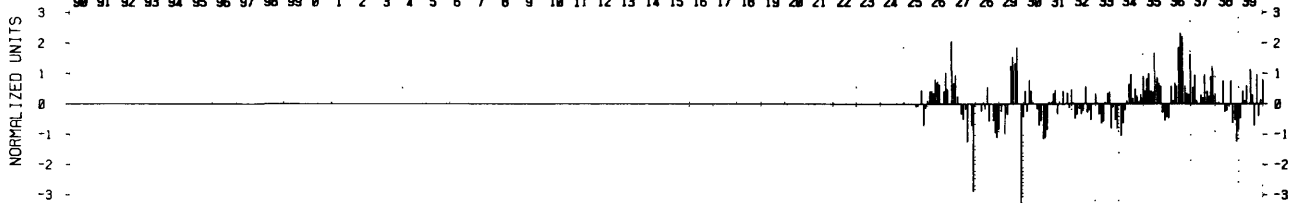


Figure 235. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Seward, AK, 1925-1982.

SEA SURF TEMP YAKUTAT ALASKA

UNITS ARE DEG C

1940-1983

DATA FROM 8/78 TO 1/83 SUPPLIED BY DOUG MCLAIN,
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

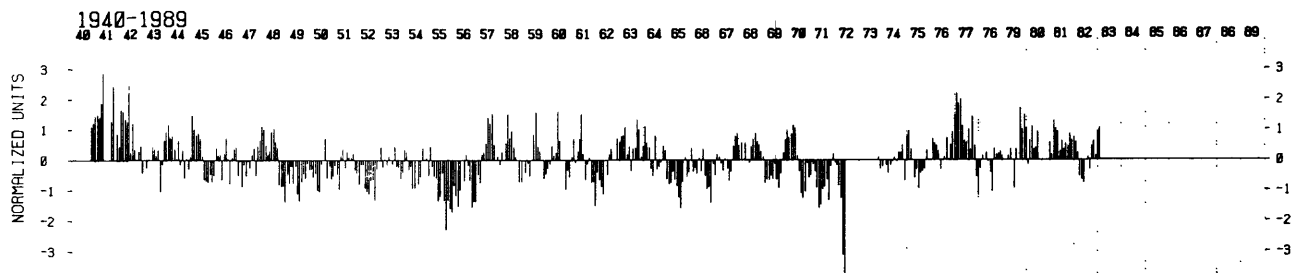
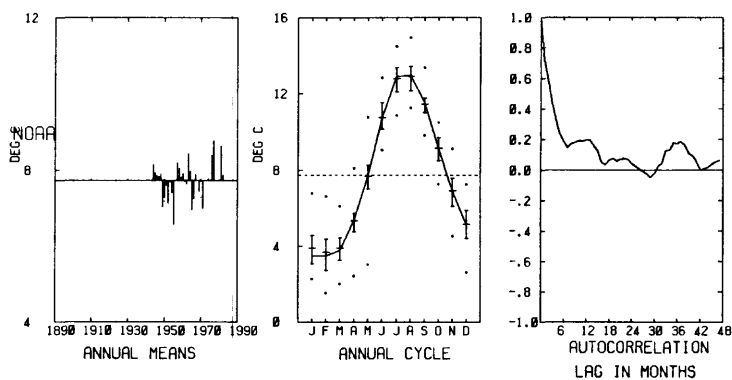


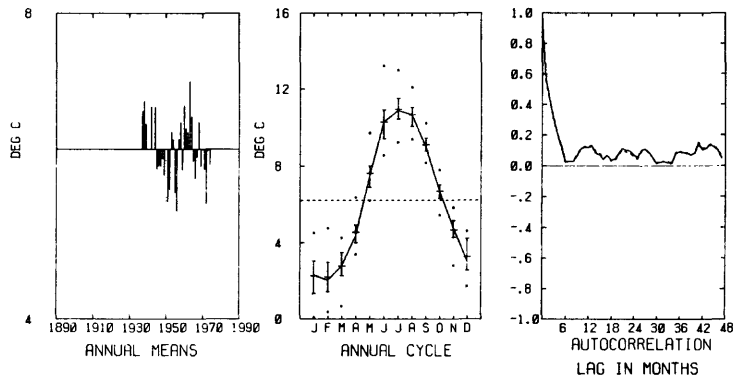
Figure 236. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Yakutat, AK, 1940-1983.

SEA SURF TEMP JUNEAU ALASKA

UNITS ARE DEG C

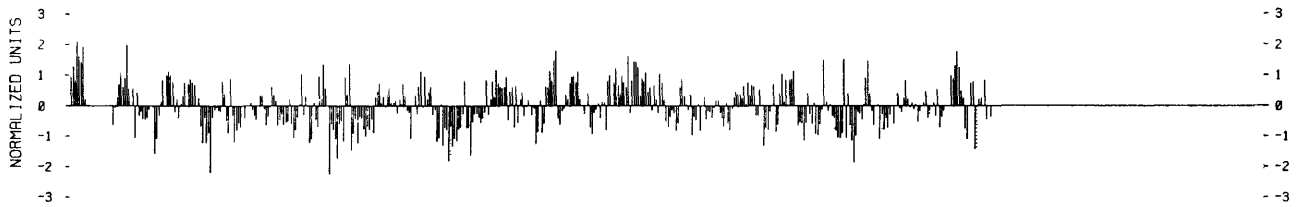
1936-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

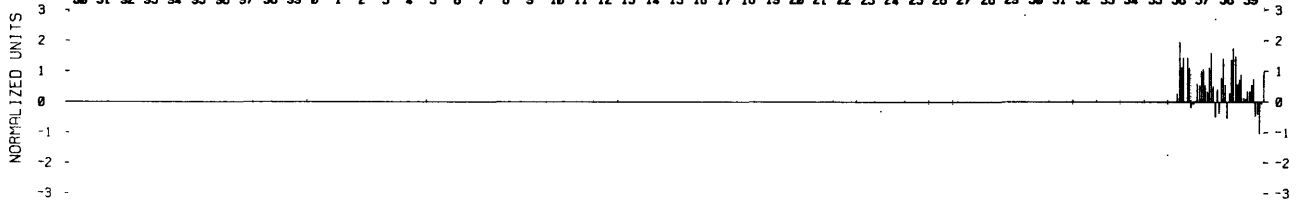


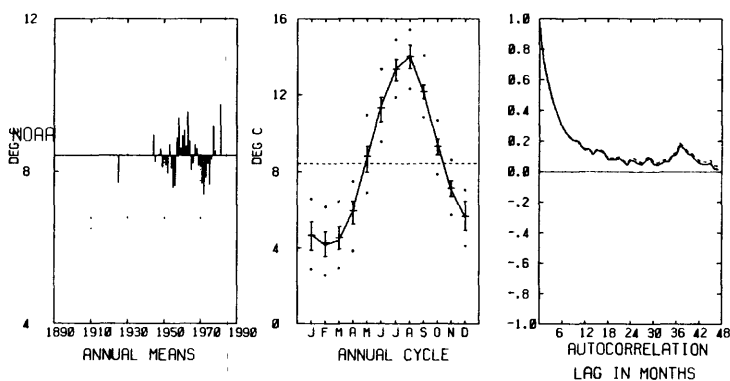
Figure 237. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Juneau, AK, 1936-1978.

SEA SURF TEMP SITKA ALASKA

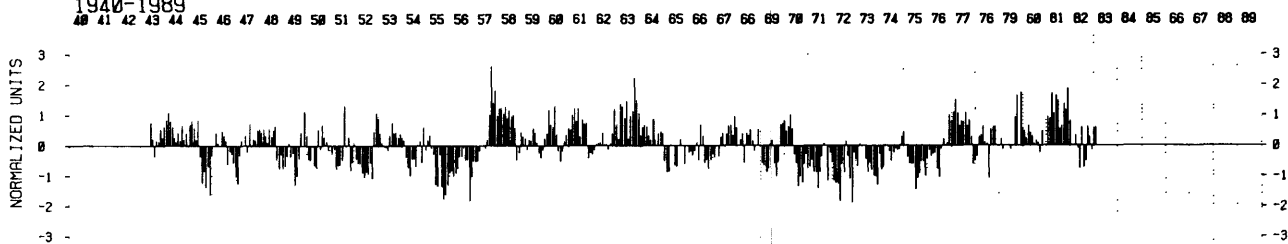
UNITS ARE DEG C

1924-1983

DATA FROM 8/78 TO 1/83 SUPPLIED BY DOUG MCLAIN,
SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

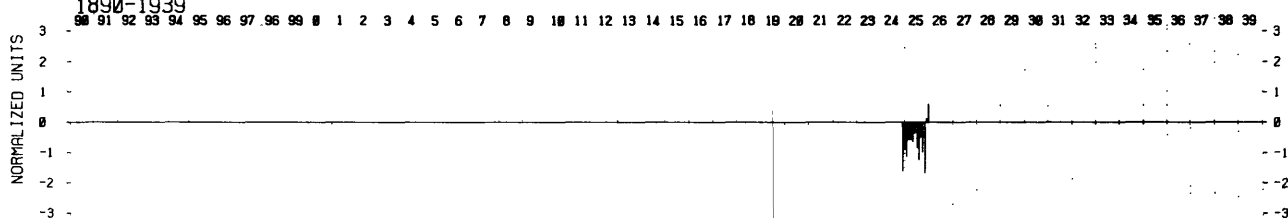


Figure 238. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Sitka, AK, 1924-1983.

SEA SURF TEMP STATION P

UNITS ARE DEG C

1950-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA

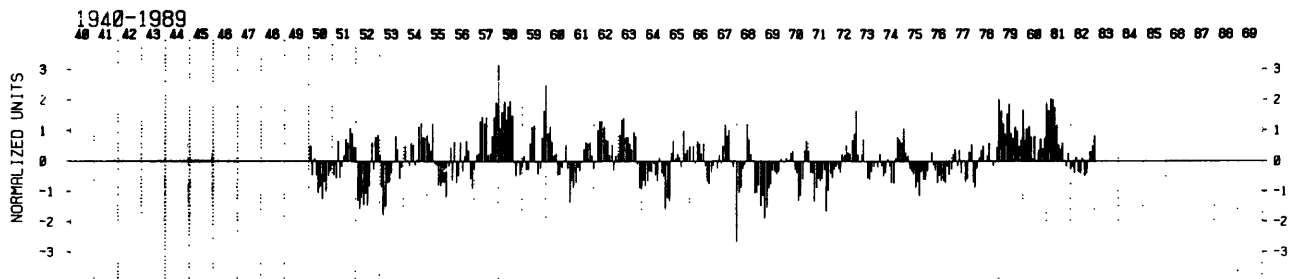
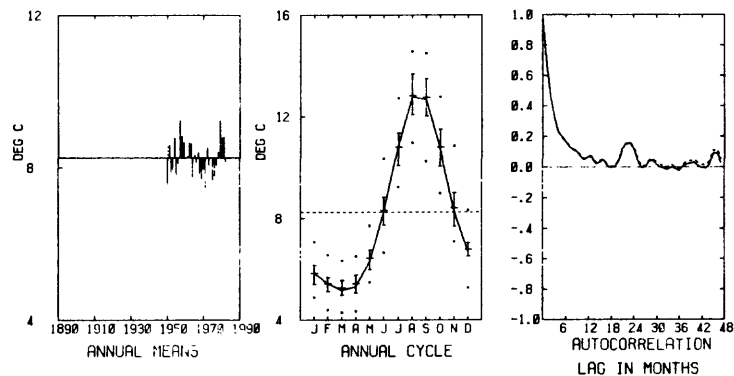


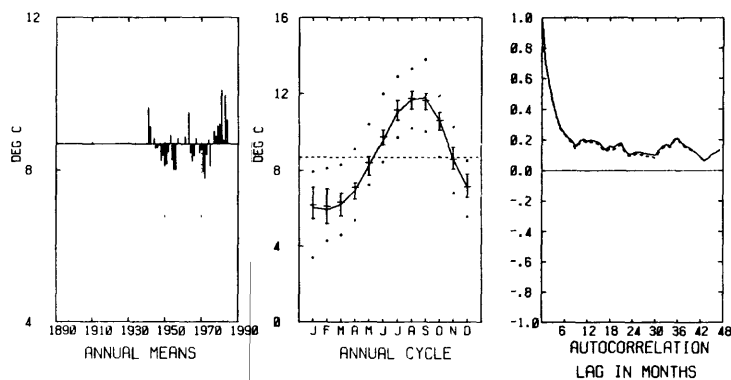
Figure 239. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Weather Ship P, 1950-1982.

SEA SURF TEMP LANGARA ISLAND BC CANADA

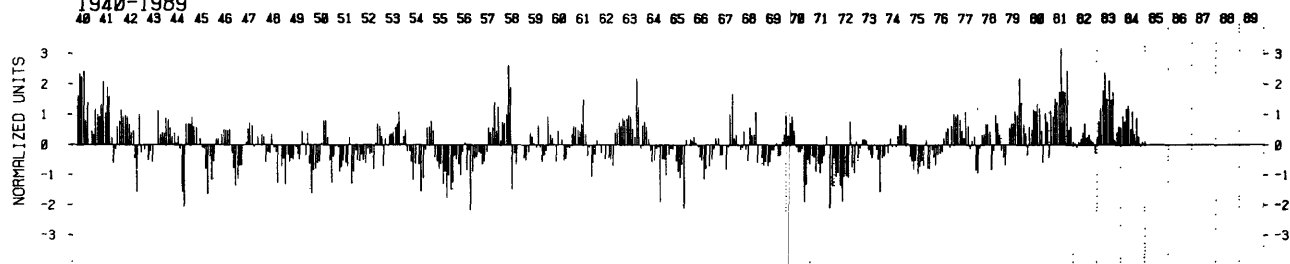
UNITS ARE DEG C

1936-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

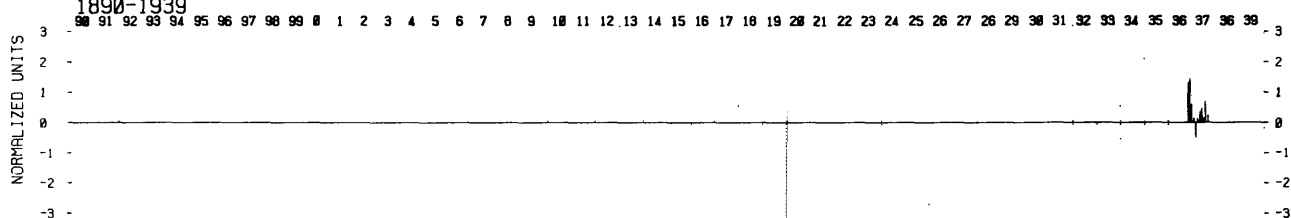


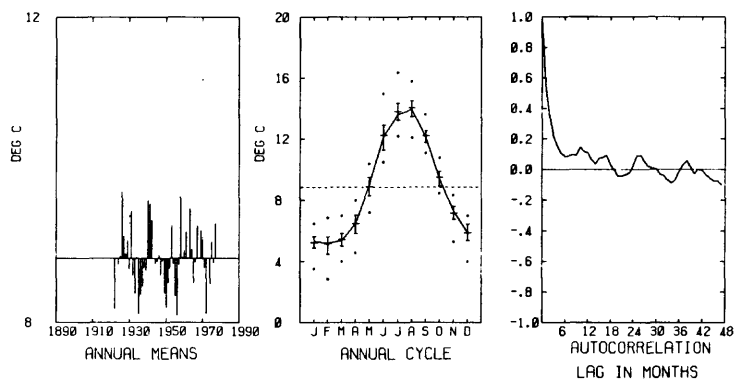
Figure 240. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Langara Island, CAN, 1936-1984.

SEA SURF TEMP KETCHIKAN ALASKA

UNITS ARE DEG C

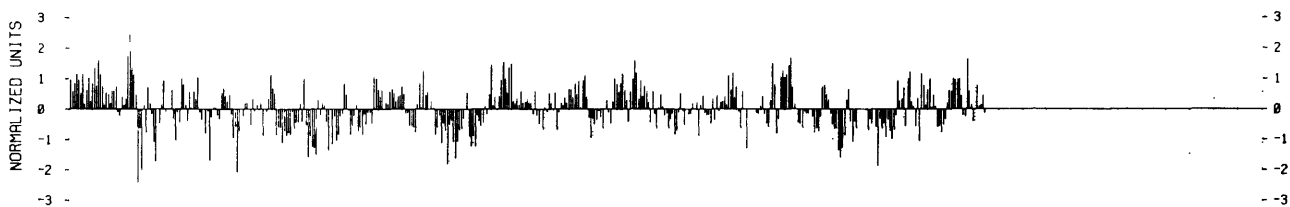
1921-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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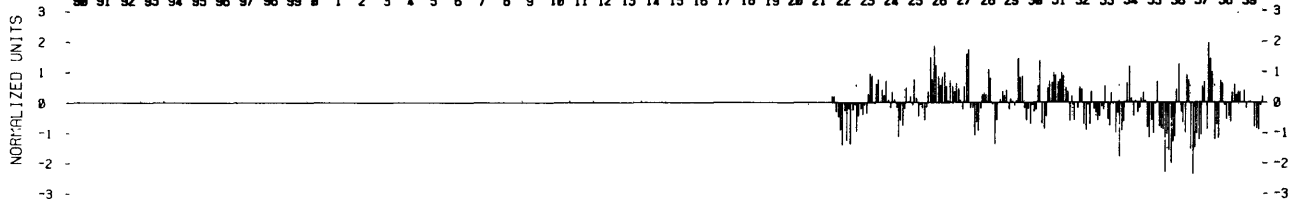


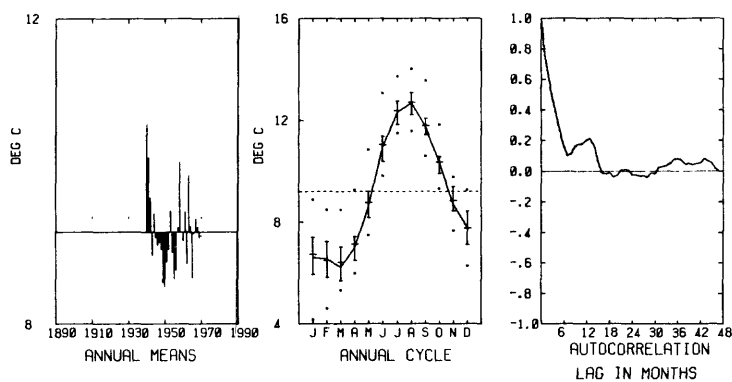
Figure 241. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Ketchikan, AK, 1921-1978.

SEA SURF TEMP TRIPLE ISLAND BC CANADA

UNITS ARE DEG C

1940-1970

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

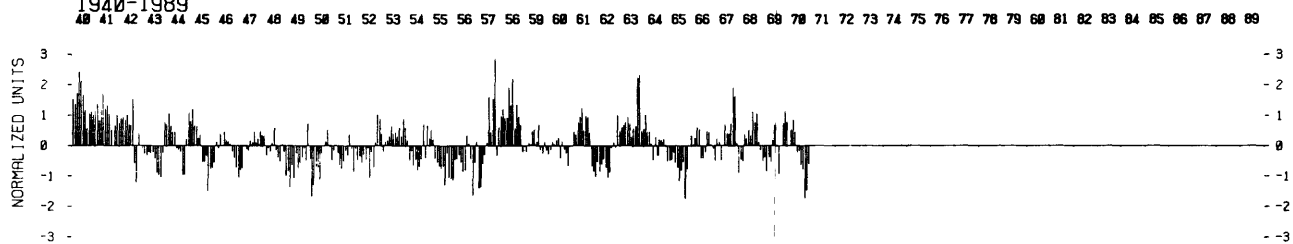


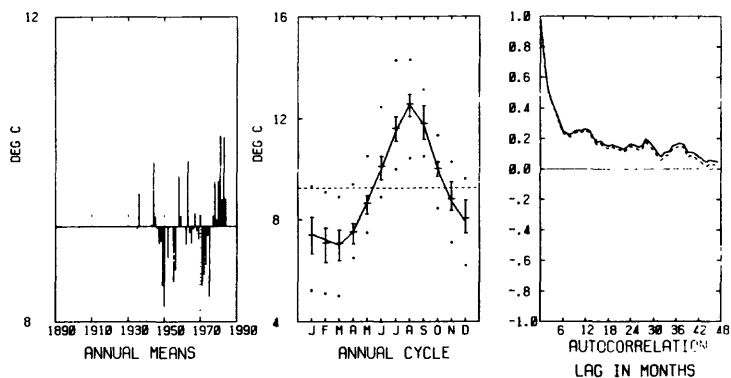
Figure 242. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Triple Island, CAN, 1940-1970.

SEA SURF TEMP CAPE ST JAMES BC CANADA

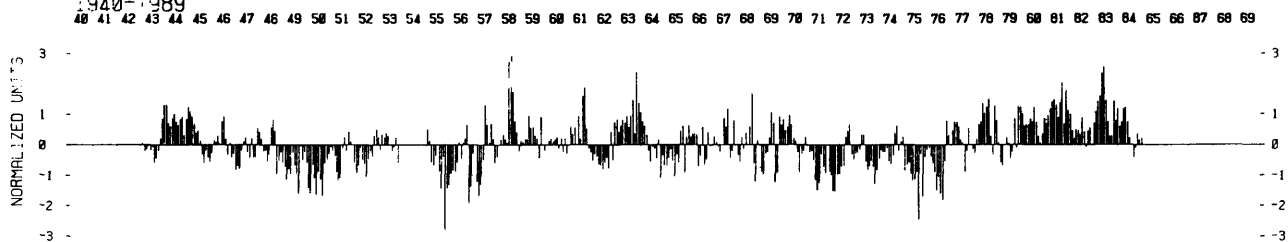
UNITS ARE DEG C

1934-1984

SUS TABATA, INST OF OCEAN SCI, PO 8X 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

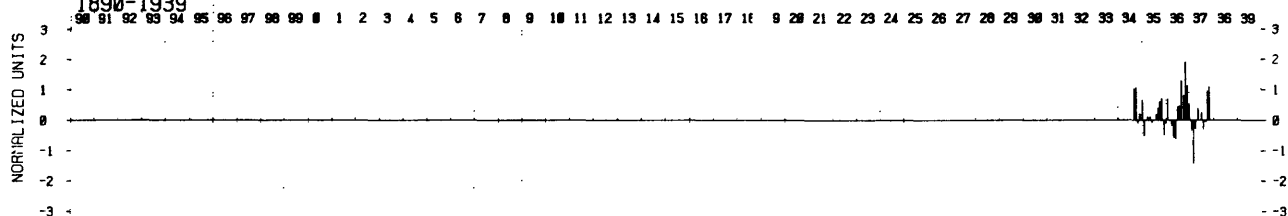


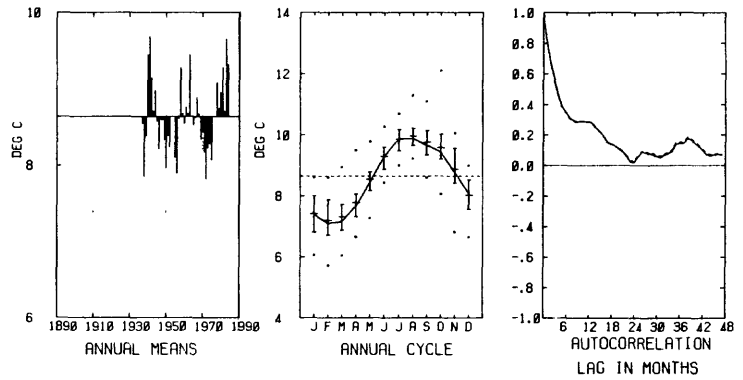
Figure 243. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Cape St. James, CAN, 1934-1984.

SEA SURF TEMP PINE ISLAND BC CANADA

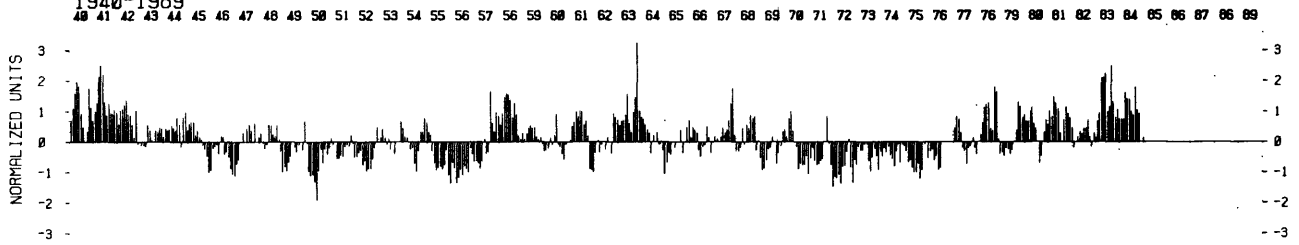
UNITS ARE DEG C

1937-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

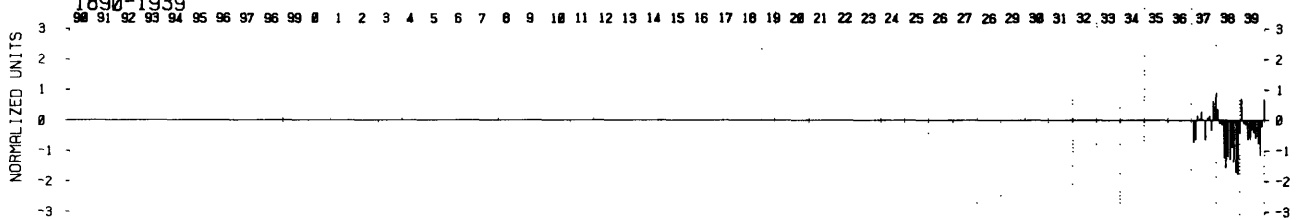


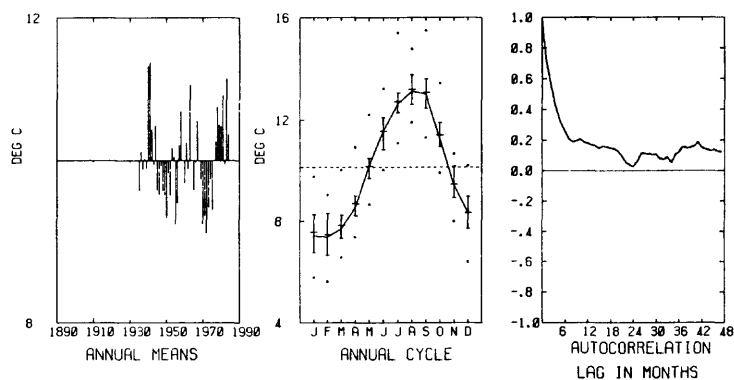
Figure 244. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Pine Island, CAN, 1937-1984.

SEA SURF TEMP KAINS ISLAND BC CANADA

UNITS ARE DEG C

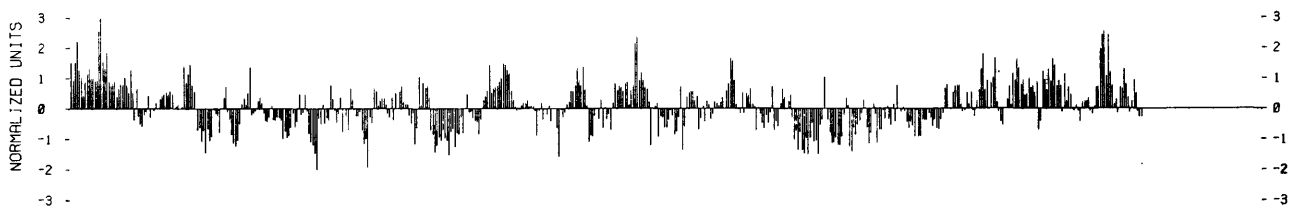
1935-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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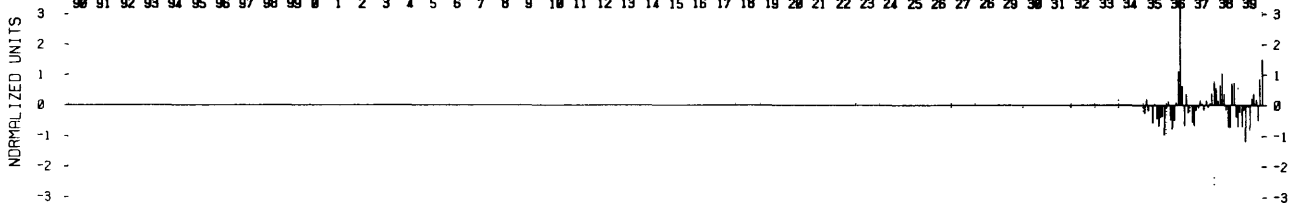


Figure 245. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Kains Island, CAN, 1935-1984.

SEA SURF TEMP CAPE MUDGE BC CANADA

UNITS ARE DEG C

1937-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

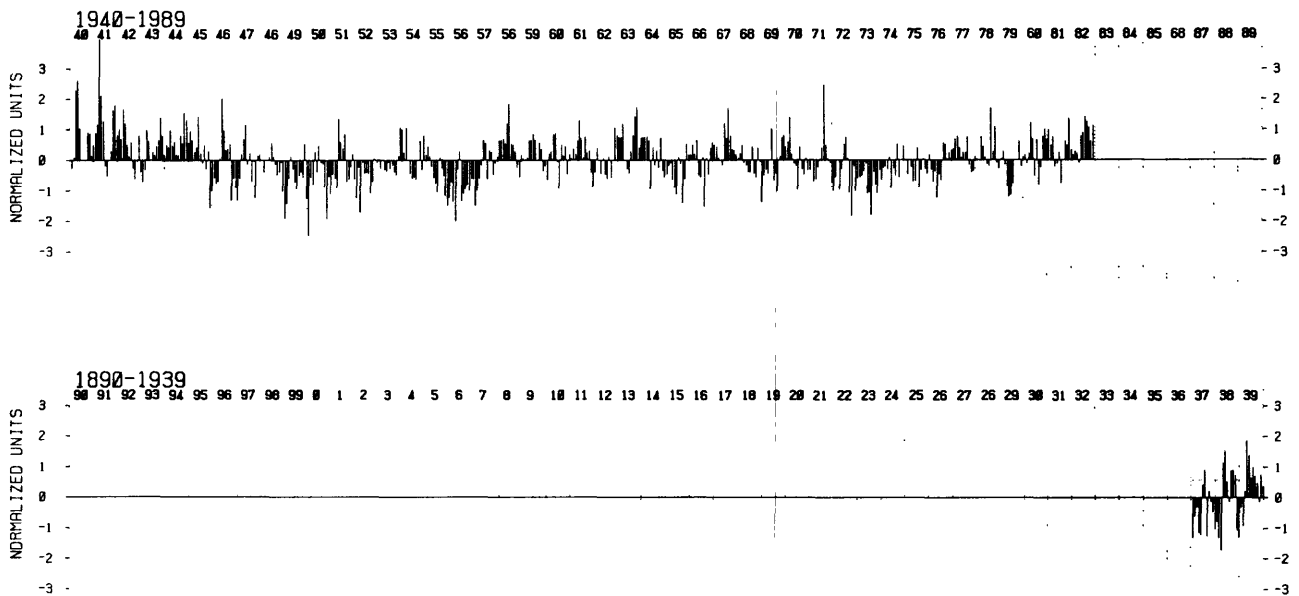
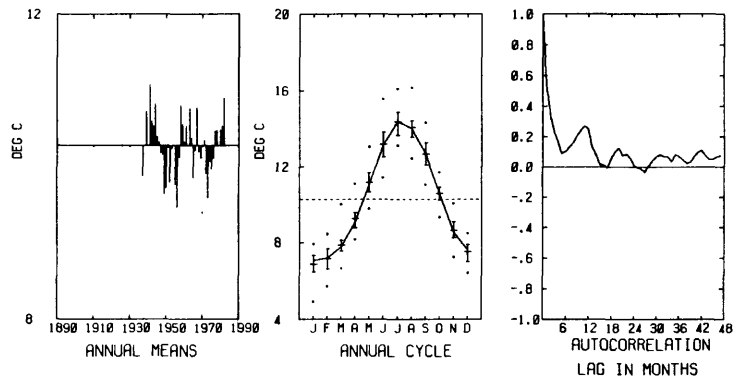


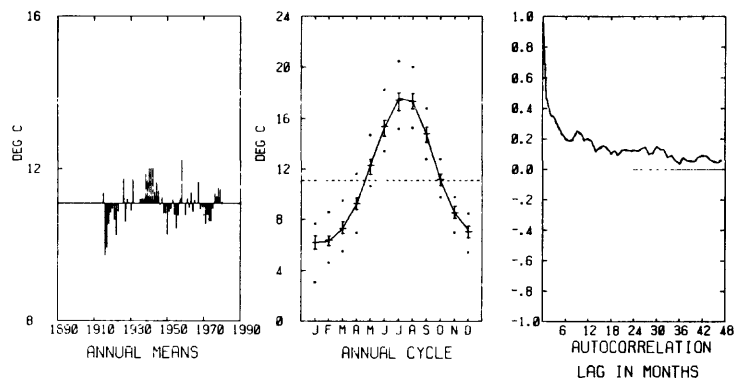
Figure 246. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Cape Mudge, CAN, 1937-1982.

SEA SURF TEMP DEPARTURE BAY BC CANADA

UNITS ARE DEG C

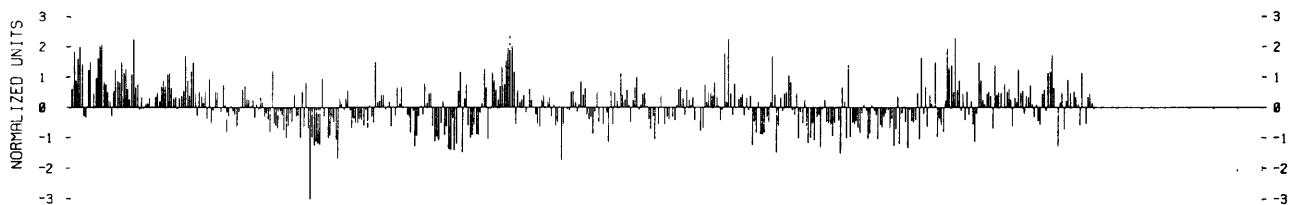
1915-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

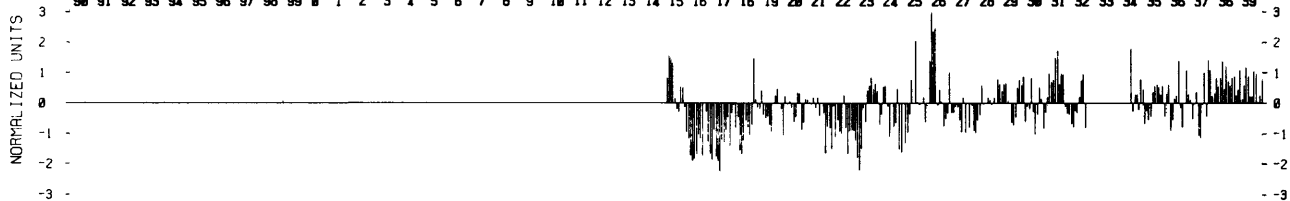


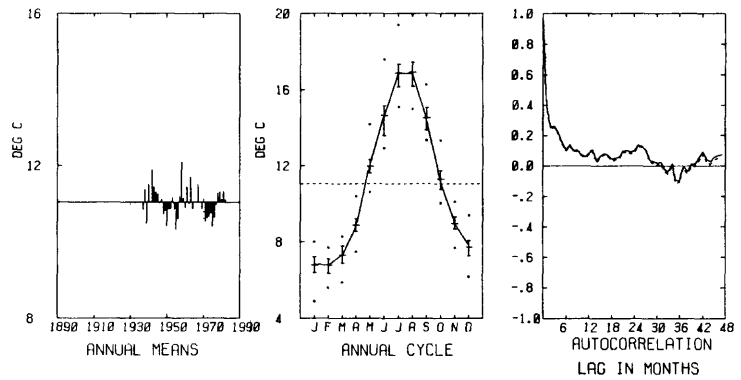
Figure 247. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Departure Bay, CAN, 1915-1982.

SEA SURF TEMP ENTRANCE ISLAND BC CANADA

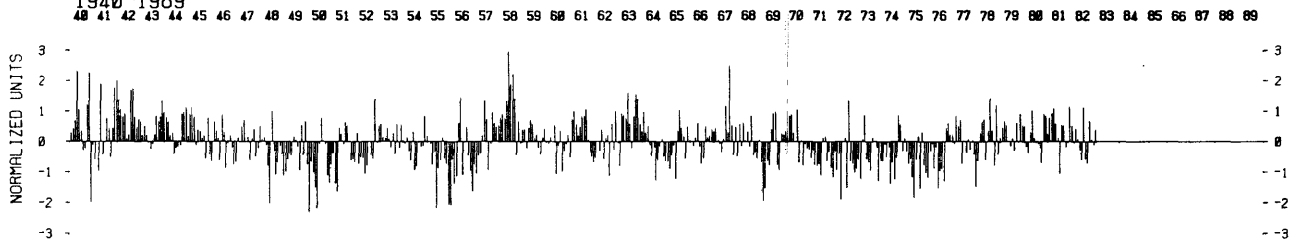
UNITS ARE DEG C

1936-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

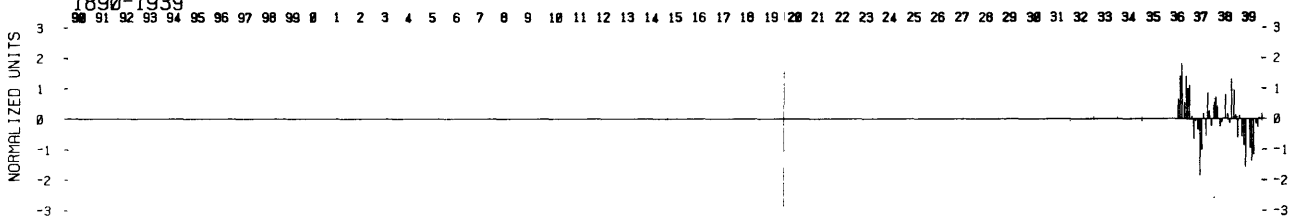


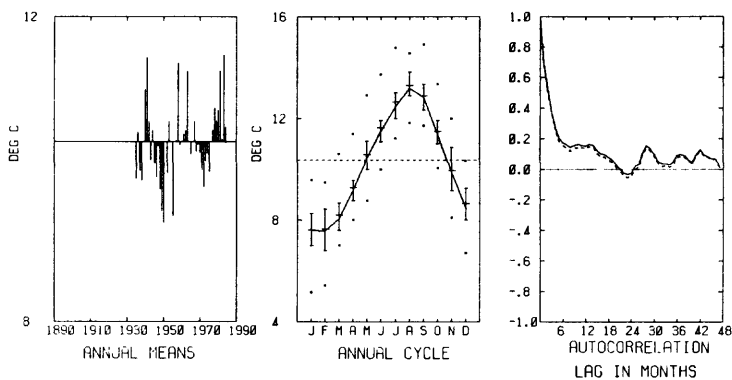
Figure 248. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Entrance Island, CAN, 1936-1982.

SEA SURF TEMP AMPHITRITE POINT BC CANADA

UNITS ARE DEG C

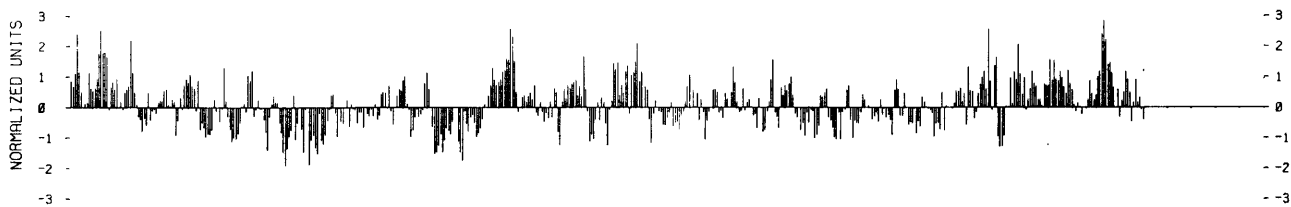
1934-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

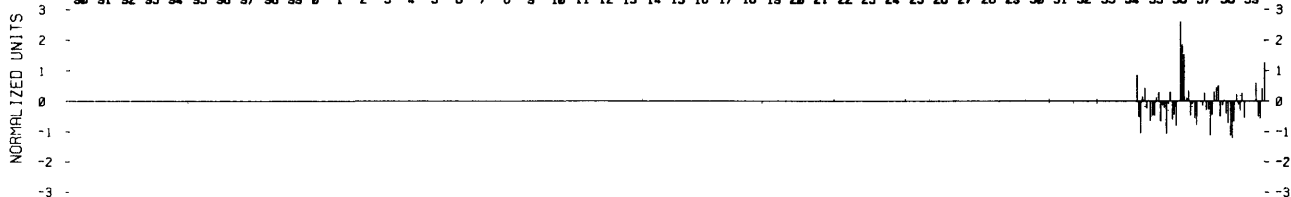


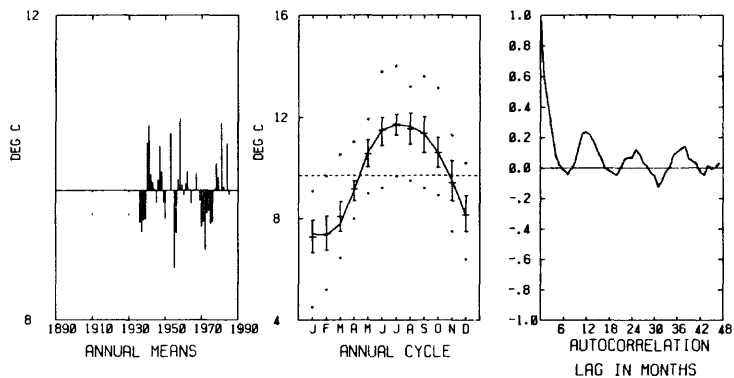
Figure 249. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Amphitrite Point, CAN, 1934-1984.

SEA SURF TEMP NEAH BAY WASHINGTON

UNITS ARE DEG C

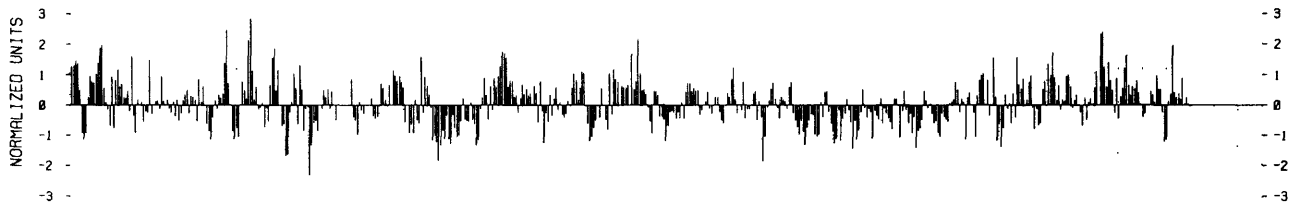
1935-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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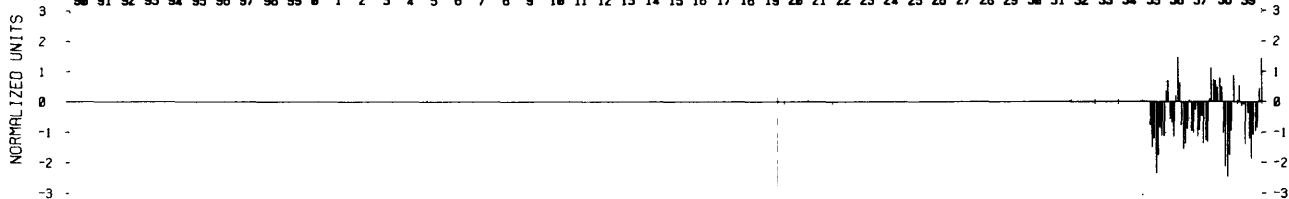


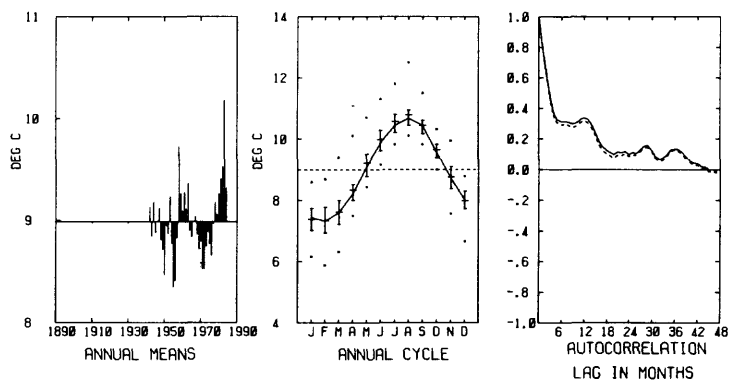
Figure 250. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Neah Bay, WA, 1935-1986.

SEA SURF TEMP RACE ROCKS BC CANADA

UNITS ARE DEG C

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

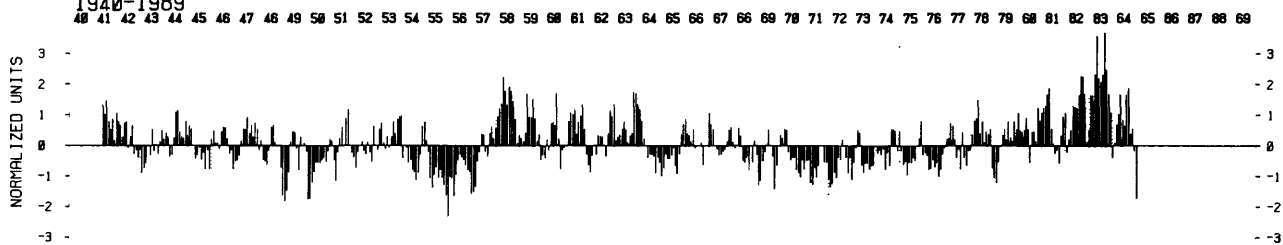


Figure 251. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Race Rocks, CAN, 1941-1984.

SEA SURF TEMP SEATTLE WASHINGTON

UNITS ARE DEG C

1922-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

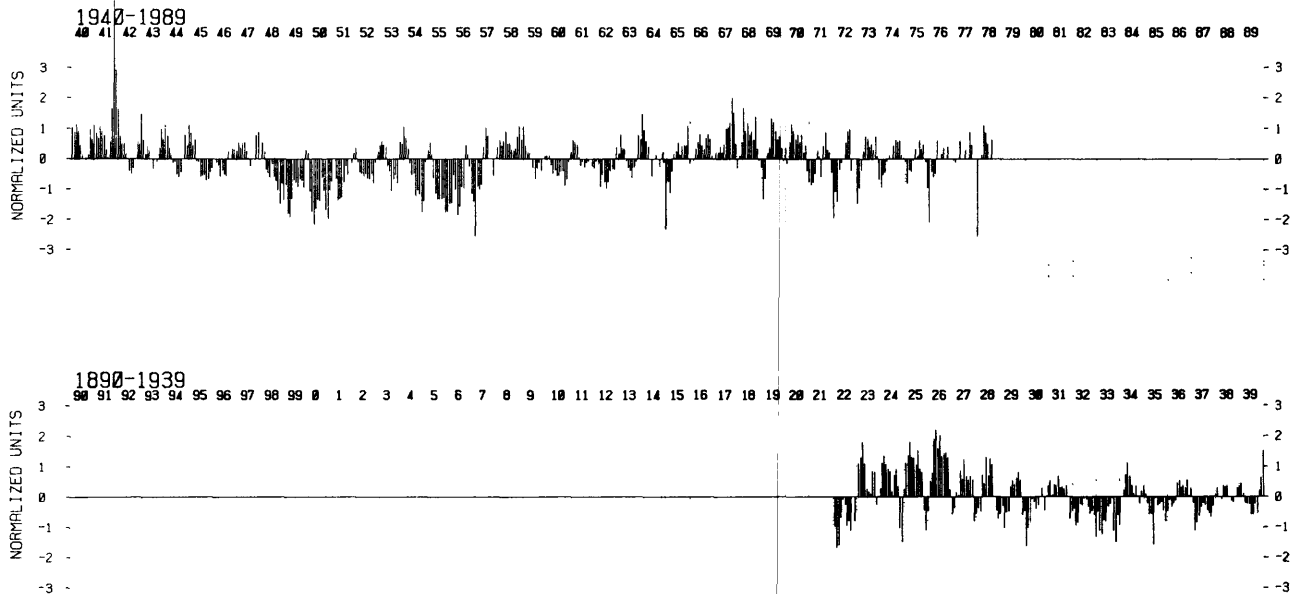
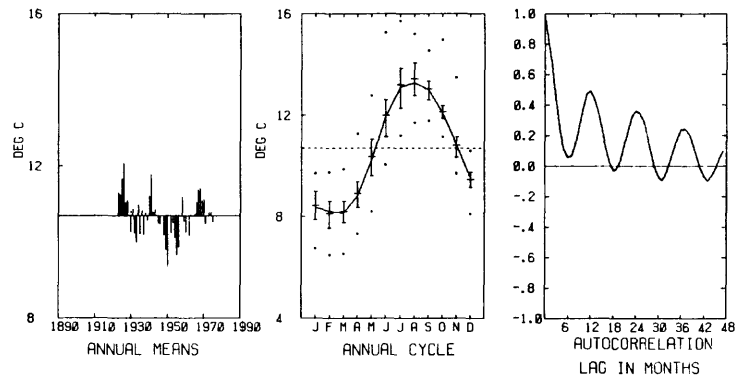


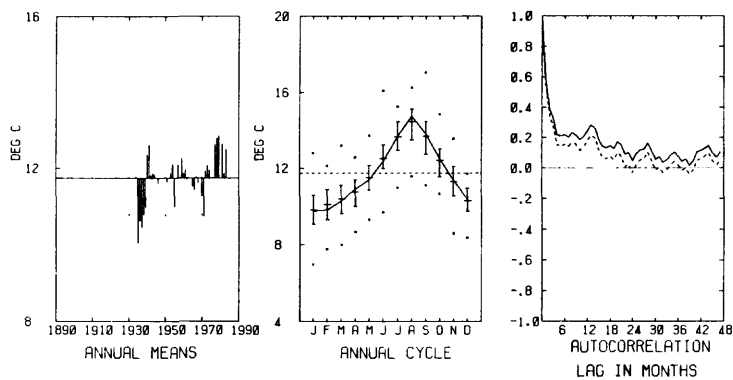
Figure 252. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Seattle, WA, 1922-1978.

SEA SURF TEMP CRESCENT CITY CALIFORNIA

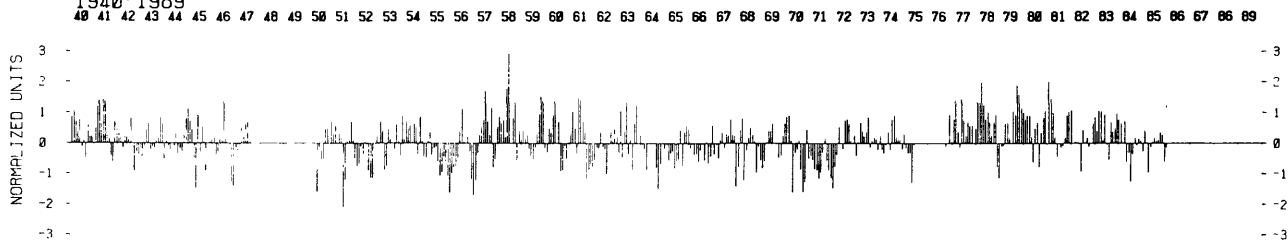
UNITS ARE DEG C

1933-1985

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093



1940-1989



1890-1939

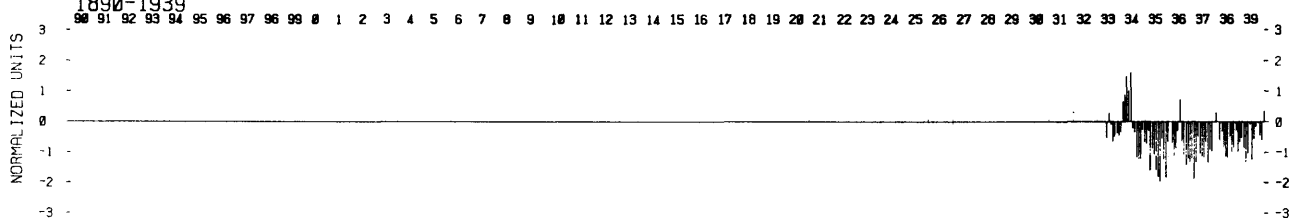


Figure 253. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Crescent City, CA, 1933-1985.

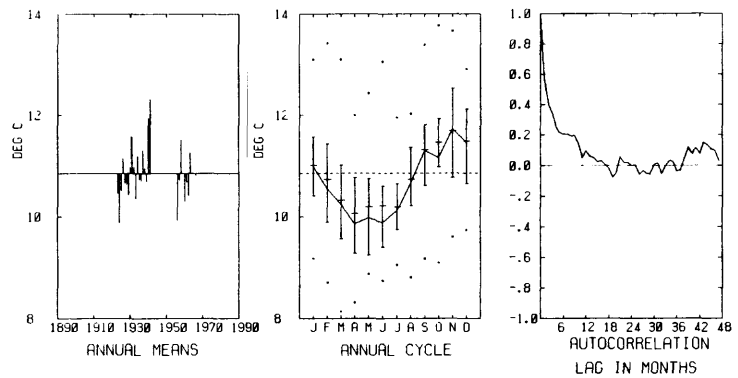
SEA SURF TEMP BLUNTS REEF LIGHTSHIP CALIFORNIA

UNITS ARE DEG C

1922-1971

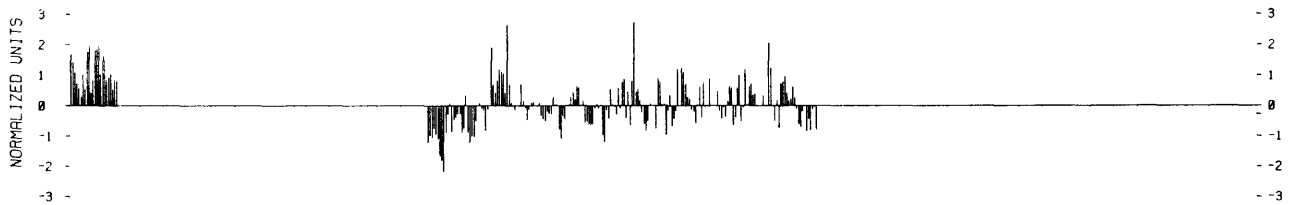
NEAR CAPE MENDOCCINO

ARNOLD MANTYLA, SCRIPPS INST OF OC
R-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

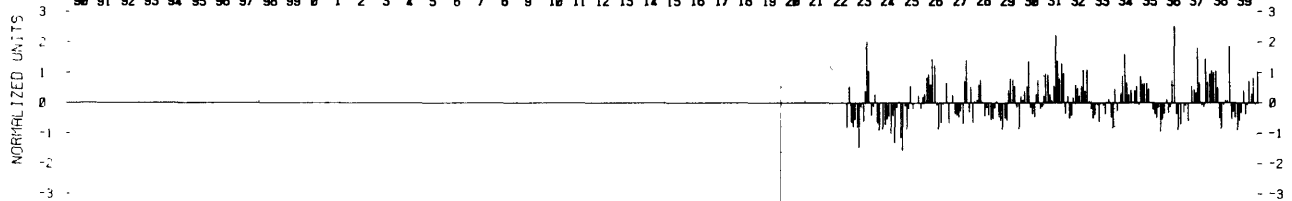


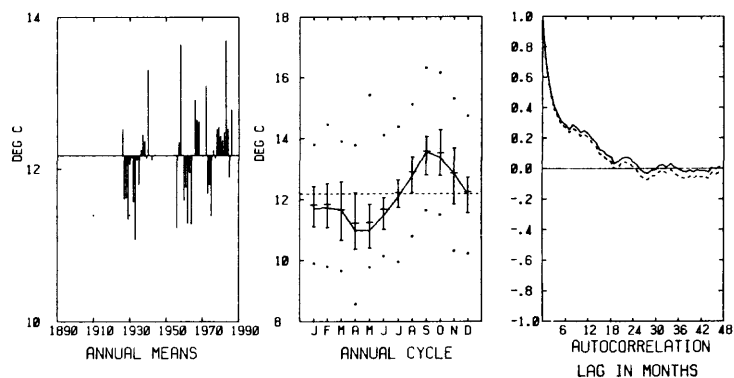
Figure 254. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Blunts Reef Lightship, CA, 1922-1971.

SEA SURF TEMP FARALLON CALIFORNIA

UNITS ARE DEG C

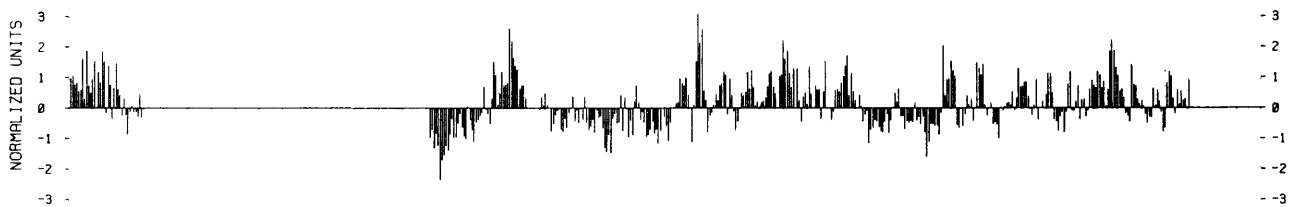
1925-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
R-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

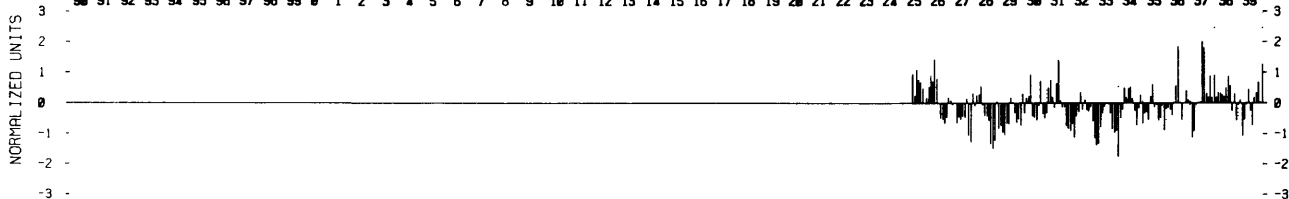


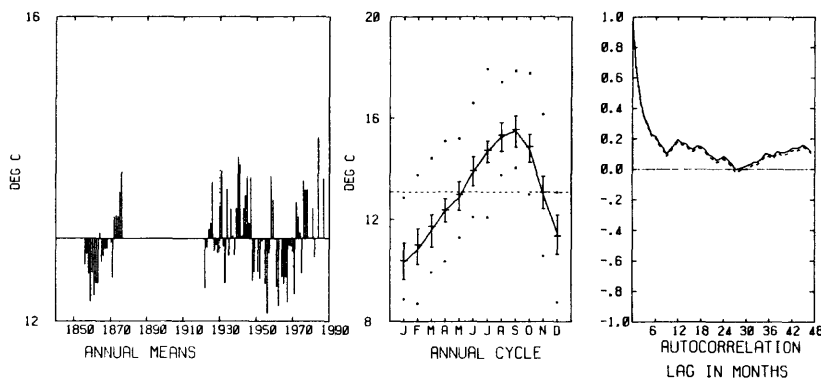
Figure 255. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Farallon Islands, CA, 1925-1986.

SEA SURF TEMP SAN FRANCISCO CALIFORNIA

UNITS ARE DEG C

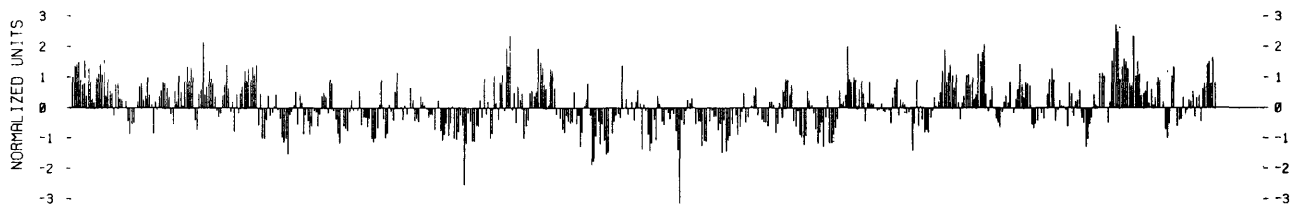
1855-1987

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CALIFORNIA 94025



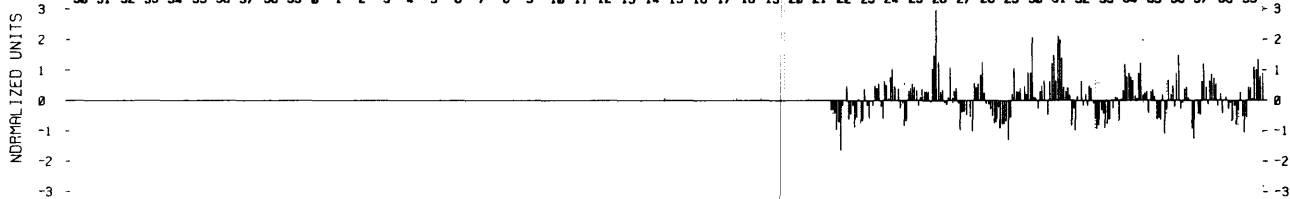
1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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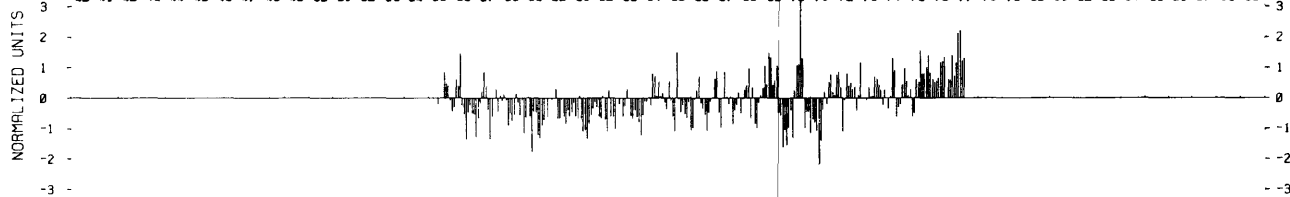


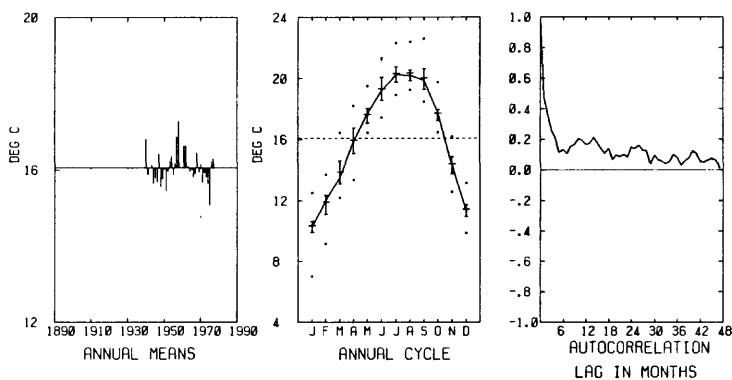
Figure 256. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at San Francisco, CA, 1855-1987.

SEA SURF TEMP ALAMEDA CALIFORNIA

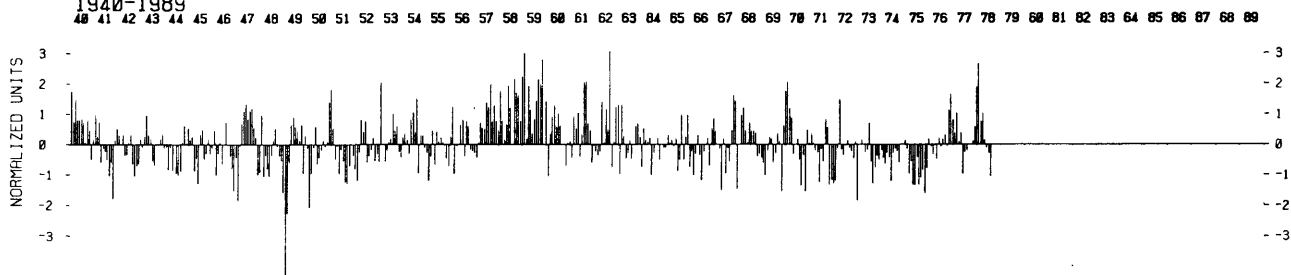
UNITS ARE DEG C

1939-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

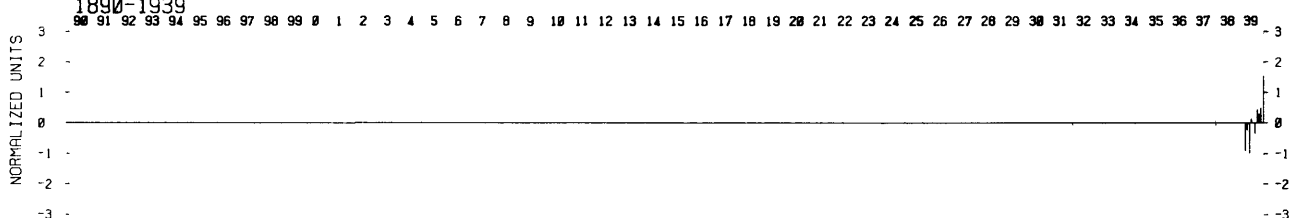


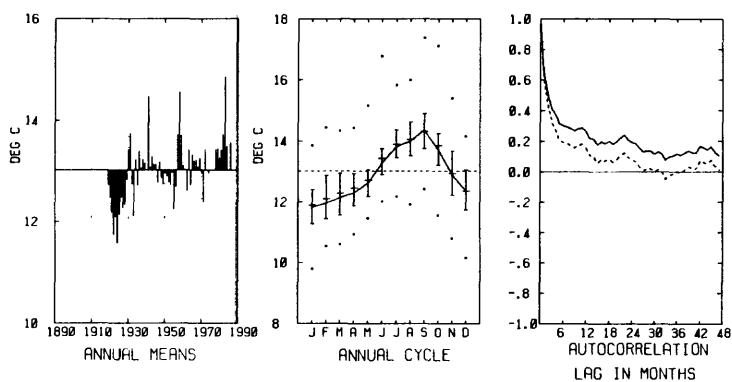
Figure 257. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Alameda, CA, 1939-1978.

SEA SURF TEMP PACIFIC GROVE CALIFORNIA

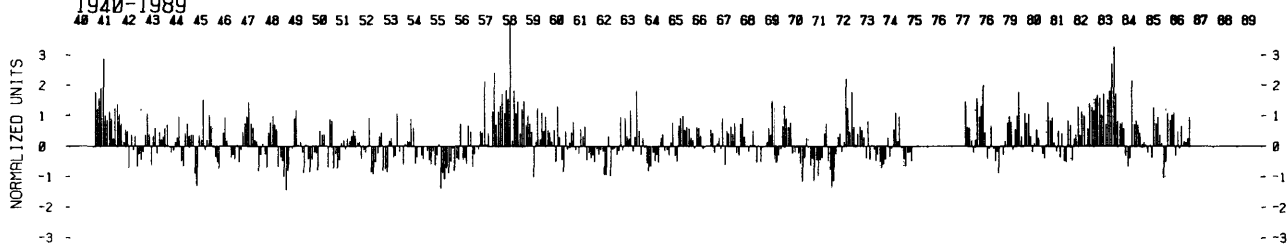
UNITS ARE DEG C

1919-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA, 92093



1940-1989



1890-1939

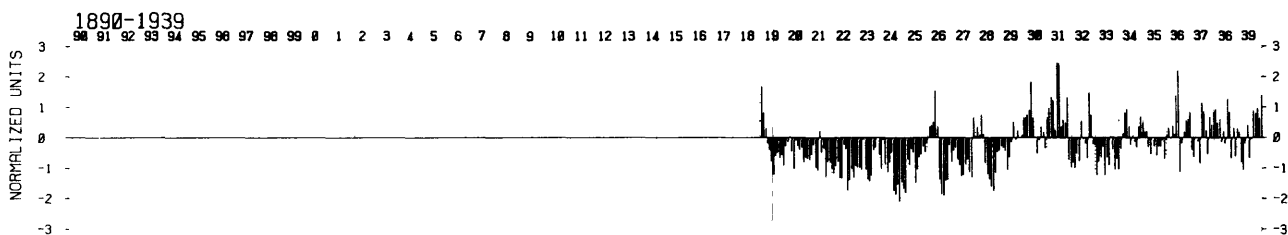


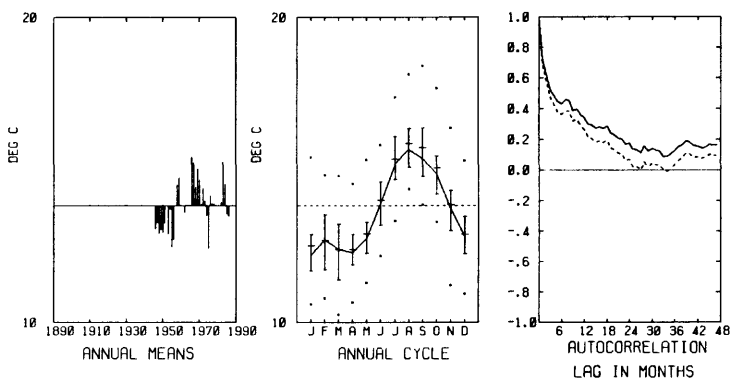
Figure 258. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Pacific Grove, CA, 1919-1986.

SEA SURF TEMP AVILA/PT SAN LUIS CALIFORNIA

UNITS ARE DEG C

1945-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093



1940-1989

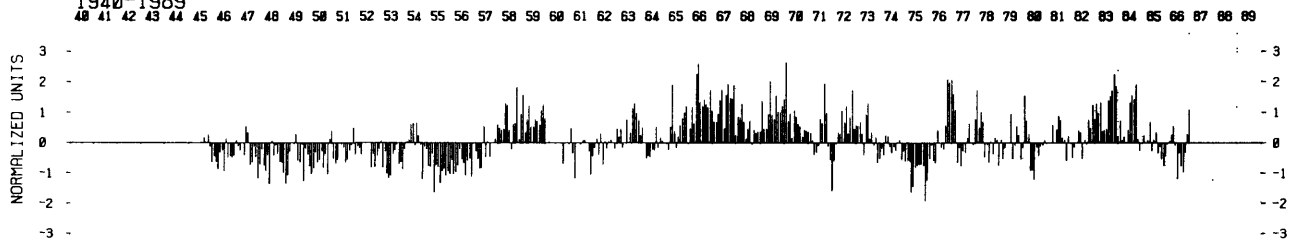


Figure 259. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Avila/Pt. San Luis, CA, 1945-1986.

SEA SURF TEMP WEATHER SHIP N

UNITS ARE DEG C

1954-1974

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

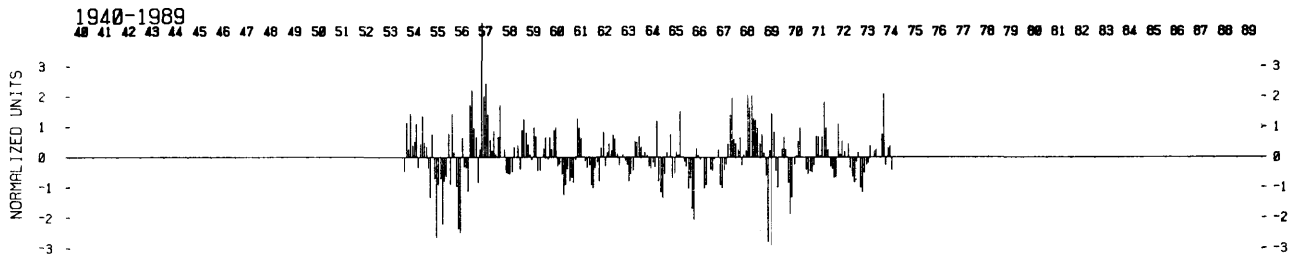
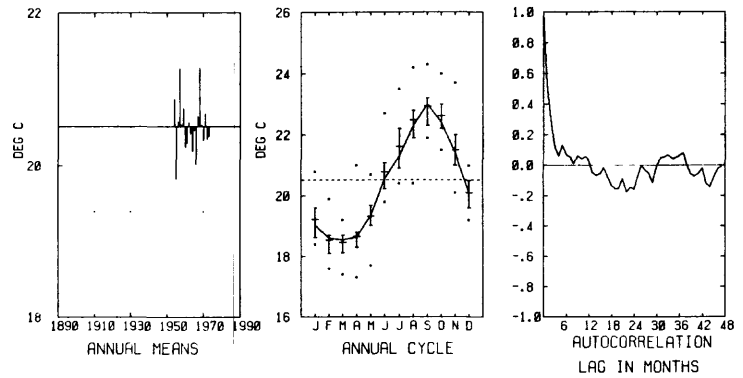


Figure 260. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Weather Ship N, 1954-1974.

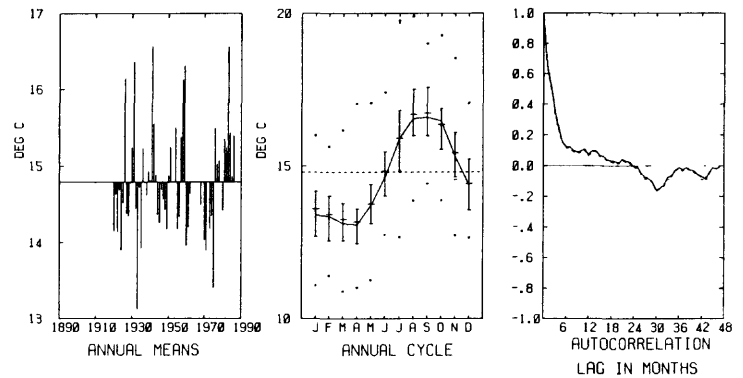
SEA SURF TEMP PORT HUENEME/PT MUGU, CALIFORNIA

UNITS ARE DEG C

1919-1986

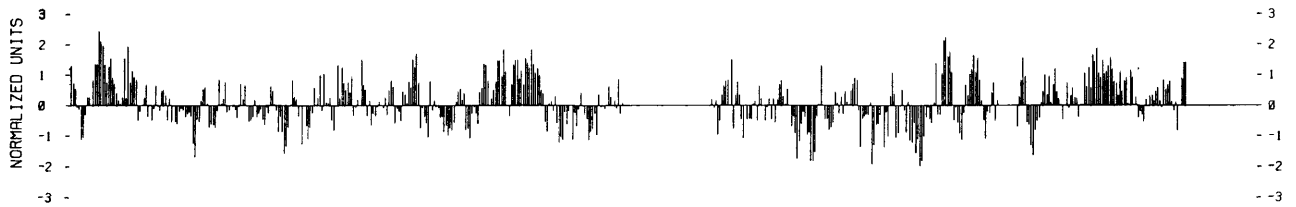
PT MUGU DATA STARTS IN 1967

ARNOLO MANTYLA, SCRIPPS INST OF OC
R-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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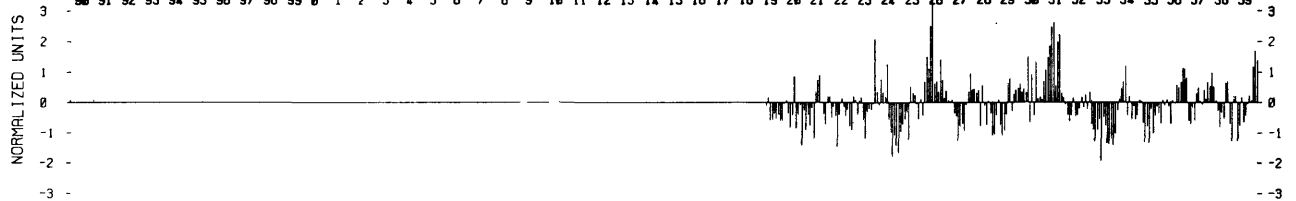


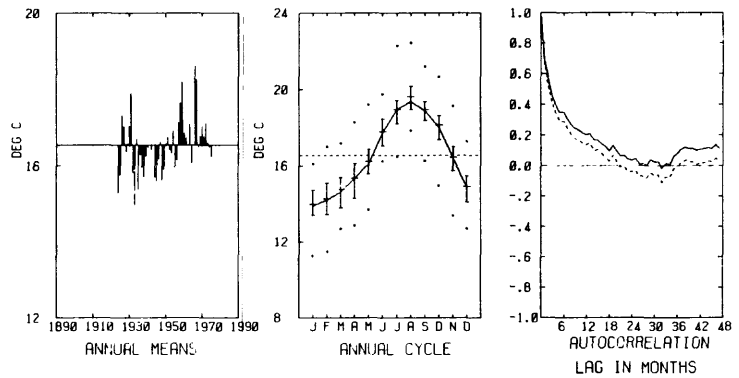
Figure 261. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Port Hueneme/Pt. Mugu, CA, 1919-1986.

SEA SURF TEMP LOS ANGELES CALIFORNIA

UNITS ARE DEG C

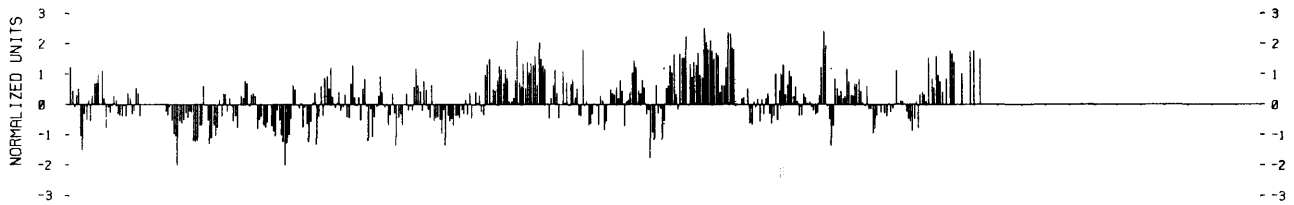
1923-1978

SUS TAPATH, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

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1890-1939

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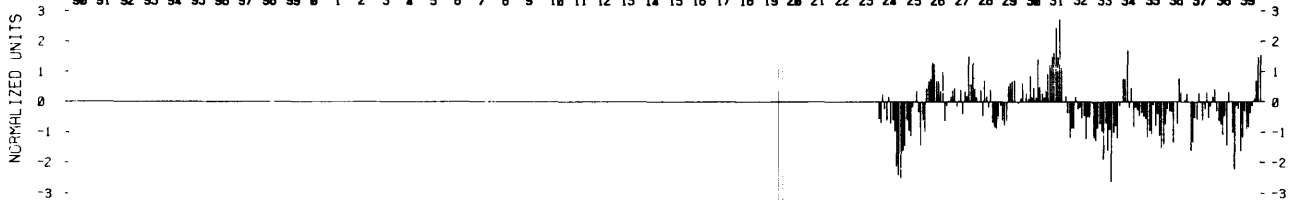


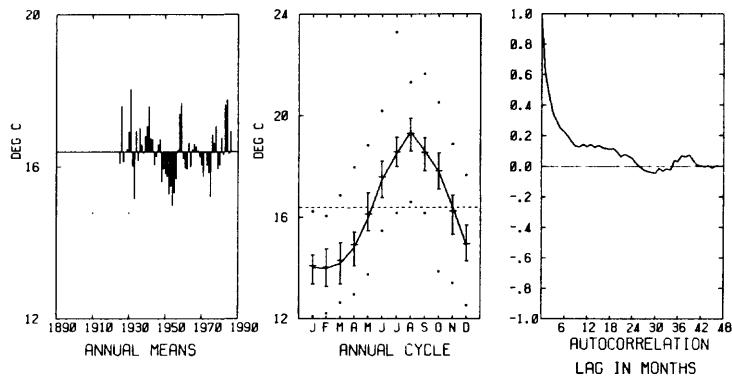
Figure 262. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Los Angeles, CA, 1923-1978.

SEA SURF TEMP BALBOA CA

UNITS ARE DEG C

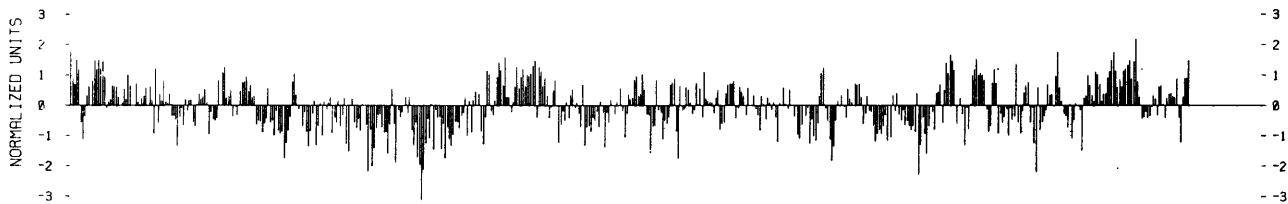
1924-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093
DATA TRANSFORMED BY LOGARITHM
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1940-1989

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1890-1939

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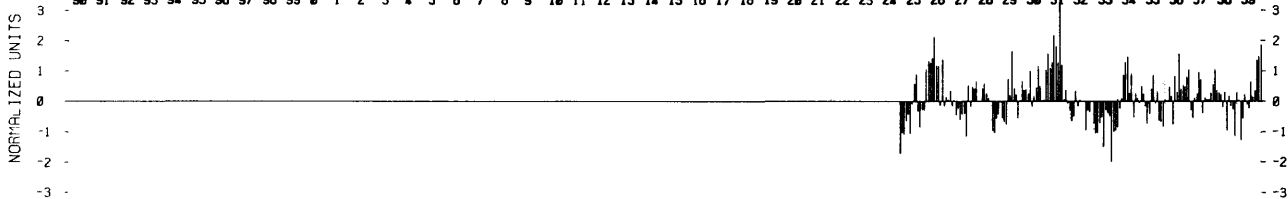


Figure 263. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Balboa, CA, 1924-1986.

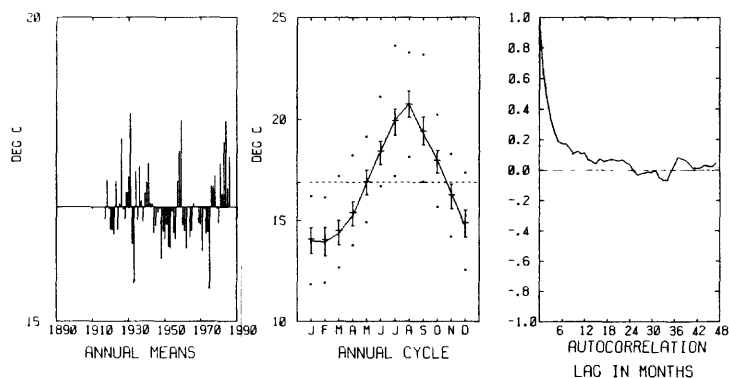
SEA SURF TEMP LA JOLLA CALIFORNIA

UNITS ARE DEG C

1916-1987

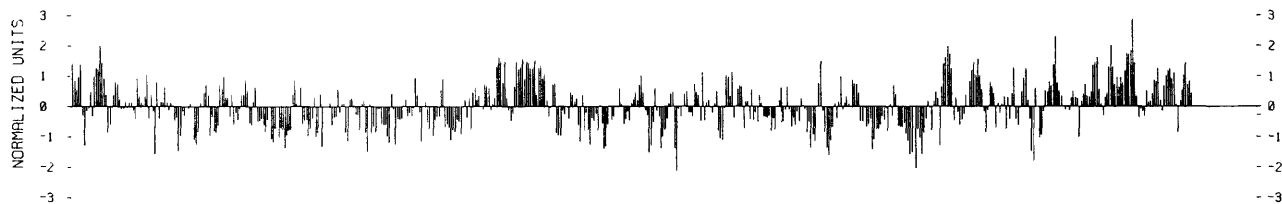
OBSERVATIONS TAKEN AT THE PIER AT
SCRIPPS INSTITUTION OF OCEANOGRAPHY

ARNOLD MANTYLA, SCRIPPS INST OF OC
R-030, LA JOLLA, CA 92093



1940-1989

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1890-1939

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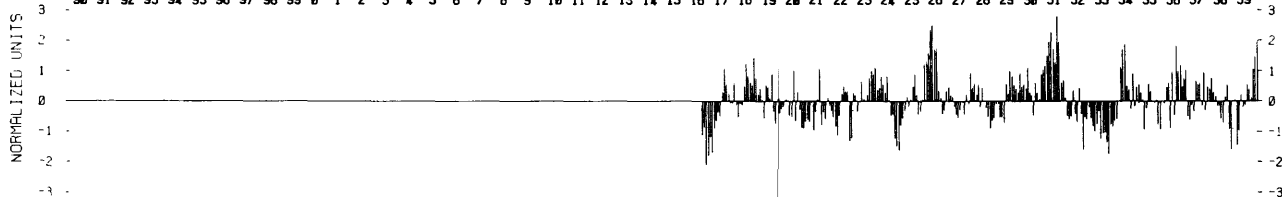


Figure 264. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at La Jolla, CA, 1916-1987.

SEA SURF TEMP HONOLULU HAWAII

UNITS ARE DEG C

1945-1978

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

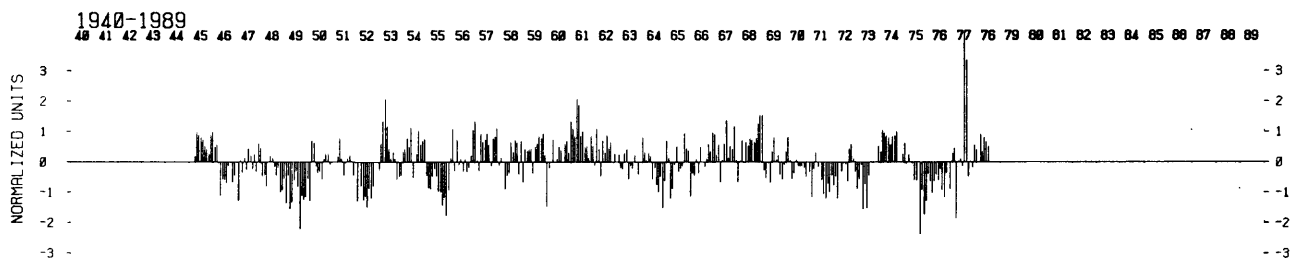
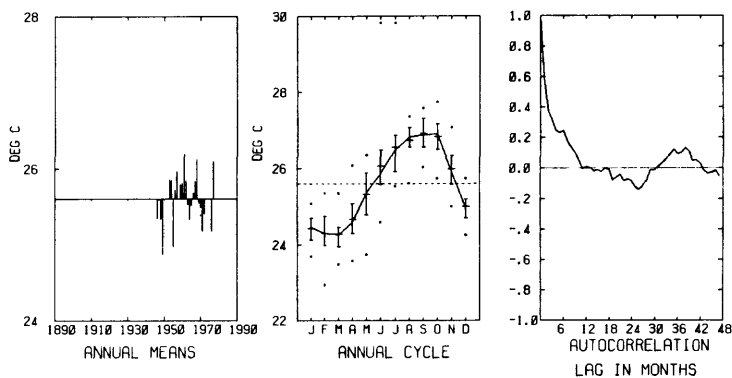


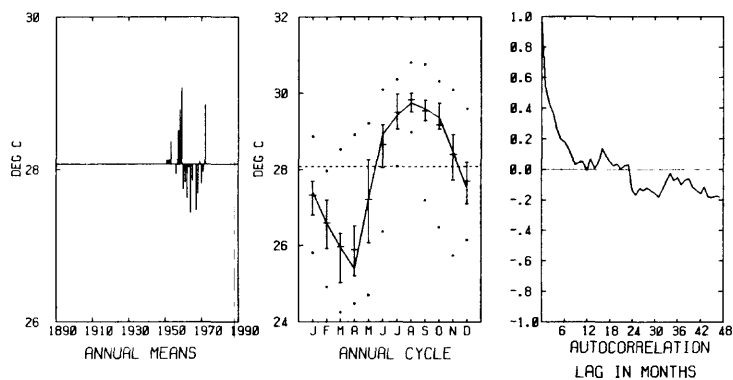
Figure 265. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Honolulu, HI, 1945-1978.

SEA SURF TEMP ACAPULCO MEXICO

UNITS ARE DEG C

1950-1972

DOUGLAS MCLAIN
NOAA, NOS. OCEAN APPLICATIONS GROUP
NPS, FNO, BLDG #4
MONTEREY, CA 93943



1940-1989

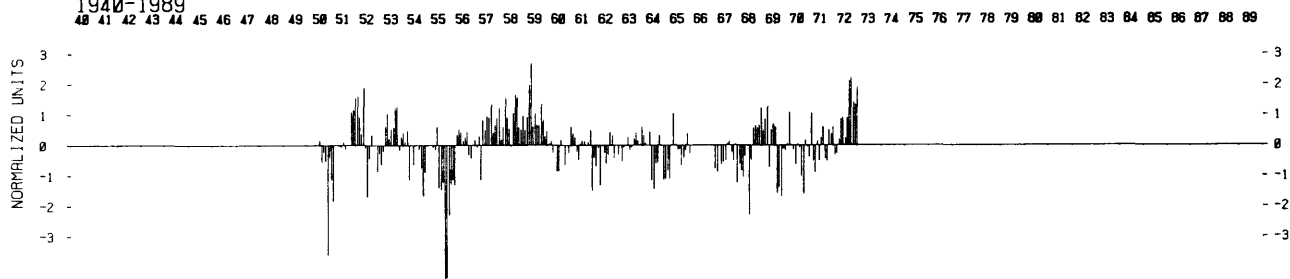


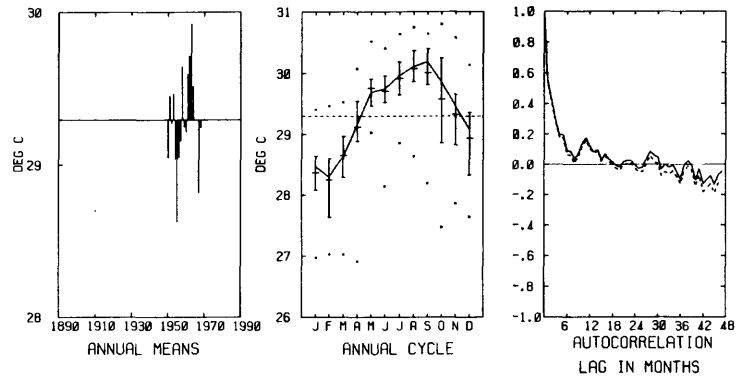
Figure 266. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Acapulco, MEX, 1950-1972.

SEA SURF TEMP SAN JOSE GUATEMALA

UNITS ARE DEG C

1949-1970

DOUGLAS MCLAIN
NOAA, NOS, OCEAN APPLICATIONS GROUP
NPS, FNO, BLDG #4
MONTEREY, CA 93943



1940-1989

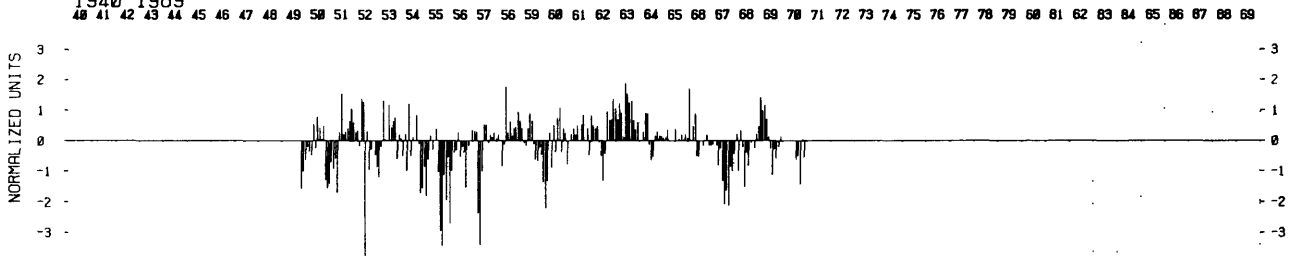


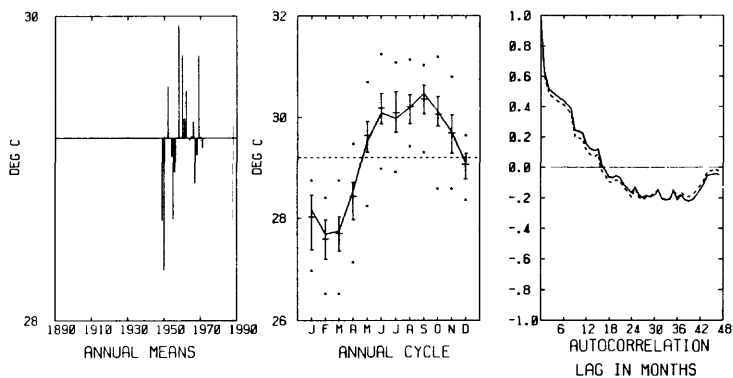
Figure 267. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at San Jose, GUATEMALA, 1949-1970.

SEA SURF TEMP CARTAGENA COLUMBIA

UNITS ARE DEG C

1948-1972

DOUGLAS MCCLAIN
NOAA, NOS, OCEAN APPLICATIONS GROUP
NPS, FNO, BLDG #4
MONTEREY, CA 93943



1940-1989

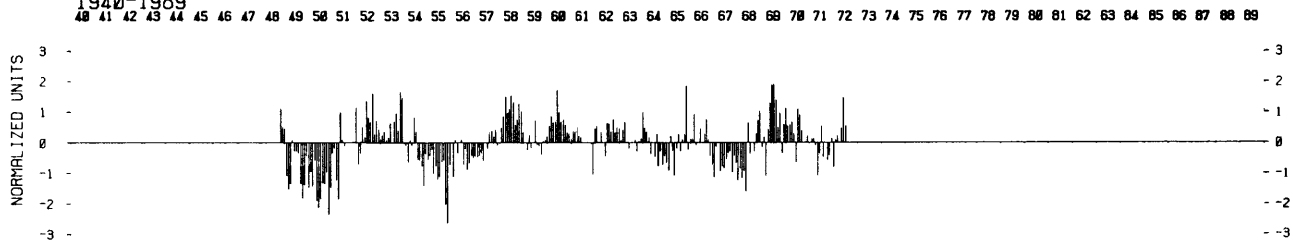


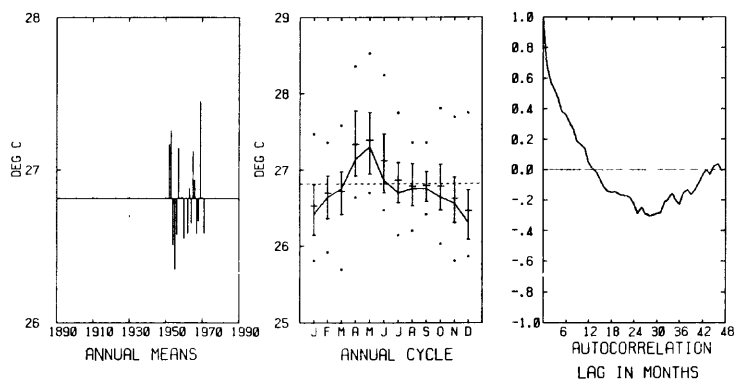
Figure 268. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Cartagena, COLOMBIA, 1948-1972.

SEA SURF TEMP TUMACO COLUMBIA

UNITS ARE DEG C

1951-1972

DOUGLAS MCLAIN
NOAA, NOS. OCEAN APPLICATIONS GROUP
NPS, FNOG, BLOG #4
MONTEREY, CA 93943



1940-1989

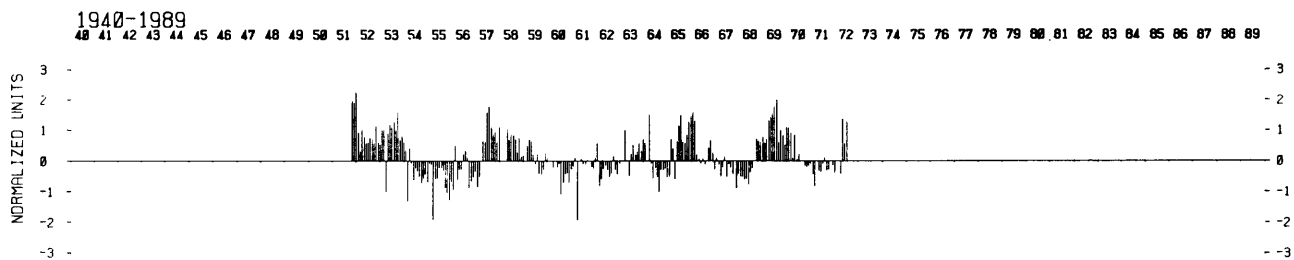


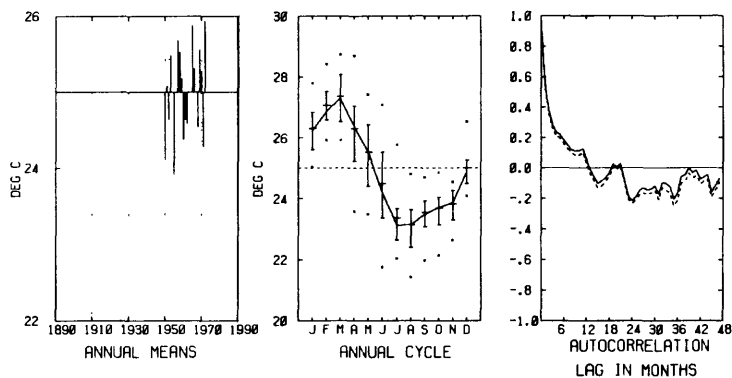
Figure 269. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Tumaco, COLOMBIA, 1951-1972.

SEA SURF TEMP LA LIBERTAD ECUADOR

UNITS ARE DEG C

1948-1973

DOUGLAS MCLAIN
NOAA/NOS, OCEAN APPLICATIONS GROUP
NPS, FNOG, BLDG #4
MONTEREY, CA 93943



1940-1989

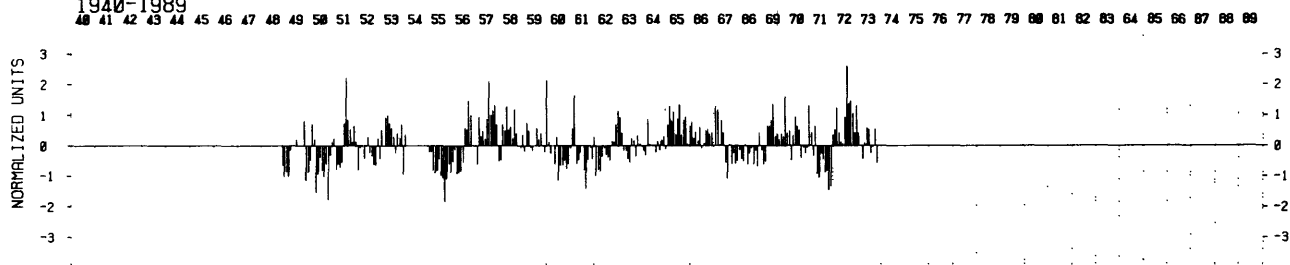


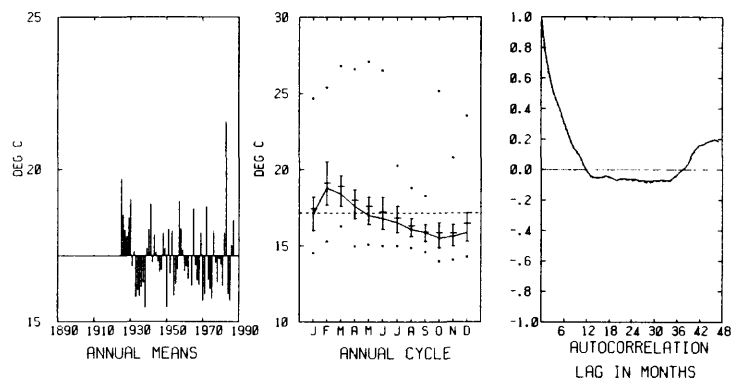
Figure 270. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at La Libertad, ECUADOR, 1948-1973.

SEA SURF TEMP PUERTO CHICAMA PERU

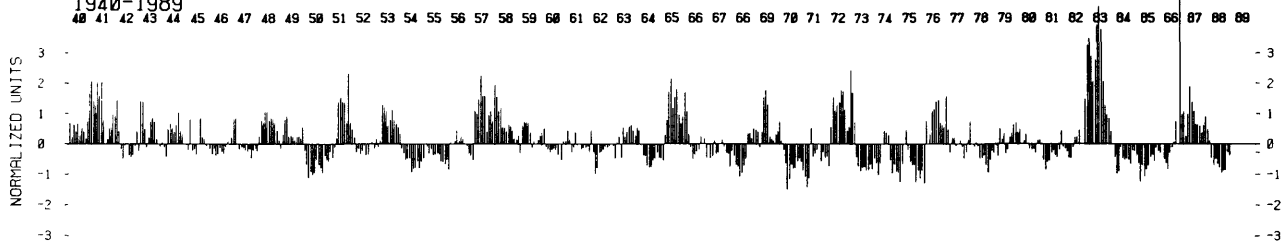
UNITS ARE DEG C

1925-1988

FRANCISCO CHAVEZ
MONTEREY BAY AQUARIUM RESEARCH INSTITUTE
160 CENTRAL AVENUE
PACIFIC GROVE, CA 93950
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COMPUTING ANOMALIES



1940-1989



1890-1939

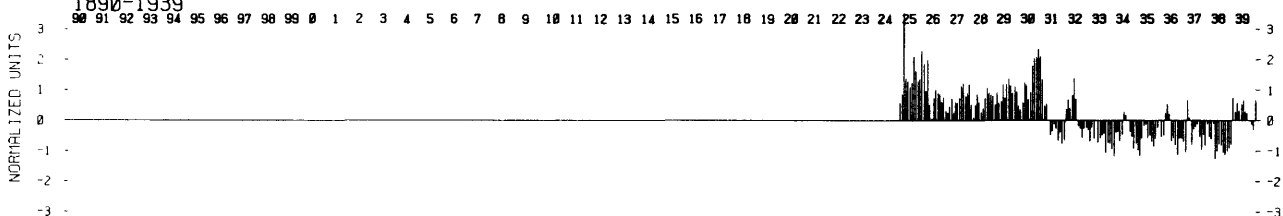


Figure 271. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Puerto Chicama, PERU, 1925-1988.

SEA SURF TEMP ANTOFAGASTA CHILE

UNITS ARE DEG C

1945-1969

DOUGLAS MCLAIN
NOAA, NOS. OCEAN APPLICATIONS GROUP
NPS, FNO, BLDG #4
MONTEREY, CA 93943

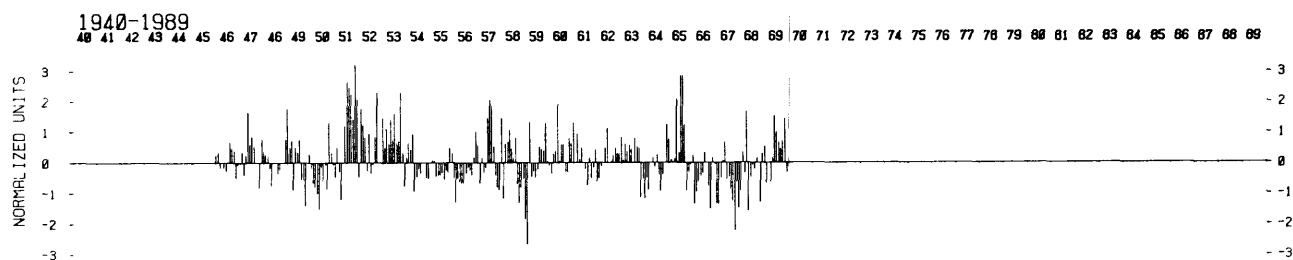
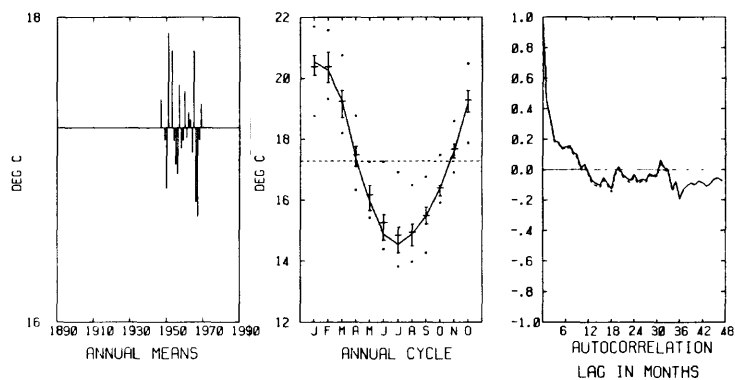


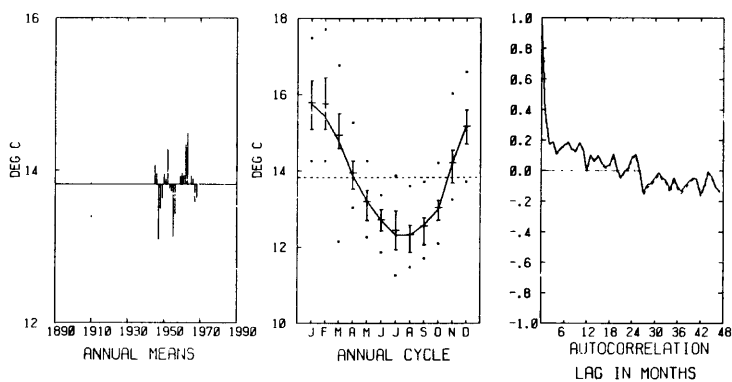
Figure 272. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Antofagasta, CHILE, 1945-1969.

SEA SURF TEMP VALPARAISO CHILE

UNITS ARE DEG C

1944-1969

DOUGLAS MCLAIN
NOAA.NOS. OCEAN APPLICATIONS GROUP
NPS.FNOC.BLOG #4
MONTEREY, CA 93943



1940-1989

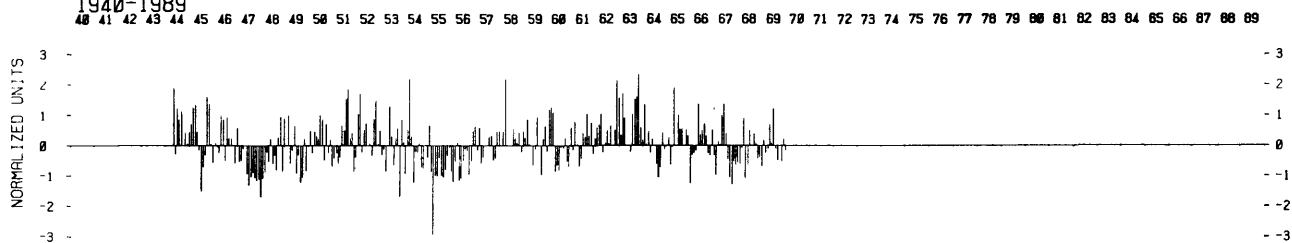


Figure 273. Graphs of standardized monthly anomaly and selected statistics for sea-surface (SST) temperature at Valparaiso, CHILE, 1944-1969.

Variable VIII: Sea-surface Salinity

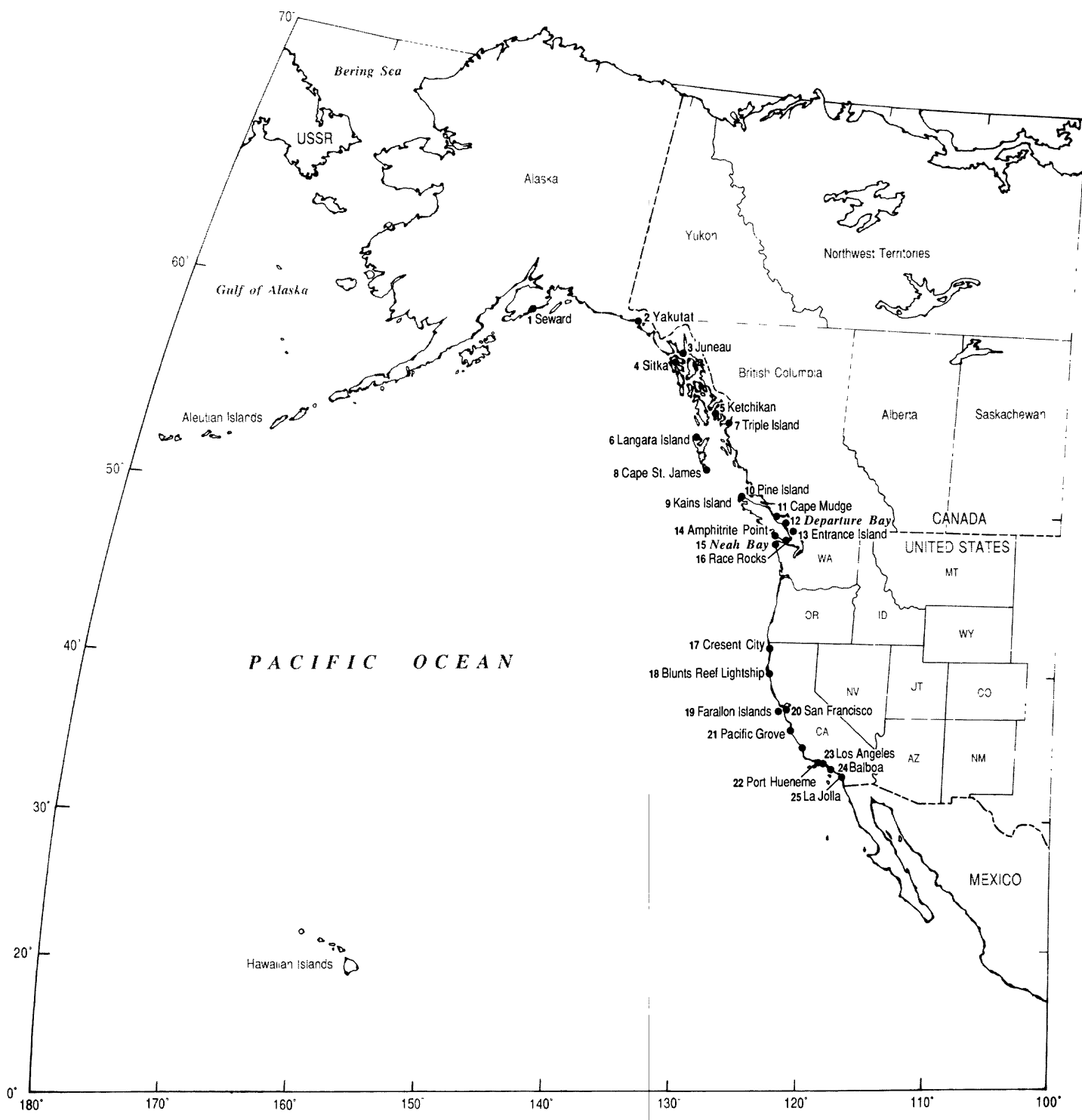


Figure 274. Map showing locations of sea-surface salinity stations.

Table 8.--Index to sea-surface salinity stations and figures.

Map* No.	Figure No.	Station Name	Latitude	Longitude	Period of Record	Source**
1	275	Seward, AK	60°6'N.	149°7'W.	1926-1939	Roden
2	276	Yakutat, AK	59°3'N.	139°0'W.	1941-1960	Roden
3	277	Juneau, AK	58°8'N.	134°0'W.	1942-1964	Roden
4	278	Sitka, AK	57°3'N.	135°0'W.	1944-1964	Roden
5	279	Ketchikan, AK	55°0'N.	131°8'W.	1922-1964	Roden
6	280	Langara Island, CAN	54°5'N.	133°3'W.	1936-1984	Tabata
7	281	Triple Island, CAN	54°8'N.	130°3'W.	1940-1969	Tabata
8	282	Cape St. James, CAN	51°6'N.	131°1'W.	1934-1971	Tabata
9	283	Kains Island, CAN	50°6'N.	128°2'W.	1935-1984	Tabata
10	284	Pine Island, CAN	50°8'N.	127°4'W.	1937-1984	Tabata
11	285	Cape Mudge, CAN	50°0'N.	125°2'W.	1937-1982	Tabata
12	286	Departure Bay, CAN	49°3'N.	123°7'W.	1931-1982	Tabata
13	287	Entrance Island, CAN	49°2'N.	123°6'W.	1936-1982	Tabata
14	288	Amphitrite Point, CAN	48°5'N.	125°2'W.	1934-1984	Tabata
15	289	Neah Bay, WA	48°2'N.	124°W.	1936-1979	Roden
16	290	Race Rocks, CAN	48°8'N.	123°2'W.	1941-1984	Tabata
17	291	Crescent City, CA	41°5'N.	124°2'W.	1934-1979	Roden
18	292	Blunts Reef Lightship, CA	40°6'N.	124°0'W.	1923-1941	Roden
19	293	Farallon Islands, CA	37°5'N.	122°6'W.	1925-1986	Mantyla
20	294	San Francisco, CA	37°8'N.	122°8'W.	1921-1987	Peterson
21	295	Pacific Grove, CA	36°8'N.	121°5'W.	1919-1975	Roden
22	296	Port Hueneme, CA	34°9'N.	119°2'W.	1919-1963	Mantyla
23	297	Los Angeles, CA	33°3'N.	118°6'W.	1924-1977	Cayan
24	298	Balboa, CA	33°6'N.	117°4'W.	1924-1986	Mantyla
25	299	La Jolla, CA	32°2'N.	117°5'W.	1916-1986	Mantyla

*Refers to map location on Figure 274.

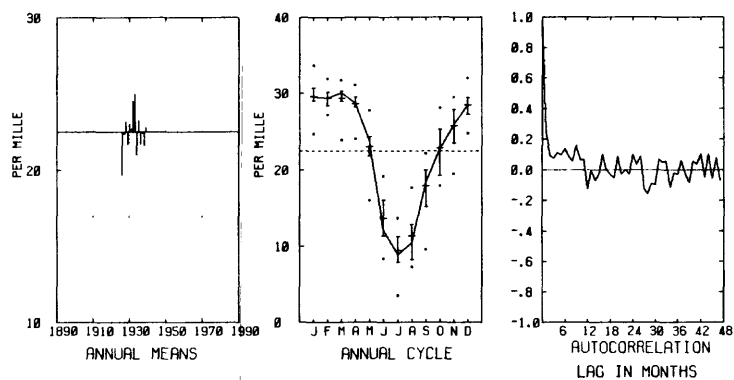
**See Contributors List, p. 379.

SEA SURF SALINITY SEWARD ALASKA

UNITS ARE PER MILLE

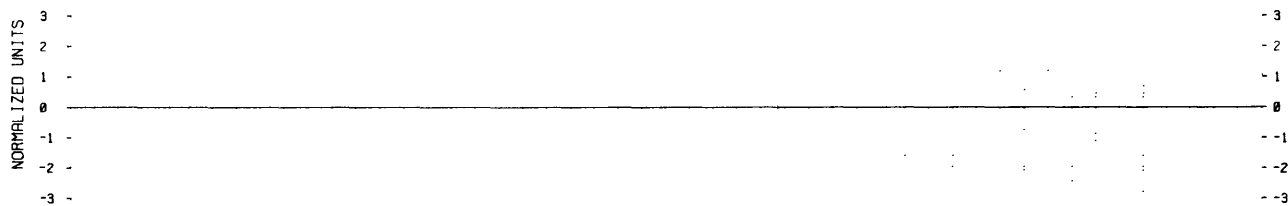
1926-1939

GUNNAR RODEN, U OF WASHINGTON, OCEAN & FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

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1890-1939

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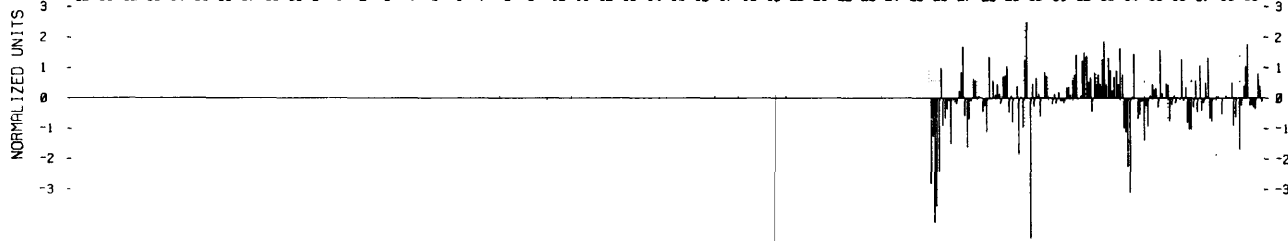


Figure 275. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Seward, AK, 1926-1939.

SEA SURF SALINITY YAKUTAT ALASKA

UNITS ARE PER MILLE

1941-1960

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

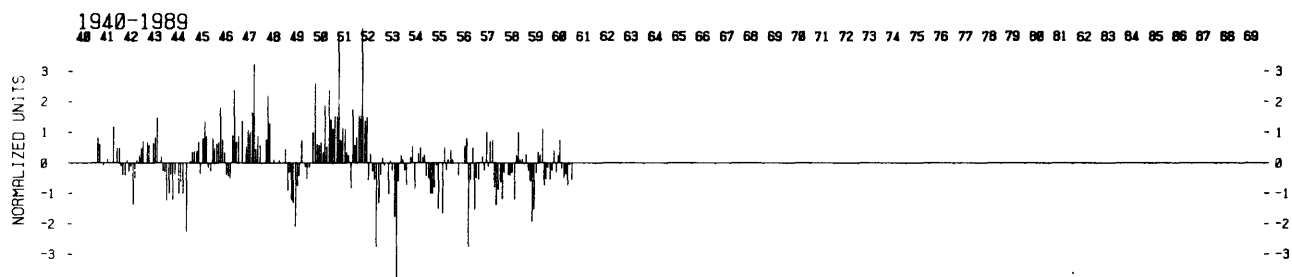
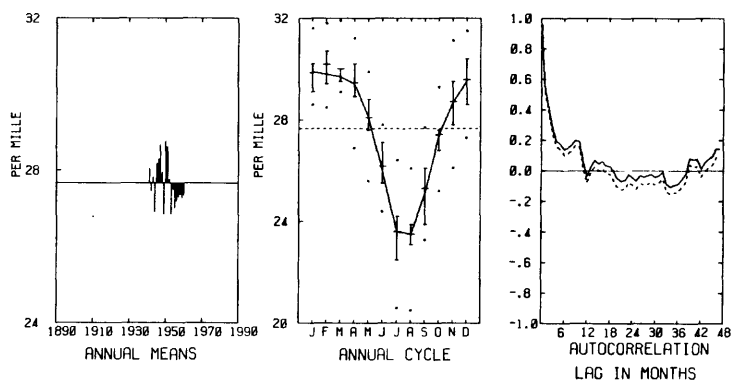


Figure 276. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Yakutat, AK, 1941-1960.

SEA SURF SALINITY JUNEAU ALASKA

UNITS ARE PER MILLE

1942-1964

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

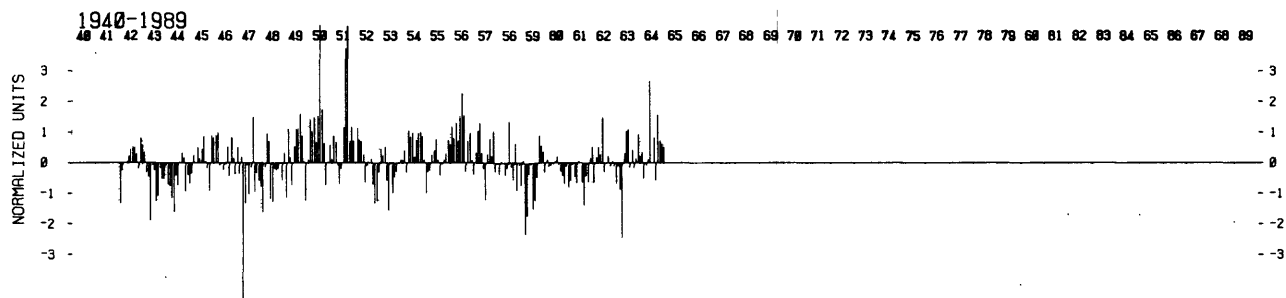
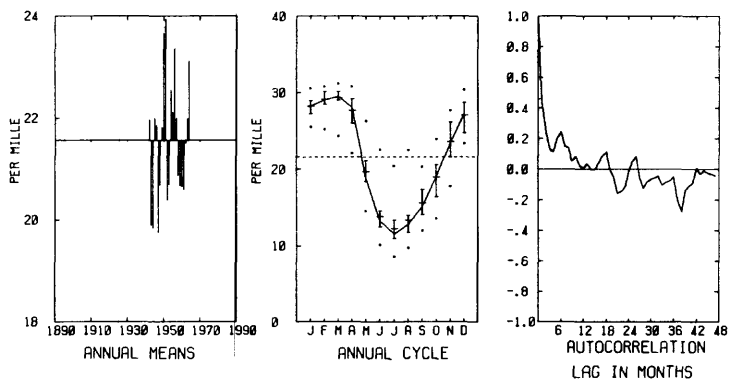


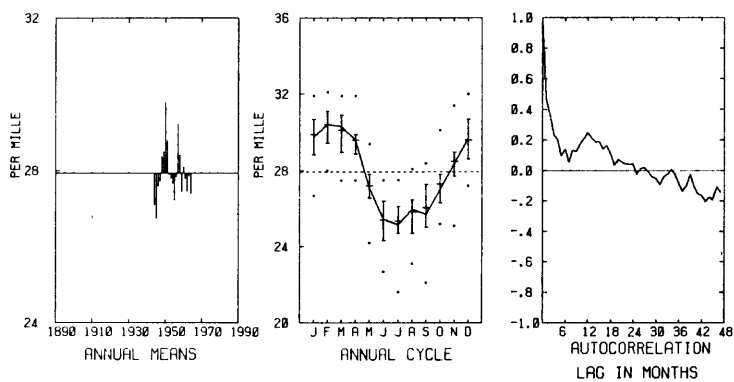
Figure 277. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Juneau, AK, 1942-1964.

SEA SURF SALINITY SITKA ALASKA

UNITS ARE PER MILLE

1944-1964

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

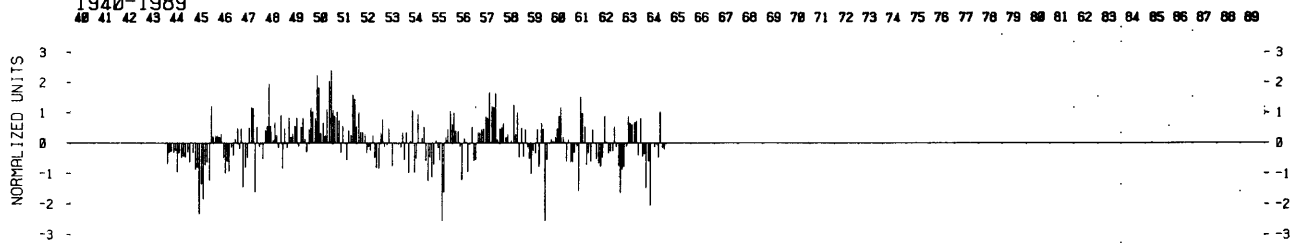


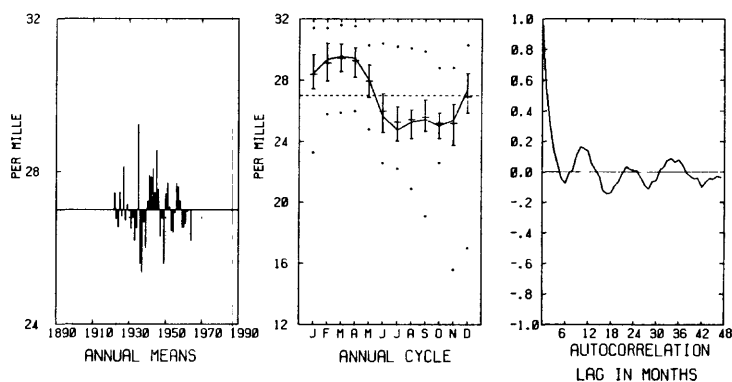
Figure 278. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Sitka, AK, 1944-1964.

SEA SURF SALINITY KETCHIKAN ALASKA

UNITS ARE PER MILLE

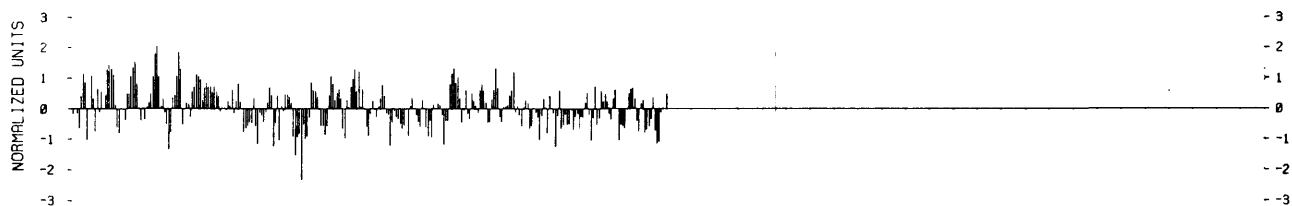
1922-1964

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

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1890-1939

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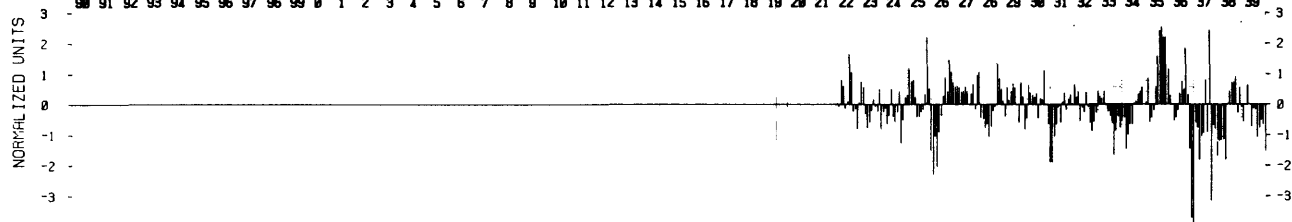


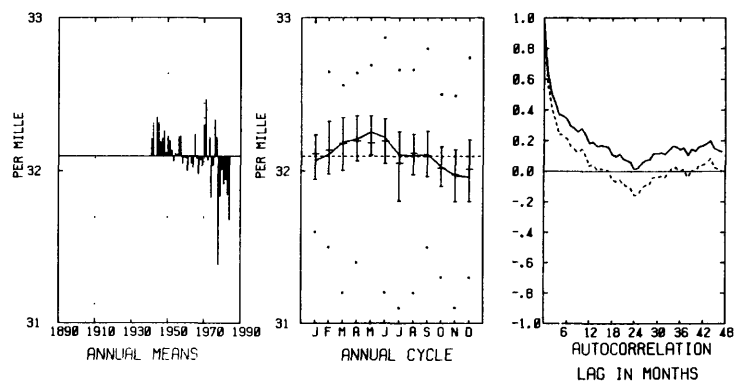
Figure 279. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Ketchikan, AK, 1922-1964.

SEA SURF SALINITY LANGARA ISLAND BC CANADA

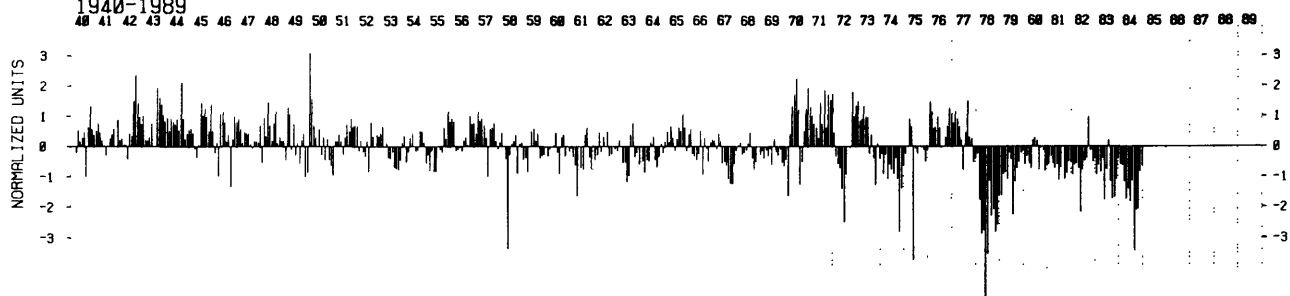
UNITS ARE PER MILLE

1936-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

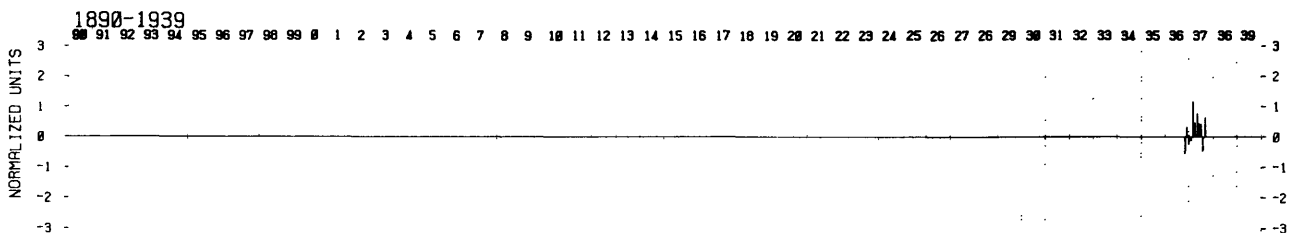


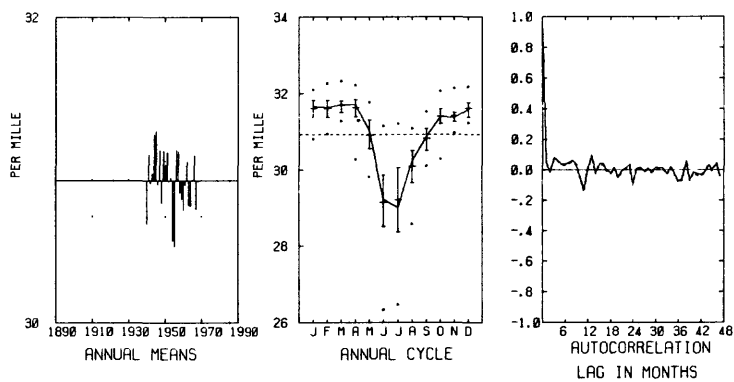
Figure 280. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Langara Island, CAN, 1936-1984.

SEA SURF SALINITY TRIPLE ISLAND BC CANADA

UNITS ARE PER MILLE

1940-1969

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

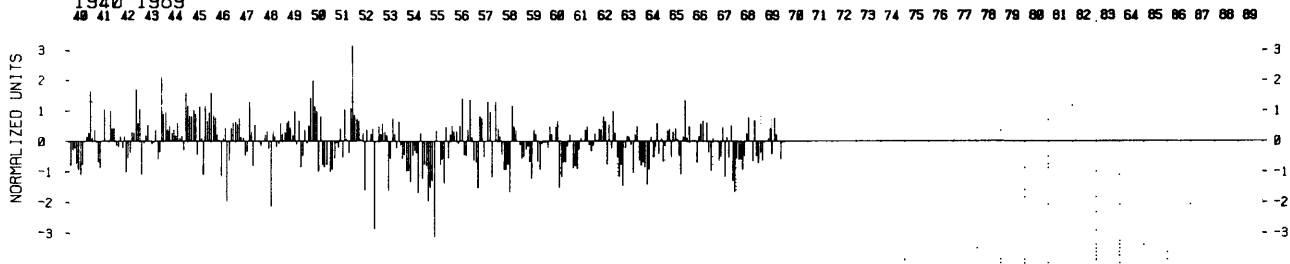


Figure 281. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Triple Island, CAN, 1940-1969.

SEA SURF SALINITY CAPE ST JAMES BC CANADA

UNITS ARE PER MILLE

1934-1971

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

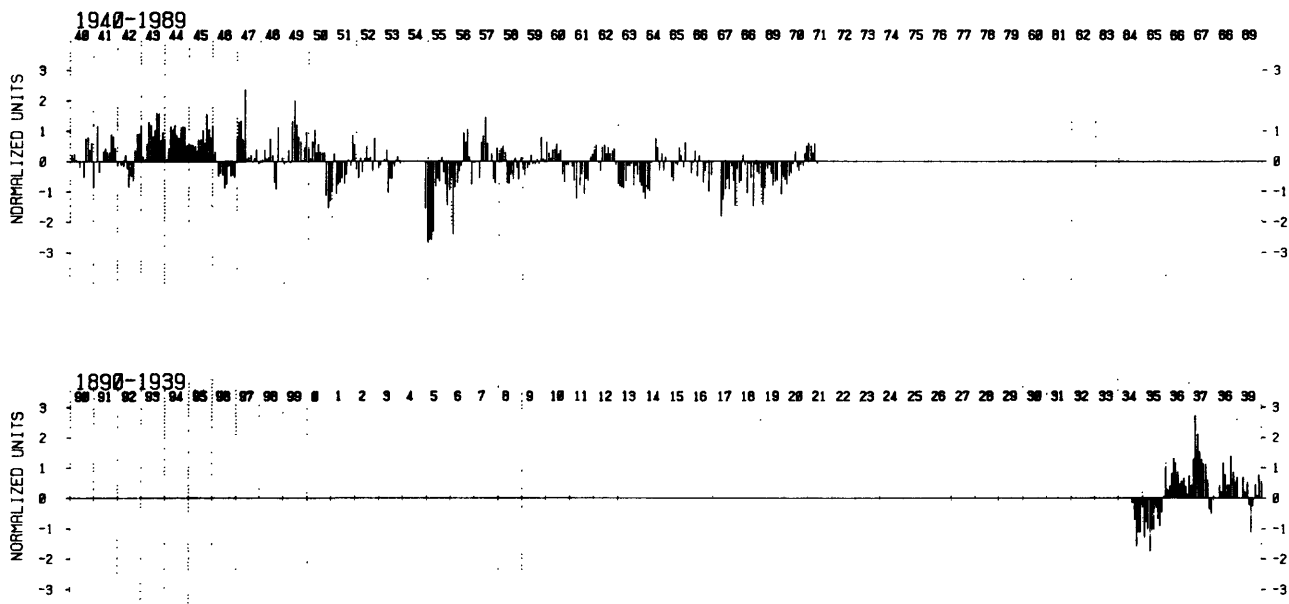
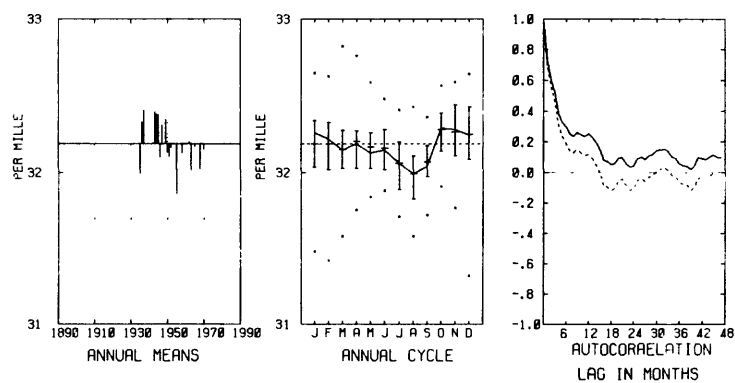


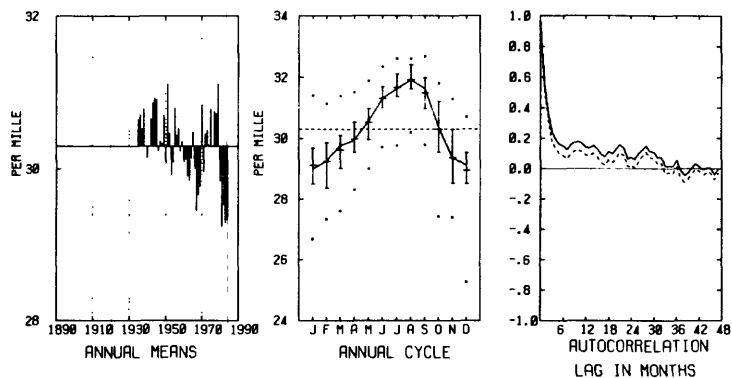
Figure 282. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Cape St. James, CAN, 1934-1971.

SEA SURF SALINITY KAINS ISLAND BC CANADA

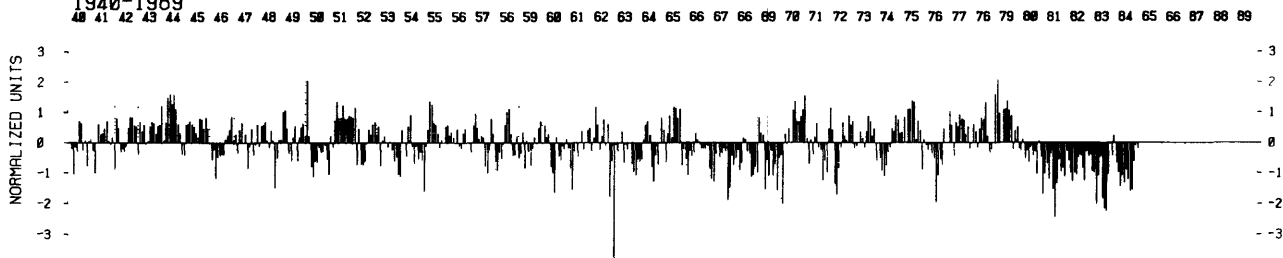
UNITS ARE PER MILLE

1935-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

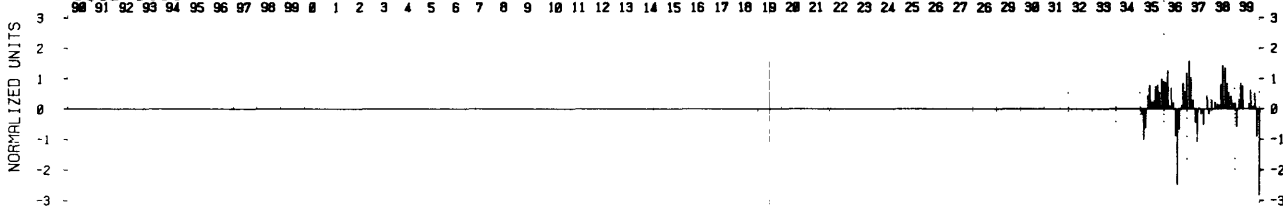


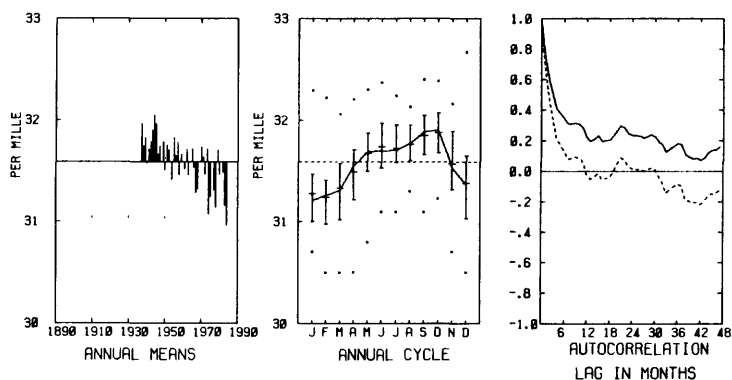
Figure 283. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Kains Island, CAN, 1935-1984.

SEA SURF SALINITY PINE ISLAND BC CANADA

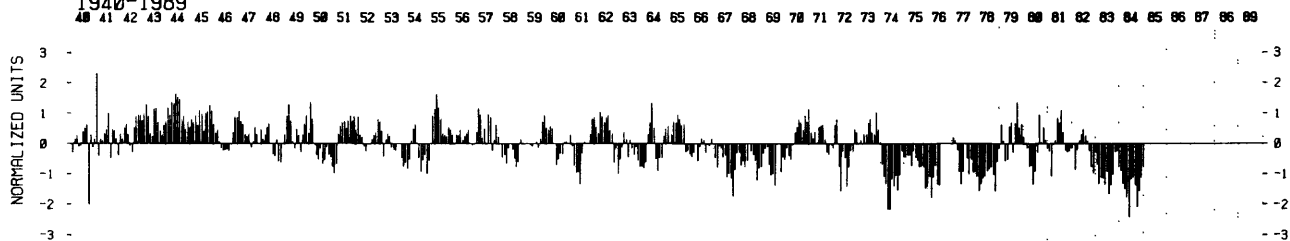
UNITS ARE PER MILLE

1937-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

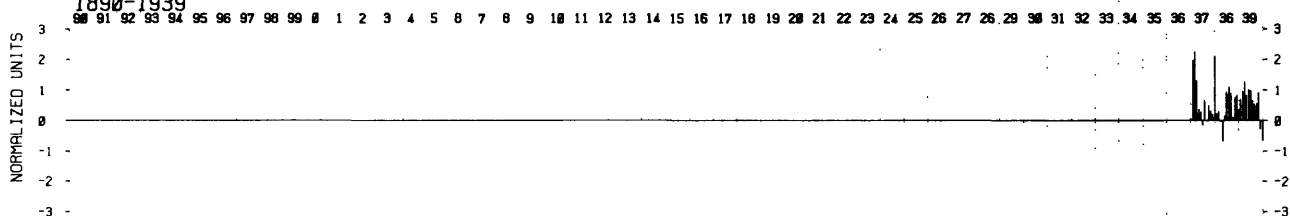


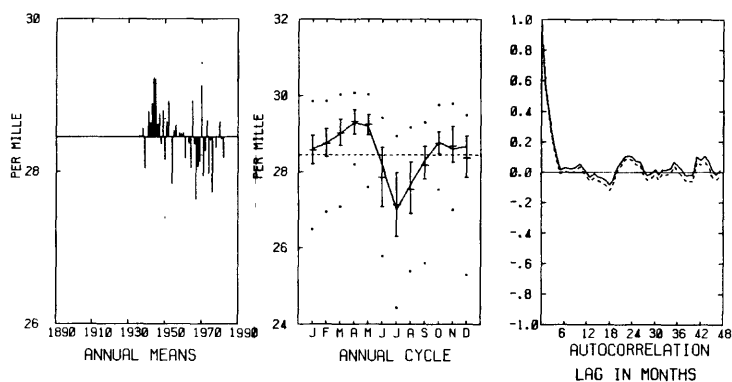
Figure 284. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Pine Island, CAN, 1937-1984.

SEA SURF SALINITY CAPE MUDGE BC CANADA

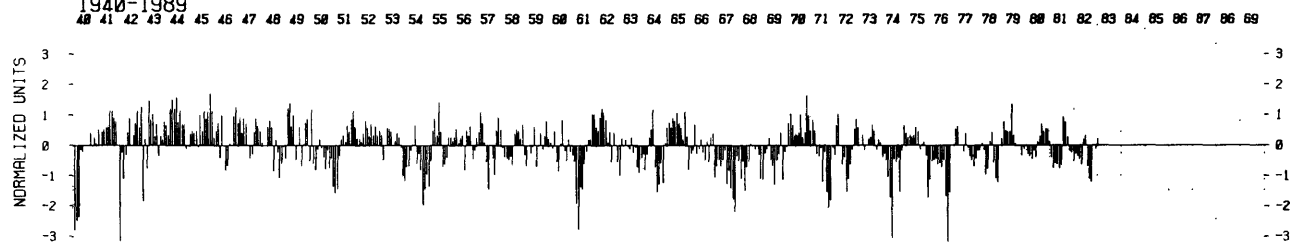
UNITS ARE PER MILLE

1937-1962

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989



1890-1939

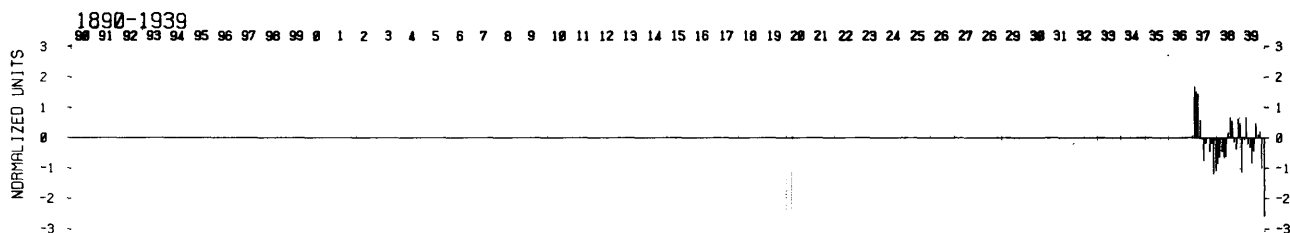


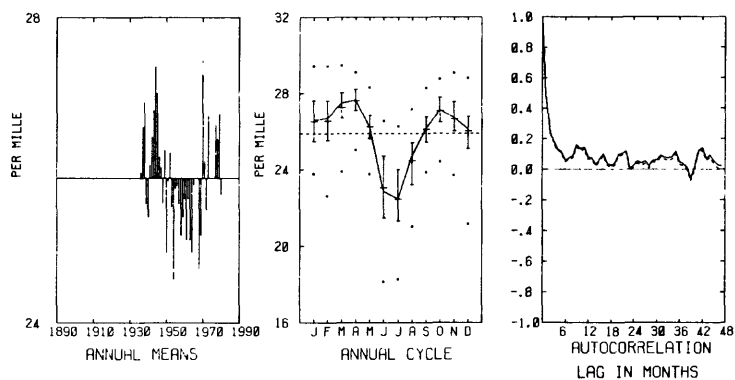
Figure 285. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Cape Mudge, CAN, 1937-1982.

SEA SURF SALINITY DEPARTURE BAY BC CANADA

UNITS ARE PER MILLE

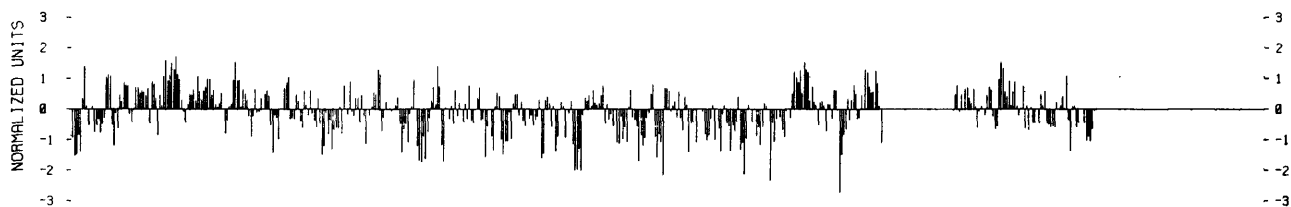
1931-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

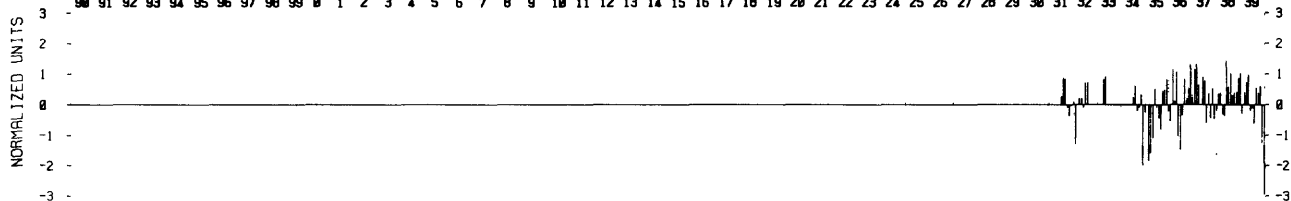


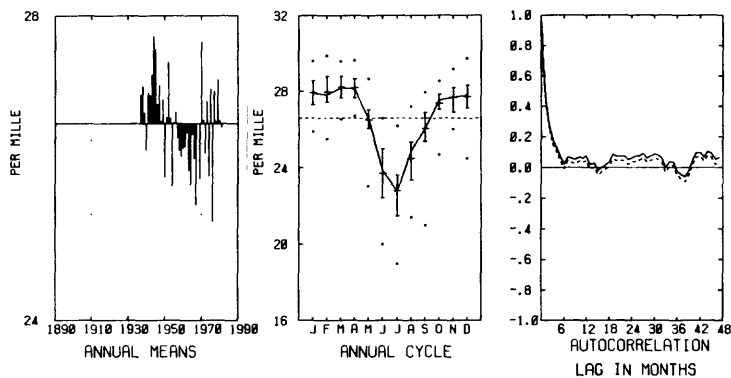
Figure 286. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Departure Bay, CAN, 1931-1982.

SEA SURF SALINITY ENTRANCE ISLAND BC CANADA

UNITS ARE PER MILLE

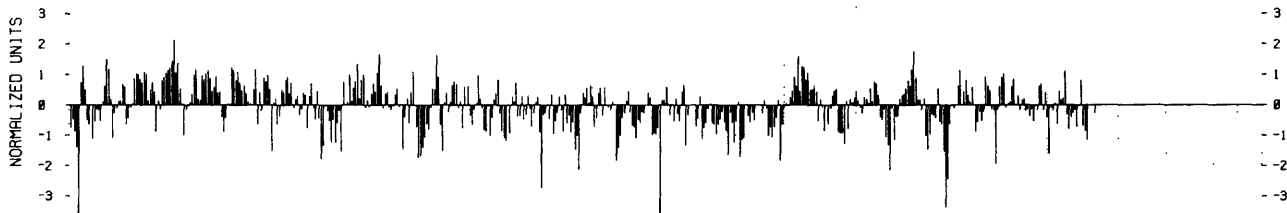
1936-1982

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

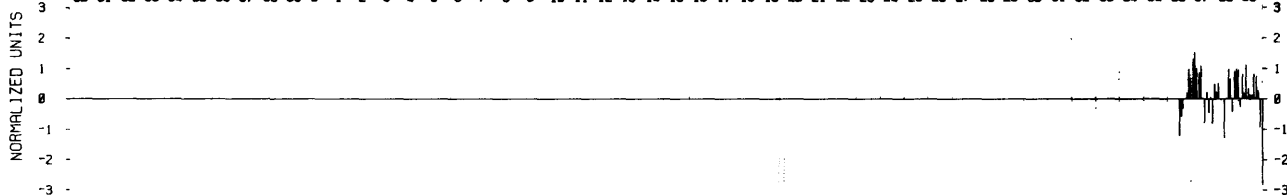


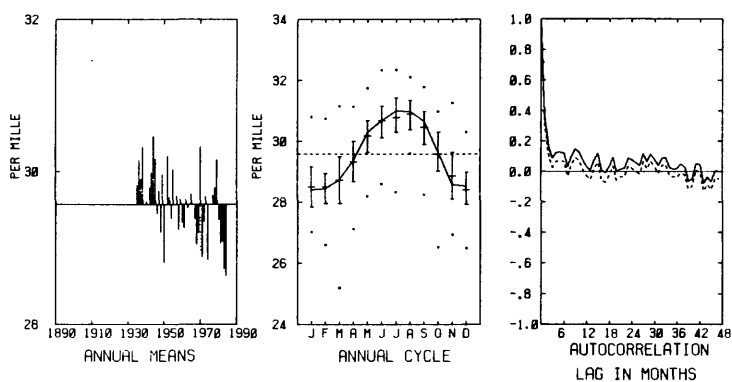
Figure 287. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Entrance Island, CAN, 1936-1982.

SEA SURF SALINITY AMPHITRITE POINT BC CANADA

UNITS ARE PER MILLE

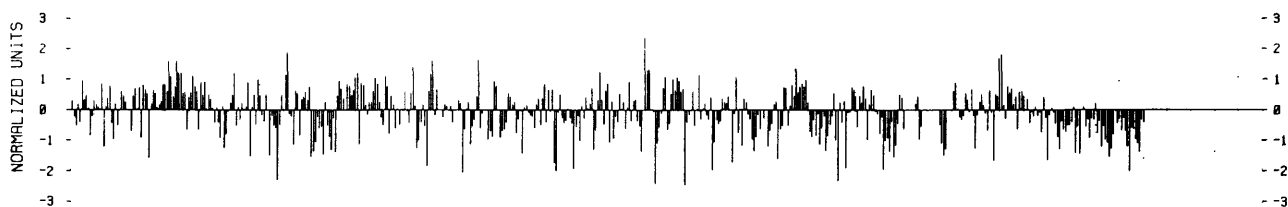
1934-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SAANICH, SIDNEY, BC, V8L 4B2, CANADA



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

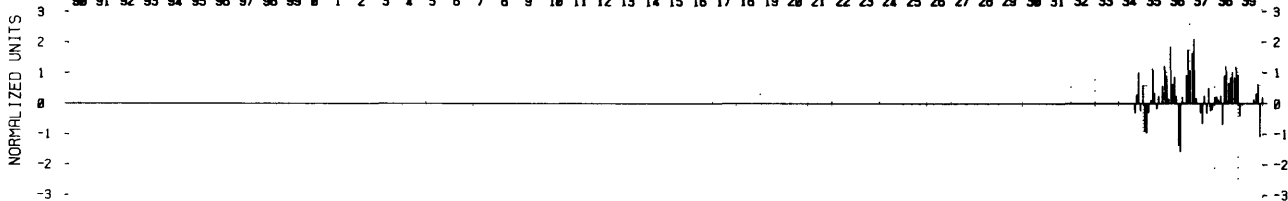


Figure 288. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Amphitrite Point, CAN, 1934-1984.

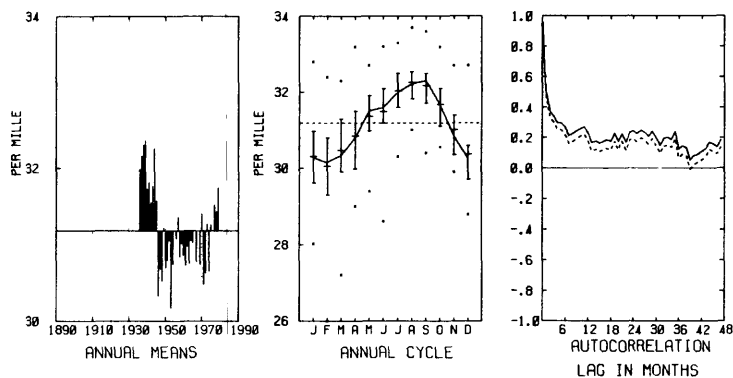
SEA SURF SALINITY NEAH BAY WASHINGTON

UNITS ARE PER MILLE

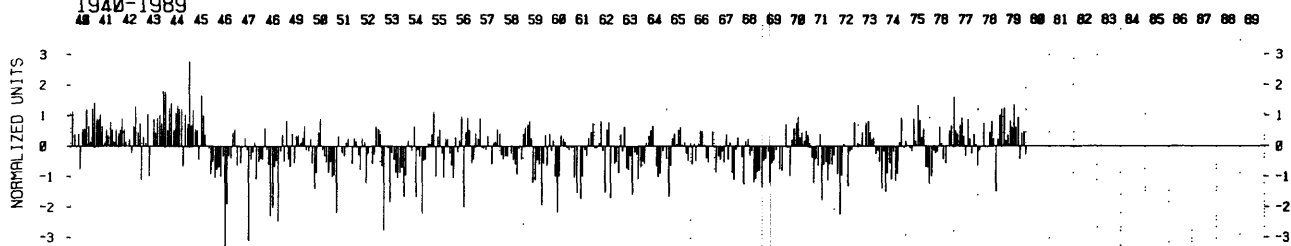
1936-1979

ADDITIONAL DATA FROM 1965-1979
PROVIDED BY A. MANTYLA
SCRIPPS INST OF OC, A030, LA JOLLA, CA

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989



1890-1939

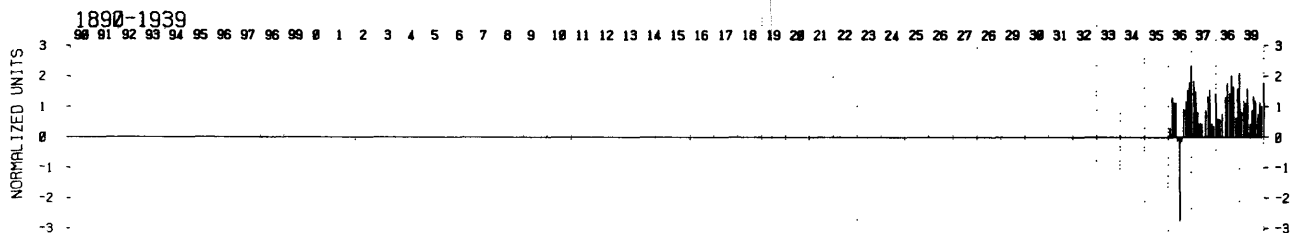


Figure 289. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Neah Bay, WA, 1936-1979.

SEA SURF SALINITY RACE ROCKS BC CANADA

UNITS ARE PER MILLE

1941-1984

SUS TABATA, INST OF OCEAN SCI, PO BX 6000
9860 W SARNICH, SIDNEY, BC, V8L 4B2, CANADA

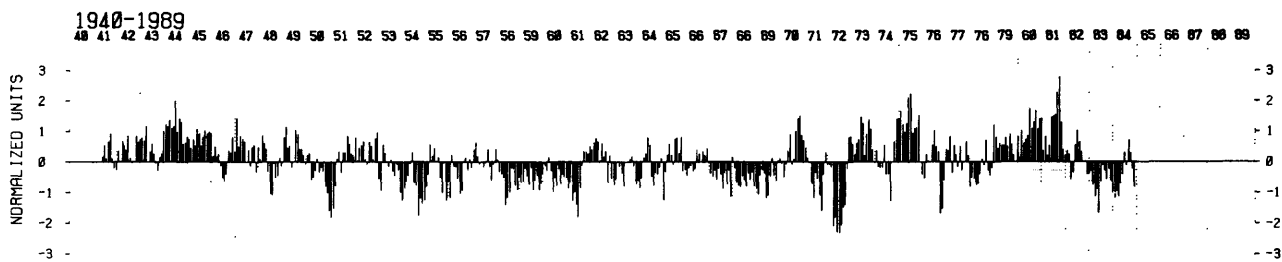
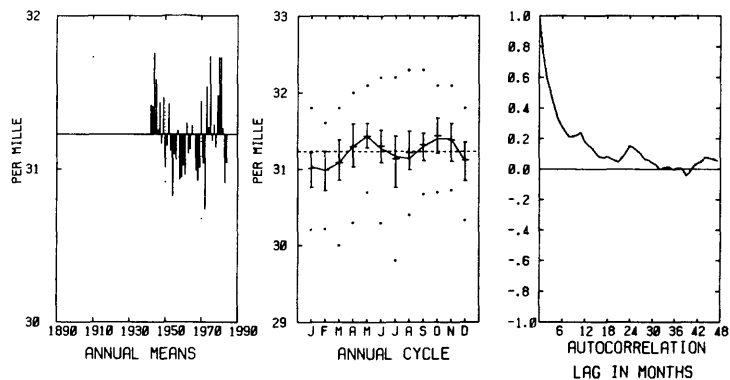


Figure 290. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Race Rocks, CAN, 1941-1984.

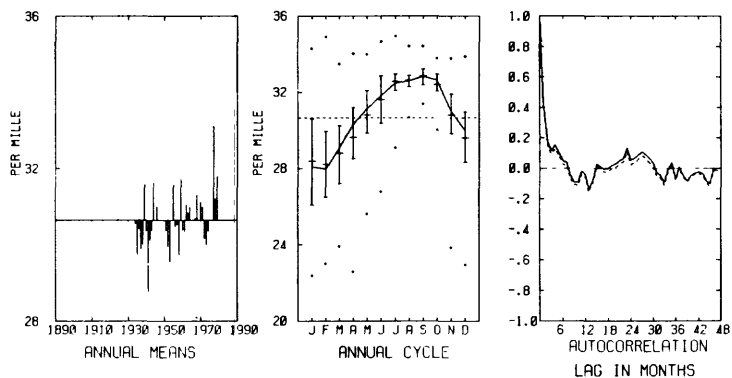
SEA SURF SALINITY CRESCENT CITY CALIFORNIA

UNITS ARE PER MILLE

1934-1979

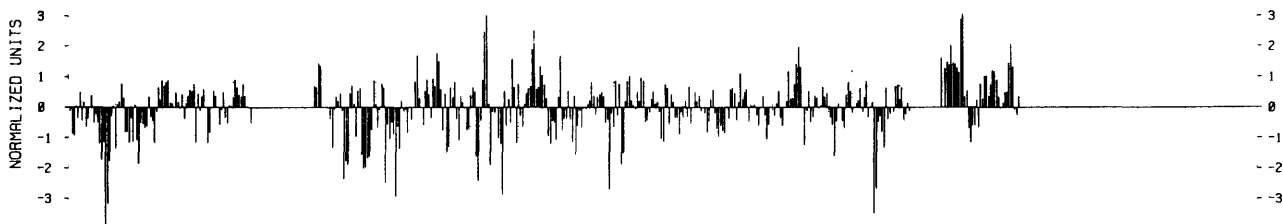
ADDITIONAL DATA FROM 1934-50 & 1966-79
PROVIDED BY R. MANTYLA
SCRIPPS INST OF OC, P030, LA JOLLA, CA

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

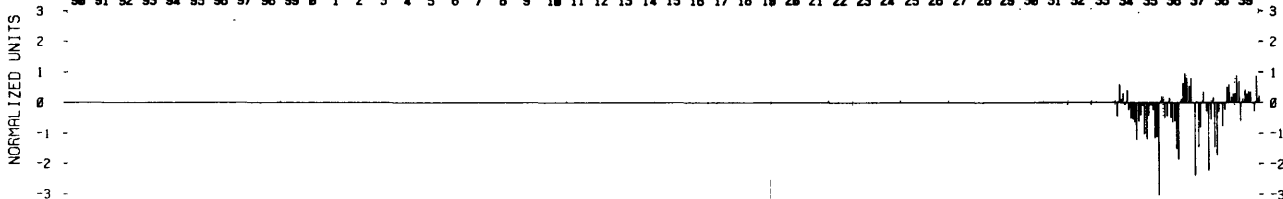


Figure 291. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Crescent City, CA, 1934-1979.

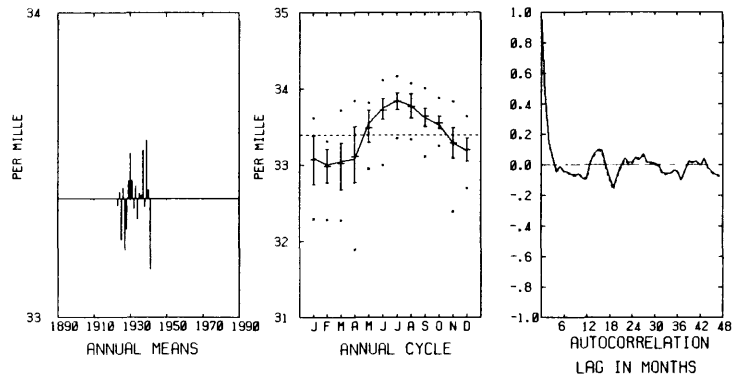
SEA SURF SALINITY BLUNTS REEF LIGHTSHIP CA

UNITS ARE PER MILLE

1923-1941

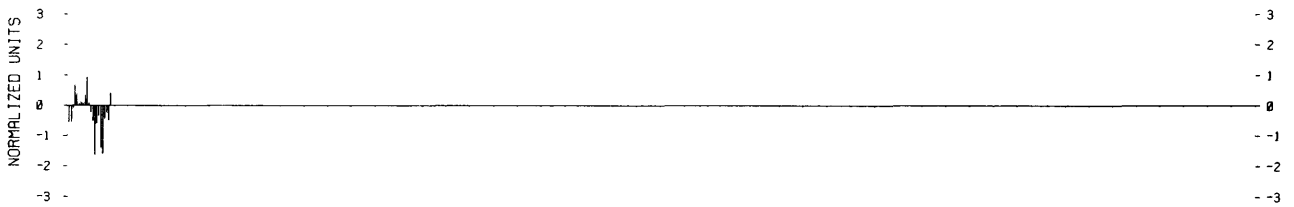
NEAR CAPE MENDOCINO

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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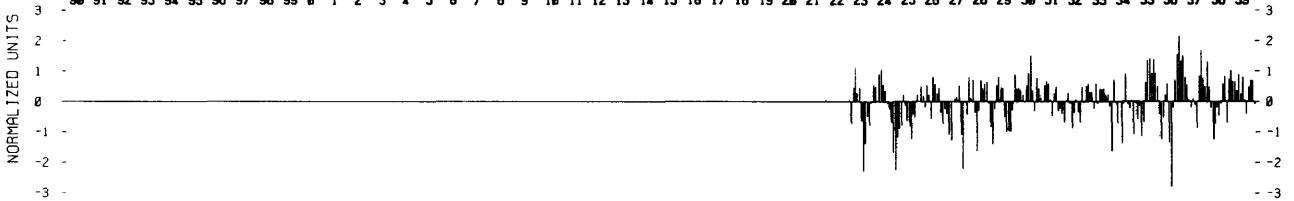


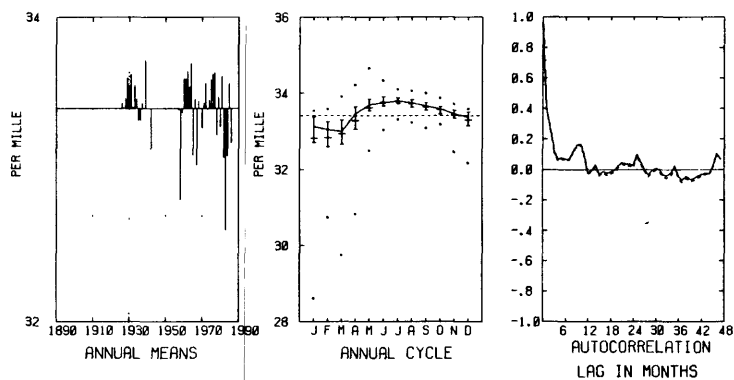
Figure 292. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Blunts Reef Lightship, CA, 1923-1941.

SEA SURF SALINITY FARALLON CALIFORNIA

UNITS ARE PER MILLE

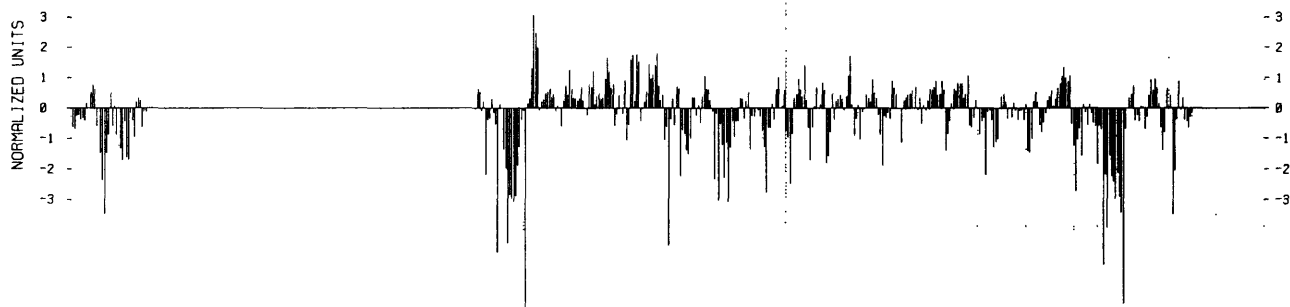
1925-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

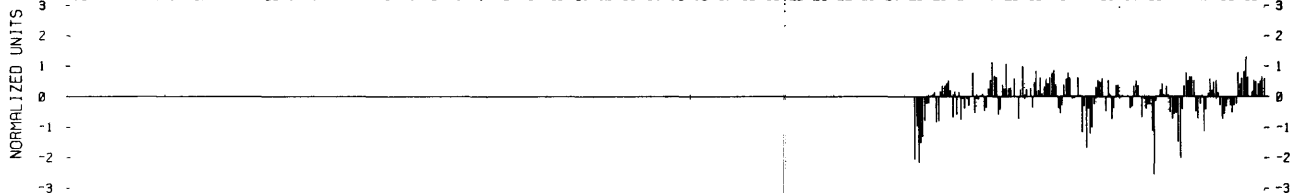


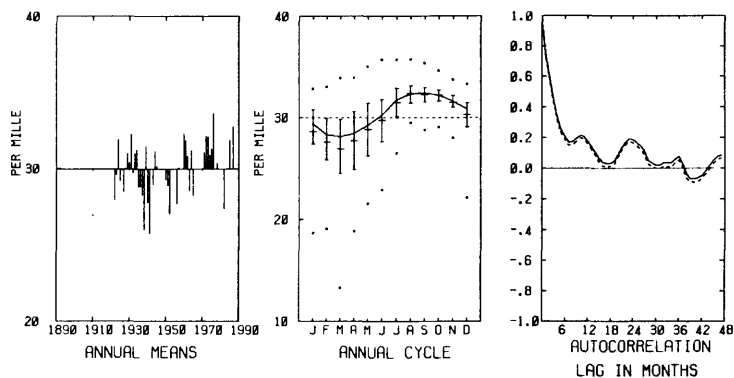
Figure 293. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Farallon Islands, CA, 1925-1986.

SEA SURF SALINITY SAN FRANCISCO CALIFORNIA

UNITS ARE PER MILLE

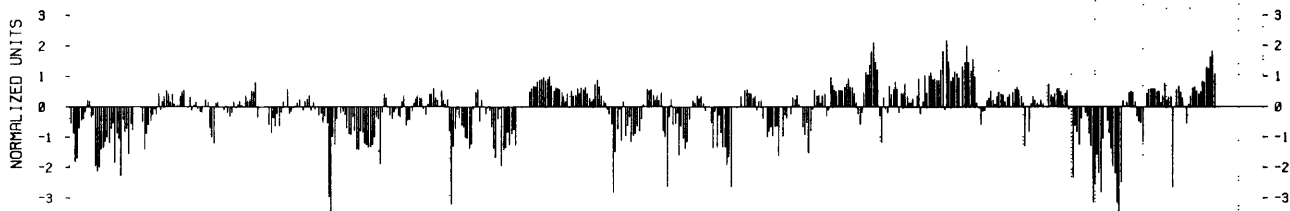
1921-1987

DAVE PETERSON, U.S. GEOLOGICAL SURVEY
MENLO PARK, CALIFORNIA 94025



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

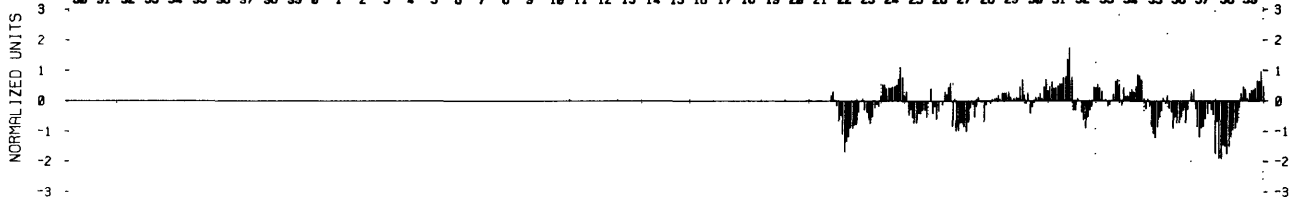


Figure 294. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at San Francisco, CA, 1921-1987.

SEA SURF SALINITY PACIFIC GROVE CALIFORNIA

UNITS ARE PER MILLE

1919-1975
NOTE: SALINITY DURING MID-40'S TO
MID-50'S MAY HAVE ARTIFICIALLY LOW
VARIABILITY DUE TO AN ANALYSIS PROBLEM
G. RODEN, CALCOFI REPORTS, VOL 8, 1961

GUNNAR RODEN, U OF WASHINGTON, OCEAN &
FISHERY SCIENCE, SEATTLE, WA 98195

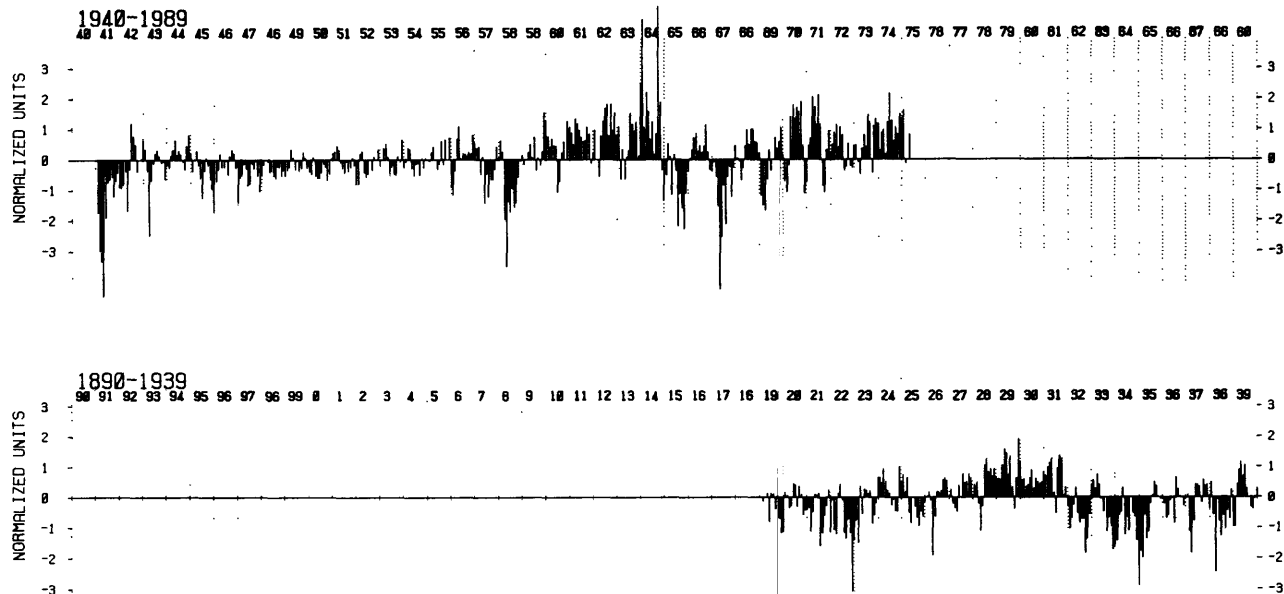
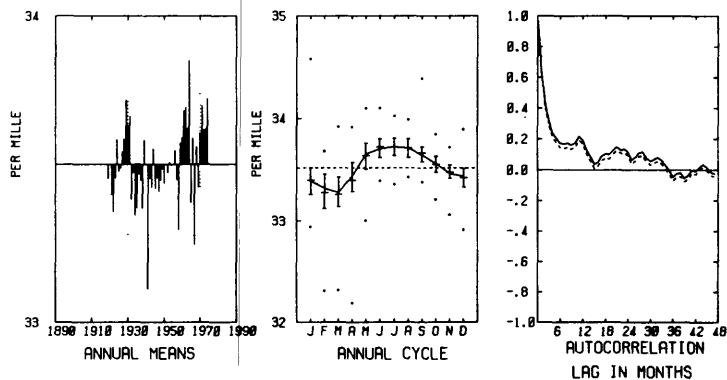


Figure 295. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Pacific Grove, CA, 1919-1975.

SEA SURF SALINITY PORT HUENEME CALIFORNIA

UNITS ARE PER MILLE

1919-1963
NOTE: SALINITY DURING MID-40S TO
MID-50S MAY HAVE ARTIFICIALLY LOW
VARIABILITY DUE TO AN ANALYSIS PROBLEM
G. RODEN, CALCOFI REPORTS, VOL 8, 1961

ARNOLD MANTYLA, SIO, A-030
UCSD, LA JOLLA, CA 92093

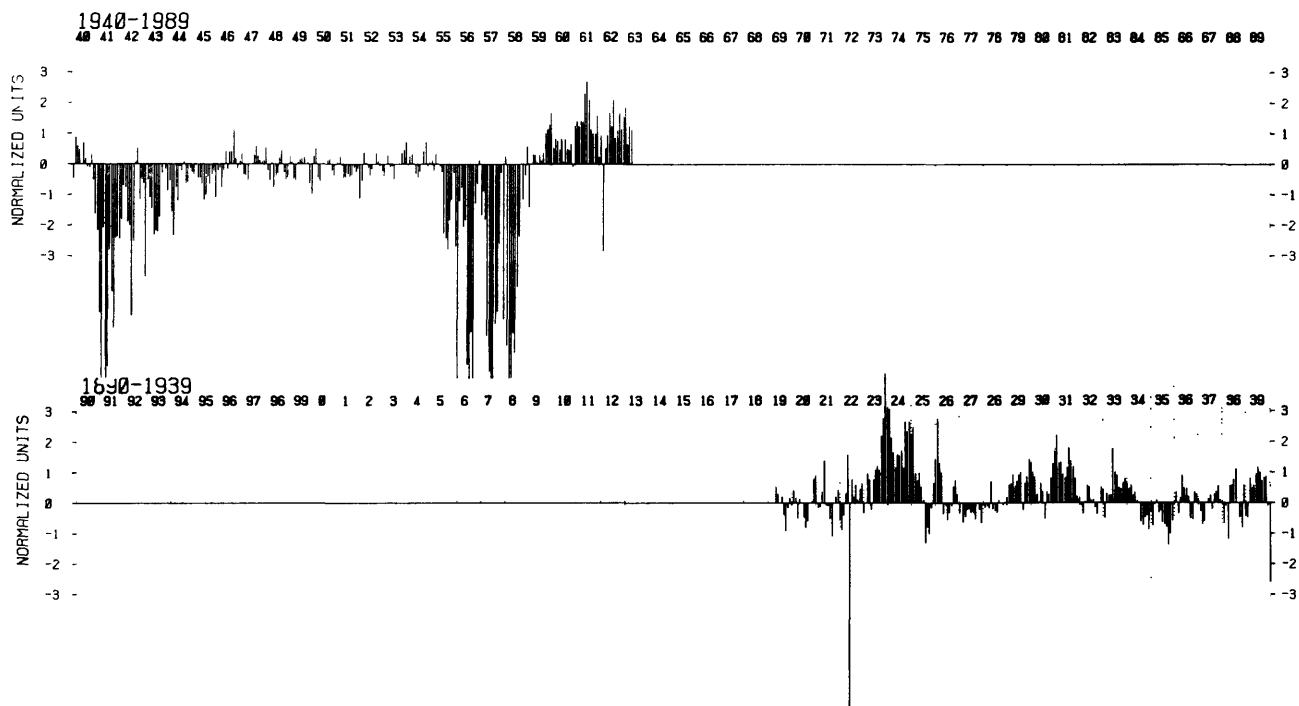
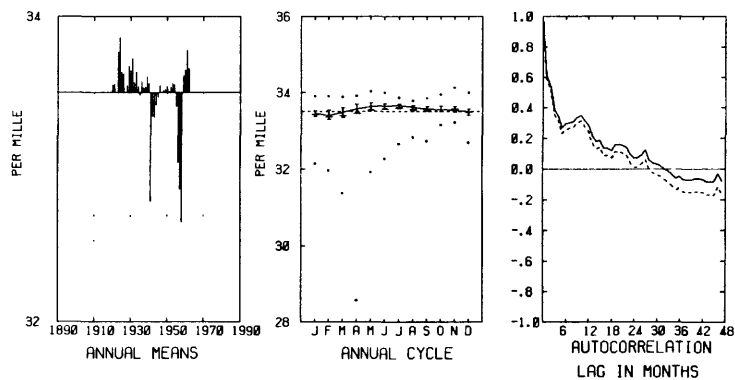


Figure 296. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Port Hueneme, CA, 1919-1963.

SEA SURF SALINITY LOS ANGELES CALIFORNIA

UNITS ARE PER MILLE

1924-1977
FROM NATIONAL OCEAN SERVICE, NOAA, TIDAL
STATION DATA. SALINITY CALCULATED FROM
DENSITY AT 150C. DENSITY WAS CALCULATED
FROM SPECIFIC GRAVITY AND TEMP MEAS.
DAN CAYAN, CLIMAT RES. GROUP
SCRIPPS INST OF OCEANOGR. #024
LA JOLLA, CA 92093

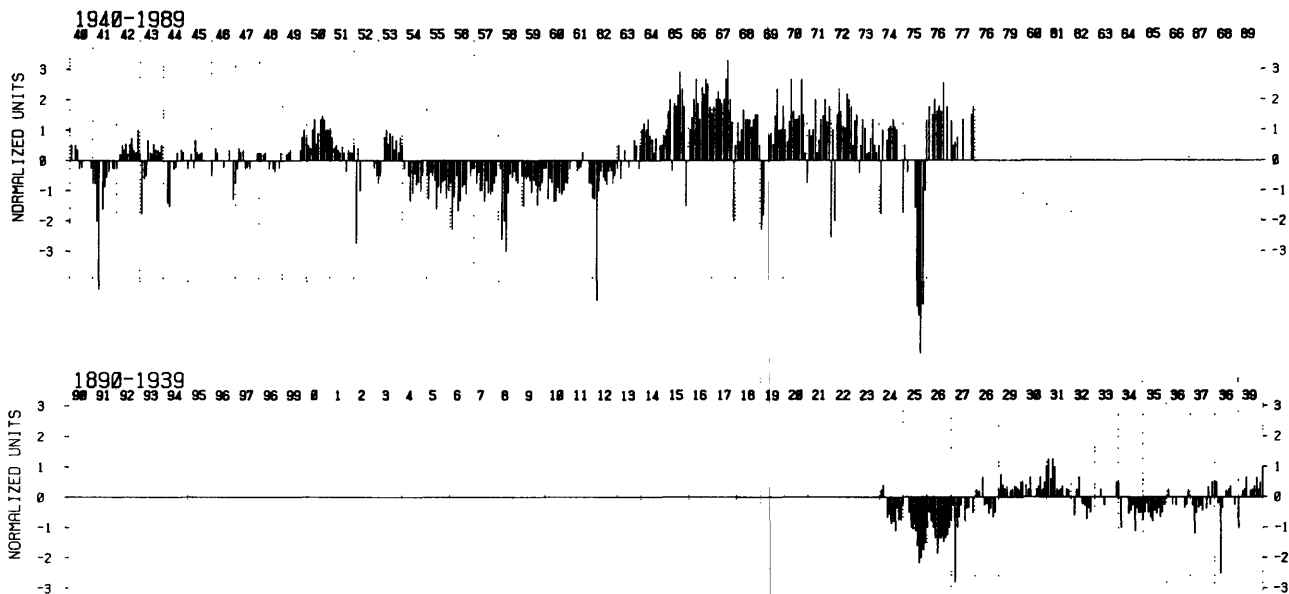
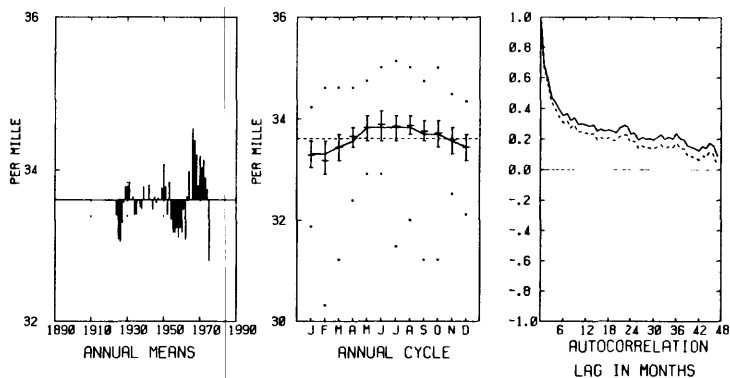


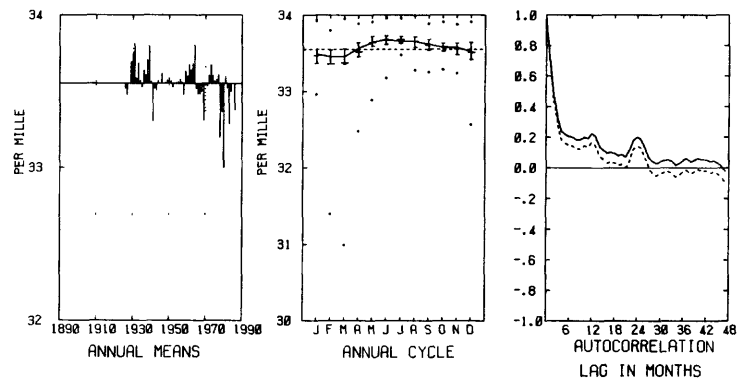
Figure 297. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Los Angeles, CA, 1924-1977.

SEA SURF SALINITY BALBOA CA

UNITS ARE PER MILLE

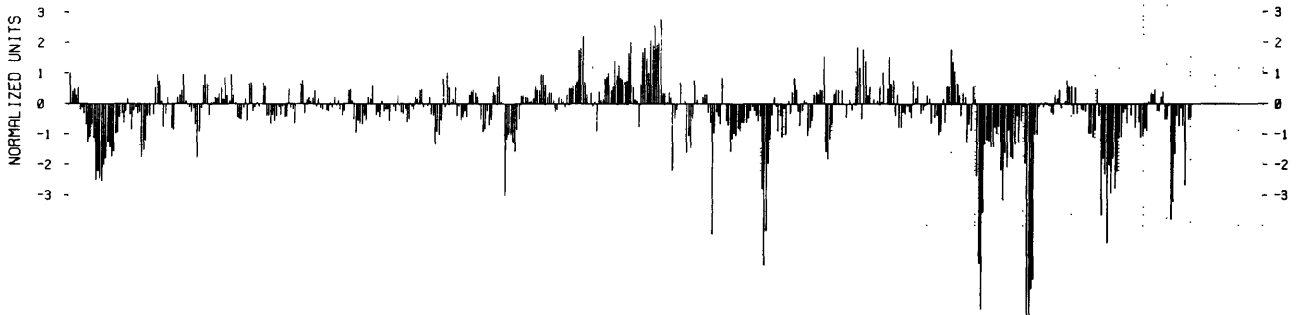
1924-1986

ARNOLD MANTYLA, SCRIPPS INST OF OC
A-030, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

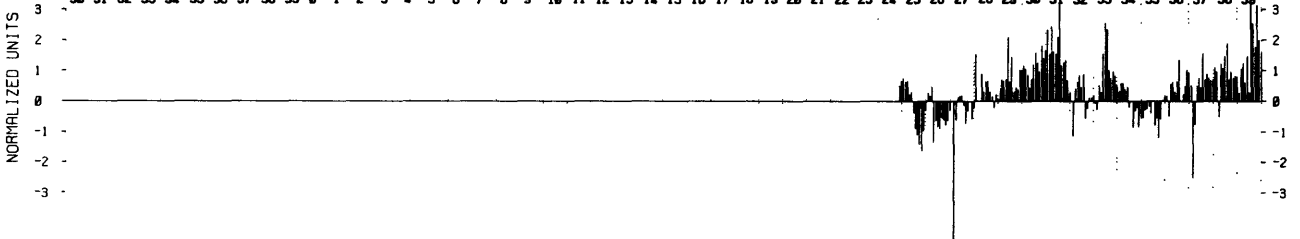


Figure 298. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at Balboa, CA, 1924-1986.

SEA SURF SALINITY LA JOLLA CALIFORNIA

UNITS ARE PER MILLE

1916-1986
NOTE: SALINITY DURING MID-40'S TO
MID-50'S MAY HAVE ARTIFICIALLY LOW
VARIABILITY DUE TO AN ANALYSIS PROBLEM
G. RODEN, CALCOFI REPORTS, VOL 8, 1961

ARNOLD MANTYLA, SIO, A-030
UCSD, LA JOLLA, CA 92093

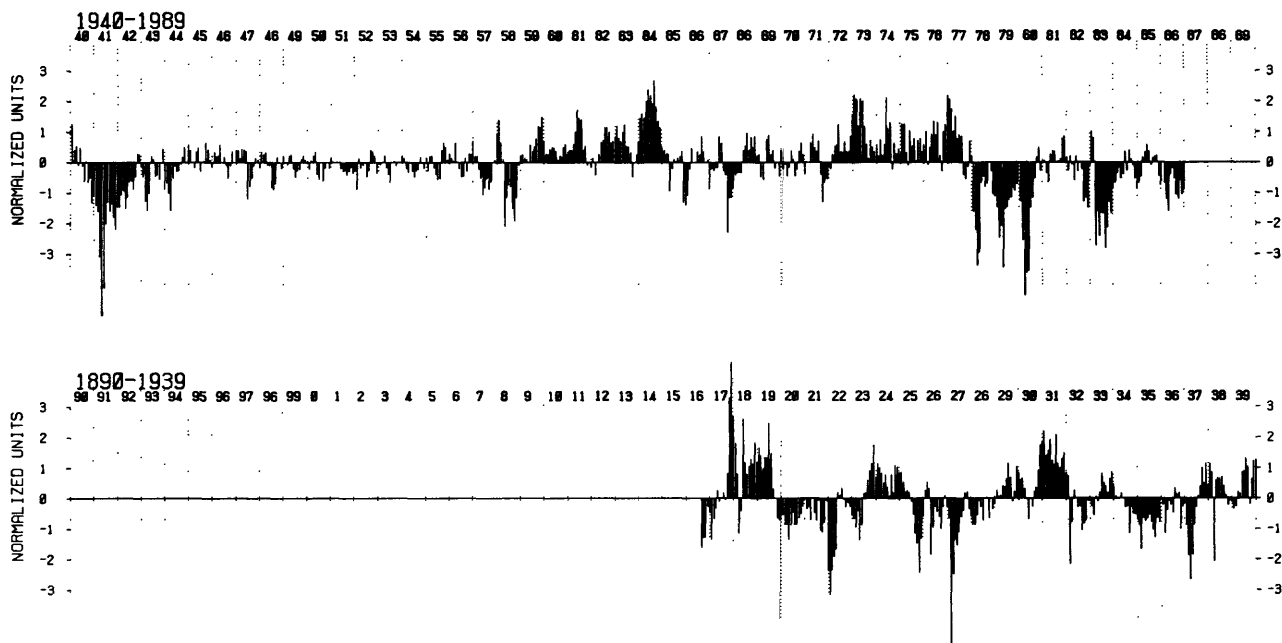
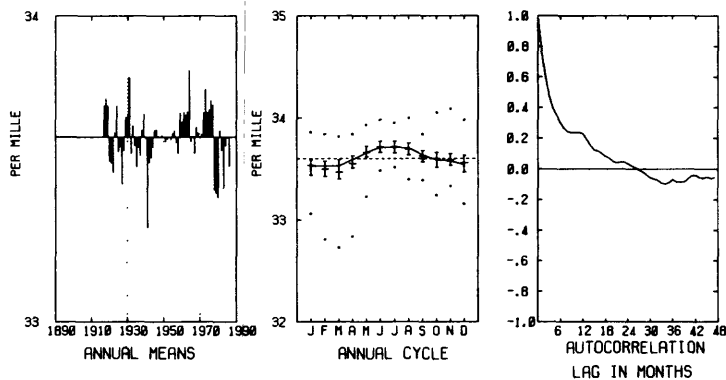


Figure 299. Graphs of standardized monthly anomaly and selected statistics for sea-surface salinity at La Jolla, CA, 1916-1986.

Variable IX: Atmospheric, Biological, and Miscellaneous

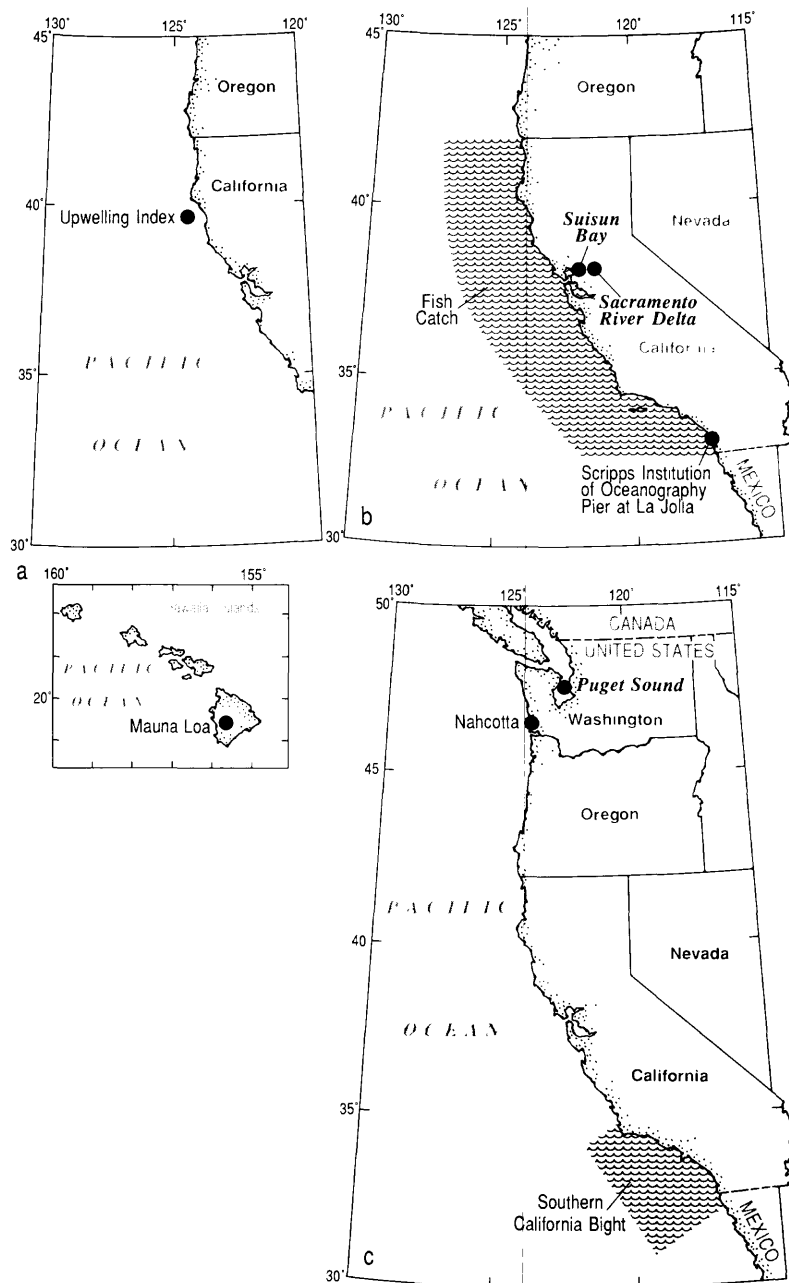


Figure 300. Map showing locations of atmospheric, biological, and miscellaneous ocean temperature and salinity data stations.

Table 9.--Index to Atmospheric, Biological, and Miscellaneous ocean temperature and salinity data stations.

Map* Figure No.	Figure No.	Variable	Station Name	Latitude Longitude	Period of Record	Source**
<i>Atmospheric Variables</i>						
a	301	Upwelling Index	none	39° 00'N. 125° 00'W.	1946- 1987	Bakun
a	302	PNA Index	none	See Text	1946-1984	McLain
a	303	SOI	Tahiti/Darwin	Not Applicable	1882- 1988	NOAA
a	304	Atmospheric CO ₂	Mauna Loa, HI	19° 30'N. 155° 36'W.	1958- 1987	Keeling
a	305	Atmospheric CO ₂	Mauna Loa/South Pole	See Text	1958- 1989	Keeling
<i>Biological Variables</i>						
b	306	chlorophyll-a	Suisun Bay, CA	38° 05'N. 122° 03'W.	1968-1986	Lehman
b	307	chlorophyll-a	Sacramento-San Joaquin Delta, CA	38° 35'N. 121° 30'W.	1968- 1986	Lehman
b	308	phytoplankton	Suisun Bay, CA	38° 05'N. 122° 03'W.	1968- 185	Lehman
b	309	phytoplankton	Sacramento-San Joaquin Delta, CA	38° 35'N. 121° 30'W.	1968- 1985	Lehman
b	310	zooplankton	Suisun Bay, CA	38° 35'N. 122° 30'W.	1971- 1981	Lehman
b	311	zooplankton	Sacramento-San Joaquin Delta, CA	38° 05'N. 121° 03'W.	1971- 1981	Lehman
c	312	small plankton	Southern CA Bight	See Figure 300c	1951- 1986	Moser/Smith
c	313	anchovy larvae	Southern CA Bight	See Figure 300c	1951- 1986	Moser/Smith
c	314	sardine larvae	Southern CA Bight	See Figure 300c	1951- 1986	Moser/Smith
c	315	total fish larvae	Southern CA Bight	See Figure 300c.	1951- 1986	Moser/Smith
c	316	Oyster Condition Index	Nahcotta, WA	46° 28'N. 124° 02'W.	1959- 1985	Schoener
b	317	anchovy catch	CA	See Figure 300b	1928- 1985	Sund
b	318	sablefish catch	CA	See Figure 300b	1928- 1985	Sund
b	319	sardine catch	CA	See Figure 300b	1928- 1985	Sund
b	320	bonito catch	CA	See Figure 300b	1928- 1985	Sund
b	321	sanddab catch	CA	See Figure 300b	1928- 1985	Sund
b	322	squid catch	CA	See Figure 300b	1928- 1985	Sund
b	323	diatom chaetoceros debilis	La Jolla, CA (Scripps pier)	32° 50'N. 117° 10'W.	1930- 1939	Tont
b	324	diatom eucampia zoodiacus	La Jolla, CA (Scripps pier)	32° 50'N. 117° 10'W.	1930- 1939	Tont
b	325	small diatoms	La Jolla, CA (Scripps pier)	32° 50'N. 117° 10'W.	1920- 1939	Tont
<i>Miscellaneous Variables</i>						
c	326	150m temperature	Puget Sound, WA	47° 05'N. 122° 25'W.	1933- 1984	Ebbesmeyer
c	327	150m salinity	Puget Sound, WA	47° 05'N. 122° 25'W.	1933- 1984	Ebbesmeyer
c	328	10m temperature	Southern CA Bight	See Figure 300c	1951- 1985	Moser/Smith
c	329	10m salinity	Southern CA Bight	See Figure 300c.	1951- 1985	Moser/Smith

*Refers to map location on Figure 300.

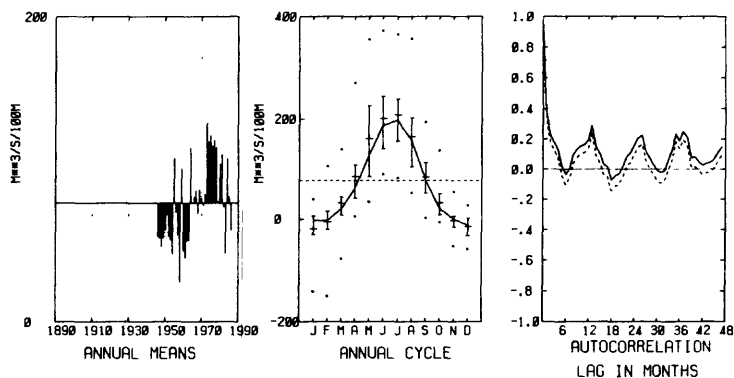
**See Contributors List, p. 379.

BAKUN COASTAL UPWELLING INDEX

UNITS ARE $M^3/S/100M$

1946-1987

OFFSHORE EKMAN TRANSPORT
IN M^3/S PER 100 METERS OF COASTLINE
DERIVED FROM MONTHLY MEAN SLP
REF: BAKUN, A., 1975, NOAA TECH. REP.
NMFS - SSRF 671.



1940-1989

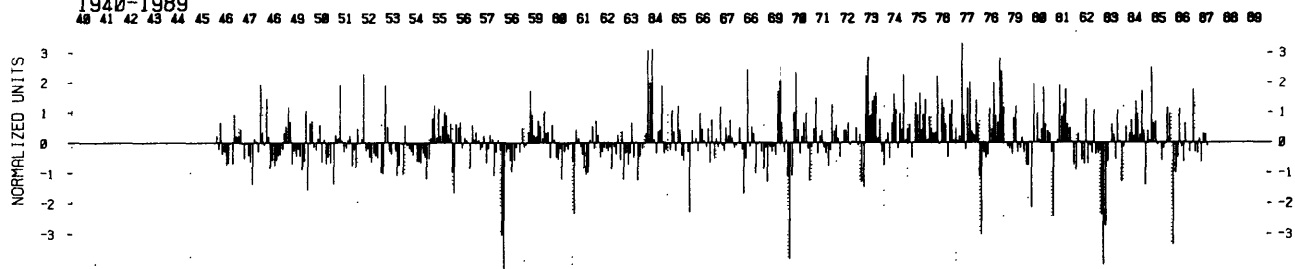


Figure 301. Graphs of standardized monthly anomaly and selected statistics for Upwelling Index, 1946-1987.

PNA INDEX FROM 500 MB HEIGHT

UNITS ARE M

1946-1984
PNA INDEX FROM 500 MB HEIGHT
DEFINED BY WALLACE AND GUTELER
1981 MO. WEATHER. REV. VOL 109, P. 798
 $PNA = 0.25[Z(20N, 160W) - Z(45N, 165W) + Z(55N, 115W) - Z(30N, 85W)]$
NOTE THAT PNA IS COMMONLY USED FOR WINTER MONTHS ONLY

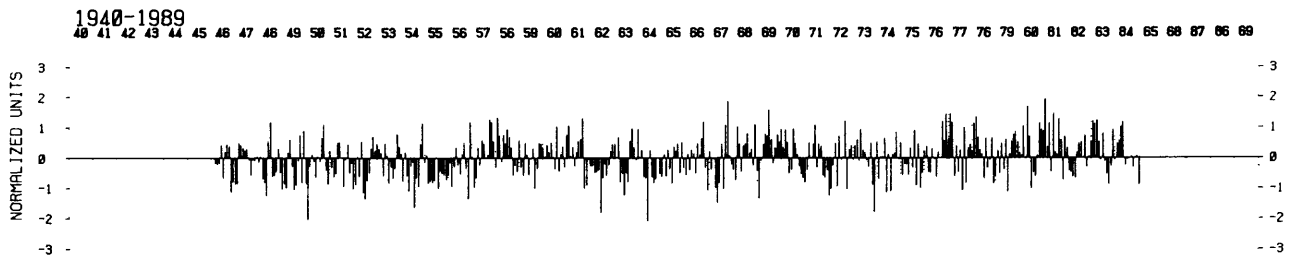
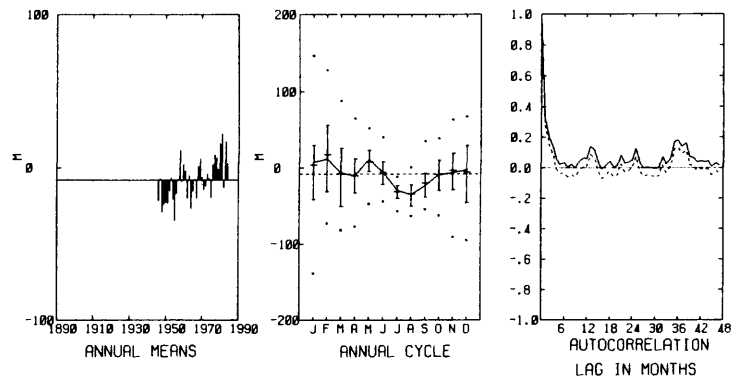
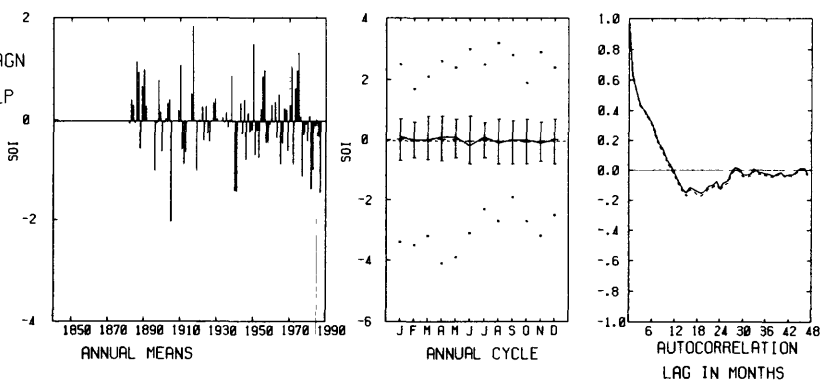


Figure 302. Graphs of standardized monthly anomaly and selected statistics for PNA Index, 1946-1984.

SOUTHERN OSCILLATION INDEX (S.O.I.)

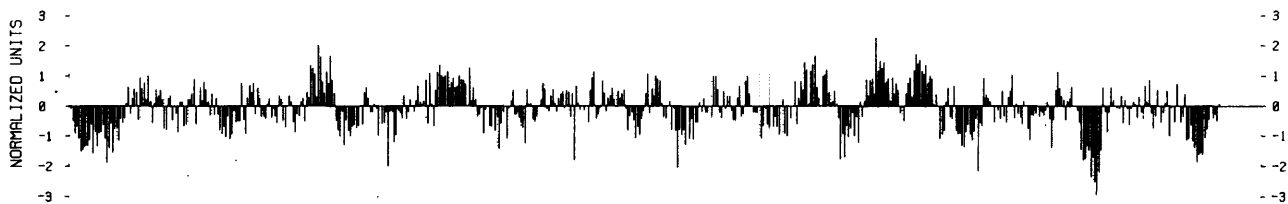
UNITS ARE SOI

1882-1988
FROM NOAA CLIM. ANALYSIS CNTR, CLIM DIAGN
BULL. MAR. 1986 TABULATION WITH UPDATE
PRE-1935 S.O.I. FROM TAHITI - DARWIN SLP
FROM NCAR SURFACE STATIONS.
THIS S.O.I. IS NOAA CAC VERSION
AS DEF BY ROPELEWSKI AND JONES 1987
MO. WEA. REV. VOL. 115, P. 2161



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39



1840-1889

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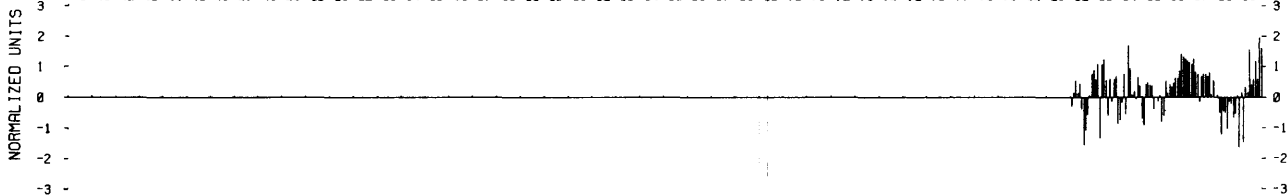


Figure 303. Graphs of standardized monthly anomaly and selected statistics for SOI, Tahiti/Darwin, 1935-1988.

ATMOSPHERIC CO₂ MAUNA LOA HAWAII

UNITS ARE PPM

1958-1987
MAUNA LOA OBSERVATORY, ALTITUDE 3400
METERS, STATION OPERATED BY NOAA,
AVERAGES OF DATA ADJUSTED TO THE 15TH
OF EACH MONTH

CHARLES D. KEELING, SIO, A-020, UNIV.
OF CA, SAN DIEGO, LA JOLLA, CA 92093

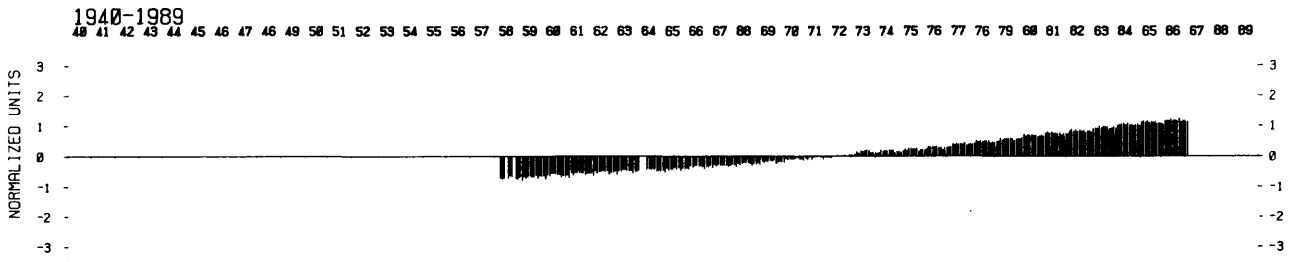
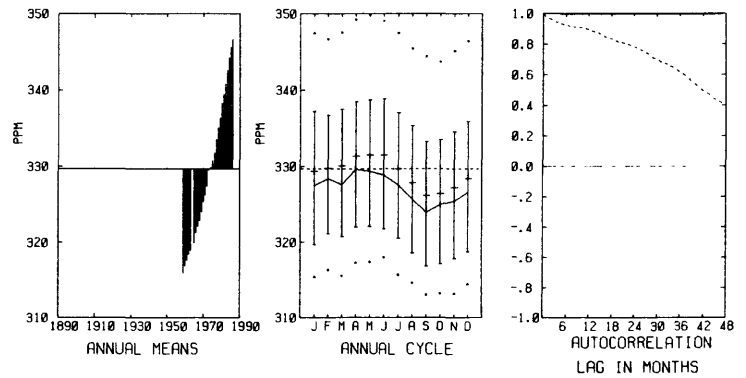


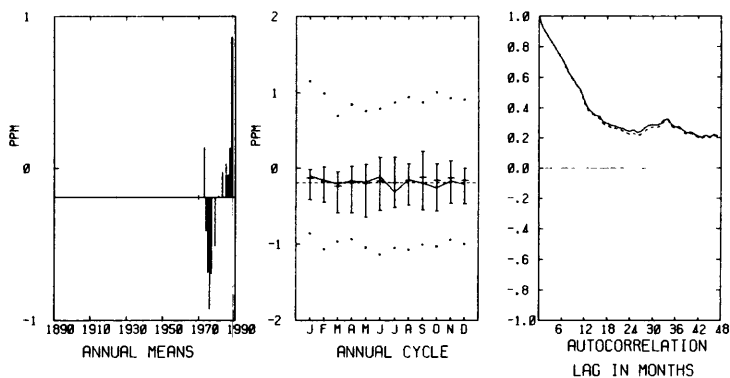
Figure 304. Graphs of standardized monthly anomaly and selected statistics for Atmospheric CO₂, Mauna Loa, HI, 1958-1987.

ATMOSP CO2 ANOM MAUNA LOA/SOUTH POLE

UNITS ARE PPM

1958-1989

GLOBAL ATMOSPHERIC CO2 ANOM
FORMED FROM AVG OF MAUNA LOA/SOUTH POLE
SEASONALITY AND TREND REMOVED
REF KEELING ET AL 1989
AGU PACIFIC CLIMATE MONOGRAPH



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

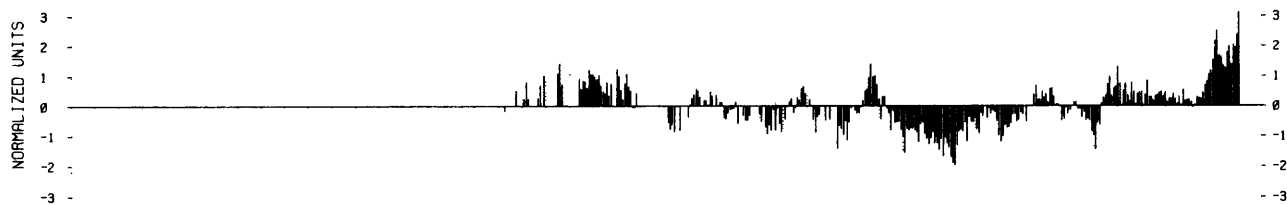


Figure 305. Graphs of standardized monthly anomaly and selected statistics for Atmospheric CO₂, Mauna Loa/South Pole, 1958-1989.

CHLOROPHYLL A SUISUN BAY CALIFORNIA

UNITS ARE MICROGRAM/L

1968-1986
MONTHLY CONCENTRATIONS CALCULATED FROM
AVERAGE CONCENTRATIONS MEASURED SEMI-
MONTHLY FROM A DEPTH OF 1-M; COLLECTED
BY CA DEPT WATER RESOURCES & US BUREAU
OF RECLAMATION, MISS. VALUES WERE EST.
PEGGY LEHMAN, DEPT OF WATER RESOURCES,
3251 S ST, SACRAMENTO, CA 95816
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

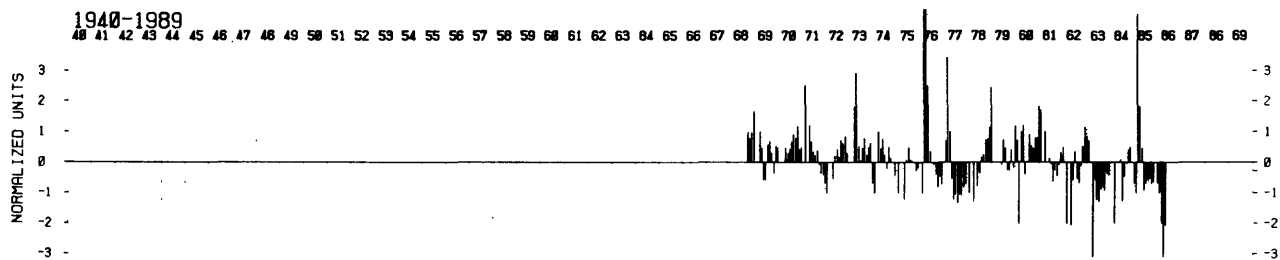
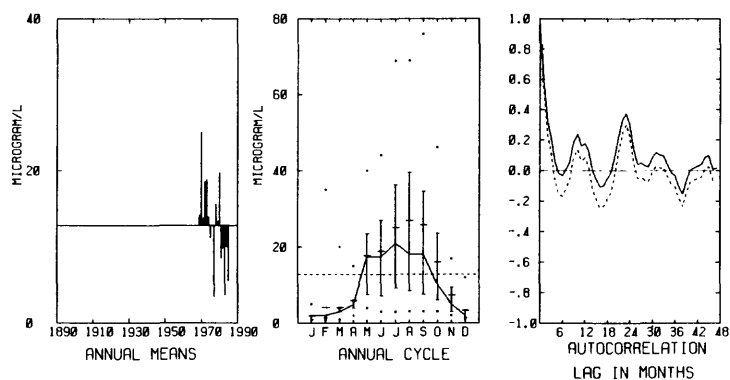


Figure 306. Graphs of standardized monthly anomaly and selected statistics for chlorophyll-a, Suisun Bay, CA, 1968-1986.

CHLOROPHYLL A SACRAMENTO-SAN JOAQUIN DELTA CA

UNITS ARE MICROGRAM/L

1968-1986
MONTHLY CONCENTRATIONS CALCULATED
FROM AVERAGE CONCENTRATIONS MEASURED
SEMI-MONTHLY FROM A DEPTH OF 1-M FOR
3 SITES, COLLECTED BY CA DEPT OF WATER
RESOURCES & US BUREAU OF RECLAMATION.
PEGGY LEHMAN, DEPT OF WATER RESOURCES,
3251 S STREET, SACRAMENTO, CA 95816
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

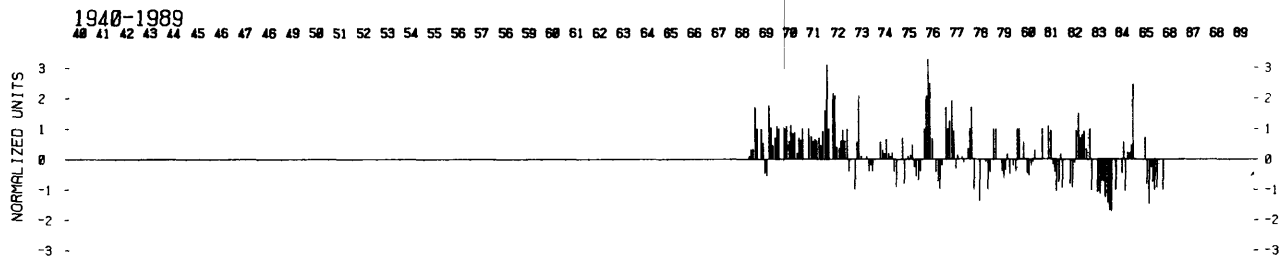
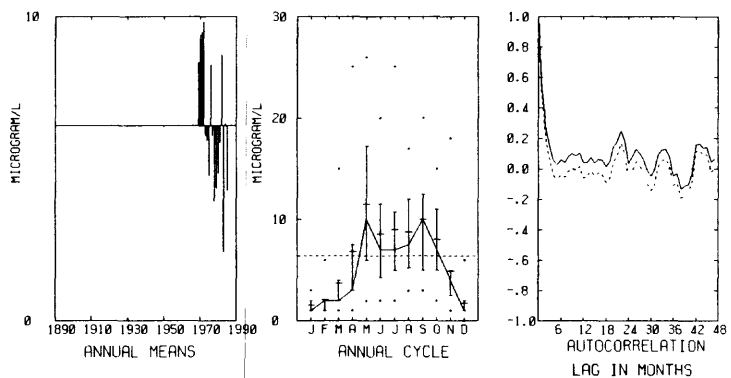


Figure 307. Graphs of standardized monthly anomaly and selected statistics for chlorophyll-a, Sacramento-San Joaquin Delta, CA, 1968-1986.

PHYTOPLANKTON CELL DENSITY SUISUN BAY CA

UNITS ARE CELLS/ML

1968-1985
MONTHLY PHYTOPLANKTON CELL DENSITY
FROM WATER SAMPLES COLLECTED FROM A
DEPTH OF 1-M BY CA DEPT OF WATER
RESOURCES & US BUREAU OF RECLAMATION.
MISSING VALUES WERE ESTIMATED.
PEGGY LEHMAN, DEPT OF WATER RESOURCES,
3251 S STREET, SACRAMENTO, CA 95816
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

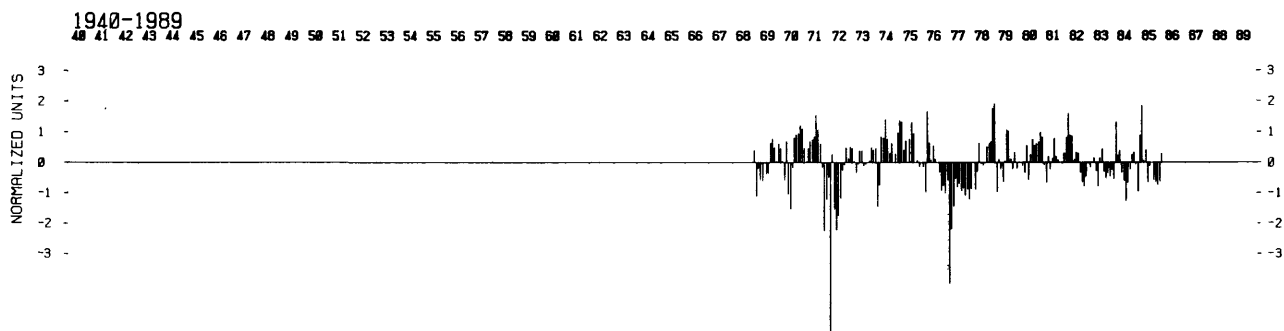
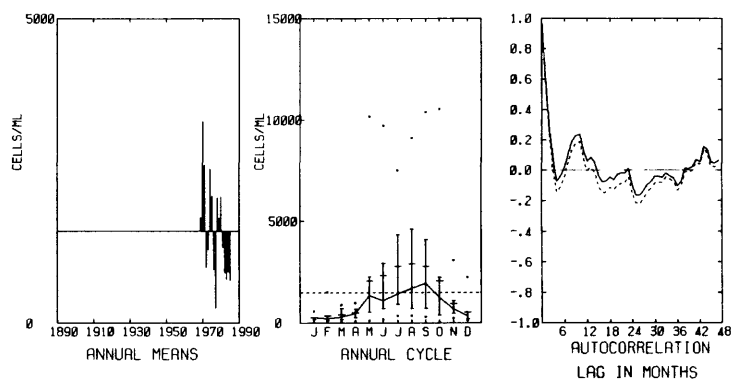


Figure 308. Graphs of standardized monthly anomaly and selected statistics for phytoplankton, Suisun Bay CA, 1968-1985.

PHYTOPLANKTON SACRAMENTO-SAN JOAQUIN DELTA CA

UNITS ARE CELLS/ML

1968-1985
MONTHLY PHYTOPLANKTON CELL DENSITY
CALCULATED FROM AVG COUNTS FOR 3
SITES. CALCULATED FROM A DEPTH OF 1-M
BY CA DEPT WATER RESOURCES & US BUREAU
OF RECLAMATION, MISS. VALUES WERE EST.
PEGGY LEHMAN, DEPT OF WATER RESOURCES,
3251 S STREET, SACRAMENTO, CA 95816.
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES

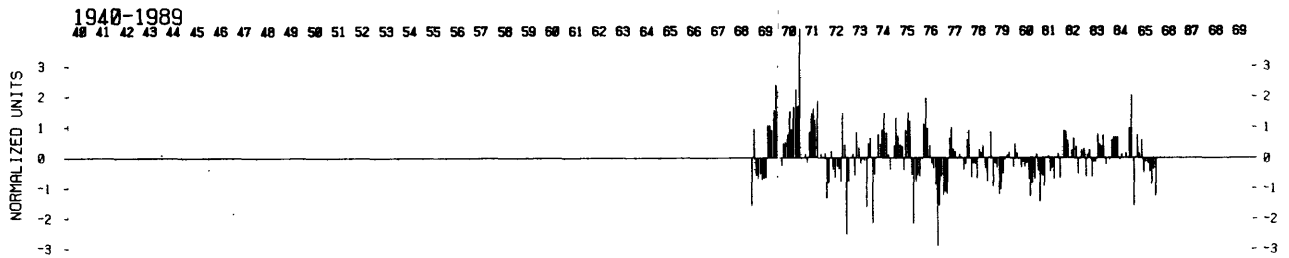
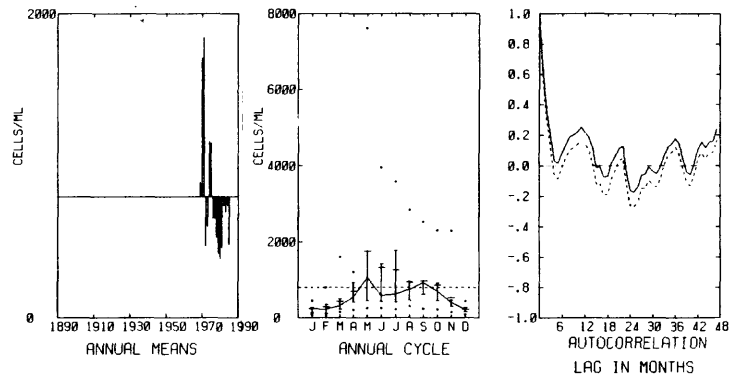
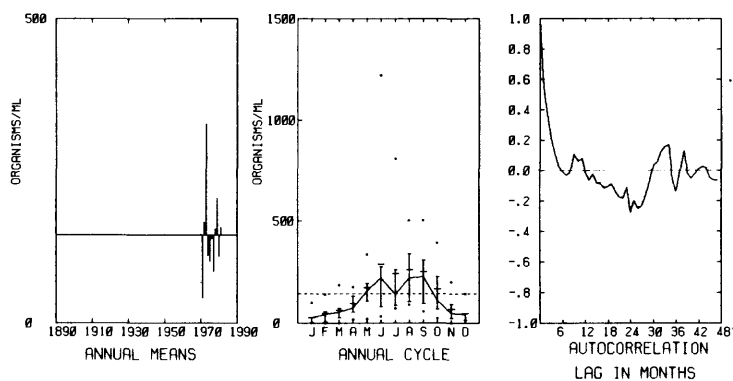


Figure 309. Graphs of standardized monthly anomaly and selected statistics for phytoplankton, Sacramento-San Joaquin Delta, CA, 1968-1985.

ZOOPLANKTON SUISUN BAY CA

UNITS ARE ORGANISMS/ML

1971-1981
MONTHLY ZOOPLANKTON ABUNDANCE DETERMINED FROM NET TOWS TAKEN BY CA DEPT OF FISH & GAME, INCLUDED COPEPODS, CLADOCERA, ROTIFERS. MISSING VALUES WERE ESTIMATED.
PEGGY LEHMAN, DEPT OF WATER RESOURCES, 3251 S STREET SACRAMENTO, CA 95816
DATA TRANSFORMED BY LOGARITHM BEFORE COMPUTING ANOMALIES



1940-1989

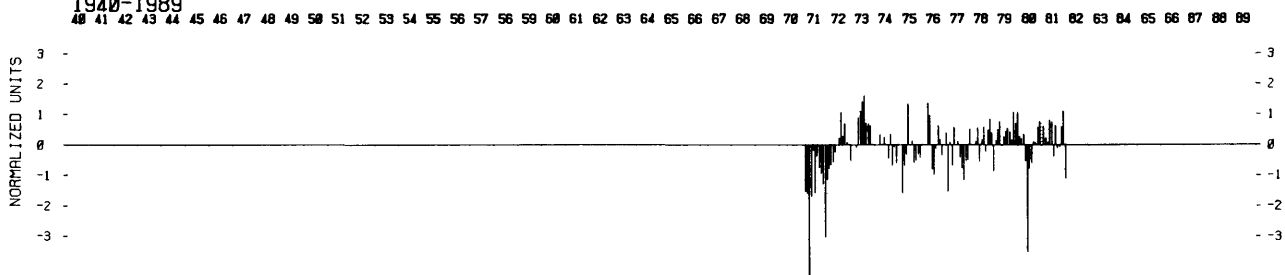


Figure 310. Graphs of standardized monthly anomaly and selected statistics for zooplankton, Suisun Bay CA, 1971-1981.

ZOOPLANKTON SACRAMENTO-SAN JOAQUIN DELTA CA

UNITS ARE ORGANISMS/ML

1971-1981
MONTHLY ZOOPLANKTON ABUNDANCE DETERMINED FROM NET TOWS TAKEN BY CA DEPT OF FISH & GAME AND AVERAGED OVER 3 SITES, INCLUDED CLADOCERA, COPEPODS, ROTIFERS. MISSING VALUES WERE EST. PEGGY LEHMAN, DEPT WATER RESOURCES, 3251 S STREET, SACRAMENTO, CA 95816
DATA TRANSFORMED BY LOGARITHM BEFORE COMPUTING ANOMALIES

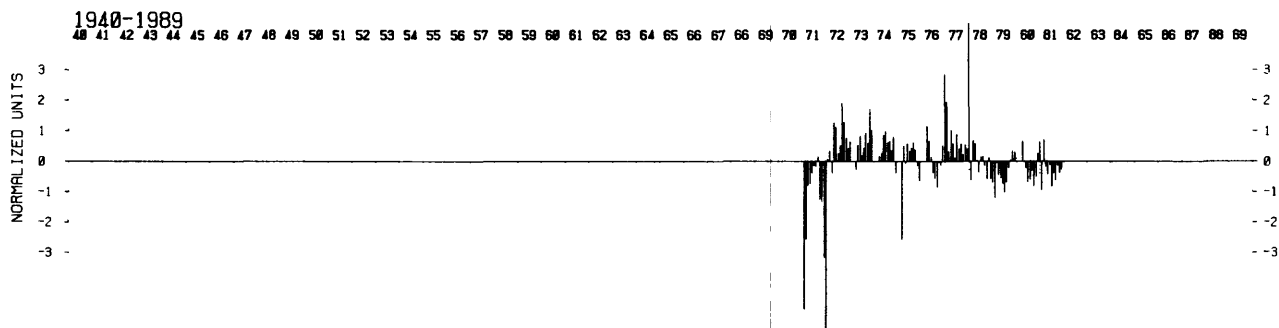
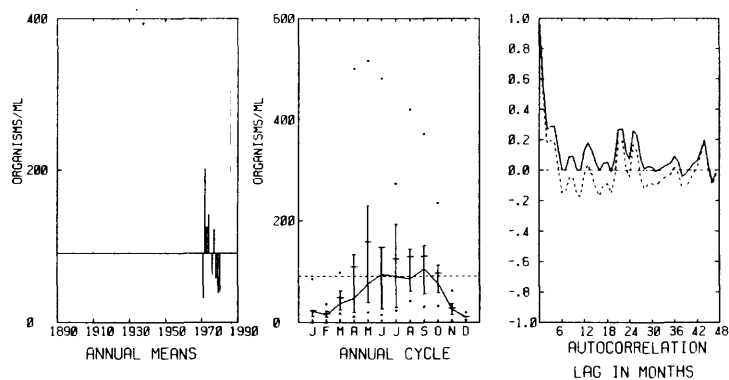


Figure 311. Graphs of standardized monthly anomaly and selected statistics for zooplankton, Sacramento-San Joaquin Delta, CA, 1971-1981.

SMALL PLANKTON S. CA BIGHT/ADJACENT CA COAST

UNITS ARE LOG(DENSITY)

1951-1986
NATURAL LOG OF MONTHLY MEANS OF SMALL
PLANKTON VOLUME PER 1000 CUBIC METERS,
AREA WEIGHTED, -99999 INDICATES NO
OCCUPIED STATIONS
NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038

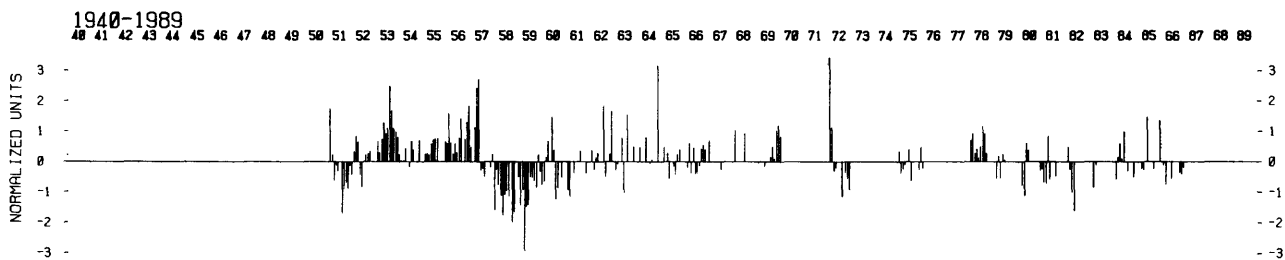
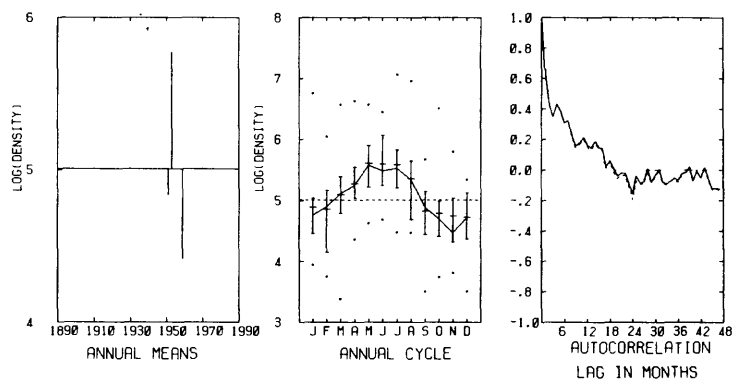


Figure 312. Graphs of standardized monthly anomaly and selected statistics for small plankton, Southern CA Bight, 1951-1986.

ANCHOVY LARVAE S. CA BIGHT/ADJACENT CA COAST

UNITS ARE LOG($\approx/10$ M²)

1951-1986
NATURAL LOG OF MONTHLY MEANS OF ANCHOVY
LARVAE PER 10 SQ METERS, AREA WEIGHTED,
-88888 INDICATES OCCUPIED STATIONS WITH
NO LARVAE FOUND, -99999 IS MISS. DATA.
NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038

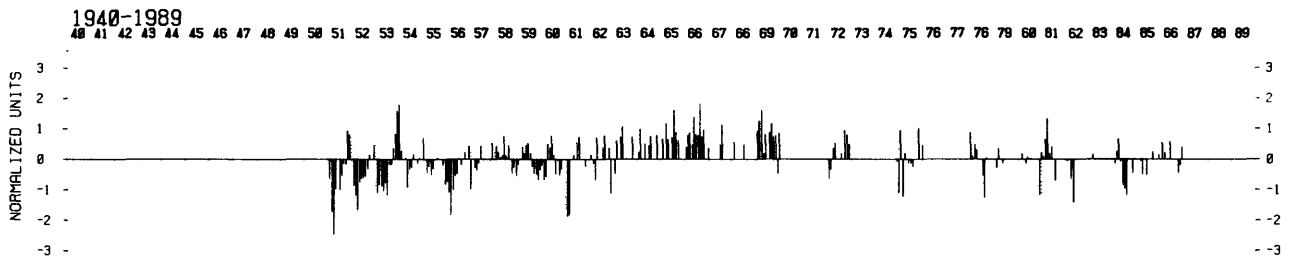
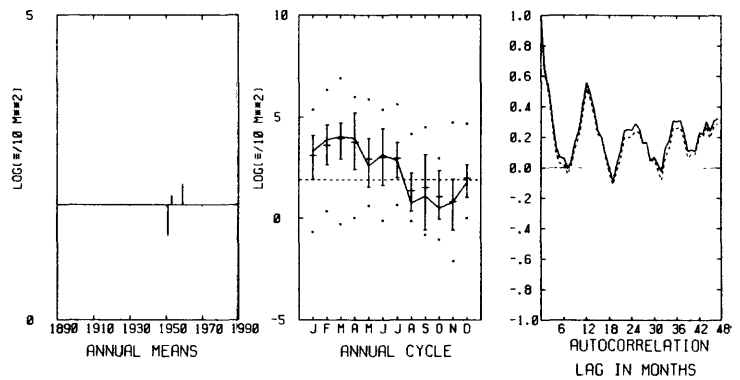
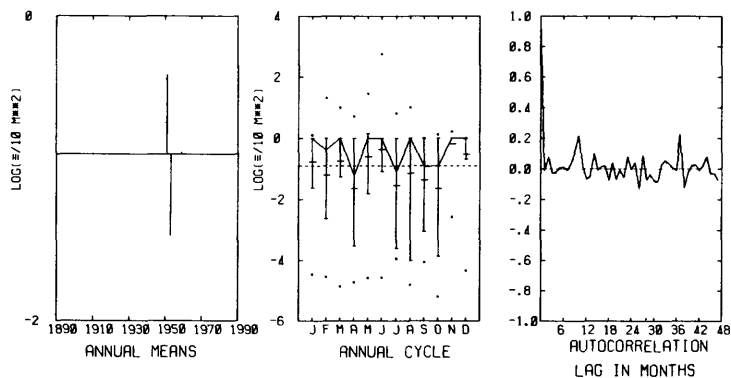


Figure 313. Graphs of standardized monthly anomaly and selected statistics for anchovy larvae, Southern CA Bight, 1951-1986.

SARDINE LARVAE S. CA BIGHT/ADJACENT CA COAST

UNITS ARE $\text{LOG}(=10 \text{ M}^{**2})$

1951-1986
NATURAL LOG OF MONTHLY MEANS OF SARDINE
LARVAE PER 10 SQ METERS, AREA WEIGHTED,
-88888 INDICATES OCCUPIED STATIONS WITH
NO LARVAE FOUND, -99999 IS MISS. DATA.
NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038



1940-1989

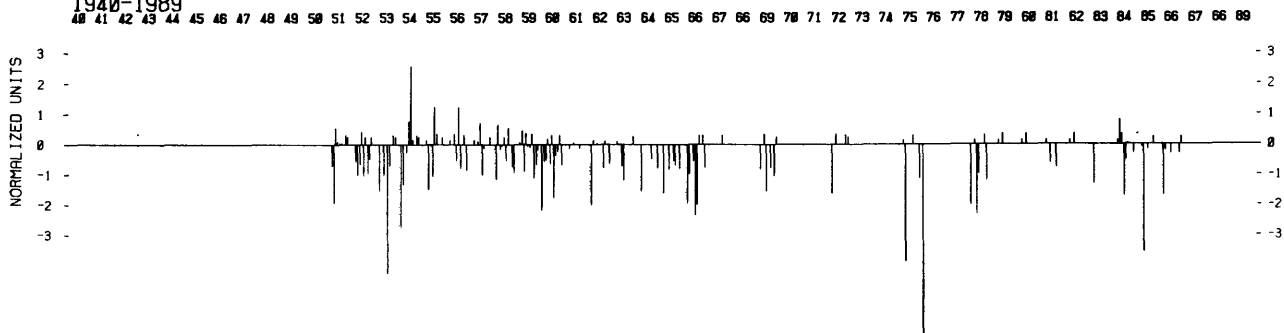
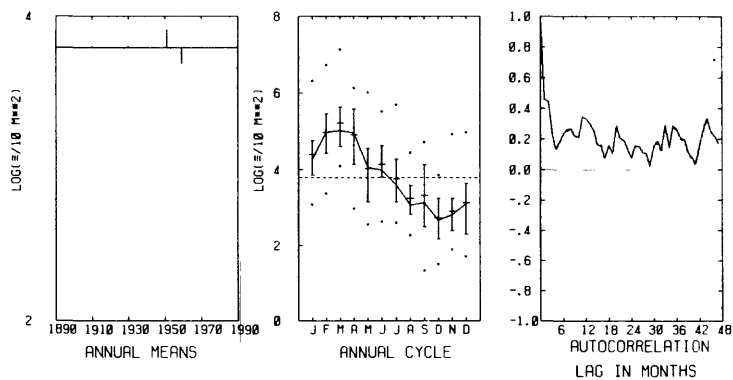


Figure 314. Graphs of standardized monthly anomaly and selected statistics for sardine larvae, Southern CA Bight, 1951-1986.

TOTAL FISH LARVAE S. CA BIGHT/ADJACENT CA COAST

UNITS ARE $\text{LOG}(=/10 \text{ M}^2)$

1951-1986
NATURAL LOG OF MONTHLY MEANS OF TOTAL
FISH LARVAE PER 10 SQUARE METERS, AREA
WEIGHTED; -99999 INDICATES NO OCCUPIED
STATIONS
NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038



1940-1989

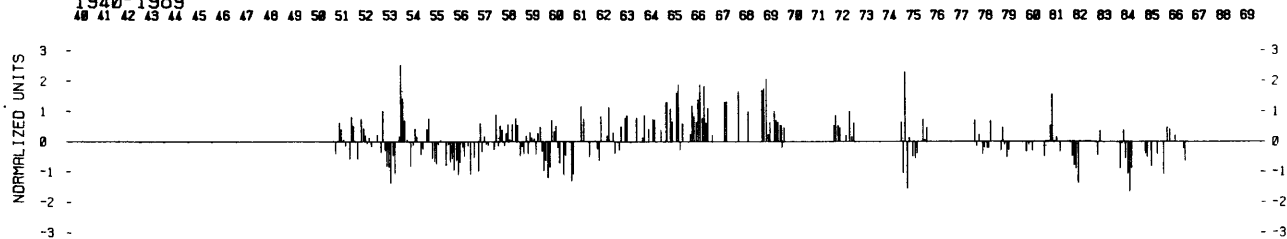


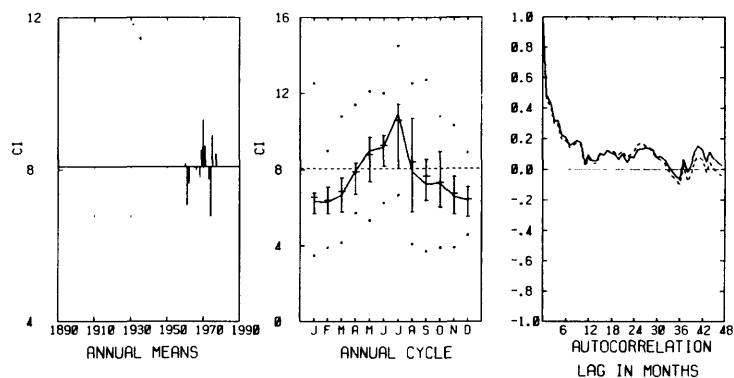
Figure 315. Graphs of standardized monthly anomaly and selected statistics for total fish larvae, Southern CA Bight, 1951-1986.

OYSTER CONDITION INDEX NAHCOTTA

UNITS ARE CI

1959-1985

AMY SCHOENER, INST OF ENV. STUDIES
WILLAPA SHELLFISH LAB, WASHINGTON
REF: JOURNAL OF GEOPHYSICAL RESEARCH
VOL. 92, NO. C13, P. 14,429-14,435, DEC 15, 87
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

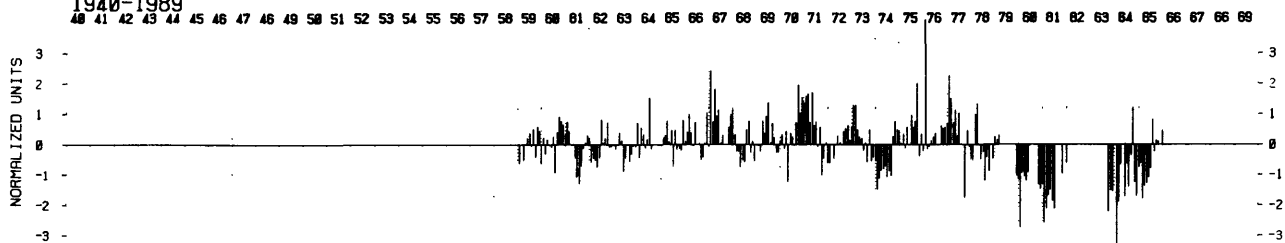


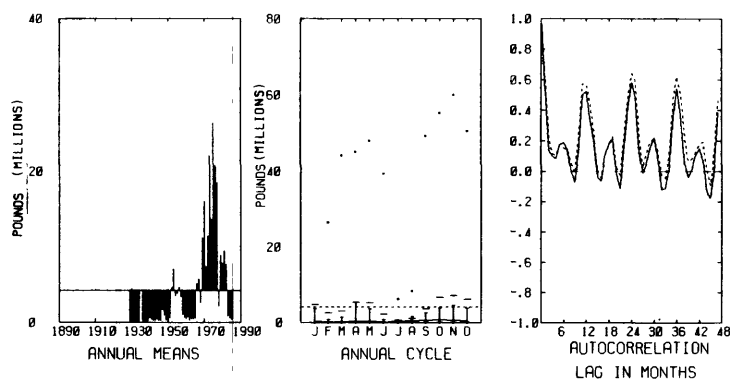
Figure 316. Graphs of standardized monthly anomaly and selected statistics for Oyster Condition Index, Nahcotta, WA, 1959-1985.

COMBINED FISH CATCH DATA FOR ANCHOVY CALIFORNIA

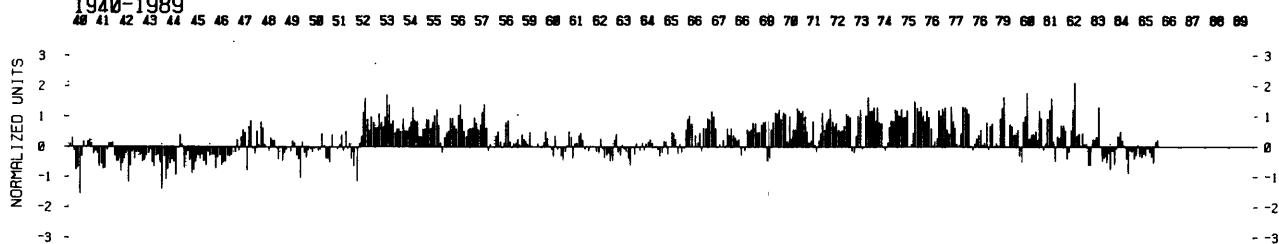
UNITS ARE POUNDS (MILLIONS)

1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989



1890-1939

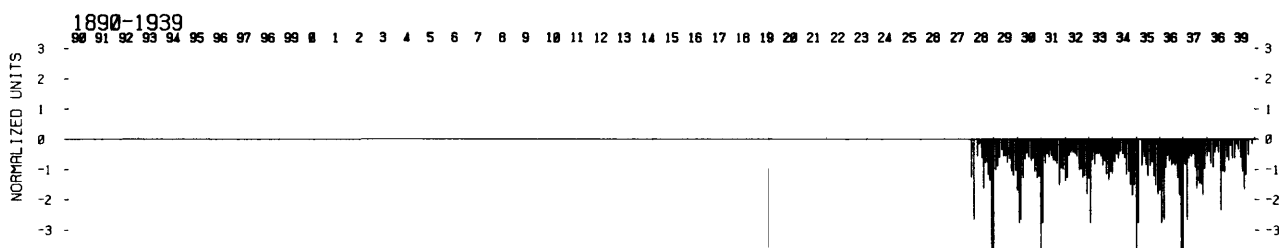


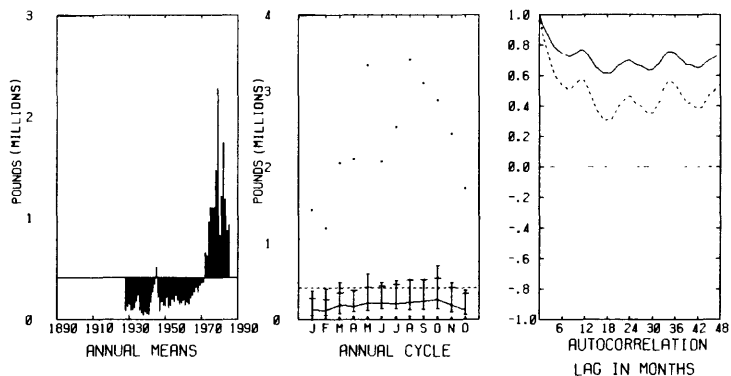
Figure 317. Graphs of standardized monthly anomaly and selected statistics for anchovy catch, CA, 1928-1985.

COMBINED FISH CATCH DATA FOR SABLEFISH CALIFORNIA

UNITS ARE POUNDS (MILLIONS)

1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

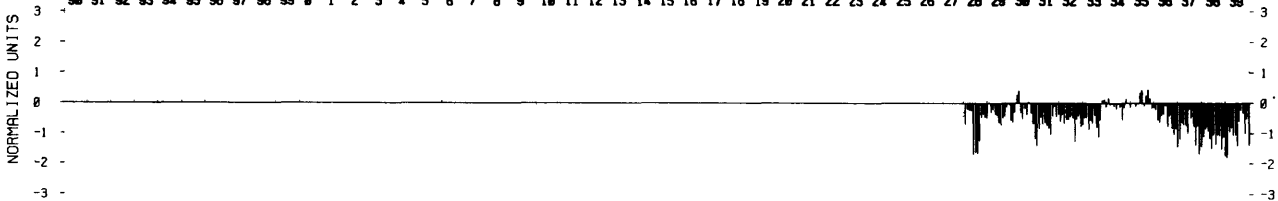


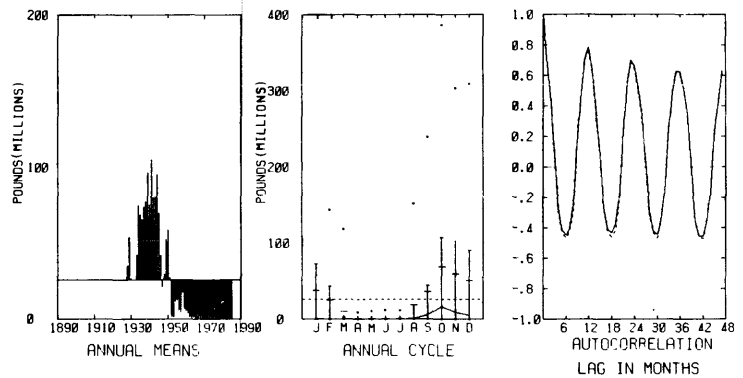
Figure 318. Graphs of standardized monthly anomaly and selected statistics for sablefish catch, CA, 1928-1985.

COMBINED FISH CATCH DATA FOR SARDINE CALIFORNIA

UNITS ARE POUNDS (MILLIONS)

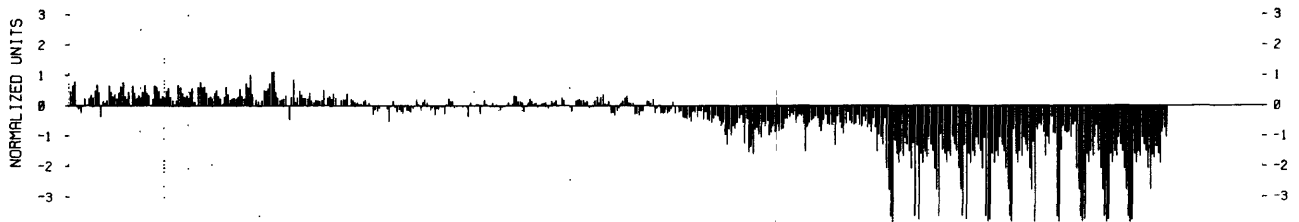
1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

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1890-1939

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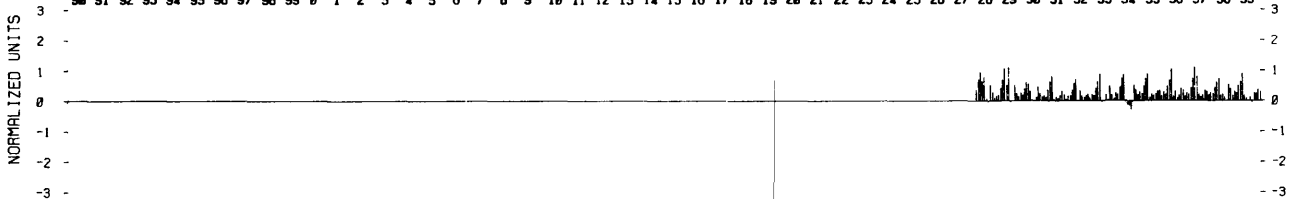


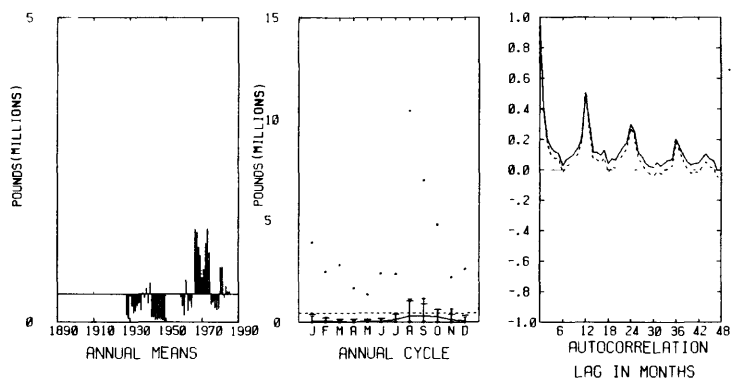
Figure 319. Graphs of standardized monthly anomaly and selected statistics for sardine catch, CA, 1928-1985.

COMBINED FISH CATCH DATA FOR BONITO CALIFORNIA

UNITS ARE POUNDS (MILLIONS)

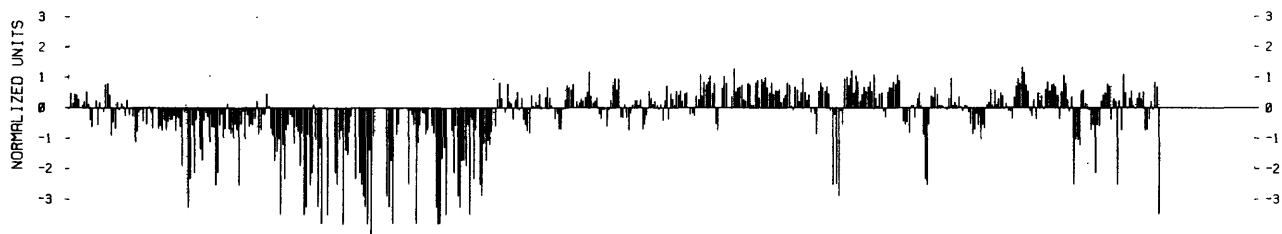
1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

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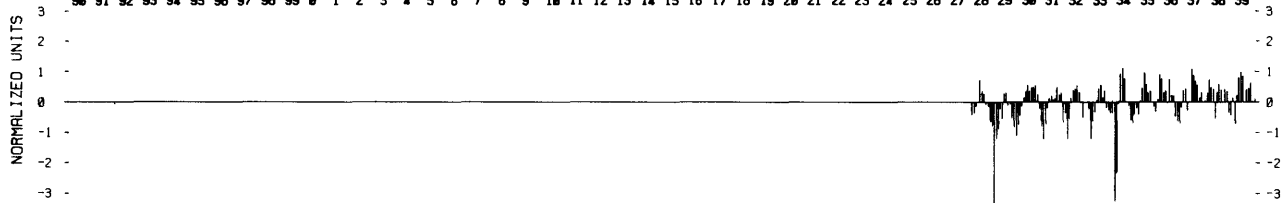


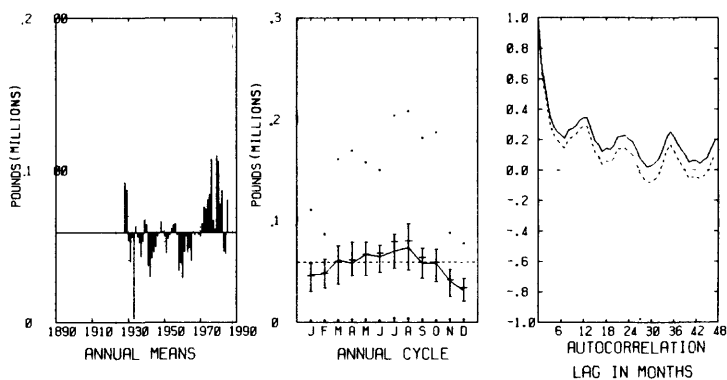
Figure 320. Graphs of standardized monthly anomaly and selected statistics for bonito catch, CA, 1928-1985.

COMBINED FISH CATCH DATA FOR SANDDAB CALIFORNIA

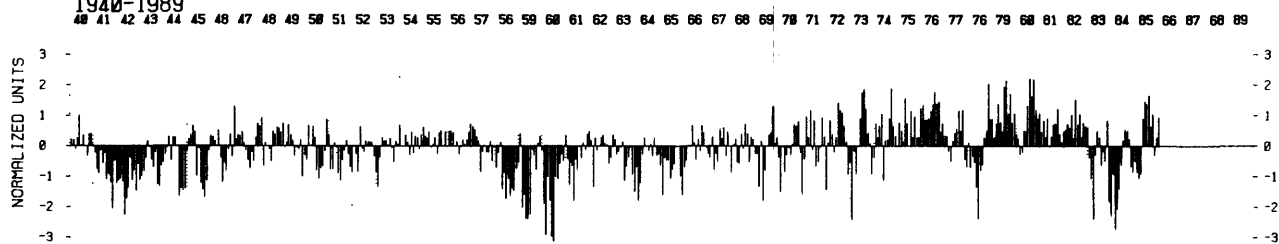
UNITS ARE POUNDS (MILLIONS)

1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989



1890-1939

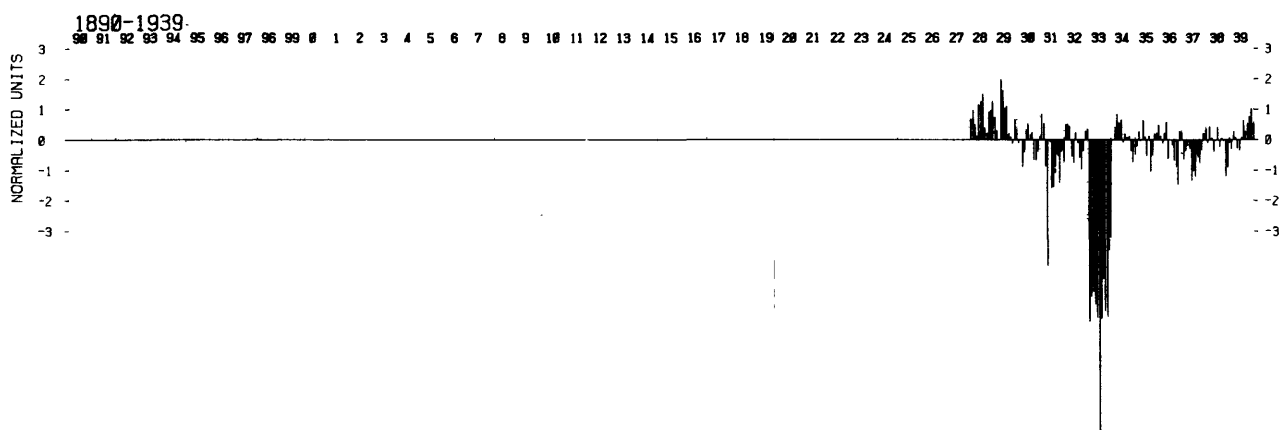


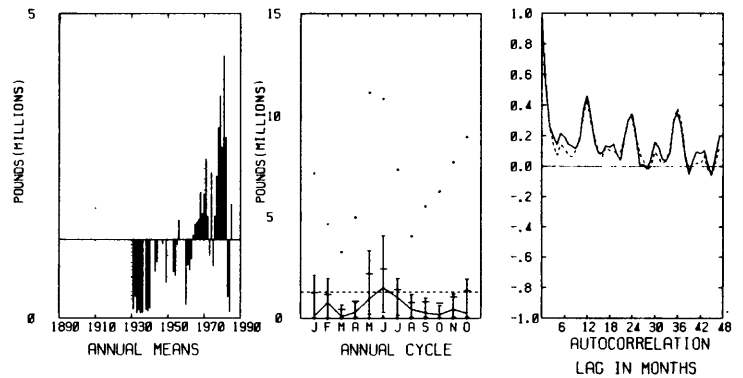
Figure 321. Graphs of standardized monthly anomaly and selected statistics for sanddab catch, CA, 1928-1985.

COMBINED FISH CATCH DATA FOR SQUID CALIFORNIA

UNITS ARE POUNDS (MILLIONS)

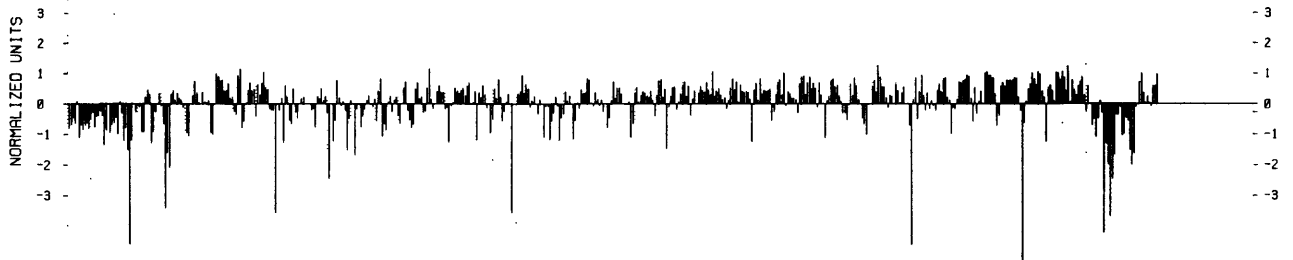
1928-1985

PAUL SUND
PACIFIC FISHERIES ENVIRONMENTAL GROUP
SOUTHWEST FISHERIES CENTER
NATIONAL MARINE FISHERIES SERVICE, NOAA
MONTEREY, CA 93940
DATA TRANSFORMED BY LOGARITHM BEFORE
COMPUTING ANOMALIES



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

89 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

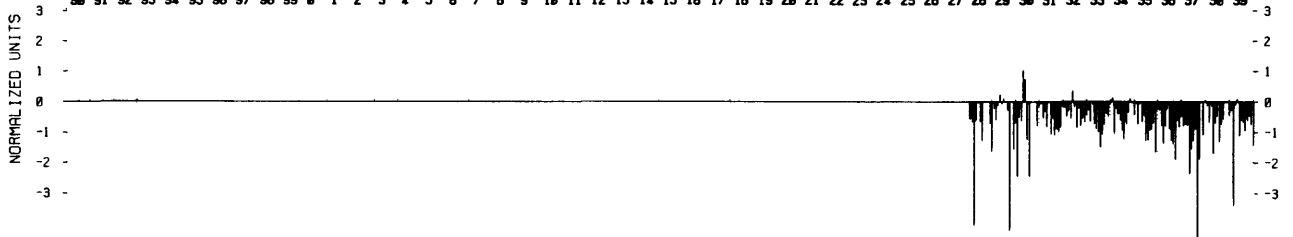
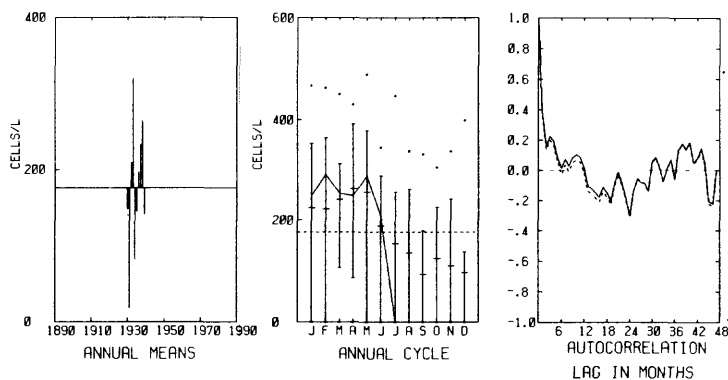


Figure 322. Graphs of standardized monthly anomaly and selected statistics for squid catch, CA, 1928-1985.

DIATOM CHAETOCEROS DEBILIS LA JOLLA CALIFORNIA

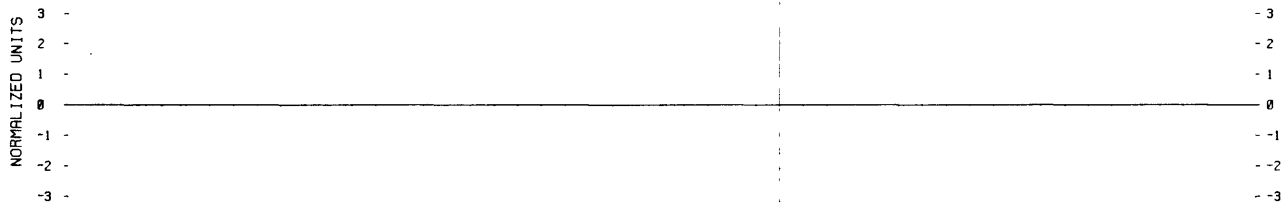
UNITS ARE CELLS/L

1930-1939
COUNTS TAKEN AT SCRIPPS PIER, ORIG
UNITS WERE AVERAGED OVER EACH
MONTH. COUNTS TRANSFORMED BY TAKING
LOG(BASE 10) OF COUNT+1. COLLECTED
BY W.E. ALLEN BY "SETTLING METHOD"
SARGUN A. TONT, SCRIPPS INST OCEANO-
GRAPHY, A-020, LA JOLLA, CA 92093



1940-1989

40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89



1890-1939

90 91 92 93 94 95 96 97 98 99 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

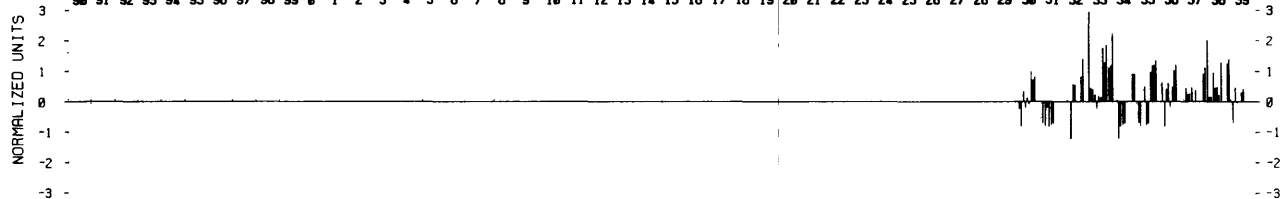
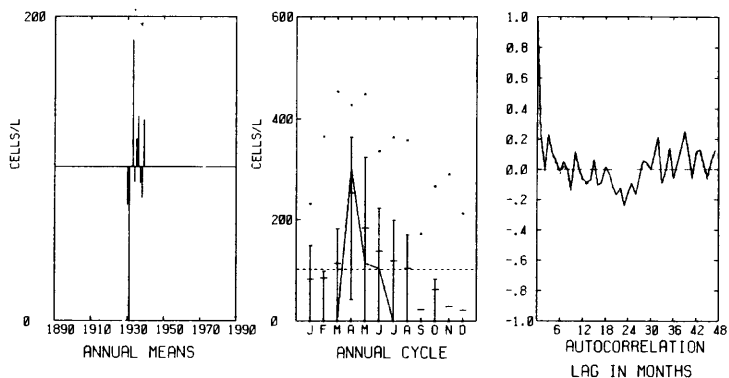


Figure 323. Graphs of standardized monthly anomaly and selected statistics for diatom chaetoceros debilis, La Jolla, CA (Scripps Pier), 1930-1939.

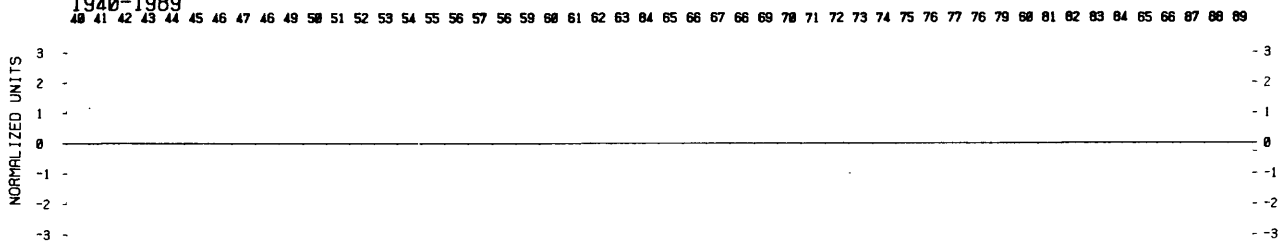
DIATOM EUCAMPIA ZOOIDIACUS LA JOLLA CALIFORNIA

UNITS ARE CELLS/L

1930-1939
COUNTS TAKEN AT SCRIPPS PIER. ORIG
UNITS AVERAGED OVER EACH MONTH WERE
TRANSFORMED BY TAKING LOG(BASE 10)
OF COUNT+1. COLLECTED BY W.E. ALLEN
BY THE "SETTLING METHOD"
SARGUN A. TONT, SCRIPPS INST OF OCEANO-
GRAPHY, A-020, LA JOLLA, CA 92093



1940-1989



1890-1939

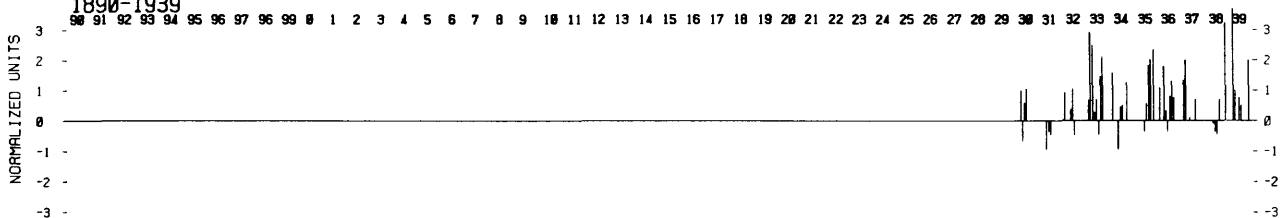
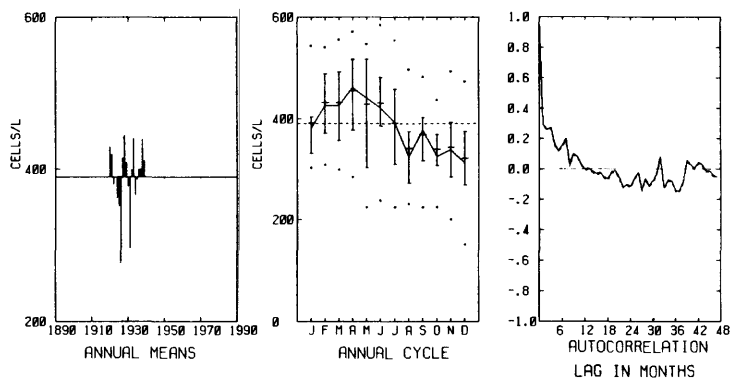


Figure 324. Graphs of standardized monthly anomaly and selected statistics for diatom eucampia zoodiacus, La Jolla, CA (Scripps Pier), 1930-1939.

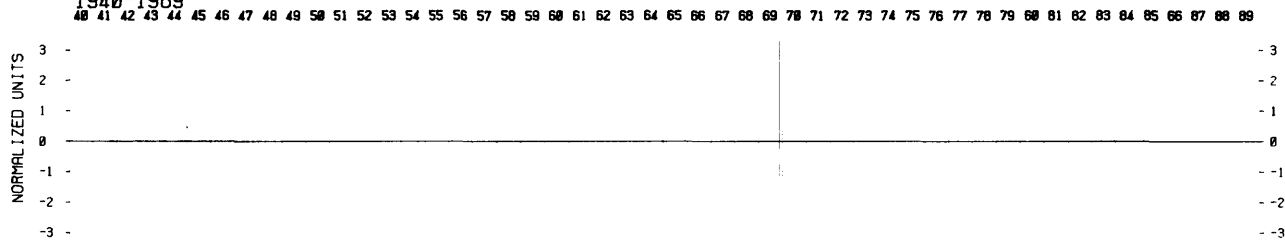
DIATOMS LA JOLLA CALIFORNIA

UNITS ARE CELLS/L

1920-1939
MONTHLY AVG OF DIATOMS AT SIO PIER.
USING FILTERING 1920-1929 AND SETTLING
1930-1939, SETTLING MORE RELIABLE.
(100 LOG10(COUNTS))
COLLECTED BY W.E. ALLEN
SARGUN A. TONT, A-020, SIO, UNIV. OF
CA, SAN DIEGO, LA JOLLA, CA 92093



1940-1989



1890-1939

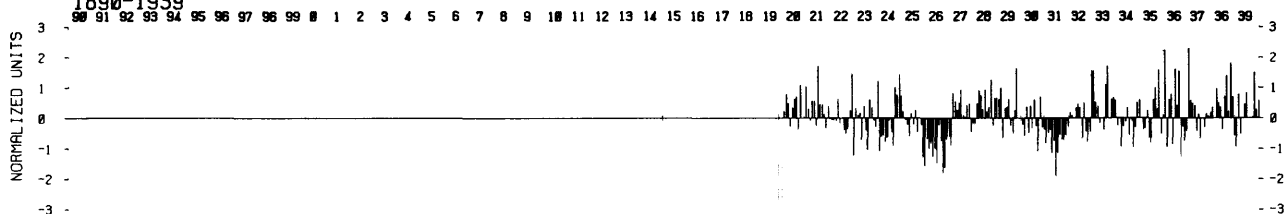


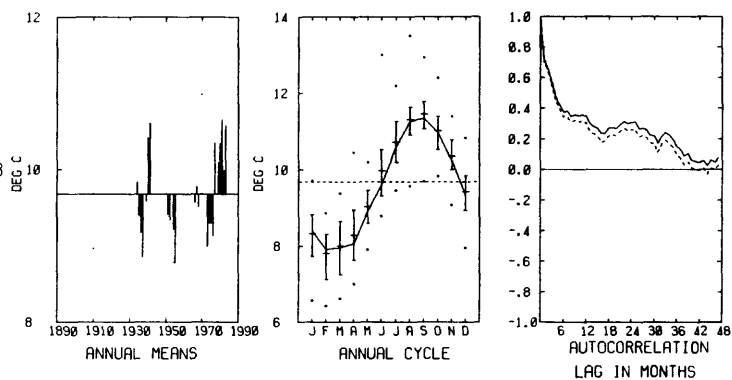
Figure 325. Graphs of standardized monthly anomaly and selected statistics for small diatoms, La Jolla, CA (Scripps Pier), 1920-1939.

150 M TEMP PUGET SOUND WASHINGTON

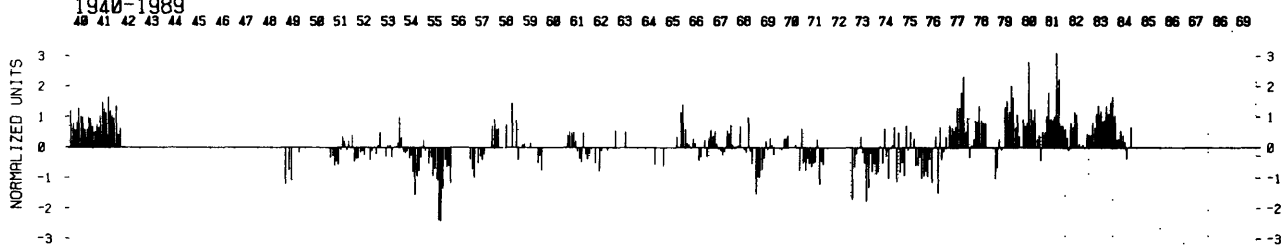
UNITS ARE DEG C

1933-1984

CURTIS C. EBBESMEYER, EVANS-HAMILTON INC.
731 N. NORTHLARE WAY, STE 201, SEATTLE WA 98103



1940-1989



1890-1939

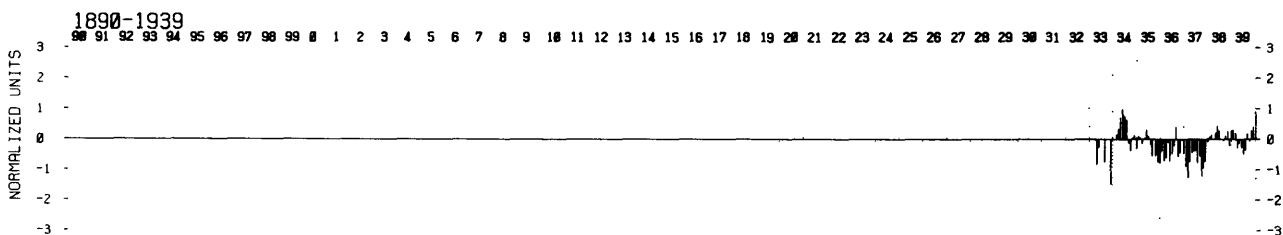


Figure 326. Graphs of standardized monthly anomaly and selected statistics for 150m temperature, Puget Sound, WA, 1933-1984.

150 M SALINITY PUGET SOUND WASHINGTON

UNITS ARE PER MILLE

1933-1984
DATA FROM:
POINT NO POINT 4754N12229W
POINT JEFFERSON 4745N12226W
CURTIS C. EBBESMEYER
EVANS-HAMILTON INC.
731 N. NORTHLARE WAY, SUITE 201
SEATTLE WA 98103

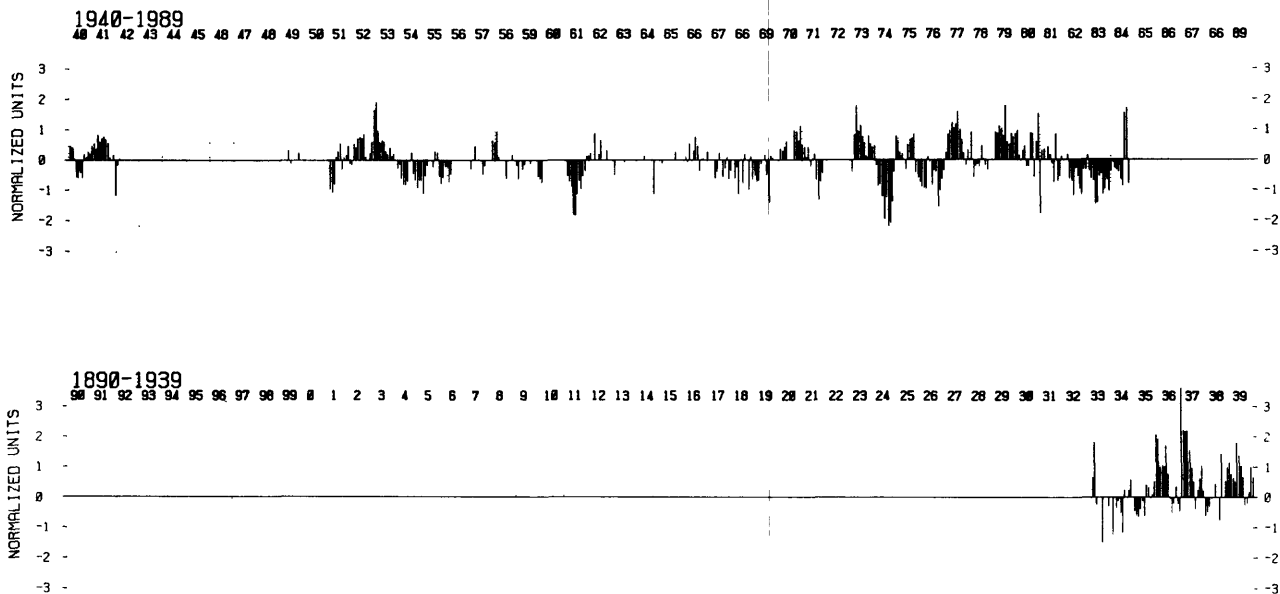
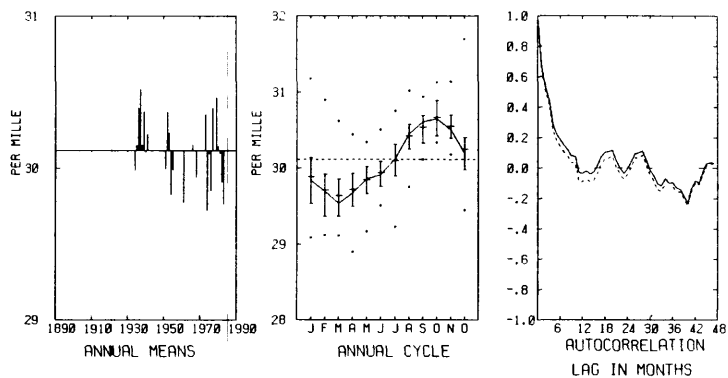


Figure 327. Graphs of standardized monthly anomaly and selected statistics for 150m salinity, Puget Sound, WA., 1933-1984.

10M TEMP S. CA BIGHT/ADJACENT CA COAST

UNITS ARE DEG C

1951-1985
10M WATER BOTTLE TEMPERATURE, EXTRACTED
ONLY WHERE BOTH TEMP & SALINITY WERE
SAMPLED; -99999 INDICATES NO OCCUPIED
STATIONS
NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038

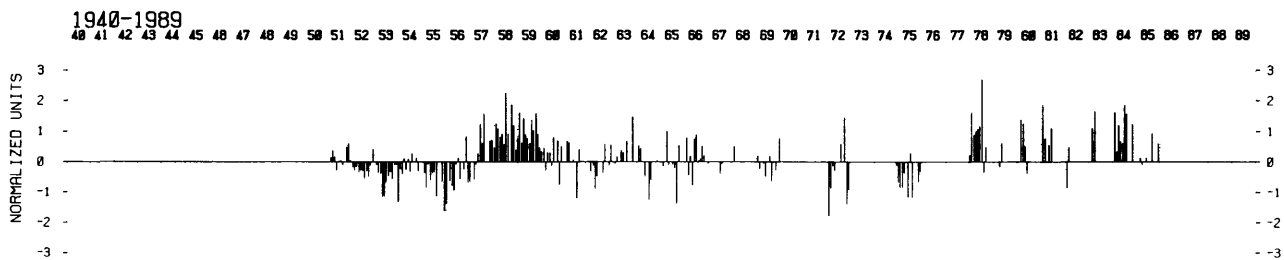
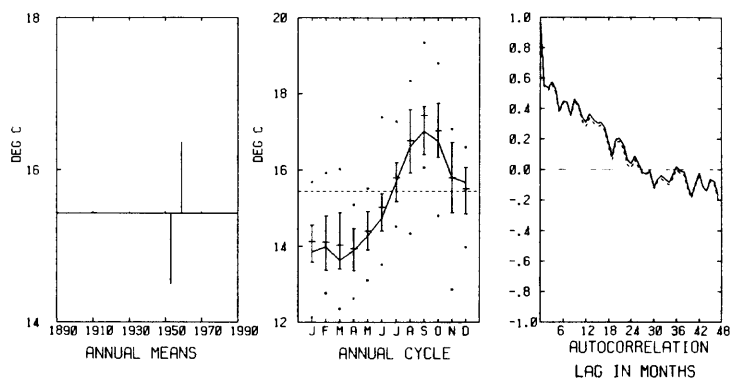


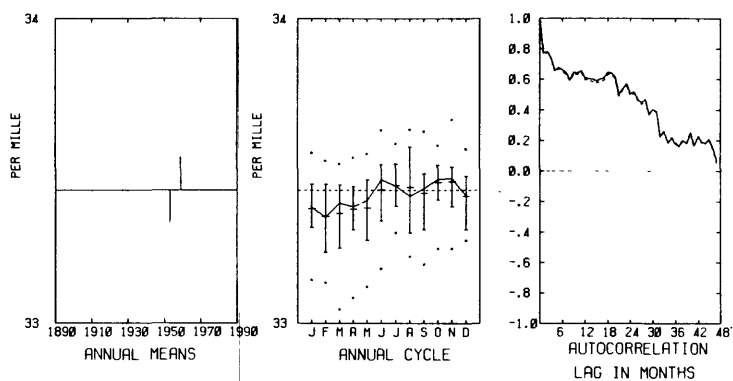
Figure 328. Graphs of standardized monthly anomaly and selected statistics for 10m temperature, Southern CA Bight, 1951-1985.

10M SALINITY S. CA BIGHT/ADJACENT CA COAST

UNITS ARE PER MILLE

1951-1985
DATA EXTRACTED ONLY WHERE BOTH TEMP ^
SALINITY WERE SAMPLED, AREA WEIGHTED,
-99999 INDICATES NO OCCUPIED STATIONS

NATIONAL MARINE FISHERIES SWFC
GEOFF MOSER AND PAUL SMITH
P.O. BOX 271, LA JOLLA, CA 92038



1940-1989

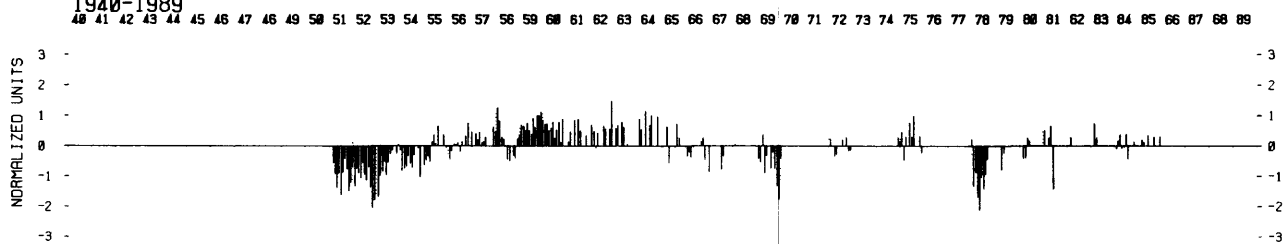


Figure 329. Graphs of standardized monthly anomaly and selected statistics for 10m salinity, Southern CA Bight, 1951-1985.

INDEX OF STATIONS LISTED ALPHABETICALLY

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
Acapulco, MEX	16°50'N.	99°56'W.	1949-1986	Sea-level Height	219	Wyrcki
Acapulco, MEX	16°51'N.	99°56'W.	1950-1972	SST	266	McLain
Adak, AK	51°51'N.	176°39'W.	1942-1984	Air Temperature	7	Tabata
Adak, AK	51°51'N.	176°39'W.	1942-1984	Precipitation	94	Tabata
Adak, AK	51°51'N.	176°39'W.	1946-1978	Barometric Pressure	64	Tabata
Adak, AK	51°51'N.	176°39'W.	1943-1978	SST	232	Tabata
Agassiz, CAN	49°17'N.	121°46'W.	1889-1983	Air Temperature	26	Tabata
Agassiz, CAN	49°17'N.	121°46'W.	1889-1983	Precipitation	114	Tabata
Alameda, CA	37°47'N.	122°18'W.	1939-1978	SST	257	Tabata
Albuquerque, NM	35°06'N.	106°36'W.	1931-1985	Air Temperature	53	NCAR
Albuquerque, NM	35°06'N.	106°36'W.	1931-1985	Precipitation	152	NCAR
Alert Bay, CAN	50°35'N.	126°56'W.	1939-1984	Barometric Pressure	75	Tabata
Amphitrite Point, CAN	48°55'N.	125°32'W.	1934-1984	SST	249	Tabata
Amphitrite Point, CAN	48°55'N.	125°32'W.	1934-1984	Sea-surface Salinity	288	Tabata
Anchorage, AK	61°48'N.	149°53'W.	1941-1984	Air Temperature	5	Tabata
Anchorage, AK	61°13'N.	149°53'W.	1939-1984	Barometric Pressure	63	Tabata
Anchorage, AK	61°48'N.	149°53'W.	1941-1984	Precipitation	93	Tabata
Antofagasta, CHILE	23°39'S.	70°24'W.	1970-1985	Sea-level Height	229	Wyrcki
Antofagasta, CHILE	23°39'S.	70°24'W.	1946-1970	Sea-level Height	228	Wyrcki
Antofagasta, CHILE	23°28'S.	70°26'W.	1945-1969	SST	272	McLain
Annette, CAN	52°09'N.	131°06'W.	1941-1984	Barometric Pressure	72	Tabata
Arroyo Seco, CA	34°13'N.	118°10'W.	1911-1985	Streamflow	186	Peterson
Ashland, OR	42°13'N.	122°43'W.	1889-1986	Air Temperature	42	Redmond
Ashland, OR	42°13'N.	122°43'W.	1879-1986	Precipitation	127	Redmond
Avila/Pt. San Luis, CA	35°10'N.	120°45'W.	1945-1986	SST	259	Mantyla
Balboa, CA	33°36'N.	117°54'W.	1924-1986	SST	263	Mantyla
Balboa, CA	33°36'N.	117°54'W.	1924-1986	Sea-surface Salinity	298	Mantyla
Balboa, CANAL ZONE	8°58'N.	79°36'W.	1909-1985	Sea-level Height	221	Wyrcki
Bear Creek, CO	39°23'N.	105°07'W.	1920-1983	Streamflow	184	Lins
Beowawe, NV	40°36'N.	116°29'W.	1870-1985	Precipitation	134	Michaelsen
Bethel, AK	60°48'N.	162°12'W.	1924-1875	Air Temperature	3	NCAR
Bethel, AK	60°48'N.	162°12'W.	1924-1875	Precipitation	91	NCAR
Bisbee, AZ	31°27'N.	109°55'W.	1889-1984	Precipitation	161	Michaelsen
Blunts Reef Lightship, CA	40°26'N.	124°30'W.	1922-1971	SST	254	Mantyla
Blunts Reef Lightship, CA	40°26'N.	124°30'W.	1923-1941	Sea-surface Salinity	292	Roden
Boise, ID	43°36'N.	116°12'W.	1864-1985	Air Temperature	40	NCAR
Boise, ID	43°36'N.	116°12'W.	1896-1985	Precipitation	123	NCAR
Buckeye, AZ	33°23'N.	112°35'W.	1889-1986	Precipitation	154	Michaelsen
Buenaventura, COLOMBIA	3°54'N.	77°06'W.	1941-1969	Sea-level Height	222	Wyrcki
Buenaventura, COLOMBIA	3°54'N.	77°06'W.	1969-1985	Sea-level Height	223	Wyrcki
Bull Harbour, CAN	50°55'N.	127°57'W.	1921-1984	Air Temperature	21	Tabata
Bull Harbour, CAN	50°55'N.	127°57'W.	1939-1984	Barometric Pressure	74	Tabata
CA	See Figure 300b		1928-1985	anchovy catch	317	Sund
CA	See Figure 300b		1928-1985	sablefish catch	318	Sund
CA	See Figure 300b		1928-1985	sardine catch	319	Sund
CA	See Figure 300b		1928-1985	bonito catch	320	Sund

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
CA	See Figure 300b		1928-1985	sanddab catch	321	Sund
CA	See Figure 300b		1928-1985	squid catch	322	Sund
Cabo San Lucas, MEX	22°52'N.	109°54'W.	1949-1983	Precipitation	166	Vogel
Calgary, CAN	51°00'N.	114°00'W.	1884-1970	Air Temperature	24	NCAR
Calgary, CAN	51°00'N.	114°00'W.	1885-1970	Precipitation	111	NCAR
Callao, PERU	12°03'S.	77°09'W.	1942-1985	Sea-level Height	227	Wyrski
Cape Mudge, CAN	50°00'N.	125°12'W.	1937-1982	SST	246	Tabata
Cape Mudge, CAN	50°00'N.	125°12'W.	1937-1982	Sea-surface Salinity	285	Tabata
Cape St. James, CAN	51°56'N.	131°01'W.	1934-1984	SST	243	Tabata
Cape St. James, CAN	51°56'N.	131°01'W.	1934-1971	Sea-surface Salinity	282	Tabata
Cartagena, COLOMBIA	10°27'N.	75°31'W.	1948-1972	SST	268	McLain
Chena River, AK	64°50'N.	147°42'W.	1948-1985	Streamflow	170	Peterson
Chico, CA	39°45'N.	121°50'W.	1870-1984	Precipitation	133	Roos
Colville, WA	48°33'N.	117°54'W.	1900-1963	Air Temperature	32	Roden
Columbia River, OR	46°11'N.	124°11'W.	1927-1984	Streamflow	179	Tabata
Coppermine, CAN	67°48'N.	115°12'W.	1931-1985	Air Temperature	6	NCAR
Coppermine, CAN	67°48'N.	115°12'W.	1931-1985	Precipitation	98	NCAR
Corvallis, OR	44°38'N.	123°12'W.	1890-1986	Air Temperature	38	Redmond
Corvallis, OR	44°38'N.	123°12'W.	1889-1986	Precipitation	124	Redmond
Crescent City, CA	41°45'N.	124°12'W.	1933-1985	Sea-level Height	210	Tabata
Crescent City, CA	41°45'N.	124°12'W.	1933-1985	SST	253	Mantyla
Crescent City, CA	41°45'N.	124°12'W.	1934-1979	Sea-surface Salinity	291	Roden
Cuyamaca, CA	32°59'N.	116°35'W.	1887-1987	Precipitation	156	Michaelsen
Departure Bay, CAN	49°13'N.	123°57'W.	1915-1982	SST	247	Tabata
Departure Bay, CAN	49°13'N.	123°57'W.	1931-1982	Sea-surface Salinity	286	Tabata
Dutch Harbour, AK	53°54'N.	166°32'W.	1872-1984	Air Temperature	8	Tabata
Dutch Harbour, AK	53°54'N.	166°32'W.	1905-1984	Precipitation	95	Tabata
Dutch Harbour, AK	53°54'N.	166°32'W.	1917-1978	Barometric Pressure	65	Tabata
Edmonton, CAN	53°36'N.	113°30'W.	1883-1985	Air Temperature	22	NCAR
Edmonton, CAN	53°36'N.	113°30'W.	1883-1985	Precipitation	109	NCAR
Entrance Island, CAN	49°12'N.	123°56'W.	1936-1982	SST	248	Tabata
Entrance Island, CAN	49°12'N.	123°56'W.	1936-1982	Sea-surface Salinity	287	Tabata
Estevan Point, CAN	49°23'N.	126°32'W.	1923-1978	Barometric Pressure	76	Tabata
Eureka, CA	40°48'N.	124°10'W.	1886-1984	Air Temperature	44	Tabata
Eureka, CA	40°48'N.	124°10'W.	1886-1978	Barometric Pressure	83	Tabata
Eureka, CA	40°48'N.	124°10'W.	1886-1984	Precipitation	129	Tabata
Fairbanks, AK	64°54'N.	147°42'W.	1931-1985	Air Temperature	4	NCAR
Fairbanks, AK	64°54'N.	147°42'W.	1931-1985	Precipitation	92	NCAR
Farallon Islands, CA	37°25'N.	122°36'W.	1925-1986	SST	255	Mantyla
Farallon Islands, CA	37°25'N.	122°36'W.	1925-1986	Sea-surface Salinity	293	Mantyla
Fort Bidwell, CA	41°51'N.	120°08'W.	1866-1985	Precipitation	130	Michaelsen
Fort Nelson, CAN	58°48'N.	122°36'W.	1937-1985	Air Temperature	15	NCAR
Fort Nelson, CAN	58°48'N.	122°36'W.	1937-1985	Precipitation	103	NCAR
Fort Smith, CAN	60°00'N.	111°54'W.	1931-1985	Air Temperature	16	NCAR
Fort Smith, CAN	60°00'N.	111°54'W.	1931-1985	Precipitation	104	NCAR
Fraser River, CAN	49°20'N.	121°27'W.	1912-1984	Streamflow	174	Tabata

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
FOUR RIVERS INDEX (Sacramento Basin Unimpaired Runoff)					182	Roos
(a) Sacramento River at Benbridge near Red Bluff	40°17'N.	122°11'W.	1905-1986	Runoff		
(b) Feather River at Oroville	39°31'N.	121°32'W.	1905-1986	Runoff		
(c) Yuba River at Smartville	39°13'N.	121°17'W.	1905-1986	Runoff		
(d) American River at Fair Oaks	38°38'N.	121°13'W.	1905-1905	Runoff		
Gold Creek, AK	58°18'N.	134°24'W.	1917-1982	Streamflow	172	Slack
Gonzales, CAN	48°25'N.	123°19'W.	1898-1984	Air Temperature	29	Tabata
Gonzales, CAN	48°25'N.	123°19'W.	1909-1984	Barometric Pressure	81	Tabata
Gonzales, CAN	48°25'N.	123°19'W.	1898-1984	Precipitation	116	Tabata
Guaymas, MEX	27°55'N.	110°53'W.	1935-1984	Air Temperature	58	Vogel
Guaymas, MEX	27°55'N.	110°53'W.	1935-1984	Precipitation	162	Vogel
Guaymas, MEX	27°55'N.	110°54'W.	1952-1984	Sea-level Height	216	Wyrski
Havre City, MT	48°36'N.	109°42'W.	1880-1983	Air Temperature	33	NCAR
Havre City, MT	48°36'N.	109°42'W.	1880-1983	Precipitation	120	NCAR
Helena, MT	46°36'N.	112°06'W.	1880-1983	Air Temperature	35	NCAR
Helena, MT	46°36'N.	112°06'W.	1880-1983	Precipitation	122	NCAR
Holbrook, AZ	34°54'N.	110°10'W.	1887-1986	Precipitation	151	Michaelsen
Honolulu Obs., HI	21°18'N.	158°06'W.	1906-1963	Air Temperature	60	NCAR
Honolulu Obs., HI	21°18'N.	158°06'W.	1901-1970	Precipitation	168	NCAR
Honolulu, HI	21°18'N.	157°54'W.	1883-1985	Air Temperature	61	NCAR
Honolulu, HI	21°18'N.	157°54'W.	1883-1985	Barometric Pressure	88	NCAR
Honolulu, HI	21°18'N.	157°54'W.	1874-1985	Precipitation	167	NCAR
Honolulu, HI	21°20'N.	157°55'W.	1908-1984	Sunshine	197	Karl
Honolulu, HI	21°18'N.	157°52'W.	1905-1986	Sea-level Height	218	Wyrski
Honolulu, HI	21°18'N.	157°52'W.	1945-1978	SST	265	Tabata
Hood River Experiment Station, OR	45°41'N.	121°31'W.	1891-1986	Air Temperature	36	Redmond
Indio, CA	33°43'N.	116°15'W.	1900-1985	Precipitation	148	Michaelsen
Juneau, AK	58°15'N.	134°25'W.	1881-1984	Air Temperature	13	Tabata
Juneau, AK	58°15'N.	134°25'W.	1917-1984	Barometric Pressure	68	Tabata
Juneau, AK	58°15'N.	134°25'W.	1881-1984	Precipitation	101	Tabata
Juneau, AK	58°22'N.	134°35'W.	1917-1979	Sunshine	190	Karl
Juneau, AK	58°15'N.	134°25'W.	1936-1985	Sea-level Height	203	Tabata
Juneau, AK	58°15'N.	134°25'W.	1936-1978	SST	237	Tabata
Juneau, AK	58°18'N.	134°20'W.	1942-1964	Sea-surface Salinity	277	Roden
Kains Island, CAN	50°26'N.	128°02'W.	1935-1984	SST	245	Tabata
Kains Island, CAN	50°26'N.	128°02'W.	1935-1984	Sea-surface Salinity	283	Tabata
Kamloops, CAN	50°42'N.	120°30'W.	1891-1970	Air Temperature	23	NCAR
Kamloops, CAN	50°42'N.	120°30'W.	1895-1970	Precipitation	110	NCAR
Kenai River, AK	60°29'N.	149°48'W.	1947-1985	Streamflow	171	Peterson
Ketchikan, AK	55°20'N.	131°38'W.	1921-1978	SST	241	Tabata
Ketchikan, AK	55°20'N.	131°38'W.	1922-1964	Sea-surface Salinity	279	Roden
Kodiak, AK	57°47'N.	152°24'W.	1869-1984	Air Temperature	9	Tabata
Kodiak, AK	57°47'N.	152°24'W.	1917-1978	Barometric Pressure	66	Tabata
Kodiak, AK	57°47'N.	152°24'W.	1869-1984	Precipitation	96	Tabata
Kodiak, AK	57°47'N.	152°24'W.	1950-1978	SST	234	Tabata
La Jolla, CA	32°52'N.	117°15'W.	1924-1986	Sea-level Height	214	Tabata
La Jolla, CA	32°52'N.	117°15'W.	1916-1987	SST	264	Mantyla
La Jolla, CA	32°52'N.	117°15'W.	1916-1986	Sea-surface Salinity	299	Mantyla
La Jolla, CA	32°50'N.	117°10'W.	1930-1939	diatom chaet- toceros debilis	323	Tont

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
La Jolla, CA	32°50'N.	117°10'W.	1930-1939	diatom eucampia	324	Tont
La Jolla, CA	32°50'N.	117°10'W.	1920-1939	zodiacus	325	Tont
La Libertad, ECUADOR	2°12'S.	80°55'W.	1948-1970	small diatom	224	Wyrcki
La Libertad, ECUADOR	2°12'S.	80°55'W.	1969-1984	Sea-level Height	225	Wyrcki
La Libertad, ECUADOR	2°12'S.	80°55'W.	1948-1973	SST	270	McLain
La Paz, MEX	24°10'N.	110°17'W.	1933-1983	Air Temperature	59	Vogel
La Paz, MEX	24°10'N.	110°17'W.	1933-1983	Precipitation	165	Vogel
La Paz, MEX	24°10'N.	110°17'W.	1952-1984	Sea-level Height	217	Wyrcki
Lakeview, OR	42°13'N.	120°22'W.	1896-1986	Air Temperature	43	Redmond
Lakeview, OR	42°13'N.	120°22'W.	1910-1986	Precipitation	128	Redmond
Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Air Temperature	18	Tabata
Langara Island, CAN	54°15'N.	133°03'W.	1946-1984	Barometric Pressure	71	Tabata
Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Precipitation	106	Tabata
Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	SST	240	Tabata
Langara Island, CAN	54°15'N.	133°03'W.	1936-1984	Sea-surface Salinity	280	Tabata
Las Vegas, NV	36°06'N.	115°12'W.	1937-1985	Air Temperature	50	NCAR
Las Vegas, NV	36°06'N.	115°12'W.	1937-1985	Precipitation	144	NCAR
Livermore, CA	37°40'N.	121°46'W.	1871-1985	Precipitation	141	Michaelsen
Loreto, MEX	26°00'N.	111°20'W.	1949-1983	Precipitation	164	Vogel
Los Angeles, CA	33°43'N.	118°16'W.	1877-1984	Air Temperature	52	Tabata
Los Angeles, CA	34°03'N.	118°15'W.	1877-1978	Barometric Pressure	86	Tabata
Los Angeles, CA	33°43'N.	118°16'W.	1877-1984	Precipitation	146	Tabata
Los Angeles, CA	34°03'N.	118°15'W.	1923-1986	Sea-level Height	212	Tabata
Los Angeles, CA	34°03'N.	118°15'W.	1923-1978	SST	262	Tabata
Los Angeles, CA	33°43'N.	118°16'W.	1924-1977	Sea-surface Salinity	297	Cayan
Massacre Bay, AK	52°50'N.	173°12'E.	1943-1966	Sea-level Height	199	Tabata
Masset, CAN	54°02'N.	132°08'W.	1897-1968	Air Temperature	19	Tabata
Masset, CAN	54°02'N.	132°08'W.	1897-1968	Precipitation	107	Tabata
Mauna Loa, HI	19°30'N.	155°36'W.	1958-1987	Atmospheric CO ₂	304	Keeling
Mauna Loa/South Pole			1958-1989	Atmospheric CO ₂	305	Keeling
McGill, NV	39°24'N.	114°46'W.	1888-1986	Precipitation	137	Michaelsen
Merced River, CA	37°44'N.	119°33'W.	1915-1985	Streamflow	185	Peterson
Mexicali, MEX	32°39'N.	115°27'W.	1943-1983	Air Temperature	56	Vogel
Mexicali, MEX	32°39'N.	115°27'W.	1943-1983	Precipitation	157	Vogel
Nahcotta, WA	46°28'N.	124°02'W.	1959-1985	Oyster Cond. Index	316	Schoener
Napa, CA	38°17'N.	122°16'W.	1877-1985	Precipitation	139	Michaelsen
Neah Bay, WA	48°22'N.	124°37'W.	1934-1985	Sea-level Height	207	Tabata
Neah Bay, WA	48°22'N.	124°37'W.	1935-1986	SST	250	Mantyla
Neah Bay, WA	48°22'N.	124°37'W.	1936-1979	Sea-surface Salinity	289	Roden
Nevada City, CA	39°14'N.	121°01'W.	1863-1984	Precipitation	136	Roos
New Westminster, CAN	49°13'N.	122°56'W.	1874-1978	Air Temperature	25	Tabata
New Westminster, CAN	49°13'N.	122°56'W.	1874-1978	Precipitation	113	Tabata
Newport, OR	44°38'N.	124°03'W.	1891-1986	Air Temperature	37	Redmond
Newport, OR	44°38'N.	124°03'W.	1891-1986	Precipitation	125	Redmond
Nome, AK	64°30'N.	165°24'W.	1907-1985	Air Temperature	2	NCAR
Nome, AK	64°30'N.	165°24'W.	1907-1985	Precipitation	90	NCAR
Olga, WA	48°37'N.	122°48'W.	1892-1983	Air Temperature	30	Roden
Olga, WA	48°37'N.	122°48'W.	1890-1983	Precipitation	117	Roden

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
PNA Index	See Text		1946-1984	Atmosphere	302	Wallace/Gueteler
Pachena Point, CAN	48°43'N.	125°06'W.	1924-1978	Air Temperature	27	Tabata
Pachena Point, CAN	48°43'N.	125°06'W.	1924-1978	Precipitation	115	Tabata
Pacific Grove, CA	36°38'N.	121°55'W.	1919-1986	SST	258	Mantyla
Pacific Grove, CA	36°38'N.	121°55'W.	1919-1975	Sea-surface Salinity	295	Roden
Phoenix, AZ	33°30'N.	112°00'W.	1896-1985	Precipitation	155	NCAR
Phoenix, AZ	33°28'N.	112°01'W.	1895-1984	Sunshine	196	Karl
Pine Island, CAN	50°58'N.	127°44'W.	1937-1984	SST	244	Tabata
Pine Island, CAN	50°58'N.	127°44'W.	1937-1984	Sea-surface Salinity	284	Tabata
Port Hueneme, CA	34°09'N.	119°12'W.	1919-1963	Sea-surface Salinity	296	Mantyla
Port Hueneme/Pt. Mugu, CA	34°09'N.	119°12'W.	1919-1986	SST	261	Mantyla
Prescott, AZ	34°34'N.	112°38'W.	1876-1986	Precipitation	149	Michaelsen
Prince Rupert, CAN	54°18'N.	130°26'W.	1908-1984	Air Temperature	20	Tabata
Prince Rupert, CAN	54°18'N.	130°26'W.	1909-1984	Barometric Pressure	73	Tabata
Prince Rupert, CAN	54°18'N.	130°26'W.	1911-1984	Precipitation	108	Tabata
Prince Rupert, CAN	54°18'N.	130°26'W.	1909-1984	Sea-level Height	205	Tabata
Puerto Chicama, PERU	7°42'S.	79°27'W.	1925-1988	SST	271	McLain
Puget Sound, WA	47°05'N.	122°25'W.	1930-1983	Streamflow	176	Ebbesmeyer
Puget Sound, WA	47°05'N.	122°25'W.	1933-1984	150m salinity	327	Ebbesmeyer
Puget Sound, WA	47°05'N.	122°25'W.	1933-1984	150m temperature	326	Ebbesmeyer
Race Rocks, CAN	48°18'N.	123°32'W.	1941-1984	SST	251	Tabata
Race Rocks, CAN	48°18'N.	123°32'W.	1941-1984	Sea-surface Salinity	290	Tabata
Red Bluff, CA	40°09'N.	122°15'W.	1878-1982	Air Temperature	45	Roden
Red Bluff, CA	40°00'N.	122°15'W.	1871-1984	Precipitation	132	Roos
Roseburg, OR	43°14'N.	123°22'W.	1877-1986	Air Temperature	39	Redmond
Sacramento, CA	38°35'N.	121°30'W.	1849-1987	Precipitation	138	Michaelsen
Sacramento, CA	38°31'N.	121°30'W.	1905-1984	Sunshine	194	Karl
Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	1968-1986	chlorophyll-a	307	Lehman
Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	1968-1985	phytoplankton	309	Lehman
Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	1971-1981	zooplankton	311	Lehman
Salina Cruz, MEX	16°10'N.	95°12'W.	1952-1986	Sea-level Height	220	Wyrski
Salt Lake City, UT	40°48'N.	111°54'W.	1875-1985	Air Temperature	47	NCAR
Salt Lake City, UT	40°48'N.	111°54'W.	1875-1985	Precipitation	135	NCAR
Salt Lake City, UT	40°46'N.	111°58'W.	1891-1984	Sunshine	193	Karl
Salt River, AZ	33°37'N.	110°55'W.	1913-1985	Streamflow	187	Peterson
San Bernardino, CA	34°08'N.	117°16'W.	1870-1985	Precipitation	147	Michaelsen
San Diego, CA	32°42'N.	117°14'W.	1849-1984	Air Temperature	55	Tabata
San Diego, CA	32°43'N.	117°09'W.	1873-1984	Barometric Pressure	87	Tabata
San Diego, CA	32°42'N.	117°14'W.	1850-1984	Precipitation	153	Tabata
San Diego, CA	32°44'N.	117°10'W.	1891-1984	Sunshine	195	Karl
San Diego, CA	32°43'N.	117°09'W.	1906-1986	Sea-level Height	215	Tabata
San Felipe, MEX	31°00'N.	114°50'W.	1949-1983	Precipitation	160	Vogel
San Francisco, CA	37°48'N.	122°22'W.	1847-1984	Air Temperature	48	Tabata
San Francisco, CA	37°48'N.	122°22'W.	1850-1984	Precipitation	140	Tabata
San Francisco, CA	37°48'N.	122°28'W.	1873-1984	Barometric Pressure	84	Tabata
San Francisco, CA	37°48'N.	122°24'W.	1854-1986	Sea-level Height	211	Tabata
San Francisco, CA	37°48'N.	122°24'W.	1855-1987	SST	256	Peterson
San Francisco, CA	37°48'N.	122°28'W.	1921-1987	Sea-surface Salinity	294	Peterson

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
San Ignacio, MEX	27°27'N.	112°50'W.	1939-1983	Precipitation	163	Vogel
San Jose, GUATEMALA	13°55'N.	90°50'W.	1949-1970	SST	267	McLain
Santa Barbara, CA	34°25'N.	119°42'W.	1868-1987	Precipitation	145	Michaelsen
Santa Cruz, CA	36°59'N.	122°01'W.	1878-1987	Precipitation	143	Michaelsen
Santa Fe, NM	35°42'N.	106°00'W.	1849-1977	Air Temperature	54	NCAR
Santa Monica, CA	34°00'N.	118°16'W.	1933-1987	Sea-level Height	213	Tabata
Seattle, WA	47°36'N.	122°20'W.	1892-1982	Air Temperature	31	Roden
Seattle, WA	47°36'N.	122°20'W.	1893-1942	Barometric Pressure	82	Tabata
Seattle, WA	47°32'N.	122°19'W.	1878-1984	Precipitation	119	Tabata
Seattle, WA	47°36'N.	122°20'W.	1899-1985	Sea-level Height	209	Tabata
Seattle, WA	47°36'N.	122°20'W.	1922-1978	SST	252	Tabata
Seward, AK	60°06'N.	149°27'W.	1925-1983	Sea-level Height	201	Tabata
Seward, AK	60°06'N.	149°27'W.	1925-1982	SST	235	Tabata
Seward, AK	60°06'N.	149°27'W.	1926-1939	Sea-surface Salinity	275	Roden
Sheridan, WY	44°48'N.	107°00'W.	1908-1985	Air Temperature	41	NCAR
Sheridan, WY	44°48'N.	107°00'W.	1908-1985	Precipitation	126	NCAR
Sitka, AK	57°03'N.	135°20'W.	1867-1984	Air Temperature	14	Tabata
Sitka, AK	57°03'N.	135°20'W.	1881-1978	Barometric Pressure	69	Tabata
Sitka, AK	57°03'N.	135°20'W.	1842-1984	Precipitation	102	Tabata
Sitka, AK	57°03'N.	135°20'W.	1938-1985	Sea-level Height	204	Tabata
Sitka, AK	57°03'N.	135°20'W.	1924-1983	SST	238	Tabata
Sitka, AK	57°03'N.	135°20'W.	1944-1964	Sea-surface Salinity	278	Roden
Skagit River, WA	48°20'N.	122°45'W.	1941-1984	Streamflow	175	Tabata
Skeena River, CAN	54°37'N.	128°25'W.	1928-1984	Streamflow	173	Peterson
Skykomish River, WA	47°30'N.	121°24'W.	1929-1983	Streamflow	177	Lins
Snake River, ID	44°14'N.	116°58'W.	1910-1986	Streamflow	181	Peterson
SOI (Tahiti/Darwin)	Not Applicable		1882-1988	Atmospheric	303	NOAA
Southern CA Bight	See Figure 300c		1951-1986	small plankton	312	Moser/Smith
Southern CA Bight	See Figure 300c		1951-1986	anchovy larvae	313	Moser/Smith
Southern CA Bight	See Figure 300c		1951-1986	sardine larvae	314	Moser/Smith
Southern CA Bight	See Figure 300c		1951-1986	total fish larvae	315	Moser/Smith
Southern CA Bight	See Figure 300c		1951-1985	10m temperature	328	Moser/Smith
Southern CA Bight	See Figure 300c		1951-1985	10m salinity	329	Moser/Smith
Spokane River, WA	47°39'N.	117°27'W.	1891-1985	Streamflow	178	Peterson
Spokane, WA	47°38'N.	117°32'W.	1894-1984	Sunshine	191	Karl
Stockton, CA	38°00'N.	121°19'W.	1850-1987	Precipitation	142	Michaelsen
Suisun Bay, CA	38°05'N.	122°03'W.	1968-1986	chlorophyll-a	306	Lehman
Suisun Bay, CA	38°05'N.	122°03'W.	1968-1985	phytoplankton	308	Lehman
Suisun Bay, CA	38°05'N.	122°03'W.	1971-1981	zooplankton	310	Lehman
Talara, PERU	4°37'S.	81°17'W.	1942-1979	Sea-level Height	226	Wyrski
Tatoosh Island, WA	48°23'N.	124°44'W.	1883-1966	Air Temperature	28	Tabata
Tatoosh Island, WA	48°23'N.	124°44'W.	1884-1978	Barometric Pressure	79	Tabata
Tatoosh Island, WA	48°23'N.	124°44'W.	1883-1966	Precipitation	118	Tabata
Tofino A, CAN	49°05'N.	125°46'W.	1943-1984	Barometric Pressure	77	Tabata
Tofino A, CAN	49°05'N.	125°46'W.	1910-1984	Sea-level Height	206	Tabata
Triple Island, CAN	54°18'N.	130°53'W.	1940-1970	SST	242	Tabata
Triple Island, CAN	54°18'N.	130°53'W.	1940-1969	Sea-surface Salinity	281	Tabata
Tucson, AZ	32°15'N.	110°50'W.	1867-1986	Precipitation	159	Michaelsen

INDEX OF STATIONS LISTED ALPHABETICALLY--continued

Station Name	Latitude	Longitude	Period of Record	Variable	Figure No.	Source
Tumaco, COLOMBIA	1°38'N.	78°46'W.	1951-1972	SST	269	McLain
Umpqua River, OR	43°35'N.	123°33'W.	1905-1985	Streamflow	180	Peterson
Unalaska, AK	53°53'N.	166°32'W.	1955-1975	Sea-level Height	200	Tabata
Unalaska, AK	53°53'N.	166°32'W.	1955-1982	SST	233	Tabata
Upwelling Index	39°00'N.	125°00'W.	1946-1987	Atmosphere	301	Bakun
Valdez, AK	61°07'N.	146°16'W.	1909-1984	Air Temperature	10	Tabata
Valdez, AK	61°07'N.	146°16'W.	1909-1984	Precipitation	97	Tabata
Valparaiso, CHILE	33°02'S.	71°38'W.	1941-1970	Sea-level Height	230	Wyrski
Valparaiso, CHILE	33°02'S.	71°38'W.	1944-1969	SST	273	McLain
Vancouver, CAN	49°11'N.	123°10'W.	1920-1984	Barometric Pressure	78	Tabata
Vancouver City, CAN	49°17'N.	123°07'W.	1905-1983	Precipitation	112	Tabata
Victoria, CAN	48°39'N.	123°26'W.	1940-1984	Barometric Pressure	80	Tabata
Victoria (Downtown), CAN	48°26'N.	123°22'W.	1909-1984	Sea-level Height	208	Tabata
Wailua River, HI	22°04'N.	159°25'W.	1912-1985	Streamflow	188	Peterson
Walla Walla, WA	46°08'N.	118°20'W.	1872-1977	Air Temperature	34	NCAR
Walla Walla, WA	46°00'N.	118°18'W.	1873-1977	Precipitation	121	NCAR
Walnut Grove, AZ	34°18'N.	112°33'W.	1890-1986	Precipitation	150	Michaelsen
Weather Ship N	30°00'N.	140°00'W.	1954-1974	Air Temperature	51	Roden
Weather Ship N	30°00'N.	140°00'W.	1954-1974	Barometric Pressure	85	Roden
Weather Ship N	30°00'N.	140°00'W.	1954-1974	SST	260	Roden
Weather Ship P	50°00'N.	145°00'W.	1950-1981	Air Temperature	17	Tabata
Weather Ship P	50°00'N.	145°00'W.	1946-1981	Barometric Pressure	70	Tabata
Weather Ship P	50°00'N.	145°00'W.	1953-1981	Precipitation	105	Tabata
Weather Ship P	50°00'N.	145°00'W.	1950-1982	SST	239	Tabata
Weber River, UT	40°44'N.	111°14'W.	1904-1984	Streamflow	183	Peterson
Whitehorse, CAN	60°42'N.	135°06'W.	1942-1985	Air Temperature	12	NCAR
Whitehorse, CAN	60°42'N.	135°06'W.	1942-1985	Precipitation	100	NCAR
Winnemucca, NV	41°00'N.	117°42'W.	1885-1985	Air Temperature	46	NCAR
Winnemucca, NV	41°00'N.	117°42'W.	1884-1985	Precipitation	131	NCAR
Winnemucca, NV	40°54'N.	117°48'W.	1908-1984	Sunshine	192	Karl
Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Air Temperature	11	Tabata
Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Barometric Pressure	67	Tabata
Yakutat, AK	59°33'N.	139°44'W.	1941-1984	Precipitation	99	Tabata
Yakutat, AK	59°33'N.	139°44'W.	1940-1985	Sea-level Height	202	Tabata
Yakutat, AK	59°33'N.	139°44'W.	1940-1983	SST	236	Tabata
Yakutat, AK	59°33'N.	139°40'W.	1941-1960	Sea-surface Salinity	276	Roden
Yosemite, CA	37°45'N.	119°35'W.	1918-1980	Air Temperature	49	Roden
Yuma, AZ	32°44'N.	114°37'W.	1878-1982	Air Temperature	57	Roden
Yuma, AZ	32°40'N.	114°36'W.	1870-1982	Precipitation	158	Roden

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1842-1984	Sitka, AK	57°03'N.	135°0'W.	Precipitation	102	Tabata
1847-1984	San Francisco, CA	37°48'N.	122°22'W.	Air Temperature	48	Tabata
1849-1977	Santa Fe, NM	35°42'N.	106°00'W.	Air Temperature	54	NCAR
1849-1984	San Diego, CA	32°42'N.	117°14'W.	Air Temperature	55	Tabata
1849-1987	Sacramento, CA	38°35'N.	121°30'W.	Precipitation	138	Michaelsen
1850-1984	San Diego, CA	32°42'N.	117°14'W.	Precipitation	153	Tabata
1850-1984	San Francisco, CA	37°48'N.	122°22'W.	Precipitation	140	Tabata
1850-1987	Stockton, CA	38°00'N.	121°19'W.	Precipitation	142	Michaelsen
1854-1986	San Francisco, CA	37°48'N.	122°24'W.	Sea-level Height	211	Tabata
1855-1987	San Francisco, CA	37°48'N.	122°24'W.	SST	256	Peterson
1863-1984	Nevada City, CA	39°14'N.	121°01'W.	Precipitation	136	Roos
1864-1985	Boise, ID	43°36'N.	116°12'W.	Air Temperature	40	NCAR
1866-1985	Fort Bidwell, CA	41°51'N.	120°08'W.	Precipitation	130	Michaelsen
1867-1984	Sitka, AK	57°03'N.	135°20'W.	Air Temperature	14	Tabata
1867-1986	Tucson, AZ	32°15'N.	110°50'W.	Precipitation	159	Michaelsen
1868-1987	Santa Barbara, CA	34°25'N.	119°42'W.	Precipitation	145	Michaelsen
1869-1984	Kodiak, AK	57°47'N.	152°24'W.	Air Temperature	9	Tabata
1869-1984	Kodiak, AK	57°47'N.	152°24'W.	Precipitation	96	Tabata
1870-1982	Yuma, AZ	32°40'N.	114°36'W.	Precipitation	158	Roden
1870-1984	Chico, CA	39°45'N.	121°50'W.	Precipitation	133	Roos
1870-1985	Beowawe, NV	40°36'N.	116°29'W.	Precipitation	134	Michaelsen
1870-1985	San Bernardino, CA	34°08'N.	117°16'W.	Precipitation	147	Michaelsen
1871-1984	Red Bluff, CA	40°09'N.	122°15'W.	Precipitation	132	Roos
1871-1985	Livermore, CA	37°40'N.	121°46'W.	Precipitation	141	Michaelsen
1872-1977	Walla Walla, WA	46°08'N.	118°20'W.	Air Temperature	34	NCAR
1872-1984	Dutch Harbour, AK	53°54'N.	166°32'W.	Air Temperature	8	Tabata
1873-1977	Walla Walla, WA	46°00'N.	118°18'W.	Precipitation	121	NCAR
1873-1984	San Diego, CA	32°43'N.	117°09'W.	Barometric pressure	87	Tabata
1873-1984	San Francisco, CA	37°48'N.	122°28'W.	Barometric pressure	84	Tabata
1874-1978	New Westminster, CAN	49°13'N.	122°56'W.	Air Temperature	25	Tabata
1874-1978	New Westminster, CAN	49°13'N.	122°56'W.	Precipitation	113	Tabata
1874-1985	Honolulu, HI	21°18'N.	157°54'W.	Precipitation	167	NCAR
1875-1985	Salt Lake City, UT	40°48'N.	111°54'W.	Air Temperature	47	NCAR
1875-1985	Salt Lake City, UT	40°48'N.	111°54'W.	Precipitation	135	NCAR
1876-1986	Prescott, AZ	34°34'N.	112°38'W.	Precipitation	149	Michaelsen
1877-1978	Los Angeles, CA	34°03'N.	118°15'W.	Barometric pressure	86	Tabata
1877-1984	Los Angeles, CA	33°43'N.	118°16'W.	Air Temperature	52	Tabata
1877-1984	Los Angeles, CA	33°43'N.	118°16'W.	Precipitation	146	Tabata
1877-1985	Napa, CA	38°17'N.	122°16'W.	Precipitation	139	Michaelsen
1877-1986	Roseburg, OR	43°14'N.	123°22'W.	Air Temperature	39	Redmond
1878-1982	Red Bluff, CA	40°09'N.	122°15'W.	Air Temperature	45	Roden
1878-1982	Yuma, AZ	32°44'N.	114°37'W.	Air Temperature	57	Roden
1878-1984	Seattle, WA	47°32'N.	122°19'W.	Precipitation	119	Tabata
1878-1987	Santa Cruz, CA	36°59'N.	122°01'W.	Precipitation	143	Michaelsen
1879-1986	Ashland, OR	42°13'N.	122°43'W.	Precipitation	127	Redmond
1880-1983	Havre City, MT	48°36'N.	109°42'W.	Air Temperature	33	NCAR
1880-1983	Havre City, MT	48°36'N.	109°42'W.	Precipitation	120	NCAR
1880-1983	Helena, MT	46°36'N.	112°06'W.	Air Temperature	35	NCAR
1880-1983	Helena, MT	46°36'N.	112°06'W.	Precipitation	122	NCAR

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1881-1978	Sitka, AK	57°03'N.	135°20'W.	Barometric pressure	69	Tabata
1881-1984	Juneau, AK	58°15'N.	134°25'W.	Air Temperature	13	Tabata
1881-1984	Juneau, AK	58°15'N.	134°25'W.	Precipitation	101	Tabata
1882-1988	Tahiti/Darwin	Not Applicable		SOI	304	NOAA
1883-1966	Tatoosh Island, WA	48°23'N.	124°44'W.	Air Temperature	28	Tabata
1883-1966	Tatoosh Island, WA	48°23'N.	124°44'W.	Precipitation	118	Tabata
1883-1985	Edmonton, CAN	53°36'N.	113°30'W.	Air Temperature	22	NCAR
1883-1985	Edmonton, CAN	53°36'N.	113°30'W.	Precipitation	109	NCAR
1883-1985	Honolulu, HI	21°18'N.	157°54'W.	Air Temperature	61	NCAR
1883-1985	Honolulu, HI	21°18'N.	157°54'W.	Barometric pressure	88	NCAR
1884-1970	Calgary, CAN	51°00'N.	114°00'W.	Air Temperature	24	NCAR
1884-1978	Tatoosh Island, WA	48°23'N.	124°44'W.	Barometric pressure	79	Tabata
1884-1985	Winnemucca, NV	41°00'N.	117°42'W.	Precipitation	131	NCAR
1885-1970	Calgary, CAN	51°00'N.	114°00'W.	Precipitation	111	NCAR
1885-1985	Winnemucca, NV	41°00'N.	117°42'W.	Air Temperature	46	NCAR
1886-1978	Eureka, CA	40°48'N.	124°10'W.	Barometric pressure	83	Tabata
1886-1984	Eureka, CA	40°48'N.	124°10'W.	Air Temperature	44	Tabata
1886-1984	Eureka, CA	40°48'N.	124°10'W.	Precipitation	129	Tabata
1887-1986	Holbrook, AZ	34°54'N.	110°10'W.	Precipitation	151	Michaelsen
1887-1987	Cuyamaca, MEX	32°59'N.	116°35'W.	Precipitation	156	Michaelsen
1888-1986	McGill, NV	39°24'N.	114°46'W.	Precipitation	137	Michaelsen
1889-1983	Agassiz, CAN	49°17'N.	121°46'W.	Air Temperature	26	Tabata
1889-1983	Agassiz, CAN	49°17'N.	121°46'W.	Precipitation	114	Tabata
1889-1984	Bisbee, CA	31°27'N.	109°55'W.	Precipitation	161	Michaelsen
1889-1986	Ashland, OR	42°13'N.	122°43'W.	Air Temperature	42	Redmond
1889-1986	Buckeye, AZ	33°23'N.	112°35'W.	Precipitation	154	Michaelsen
1889-1986	Corvallis, OR	44°38'N.	123°12'W.	Precipitation	124	Redmond
1890-1983	Olga, WA	48°37'N.	122°18'W.	Precipitation	117	Roden
1890-1986	Corvallis, OR	44°38'N.	123°12'W.	Air Temperature	38	Redmond
1890-1986	Walnut Grove, AZ	34°18'N.	112°33'W.	Precipitation	150	Michaelsen
1891-1985	Spokane River, WA	47°39'N.	117°27'W.	Streamflow	178	Peterson
1891-1970	Kamloops, CAN	50°42'N.	120°30'W.	Air Temperature	23	NCAR
1891-1984	Salt Lake City, UT	40°46'N.	111°58'W.	Sunshine	193	Karl
1891-1984	San Diego, CA	32°44'N.	117°10'W.	Sunshine	195	Karl
1891-1986	Hood R. Exp. Sta., OR	45°41'N.	121°32'W.	Air Temperature	36	Redmond
1891-1986	Newport, OR	44°38'N.	124°03'W.	Air Temperature	37	Redmond
1891-1986	Newport, OR	44°38'N.	124°03'W.	Precipitation	125	Redmond
1892-1982	Seattle, WA	47°36'N.	122°20'W.	Air Temperature	31	Roden
1892-1983	Olga, WA	48°37'N.	122°48'W.	Air Temperature	30	Roden
1893-1942	Seattle, WA	47°36'N.	122°20'W.	Barometric pressure	82	Tabata
1894-1984	Spokane, WA	47°38'N.	117°32'W.	Sunshine	191	Karl
1895-1970	Kamloops, CAN	50°42'N.	120°30'W.	Precipitation	110	NCAR
1895-1984	Phoenix, AZ	33°28'N.	112°01'W.	Sunshine	196	Karl
1896-1985	Boise, ID	43°36'N.	116°12'W.	Precipitation	123	NCAR
1896-1985	Phoenix, AZ	33°30'N.	112°00'W.	Precipitation	155	NCAR
1896-1986	Lakeview, OR	42°13'N.	120°22'W.	Air Temperature	43	Redmond
1897-1968	Masset, CAN	54°02'N.	132°08'W.	Air Temperature	19	Tabata
1897-1968	Masset, CAN	54°02'N.	132°08'W.	Precipitation	107	Tabata
1898-1984	Gonzales, CAN	48°25'N.	123°19'W.	Air Temperature	29	Tabata
1898-1984	Gonzales, CAN	48°25'N.	123°19'W.	Precipitation	116	Tabata
1899-1985	Seattle, WA	47°36'N.	122°20'W.	Sea-level Height	209	Tabata

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1900-1963	Colville, WA	48°33'N.	117°54'W.	Air Temperature	32	Roden
1900-1985	Indio, CA	33°43'N.	116°15'W.	Precipitation	148	Michaelsen
1901-1970	Honolulu Obs., HI	21°18'N.	158°06'W.	Precipitation	168	NCAR
1904-1984	Weber River, UT	40°44'N.	111°14'W.	Streamflow	183	Peterson
1905-1983	Vancouver City, CAN	49°17'N.	123°07'W.	Precipitation	112	Tabata
1905-1984	Dutch Harbour, AK	53°54'N.	166°32'W.	Precipitation	95	Tabata
1905-1984	Sacramento, CA	38°31'N.	121°30'W.	Sunshine	194	Karl
1905-1985	Umpqua River, OR	43°35'N.	123°33'W.	Streamflow	180	Peterson
1905-1986	Honolulu, HI	21°18'N.	157°52'W.	Sea-level Height	218	Wyrtki
FOUR RIVERS INDEX (Sacramento Basin Unimpaired Runoff)					182	Roos
1905-1986	Sacramento River ● Benbridge near Red Bluff, CA	40°17'N.	112°11'W.	runoff		
1905-1986	Feather River ● Oroville, CA	39°31'N.	121°32'W.	runoff		
1905-1986	Yuba River ● Smartville, CA	39°13'N.	121°17'W.	runoff		
1905-1986	American River ● Fair Oaks, CA	38°38'N.	121°13'W.	runoff		
1906-1963	Honolulu Obs., HI	21°18'N.	158°06'W.	Air Temperature	60	NCAR
1906-1986	San Diego, CA	32°43'N.	117°09'W.	Sea-level Height	215	Tabata
1907-1985	Nome, AK	64°30'N.	165°24'W.	Air Temperature	2	NCAR
1907-1985	Nome, AK	64°30'N.	165°24'W.	Precipitation	90	NCAR
1908-1984	Honolulu, HI	21°20'N.	157°55'W.	Sunshine	197	Karl
1908-1984	Prince Rupert, CAN	54°18'N.	130°26'W.	Air Temperature	20	Tabata
1908-1984	Winnemucca, NV	40°54'N.	117°48'W.	Sunshine	192	Karl
1908-1985	Sheridan, WY	44°48'N.	107°00'W.	Air Temperature	41	NCAR
1908-1985	Sheridan, WY	44°48'N.	107°00'W.	Precipitation	126	NCAR
1909-1984	Gonzales, CAN	48°25'N.	123°19'W.	Barometric pressure	81	Tabata
1909-1984	Prince Rupert, CAN	54°18'N.	130°26'W.	Barometric pressure	73	Tabata
1909-1984	Prince Rupert, CAN	54°18'N.	130°26'W.	Sea-level Height	205	Tabata
1909-1984	Valdez, AK	61°07'N.	146°16'W.	Air Temperature	10	Tabata
1909-1984	Valdez, AK	61°07'N.	146°16'W.	Precipitation	97	Tabata
1909-1984	Victoria (Downtown), CAN	48°26'N.	123°22'W.	Sea-level Height	208	Tabata
1909-1985	Balboa, CANAL ZONE	8°58'N.	79°36'W.	Sea-level Height	221	Wyrtki
1910-1984	Tofino A, CAN	49°05'N.	125°46'W.	Sea-level Height	206	Tabata
1910-1986	Lakeview, OR	42°13'N.	120°22'W.	Precipitation	128	Redmond
1910-1986	Snake River, ID	44°14'N.	116°58'W.	Streamflow	181	Peterson
1911-1984	Prince Rupert, CAN	54°18'N.	130°26'W.	Precipitation	108	Tabata
1911-1985	Arroyo, CA	34°13'N.	118°10'W.	Streamflow	186	Peterson
1912-1984	Fraser, CAN	49°20'N.	121°27'W.	Streamflow	174	Tabata
1912-1985	Wailua, HI	22°04'N.	159°25'W.	Streamflow	188	Peterson
1913-1985	Salt River, AZ	33°37'N.	110°55'W.	Streamflow	187	Peterson
1915-1982	Departure Bay, CAN	49°13'N.	123°57'W.	SST	247	Tabata
1915-1985	Merced, CA	37°44'N.	119°33'W.	Streamflow	185	Peterson
1916-1986	La Jolla, CA	32°52'N.	117°15'W.	Sea-surface Salinity	299	Mantyla
1916-1987	La Jolla, CA	32°52'N.	117°15'W.	SST	264	Mantyla
1917-1978	Dutch Harbour, AK	53°54'N.	166°32'W.	Barometric pressure	65	Tabata
1917-1978	Kodiak, AK	57°47'N.	152°24'W.	Barometric pressure	66	Tabata
1917-1979	Juneau, AK	58°22'N.	134°35'W.	Sunshine	190	Karl
1917-1982	Gold Creek River, AK	58°18'N.	134°24'W.	Streamflow	172	Slack
1917-1984	Juneau, AK	58°15'N.	134°25'W.	Barometric pressure	68	Tabata
1918-1980	Yosemite, CA	37°45'N.	119°35'W.	Air Temperature	49	Roden

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1919-1963	Port Hueneme, CA	34°09'N.	119°12'W.	Sea-surface Salinity	296	Mantyla
1919-1975	Pacific Grove, CA	36°38'N.	121°55'W.	Sea-surface Salinity	295	Roden
1919-1986	Pacific Grove, CA	36°38'N.	121°55'W.	SST	258	Mantyla
1919-1986	Port Hueneme/Pt. Mugu, CA	34°09'N.	119°12'W.	SST	261	Mantyla
1920-1939	La Jolla, CA	32°50'N.	117°10'W.	small diatoms	325	Tont
1920-1983	Bear Creek, CO	39°23'N.	105°07'W.	Streamflow	184	Lins
1920-1984	Vancouver, CAN	49°11'N.	123°10'W.	Barometric pressure	78	Tabata
1921-1978	Ketchikan, AK	55°20'N.	131°38'W.	SST	241	Tabata
1921-1984	Bull Harbour, CAN	50°55'N.	127°57'W.	Air Temperature	21	Tabata
1921-1987	San Francisco, CA	37°48'N.	122°28'W.	Sea-surface Salinity	294	Peterson
1922-1964	Ketchikan, AK	55°20'N.	131°38'W.	Sea-surface Salinity	279	Roden
1922-1971	Blunts Reef Lightship, CA	40°26'N.	124°30'W.	SST	254	Mantyla
1922-1978	Seattle, WA	47°36'N.	122°20'W.	SST	252	Tabata
1923-1941	Blunts Reef Lightship, CA	40°26'N.	124°30'W.	Sea-surface Salinity	292	Roden
1923-1978	Estevan Point, CAN	49°23'N.	126°32'W.	Barometric pressure	76	Tabata
1923-1978	Los Angeles, CA	34°03'N.	118°15'W.	SST	262	Tabata
1923-1986	Los Angeles, CA	34°03'N.	118°15'W.	Sea-level Height	212	Tabata
1924-1875	Bethel, AK	60°48'N.	162°12'W.	Air Temperature	3	NCAR
1924-1875	Bethel, AK	60°48'N.	162°12'W.	Precipitation	91	NCAR
1924-1977	Los Angeles, CA	33°43'N.	118°16'W.	Sea-surface Salinity	297	Cayan
1924-1978	Pachena Point, CAN	48°43'N.	125°06'W.	Air Temperature	27	Tabata
1924-1978	Pachena Point, CAN	48°43'N.	125°06'W.	Precipitation	115	Tabata
1924-1983	Sitka, AK	57°03'N.	135°20'W.	SST	238	Tabata
1924-1986	Balboa, CA	33°36'N.	117°54'W.	SST	263	Mantyla
1924-1986	Balboa, CA	33°36'N.	117°54'W.	Sea-surface Salinity	298	Mantyla
1924-1986	La Jolla, CA	32°52'N.	117°15'W.	Sea-level Height	214	Tabata
1925-1963	Puerto, PERU	7°42'S.	79°27'W.	SST	271	McLain
1925-1982	Seward, AK	60°06'N.	149°27'W.	SST	235	Tabata
1925-1983	Seward, AK	60°06'N.	149°27'W.	Sea-level Height	201	Tabata
1925-1986	Farallon Islands, CA	37°25'N.	122°36'W.	SST	256	Manatyla
1925-1986	Farallon Islands, CA	37°25'N.	122°36'W.	Sea-surface Salinity	293	Mantyla
1926-1939	Seward, AK	60°06'N.	149°27'W.	Sea-surface Salinity	275	Roden
1927-1984	Columbia River, WA	46°11'N.	124°11'W.	Streamflow	179	Tabata
1928-1984	Skeena River, CAN	54°37'N.	128°25'W.	Streamflow	173	Peterson
1928-1985	CA	See Figure 300b		anchovy catch	317	Sund
1928-1985	CA	See Figure 300b		sablefish catch	318	Sund
1928-1985	CA	See Figure 300b		sardine catch	319	Sund
1928-1985	CA	See Figure 300b		bonito catch	320	Sund
1928-1985	CA	See Figure 300b		sanddab catch	321	Sund
1928-1985	CA	See Figure 300b		squid catch	322	Sund
1929-1983	Skykomish, WA	47°30'N.	121°24'W.	Streamflow	177	Lins
1930-1939	La Jolla, CA	32°50'N.	117°10'W.	diatom chaetoceros debilis	323	Tont
1930-1939	La Jolla, CA	32°50'N.	117°10'W.	diatom eucampia zoodiacus	324	Tont
1930-1983	Puget Sound, WA	47°05'N.	122°25'W.	Streamflow	176	Ebbesmeyer
1931-1982	Departure Bay, CAN	49°13'N.	123°57'W.	Sea-surface Salinity	286	Tabata
1931-1985	Albuquerque, NM	35°06'N.	106°36'W.	Air Temperature	53	NCAR
1931-1985	Albuquerque, NM	35°06'N.	106°36'W.	Precipitation	152	NCAR
1931-1985	Coppermine, CAN	67°48'N.	115°12'W.	Air Temperature	6	NCAR
1931-1985	Coppermine, CAN	67°48'N.	115°12'W.	Precipitation	98	NCAR
1931-1985	Fairbanks, AK	64°54'N.	147°42'W.	Air Temperature	4	NCAR
1931-1985	Fairbanks, AK	64°54'N.	147°42'W.	Precipitation	92	NCAR
1931-1985	Fort Smith, CAN	60°00'N.	111°54'W.	Air Temperature	16	NCAR
1931-1985	Fort Smith, CAN	60°00'N.	111°54'W.	Precipitation	104	NCAR
1933-1983	La Paz, MEX	24°10'N.	110°17'W.	Air Temperature	59	Vogel
1933-1983	La Paz, MEX	24°10'N.	110°17'W.	Precipitation	165	Vogel
1933-1984	Puget Sound, WA	47°05'N.	122°25'W.	150m salinity	327	Ebbesmeyer
1933-1984	Puget Sound, WA	47°05'N.	122°25'W.	150m temperature	326	Ebbesmeyer

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1933-1985	Crescent City, CA	41°45'N.	124°12'W.	Sea-level Height	210	Tabata
1933-1985	Crescent City, CA	41°45'N.	124°12'W.	SST	253	Mantyla
1933-1987	Santa Monica, CA	34°00'N.	118°16'W.	Sea-level Height	214	Tabata
1934-1971	Cape St. James, CAN	51°56'N.	131°01'W.	Sea-surface Salinity	282	Tabata
1934-1979	Crescent City, CA	41°45'N.	124°12'W.	Sea-surface Salinity	291	Roden
1934-1984	Amphitrite Point, CAN	48°55'N.	125°32'W.	Sea-surface Salinity	288	Tabata
1934-1984	Amphitrite Point, CAN	48°55'N.	125°32'W.	SST	249	Tabata
1934-1984	Cape St. James, CAN	51°56'N.	131°01'W.	SST	243	Tabata
1934-1985	Neah Bay, WA	48°22'N.	124°37'W.	Sea-level Height	207	Tabata
1935-1984	Guaymas, MEX	27°55'N.	110°53'W.	Air Temperature	58	Vogel
1935-1984	Guaymas, MEX	27°55'N.	110°53'W.	Precipitation	162	Vogel
1935-1984	Kains Island, CAN	50°26'N.	128°02'W.	SST	245	Tabata
1935-1984	Kains Island, CAN	50°26'N.	128°02'W.	Sea-surface Salinity	283	Tabata
1935-1986	Neah Bay, WA	48°22'N.	124°37'W.	SST	250	Mantyla
1936-1978	Juneau, AK	58°15'N.	134°25'W.	SST	237	Tabata
1936-1979	Neah Bay, WA	48°22'N.	124°37'W.	Sea-surface Salinity	289	Roden
1936-1982	Entrance Island, CAN	49°12'N.	123°56'W.	SST	248	Tabata
1936-1982	Entrance Island, CAN	49°12'N.	123°56'W.	Sea-surface Salinity	287	Tabata
1936-1984	Langara Island, CAN	54°15'N.	133°03'W.	Air Temperature	18	Tabata
1936-1984	Langara Island, CAN	54°15'N.	133°03'W.	SST	240	Tabata
1936-1984	Langara Island, CAN	54°15'N.	133°03'W.	Sea-surface Salinity	280	Tabata
1936-1984	Langara Island, CAN	54°15'N.	133°03'W.	Precipitation	106	Tabata
1936-1985	Juneau, AK	58°15'N.	134°25'W.	Sea-level Height	203	Tabata
1937-1982	Cape Mudge, CAN	50°00'N.	125°12'W.	SST	246	Tabata
1937-1982	Cape Mudge, CAN	50°00'N.	125°12'W.	Sea-surface Salinity	285	Tabata
1937-1984	Pine Island, CAN	50°58'N.	127°44'W.	SST	244	Tabata
1937-1984	Pine Island, CAN	50°58'N.	127°44'W.	Sea-surface Salinity	284	Tabata
1937-1985	Fort Nelson, CAN	58°48'N.	122°36'W.	Air Temperature	15	NCAR
1937-1985	Fort Nelson, CAN	58°48'N.	122°36'W.	Precipitation	103	NCAR
1937-1985	Las Vegas, NV	36°06'N.	115°12'W.	Air Temperature	50	NCAR
1937-1985	Las Vegas, NV	36°06'N.	115°12'W.	Precipitation	144	NCAR
1938-1985	Sitka, AK	57°03'N.	135°20'W.	Sea-level Height	204	Tabata
1939-1978	Alameda, CA	37°47'N.	122°18'W.	SST	257	Tabata
1939-1983	San Ignacio, MEX	27°27'N.	112°50'W.	Precipitation	163	Vogel
1939-1984	Alert Bay, CAN	50°35'N.	126°56'W.	Barometric pressure	75	Tabata
1939-1984	Anchorage, AK	61°13'N.	149°53'W.	Barometric pressure	63	Tabata
1939-1984	Bull Harbour, CAN	50°55'N.	127°57'W.	Barometric pressure	74	Tabata
1940-1969	Triple Island, CAN	54°18'N.	130°53'W.	Sea-surface Salinity	281	Tabata
1940-1970	Triple Island, CAN	54°18'N.	130°53'W.	SST	242	Tabata
1940-1983	Yakutat, AK	59°33'N.	139°44'W.	SST	236	Tabata
1940-1984	Victoria, CAN	48°39'N.	123°26'W.	Barometric pressure	80	Tabata
1940-1985	Yakutat, AK	59°33'N.	139°44'W.	Sea-level Height	202	Tabata
1941-1960	Yakutat, AK	59°33'N.	139°40'W.	Sea-surface Salinity	276	Roden
1941-1969	Buenaventura, COLOMBIA	3°54'N.	77°06'W.	Sea-level Height	222	Wyrтки
1941-1970	Valparaiso, CHILE	33°02'S.	71°38'W.	Sea-level Height	230	Wyrтки
1941-1984	Anchorage, AK	61°48'N.	149°53'W.	Air Temperature	5	Tabata
1941-1984	Anchorage, AK	61°48'N.	149°53'W.	Precipitation	93	Tabata
1941-1984	Annette, CAN	52°09'N.	131°06'W.	Barometric pressure	72	Tabata
1941-1984	Race Rocks, CAN	48°18'N.	123°32'W.	SST	251	Tabata
1941-1984	Race Rocks, CAN	48°18'N.	123°32'W.	Sea-surface Salinity	290	Tabata
1941-1984	Skagit River, WA	48°20'N.	122°45'W.	Streamflow	175	Tabata
1941-1984	Yakutat, AK	59°33'N.	139°44'W.	Air Temperature	11	Tabata
1941-1984	Yakutat, AK	59°33'N.	139°44'W.	Barometric pressure	67	Tabata
1941-1984	Yakutat, AK	59°33'N.	139°44'W.	Precipitation	99	Tabata
1942-1964	Juneau, AK	58°18'N.	134°20'W.	Sea-surface Salinity	277	Roden
1942-1979	Talara, PERU	4°37'S.	81°17'W.	Sea-level Height	226	Wyrтки
1942-1984	Adak, AK	51°51'N.	176°39'W.	Air Temperature	7	Tabata
1942-1984	Adak, AK	51°51'N.	176°39'W.	Precipitation	94	Tabata
1942-1985	Callao, PERU	12°03'S.	77°09'W.	Sea-level Height	227	Wyrтки
1942-1985	Whitehorse, CAN	60°42'N.	135°06'W.	Air Temperature	12	NCAR
1942-1985	Whitehorse, CAN	60°42'N.	135°06'W.	Precipitation	100	NCAR

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Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1943-1966	Massacre Bay, AK	52°50'N.	173°12'E.	Sea-level Height	199	Tabata
1943-1978	Adak, AK	51°51'N.	176°39'W.	SST	232	Tabata
1943-1983	Mexicali, MEX	32°39'N.	115°27'W.	Air Temperature	56	Vogel
1943-1983	Mexicali, MEX	32°39'N.	115°27'W.	Precipitation	157	Vogel
1943-1984	Tofino A, CAN	49°05'N.	125°46'W.	Barometric pressure	77	Tabata
1944-1964	Sitka, AK	57°03'N.	135°20'W.	Sea-surface Salinity	278	Roden
1944-1969	Valparaiso, CHILE	33°02'S.	71°38'W.	SST	273	McLain
1945-1969	Antofagasta, CHILE	23°28' S.	70°26'W.	SST	272	McLain
1945-1978	Honolulu, HI	21°18'N.	157°52'W.	SST	265	Tabata
1945-1986	Avila/Pt. San Luis, CA	35°10'N.	120°45'W.	SST	259	Mantyla
1946-1970	Antofagasta, CHILE	23°39'S.	70°24'W.	Sea-level Height	228	Wyrтки
1946-1978	Adak, AK	51°51'N.	176°39'W.	Barometric pressure	64	Tabata
1946-1981	Weather Ship P	50°00'N.	145°00'W.	Barometric pressure	70	Tabata
1946-1984	Langara Island, CAN	54°15'N.	133°03'W.	Barometric pressure	71	Tabata
1946-1984	PNA Index	See Text		Atmosphere	302	McLain
1946-1987	Upwelling Index	39°00'N.	125°00'W.	Atmosphere	302	Bakun
1947-1985	Kenai River, AK	60°29'N.	149°48'W.	Streamflow	171	Peterson
1948-1970	La Libertad, ECUADOR	2°12'S.	80°55'W.	Sea-level Height	224	Wyrтки
1948-1972	Cartagena, COLOMBIA	10°27'N.	75°31'W.	SST	268	McLain
1948-1973	La Libertad, ECUADOR	2°12'S.	80°55'W.	SST	270	McLain
1948-1985	Chena River, AK	64°50'N.	147°42'W.	Streamflow	170	Peterson
1949-1970	San Jose, GUATEMALA	13°55'N.	90°50'W.	SST	267	McLain
1949-1983	Cabo San Lucas, MEX	22°52'N.	109°54'W.	Precipitation	166	Vogel
1949-1983	Loreto, MEX	26°00'N.	111°20'W.	Precipitation	164	Vogel
1949-1983	San Felipe, MEX	31°00'N.	114°50'W.	Precipitation	160	Vogel
1949-1986	Acapulco, MEX	16°50'N.	99°56'W.	Sea-level Height	219	Wyrтки
1950-1972	Acapulco, MEX	16°51'N.	99°56'W.	SST	266	McLain
1950-1978	Kodiak, AK	57°47'N.	152°24'W.	SST	234	Tabata
1950-1981	Weather Ship P	50°00'N.	145°00'W.	Air Temperature	17	Tabata
1950-1982	Weather Ship P	50°00'N.	145°00'W.	SST	239	Tabata
1951-1972	Tumaco, COLOMBIA	1°38'N.	78°46'W.	SST	269	McLain
1951-1985	Southern CA Bight	See Figure 303c		10m temperature	328	Moser/Smith
1951-1985	Southern CA Bight	See Figure 300c		10m salinity	329	Moser/Smith
1951-1986	Southern CA Bight	See Figure 300c		small plankton	312	Moser/Smith
1951-1986	Southern CA Bight	See Figure 300c		anchovy larvae	313	Moser/Smith
1951-1986	Southern CA Bight	See Figure 300c		sardine larvae	314	Moser/Smith
1951-1986	Southern CA Bight	See Figure 300c		total fish larvae	315	Moser/Smith
1952-1984	Guaymas, MEX	27°55'N.	110°54'W.	Sea-level Height	216	Wyrтки
1952-1984	La Paz, MEX	24°10'N.	110°21'W.	Sea-level Height	217	Wyrтки
1952-1986	Salina Cruz, MEX	16°10'N.	95°12'W.	Sea-level Height	220	Wyrтки
1953-1981	Weather Ship P	50°00'N.	145°00'W.	Precipitation	105	Tabata
1954-1974	Weather Ship N	30°00'N.	140°00'W.	SST	260	Roden
1954-1974	Weather Ship N	30°00'N.	140°00'W.	Air Temperature	51	Roden
1954-1974	Weather Ship N	30°00'N.	140°00'W.	Barometric pressure	85	Roden
1955-1975	Unalaska, AK	53°53'N.	166°32'W.	Sea-level Height	200	Tabata
1955-1982	Unalaska, AK	53°53'N.	166°32'W.	SST	233	Tabata
1958-1989	Mauna Loa/South Pole	See Text		Atmospheric CO ₂	305	Keeling
1958-1987	Mauna Loa, HI	19°30'N.	155°36'W.	Atmospheric CO ₂	304	Keeling
1959-1985	Nahcotta, WA	46°28'N.	124°02'W.	Oyster Cond. Index	316	Schoener

INDEX OF STATIONS LISTED BY FIRST YEAR OF RECORD--continued

Period of Record	Station Name	Latitude	Longitude	Variable	Figure No.	Source
1968-1985	Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	phytoplankton	309	Lehman
1968-1985	Suisun Bay, CA	38°05'N.	122°03'W.	phytoplankton	308	Lehman
1968-1986	Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	chlorophyll-a	307	Lehman
1968-1986	Suisun Bay, CA	38°05'N.	122°03'W.	chlorophyll-a	306	Lehman
1969-1984	La Libertad, ECUADOR	2°12'S.	80°55'W.	Sea-level Height	225	Wyrcki
1969-1985	Buenaventura, COLOMBIA	3°54'N.	77°06'W.	Sea-level Height	223	Wyrcki
1970-1985	Antofagasta, CHILE	23°39'S.	70°24'W.	Sea-level Height	229	Wyrcki
1971-1981	Suisun Bay, CA	38°95'N.	122°03'W.	zooplankton	310	Lehman
1971-1981	Sacramento-San Joaquin Delta, CA	38°35'N.	121°30'W.	zooplankton	311	Lehman

CONTRIBUTORS TO TIME-SERIES DATA

NAME	AFFILIATION
Bakun, Andrew	National Marine Fisheries Service, P.O. Box 831, Monterey, CA 93942
Cayan, Daniel	Scripps Institution of Oceanography, A-024, La Jolla, CA
Ebbesmeyer, Curtis C.	Evans-Hamilton, Inc., 6306-21st Avenue, N.E., Seattle, WA 98225
Karl, T. R.	U.S. Department of Commerce, Federal Bldg., National Climatic Data Center, Asheville, NC 28801
Keeling, Charles D.,	Scripps Institution of Oceanography, A-020, La Jolla, CA 92093
Lehman, Peggy	CA Department of Water Resources, 3251 "S" Street, Sacramento, CA 95816
Lins, Harry	U.S. Geological Survey, 410 National Center, Reston, VA 22092
Mantyla, Arnold	Scripps Institution of Oceanography, A-030, La Jolla, CA 92093
McLain, Douglas	Ocean Applications Group, National Ocean Survey, c/o Fleet Numerical Oceanography Center, Bldg. 4, Monterey, CA 93943-5005
Michaelsen, Joel	University of CA-Santa Barbara, Department of Geography, Santa Barbara, CA 93106
Moser, Geoff	National Marine Fisheries, P.O. Box 271, La Jolla, CA 92038,
NCAR	Data Support, P.O. Box 3000, Boulder, CO 80307
Peterson, David, H.	U.S. Geological Survey, 345 Middlefield Road-MS 496, Menlo Park, CA 94025
Redmond, Kelly	Western Regional Climate Center, Desert Research Institute, P.O. Box 60220, Reno, NV 89506-0220

CONTRIBUTORS TO TIME-SERIES DATA--continued

NAME	AFFILIATION
Roden, Gunnar	University of Washington, Seattle, WA 98195
Roos, Maurice	California Department of Water Resources, Box 942836, Sacramento, CA 94236-001
Ropelewski, C. F.	Climate Analysis Center, W35 NMC/NWS/NOAA, Washington, DC 20233
Schoener, Amy	Washington State Department of Fisheries, Duvall, WA 89019
Slack, James	U.S. Geological Survey, 345 Middlefield Road- MS 496, Menlo Park, CA 94025
Smith, Paul	National Marine Fisheries, P.O. Box 271, La Jolla, CA 92038
Sund, Paul, N.	NOAA-National Marine Fisheries Service, P.O. Box 831, Monterey, CA 93942
Tabata, Sus	Institute of Ocean Sciences, P.O. Box 6000, 9860 West Saanich Road, Sidney, BC CANADA V8L 4B2
Tont, Sargun	Scripps Institution of Oceanography, A-020, La Jolla, CA 92093
Vogel, Gerald	Naval Postgraduate School, Department of Oceanography, Monterey, CA 93943
Wyrтки, Klaus	University of Hawaii, Department of Oceanography, Honolulu, HI 96822