GROUND-WATER USE AND LEVELS IN THE SOUTHERN COASTAL PLAIN OF VIRGINIA

U.S. GEOLOGICAL SURVEY

Open-File Report 91-187

Prepared in cooperation with

SOUTHEASTERN VIRGINIA PLANNING DISTRICT COMMISSION,

VIRGINIA WATER CONTROL BOARD,

CITIES OF NEWPORT NEWS AND WILLIAMSBURG, and the

COUNTIES OF JAMES CITY AND YORK

CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
foot (ft)	0.3048	meter
gallon per day (gal/d)	0.003785	cubic meter per day
million gallons per day (Mgal/d)	0.04381	cubic meter per second

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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By Jerry D. Larson and Randell J. Laczniak

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Richmond, Virginia

1991

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GROUND-WATER USE AND LEVELS IN THE SOUTHERN COASTAL PLAIN OF VIRGINIA

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ABSTRACT

Water-level and water-use data are presented for the major aquifers in the southern Coastal Plain of Virginia. Water-level data are presented for 191 wells. Ground-water withdrawal data are presented for the period 1935 through December 1986. Graphs of annual withdrawal, maps of water-level changes between 1985 and 1987 and water levels for 1987 are presented. Hydrographs of 222 wells for the period 1970-87 show current and previous conditions in the ground-water-flow system.

INTRODUCTION

The U.S. Geological Survey (USGS) has studied the ground-water system in the Coastal Plain of Virginia (Hamilton and Larson, 1988; Laczniak and Meng, 1988). These studies, done between 1984 and 1987, included the geographical area of Virginia south of the York River as shown in figure 1. During these studies, water levels in a large number of wells were measured quarterly to determine changes in the potentiometric surfaces of the major aquifers.

Water levels in about 70 wells within the southern part of the Coastal Plain were measured yearly from the early 1970's through the early 1980's by the USGS. In the early 1980's, the Virginia Water Control Board (VWCB) began measuring water levels in about 90 wells every 6 weeks. Beginning in 1984, the USGS made more frequent water-level measurements and the number of wells increased to about 180. Measurements in these wells continue to provide essential data for the management of ground water in the Coastal Plain.

Ground-water withdrawal data were obtained from the Virginia water-use data system and from major water suppliers. The ground-water-withdrawal data were summarized by Kull and Laczniak (1987).

Purpose and Scope

This report describes the results of a study to summarize the ground-water use and water-level data collected through 1987 for major aquifers in the southern Coastal Plain of Virginia. Ground-water use is shown as graphs of annual withdrawal from 1935-87 and includes only those sources with wells pumping more than 10,000 gal/d (gallons per day). Water levels for each of the major aquifers are presented in the form of hydrographs showing water-level data collected from 1970 to 1987 for wells in the network. Water levels in the major aquifers for 1987 are shown as point values on maps. Water-level changes in the major aquifers from 1985 to 1987 are shown as point values on maps and were derived by subtracting the last water-level measurement made in 1985 from the last water-level measurement made in 1987.

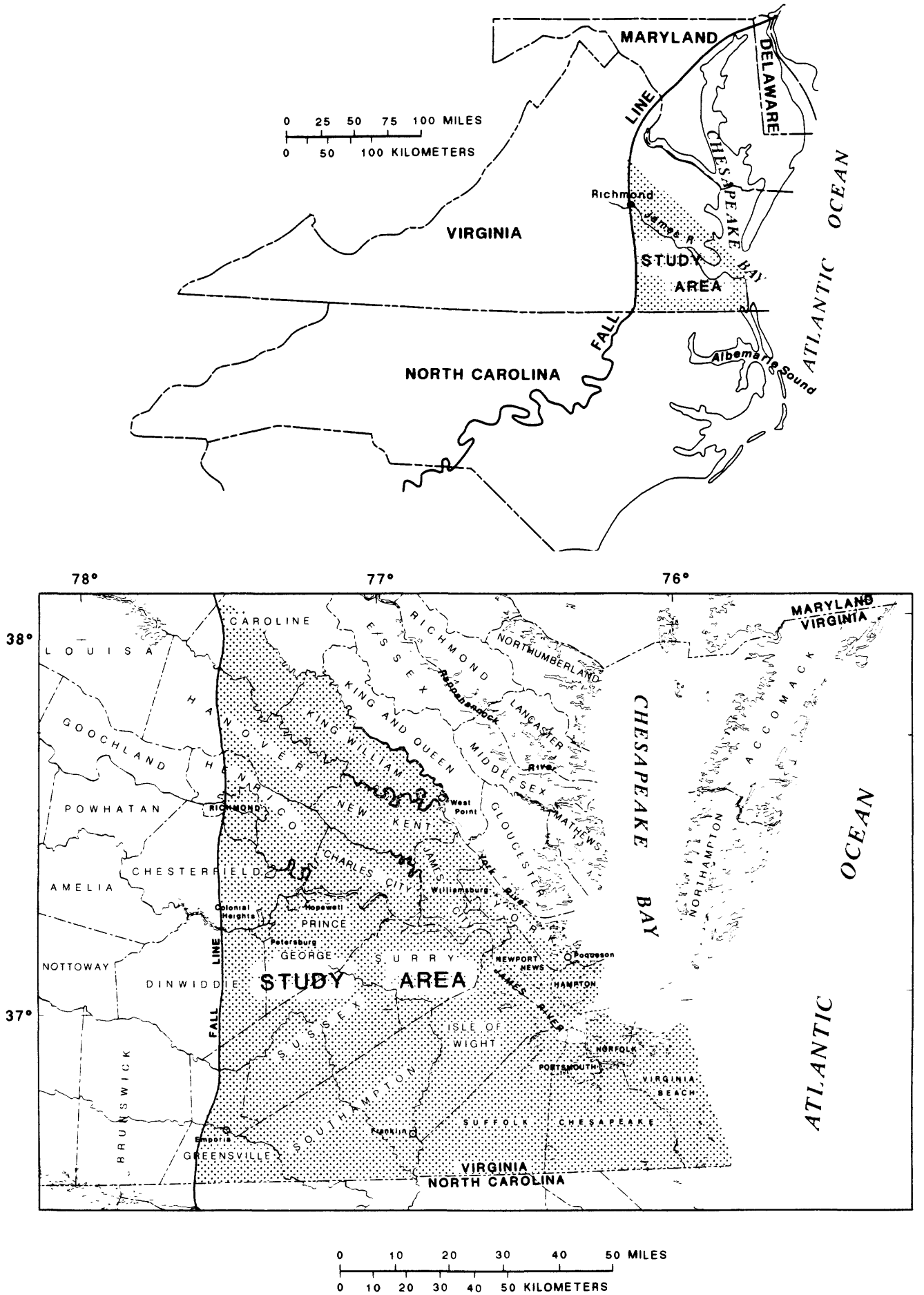

Figure 1.--Location of study area.

Well-Numbering System

The well-numbering system used by the USGS in Virginia is based on a number and letter grid equivalent to the 7.5-minute topographic series quadrangle maps. In this grid, the quadrangle maps are numbered 1 through 69 from west to east across the State beginning at long 83°30', and are lettered A through Z (omitting letters I and O) from south to north, beginning at lat 36°30' (fig. 2). Wells are numbered sequentially within each 7.5-minute quadrangle. For example, well 51B 1 is the first well located in the Adams Grove quadrangle. Many of the wells have a quadrangle number followed by a State observation well (SOW) number that indicates a research well of VWCB.

Aquifer Framework

Aquifers within the southern Coastal Plain of Virginia consist of unconsolidated sand ranging in age from Early Cretaceous to Holocene (recent). The aquifers are separated by clay and silt that act as intervening confining units. Previous studies (Meng and Harsh, 1988; Hamilton and Larson, 1988; and Laczniak and Meng, 1988) have delineated eight aquifers in the study area (fig. 3). The aquifer names and ages, from youngest to oldest are (1) the Columbia aquifer of Holocene age; (2) the Yorktown-Eastover aquifer of Pliocene age; (3) the Chickahominy-Piney Point aquifer of Eocene, Oligocene, and Miocene age; (4) the Aquia aquifer of Paleocene age; (5) the Virginia Beach aquifer of Late Cretaceous-Paleocene age; (6) the upper Potomac aquifer of Late Cretaceous age; (7) the middle Potomac aquifer of Middle Cretaceous age; and (8) the lower Potomac aquifer of Early Cretaceous age. Water-use and water-level data are presented for all of the above aquifers except the Virginia Beach aquifer, which has no observation wells or production wells pumping more than 10,000 gal/d.

GROUND-WATER USE AND LEVELS

Bar graphs are used in this report to show changes in ground-water use from the aquifers with time. Pumpage rates were obtained from the reports mentioned earlier and from the Virginia water-use data system (VWUDS) for the period 1935-86. Only those users withdrawing more than 10,000 gal/d are in VWUDS. Kull and Laczniak (1987) describe the methods used to obtain the water-use information. The values on the bar graphs depict pumpage for the entire Coastal Plain. An analysis of the major pumping centers by Kull and Laczniak shows that more than 80 percent of the ground-water pumpage is from the area described in this report.

The hydrographs in this report depict changes in the ground-water levels with time. All hydrographs are plotted in reference to both land-surface datum and sea level. The hydrographs are grouped by the aquifer in which the wells are completed. The USGS well number and a 15-digit identification number corresponding to the latitude and longitude of the well are shown on each hydrograph.

Columbia Aquifer

A large part of water from the Columbia aquifer has been for domestic use, but has not been reported. Some light industrial and municipal withdrawals of ground water began around 1948 (fig. 4), but withdrawals have not increased significantly over the last 30 years. Figure 4 does not include domestic use; therefore, values do not reflect the large number of household and small-business wells that withdraw water from the Columbia aquifer but do not use the 10,000 gal/d reporting limit.

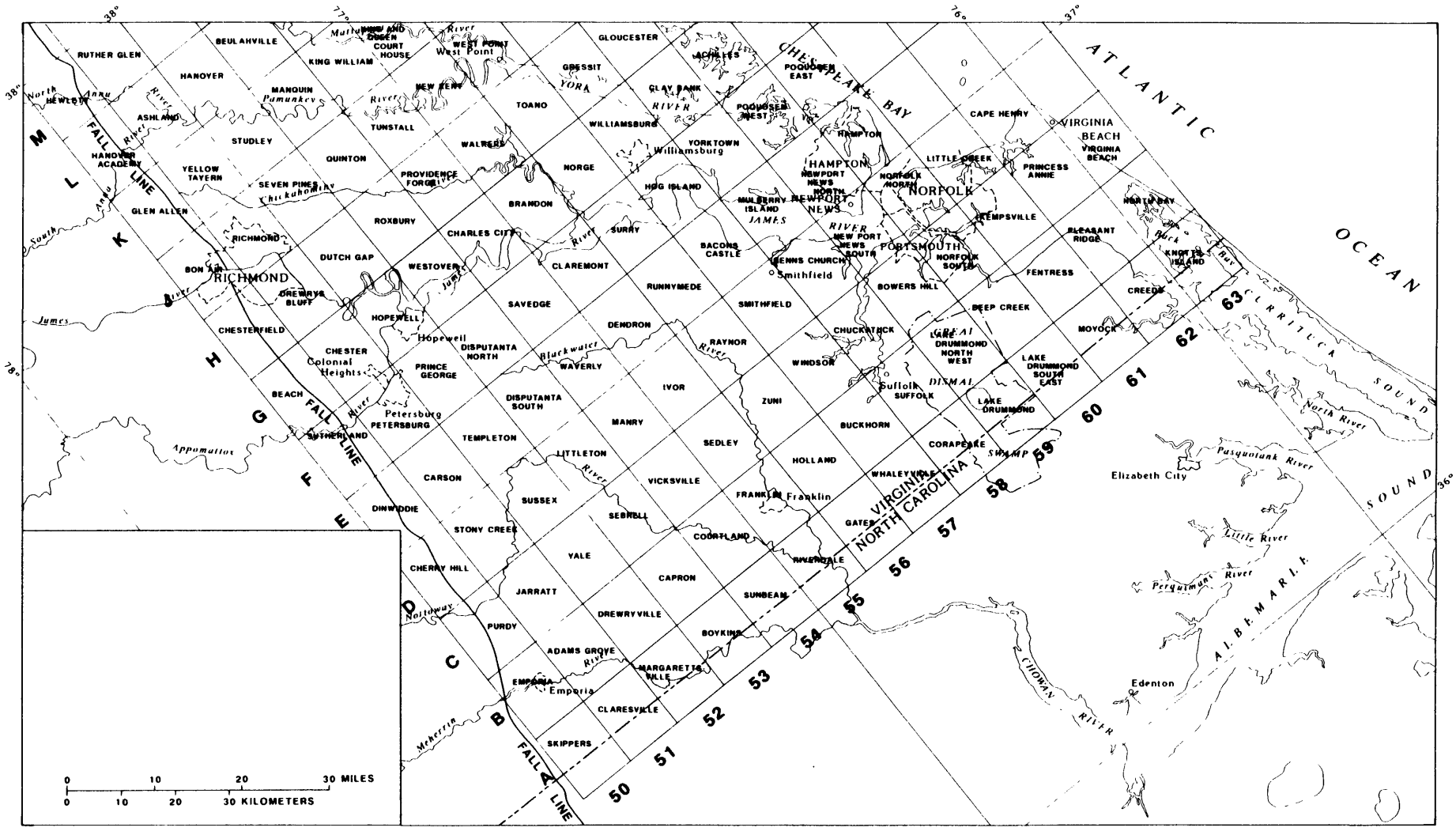

Figure 2.--Well-numbering system in Virginia.

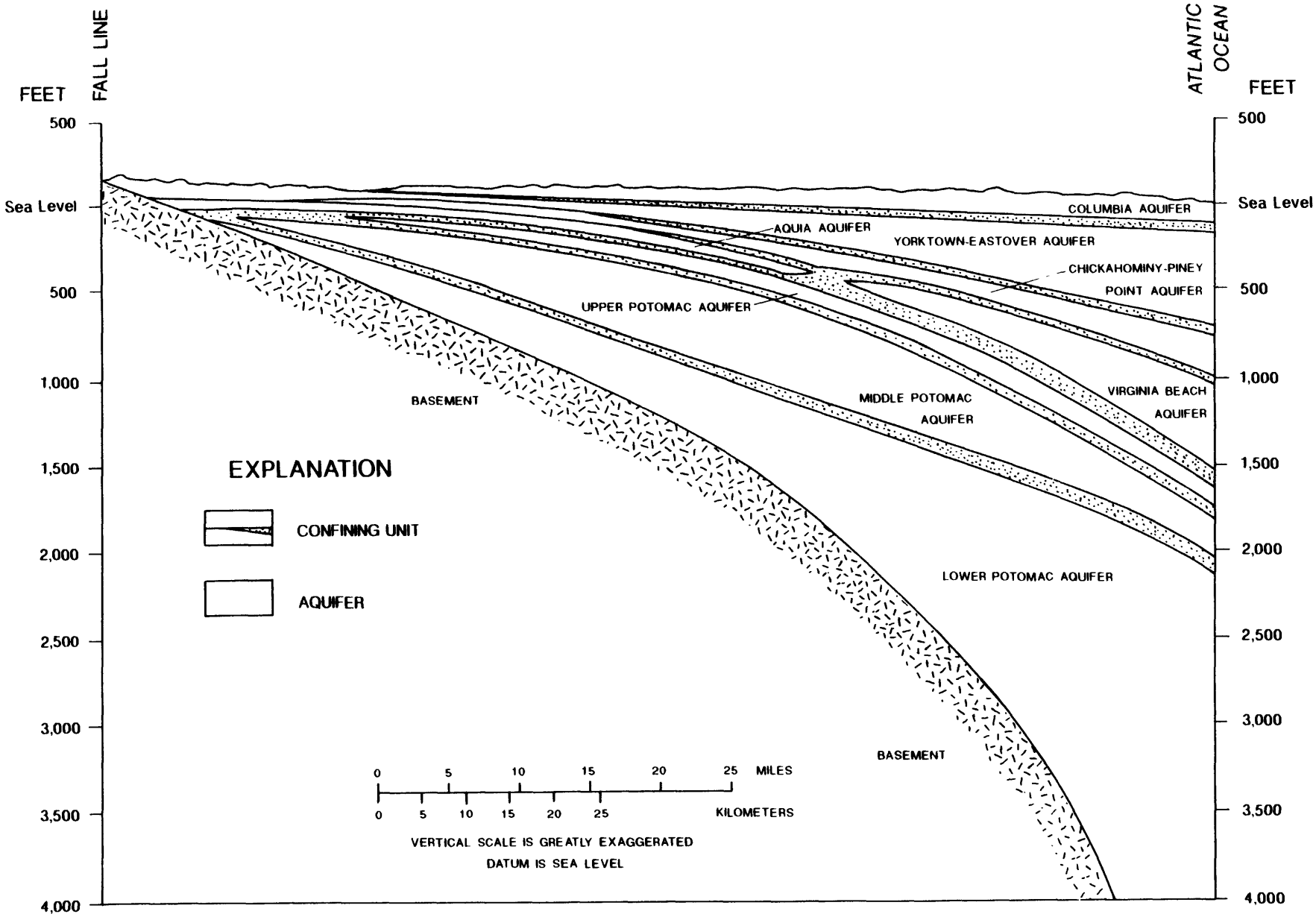

Figure 3.--General depth of aquifers, confining units, and basement from the Fall Line through the southern Coastal Plain of Virginia. (Modified from Hamilton and Larson, 1988)

Hydrographs of wells completed in the Columbia aquifer are shown in appendix I. The hydrographs show some long-term decline in water levels in the Virginia Beach and Norfolk areas where this aquifer is utilized for public supply, domestic use, and for ground-water source heat pumps. Seasonal changes in water levels range from a few to about 10 ft. Latitude, longitude, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes between those years are shown in table 1. Location of the wells, well numbers, change in water levels from 1985 to 1987, and the 1987 water levels are shown in figure 5.

Yorktown-Eastover Aquifer

The Yorktown-Eastover aquifer is a major source of potable water in the eastern part of the Virginia Coastal Plain. Annual ground-water withdrawals from the Yorktown-Eastover aquifer are shown in figure 6. The amount of water pumped from this aquifer has increased rapidly and since 1981 has exceeded 7.0 Mgal/d (million gallons per day).

Hydrographs for wells completed in the Yorktown-Eastover aquifer are shown in appendix II. Wells located near pumping centers (62C2, 62C4, 55B68, and 57H14) show some decline in water levels, but the majority of wells show only seasonal fluctuation. Latitude, longitude, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes between those years are listed in table 2. Locations of selected wells, well numbers, change in water levels from 1985 to 1987, and the 1987 water levels are shown in figure 7.

Chickahominy-Piney Point Aquifer

The Chickahominy-Piney Point aquifer is an important source of water in the central part of the Virginia Coastal Plain. Annual ground-water withdrawals from the Chickahominy-Piney Point aquifer are shown in figure 8. Pumpage from this aquifer doubled from about 1 Mgal/d in the late 1970's to about 2 Mgal/d in the early 1980's and has remained constant.

Hydrographs for wells completed in the Chicahominy-Piney Point aquifer are shown in appendix III. Nearly all of the wells have shown some decline in water levels since the early 1970's, ranging from a few feet to about 20 ft.

Latitude, longitude, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes between those years are shown in table 3. Locations of wells, well numbers, change in water levels between 1985 and 1987, and the 1987 water levels are shown in figure 9.

Aquia Aquifer

The Aquia aquifer is an important source of water in the northern two thirds of the Virginia Coastal Plain. Annual withdrawals of water from the Aquia aquifer are shown in figure 10. Pumpage from the Aquia aquifer was about 2.3 Mgal/d in 1985.

Hydrographs for wells completed in the Aquia aquifer are shown in appendix IV. Water levels have generally declined throughout the aquifer, ranging from a few feet to about 35 ft near pumping centers. Latitude, longitude, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes between those years are listed for each well in table 4. Locations of wells, well numbers, change in water levels between 1985 and 1987, and 1987 water levels are shown in figure 11.

Upper Potomac Aquifer

The upper Potomac aquifer is a major source of water throughout the Virginia Coastal Plain. Annual withdrawals of water from the aquifer are shown in figure 12, and have exceeded 15 Mgal/d since 1973.

Hydrographs of wells in the upper Potomac aquifer are shown in appendix V. Water levels have declined in most wells throughout the period of record. Total declines range from about 11 to 50 ft since the early 1970's. Because of the large number of wells measured in this aquifer, and in some cases their close proximity to each other, a representative areal selection of wells was chosen for this report. Latitude, longitude, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes in water level between those years are listed in table 5. Locations of wells, well numbers, change in water levels between 1985 and 1987, and 1987 water levels are shown in figure 13.

Middle Potomac Aquifer

The middle Potomac aquifer is the major source of water throughout the Virginia Coastal Plain. Withdrawals from the aquifer are shown in figure 14, and have exceeded 50 Mgal/d since the mid-1970's.

Hydrographs for wells completed in the middle Potomac aquifer are shown in appendix VI. The hydrographs show that water levels have declined throughout the aquifer. Total declines of about 170 ft in wells near pumping centers have been recorded. A large number of wells have been measured in this aquifer, with concentrations near pumping centers. A representative areal selection of these wells was used for this report. Latitudes, longitudes, altitudes, the last water-level measurements for the 1985 and 1987 calendar years, and the changes in water level between those years are listed in table 6. Locations of wells, well numbers, change in water levels between 1985 and 1987, and the 1987 water levels are shown in figure 15.

Lower Potomac Aquifer

The lower Potomac aquifer is a major source of water throughout the Virginia Coastal Plain. Withdrawals from the aquifer are shown in figure 16, and generally have exceeded 13 Mgal/d since 1968.

Hydrographs for wells completed in the lower Potomac aquifer are shown in appendix VII. Water levels have declined throughout this aquifer. Total declines of 30 ft have been common since the early 1970's. Latitudes, longitudes, altitude, the last water-level measurements for the 1985 and 1987 calendar years, and the changes in water level between those years are listed for each well in table 7. Locations of wells, well numbers, change in water levels between 1985 and 1987, and 1987 water levels are shown in figure 17.

SUMMARY

Water-level data are presented for 191 wells completed in the major aquifers located in the southern part of the Coastal Plain of Virginia. Ground-water withdrawal data are presented for the major aquifers from 1935 through December 1986. Graphs of annual withdrawal, maps of water-level change from 1985 to 1987, and 1987 water levels are presented. Hydrographs of 222 wells for the period 1970-87 show current and previous conditions in the ground-water-flow system.

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Kull, T.K., and Laczniak, R.J., 1987, Ground-water withdrawals from the confined aquifers of the Coastal Plain of Virginia, 1891-1983: U.S. Geological Survey Report Water-Resources Investigations Report 87-4049, 37 p.

Laczniak, R.J., and Meng, A.A., III, 1988, Ground-water resources of the York-James Peninsula of Virginia: U.S. Geological Survey Water-Resources Investigations Report 88-4059, 178 p.

Meng, A.A., III, and Harsh, J.F., 1988, Hydrogeologic framework of the Virginia Coastal Plain: U.S. Geological Survey Professional Paper 1404-C, 81 p.

Table 1.–*Location, altitude, and selected 1985 and 1987 water-level data in Columbia aquifer*

Well no.	Latitude (degree minute second)	Longitude	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
55B 62	364101	765448	27	12/04/85	10.28	16.72	12/16/87	11.55	15.45	-1.27
57C 24	364703	763837	70	11/20/85	6.39	63.61	11/16/87	12.80	57.20	-6.41
57C 25	364814	764407	70	11/20/85	1.00	69.00	11/16/87	1.82	68.18	- .82
57D 23	365751	764335	75	11/19/85	4.60	70.40	11/16/87	7.55	67.45	-2.95
57E 15	370253	764312	85	11/19/85	3.17	81.83	11/16/87	13.73	71.27	-10.56
58C 60	365133	763512	50	11/20/85	1.97	48.03	11/17/87	3.32	46.68	-1.35
58C 61	364731	763555	40	11/20/85	17.50	22.50	08/05/87	0.00	40.00	17.50
58F 55	371208	763411	55	12/31/85	26.57	28.43	11/10/87	27.67	27.33	-1.10
58F 56	371252	763414	85	09/19/85	30.70	54.30	07/27/87	30.05	54.95	.65
59C 29	364852	762522	15	11/20/85	4.99	10.01	11/18/87	6.48	8.52	-1.49
61A 3	363502	760912	10	11/20/85	8.03	1.97	11/18/87	9.55	0.45	-1.52
61B 7	364227	760747	15	11/20/85	3.26	11.74	11/19/87	5.55	9.45	-2.29
61B 8	364231	761408	20	11/20/85	6.88	13.12	11/19/87	7.70	12.03	- .82
61C 23	364850	761207	15	11/14/85	11.08	3.92	11/19/87	11.35	3.65	- .27
61C 25	364920	760936	10	11/14/85	9.95	.05	11/19/87	11.30	-1.30	-1.35
61C 28	364920	760932	15	11/14/85	9.60	5.40	11/19/87	10.12	4.88	- .52
61C 29	364837	760920	15	11/14/85	7.49	7.51	11/19/87	8.95	6.05	-1.46
61D 6	365327	760805	25	11/15/85	9.31	15.69	11/19/87	10.52	14.48	-1.21
62A 2	363537	760610	10	11/20/85	4.93	5.07	11/18/87	6.36	3.64	-1.43
62A 3	363537	760610	10	11/20/85	2.17	7.83	11/18/87	6.34	3.66	-4.17
62B 1	364126	760035	10	11/20/85	2.55	7.45	11/18/87	5.30	4.70	-2.75
62B 2	364126	760035	10	11/20/85	3.42	6.58	11/18/87	5.54	4.46	-2.12
62C 3	364715	760308	15	11/14/85	8.47	6.53	11/19/87	10.63	4.37	-2.16
62C 5	364504	760313	15	11/14/85	5.56	9.44	11/19/87	6.00	9.00	- .44
62C 6	365158	760304	15	11/14/85	8.89	6.11	11/19/87	10.28	4.72	-1.39
62C 7	364906	760439	5	11/14/85	5.32	- .32	11/19/87	7.32	-2.32	-2.00
62C 11	364745	760043	20	11/14/85	6.34	13.66	11/19/87	8.20	11.80	-1.86
62C 12	364745	760043	15	11/14/85	5.57	9.43	11/19/87	7.58	7.42	-2.01
63C 2	364613	755832	7	11/14/85	5.82	1.18	07/06/87	7.35	-0.35	-1.53
63C 3	364613	755832	7	11/14/85	5.71	1.29	07/06/87	7.87	-0.87	-2.16
63C 5	364722	755918	10	11/14/85	3.78	6.22	11/18/87	5.40	4.60	-1.62

Table 2.–*Location, altitude, and selected 1985 and 1987 water-level data in Yorktown-Eastover aquifer*

Well no.	Latitude (degree minute second)	Longitude (degree minute second)	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
52B 13	363916	772010	120	12/31/85	39.52	80.48	10/25/87	42.26	77.74	-2.74
53D 12	365530	771040	90	12/18/85	14.95	75.05	08/15/87	23.86	66.14	-8.91
55B 68	364033	765626	35	12/10/85	25.23	9.77	12/16/87	27.43	7.57	-2.20
56H 30	372506	765117	105	12/31/85	19.07	85.93	11/10/87	20.05	84.95	-.98
57B 8	363827	763805	45	12/17/85	-6.23	51.23	12/17/87	-5.74	50.74	-.49
57B 9	363836	763810	45	12/17/85	-5.25	50.25	12/17/87	-5.08	50.08	-.17
57E 13	370712	764132	45	11/19/85	7.61	37.39	11/16/87	10.59	34.41	-2.98
57H 14	372315	764150	95	11/19/85	50.37	44.63	11/20/87	52.46	42.54	-2.09
58C 57	365133	763512	50	11/20/85	10.09	39.91	11/17/87	11.52	38.48	-1.43
58F 54	371208	763411	55	12/31/85	25.20	29.80	11/10/87	26.08	28.92	-.88
61B 2	364227	760747	15	11/20/85	7.66	7.34	11/19/87	9.45	5.55	-1.79
61C 27	364920	760932	15	11/14/85	8.73	6.27	11/19/87	10.22	4.78	-1.49
62C 2	364715	760308	15	11/14/85	11.54	3.46	11/19/87	12.76	2.24	-1.22
62C 4	364711	760600	12	11/14/85	12.13	-.13	11/19/87	12.05	-0.05	.08
62C 9	364745	760043	17	11/14/85	9.56	7.44	11/19/87	11.13	5.87	-1.57
63C 4	364722	755918	7	11/14/85	3.99	3.01	11/18/87	4.44	2.56	-.45

Table 3.–*Location, altitude, and selected 1985 and 1987 water-level data in Chicahominy-Piney Point aquifer*

Well no.	Latitude (degree minute second)	Longitude	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
53K 19	373737	770832	130	11/18/85	16.11	113.89	11/13/87	21.66	108.34	-5.55
54J 3	373400	770125	25	09/18/85	17.70	7.30	07/28/87	17.23	7.77	.47
55H 16	372329	765420	15	09/18/85	2.80	12.20	03/16/87	3.55	11.45	-.75
55H 19	372604	765859	110	09/18/85	99.10	10.90	07/27/87	101.41	8.59	-2.31
56G 38	372028	764524	120	09/19/85	156.34	-36.34	07/27/87	166.45	-46.45	-10.11
56H 7	372355	764508	100	09/18/85	133.03	-33.03	07/27/87	138.80	-38.80	-5.77
56H 9	372253	764830	100	09/18/85	124.99	-24.99	07/19/87	131.44	-31.44	-6.45
56H 29	372506	765117	105	12/31/85	112.39	-7.39	11/10/87	116.53	-11.53	-4.14
57C 21	364703	763837	70	11/20/85	47.19	22.81	11/16/87	48.64	21.36	-1.45
57H 9	372535	764355	60	09/18/85	58.55	1.45	03/16/87	60.23	-0.23	-1.68
58A 1	363704	763345	33	12/17/85	16.10	16.90	11/18/87	18.00	15.00	-1.90
58F 53	371208	763411	55	12/31/85	55.89	-0.89	11/10/87	57.92	-2.92	-2.03
59F 1	371304	762919	50	11/19/85	42.50	7.50	11/20/87	42.85	7.15	-.35

Table 4.–*Location, altitude, and selected 1985 and 1987 water-level data in Aquia aquifer*

Well no.	Latitude (degree minute second)	Longitude	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
53D 11	365530	771040	90	12/16/85	75.63	14.37	10/25/87	76.81	13.19	-1.18
53E 5	370237	771130	125	12/18/85	88.04	36.96	11/12/87	90.80	34.20	-2.76
55B 25	364143	765357	35	12/16/85	45.45	-10.45	11/03/87	48.46	-13.46	-3.01
55B 67	364033	765626	35	12/10/85	29.83	5.17	12/16/87	31.72	3.28	-1.89
58B 269	364318	763655	35	11/19/85	43.41	-8.41	11/16/87	46.83	-11.83	-3.42
58G 2	371601	763435	30	07/16/85	88.57	-58.57	07/27/87	90.05	-60.05	-1.48
61B 6	364227	760747	15	11/20/85	-3.91	18.91	11/19/87	-3.01	18.01	-0.90

Table 5.–*Location, altitude, and selected 1985 and 1987 water-level data in upper Potomac aquifer*

Well no.	Latitude (degree minute second)	Longitude (degree minute second)	Altitude (feet)	Water level: Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Water level: Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
52B 12	363916	772010	120	12/31/85	69.27	50.73	10/25/87	71.89	48.11	-2.62
53D 2	365649	771013	125	12/17/85	110.52	14.48	06/16/87	110.43	14.57	0.09
53D 10	365530	771040	90	12/17/85	79.12	10.88	10/25/87	80.55	9.45	-1.43
56B 5	364241	764933	72	12/16/85	185.25	-113.25	11/03/87	191.00	-119.00	-5.75
56F 1	371311	764636	10	11/19/85	77.87	-67.87	11/20/87	80.26	-70.26	-2.39
56F 2	370800	765007	120	12/16/85	174.44	-54.44	11/16/87	176.58	-56.58	-2.14
56G 8	372008	764732	145	09/19/85	200.54	-55.54	07/29/87	206.55	-61.55	-6.01
56H 27	372506	765117	105	12/31/85	155.05	-50.05	11/10/87	158.65	-53.65	-3.60
56J 10	373459	765102	100	09/23/85	191.10	-91.10	07/31/87	193.48	-93.48	-2.38
56N 1	380538	764908	150	11/20/85	153.54	-3.54	11/09/87	155.69	-5.69	-2.15
57C 8	364825	764417	80	12/17/85	158.06	-78.06	09/01/87	161.12	-81.12	-3.06
57C 12	364655	763811	80	12/18/85	151.95	-71.95	11/05/87	171.14	-91.14	-19.19
57C 23	364703	763837	70	11/20/85	152.53	-82.53	09/22/87	159.45	-89.45	-6.92
57C 26	364814	764407	70	11/20/85	145.70	-75.70	11/16/87	154.87	-84.87	-9.17
57D 22	365751	764335	75	11/19/85	135.72	-60.72	11/16/87	138.67	-63.67	-2.95
57E 10	370236	764259	85	11/19/85	150.41	-65.41	11/16/87	153.42	-68.42	-3.01
57E 12	370712	764132	45	11/19/85	105.37	-60.37	11/16/87	107.78	-62.78	-2.41
57F 24	371132	764055	5	12/16/85	75.48	-70.48	11/16/87	77.84	-72.84	-2.36
57G 18	371751	763940	40	09/19/85	116.05	-76.05	07/27/87	113.35	-73.35	2.70
57G 19	371735	763915	65	11/19/85	126.52	-61.52	11/20/87	132.65	-67.65	-6.13
57G 31	371610	764230	80	09/19/85	147.96	-67.96	07/27/87	148.28	-68.28	-.32
57G 59	371853	764215	40	09/19/85	113.50	-73.50	03/16/87	103.68	-63.68	9.82
58B235	364330	763451	52	12/17/85	129.33	-77.33	12/17/87	143.39	-91.39	-14.06
58B270	364318	763655	35	11/19/85	113.93	-78.93	11/16/87	126.85	-91.85	-12.92
58B271	364317	763635	30	11/19/85	109.39	-79.39	11/16/87	120.99	-90.99	-11.60
58B272	364319	763655	40	11/19/85	112.73	-72.73	11/16/87	135.85	-95.85	-23.12
58B273	364348	763632	25	11/19/85	112.08	-87.08	11/16/87	129.82	-104.82	-17.74
58C 8	365218	763130	20	12/16/85	84.15	-64.15	11/05/87	91.98	-71.98	-7.83
58C 56	364512	763437	10	12/17/85	81.84	-71.84	11/17/87	97.08	-87.08	-15.24
58C 59	365133	763512	50	12/31/85	123.10	-73.10	11/17/87	139.54	-89.54	-16.44
58C 62	364731	763555	40	11/20/85	135.37	-95.37	11/16/87	153.51	-113.51	-18.14
58E 3	370645	763503	10	07/16/85	81.44	-71.44	07/27/87	83.30	-73.30	-1.86
58F 1	371027	763356	20	11/19/85	92.80	-72.80	11/20/87	94.49	-74.49	-1.69
58F 19	371415	763335	50	07/16/85	101.48	-51.48	07/27/87	103.32	-53.32	-1.84
58F 52	371208	763411	55	12/31/85	131.92	-76.92	11/10/87	136.14	-81.14	-4.22
59C 31	364852	762522	15	11/20/85	72.20	-57.20	11/18/87	77.35	-62.35	-5.15
60B 3	363836	762017	15	12/31/85	64.59	-49.59	11/18/87	68.58	-53.58	-3.99
60C 27	364823	761815	17	06/19/85	63.65	-46.65	11/04/87	68.61	-51.61	-4.96
60C 41	364615	761821	10	12/31/85	59.70	-49.70	11/18/87	64.18	-54.18	-4.48
61B 5	364227	760747	15	11/20/85	46.68	-31.68	11/19/87	50.02	-35.02	-3.34
61C 1	365223	761221	10	12/17/85	52.94	-42.94	12/18/87	56.99	-46.99	-4.05
61C 2	365221	761215	12	12/17/85	55.47	-43.47	12/18/87	59.08	-47.08	-3.61
61C 3	365221	761215	7	12/17/85	50.97	-43.97	12/18/87	54.03	-47.03	-3.06
62C 10	364745	760043	7	11/14/85	9.98	-2.98	11/19/87	11.14	-4.14	-1.16

Table 6.–*Location, altitude, and selected 1985 and 1987 water-level data in middle Potomac aquifer*

Well no.	Latitude (degree minute second)	Longitude (degree minute second)	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
51B 1	364120	772306	115	09/16/85	52.38	62.62	08/31/87	53.70	61.30	-1.32
51B 3	364109	772307	125	12/16/85	55.70	69.30	12/16/87	57.95	67.05	-2.25
51M 11	375316	772747	70	09/18/85	20.47	49.53	07/31/87	20.19	49.81	0.28
52A 1	363410	771508	45	12/16/85	45.49	-0.49	11/02/87	48.24	-3.24	-2.75
52B 10	363916	772010	120	12/31/85	70.42	49.58	10/25/87	72.95	47.05	-2.53
52B 11	363916	772010	120	12/31/85	70.55	49.45	10/25/87	73.03	46.97	-2.48
52F 1	371315	771719	130	11/21/85	75.00	55.00	11/12/87	76.50	53.50	-1.50
52G 15	371727	771604	45	11/19/85	34.87	10.13	11/16/87	34.96	10.04	-.09
52G 16	371727	771604	45	11/19/85	34.95	10.05	11/16/87	35.90	9.10	-.95
52J 10	373507	771712	170	09/20/85	185.10	-15.10	03/20/87	186.53	-16.53	-1.43
53B 1	364239	771158	115	12/16/85	106.02	8.98	06/11/87	117.12	-2.12	-11.10
53D 3	365843	770902	95	11/20/85	83.42	11.58	11/12/87	83.80	11.20	-.38
53G 5	371942	770914	40	09/20/85	62.65	-22.65	07/29/87	65.31	-25.31	-2.66
53G 7	372014	770730	50	09/20/85	74.80	-24.80	02/11/87	76.10	-26.10	-1.30
53G 14	371951	770920	70	09/20/85	86.74	-16.74	03/18/87	88.08	-18.08	-1.34
53H 2	372607	771406	140	09/20/85	149.75	-9.75	07/29/87	150.57	-10.57	-.82
53H 4	372911	771407	130	11/19/85	140.20	-10.20	11/11/87	143.00	-13.00	-2.80
53J 6	373111	771046	115	09/18/85	133.38	-18.38	03/29/87	135.55	-20.55	-2.17
53K 9	374118	771043	60	09/18/85	59.54	.46	07/31/87	60.62	-.62	-1.08
53K 16	373738	770828	100	09/18/85	134.72	-34.72	07/31/87	136.39	-36.39	-1.67
54A 1	363722	770146	35	12/16/85	137.60	-102.60	11/03/87	143.52	-108.52	-5.92
54B 1	363915	770011	20	12/16/85	154.42	-134.42	11/18/87	267.20	-247.20	-112.78
54B 5	364304	770416	20	12/16/85	112.25	-92.25	11/03/87	95.89	-75.89	16.36
54B 12	363942	770027	22	12/16/85	145.38	-123.38	11/03/87	154.08	-132.08	-8.70
54B 18	364211	770543	50	12/16/85	110.19	-60.19	11/03/87	114.52	-64.52	-4.33
54B 20	364050	770117	22	12/16/85	133.68	-111.68	11/03/87	141.47	-119.47	-7.79
54B 24	364121	770137	30	12/16/85	129.57	-99.57	11/03/87	136.43	-106.43	-6.86
54B 25	364110	770113	25	12/16/85	130.15	-105.15	11/03/87	137.38	-112.38	-7.23
54B 26	364251	770044	80	12/16/85	184.44	-104.44	08/31/87	190.64	-110.64	-6.20
54C 1	364706	770721	60	12/16/85	95.73	-35.73	12/16/87	99.66	-39.66	-3.93
54C 4	365009	770354	115	12/17/85	151.08	-36.08	06/17/87	152.95	-37.95	-1.87
54G 13	371956	770551	35	11/18/85	56.27	-21.27	11/11/87	58.82	-23.82	-2.55
54H 15	372619	770216	30	09/18/85	71.38	-41.38	07/27/87	58.50	-28.50	12.88
55B 16	364059	765449	25	12/10/85	184.00	-159.00	12/16/87	199.80	-174.80	-15.80
55B 22	364047	765524	21.2	12/10/85	179.29	-158.09	12/16/87	191.99	-170.79	-12.70
55B 40	364001	765847	32	12/16/85	163.80	-131.80	08/31/87	168.60	-136.60	-4.80
55B 43	364146	765307	30	12/16/85	174.35	-144.35	09/01/87	183.56	-153.56	-9.21
55B 45	364425	765327	37	11/19/85	160.32	-123.32	11/16/87	166.84	-129.84	-6.52
55B 49	364336	765756	95	12/16/85	212.40	-117.40	09/01/87	221.03	-126.03	-8.63
55B 51	364322	765955	65	12/17/85	171.89	-106.89	09/01/87	177.87	-112.87	-5.98
55B 66	364033	765626	35	12/10/85	179.34	-144.34	12/16/87	191.06	-156.06	-11.72
55C 1	364630	765917	90	12/17/85	171.75	-81.75	03/17/87	174.64	-84.64	-2.89
55C 3	364628	765527	55	12/17/85	153.04	-98.04	11/03/87	158.62	-103.62	-5.58
55C 10	365120	765851	70	12/17/85	117.66	-47.66	11/05/87	121.38	-51.38	-3.72
55D 5	365415	765320	90	12/17/85	146.22	-56.22	11/05/87	150.05	-60.05	-3.83
55H 3	372539	765936	30	09/18/85	74.04	-44.04	07/31/87	86.89	-56.89	-12.85
55J 10	373526	765923	35	09/23/85	80.25	-45.25	07/31/87	86.56	-51.56	-6.31
56A 11	363653	764554	80	12/16/85	170.98	-90.98	11/18/87	175.31	-95.31	-4.33
56A 12	363345	764702	45	12/16/85	126.02	-81.02	11/18/87	130.17	-85.17	-4.15

Table 6.–*Location, altitude, and selected 1985 and 1987 water-level data in middle Potomac aquifer--Continued*

Well no.	Latitude (degree minute second)	Longitude	Altitude (feet)	Water level			Water level			Net change 1985-87
				Date (1985)	Below land surface (feet)	Above or below (-) sea level (feet)	Date (1987)	Below land surface (feet)	Above or below (-) sea level (feet)	
56A 13	363625	765226	75	12/16/85	211.71	-136.71	11/18/87	215.49	-140.49	-3.78
56A 14	363625	765226	75	12/16/85	206.51	-131.51	11/18/87	209.70	-134.70	-3.19
56B 7	364051	764556	80	12/16/85	177.05	-97.05	11/03/87	182.98	-102.98	-5.93
56C 1	365006	765003	75	12/17/85	152.65	-77.65	11/05/87	157.03	-82.03	-4.38
56H 20	372313	764804	105	09/18/85	164.77	-59.77	07/27/87	168.67	-63.67	-3.90
56H 22	372314	764804	105	11/19/85	164.29	-59.29	11/20/87	169.16	-64.16	-4.87
56H 26	372506	765117	105	12/18/85	159.19	-54.19	11/10/87	164.17	-59.17	-4.98
57B 1	364013	764346	65	12/17/85	155.10	-90.10	11/03/87	160.02	-95.02	-4.92
57C 22	364703	763837	70	12/31/85	150.00	-80.00	11/16/87	171.40	-101.40	-21.40
57C 28	364814	764407	70	11/20/85	144.00	-74.00	11/16/87	152.45	-82.45	-8.45
57D 21	365751	764335	75	11/19/85	134.49	-59.49	11/16/87	138.55	-63.55	-4.06
57E 11	370712	764132	45	11/19/85	104.82	-59.82	11/16/87	107.25	-62.25	-2.43
57E 14	370253	764312	85	11/19/85	150.02	-65.02	11/16/87	152.98	-67.98	-2.96
58C 2	365055	763553	85	12/17/85	154.80	-69.80	11/05/87	169.25	-84.25	-14.45
58C 53	364512	763437	10	12/17/85	74.79	-64.79	12/17/87	85.72	-75.72	-10.93
58C 58	365133	763512	50	11/20/85	120.62	-70.62	11/17/87	137.95	-87.95	-17.33
58C 63	364731	763555	40	11/20/85	134.35	-94.35	11/16/87	153.20	-113.20	-18.85
58F 51	371208	763411	55	12/31/85	129.57	-74.57	11/10/87	133.66	-78.66	-4.09
59C 30	364852	762522	15	11/20/85	72.26	-57.26	11/18/87	77.02	-62.02	-4.76

Table 7.–*Location, altitude, and selected 1985 and 1987 water-level data in lower Potomac aquifer*

Well no.	Latitude (degree minute second)	Longitude	Altitude (feet)	Date (1985)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Date (1987)	Water level: Below land surface (feet)	Water level: Above or below (-) sea level (feet)	Net change 1985-87
52B 9	363916	772010	120	12/25/85	70.24	49.76	09/30/87	69.67	50.33	0.57
52G 1	371801	771642	50	12/20/85	34.82	15.18	11/25/87	35.03	14.97	-.21
53D 6	365530	771040	90	12/17/85	80.68	9.32	10/25/87	84.22	5.78	-3.54
53D 7	365530	771040	90	12/17/85	79.47	10.53	08/31/87	82.42	7.58	-2.95
55A 3	363632	765801	18	12/16/85	142.80	-124.80	11/18/87	147.40	-129.40	-4.60
55B 36	364125	765448	37	12/04/85	184.04	-147.04	12/31/87	195.82	-158.82	-11.78
56A 10	363345	764702	45	12/16/85	118.38	-73.38	11/18/87	122.20	-77.20	-3.82
56H 25	372506	765117	105	12/31/85	159.70	-54.70	11/10/87	165.02	-60.02	-5.32
56J 11	373126	764541	15	11/18/85	89.33	-74.33	12/01/87	102.03	-87.03	-12.70
57F 16	371132	764055	5	12/16/85	67.93	-62.93	11/16/87	70.35	-65.35	-2.42
58C 52	364512	763437	10	11/15/85	7.44	2.56	12/17/87	15.13	-5.13	-7.69
58F 50	371208	763411	55	12/31/85	119.63	-64.63	11/05/87	122.80	-67.80	-3.17

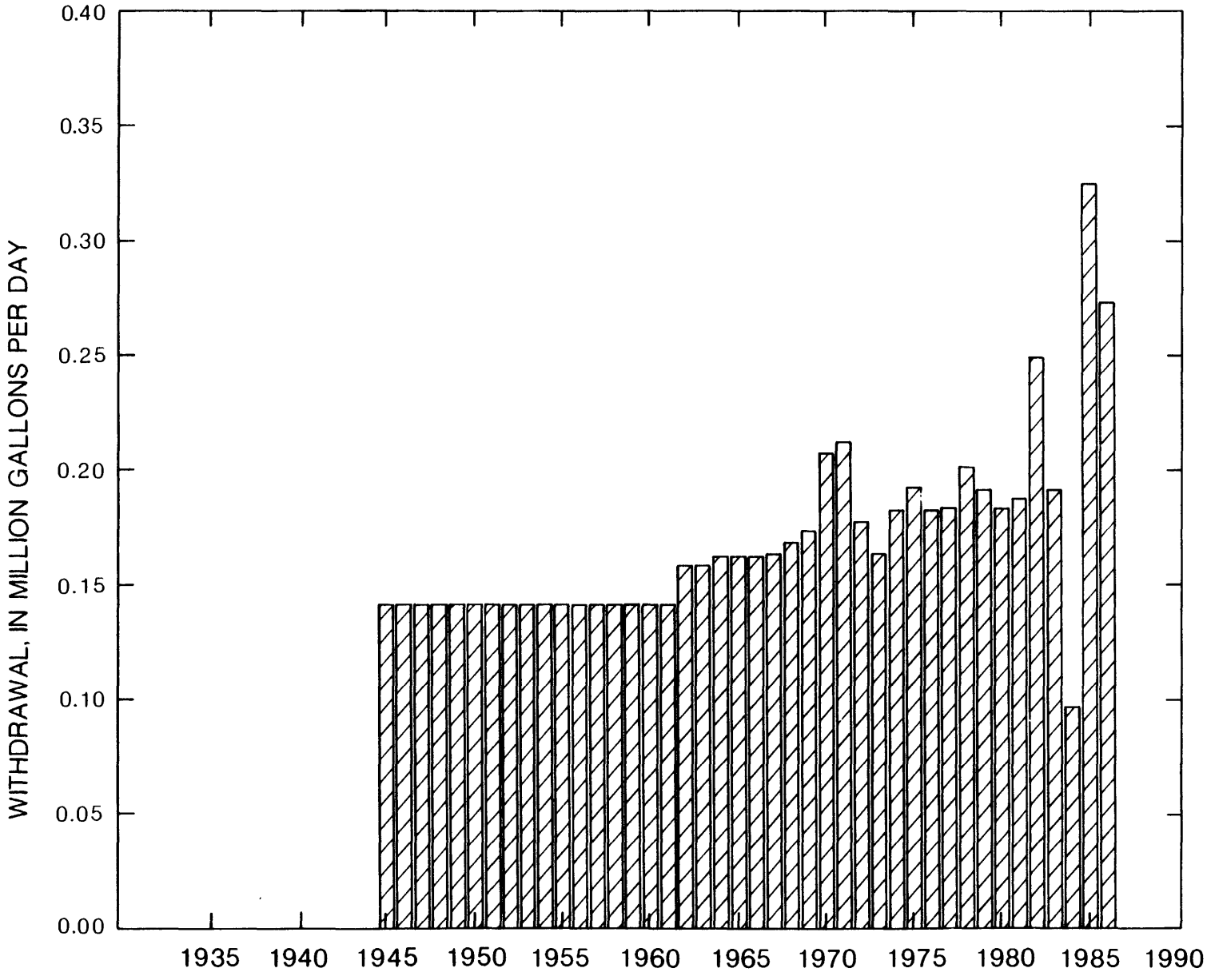


Figure 4.--Ground-water withdrawal from the Columbia aquifer.

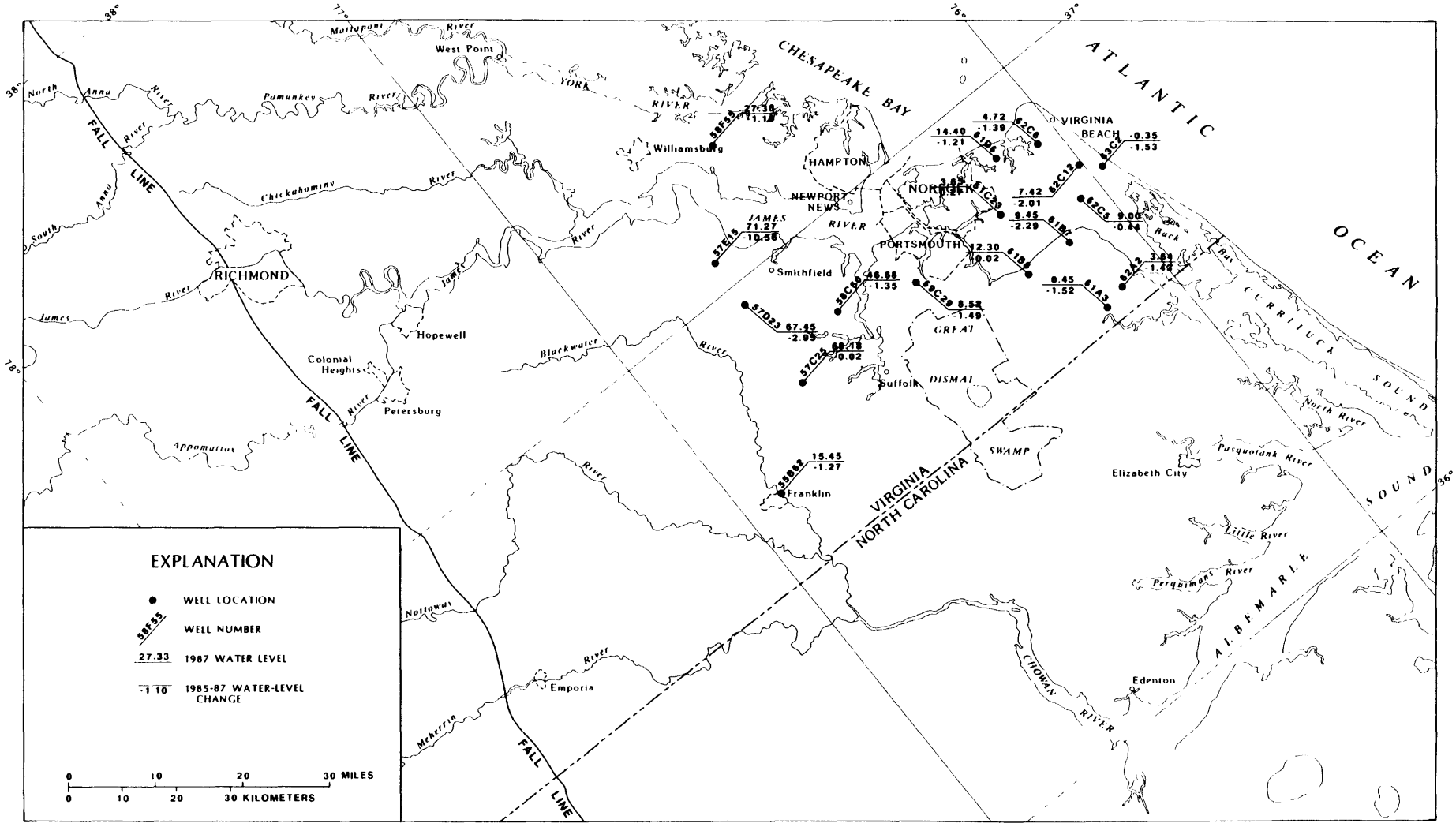


Figure 5. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the Columbia aquifer.

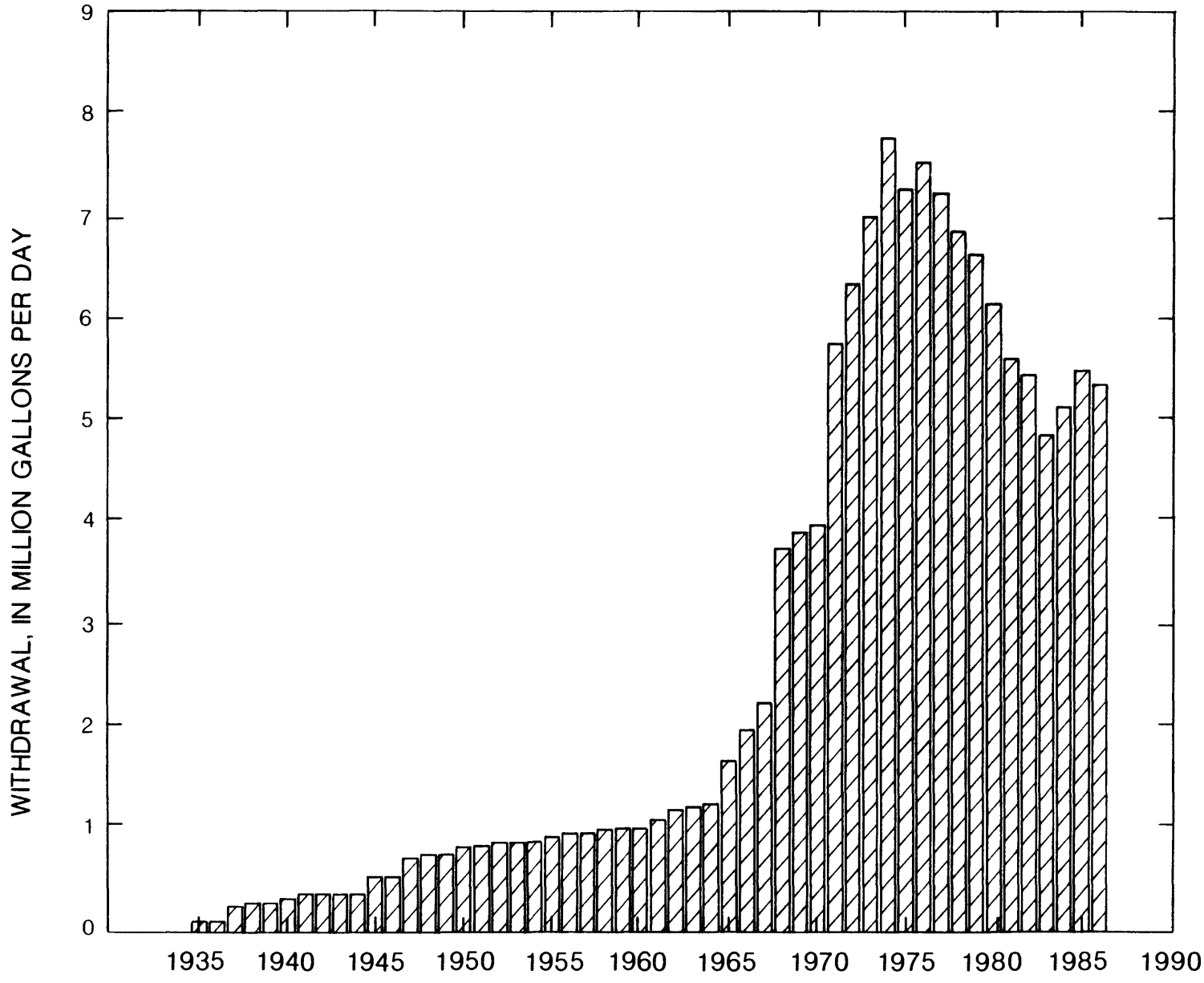


Figure 6.--Ground-water withdrawal from the Yorktown-Eastover aquifer.

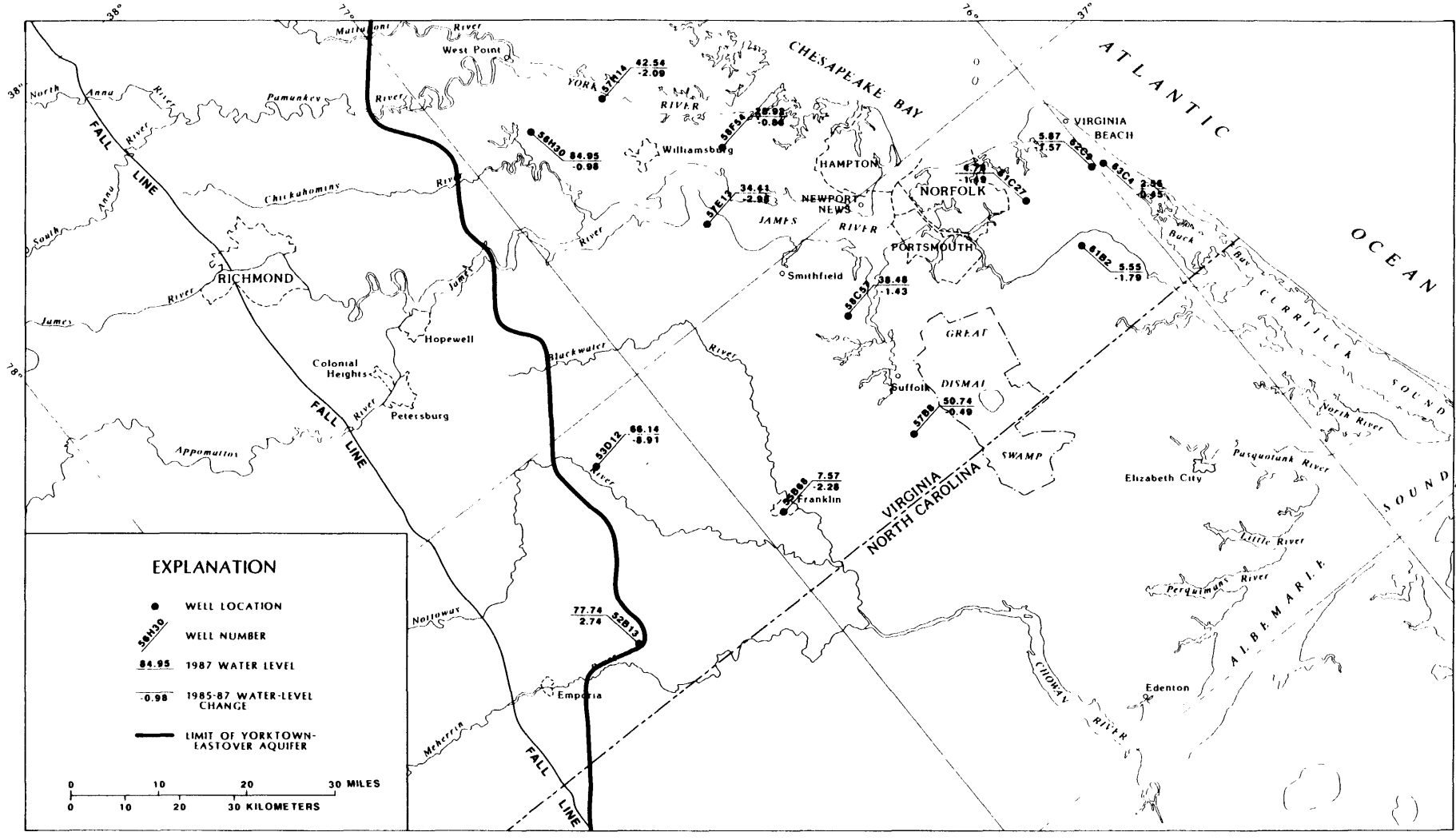


Figure 7. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the Yorktown-Eastover aquifer.

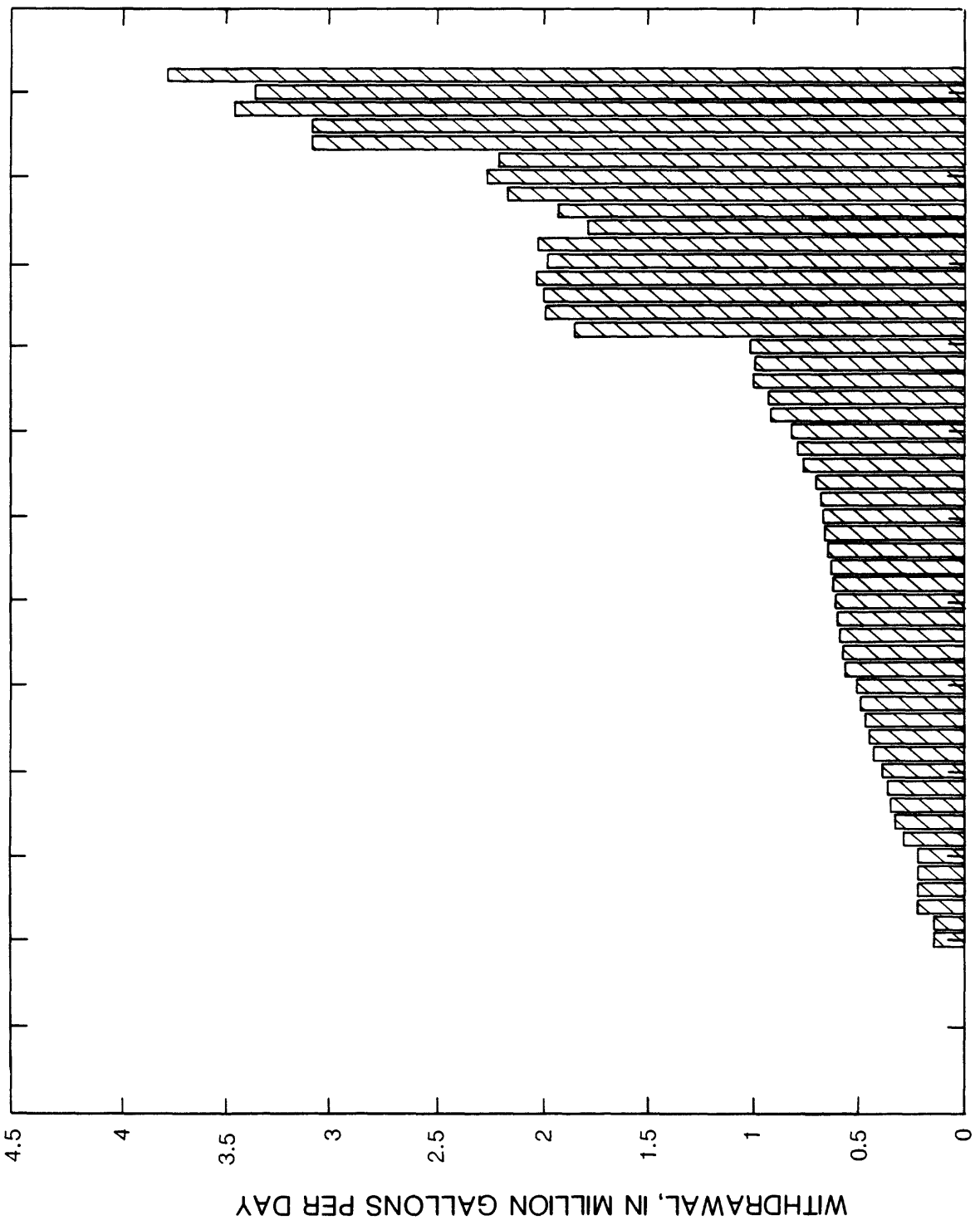


Figure 8.--Ground-water withdrawal from the Chickahominy-Piney Point aquifer.

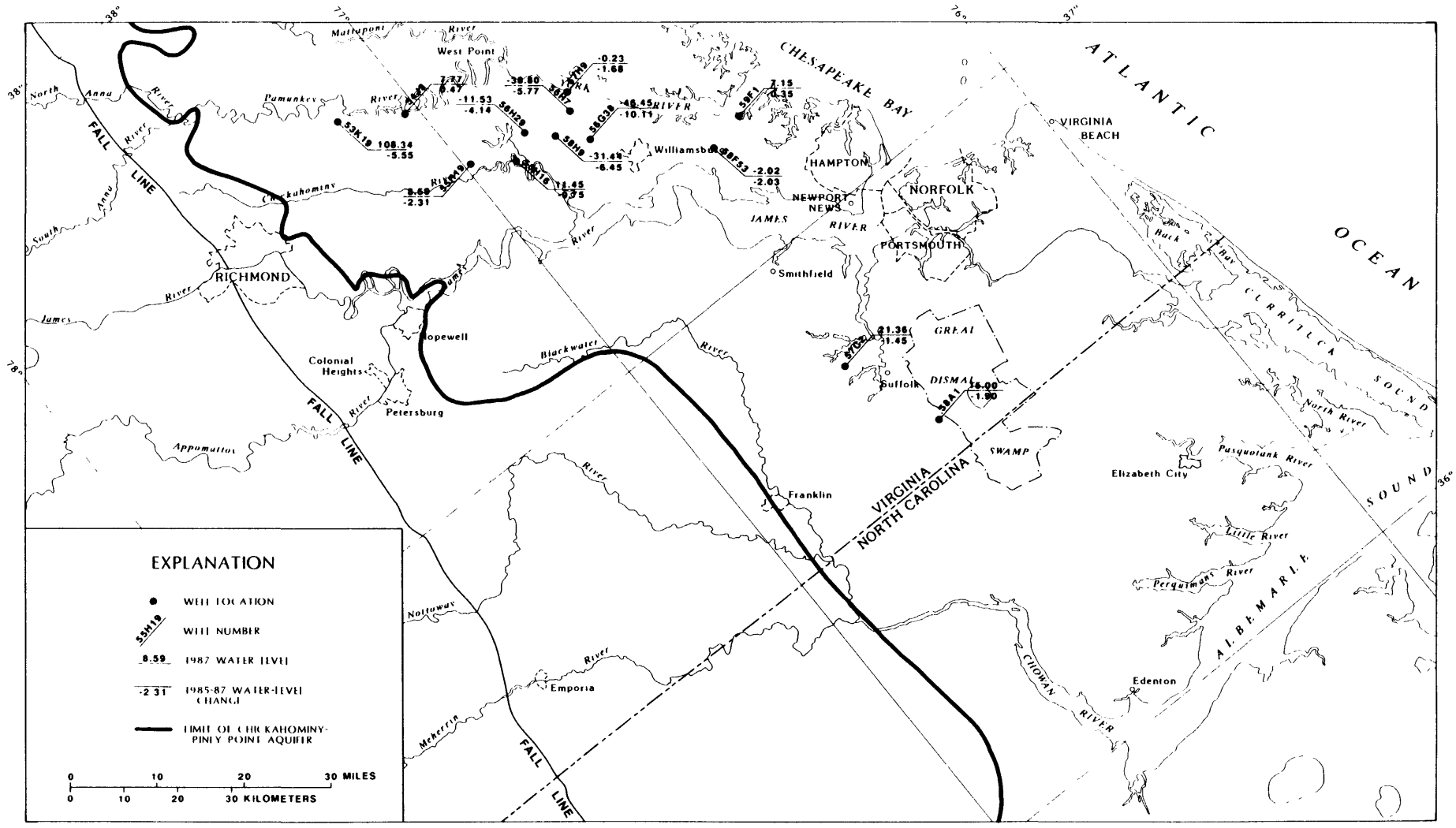


Figure 9. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the Chickahominy-Piney Point aquifer.

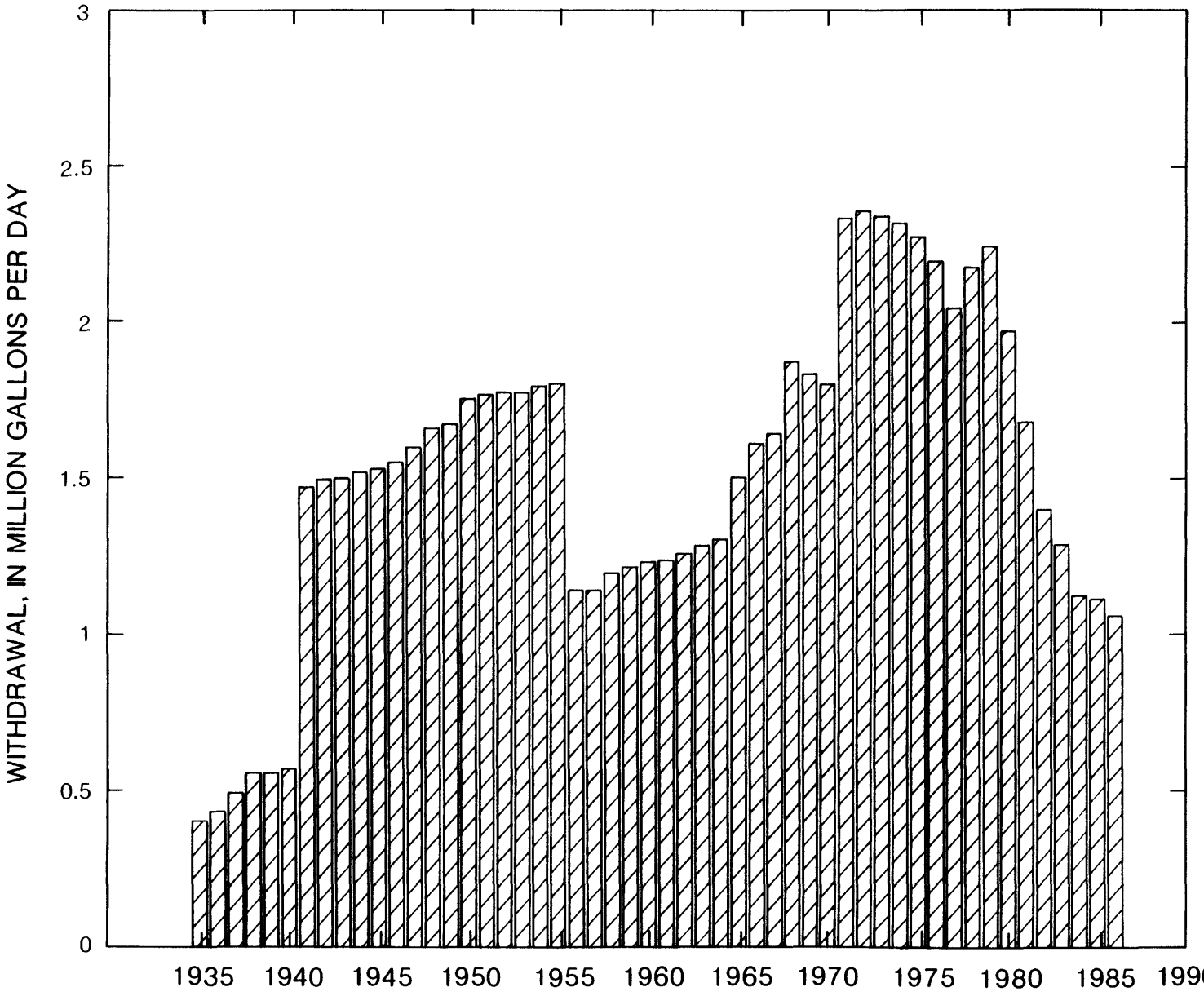


Figure 10.--Ground-water withdrawal from the Aquia aquifer.

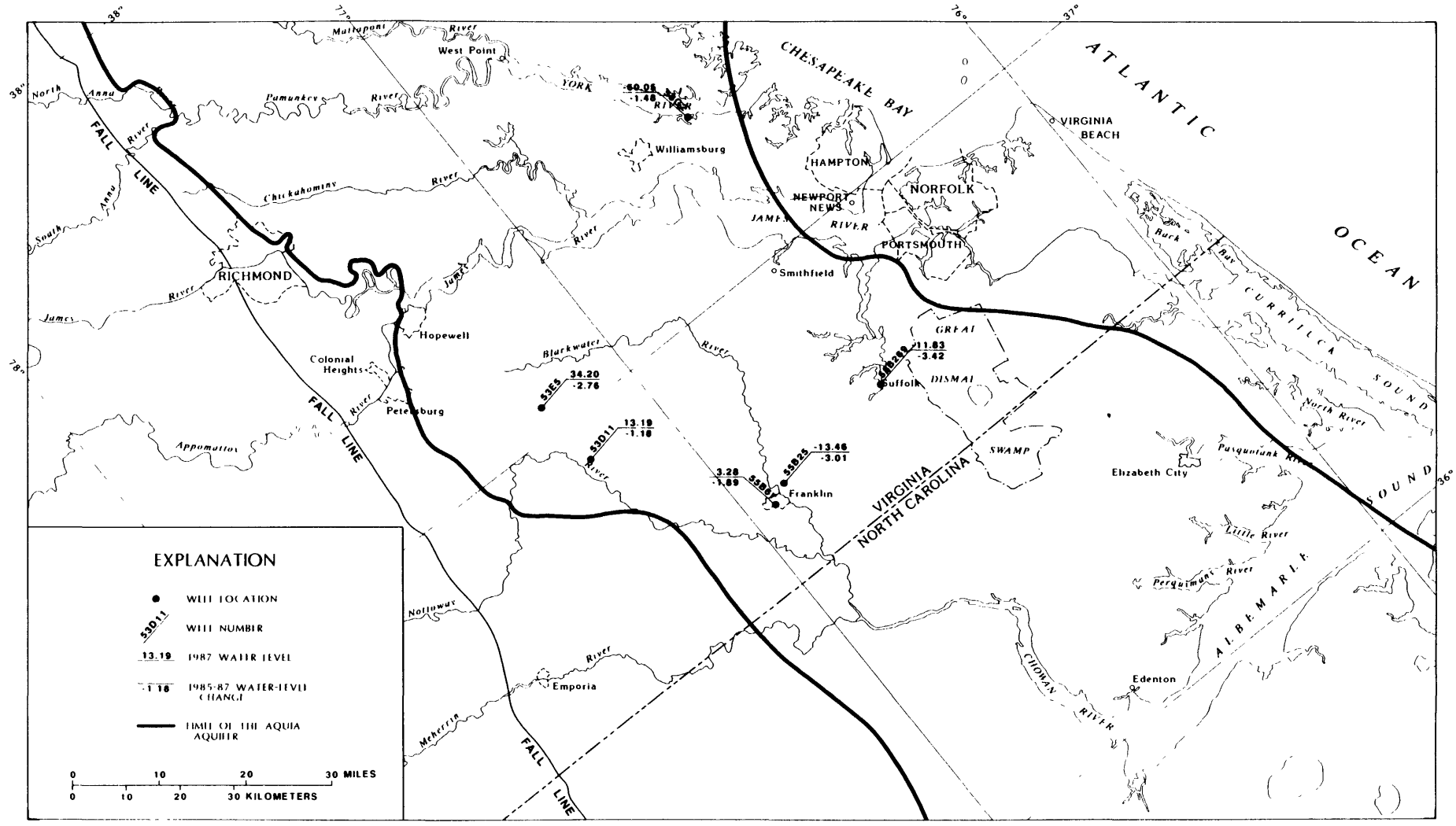


Figure 11. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the Aquia aquifer.

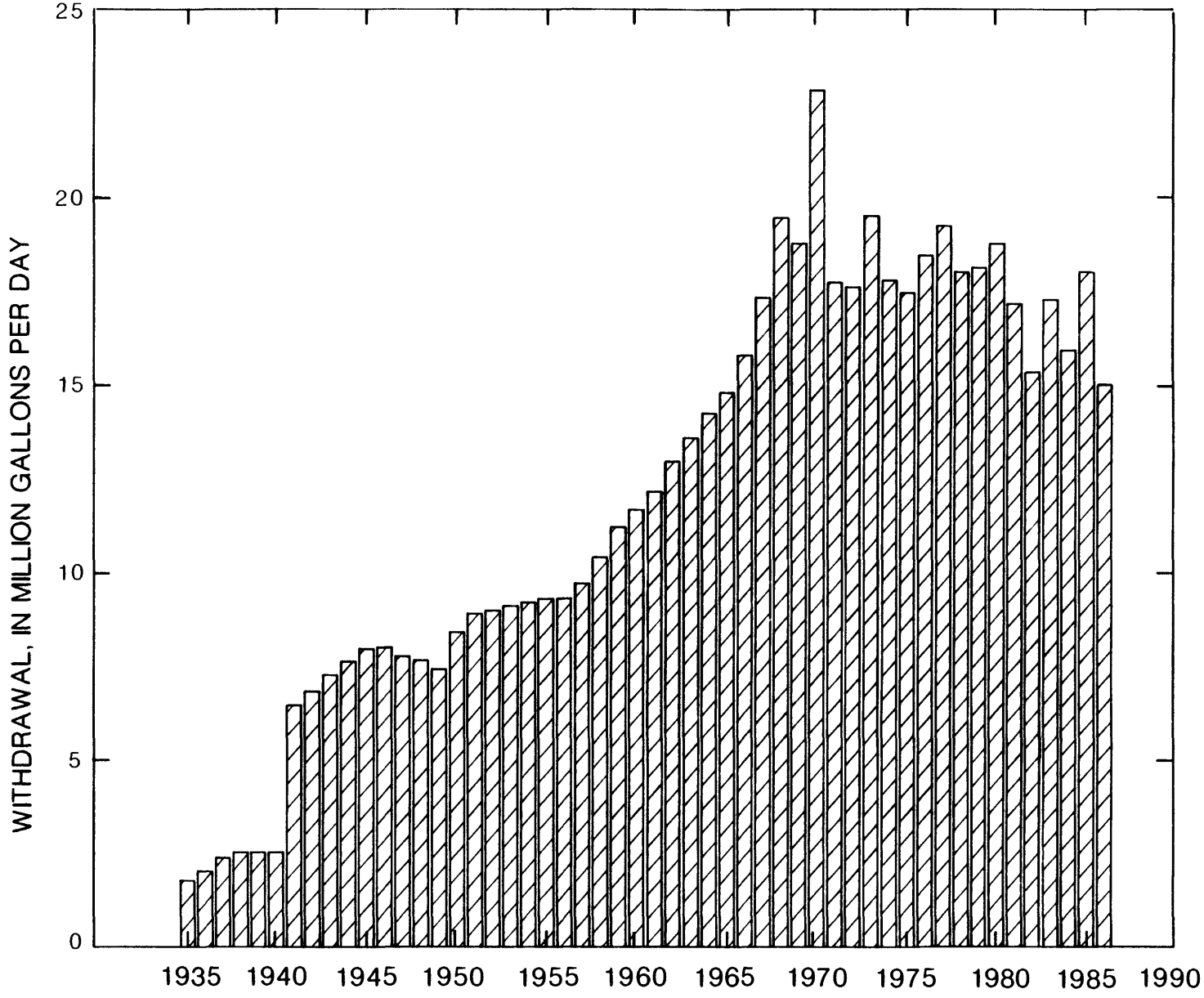


Figure 12.--Ground-water withdrawal from the upper Potomac aquifer.

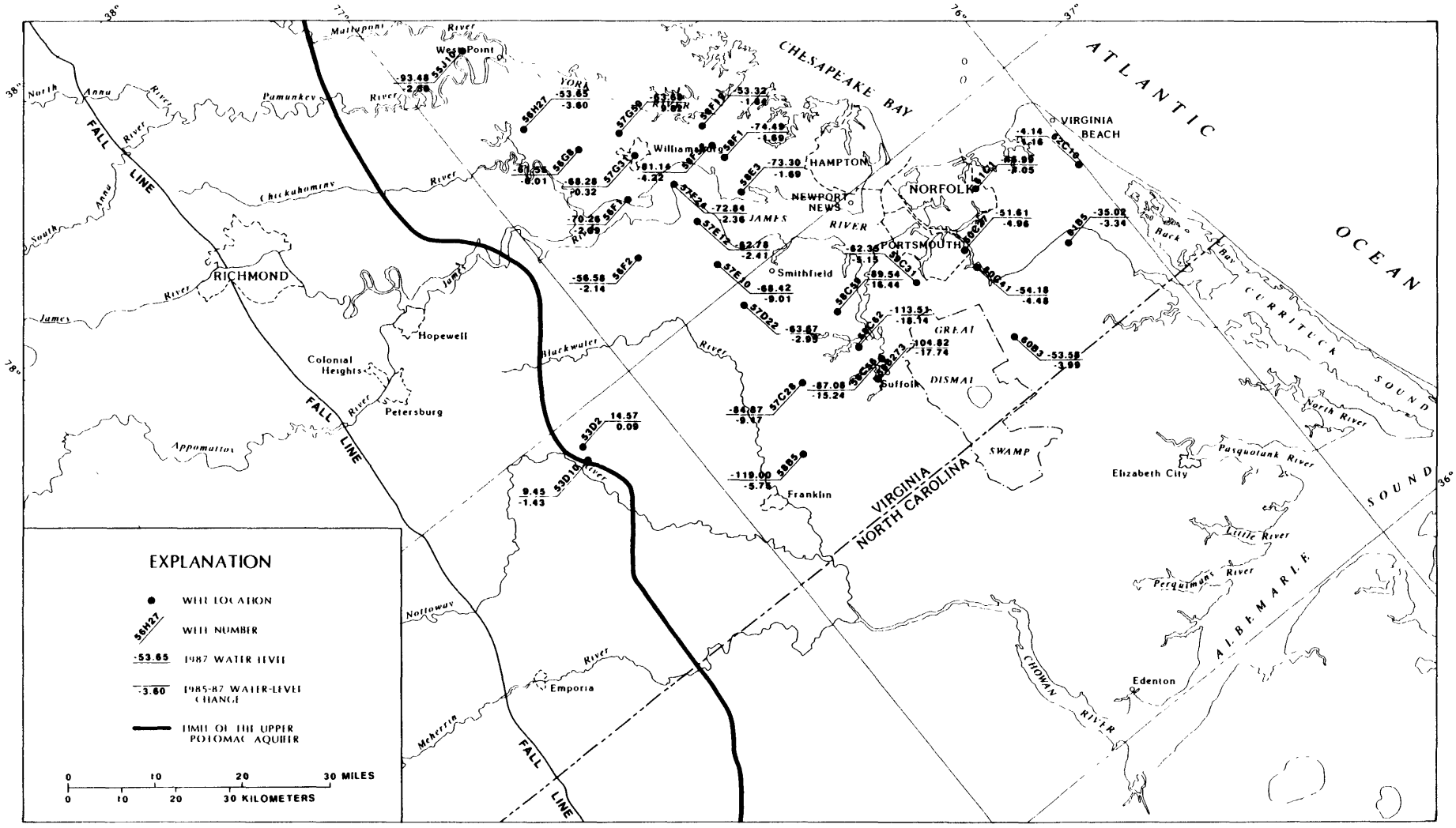


Figure 13. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the upper Potomac aquifer.

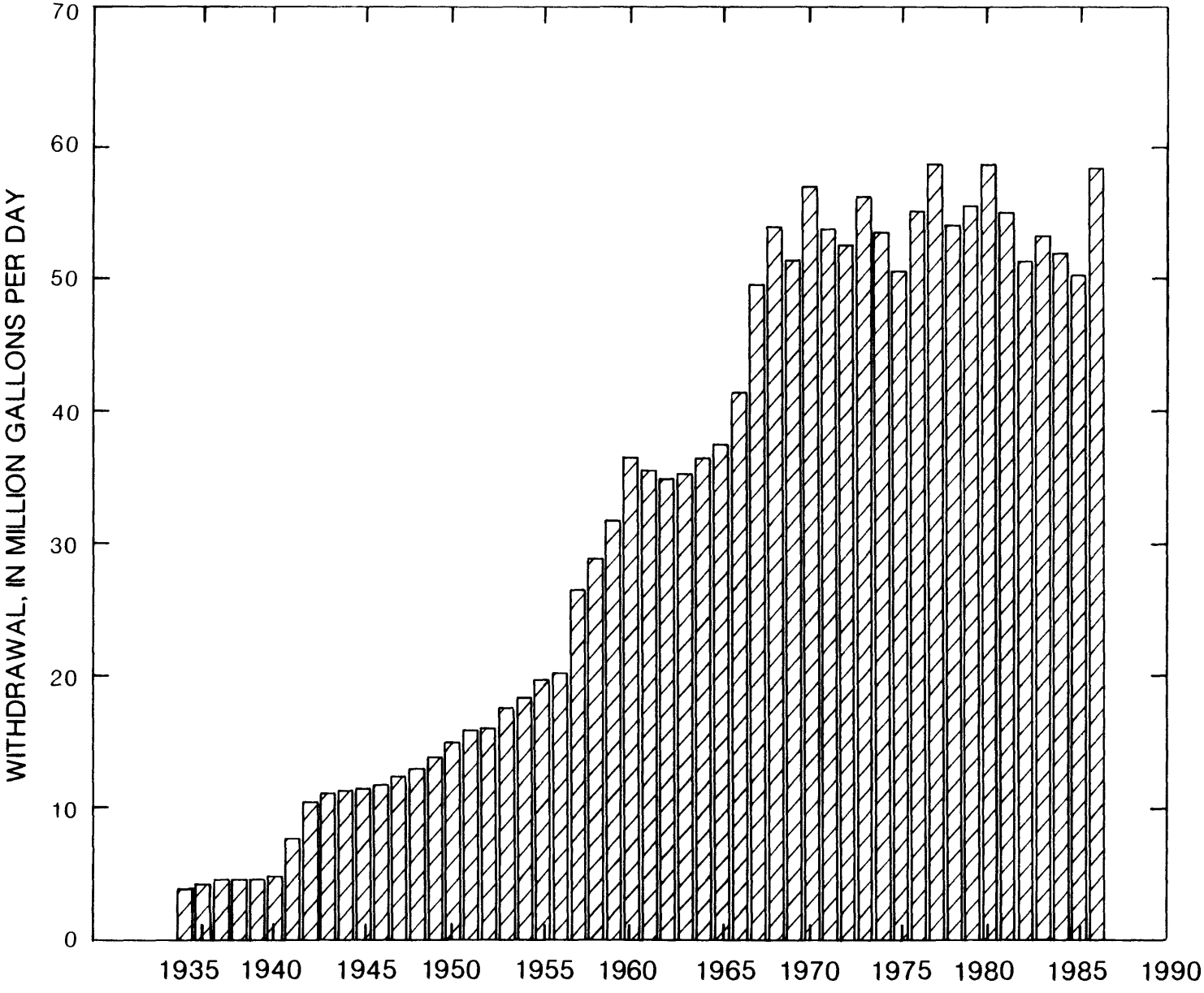


Figure 14.--Ground-water withdrawal from the middle Potomac aquifer.

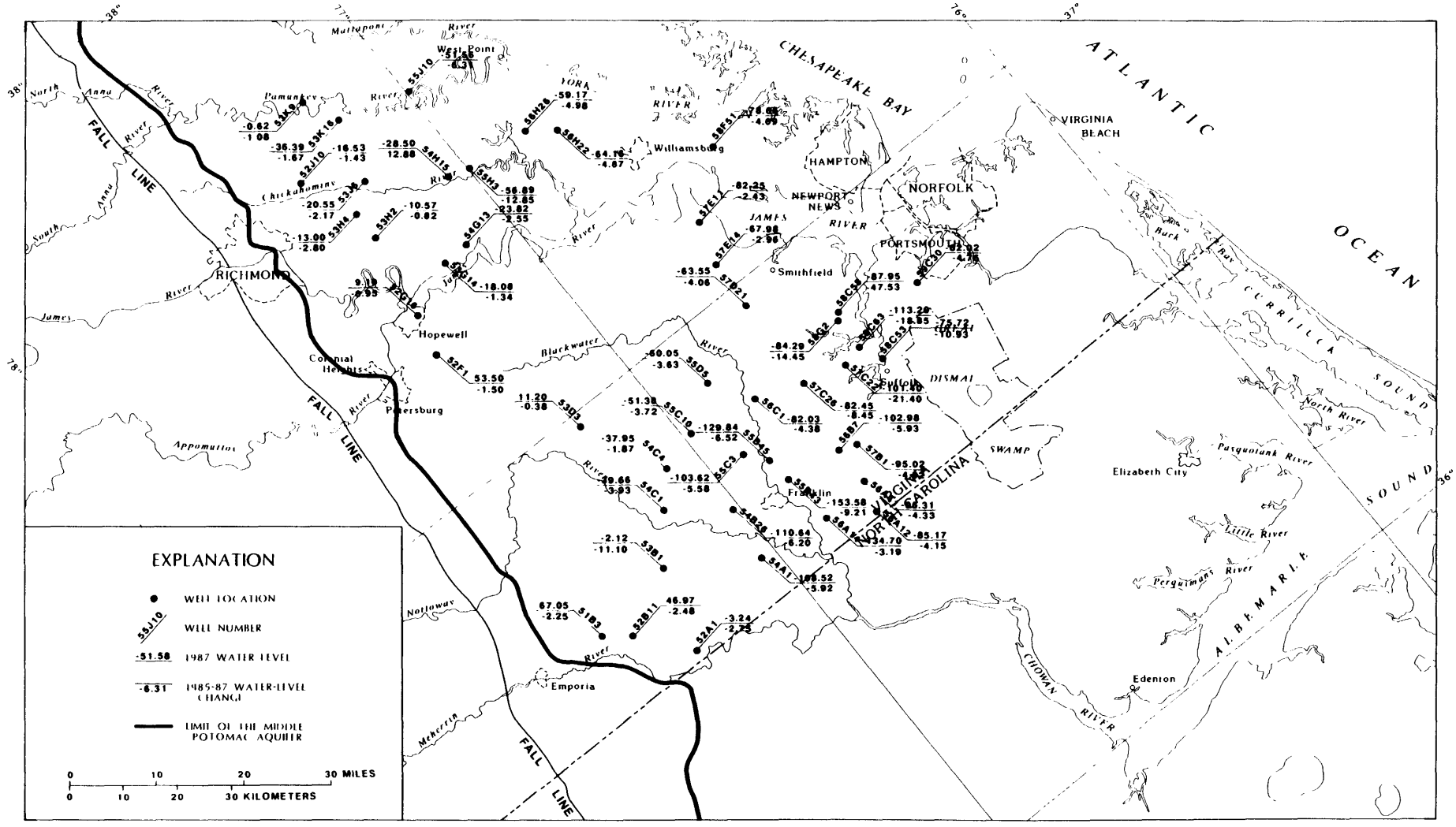


Figure 15. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the middle Potomac aquifer.

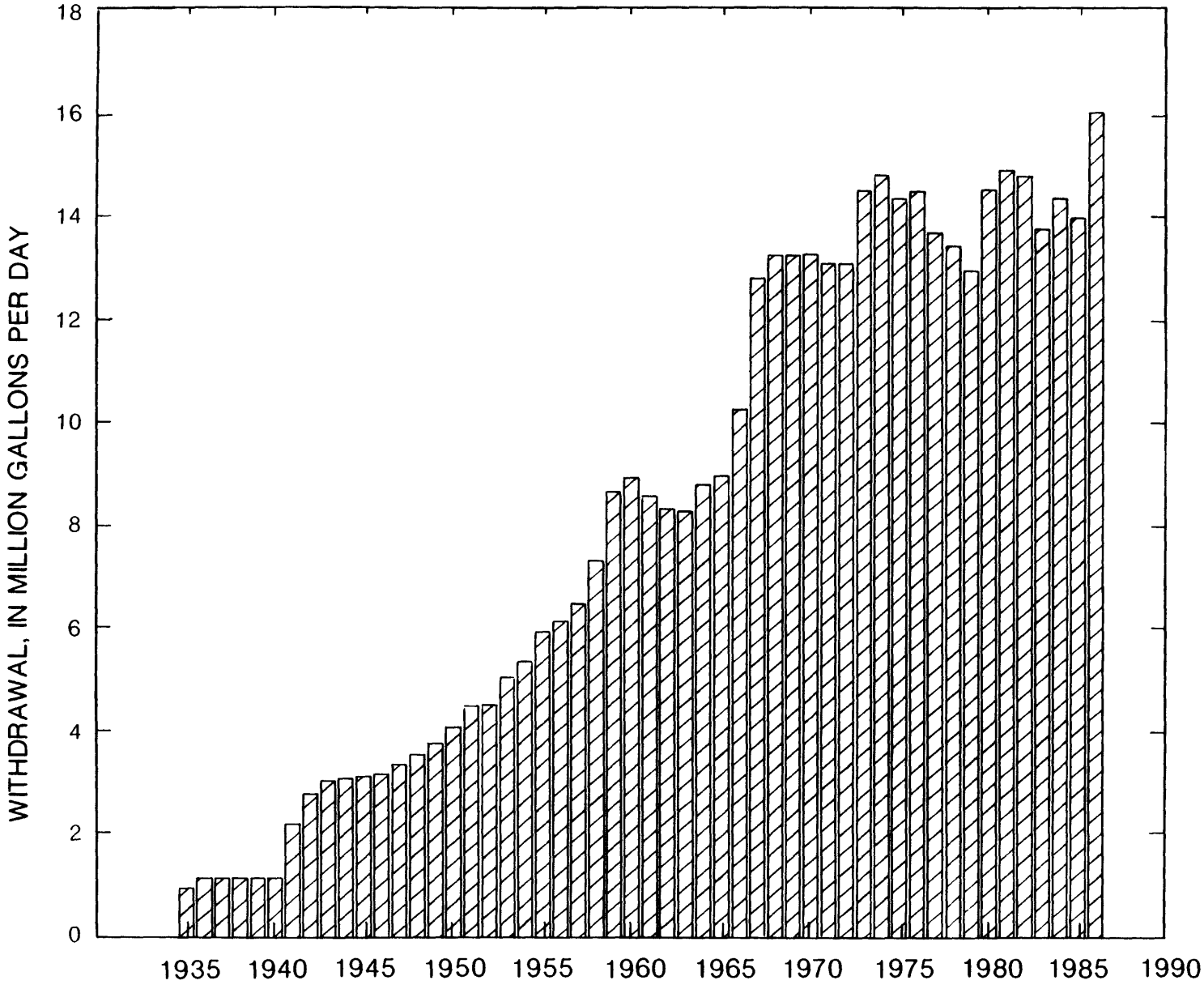


Figure 16.--Ground-water withdrawal from the lower Potomac aquifer.

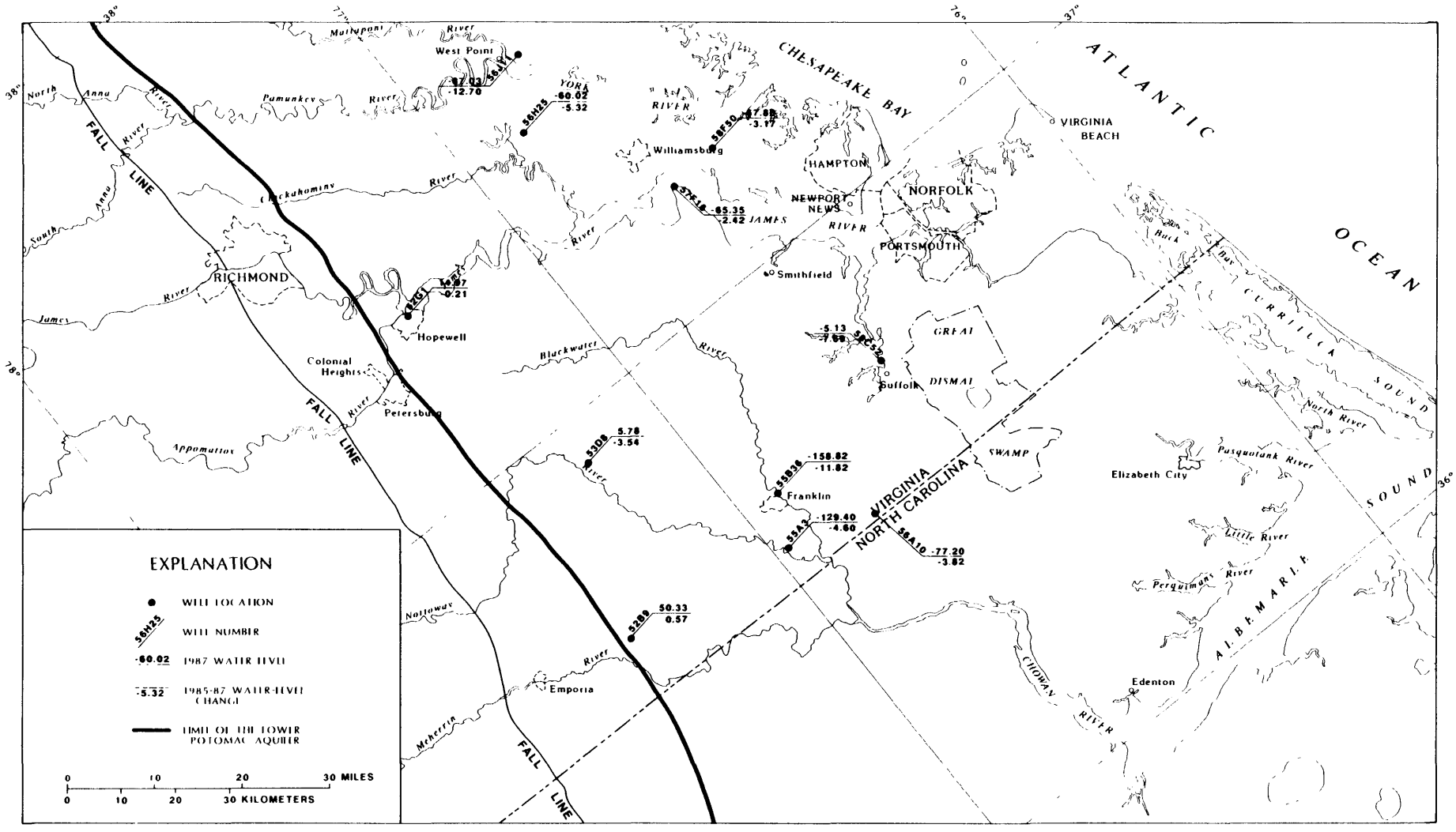


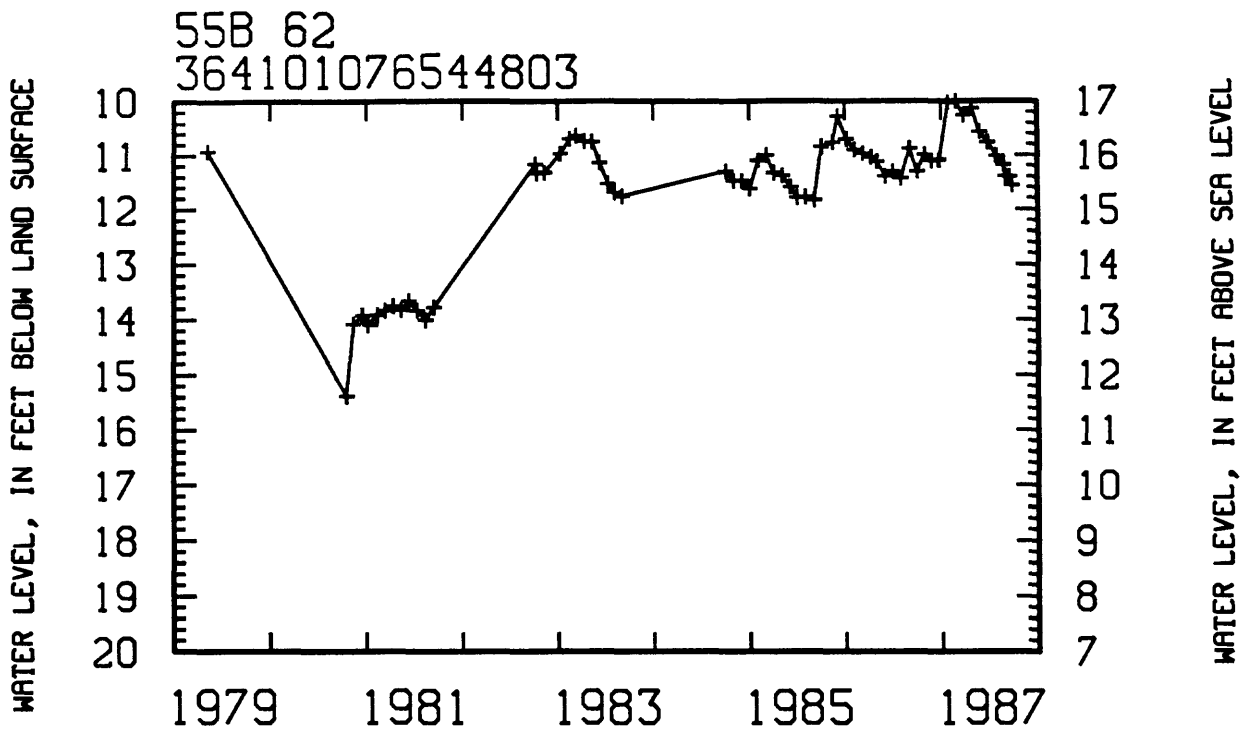
Figure 17. Location, 1985-87 water-level change, and 1987 water levels of selected observation wells in the lower Potomac aquifer.

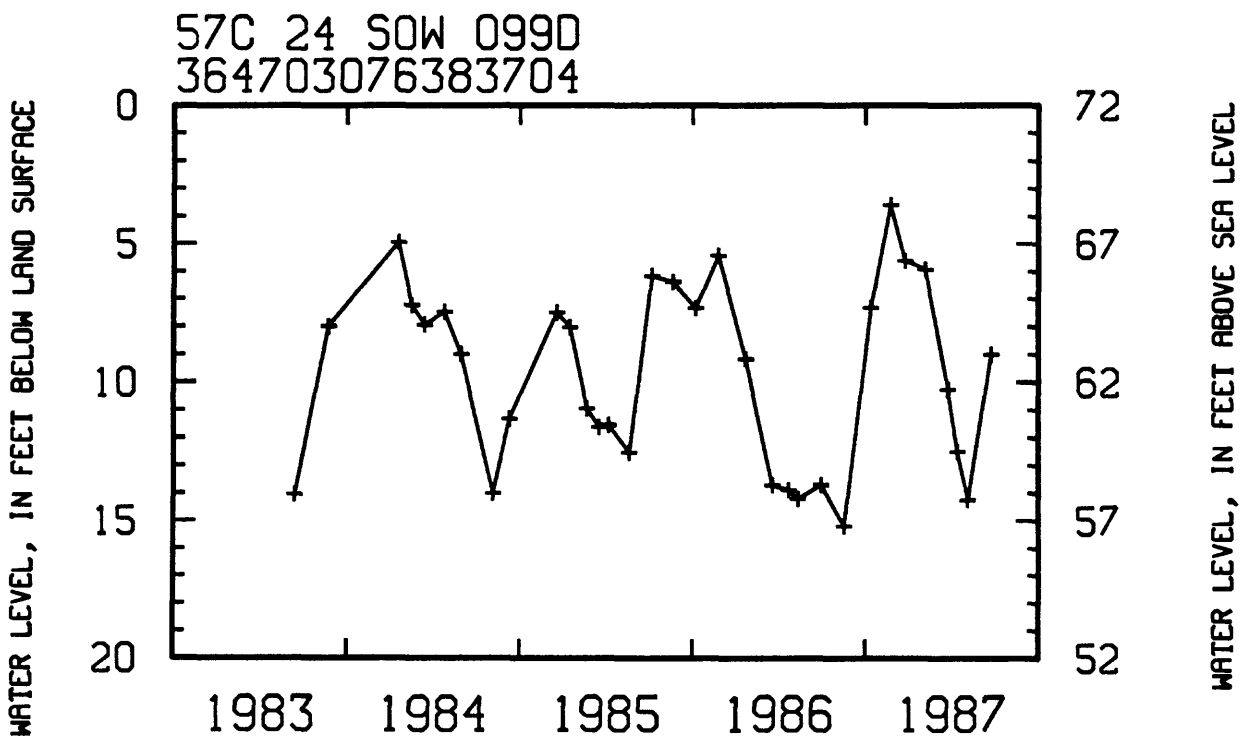
APPENDIX I

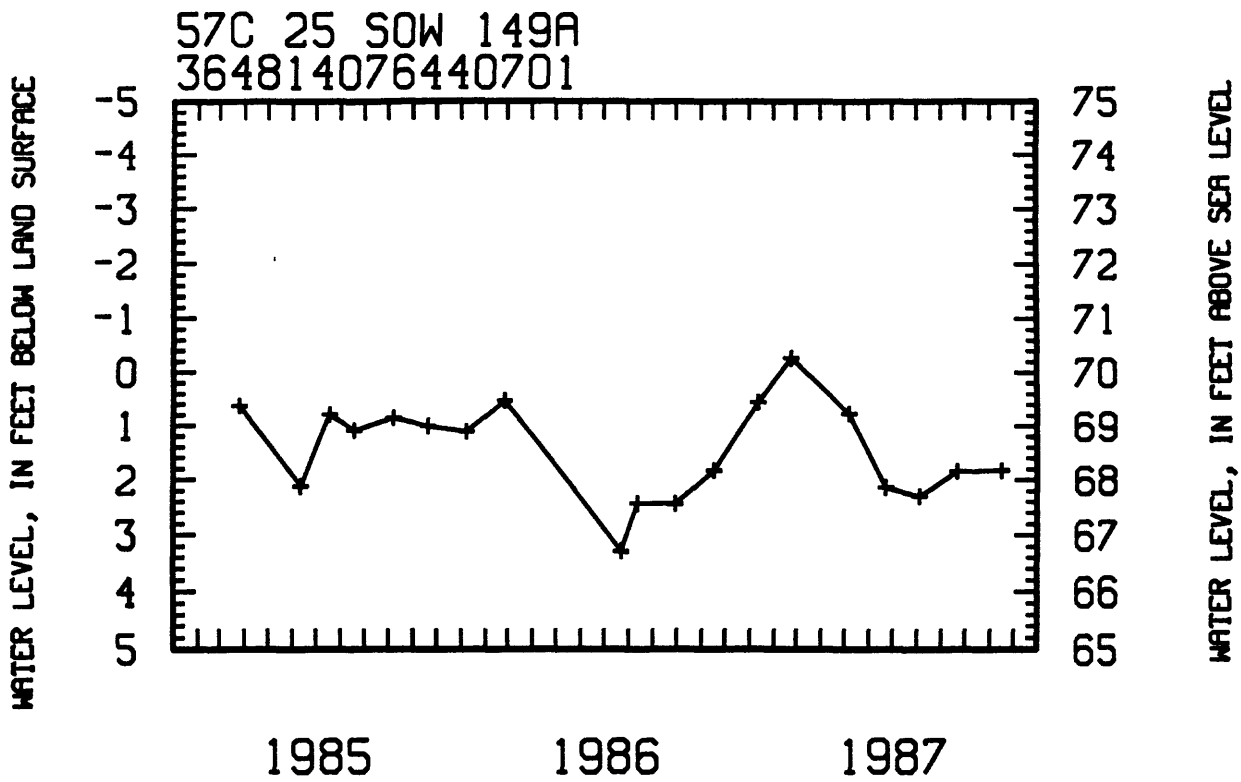
WATER LEVELS IN WELLS IN THE COLUMBIA AQUIFER

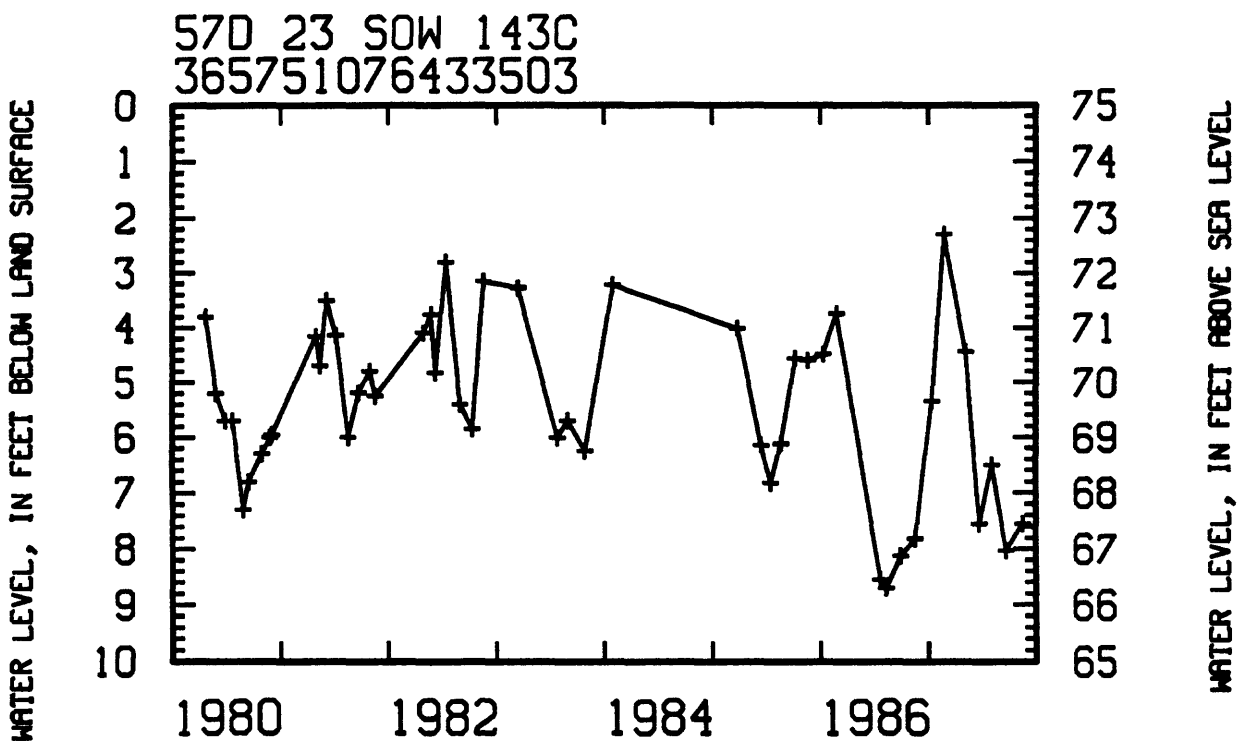
EXPLANATION

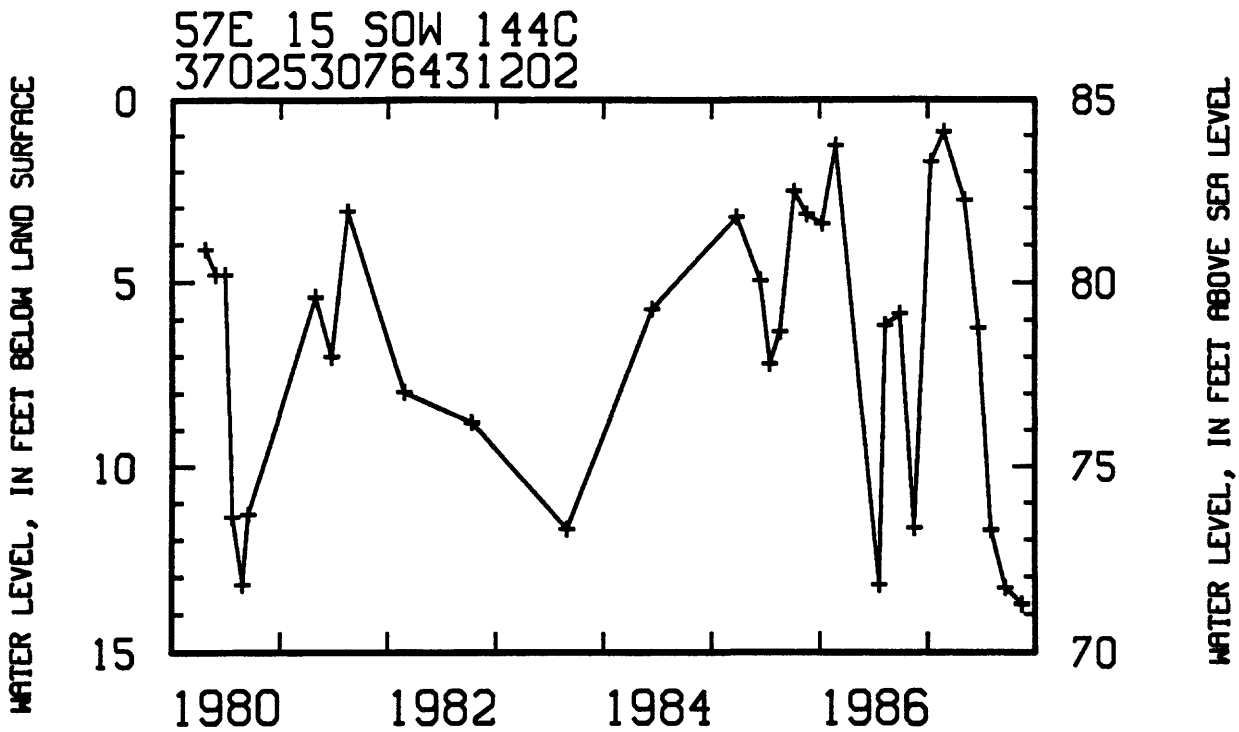
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
57C 24--USGS WELL NO.
SOW 099D--VIRGINIA STATE OBSERVATION WELL NO.
364703076383704--STATION IDENTIFICATION NUMBER

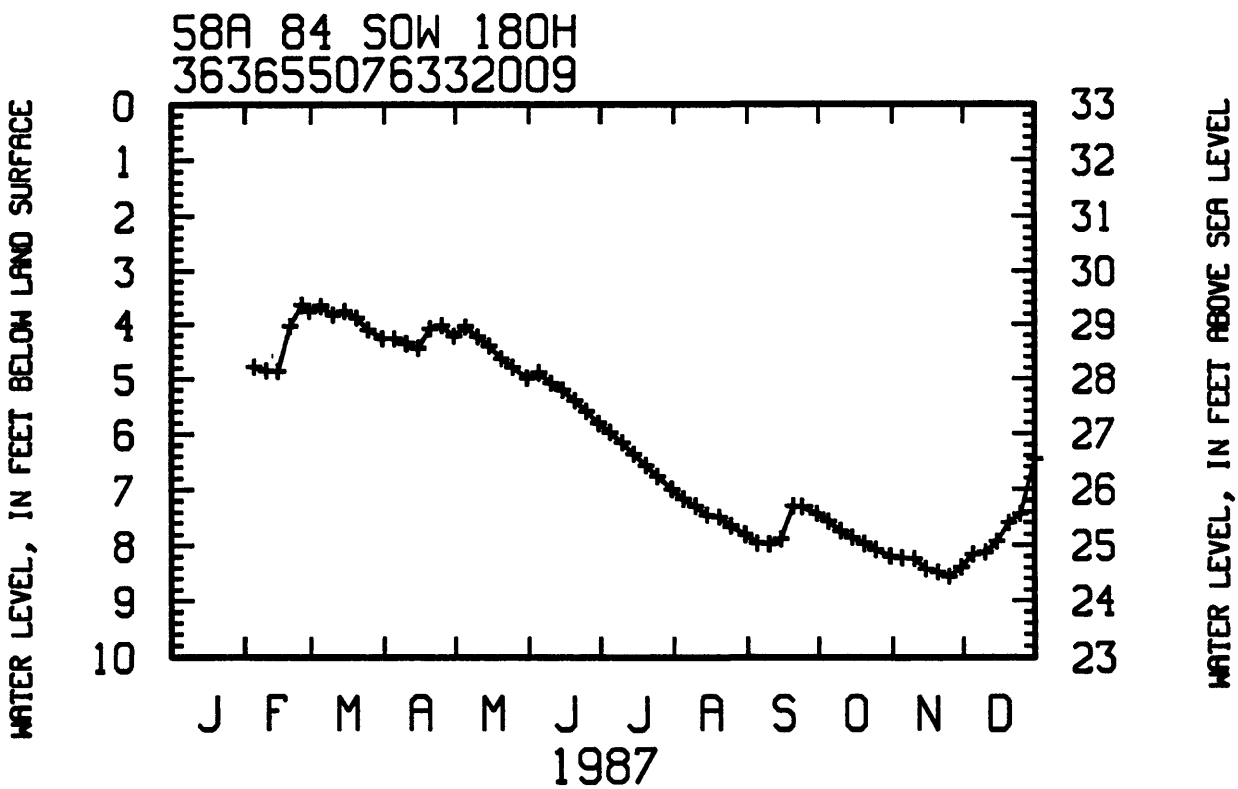

55B 62
364101076544803
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
10
11
12
13
14
15
16
17
18
19
20
17
16
15
14
13
12
11
10
9
8
7
1979
1981
1983
1985
1987

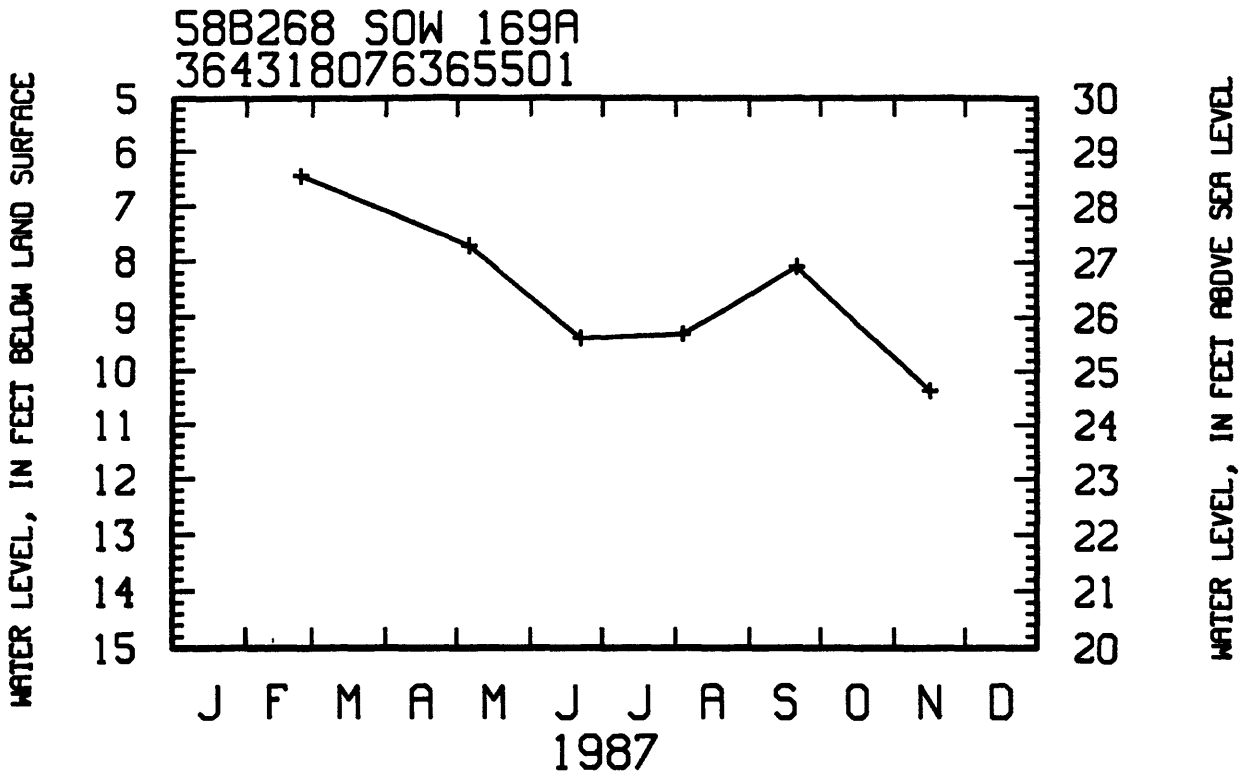

57C 24 SOW 099D
364703076383704
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
20
72
67
62
57
52
1983
1984
1985
1986
1987

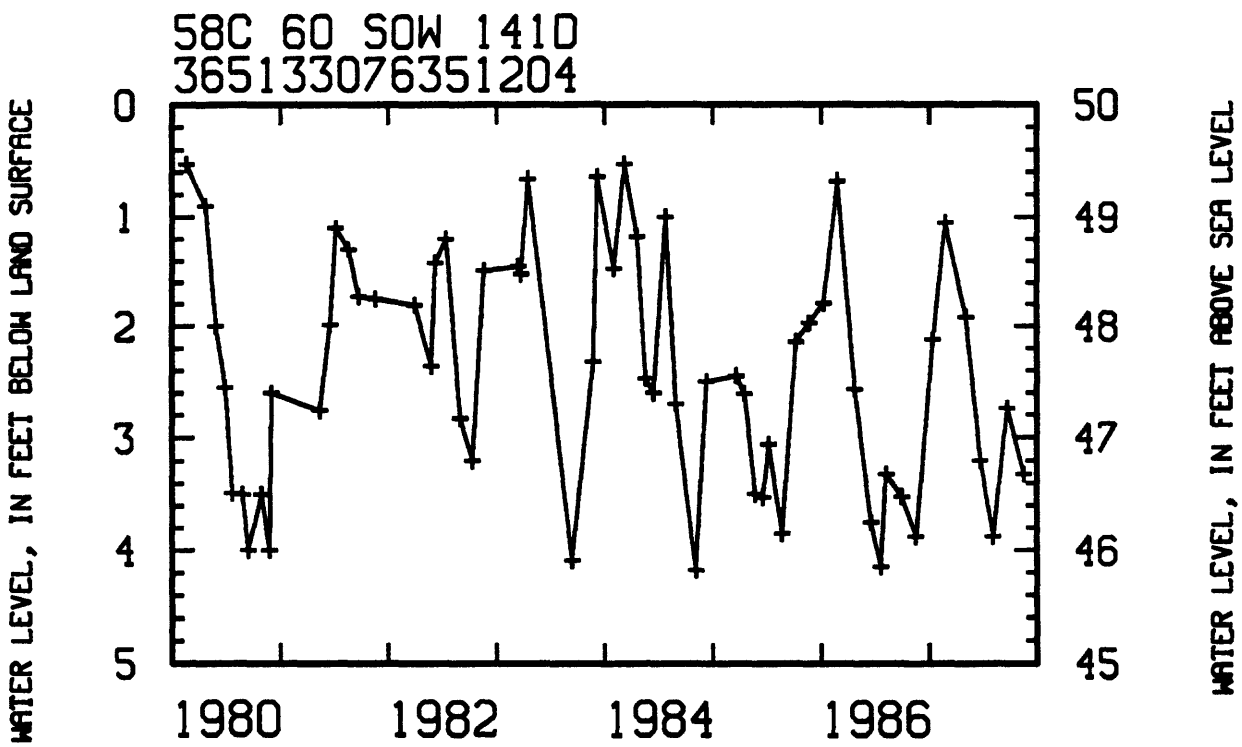

57C 25 SOW 149A
364814076440701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
-5
-4
-3
-2
-1
0
1
2
3
4
5
75
74
73
72
71
70
69
68
67
66
65
1985
1986
1987

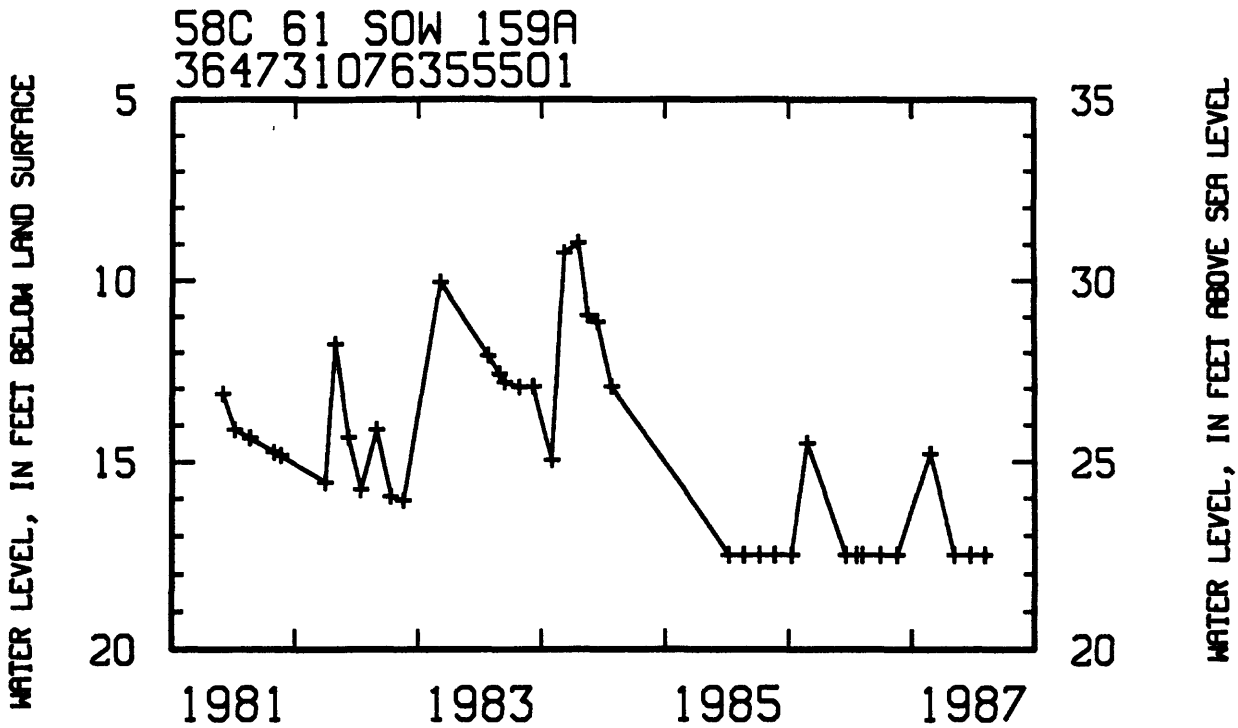

57D 23 SOW 143C
365751076433503
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
75
74
73
72
71
70
69
68
67
66
65
1980
1982
1984
1986

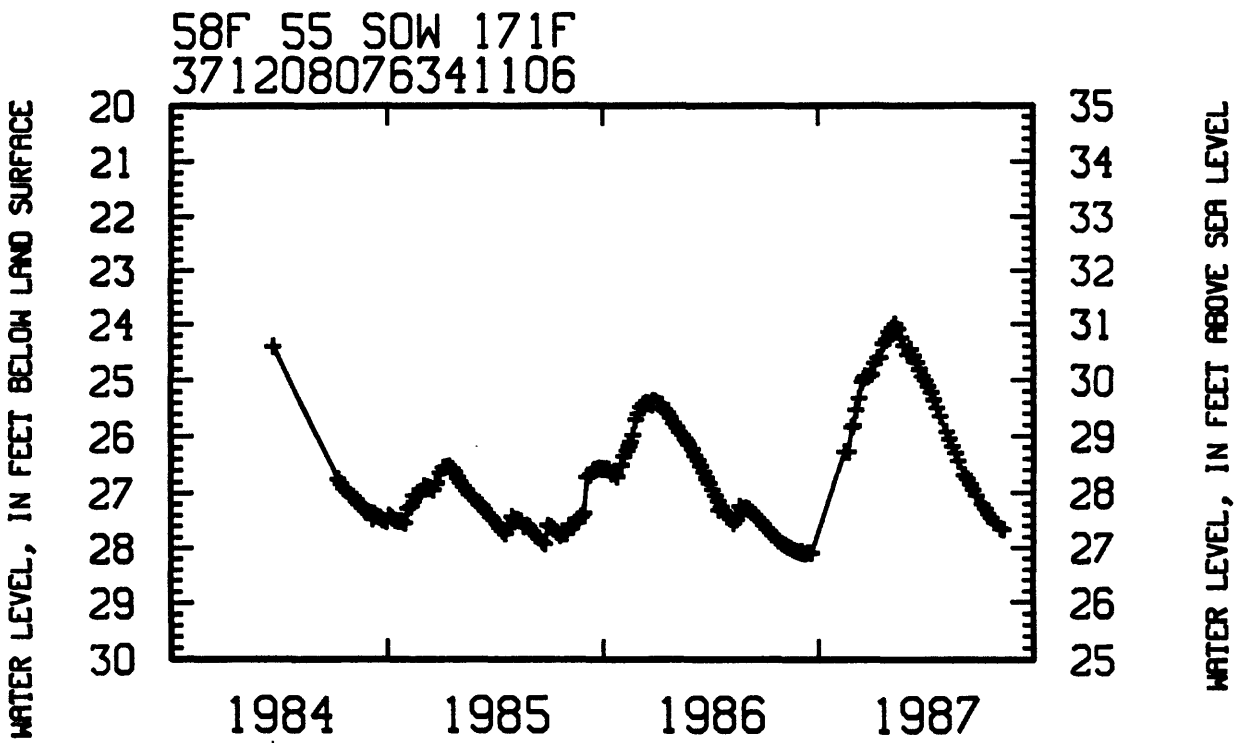

57E 15 SOW 144C
370253076431202
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
85
80
75
70
1980
1982
1984
1986

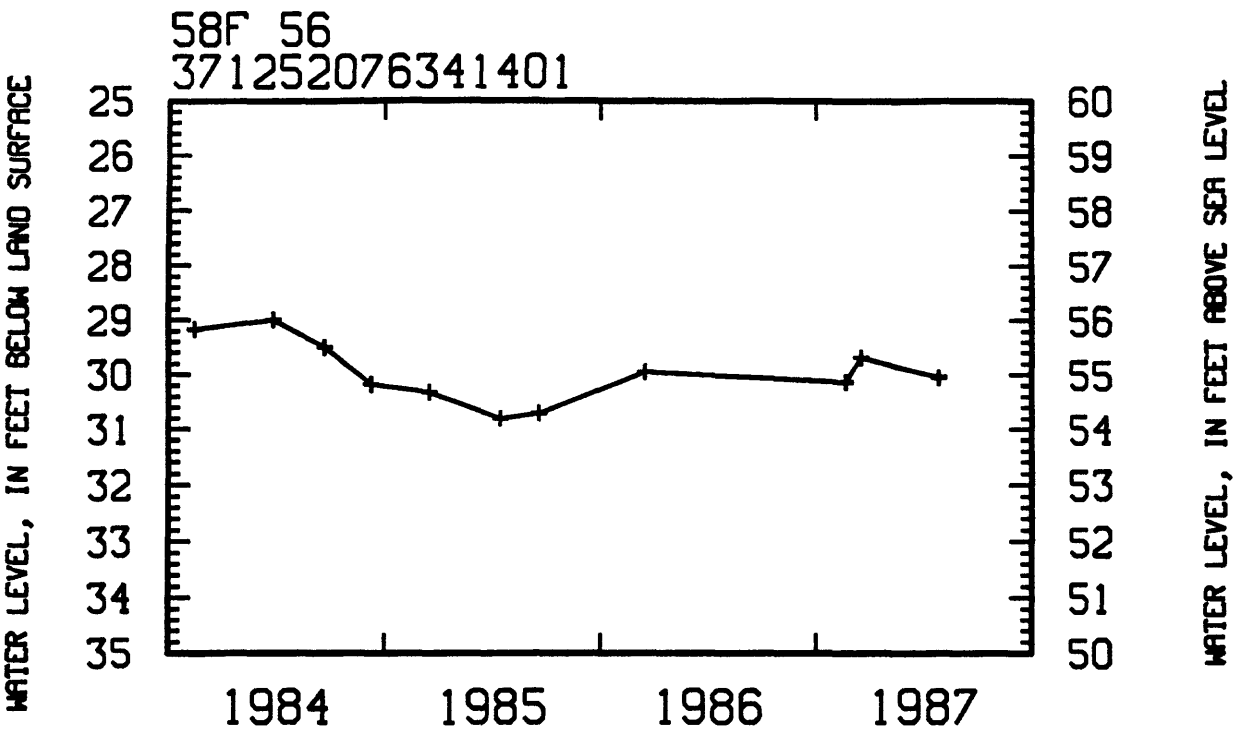

58A 84 SOW 180H
363655076332009
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
33
32
31
30
29
28
27
26
25
24
23
J F M A M J J A S O N D
1987

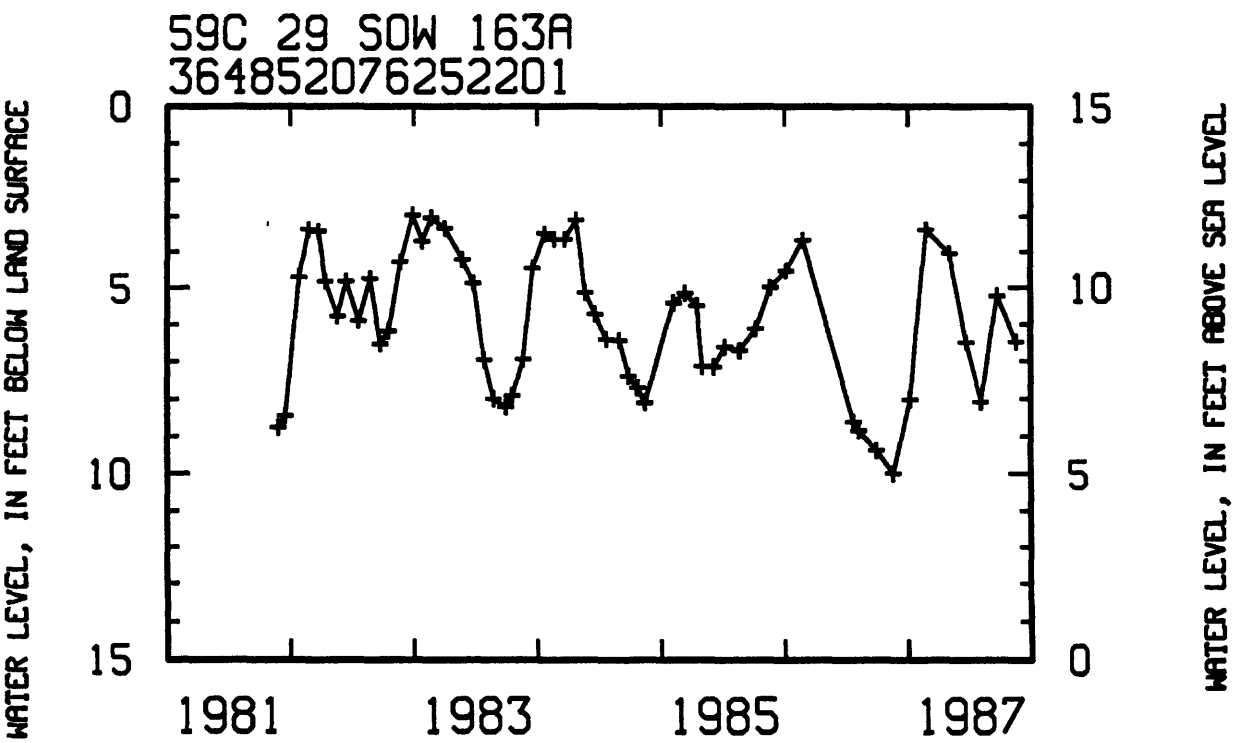

58B268 SOW 169A
364318076365501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
30
29
28
27
26
25
24
23
22
21
20
J F M A M J J A S O N D
1987

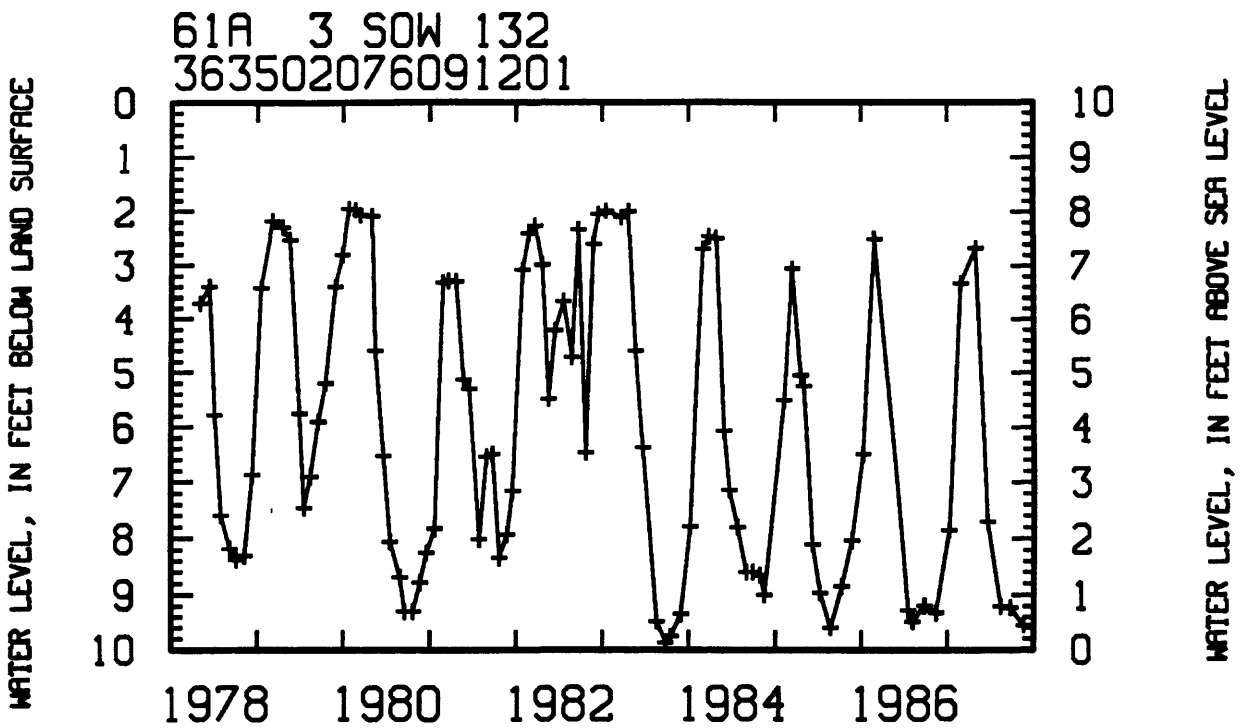

58C 60 SOW 141D
365133076351204
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
50
49
48
47
46
45
1980
1982
1984
1986

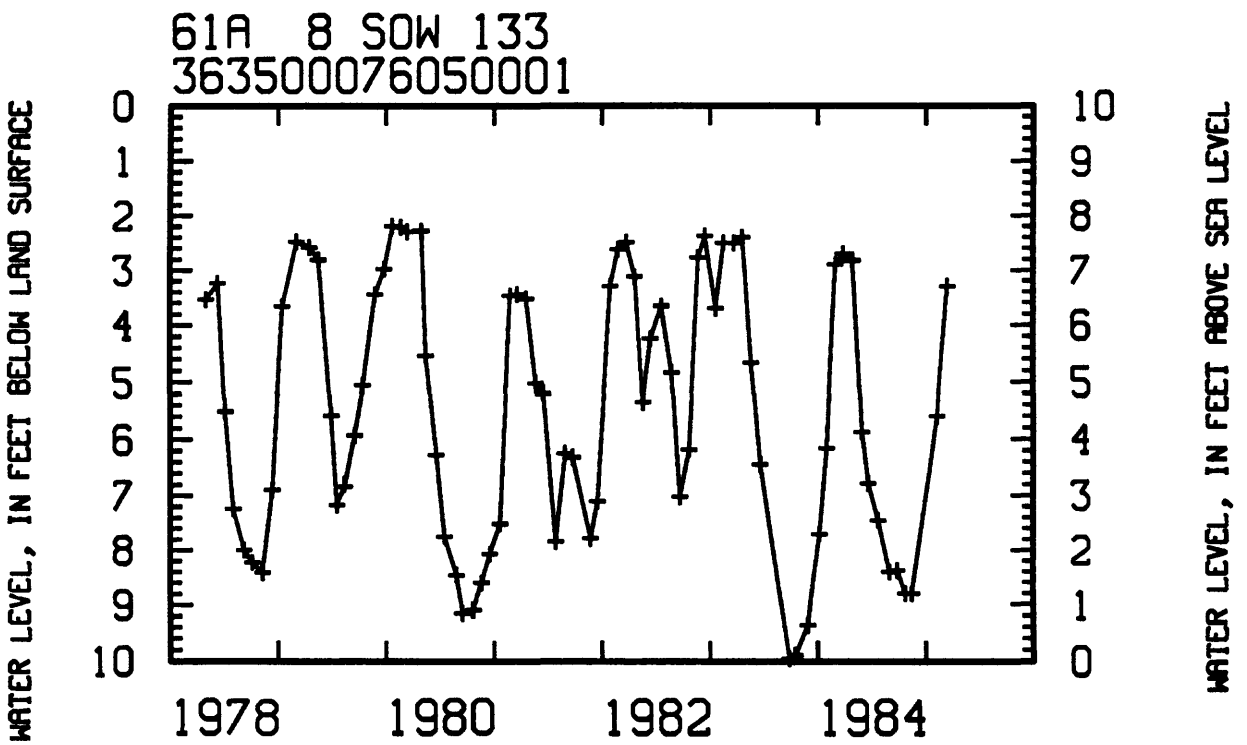

58C 61 SOW 159A
364731076355501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
10
15
20
35
30
25
20
1981
1983
1985
1987

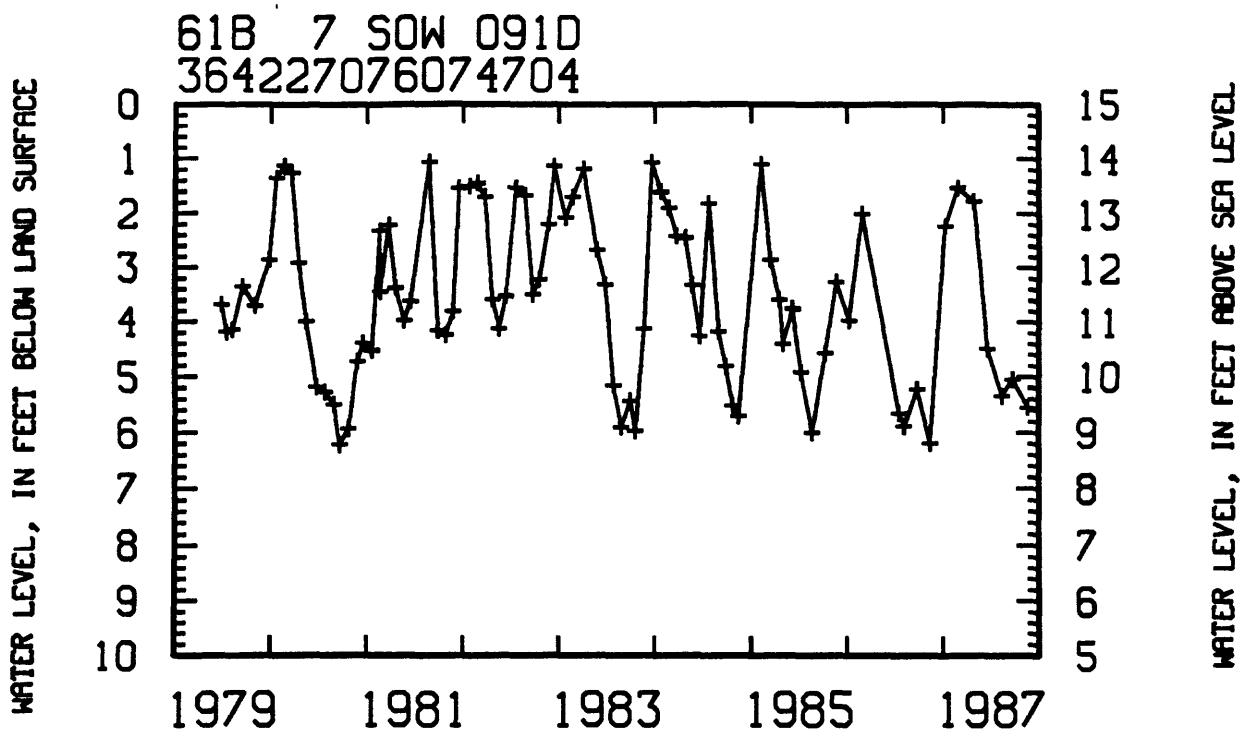

58F 55 SOW 171F
371208076341106
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
20
21
22
23
24
25
26
27
28
29
30
35
34
33
32
31
30
29
28
27
26
25
1984
1985
1986
1987

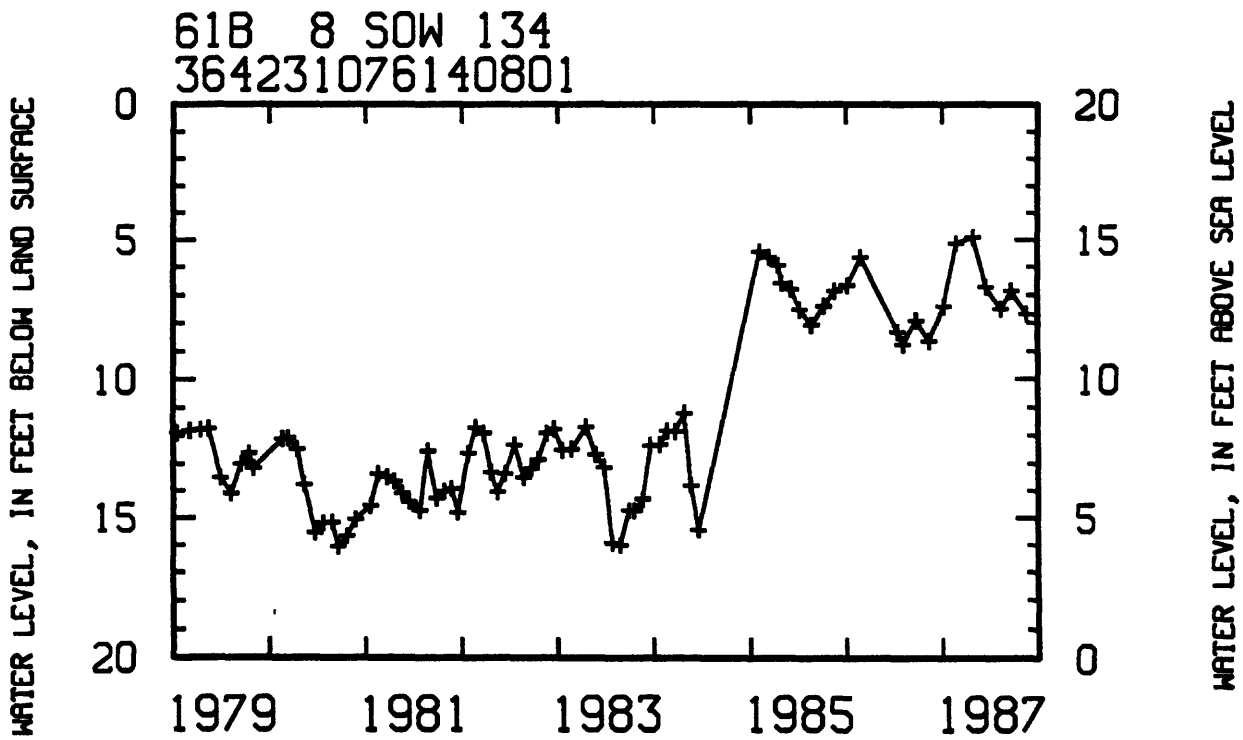

58F 56
371252076341401
WATER LEVEL, IN FEET BELOW LAND SURFACE
25
26
27
28
29
30
31
32
33
34
35
60
59
58
57
56
55
54
53
52
51
50
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

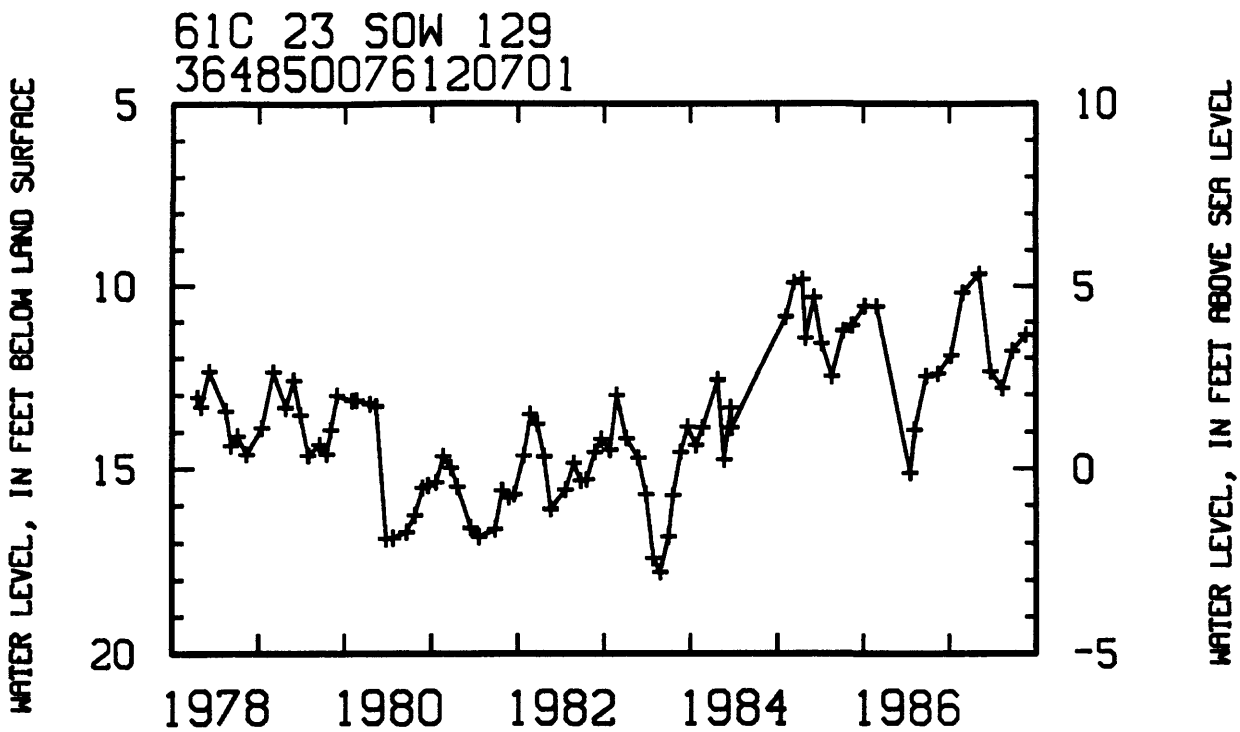

59C 29 SOW 163A
364852076252201
WATER LEVEL, IN FEET BELOW LAND SURFACE
0
5
10
15
15
10
5
0
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1981
1983
1985
1987

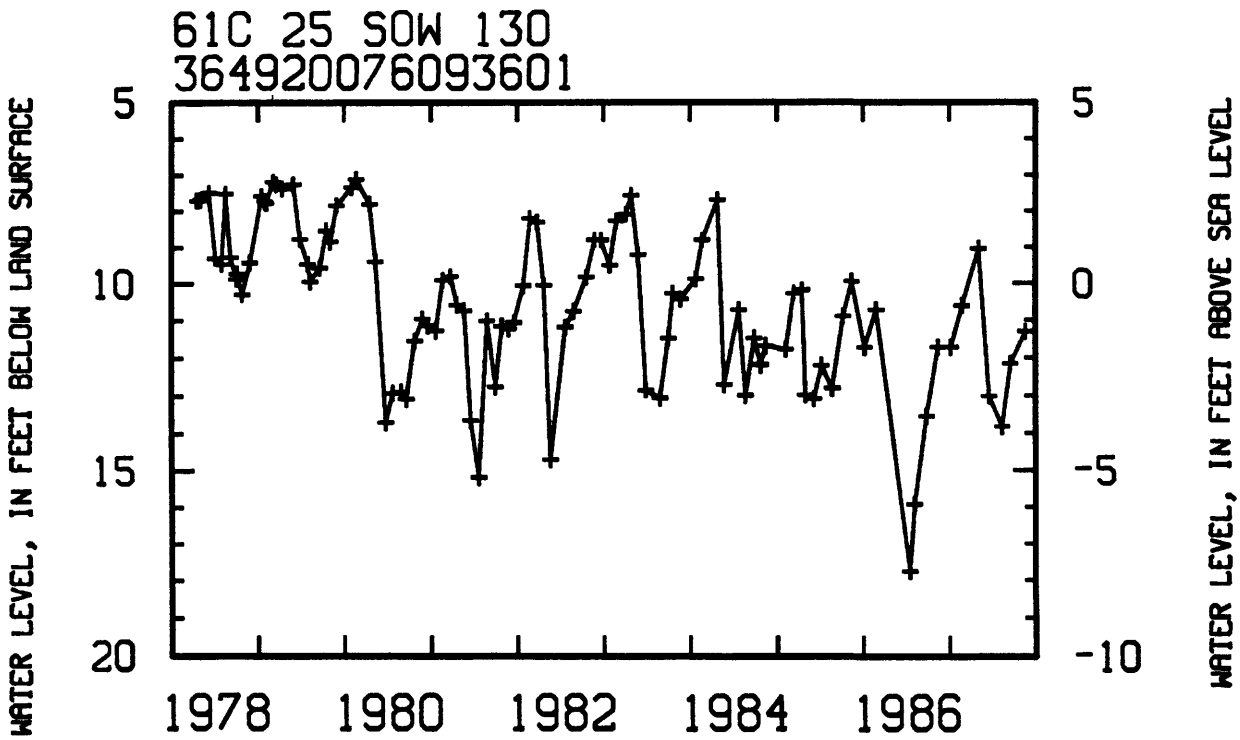

61A 3 SOW 132
363502076091201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
1978
1980
1982
1984
1986

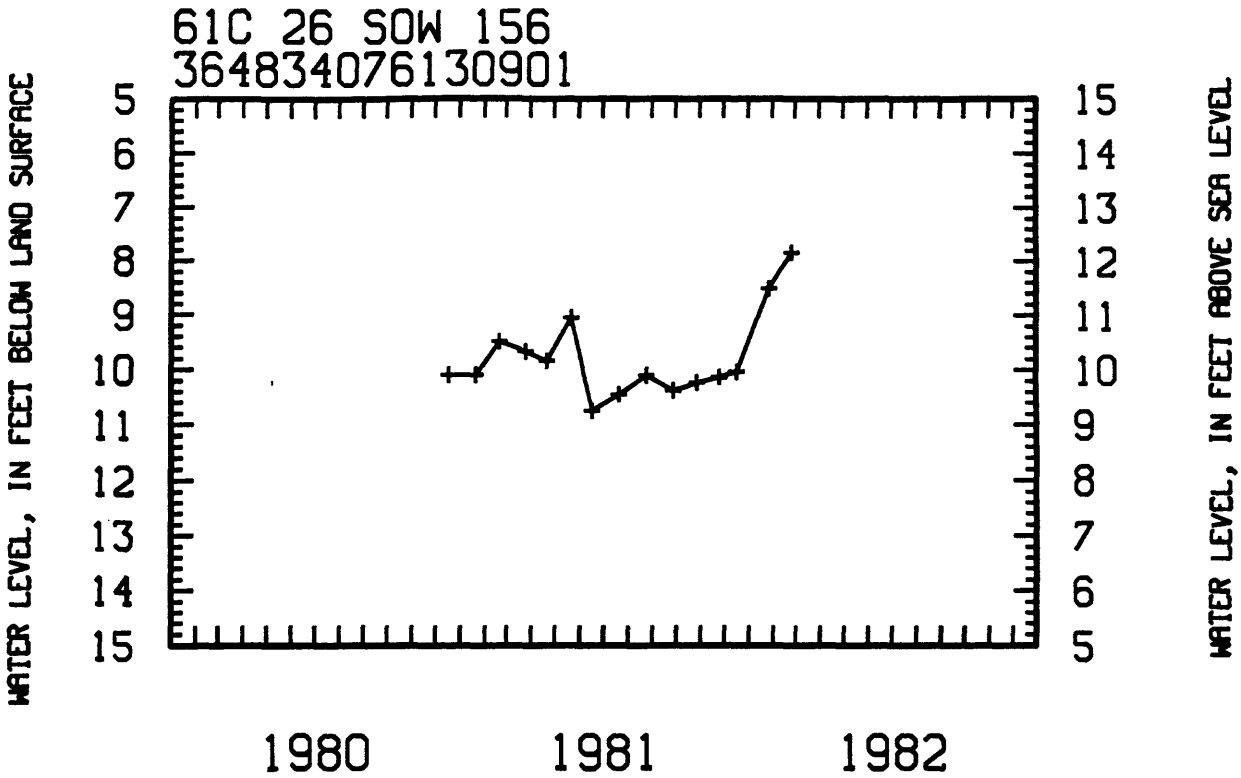

61A 8 SOW 133
363500076050001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
1978
1980
1982
1984

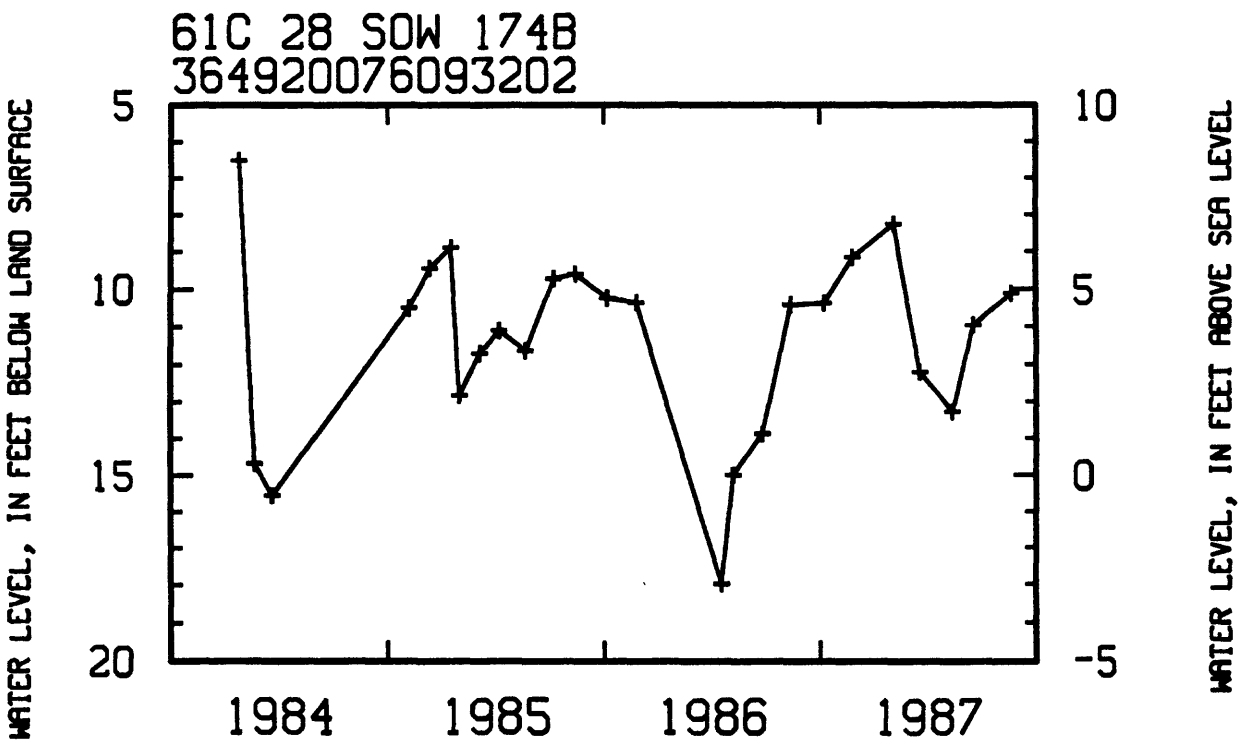

61B 7 SOW 091D
364227076074704
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
15
14
13
12
11
10
9
8
7
6
5
1979
1981
1983
1985
1987

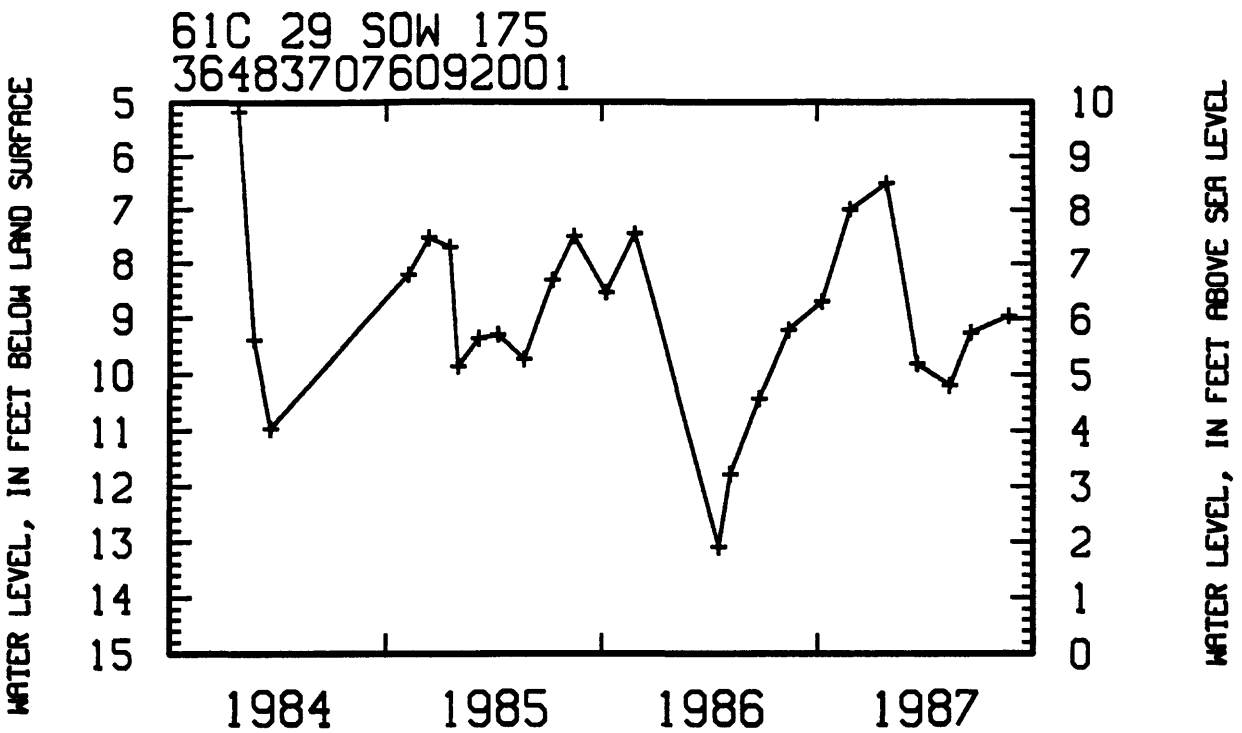

61B 8 SOW 134
364231076140801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
20
20
15
10
5
0
1979
1981
1983
1985
1987

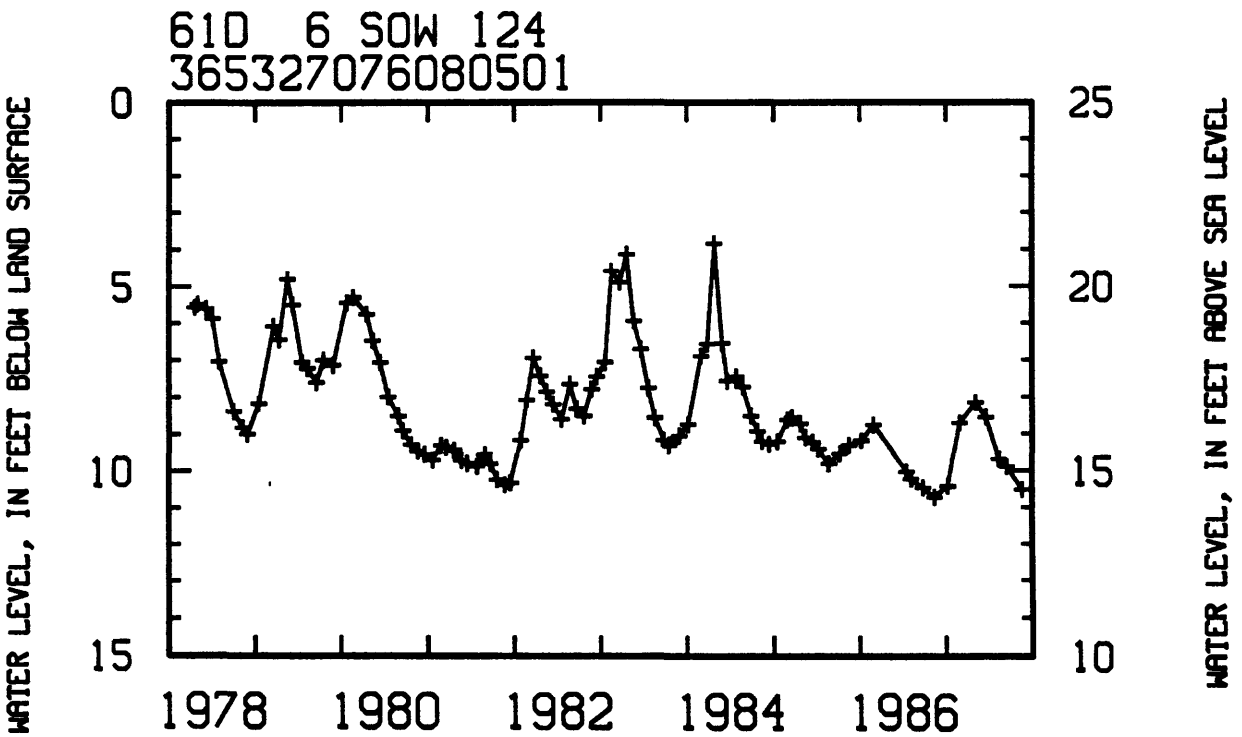

61C 23 SOW 129
364850076120701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
10
15
20
10
5
0
-5
1978
1980
1982
1984
1986

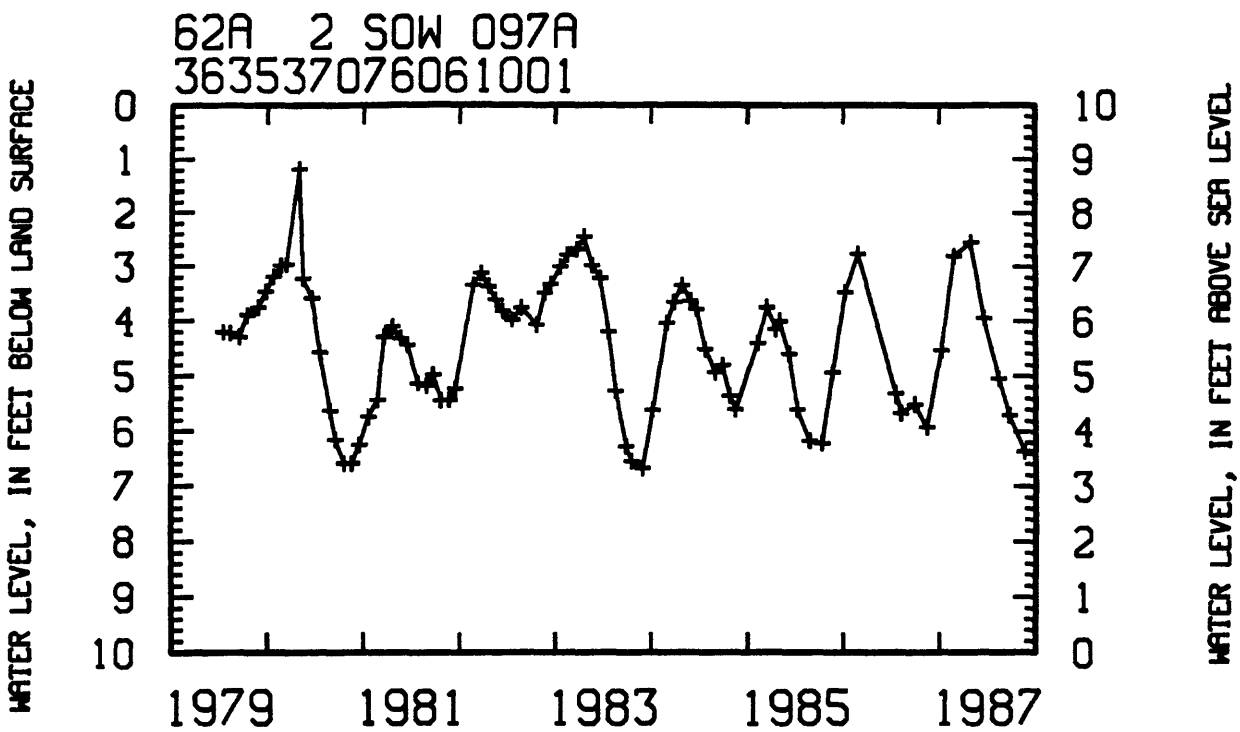

61C 25 SOW 130
364920076093601
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
10
15
20
5
0
-5
-10
1978
1980
1982
1984
1986

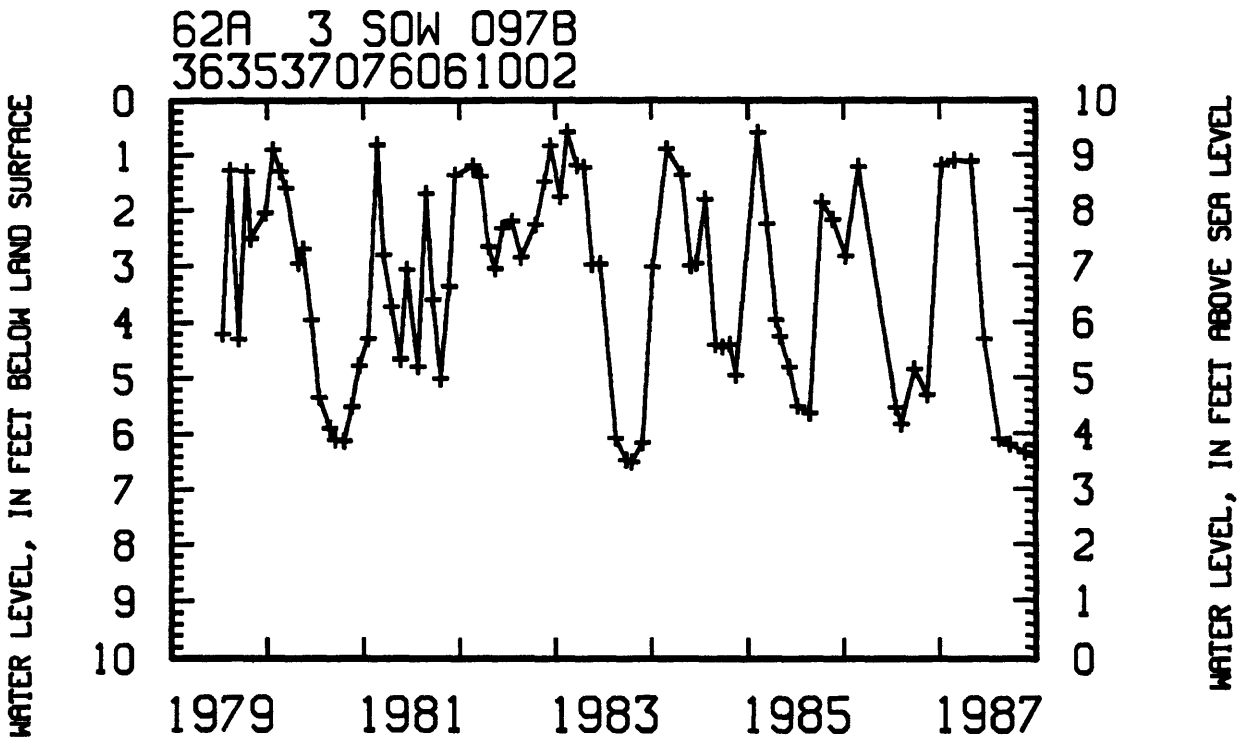

61C 26 SOW 156
364834076130901
WATER LEVEL, IN FEET BELOW LAND SURFACE
5
6
7
8
9
10
11
12
13
14
15
15
14
13
12
11
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1980
1981
1982

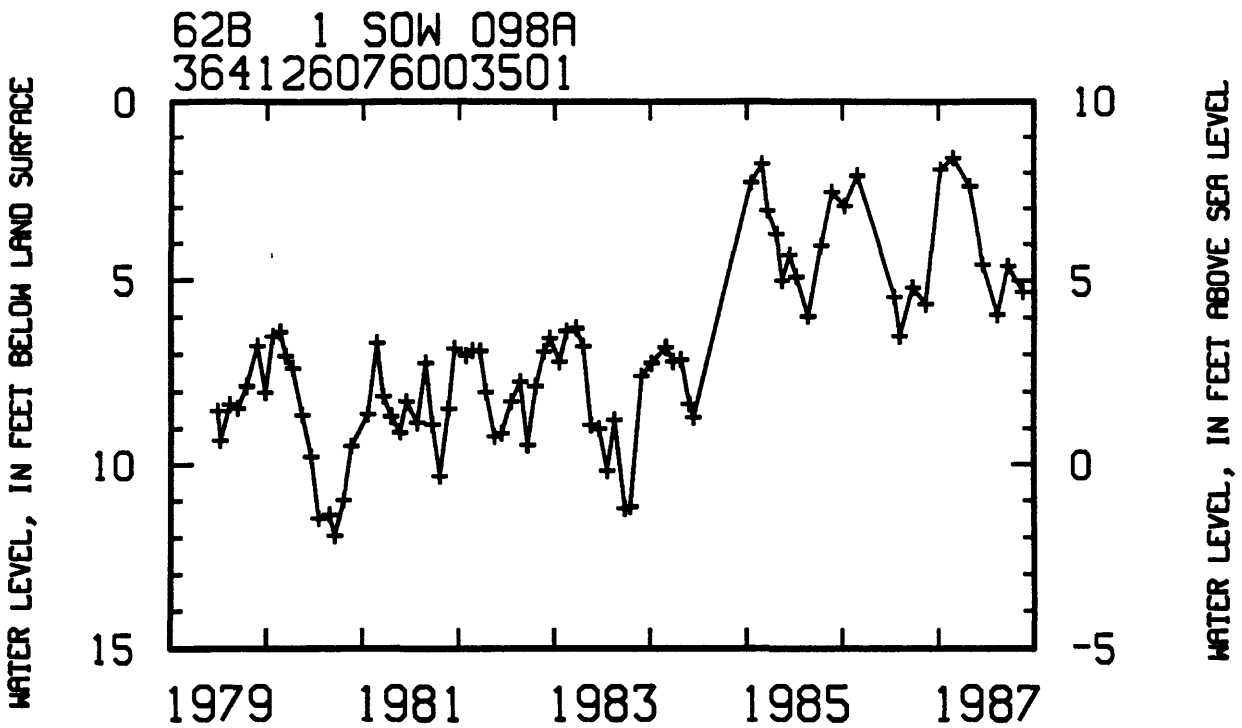

61C 28 SOW 174B
364920076093202
WATER LEVEL, IN FEET BELOW LAND SURFACE
5
10
15
20
10
5
0
-5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

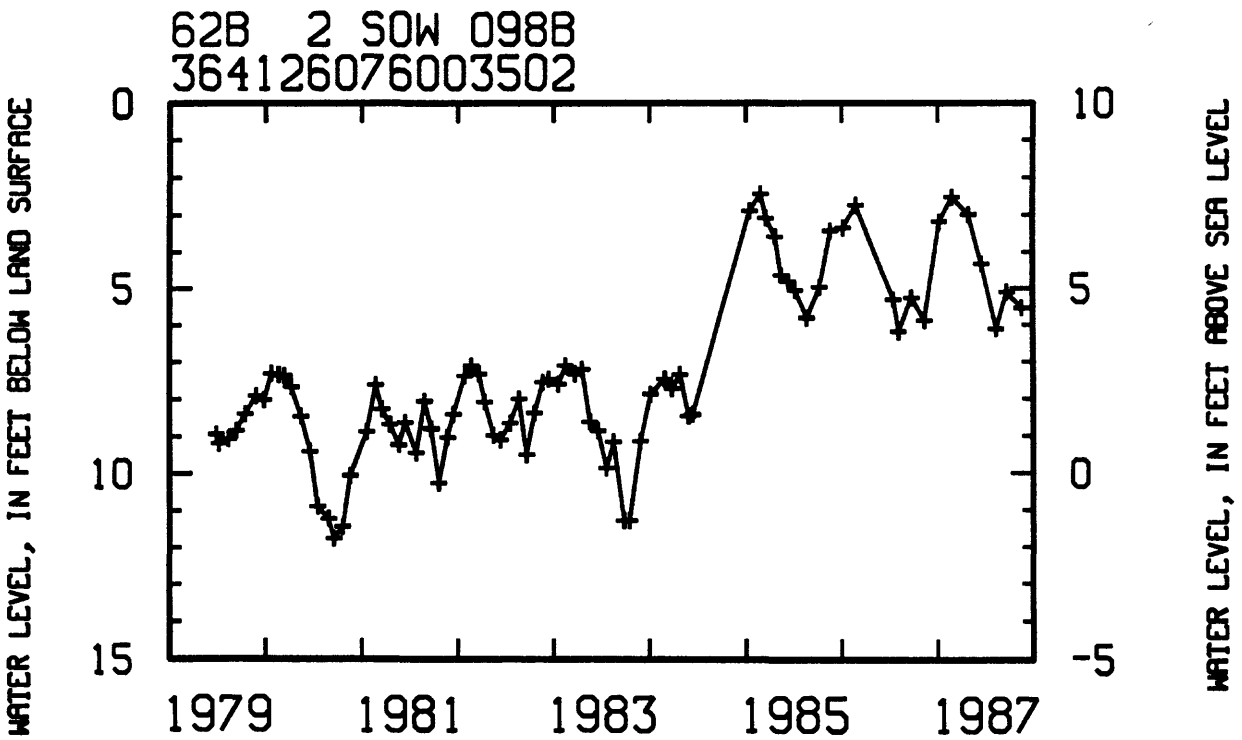

61C 29 SOW 175
364837076092001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
10
9
8
7
6
5
4
3
2
1
0
1984
1985
1986
1987

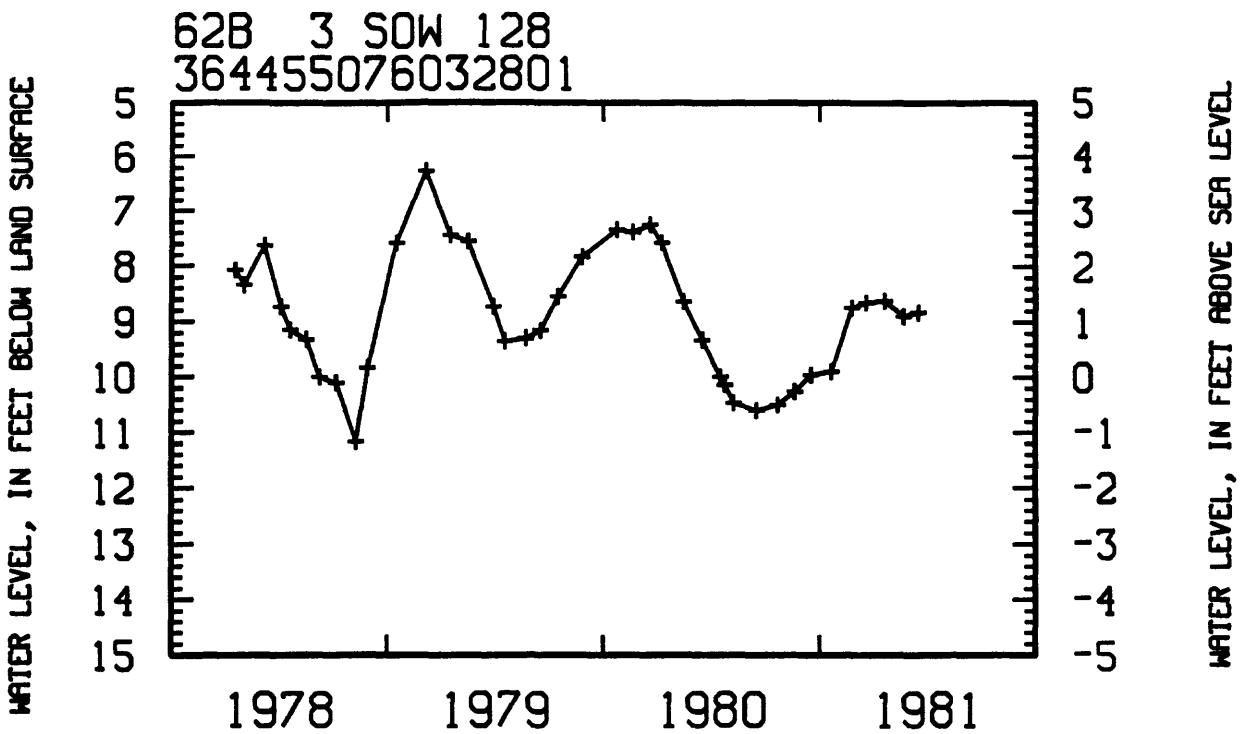

61D 6 SOW 124
365327076080501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
25
20
15
10
1978
1980
1982
1984
1986

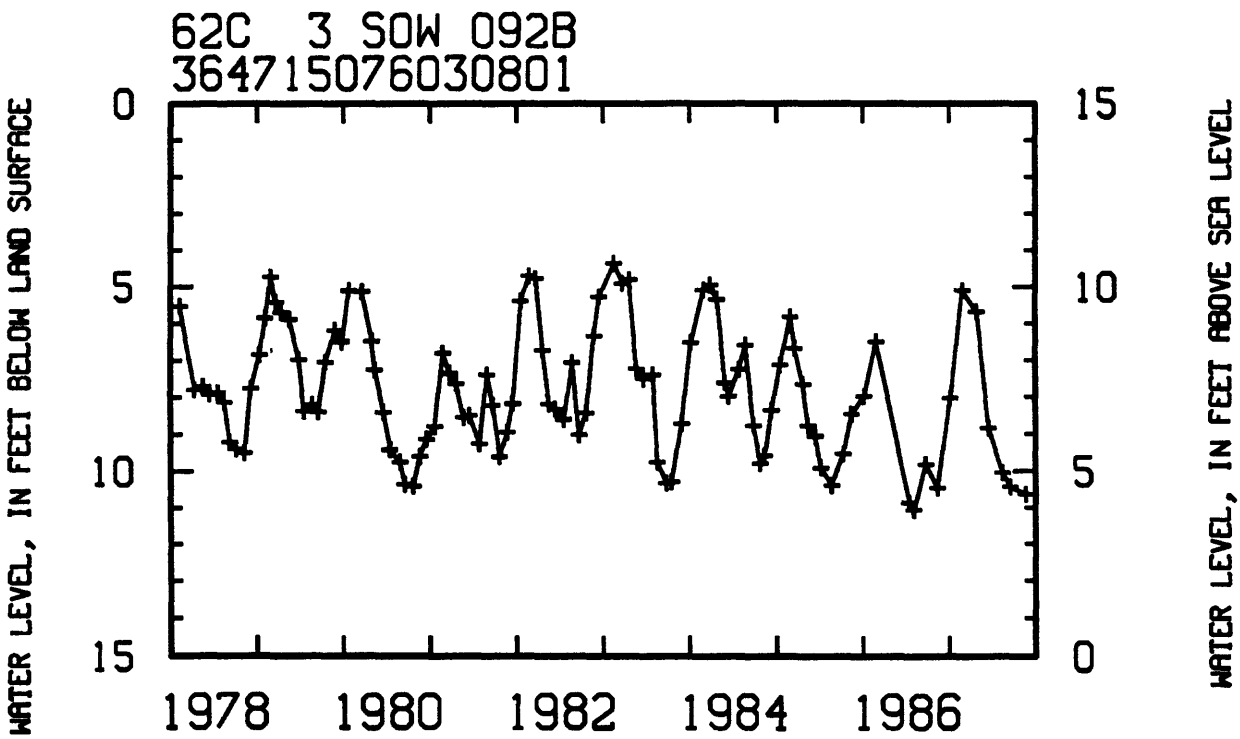

62A 2 SOW 097A
363537076061001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
1979
1981
1983
1985
1987

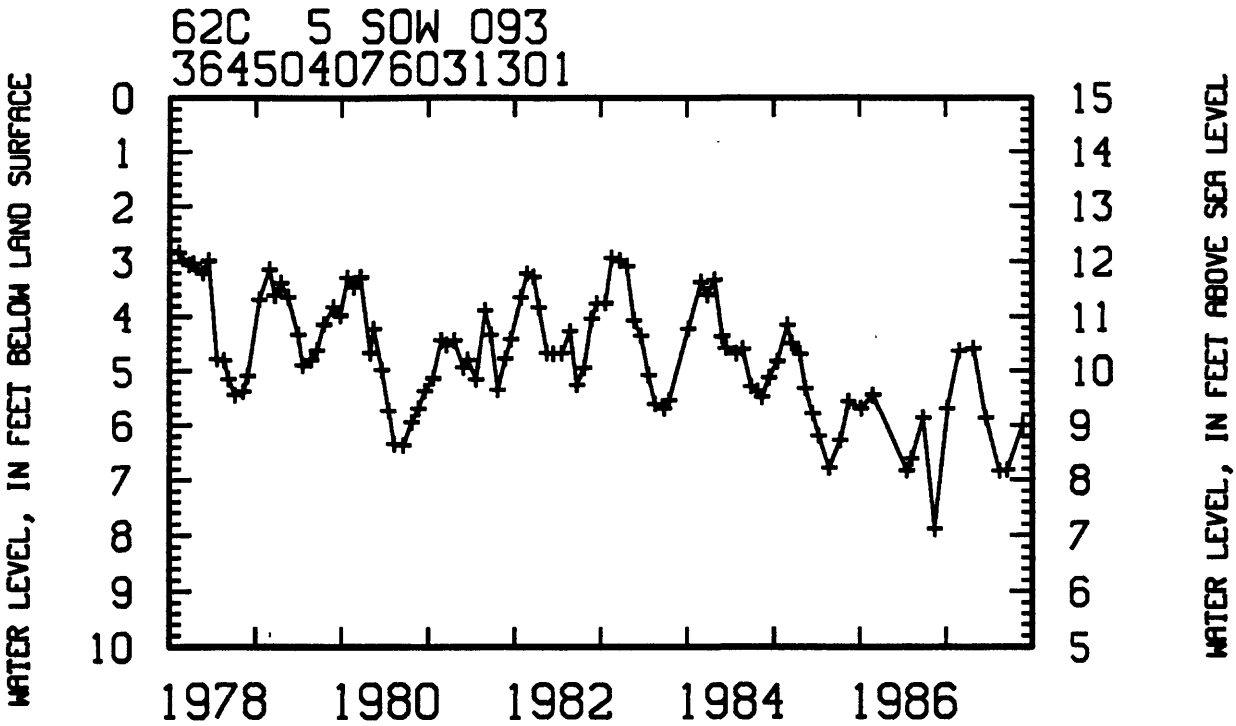

62A 3 SOW 097B
363537076061002
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
1979
1981
1983
1985
1987

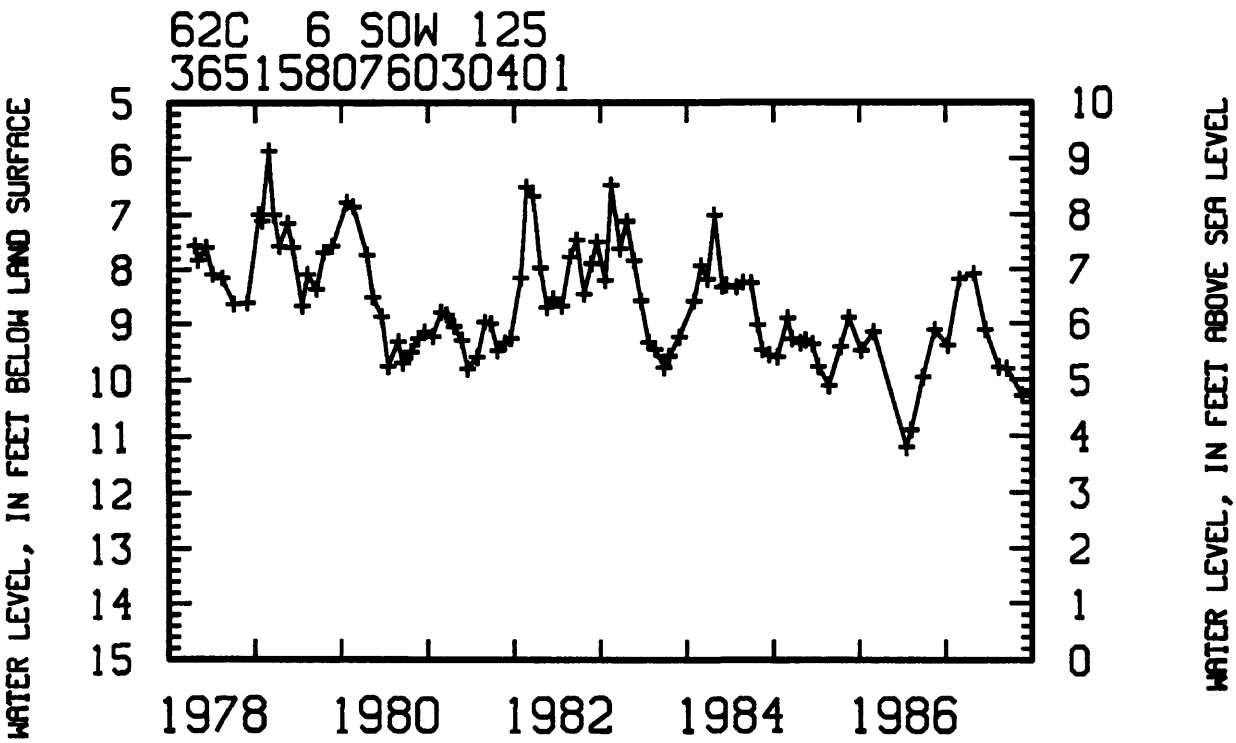

62B 1 SOW 098A
364126076003501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
10
5
0
-5
1979
1981
1983
1985
1987

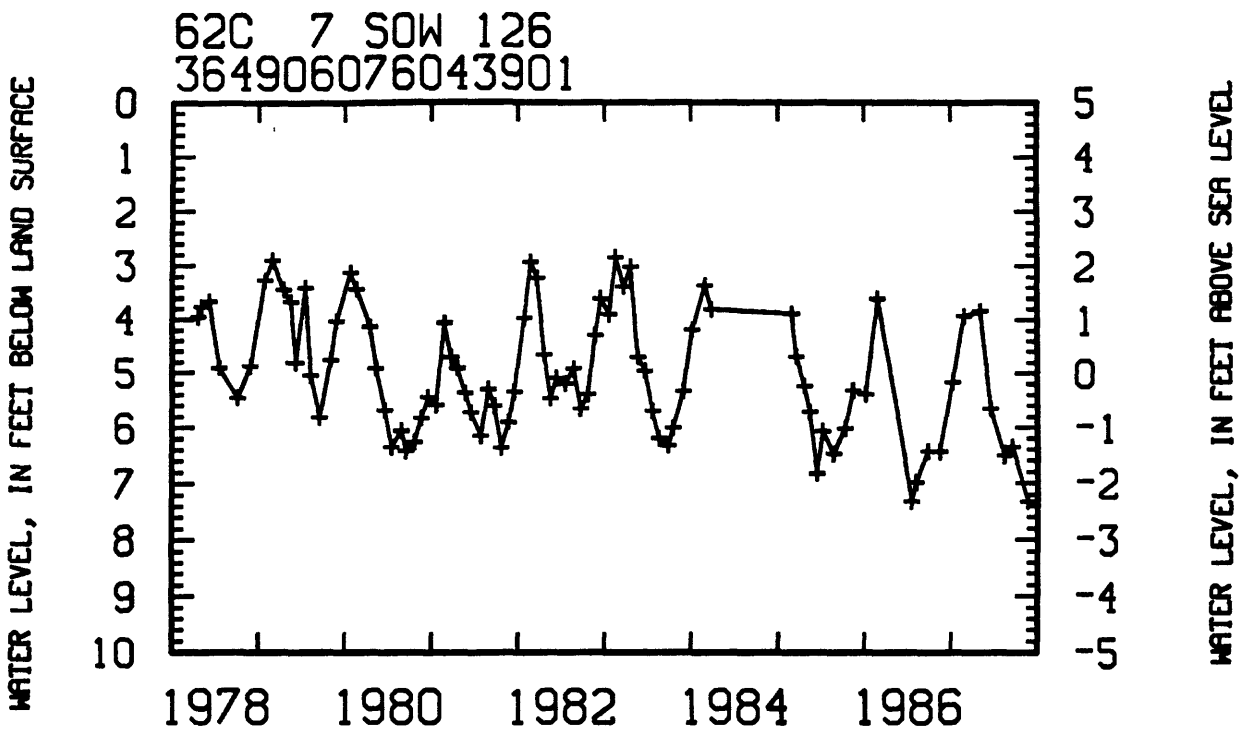

62B 2 SOW 098B
364126076003502
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
10
5
0
-5
1979
1981
1983
1985
1987

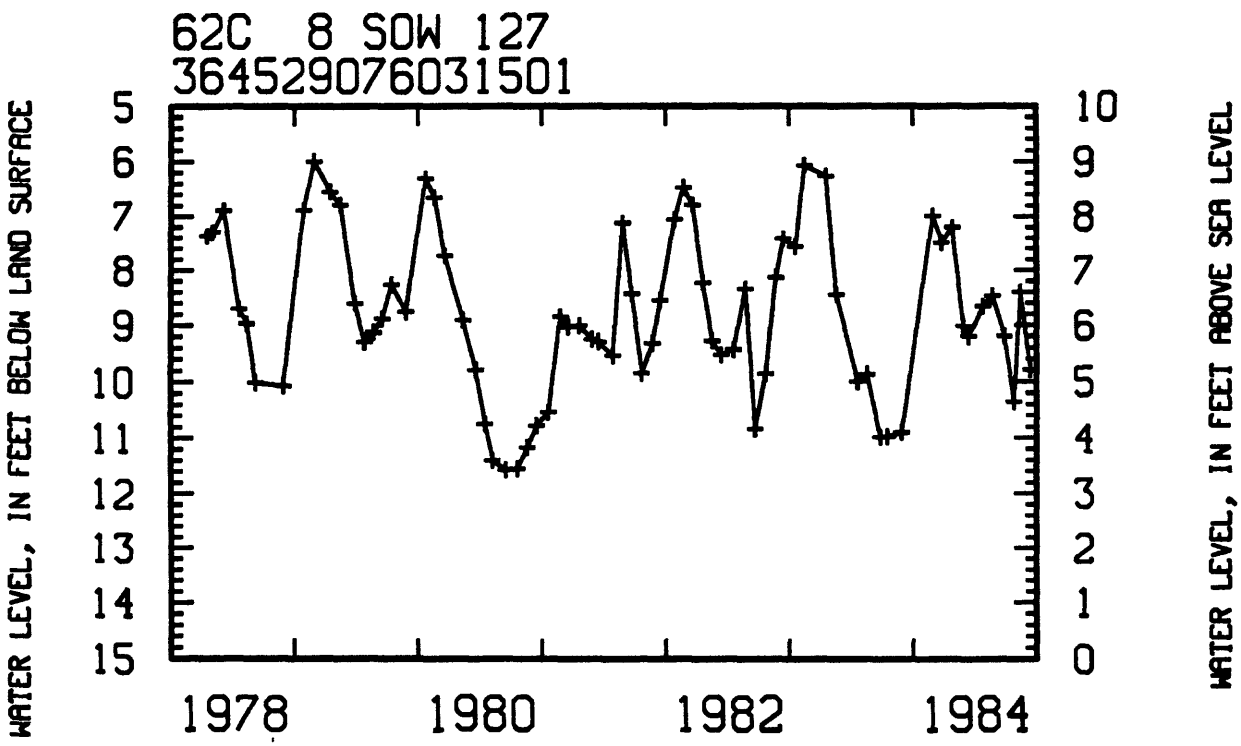

62B 3 SOW 128
364455076032801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
5
4
3
2
1
0
-1
-2
-3
-4
-5
1978
1979
1980
1981

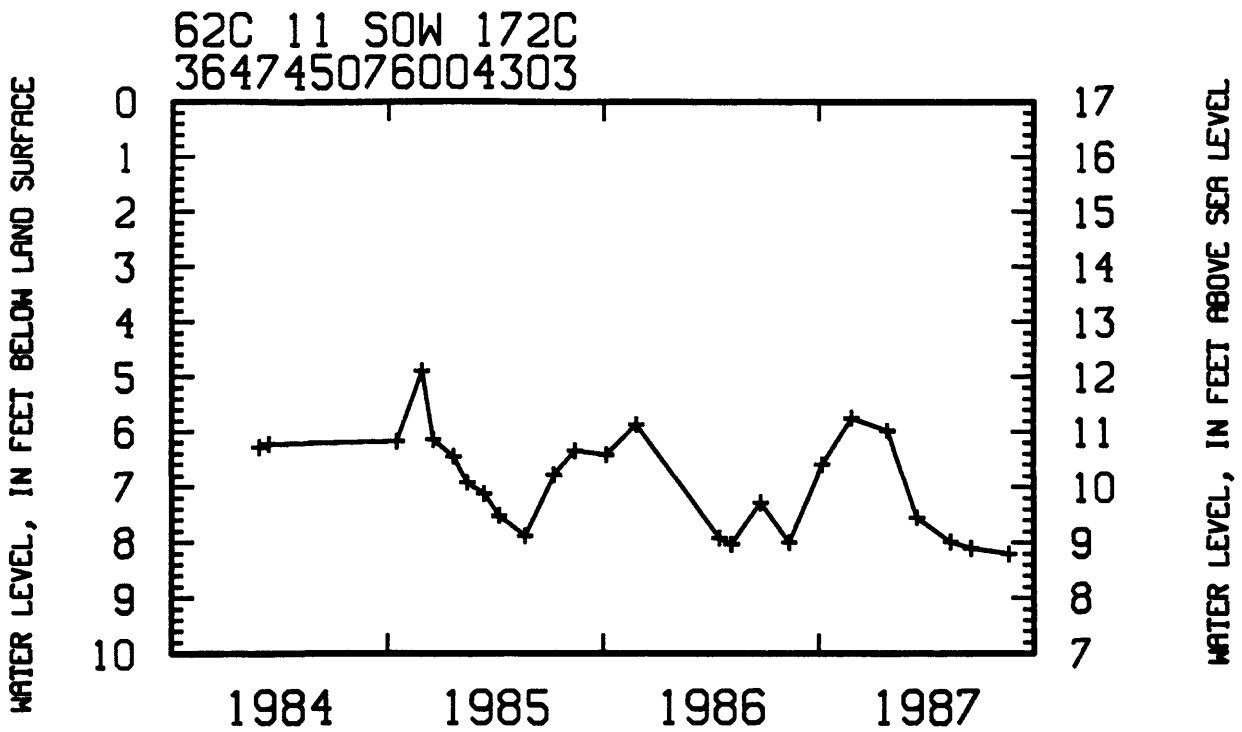

62C 3 SOW 092B
364715076030801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
15
10
5
0
1978
1980
1982
1984
1986

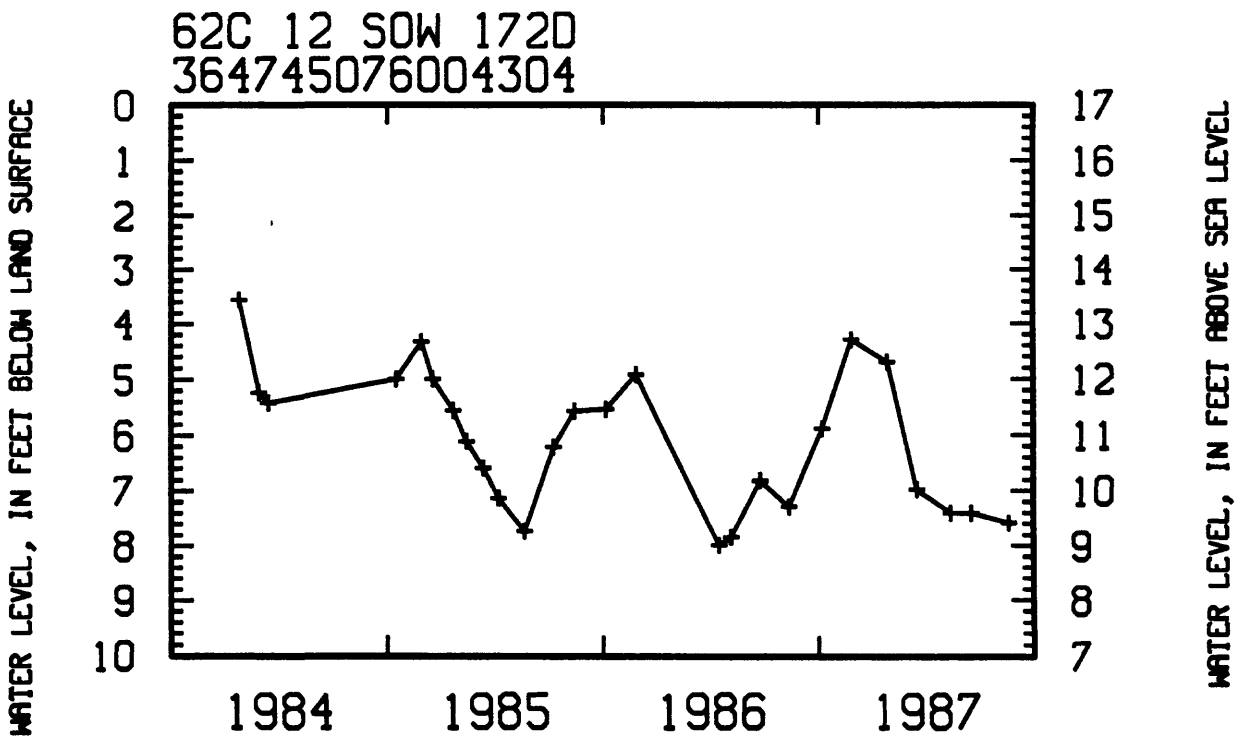

62C 5 SOW 093
364504076031301
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0 1 2 3 4 5 6 7 8 9 10
15 14 13 12 11 10 9 8 7 6 5
1978 1980 1982 1984 1986

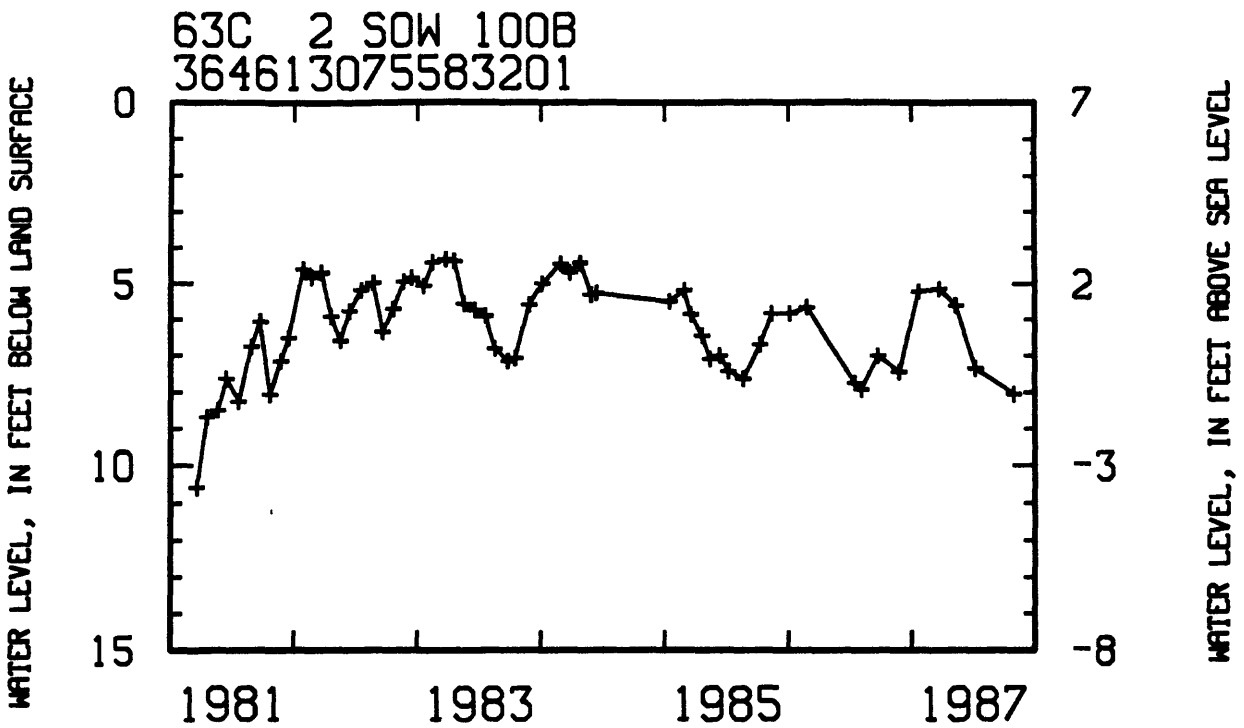

62C 6 SOW 125
365158076030401
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5 6 7 8 9 10 11 12 13 14 15
10 9 8 7 6 5 4 3 2 1 0
1978 1980 1982 1984 1986

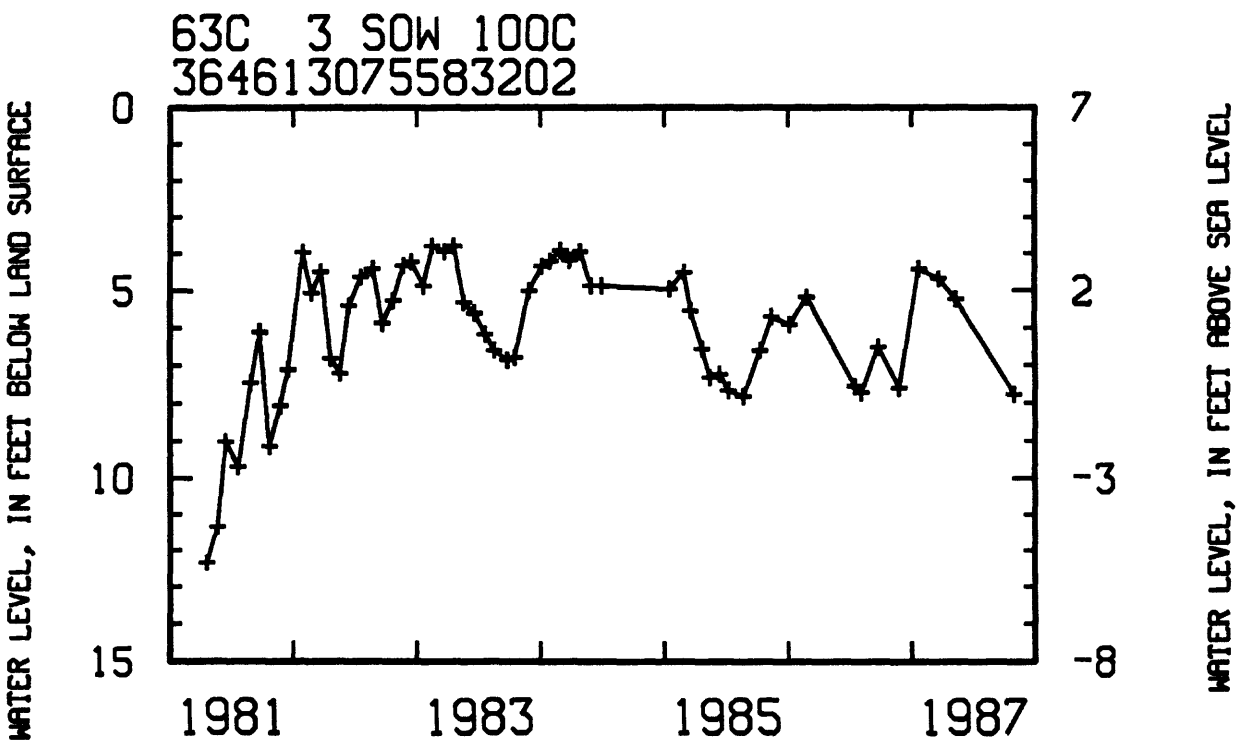

62C 7 SOW 126
364906076043901
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0 1 2 3 4 5 6 7 8 9 10
5 4 3 2 1 0 -1 -2 -3 -4 -5
1978 1980 1982 1984 1986

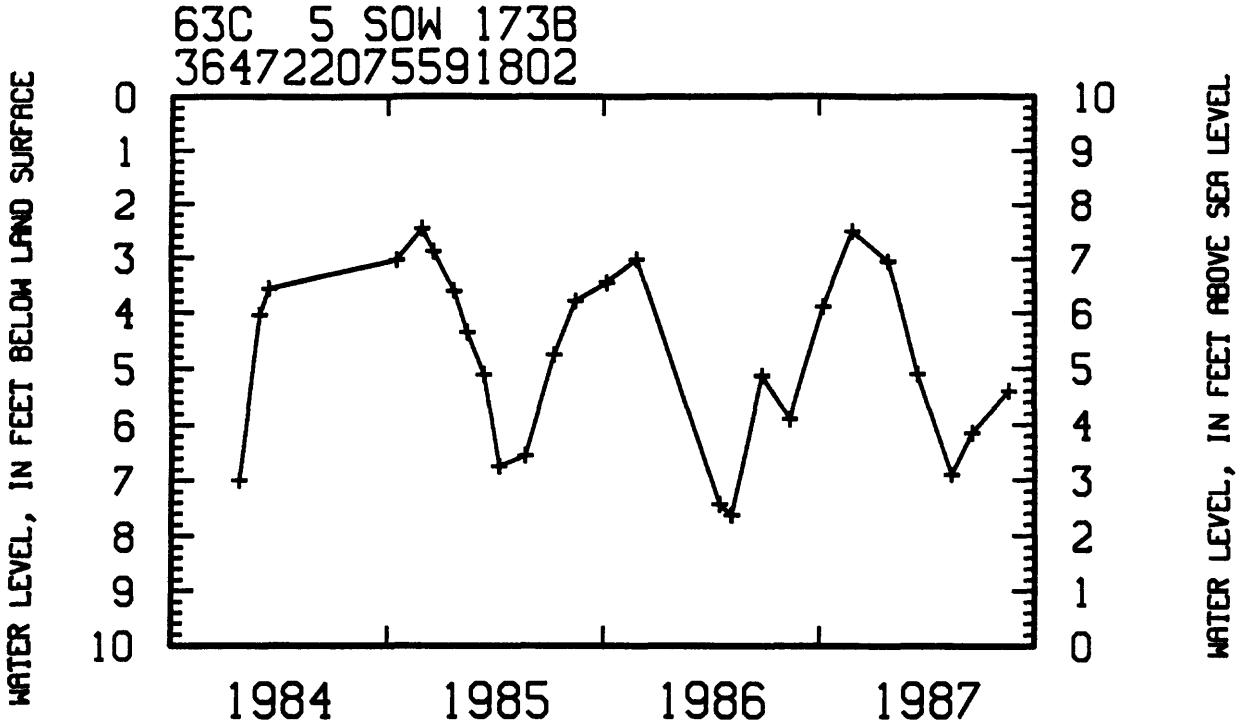

62C 8 SOW 127
364529076031501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5 6 7 8 9 10 11 12 13 14 15
10 9 8 7 6 5 4 3 2 1 0
1978 1980 1982 1984


62C 11 SOW 172C
364745076004303
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
17
16
15
14
13
12
11
10
9
8
7
1984
1985
1986
1987


62C 12 SOW 172D
364745076004304
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
17
16
15
14
13
12
11
10
9
8
7
1984
1985
1986
1987


63C 2 SOW 100B
364613075583201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
7
2
-3
-8
1981
1983
1985
1987


63C 3 SOW 100C
364613075583202
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
7
2
-3
-8
1981
1983
1985
1987

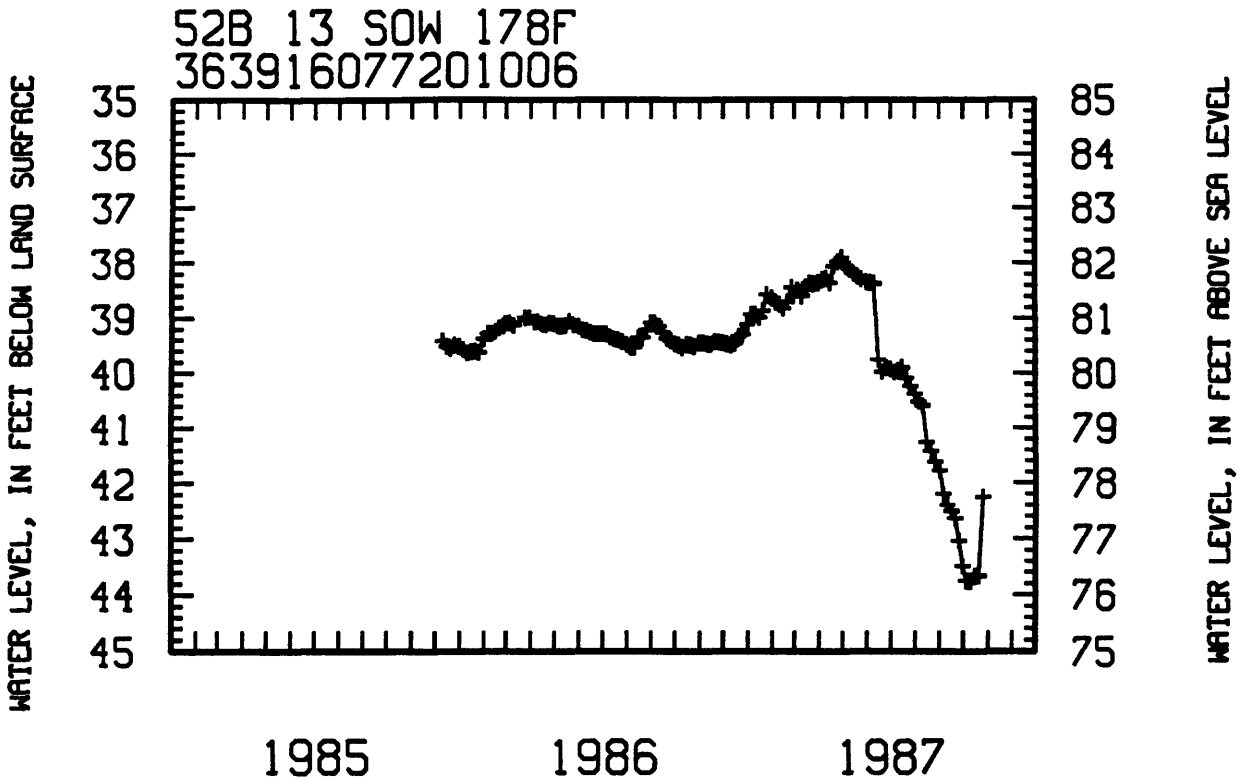

63C 5 SOW 173B
364722075591802
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
6
7
8
9
10
1984
1985
1986
1987

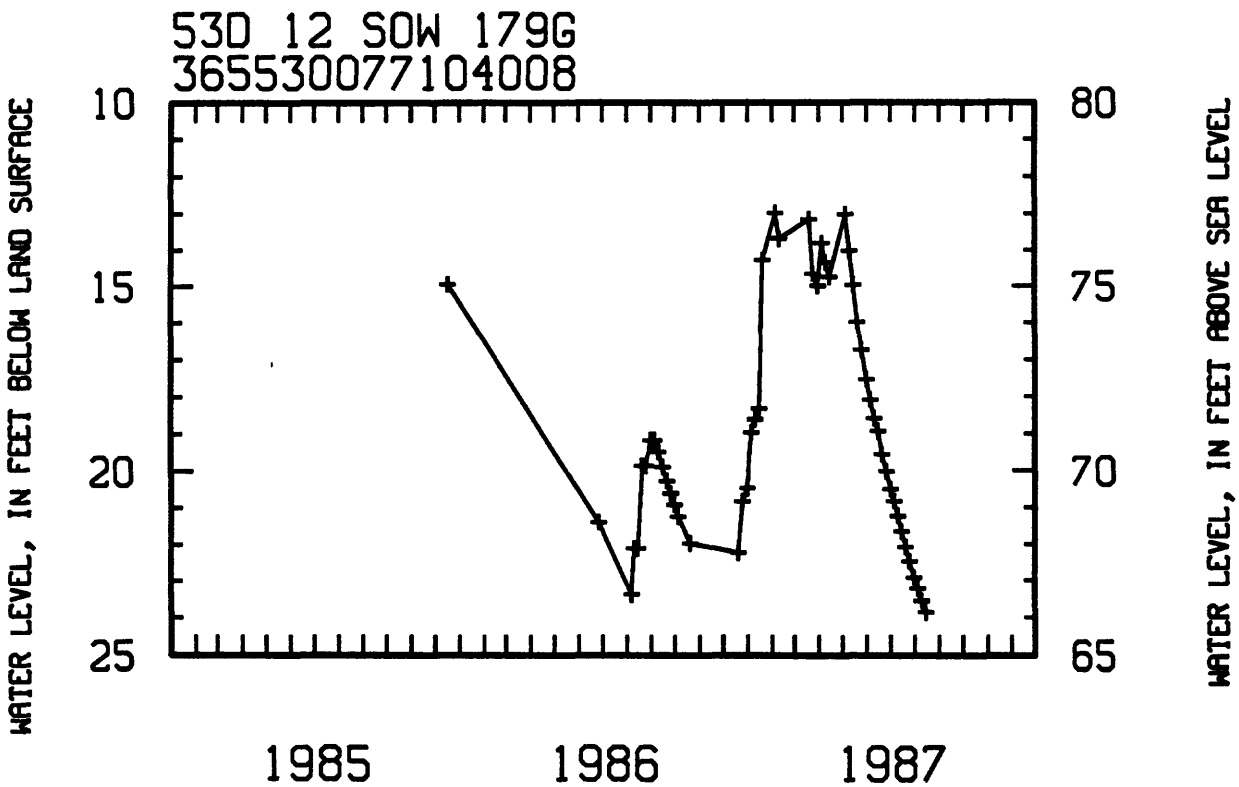
APPENDIX II

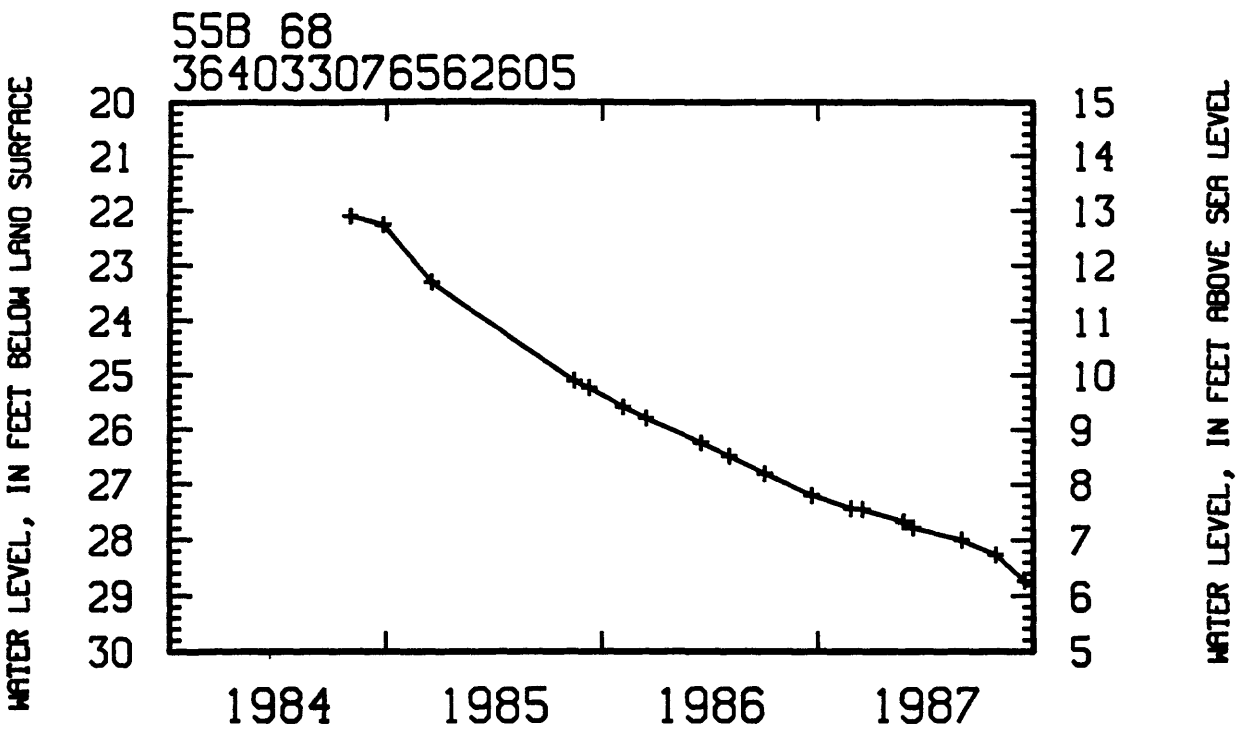
WATER LEVELS IN WELLS IN THE YORKTOWN-EASTOVER AQUIFER

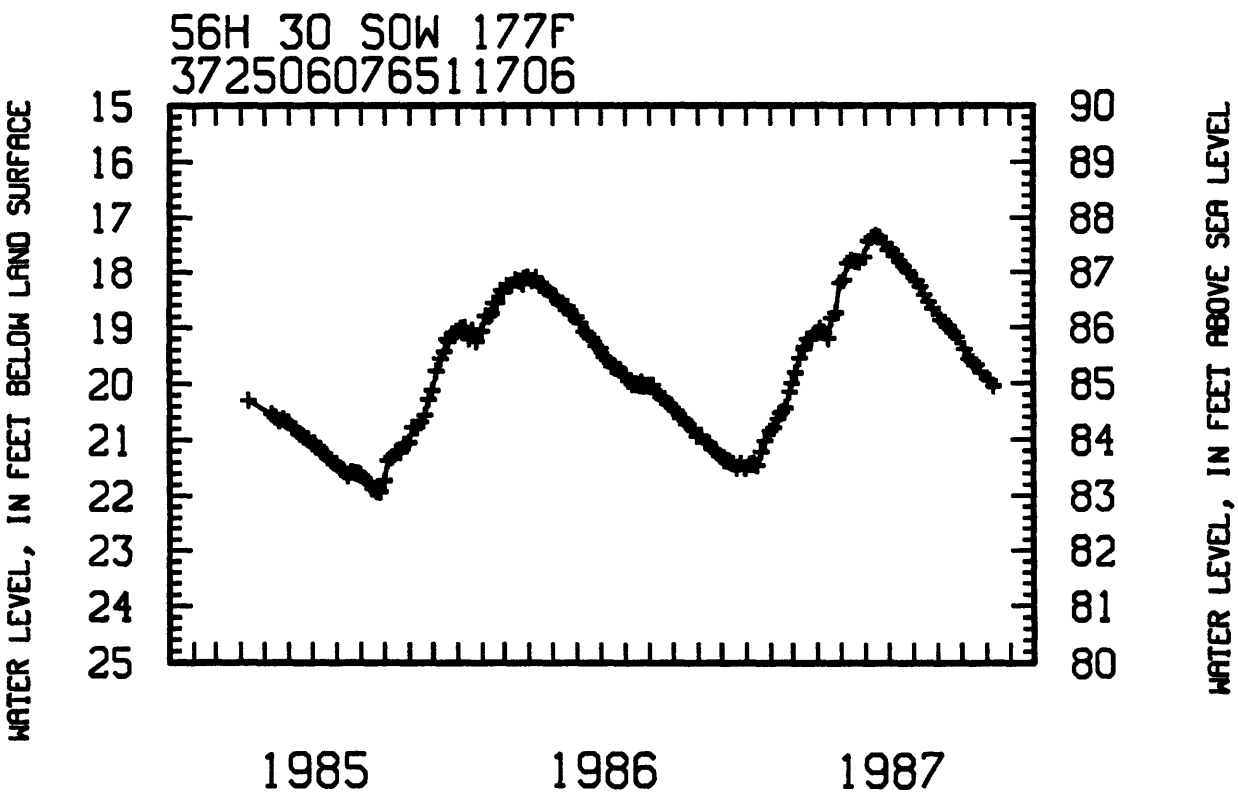
EXPLANATION

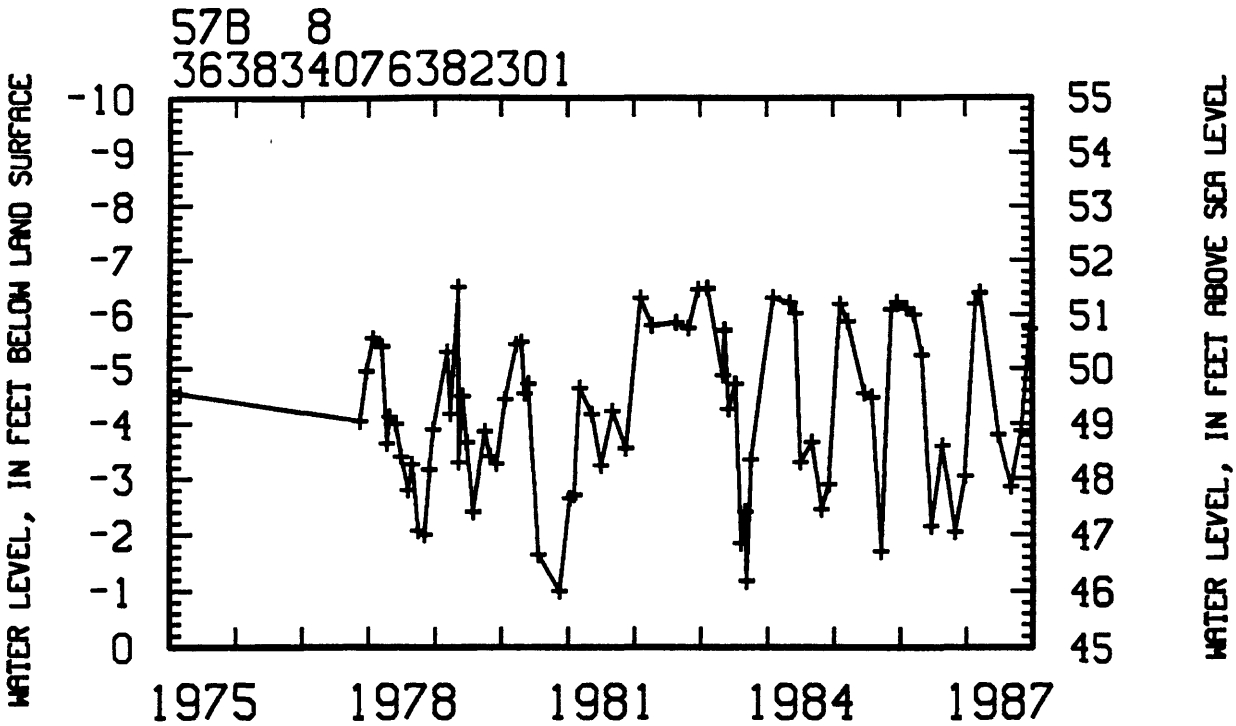
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
52B 13--USGS WELL NO.
SOW 178F--VIRGINIA STATE OBSERVATION WELL NO.
363916077201006--STATION IDENTIFICATION NO.

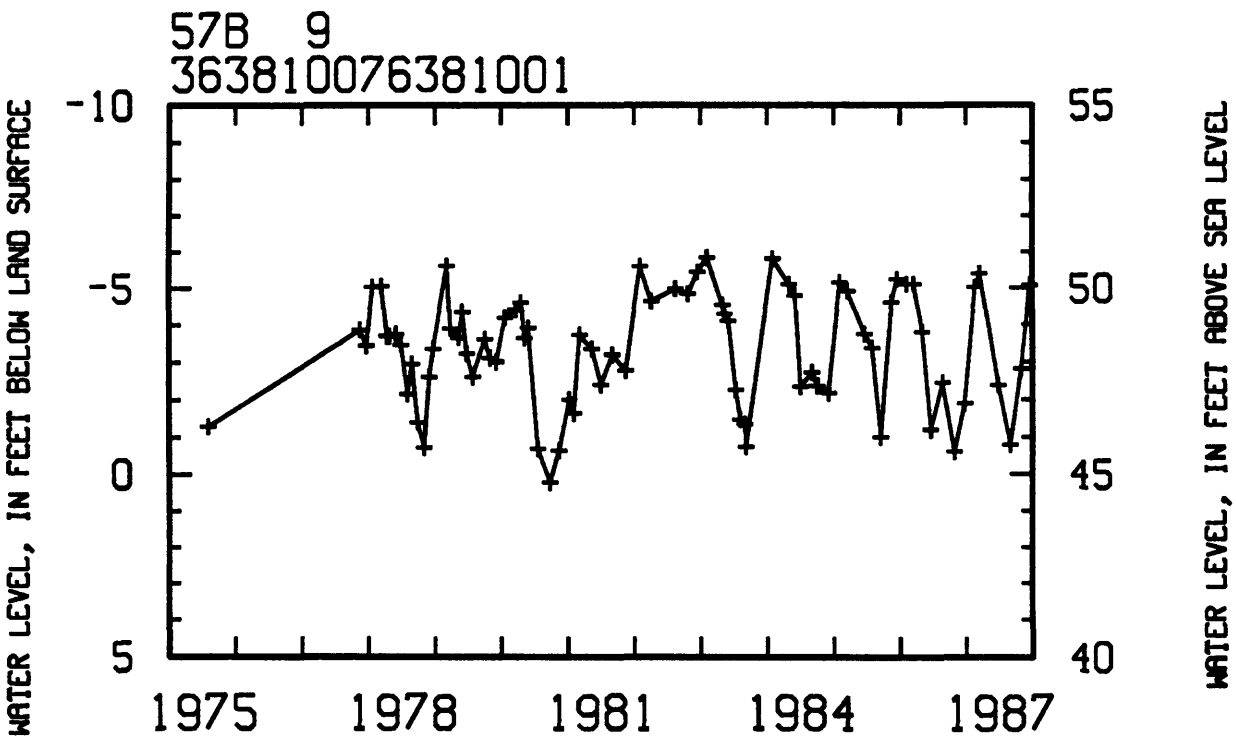

52B 13 SOW 178F
363916077201006
WATER LEVEL, IN FEET BELOW LAND SURFACE
35
36
37
38
39
40
41
42
43
44
45
85
84
83
82
81
80
79
78
77
76
75
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

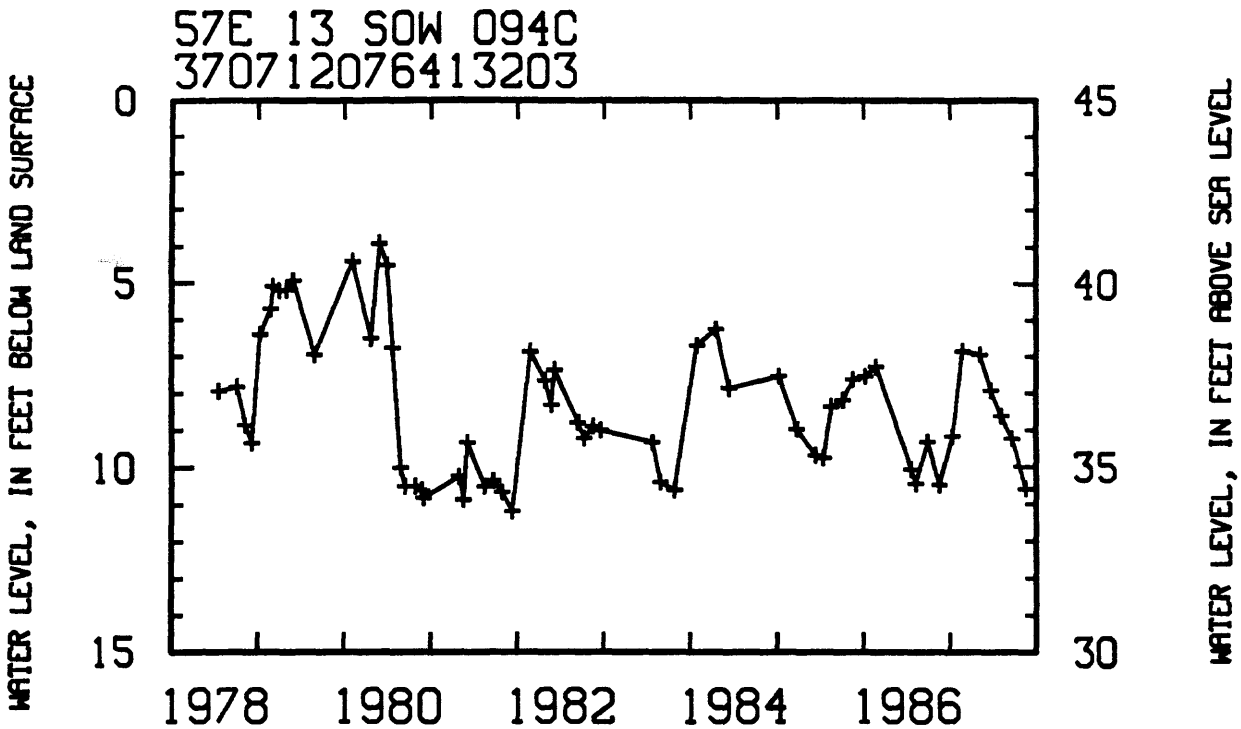

53D 12 SOW 179G
365530077104008
WATER LEVEL, IN FEET BELOW LAND SURFACE
10
15
20
25
80
75
70
65
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

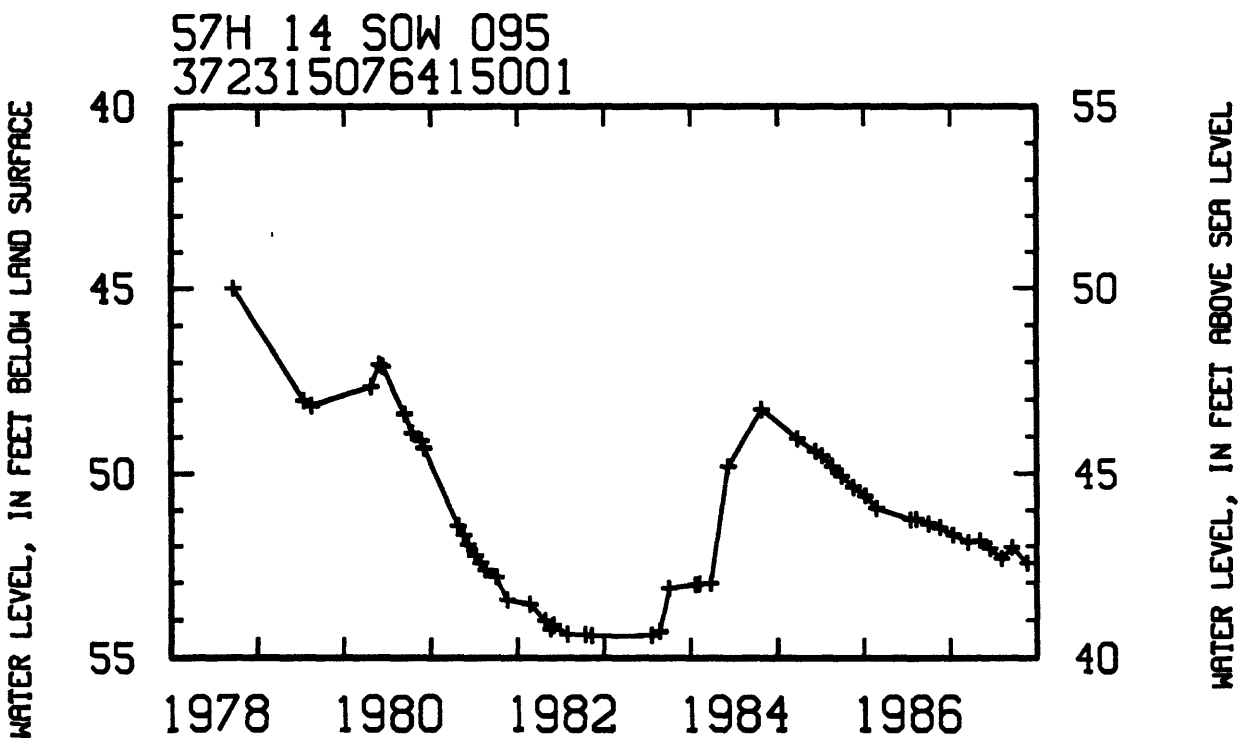

55B 68
364033076562605
WATER LEVEL, IN FEET BELOW LAND SURFACE
20
21
22
23
24
25
26
27
28
29
30
15
14
13
12
11
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

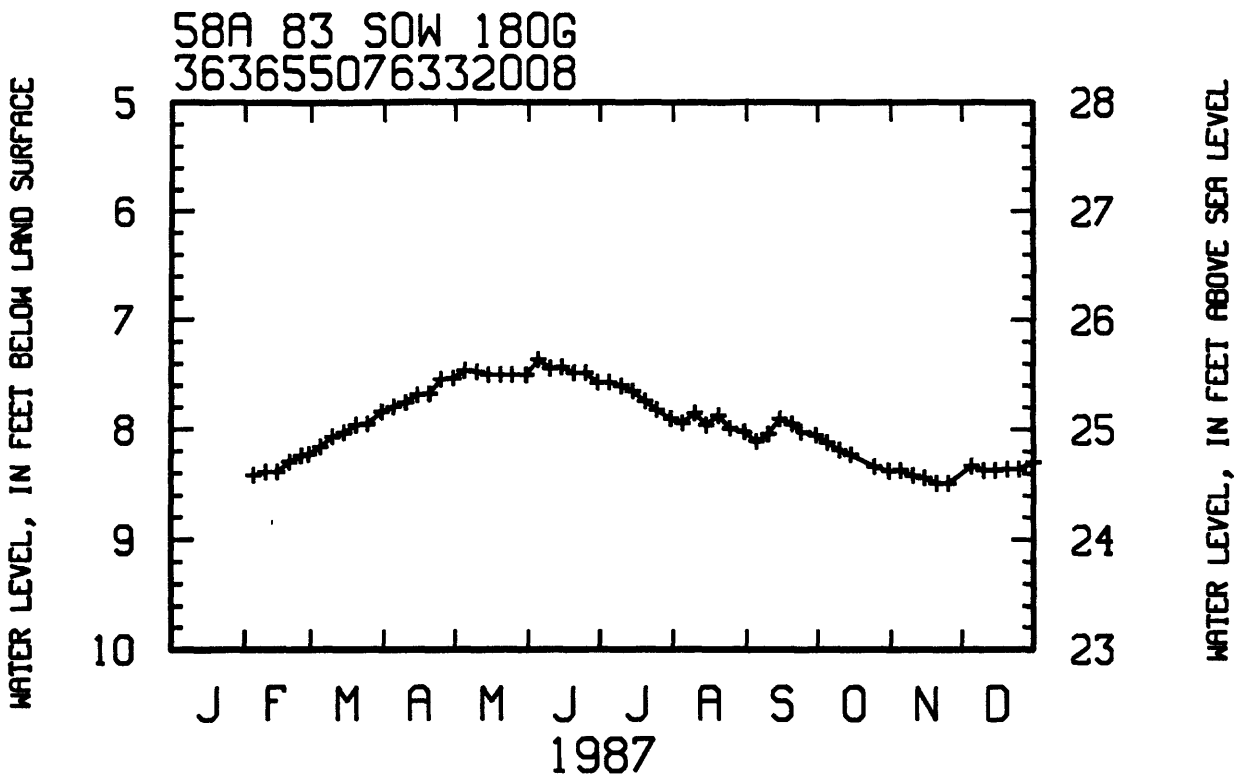

56H 30 SOW 177F
372506076511706
WATER LEVEL, IN FEET BELOW LAND SURFACE
15
16
17
18
19
20
21
22
23
24
25
90
89
88
87
86
85
84
83
82
81
80
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

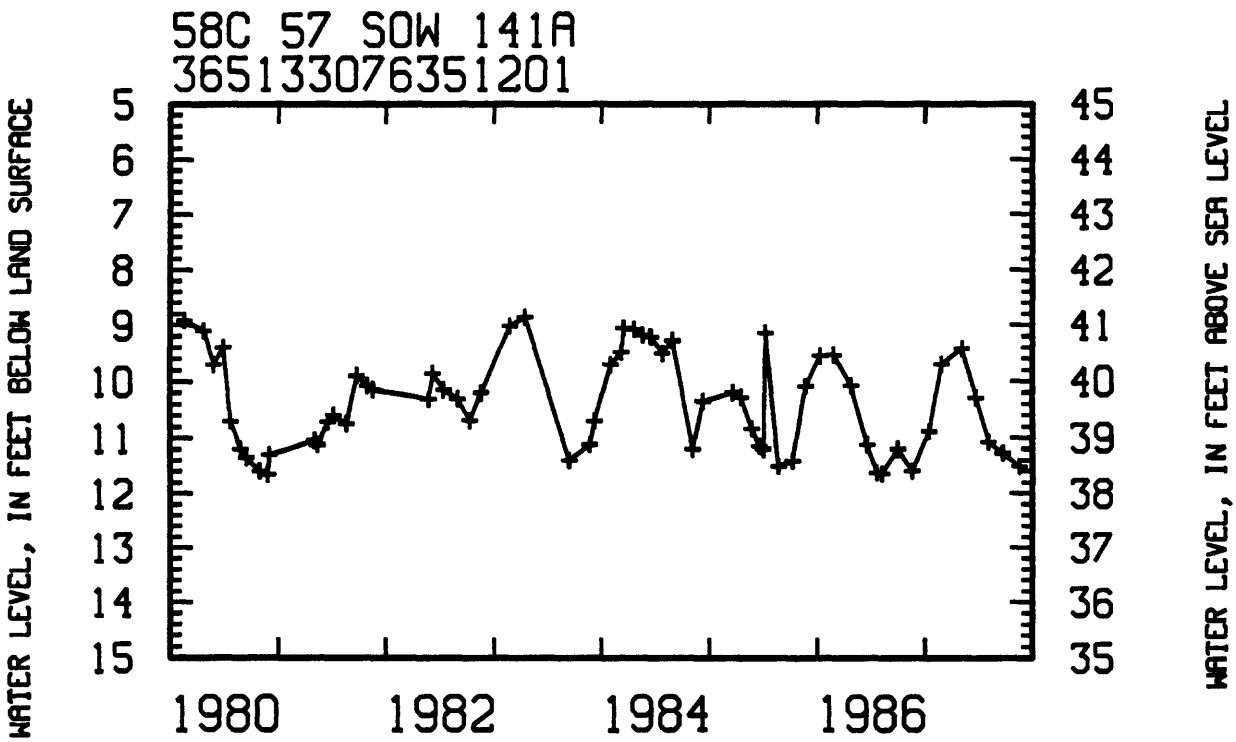

57B 8
363834076382301
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
55
54
53
52
51
50
49
48
47
46
45
1975
1978
1981
1984
1987

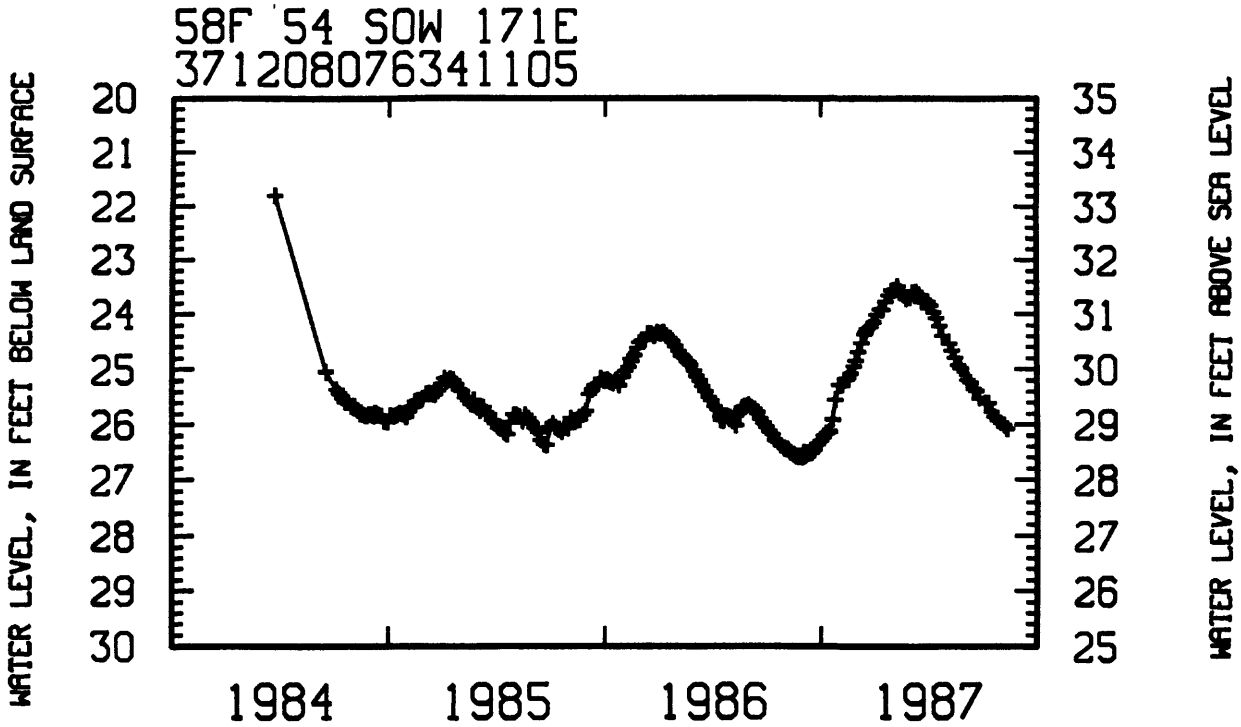

57B 9
363810076381001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
-10
-5
0
5
55
50
45
40
1975
1978
1981
1984
1987

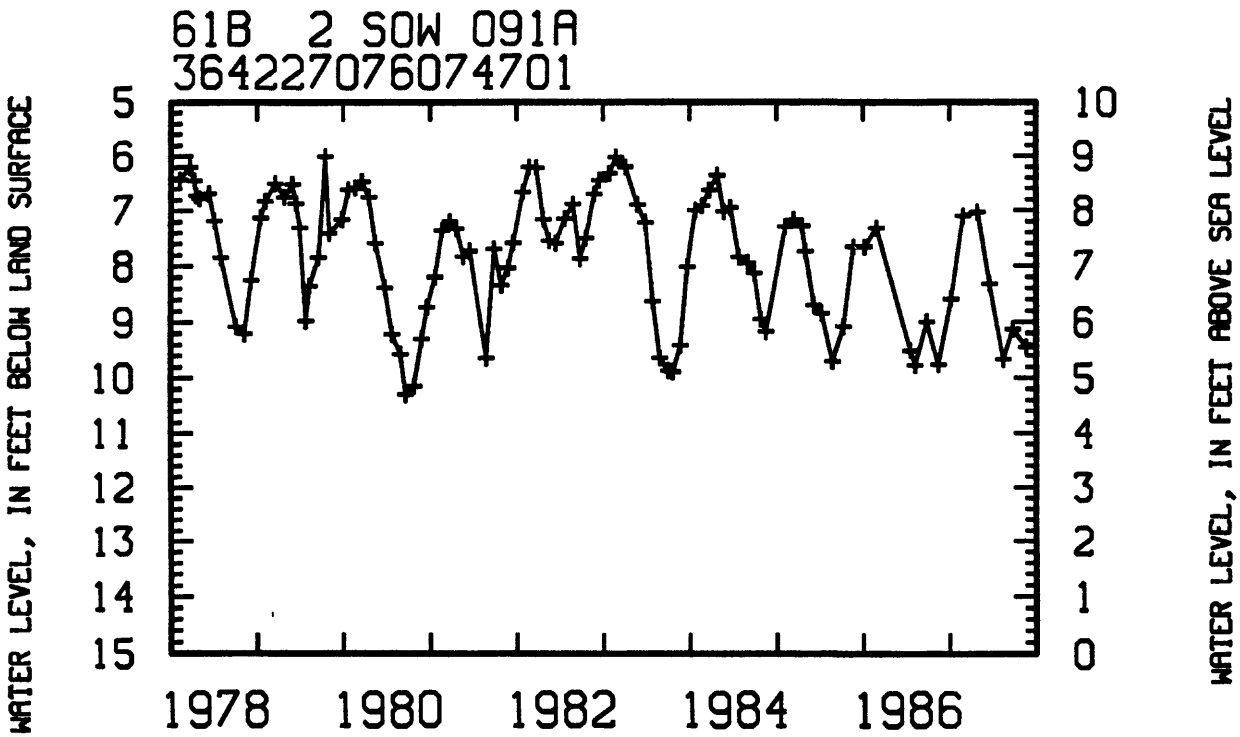

57E 13 SOW 094C
370712076413203
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
45
40
35
30
1978
1980
1982
1984
1986

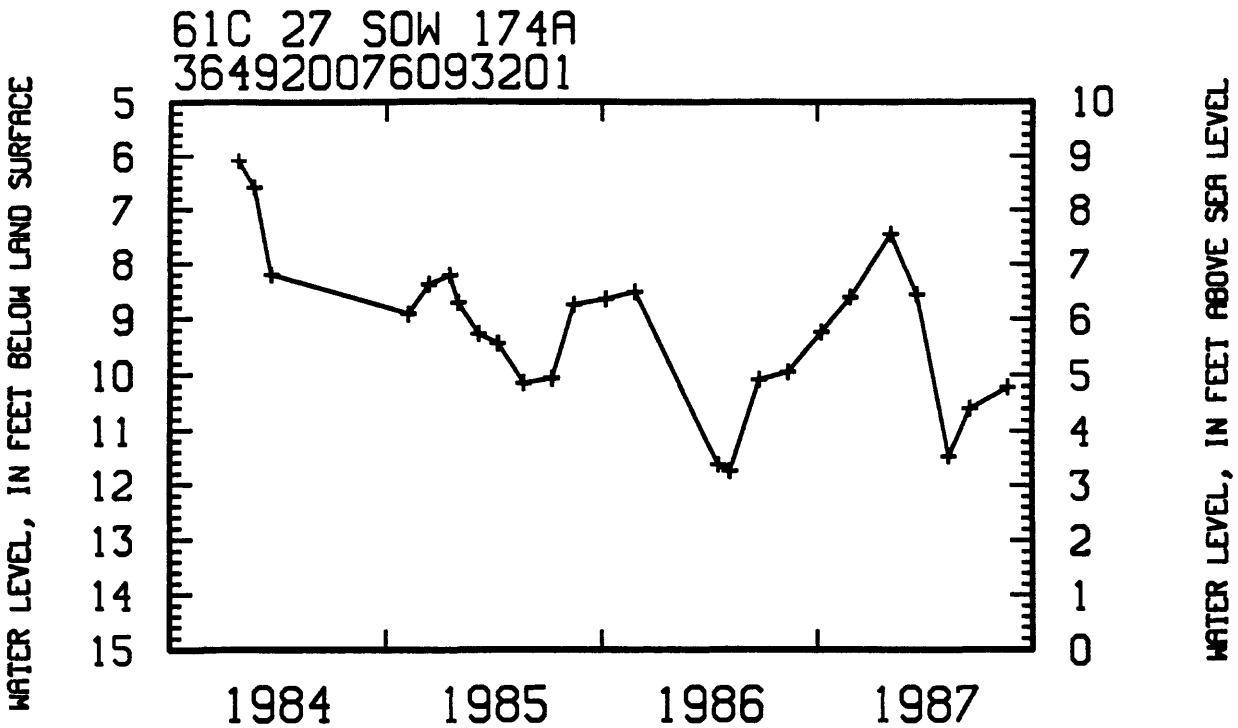

57H 14 SOW 095
372315076415001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
40
45
50
55
55
50
45
40
1978
1980
1982
1984
1986

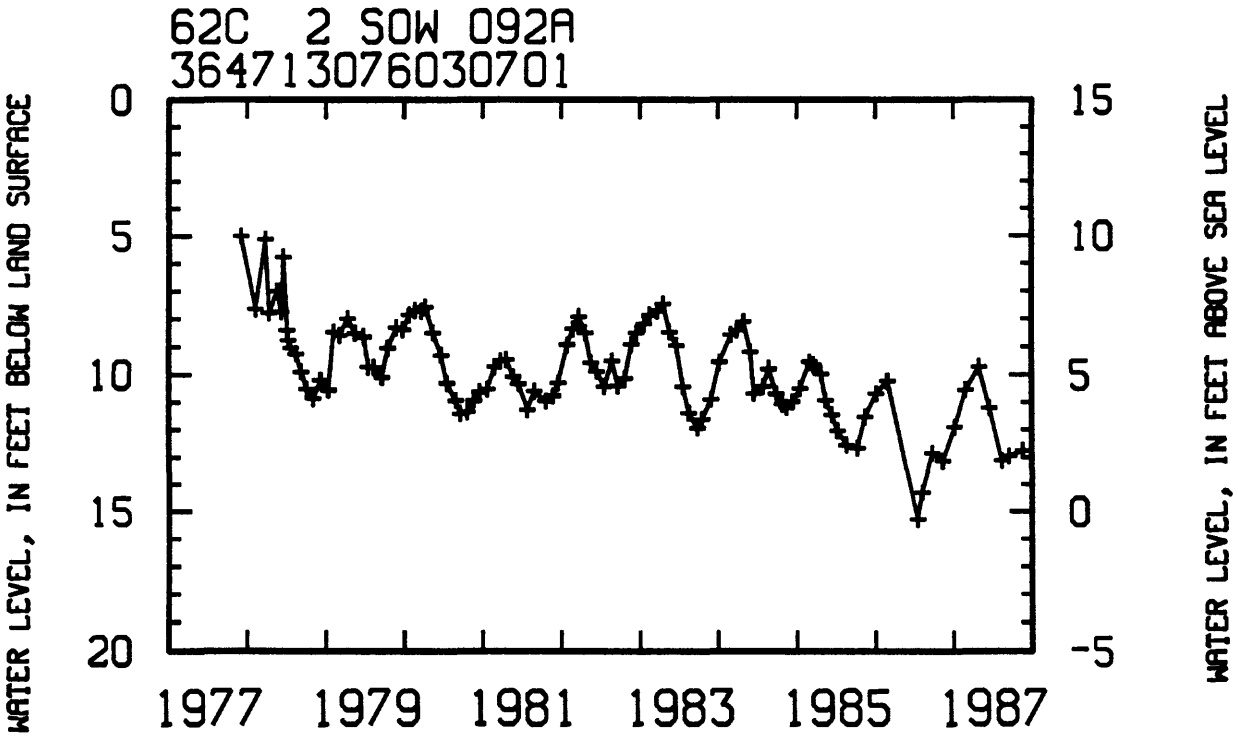

58A 83 SOW 180G
363655076332008
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
28
27
26
25
24
23
J F M A M J J A S O N D
1987

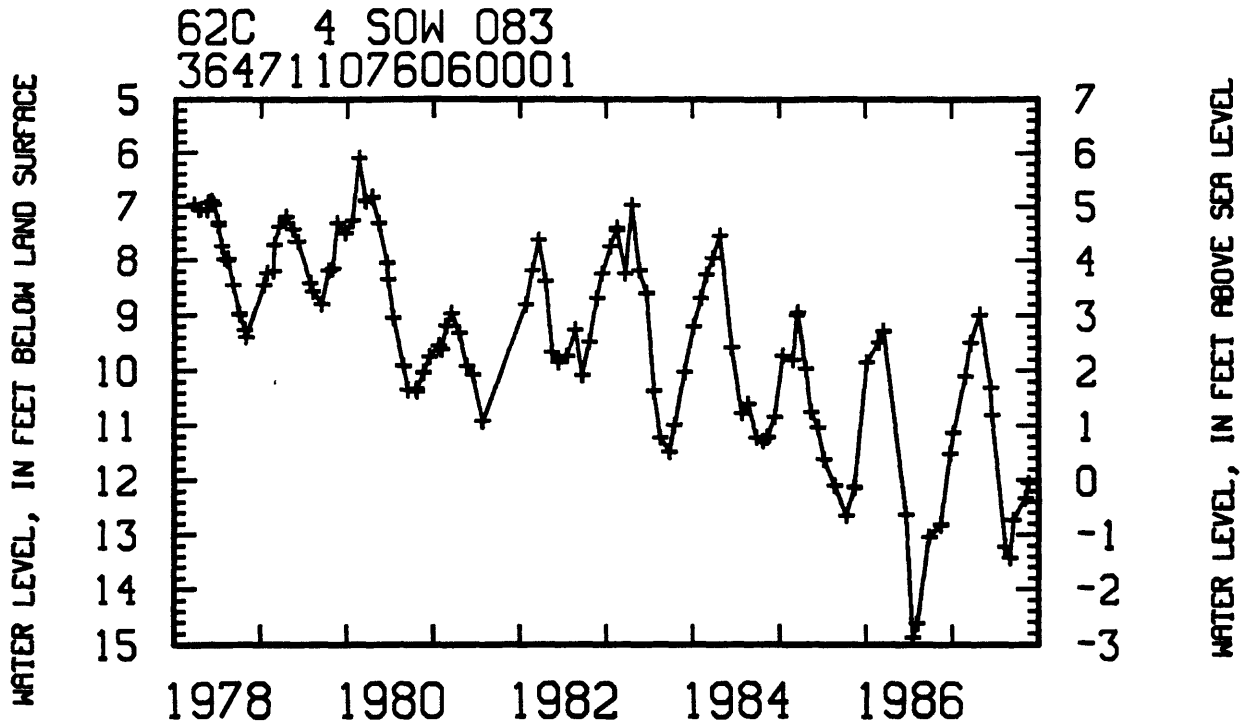

58C 57 SOW 141A
365133076351201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
45
44
43
42
41
40
39
38
37
36
35
1980
1982
1984
1986

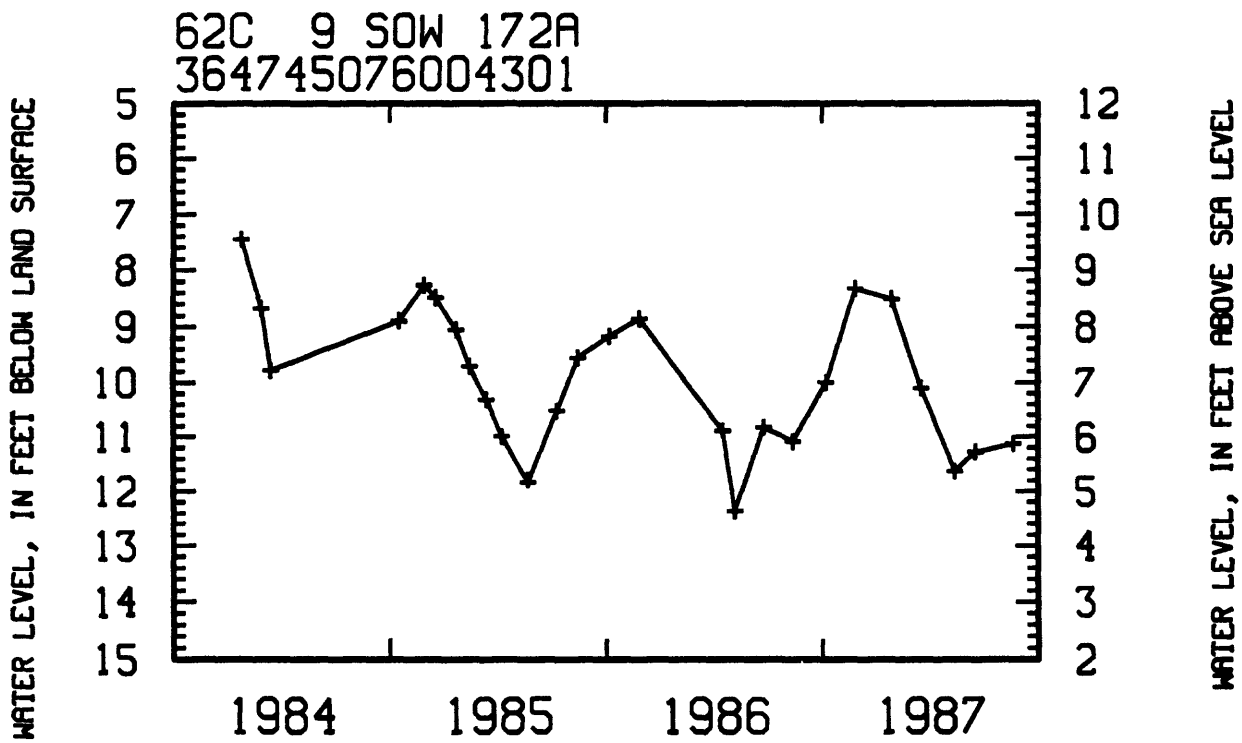

58F 54 SOW 171E
371208076341105
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
20
21
22
23
24
25
26
27
28
29
30
35
34
33
32
31
30
29
28
27
26
25
1984
1985
1986
1987

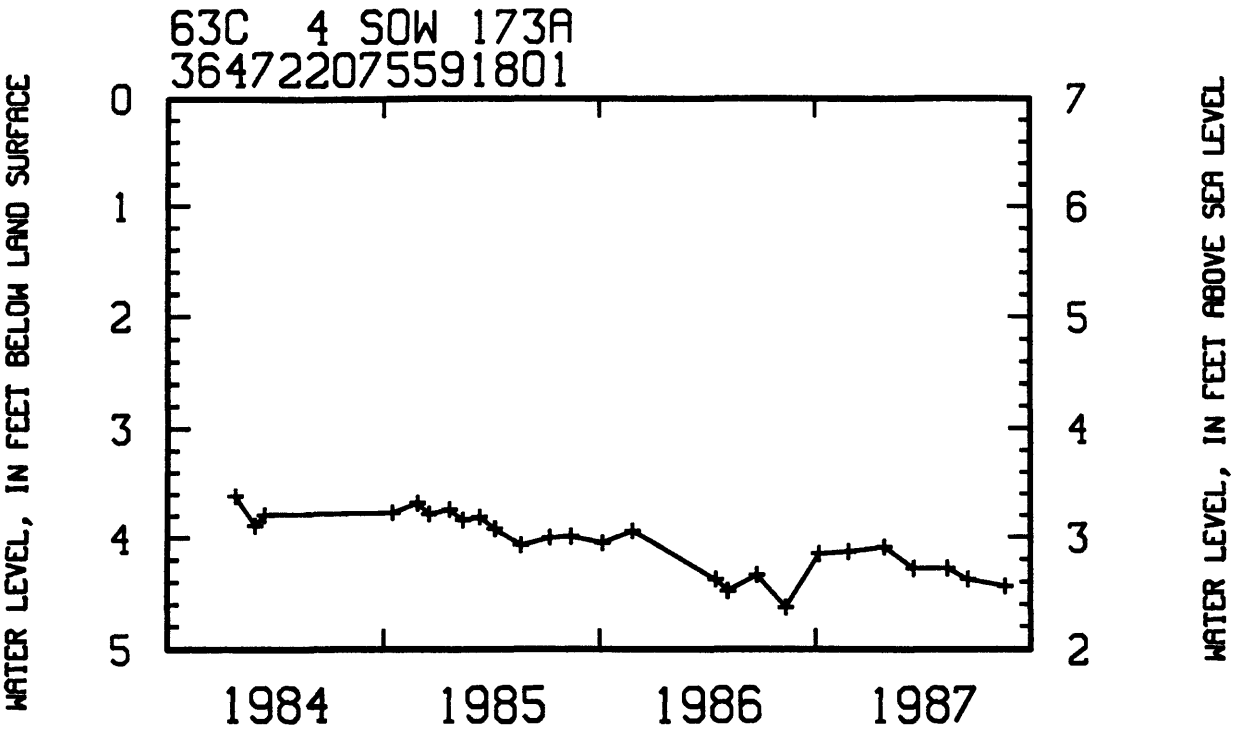

61B 2 SOW 091A
364227076074701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
10
9
8
7
6
5
4
3
2
1
0
1978
1980
1982
1984
1986


61C 27 SOW 174A
364920076093201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
10
9
8
7
6
5
4
3
2
1
0
1984
1985
1986
1987


62C 2 SOW 092A
364713076030701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
5
10
15
20
15
10
5
0
-5
1977
1979
1981
1983
1985
1987


62C 4 SOW 083
364711076060001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
7
6
5
4
3
2
1
0
-1
-2
-3
1978
1980
1982
1984
1986


62C 9 SOW 172A
364745076004301
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
6
7
8
9
10
11
12
13
14
15
12
11
10
9
8
7
6
5
4
3
2
1984
1985
1986
1987

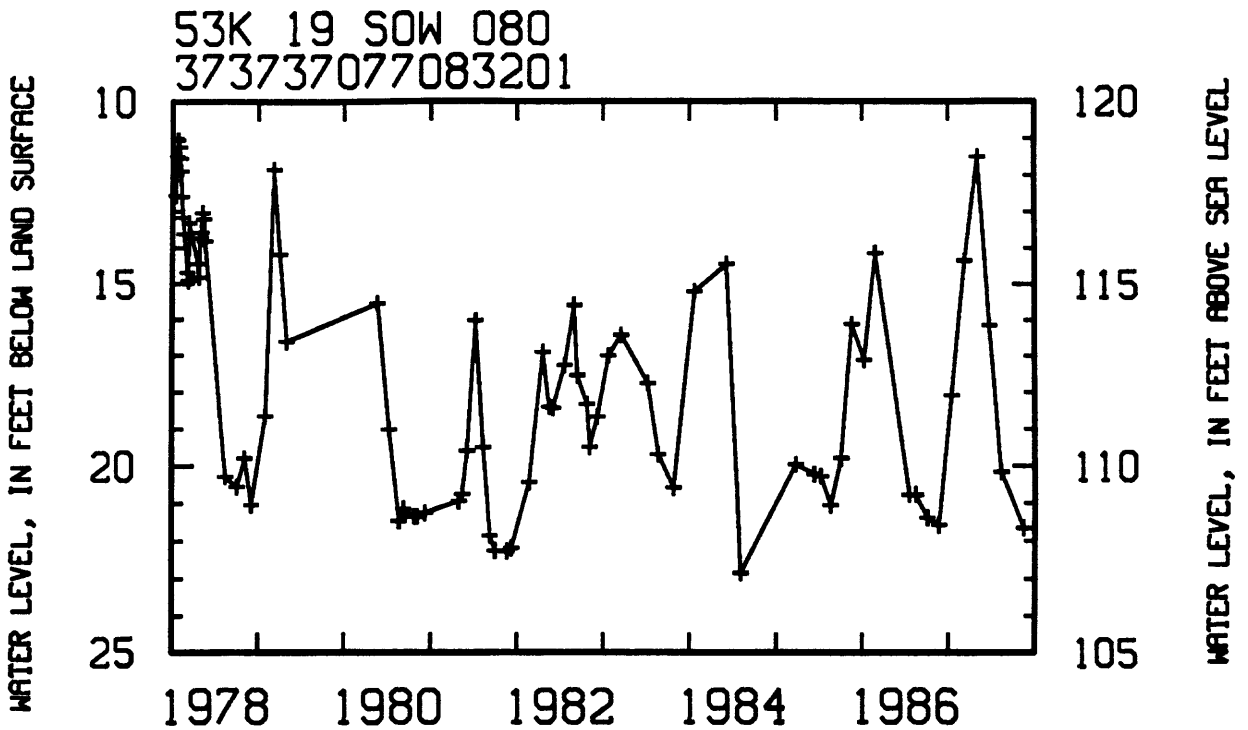

63C 4 SOW 173A
364722075591801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
7
6
5
4
3
2
1984
1985
1986
1987

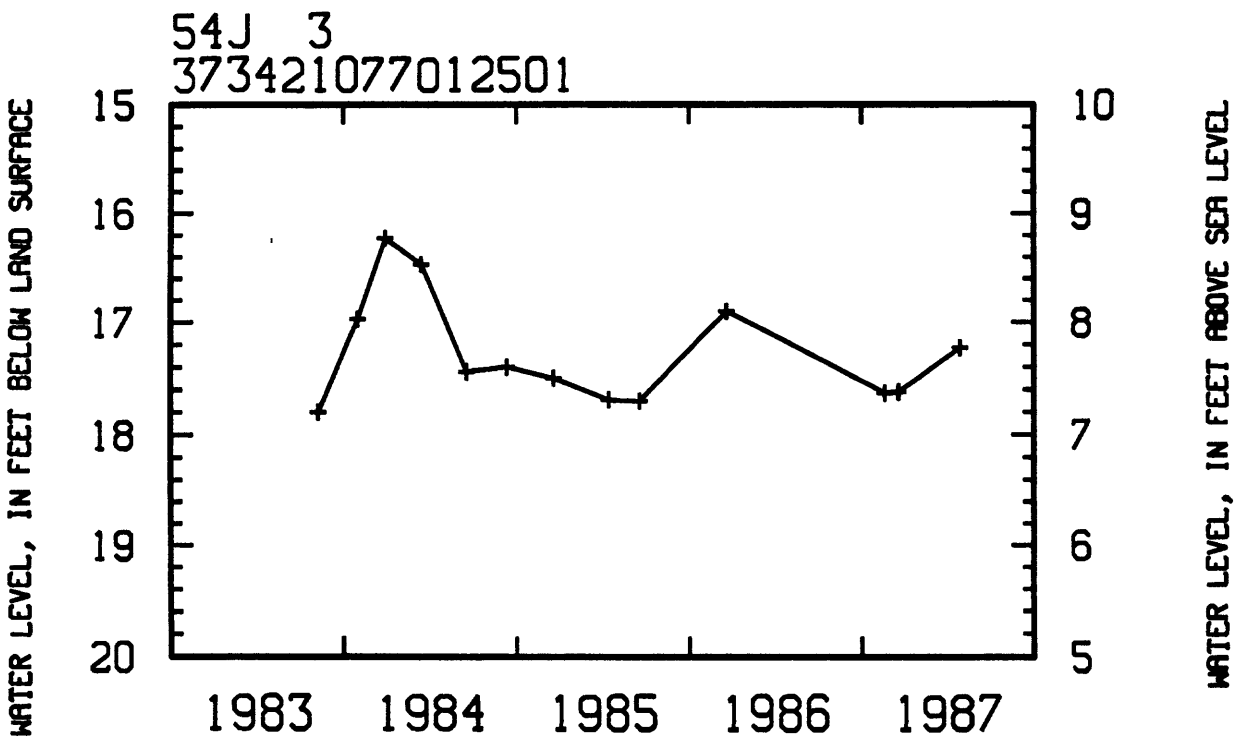
APPENDIX III

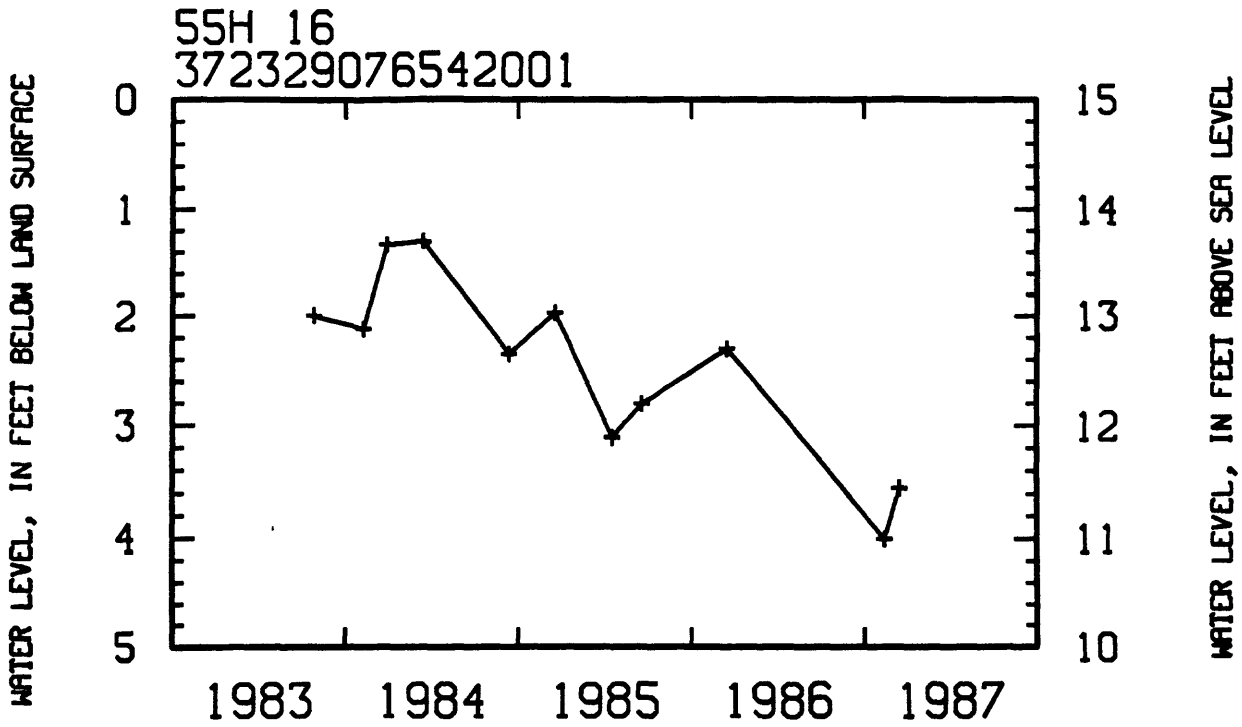
WATER LEVELS IN WELLS IN THE CHICKAHOMINY-PINEY POINT AQUIFER

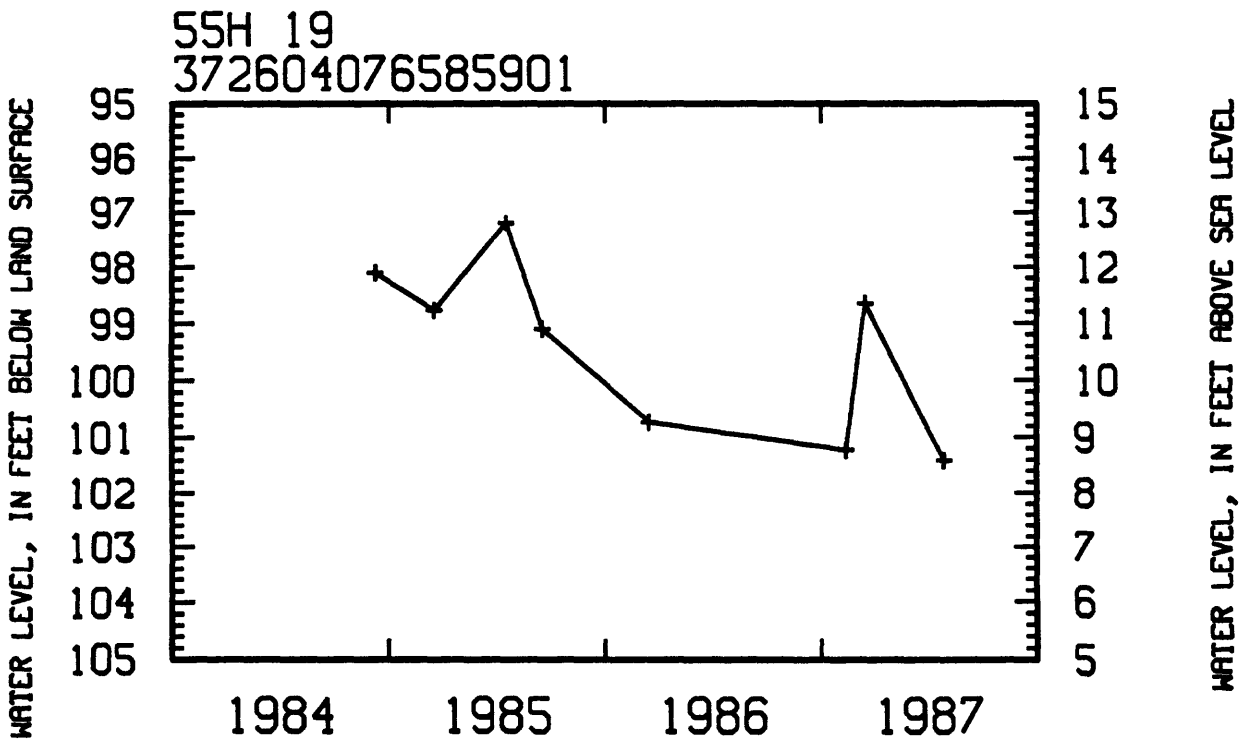
EXPLANATION

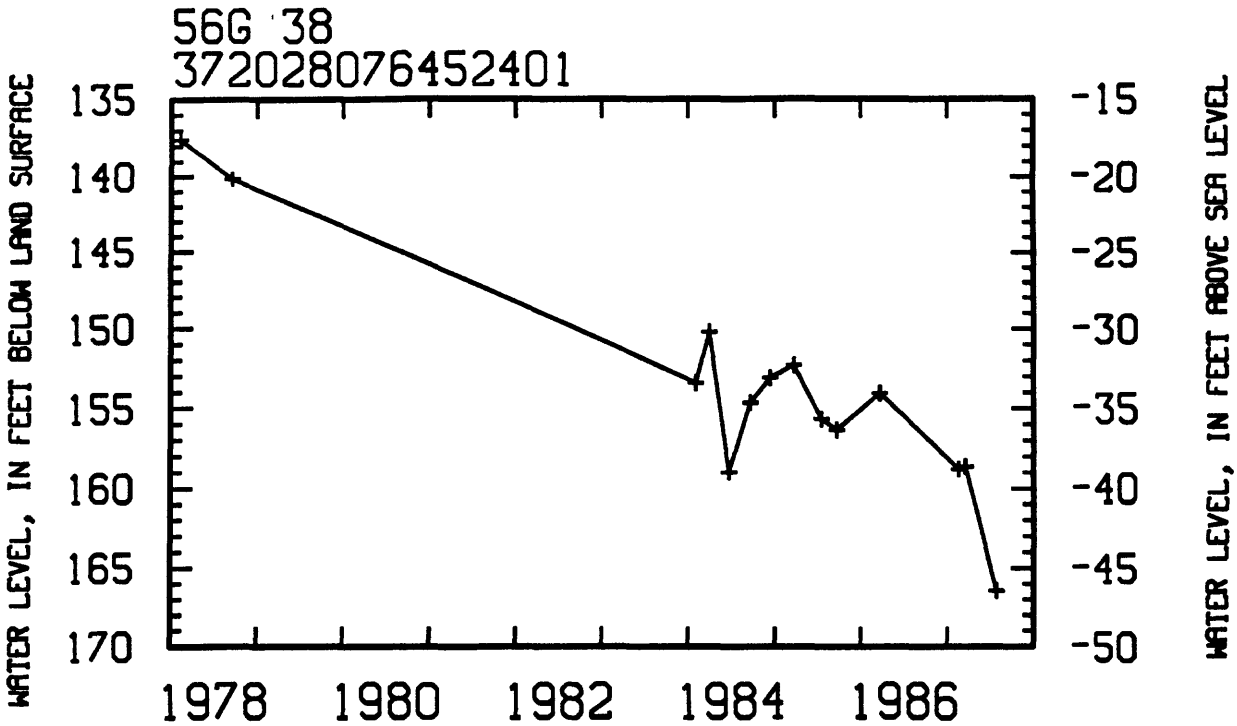
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
53K 19--USGS WELL NO.
SOW 080--VIRGINIA STATE OBSERVATION WELL NO.
373737077083201--STATION IDENTIFICATION NO.

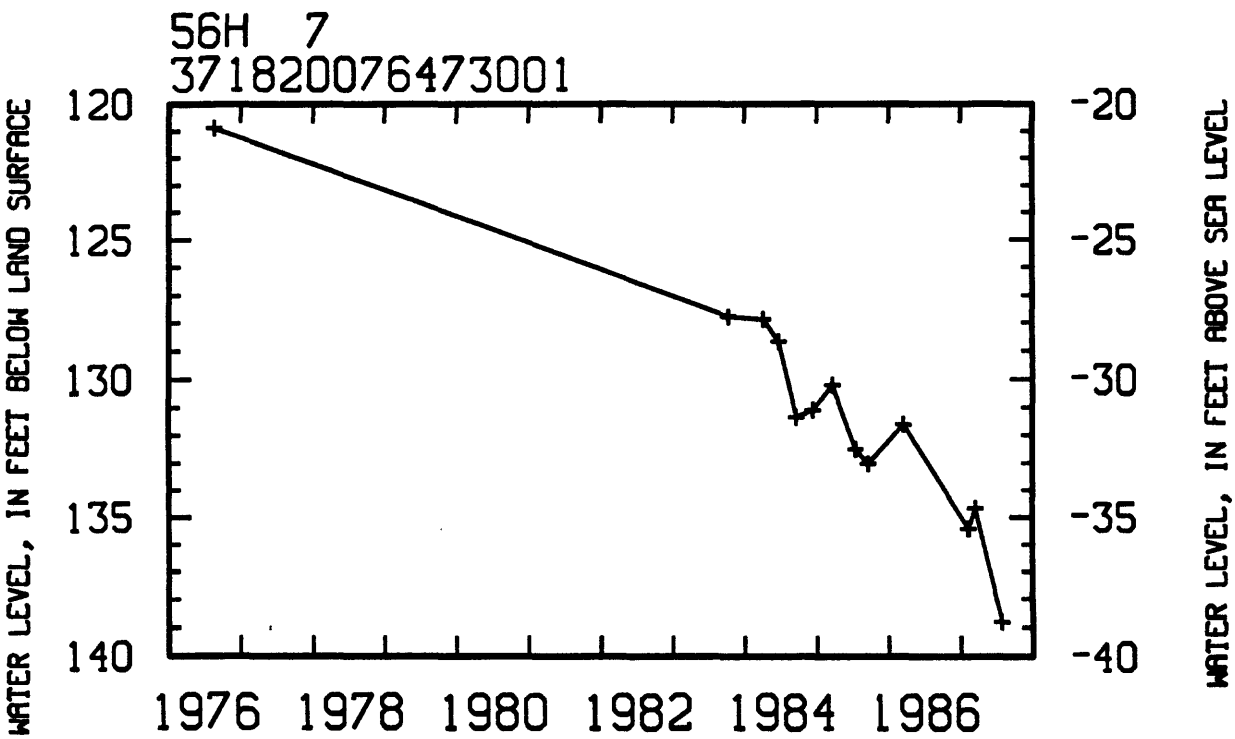

53K 19 SOW 080
373737077083201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
10
15
20
25
120
115
110
105
1978
1980
1982
1984
1986

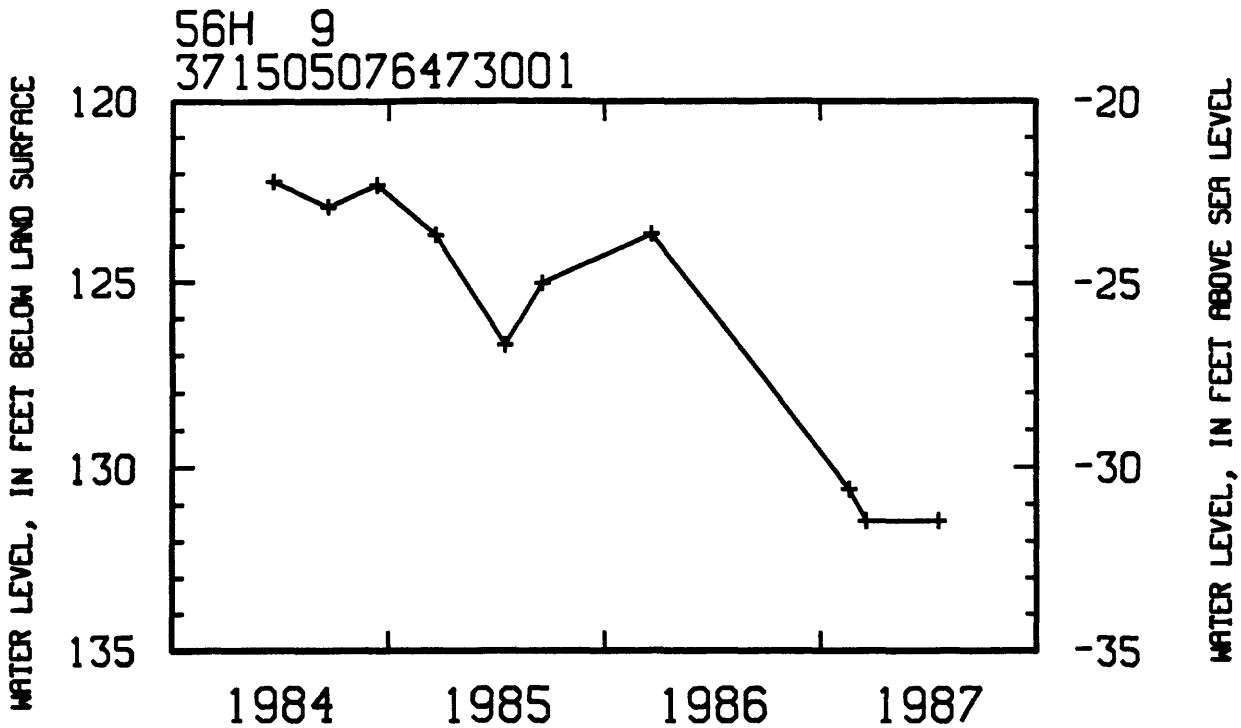

54J 3
373421077012501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
15
16
17
18
19
20
10
9
8
7
6
5
1983
1984
1985
1986
1987

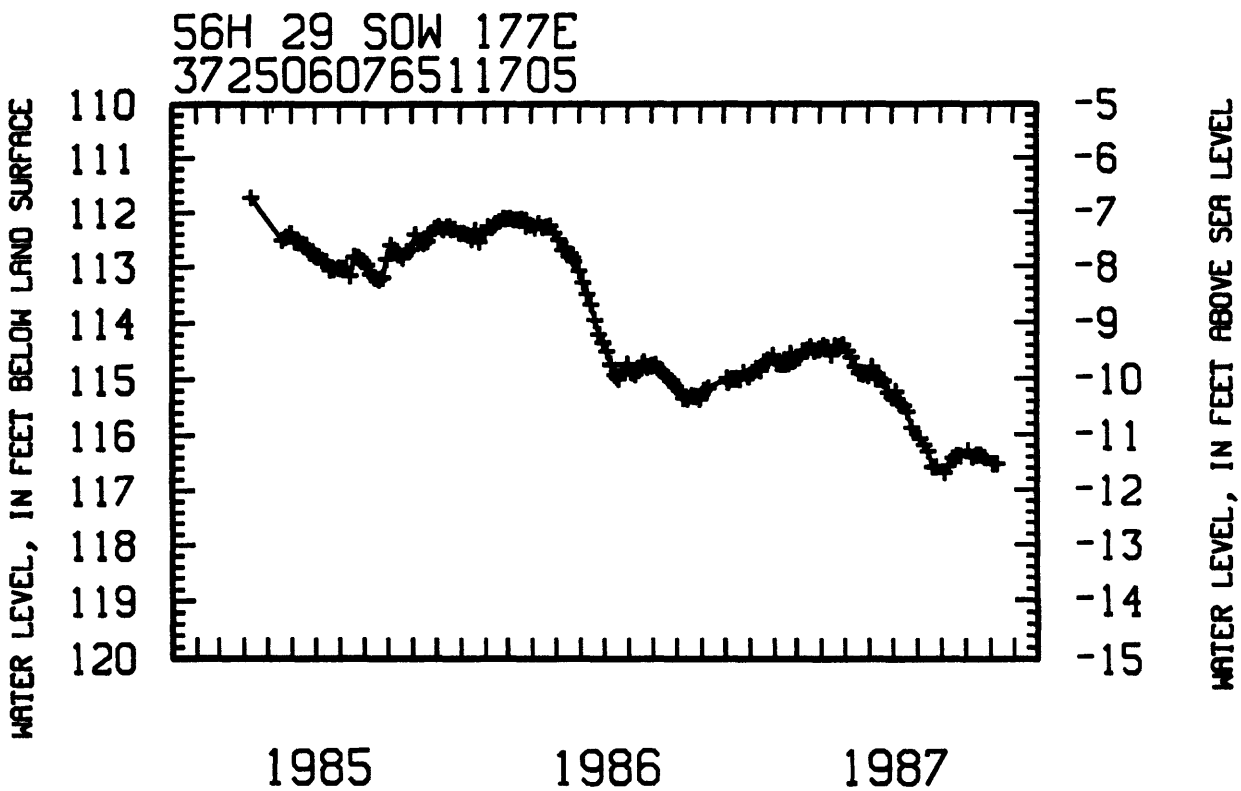

55H 16
372329076542001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
0
1
2
3
4
5
15
14
13
12
11
10
1983
1984
1985
1986
1987

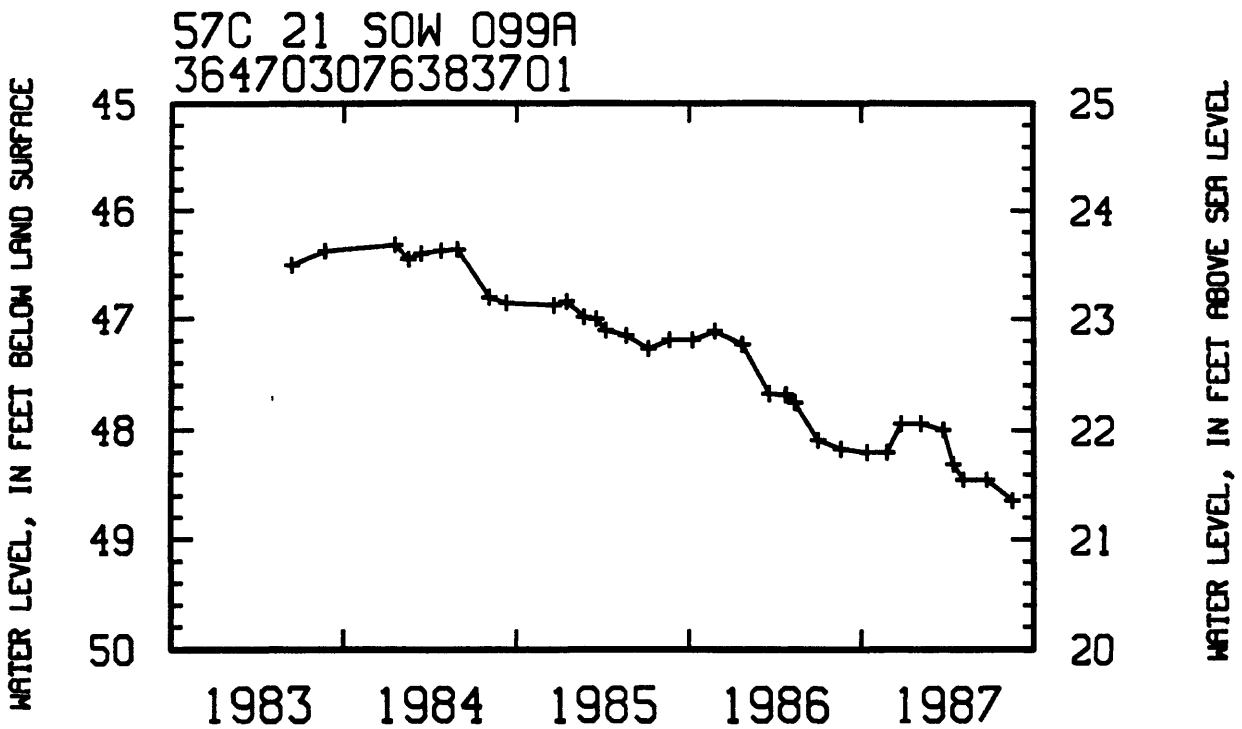

55H 19
372604076585901
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
95
96
97
98
99
100
101
102
103
104
105
15
14
13
12
11
10
9
8
7
6
5
1984
1985
1986
1987

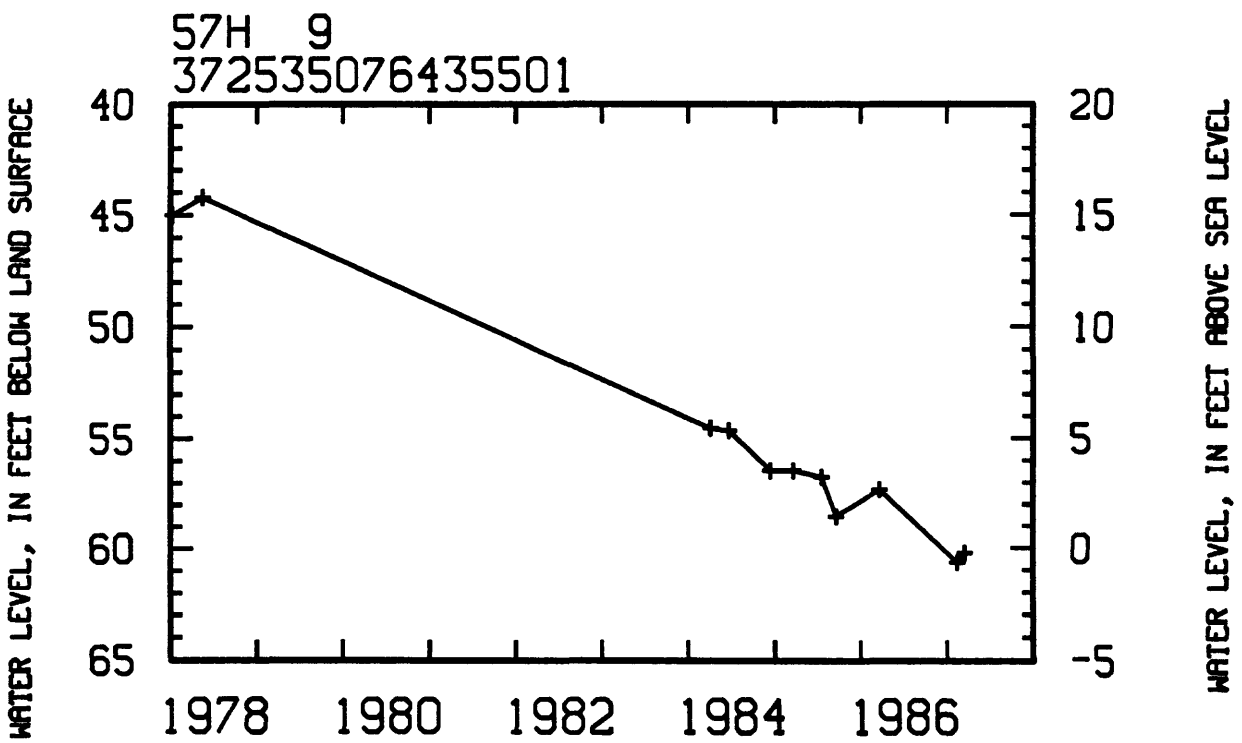

56G 38
372028076452401
WATER LEVEL, IN FEET BELOW LAND SURFACE
135
140
145
150
155
160
165
170
-15
-20
-25
-30
-35
-40
-45
-50
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1978
1980
1982
1984
1986

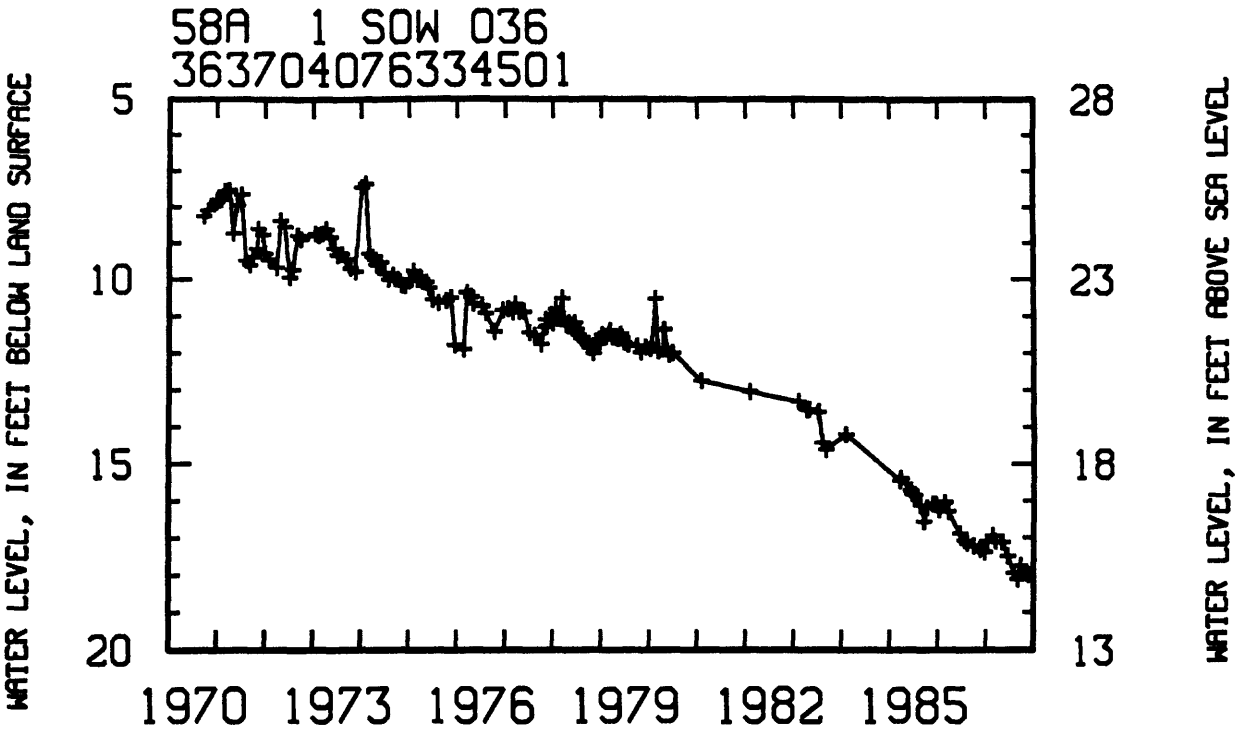

56H 7
371820076473001
WATER LEVEL, IN FEET BELOW LAND SURFACE
120
125
130
135
140
-20
-25
-30
-35
-40
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1976
1978
1980
1982
1984
1986

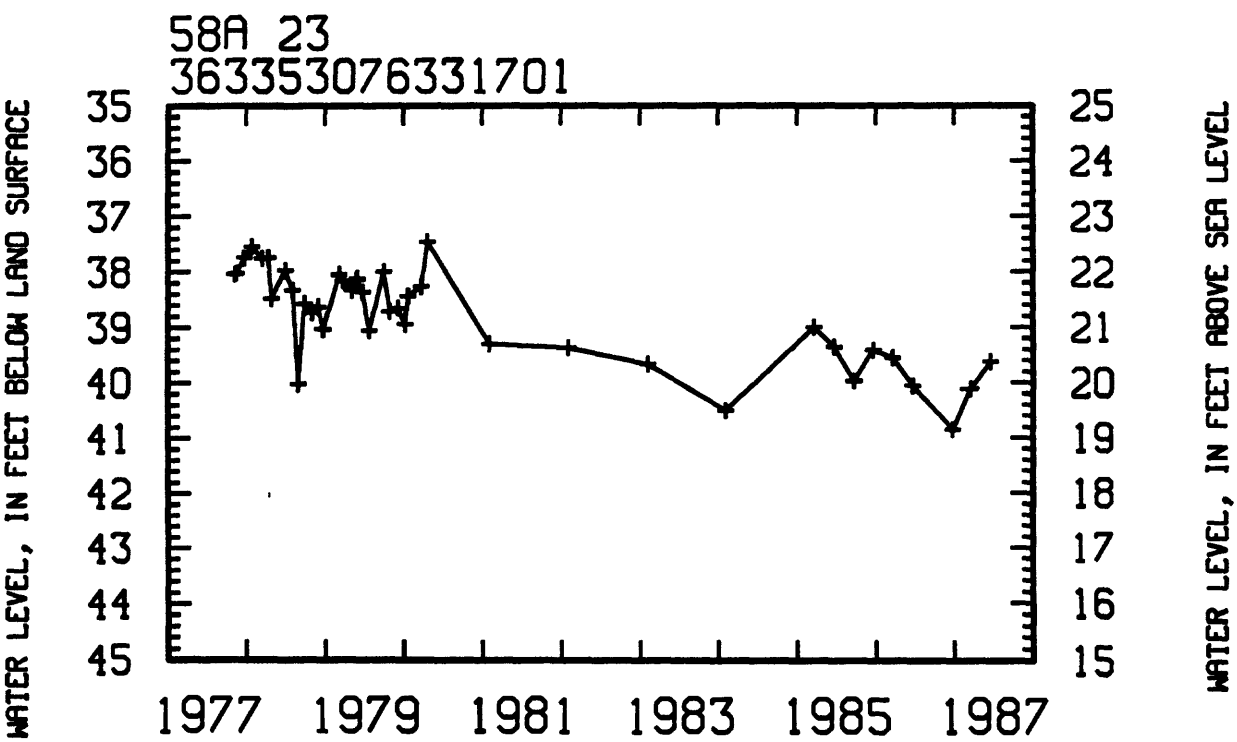

56H 9
371505076473001
WATER LEVEL, IN FEET BELOW LAND SURFACE
120
125
130
135
-20
-25
-30
-35
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987


56H 29 SOW 177E
372506076511705
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
111
112
113
114
115
116
117
118
119
120
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


57C 21 SOW 099A
364703076383701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
45
46
47
48
49
50
25
24
23
22
21
20
1983
1984
1985
1986
1987


57H 9
372535076435501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
40
45
50
55
60
65
20
15
10
5
0
-5
1978
1980
1982
1984
1986


58A 1 SOW 036
363704076334501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
10
15
20
28
23
18
13
1970 1973 1976 1979 1982 1985


58A 23
363353076331701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
35
36
37
38
39
40
41
42
43
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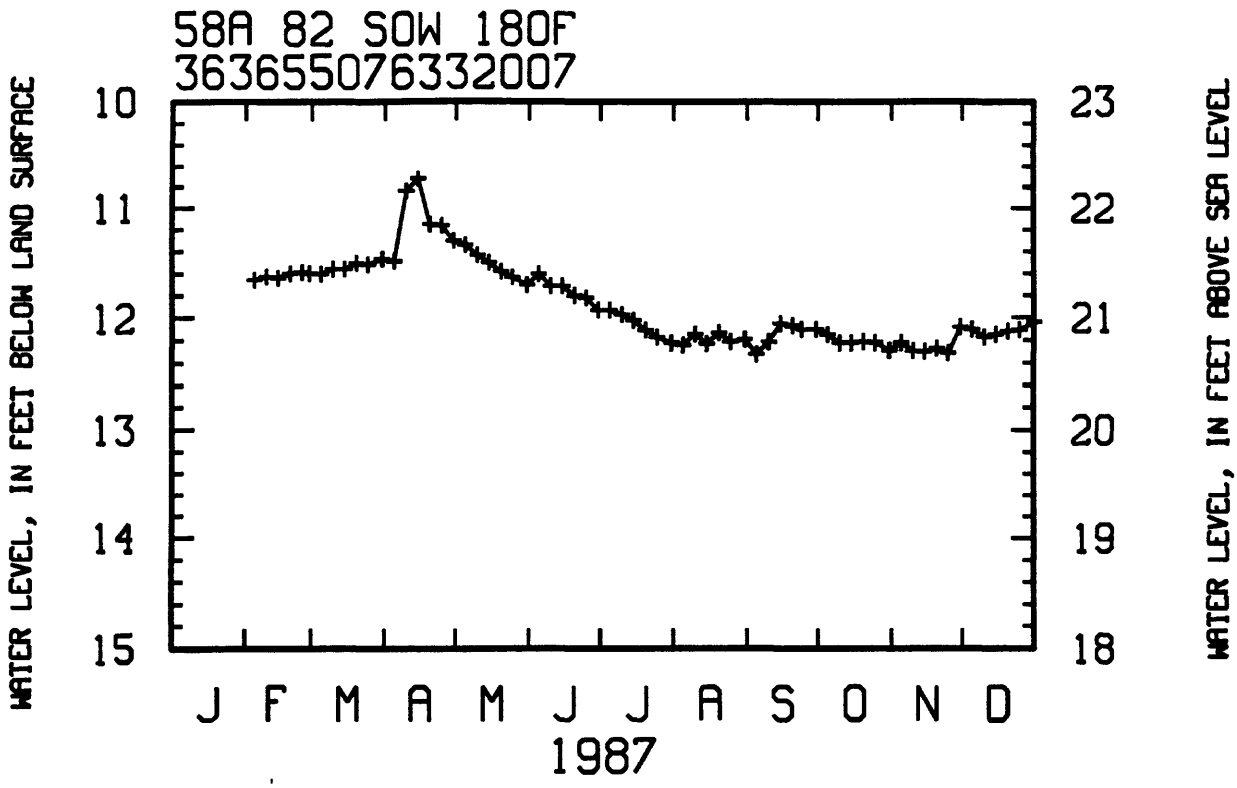
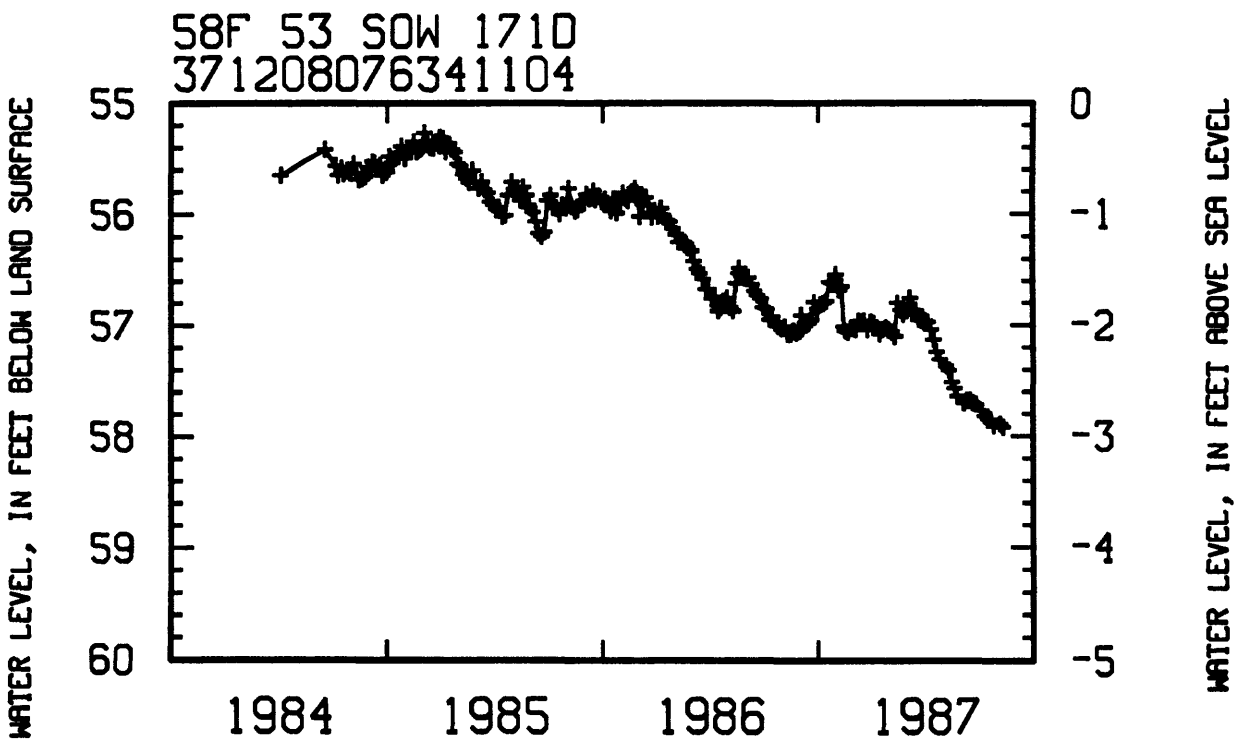
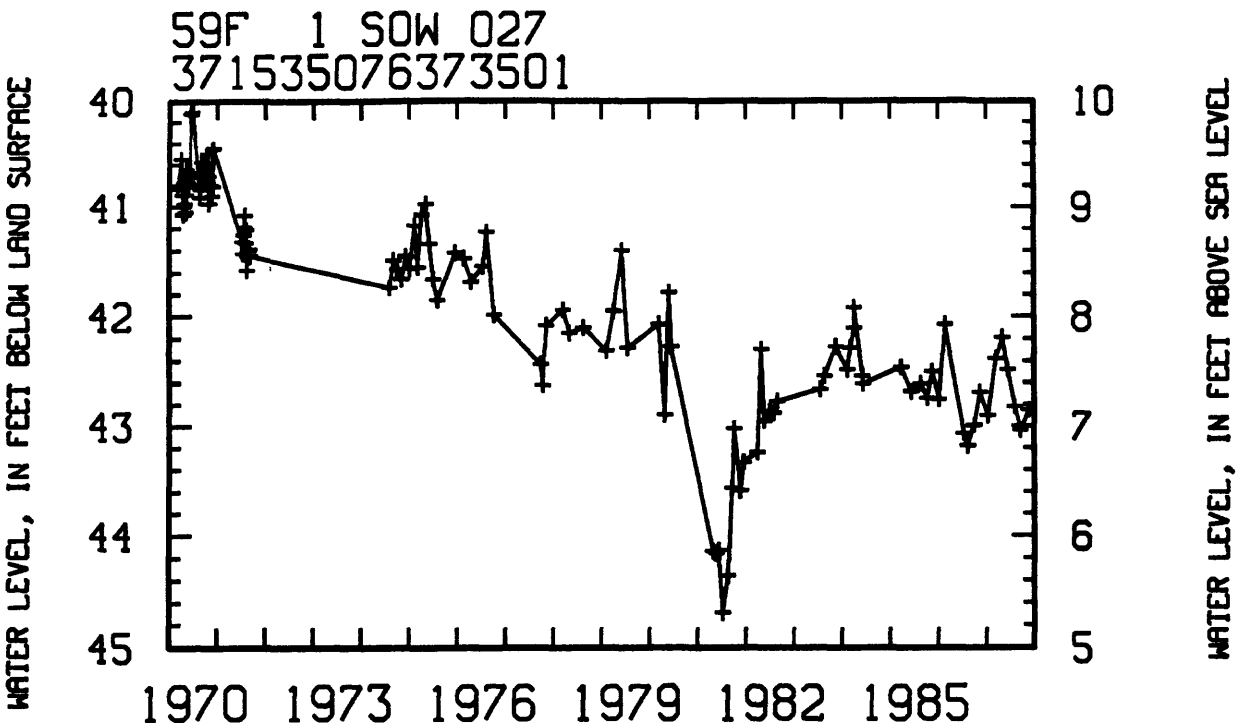
16
15
1977 1979 1981 1983 1985 1987


58A 82 SOW 180F
363655076332007
WATER LEVEL, IN FEET BELOW LAND SURFACE
10
11
12
13
14
15
23
22
21
20
19
18
WATER LEVEL, IN FEET ABOVE SEA LEVEL
J F M A M J J A S O N D
1987


58F 53 SOW 171D
371208076341104
WATER LEVEL, IN FEET BELOW LAND SURFACE
55
56
57
58
59
60
0
-1
-2
-3
-4
-5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

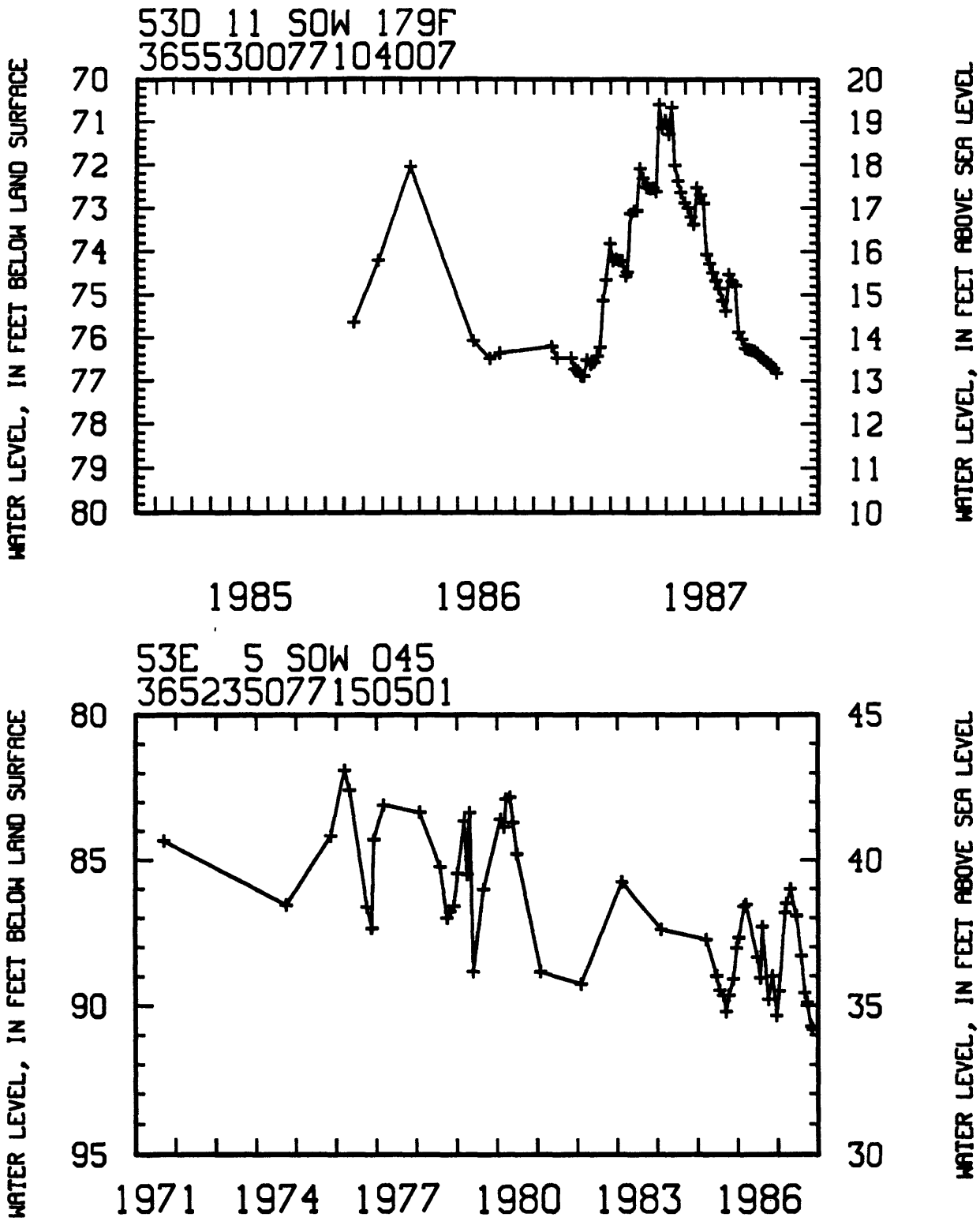

59F 1 SOW 027
371535076373501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
40
41
42
43
44
45
10
9
8
7
6
5
1970 1973 1976 1979 1982 1985

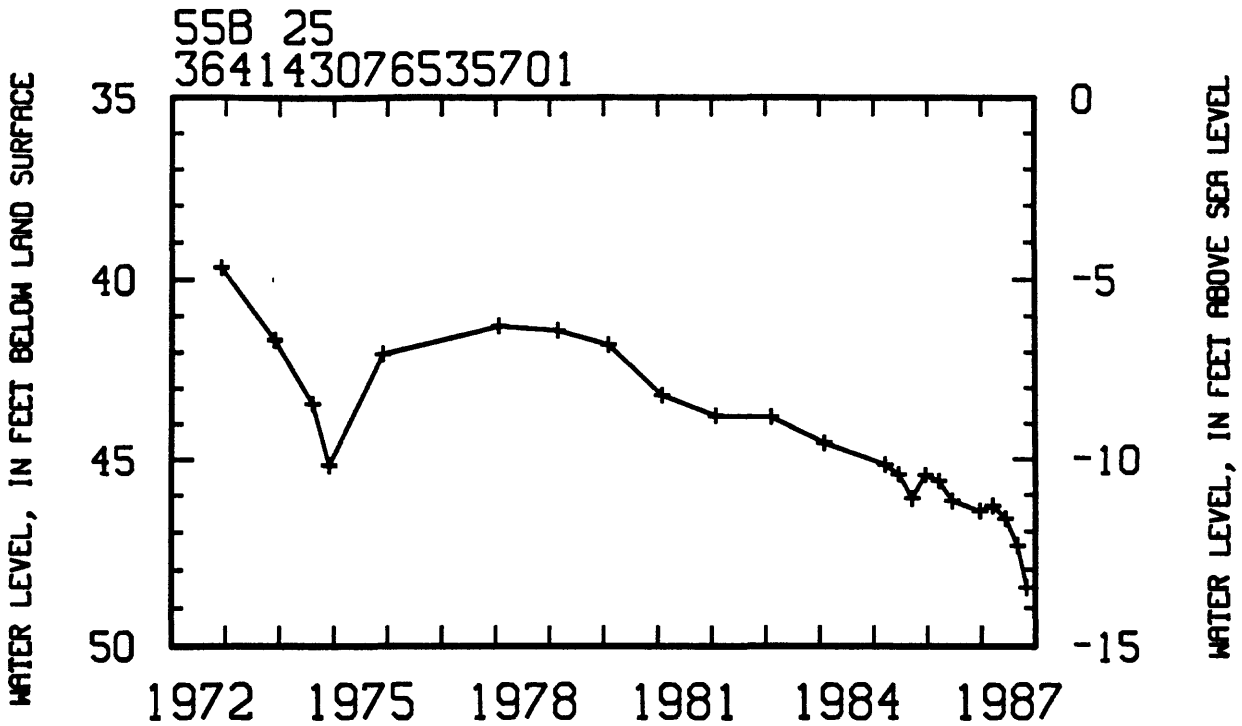
APPENDIX IV

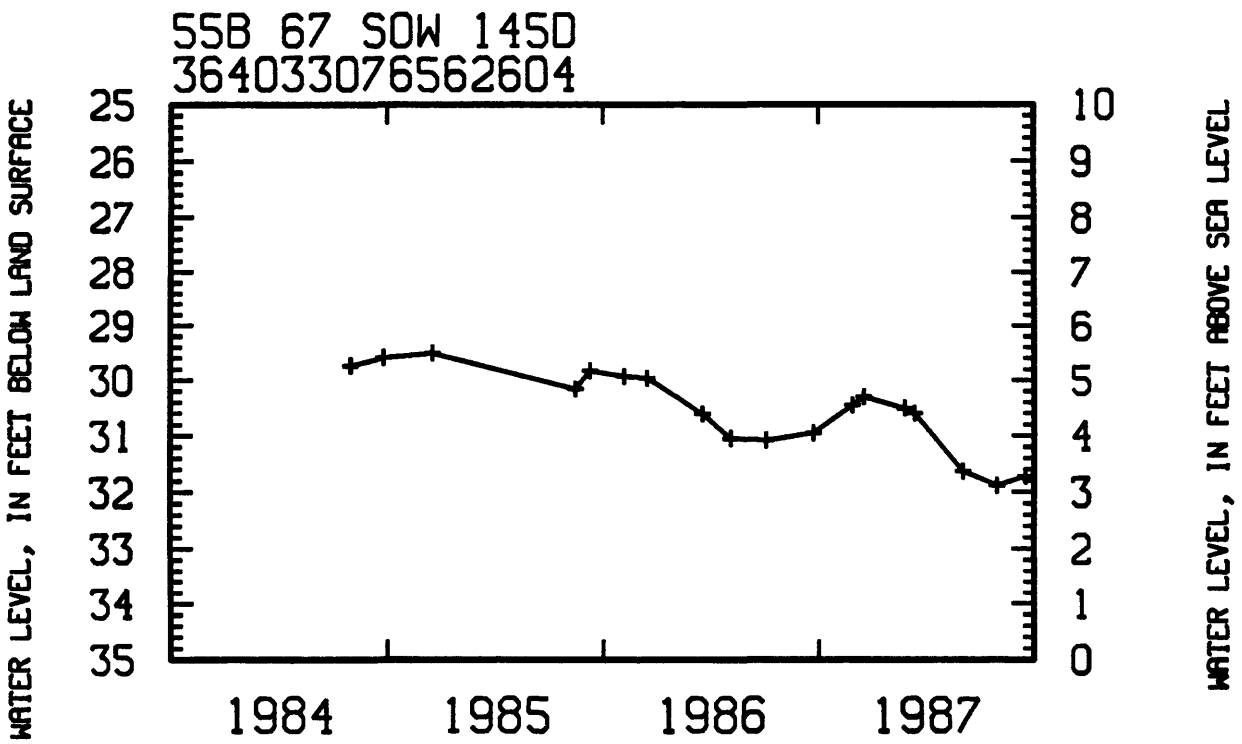
WATER LEVELS IN WELLS IN THE AQUIA AQUIFER

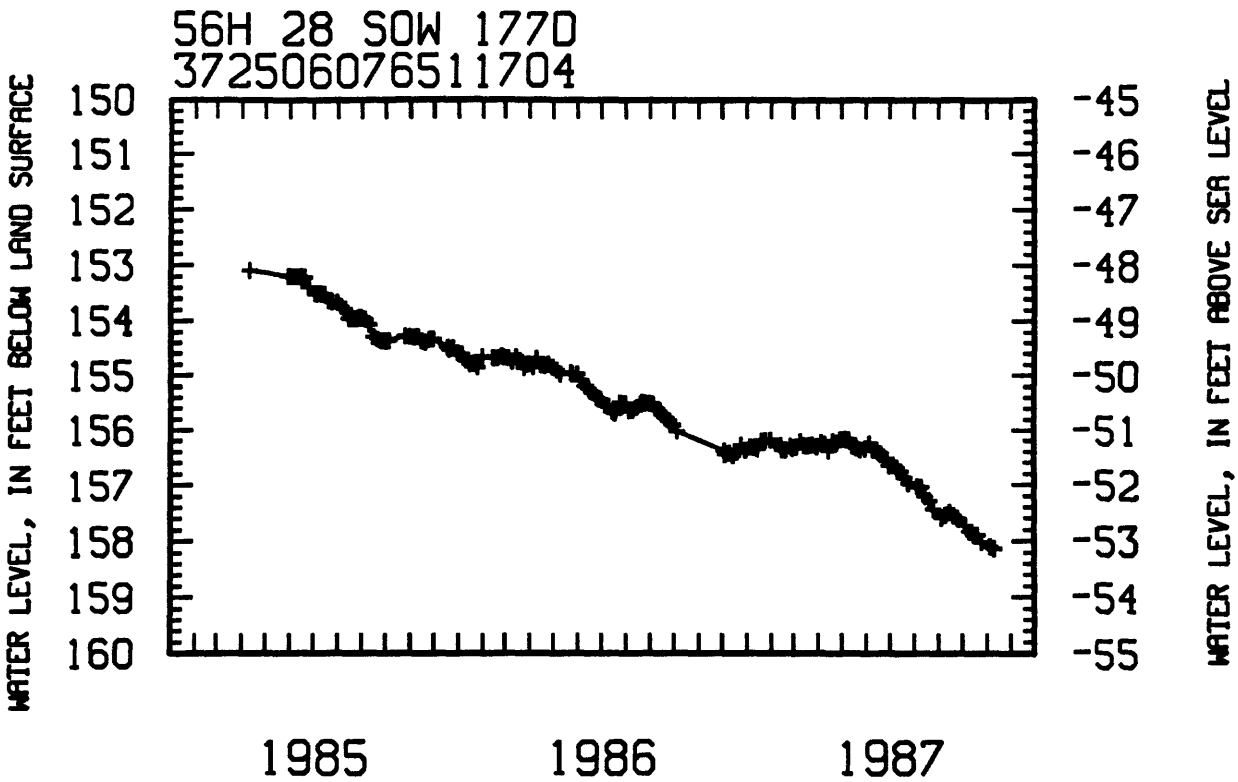
EXPLANATION

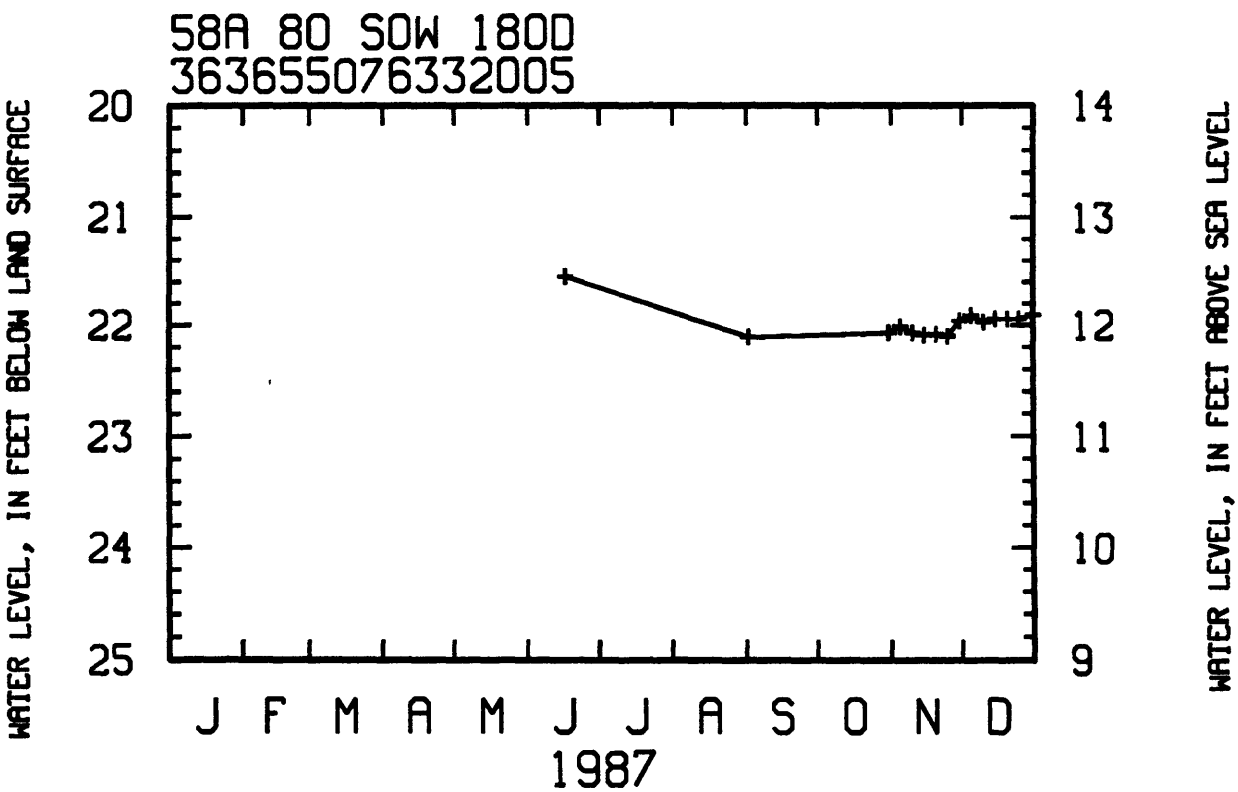
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
53D 11--USGS WELL NO.
SOW 179F--VIRGINIA STATE OBSERVATION WELL NO.
365530077104007--STATION IDENTIFICATION NO.

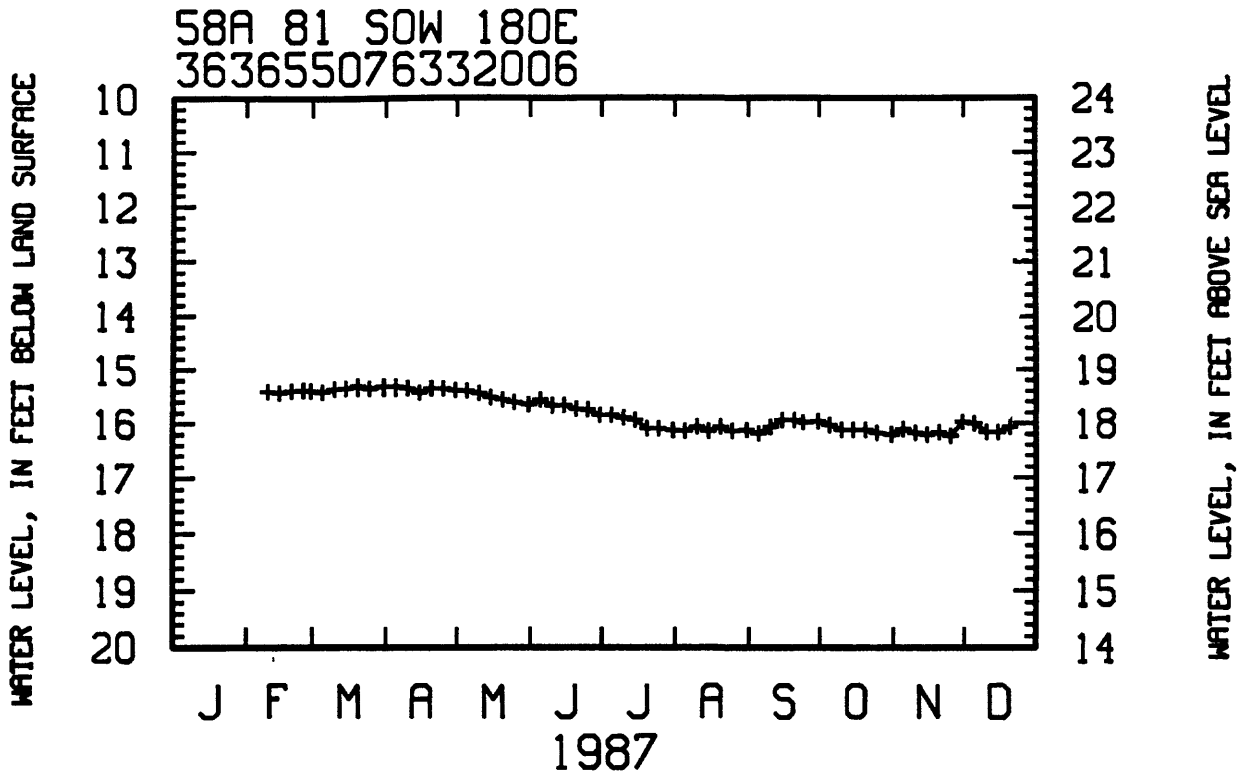

53D 11 SOW 179F
365530077104007
WATER LEVEL, IN FEET BELOW LAND SURFACE
70
71
72
73
74
75
76
77
78
79
80
20
19
18
17
16
15
14
13
12
11
10
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987
53E 5 SOW 045
3652350771505O1
WATER LEVEL, IN FEET BELOW LAND SURFACE
80
85
90
95
45
40
35
30
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1971
1974
1977
1980
1983
1986

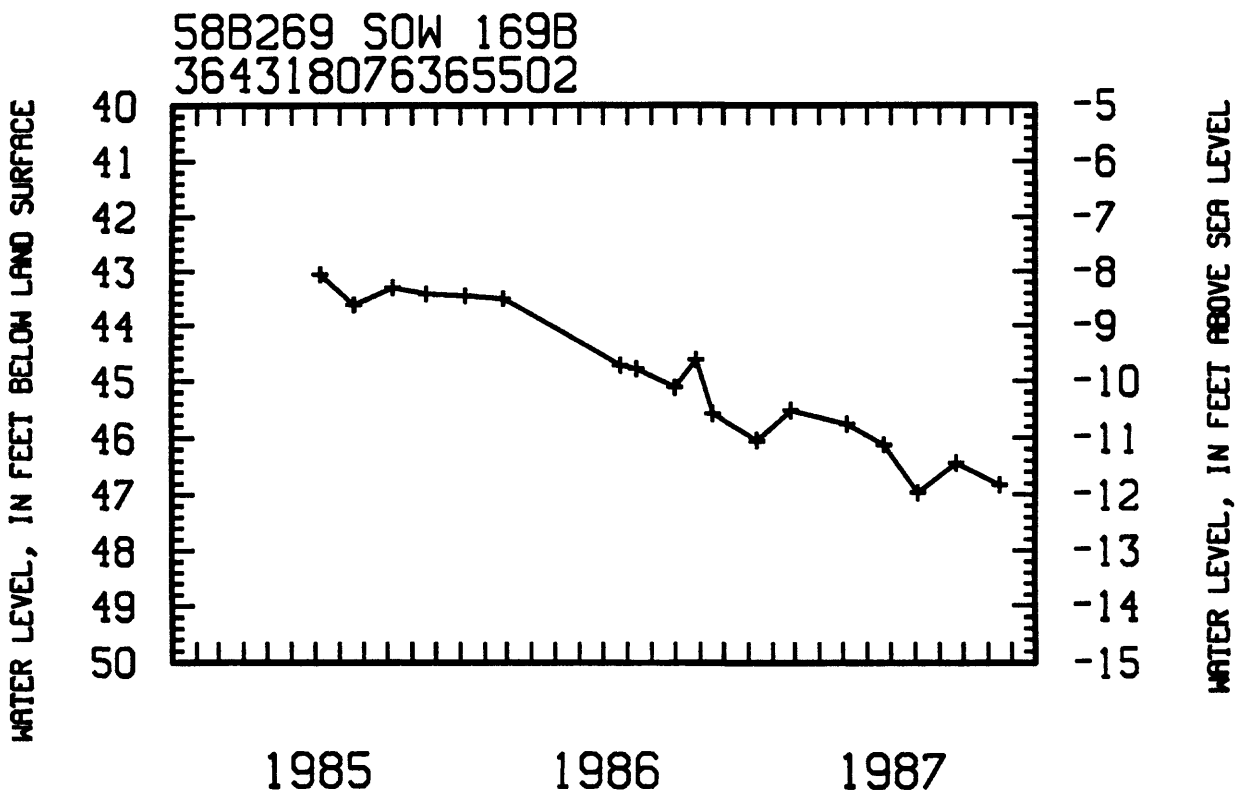

55B 25
364143076535701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
35
40
45
50
0
-5
-10
-15
1972
1975
1978
1981
1984
1987

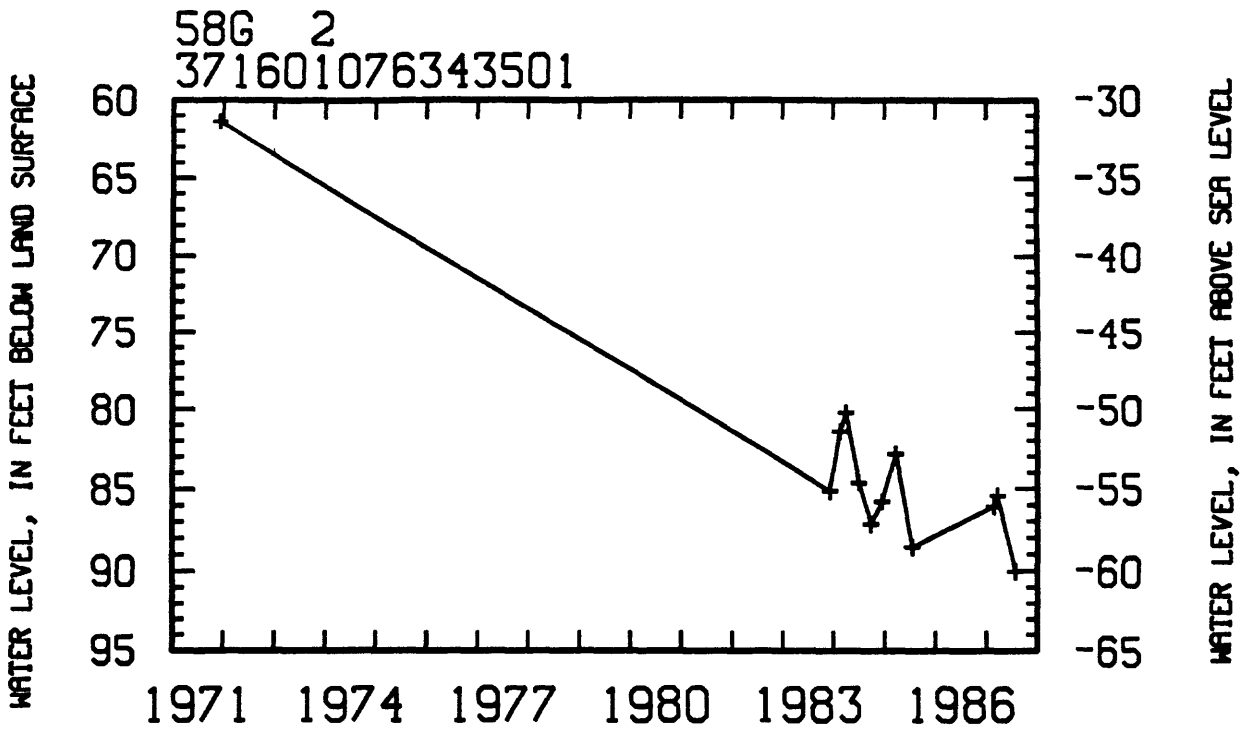

55B 67 SOW 145D
364033076562604
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
25
26
27
28
29
30
31
32
33
34
35
10
9
8
7
6
5
4
3
2
1
0
1984
1985
1986
1987

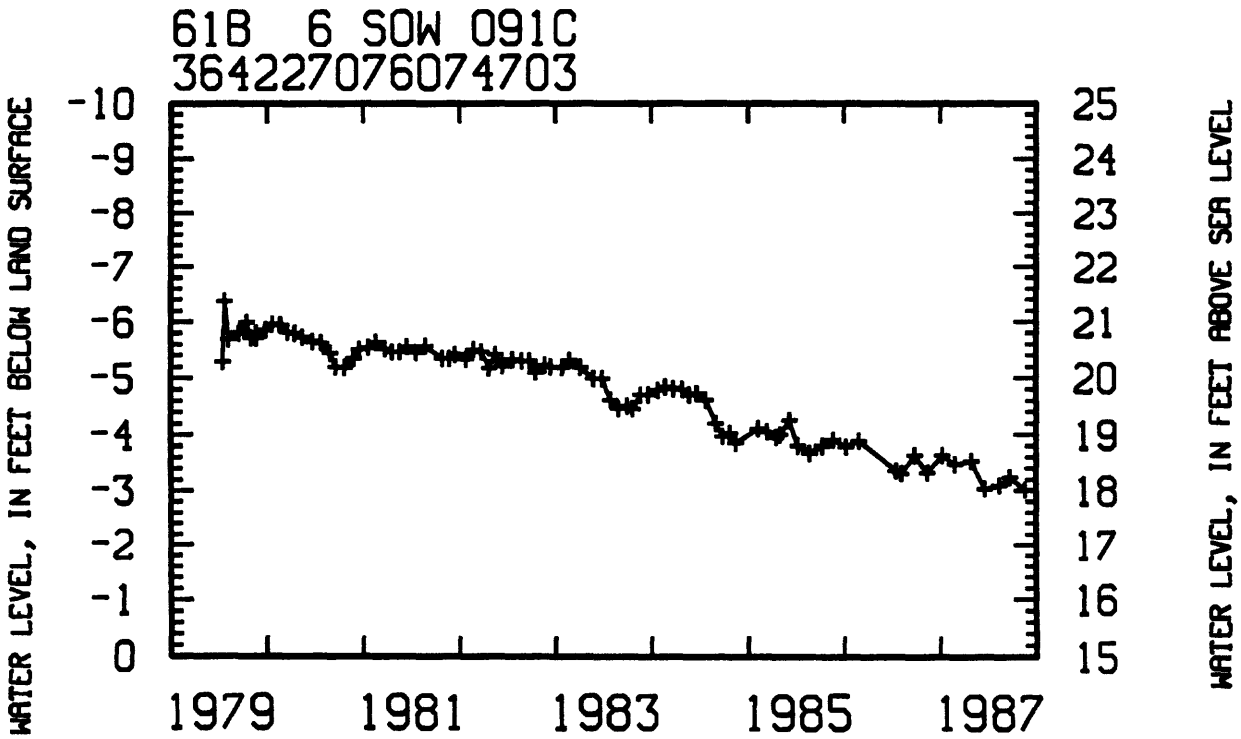

56H 28 SOW 177D
372506076511704
WATER LEVEL, IN FEET BELOW LAND SURFACE
150
151
152
153
154
155
156
157
158
159
160
-45
-46
-47
-48
-49
-50
-51
-52
-53
-54
-55
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58A 80 SOW 180D
363655076332005
WATER LEVEL, IN FEET BELOW LAND SURFACE
20
21
22
23
24
25
14
13
12
11
10
9
WATER LEVEL, IN FEET ABOVE SEA LEVEL
J F M A M J J A S O N D
1987


58A 81 SOW 180E
363655076332006
WATER LEVEL, IN FEET BELOW LAND SURFACE
10
11
12
13
14
15
16
17
18
19
20
24
23
22
21
20
19
18
17
16
15
14
WATER LEVEL, IN FEET ABOVE SEA LEVEL
J F M A M J J A S O N D
1987


58B269 SOW 169B
364318076365502
WATER LEVEL, IN FEET BELOW LAND SURFACE
40
41
42
43
44
45
46
47
48
49
50
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58G 2
371601076343501
WATER LEVEL, IN FEET BELOW LAND SURFACE
60
65
70
75
80
85
90
95
-30
-35
-40
-45
-50
-55
-60
-65
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1971
1974
1977
1980
1983
1986

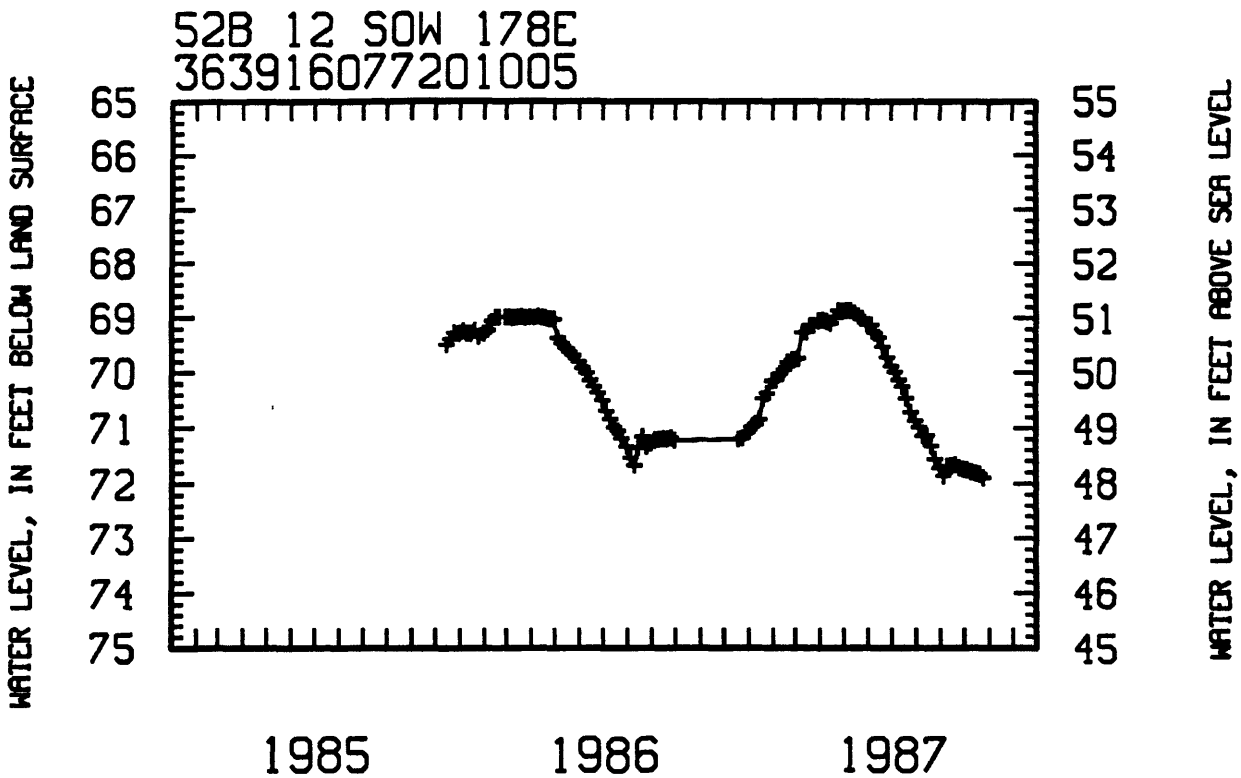

61B 6 SOW 091C
364227076074703
WATER LEVEL, IN FEET BELOW LAND SURFACE
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0
25
24
23
22
21
20
19
18
17
16
15
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1979
1981
1983
1985
1987

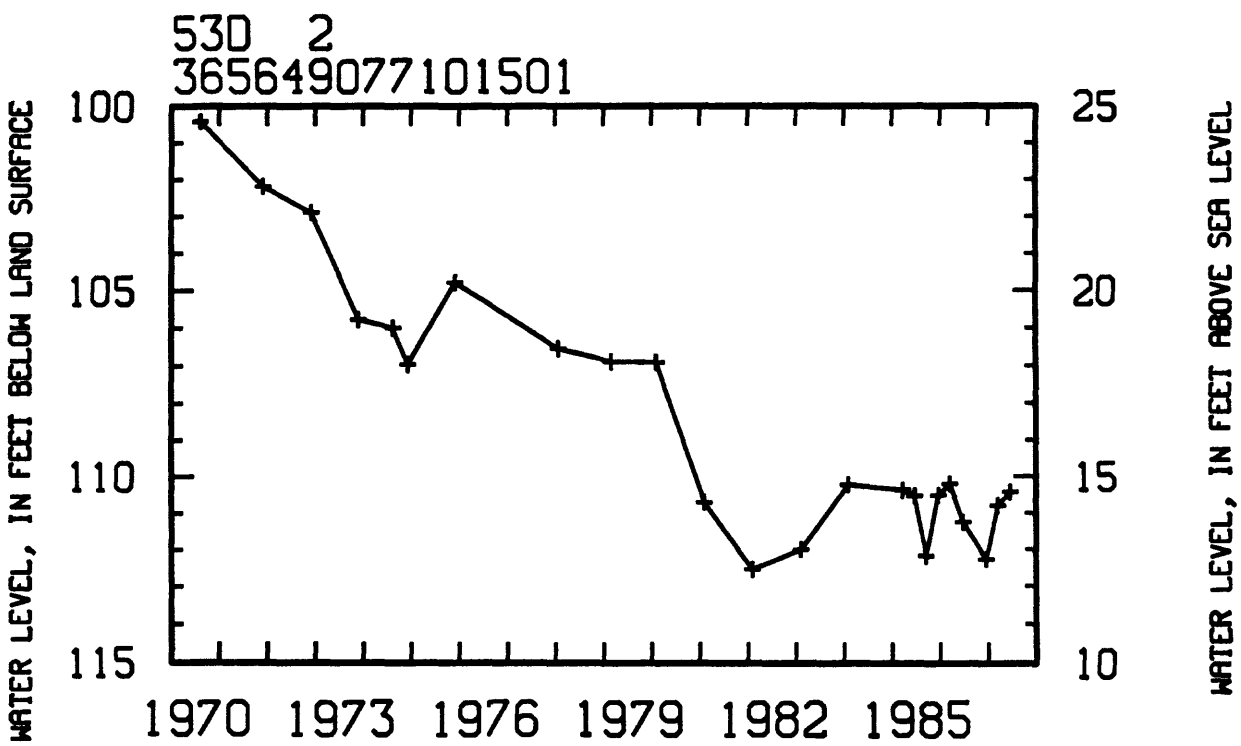
APPENDIX V

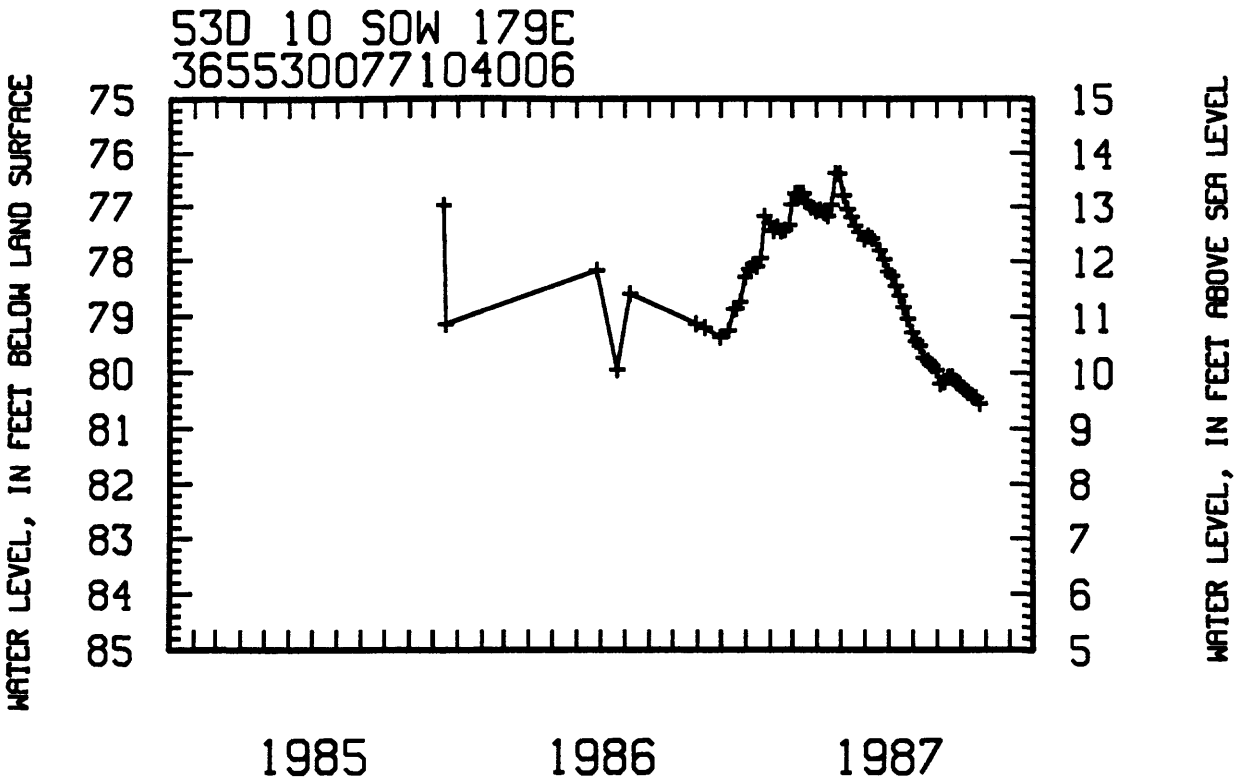
WATER LEVELS IN WELLS IN THE UPPER POTOMAC AQUIFER

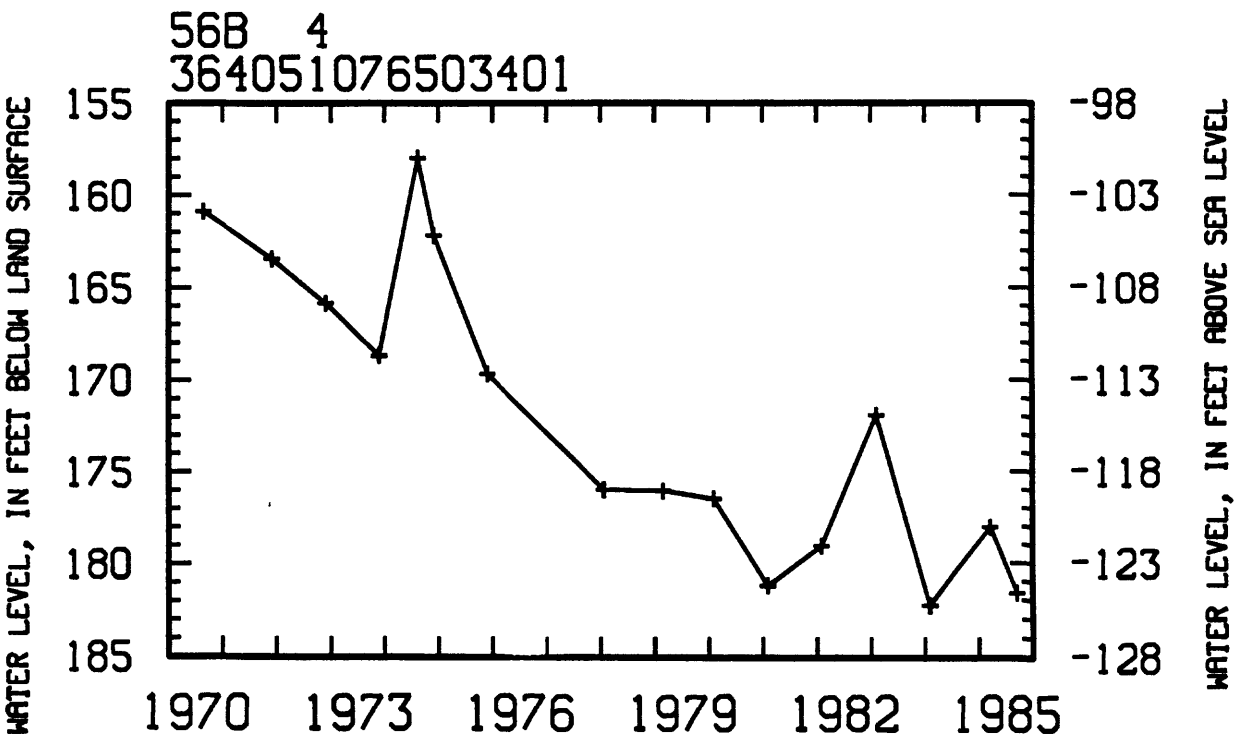
EXPLANATION

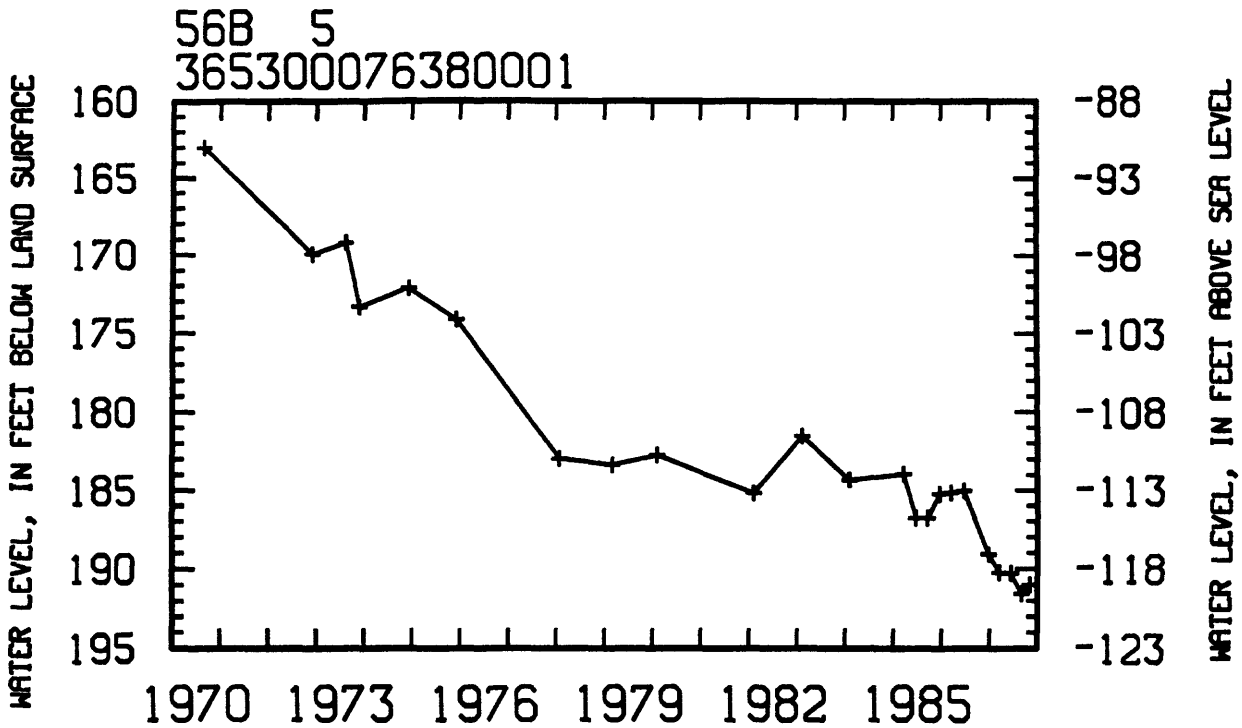
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
52B 12--USGS WELL NO.
SOW 178E--VIRGINIA STATE OBSERVATION WELL NO.
363916077201005--STATION IDENTIFICATION NO.

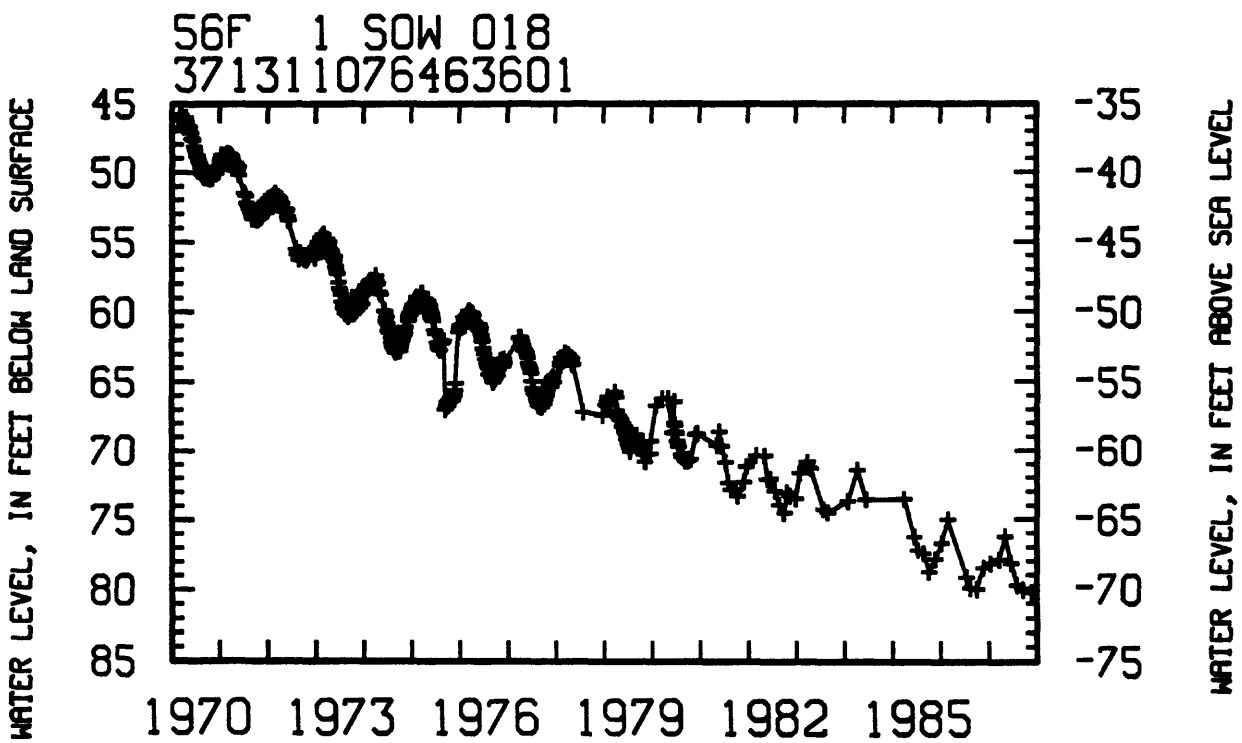

52B 12 SOW 178E
363916077201005
WATER LEVEL, IN FEET BELOW LAND SURFACE
65
66
67
68
69
70
71
72
73
74
75
55
54
53
52
51
50
49
48
47
46
45
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

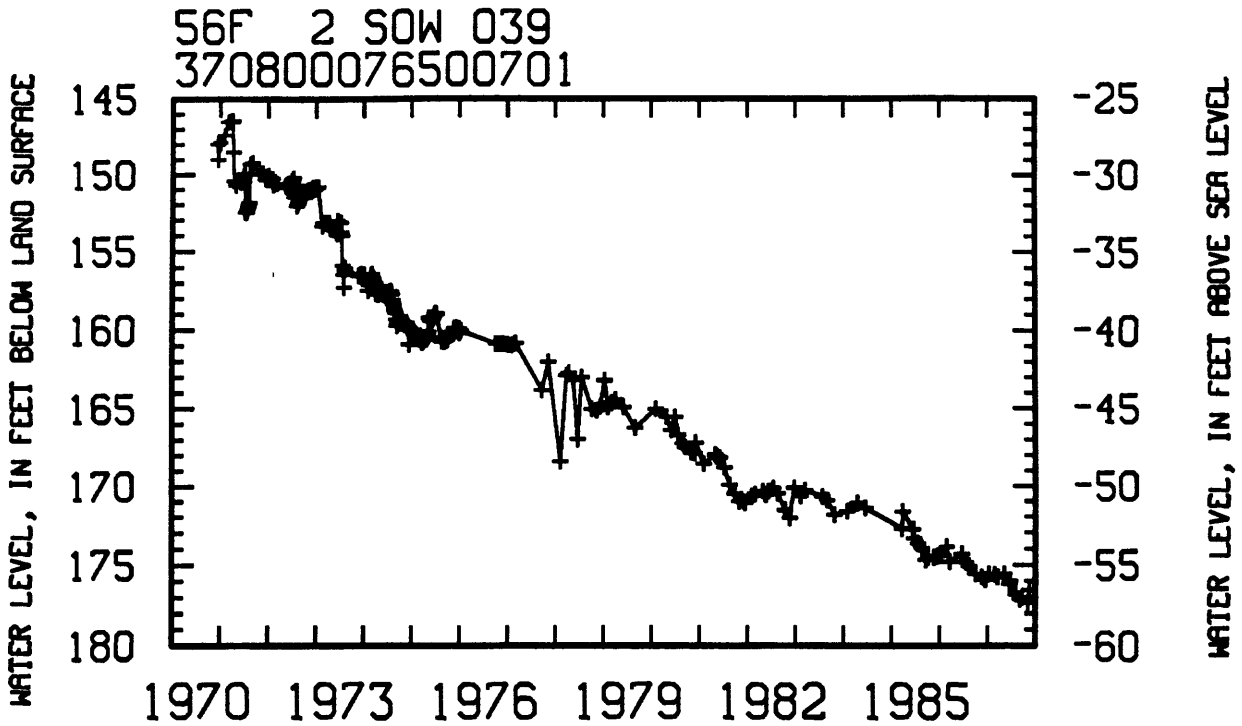

53D 2
365649077101501
WATER LEVEL, IN FEET BELOW LAND SURFACE
100
105
110
115
25
20
15
10
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985

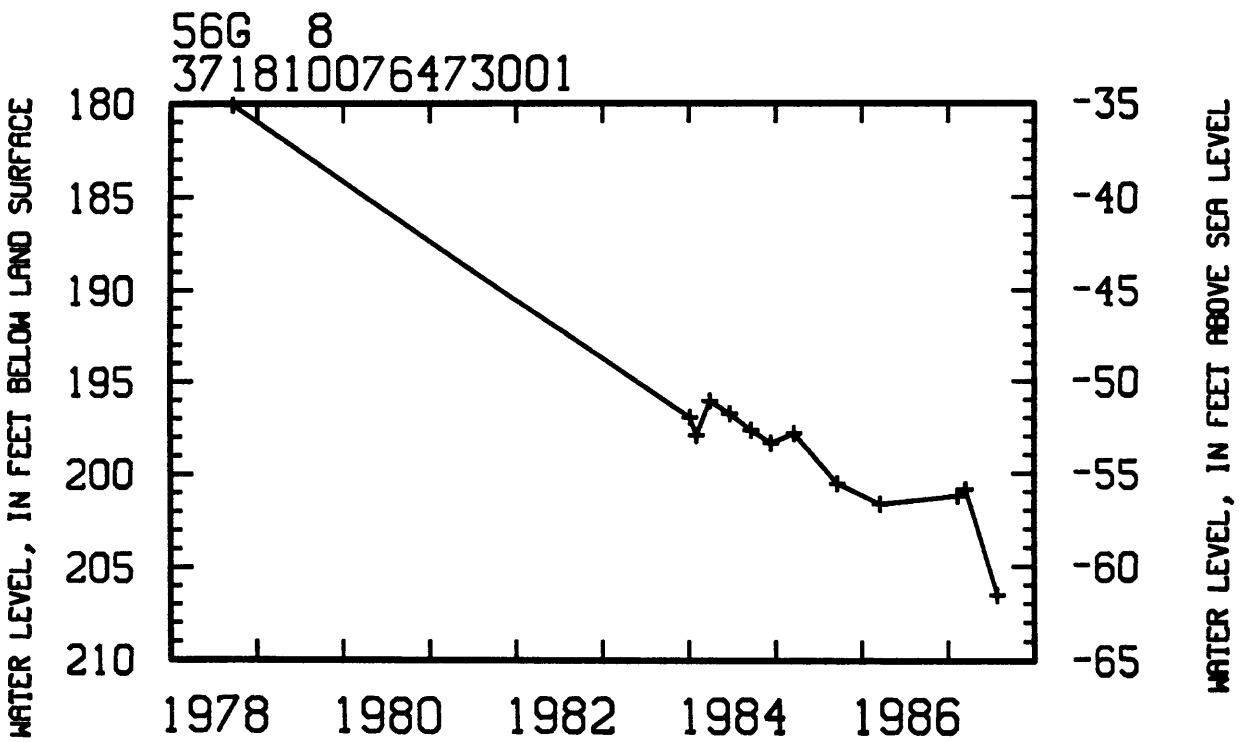

53D 10 SOW 179E
365530077104006
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
76
77
78
79
80
81
82
83
84
85
15
14
13
12
11
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

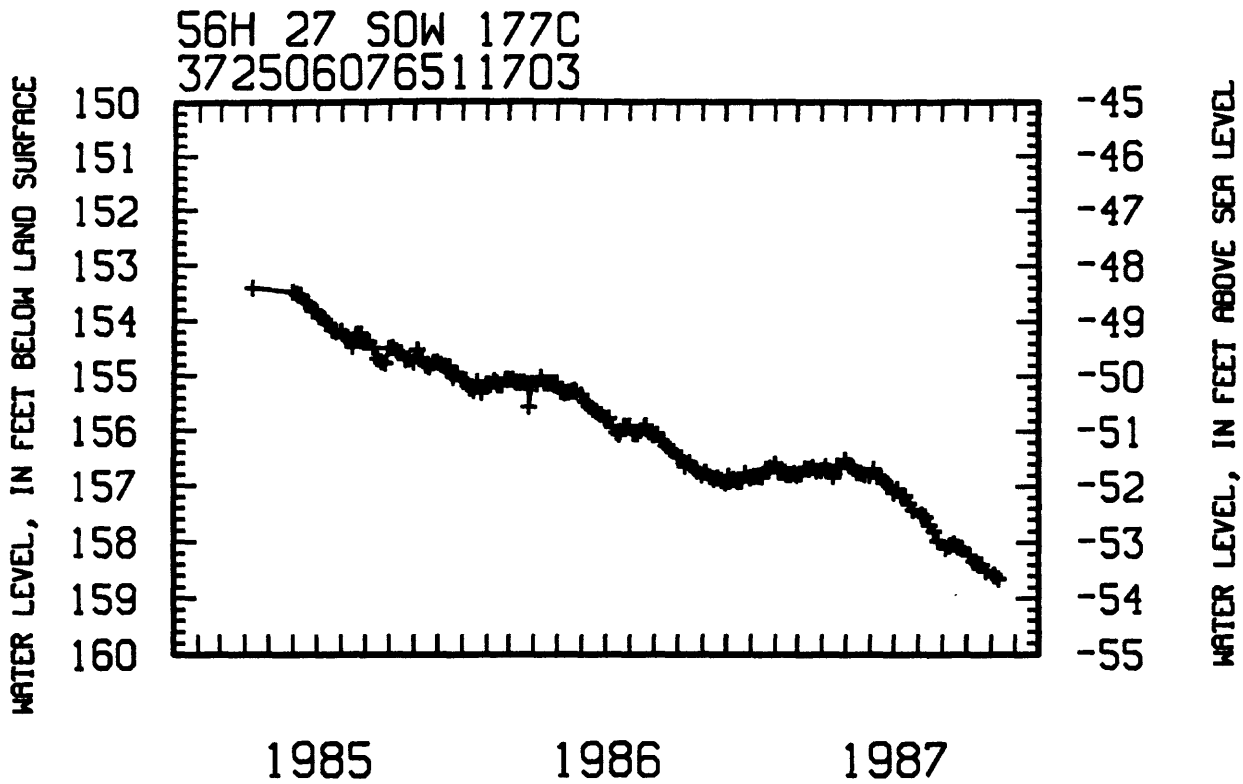

56B 4
364051076503401
WATER LEVEL, IN FEET BELOW LAND SURFACE
155
160
165
170
175
180
185
-98
-103
-108
-113
-118
-123
-128
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985

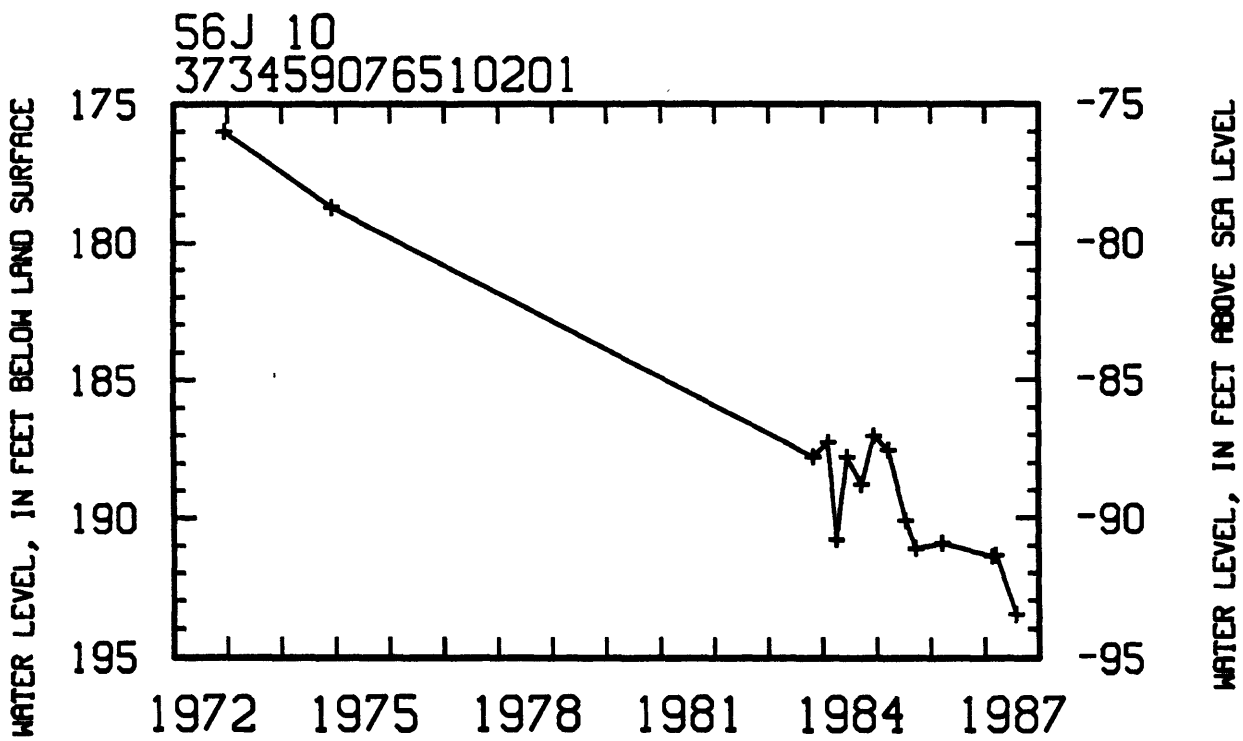

56B 5
365300076380001
WATER LEVEL, IN FEET BELOW LAND SURFACE
160
165
170
175
180
185
190
195
-88
-93
-98
-103
-108
-113
-118
-123
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

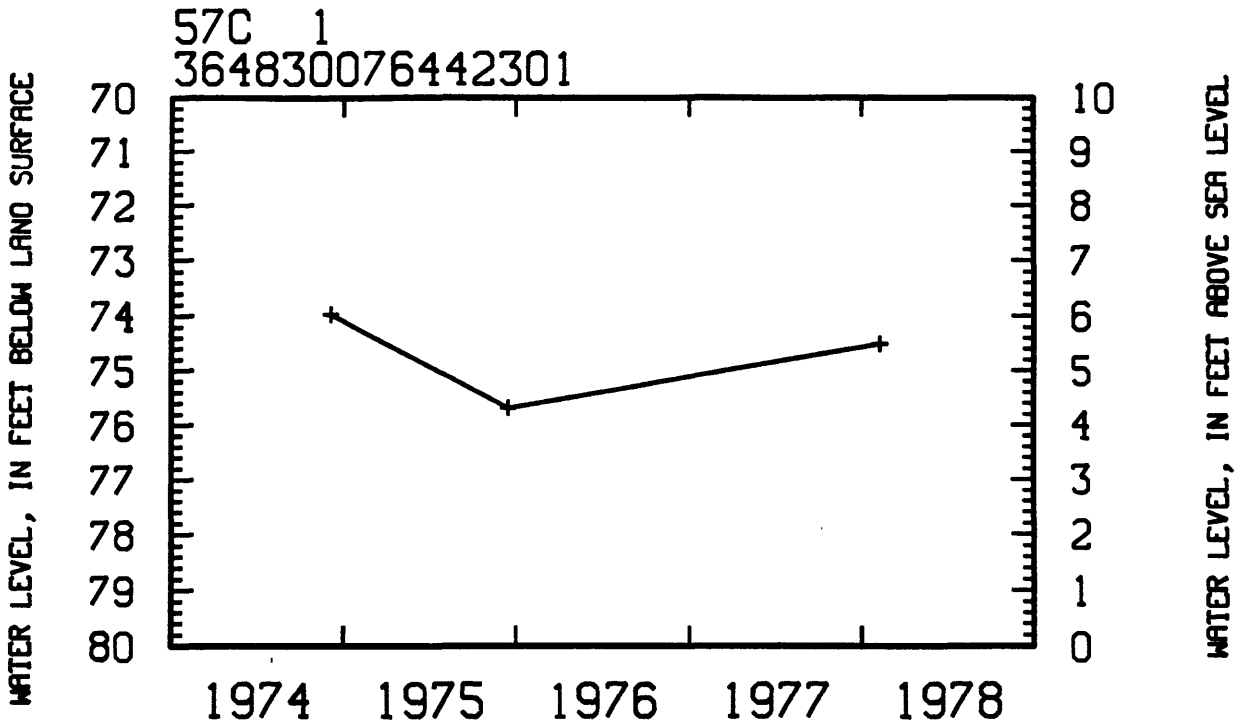

56F 1 SOW 018
371311076463601
WATER LEVEL, IN FEET BELOW LAND SURFACE
45
50
55
60
65
70
75
80
85
-35
-40
-45
-50
-55
-60
-65
-70
-75
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

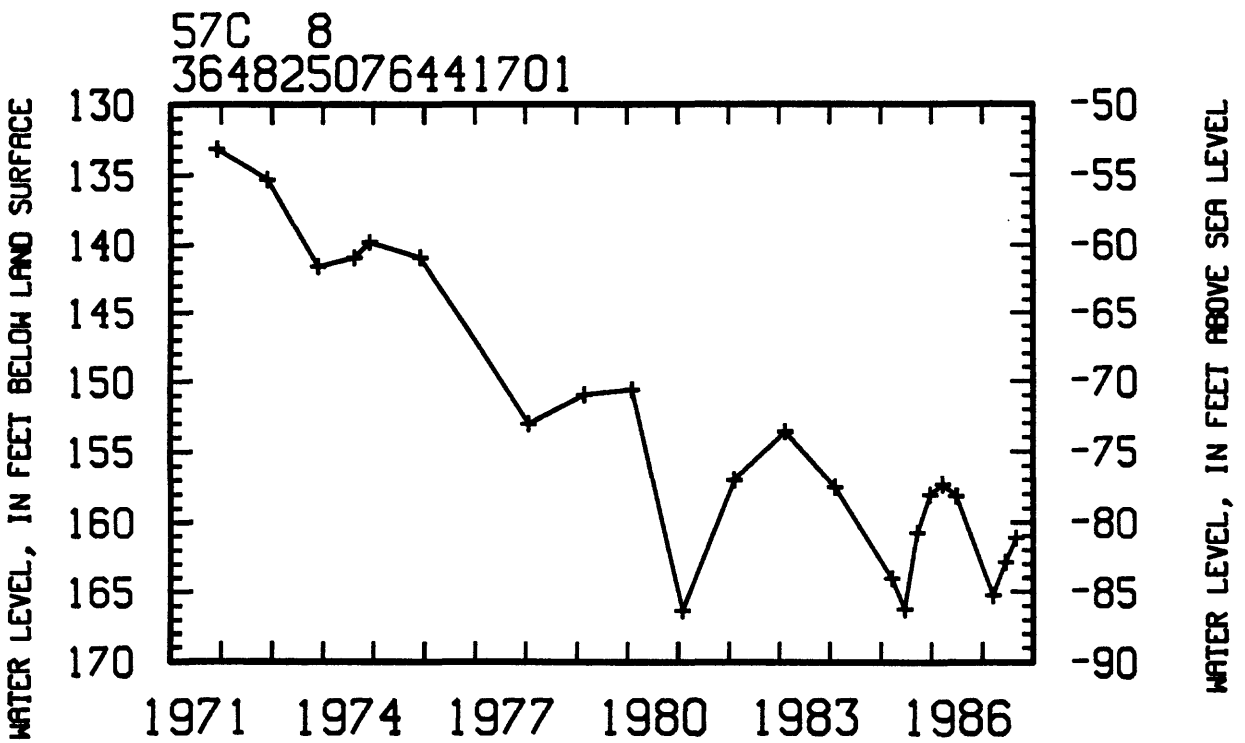

56F 2 SOW 039
370800076500701
WATER LEVEL, IN FEET BELOW LAND SURFACE
145
150
155
160
165
170
175
180
-25
-30
-35
-40
-45
-50
-55
-60
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

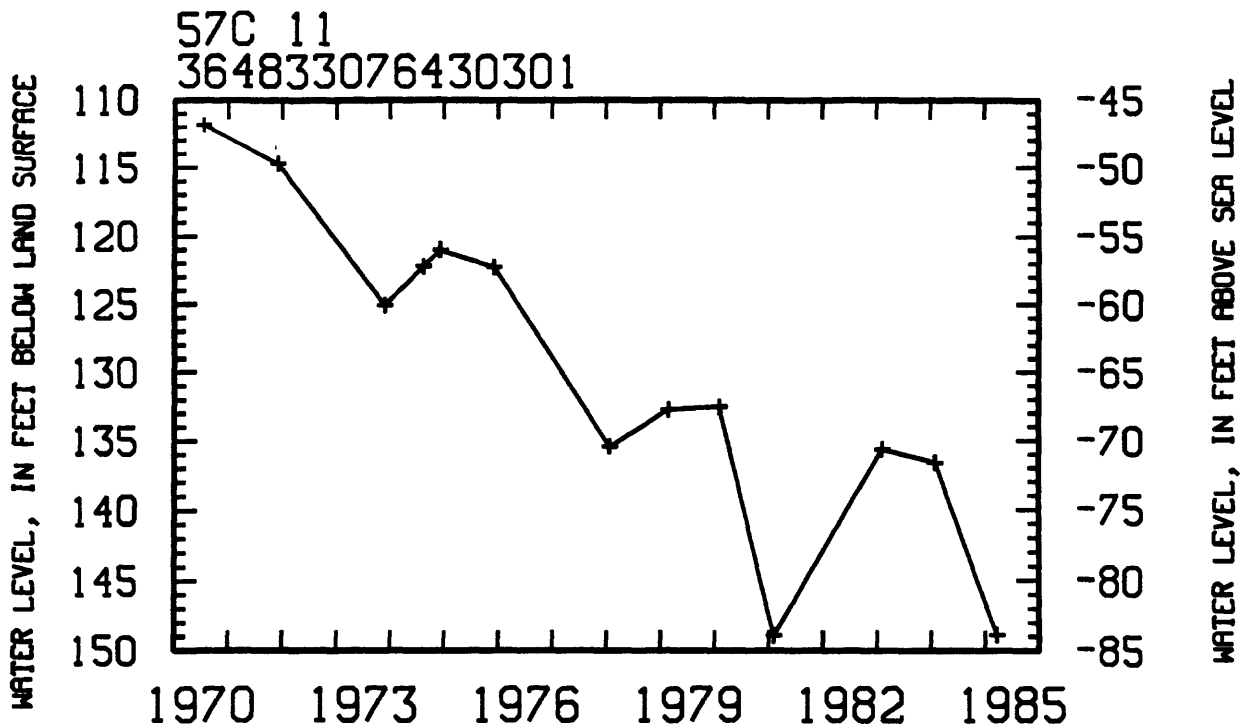

56G 8
371810076473001
WATER LEVEL, IN FEET BELOW LAND SURFACE
180
185
190
195
200
205
210
-35
-40
-45
-50
-55
-60
-65
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1978 1980 1982 1984 1986

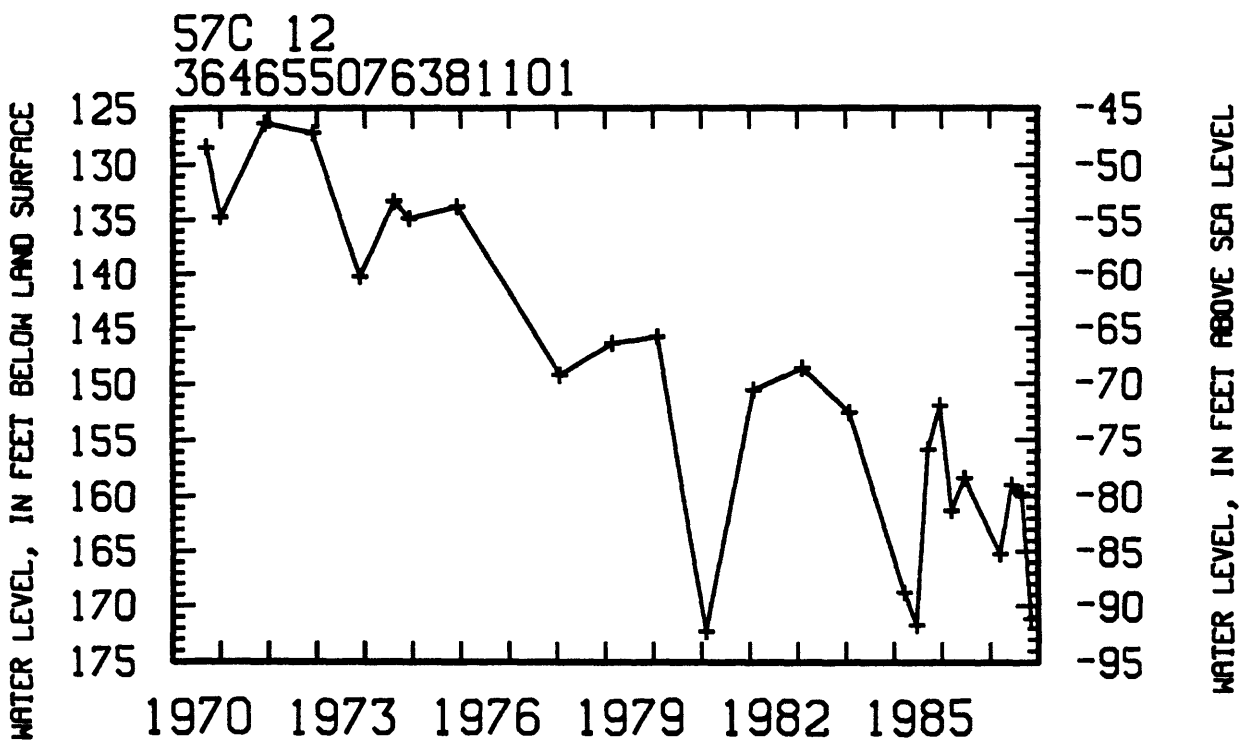

56H 27 SOW 177C
372506076511703
WATER LEVEL, IN FEET BELOW LAND SURFACE
150
151
152
153
154
155
156
157
158
159
160
-45
-46
-47
-48
-49
-50
-51
-52
-53
-54
-55
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

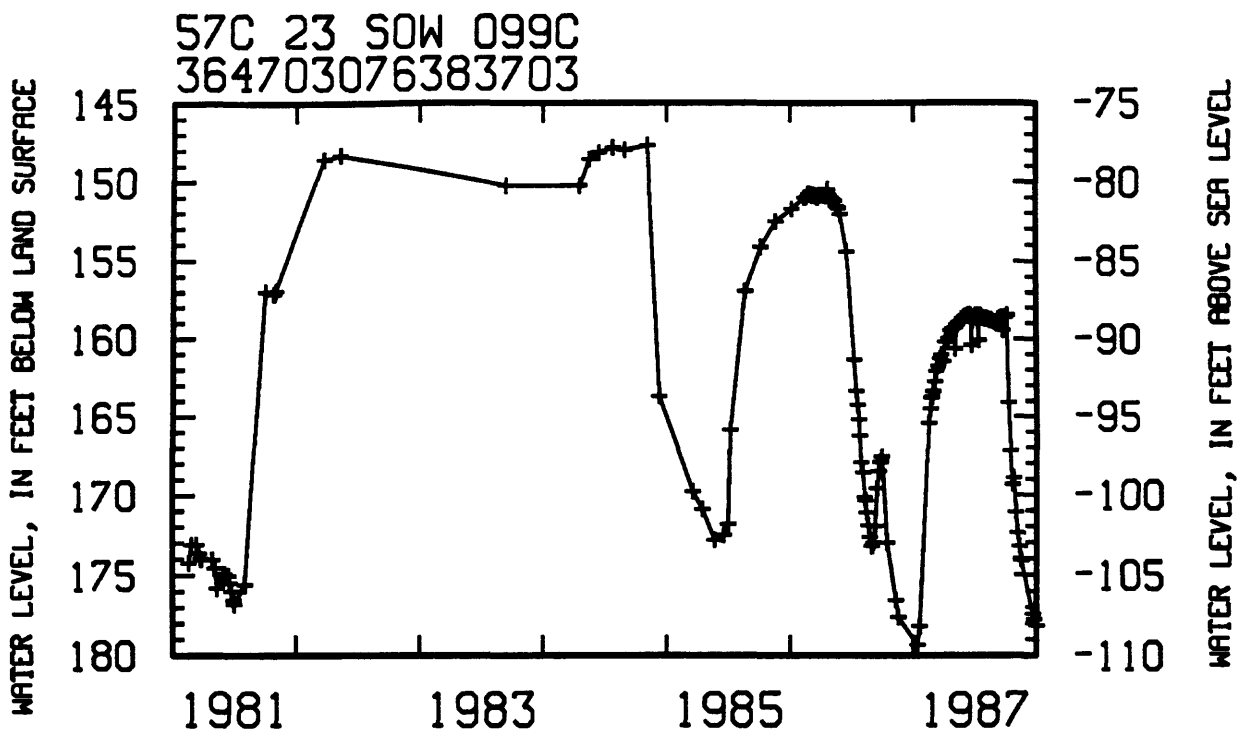

56J 10
373459076510201
WATER LEVEL, IN FEET BELOW LAND SURFACE
175
180
185
190
195
-75
-80
-85
-90
-95
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1972
1975
1978
1981
1984
1987

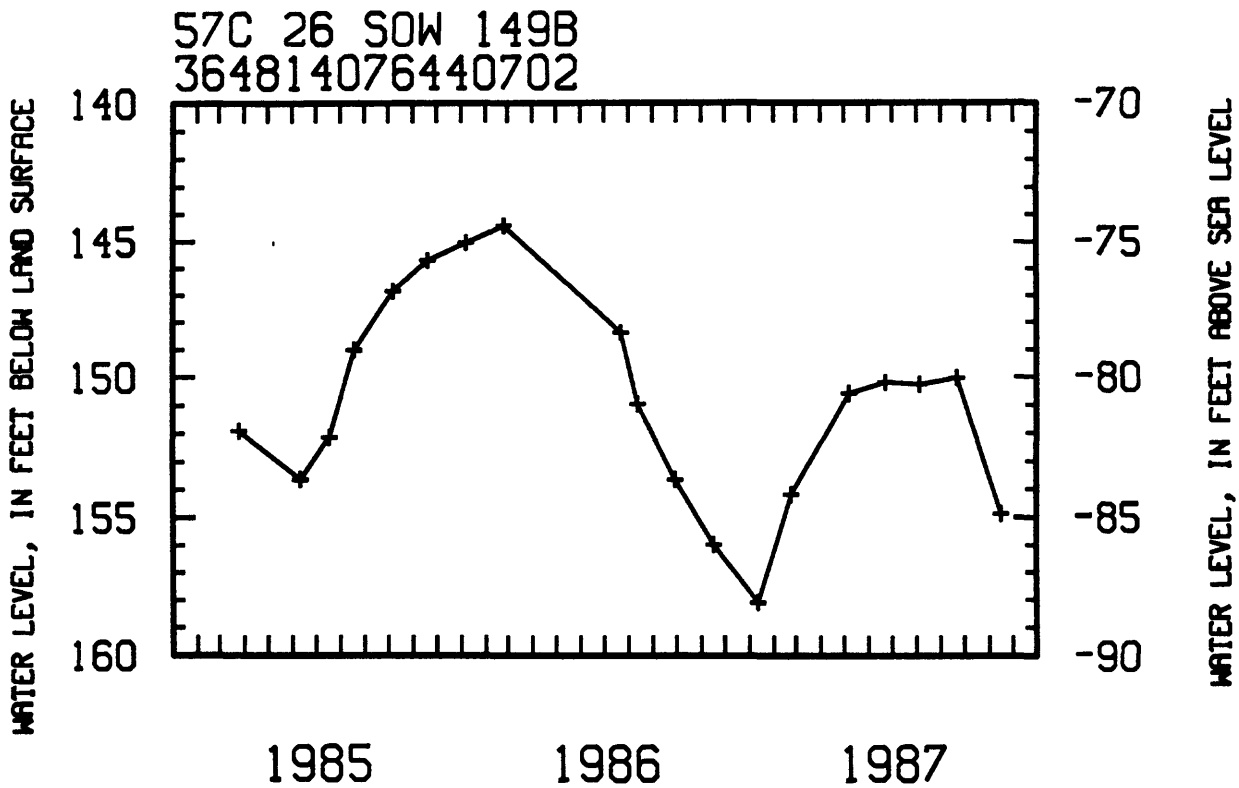

57C 1
364830076442301
WATER LEVEL, IN FEET BELOW LAND SURFACE
70
71
72
73
74
75
76
77
78
79
80
10
9
8
7
6
5
4
3
2
1
0
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1974
1975
1976
1977
1978

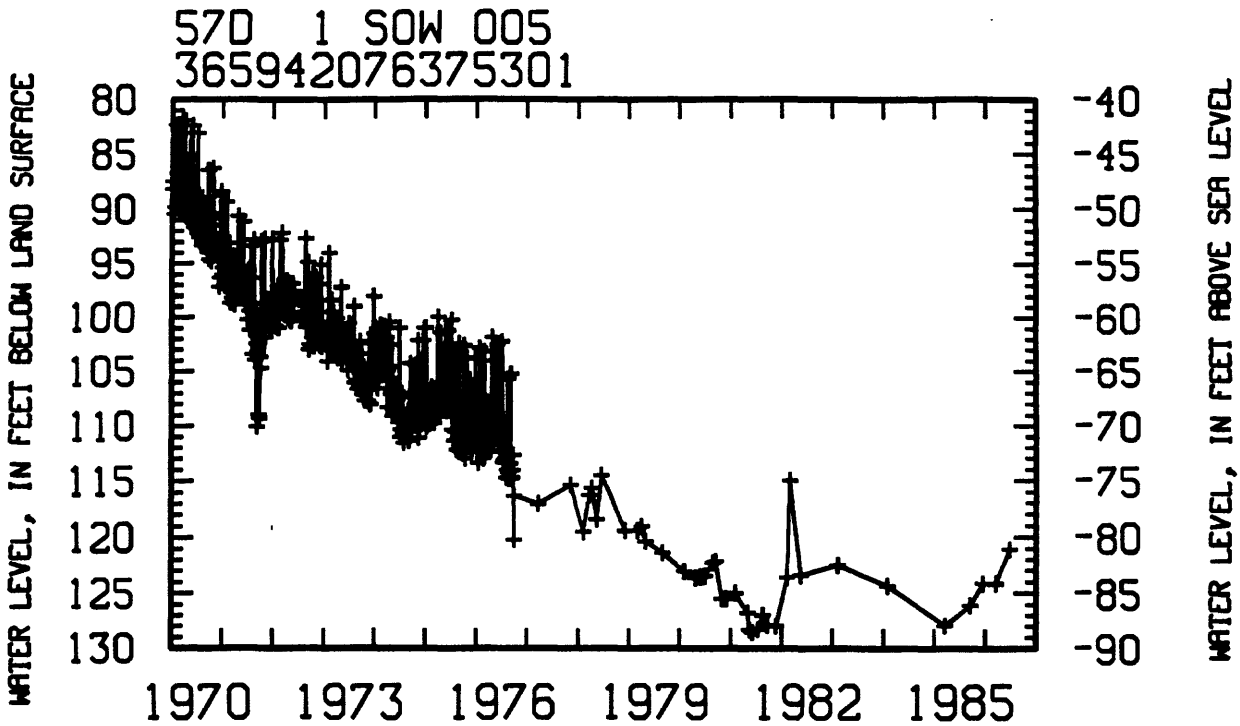

57C 8
364825076441701
WATER LEVEL, IN FEET BELOW LAND SURFACE
130
135
140
145
150
155
160
165
170
-50
-55
-60
-65
-70
-75
-80
-85
-90
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1971
1974
1977
1980
1983
1986

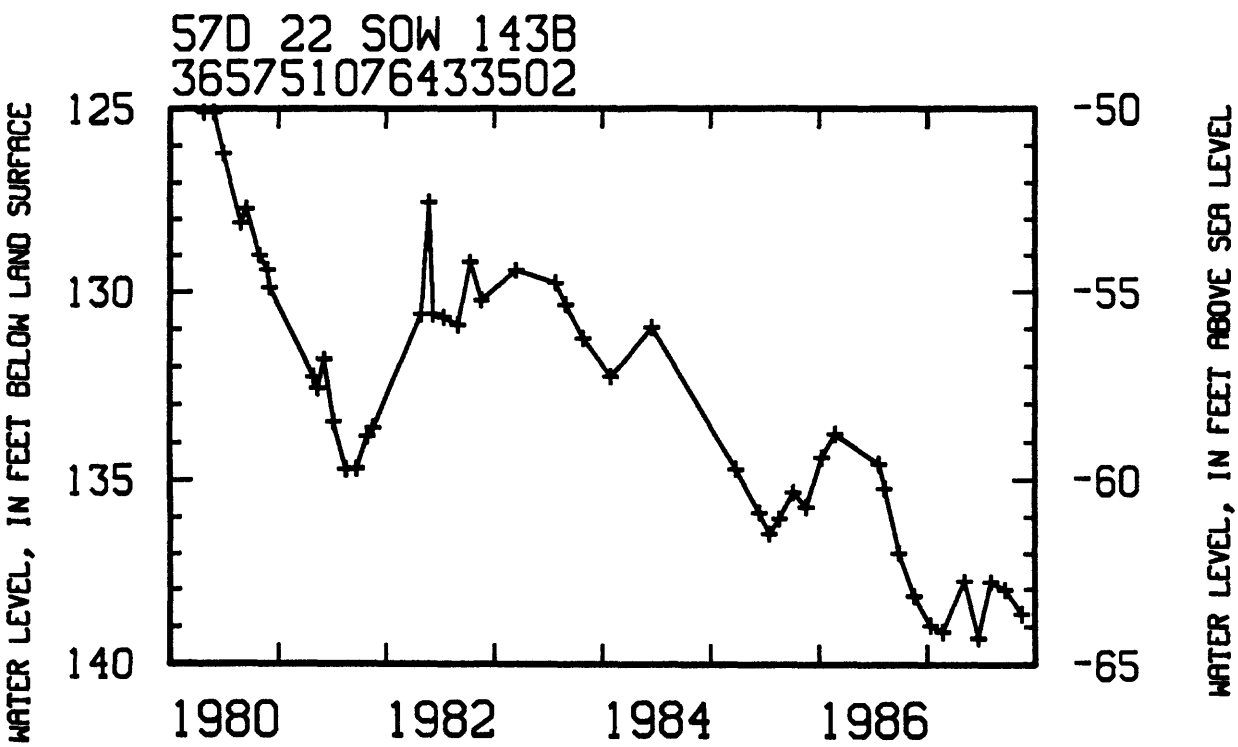

57C 11
364833076430301
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
115
120
125
130
135
140
145
150
-45
-50
-55
-60
-65
-70
-75
-80
-85
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985

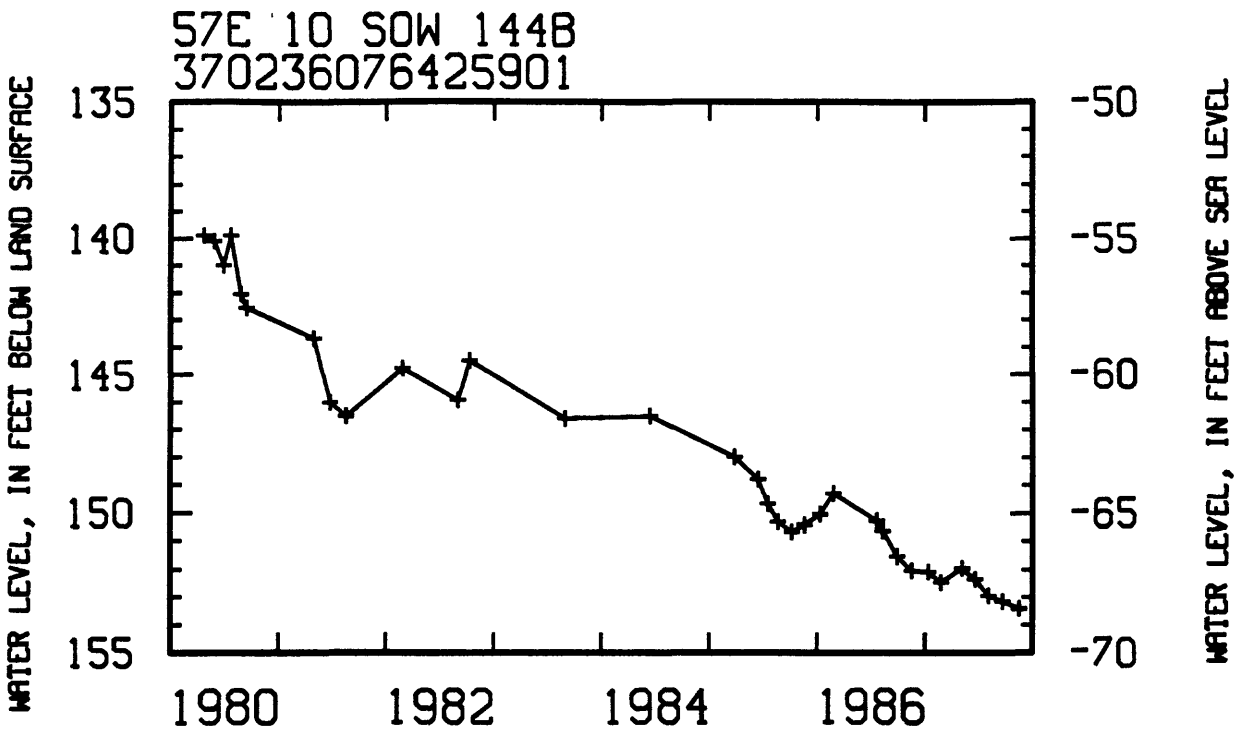

57C 12
364655076381101
WATER LEVEL, IN FEET BELOW LAND SURFACE
125
130
135
140
145
150
155
160
165
170
175
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
-95
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985

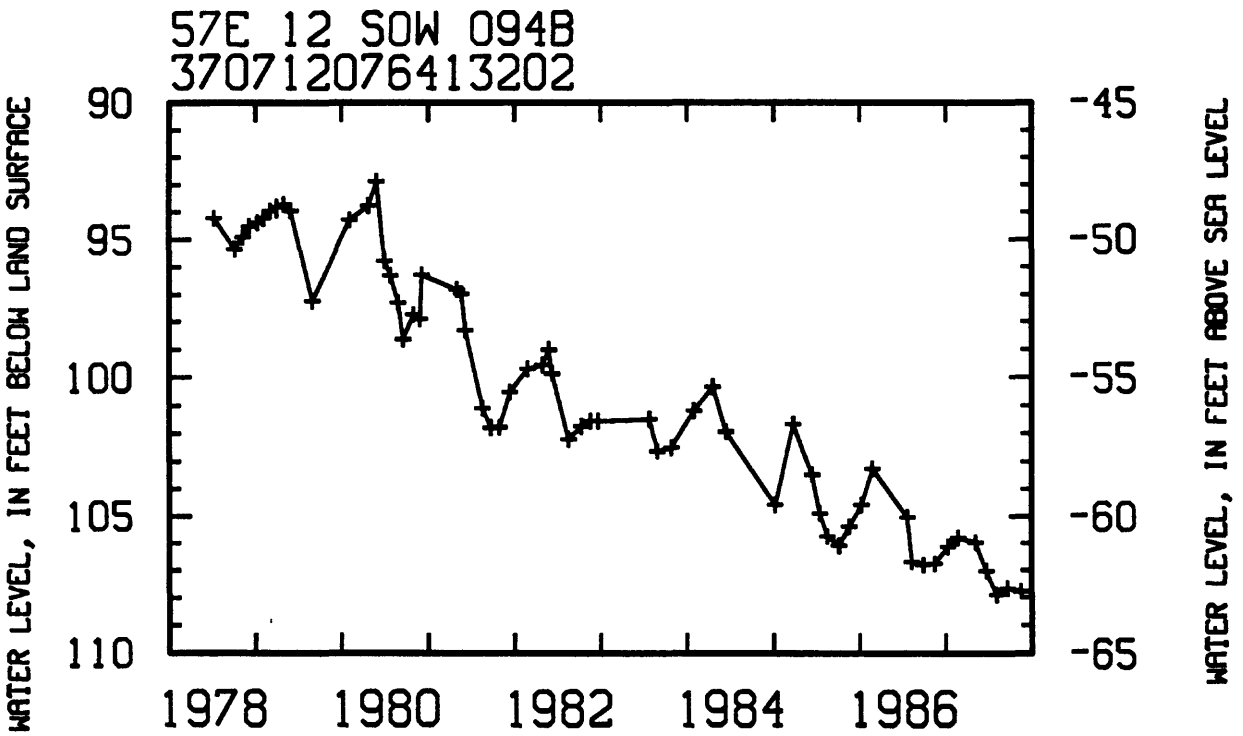

57C 23 SOW 099C
364703076383703
WATER LEVEL, IN FEET BELOW LAND SURFACE
145
150
155
160
165
170
175
180
-75
-80
-85
-90
-95
-100
-105
-110
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1981
1983
1985
1987

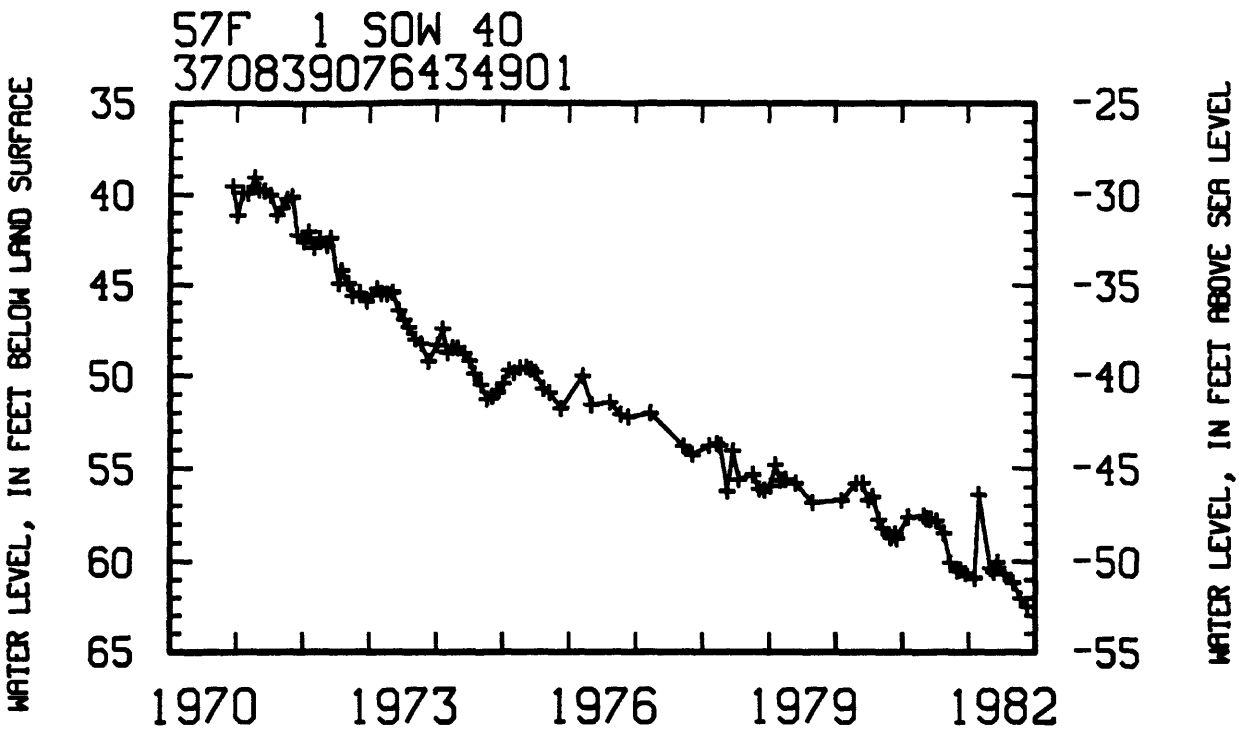

57C 26 SOW 149B
364814076440702
WATER LEVEL, IN FEET BELOW LAND SURFACE
140
145
150
155
160
-70
-75
-80
-85
-90
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


57D 1 SOW 005
365942076375301
WATER LEVEL, IN FEET BELOW LAND SURFACE
80
85
90
95
100
105
110
115
120
125
130
1970
1973
1976
1979
1982
1985
-40
-45
-50
-55
-60
-65
-70
-75
-80
-85
-90
WATER LEVEL, IN FEET ABOVE SEA LEVEL


57D 22 SOW 143B
365751076433502
WATER LEVEL, IN FEET BELOW LAND SURFACE
125
130
135
140
1980
1982
1984
1986
-50
-55
-60
-65
WATER LEVEL, IN FEET ABOVE SEA LEVEL


57E 10 SOW 144B
370236076425901
WATER LEVEL, IN FEET BELOW LAND SURFACE
135
140
145
150
155
-50
-55
-60
-65
-70
1980
1982
1984
1986
WATER LEVEL, IN FEET ABOVE SEA LEVEL


57E 12 SOW 094B
370712076413202
WATER LEVEL, IN FEET BELOW LAND SURFACE
90
95
100
105
110
-45
-50
-55
-60
-65
1978
1980
1982
1984
1986
WATER LEVEL, IN FEET ABOVE SEA LEVEL


57F 1 SOW 40
370839076434901
WATER LEVEL, IN FEET BELOW LAND SURFACE
35
40
45
50
55
60
65
-25
-30
-35
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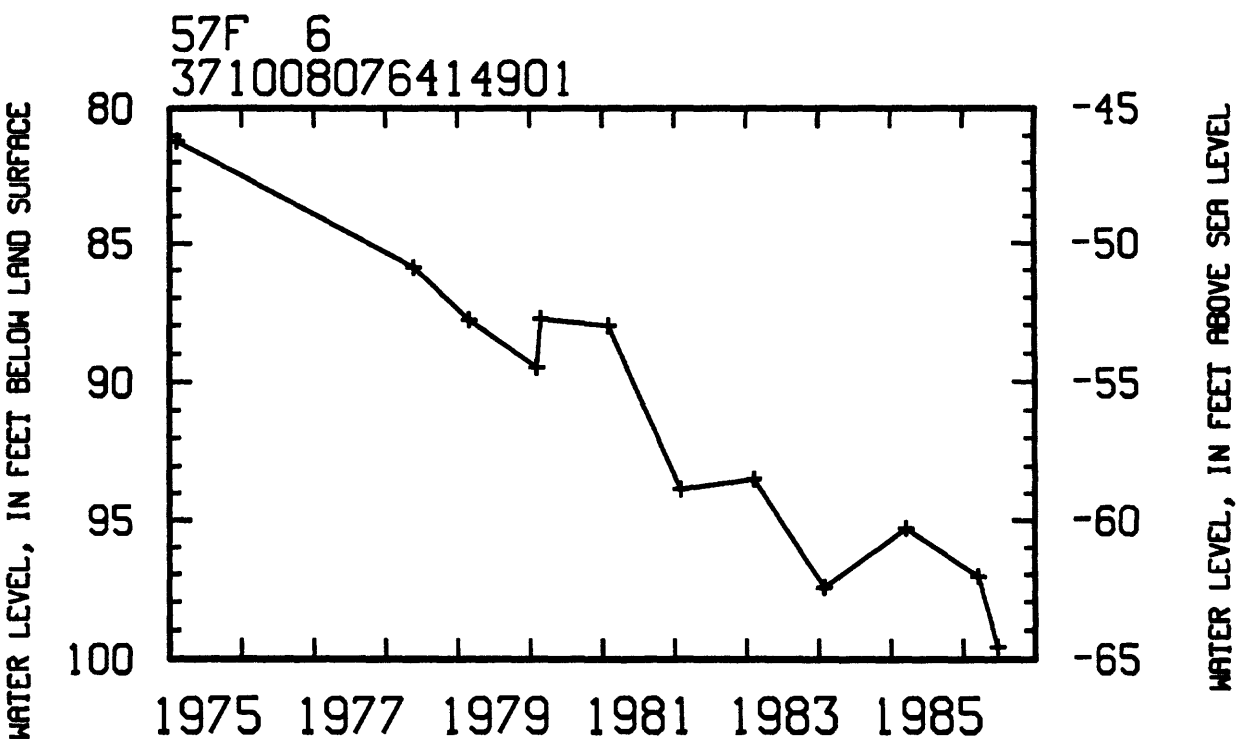
-55
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982


57F 6
371008076414901
WATER LEVEL, IN FEET BELOW LAND SURFACE
80
85
90
95
100
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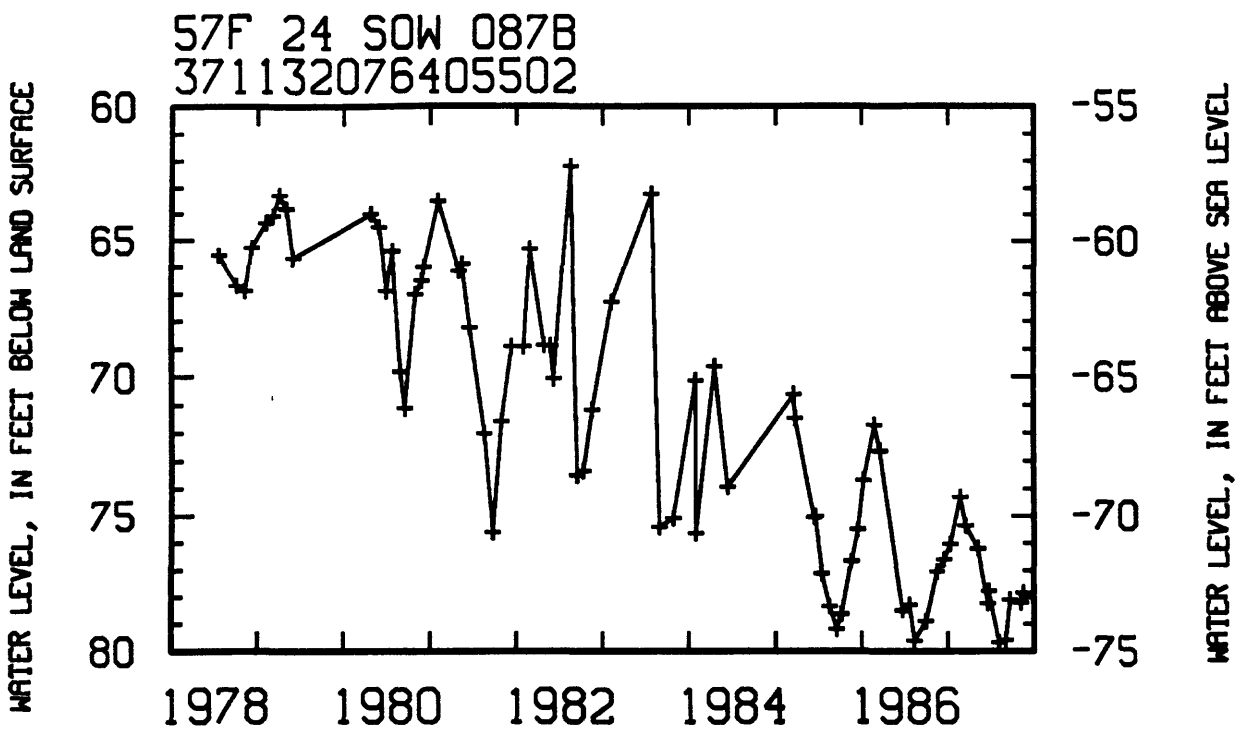
-55
-60
-65
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1975
1977
1979
1981
1983
1985


57F 24 SOW 087B
371132076405502
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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65
70
75
80
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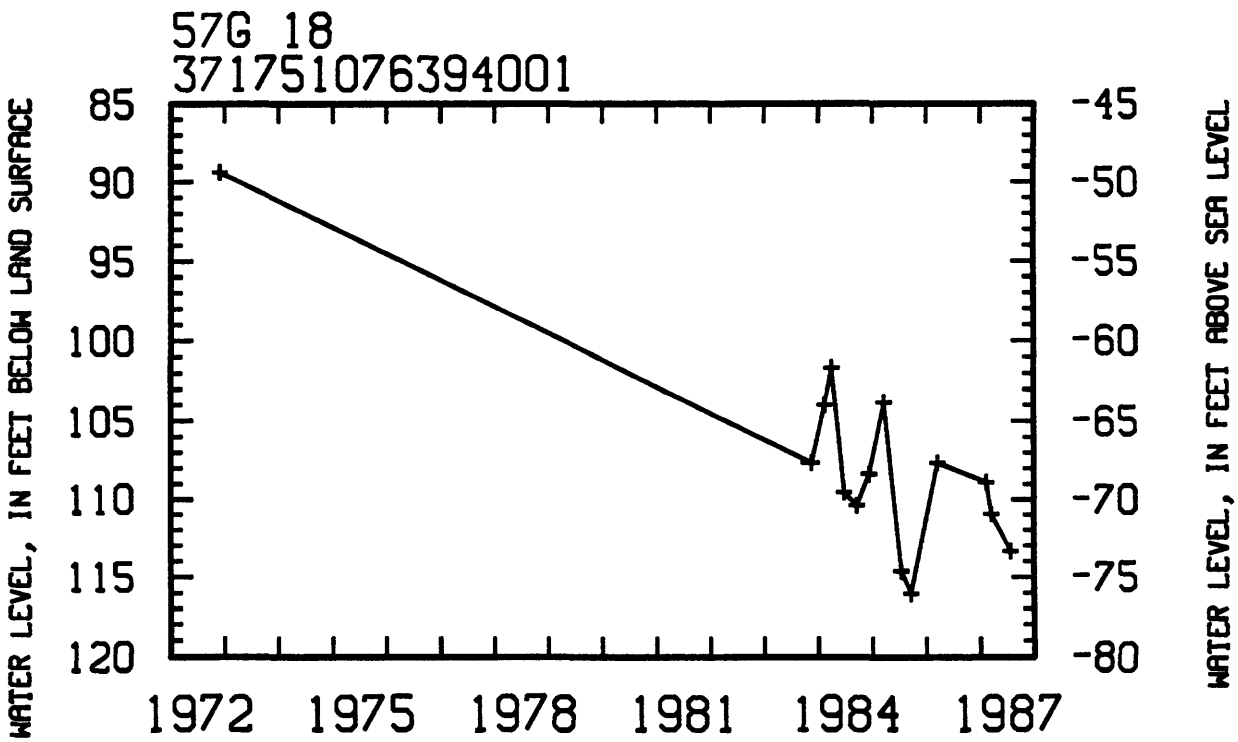
-60
-65
-70
-75
1978
1980
1982
1984
1986


57G 18
371751076394001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
85
90
95
100
105
110
115
120
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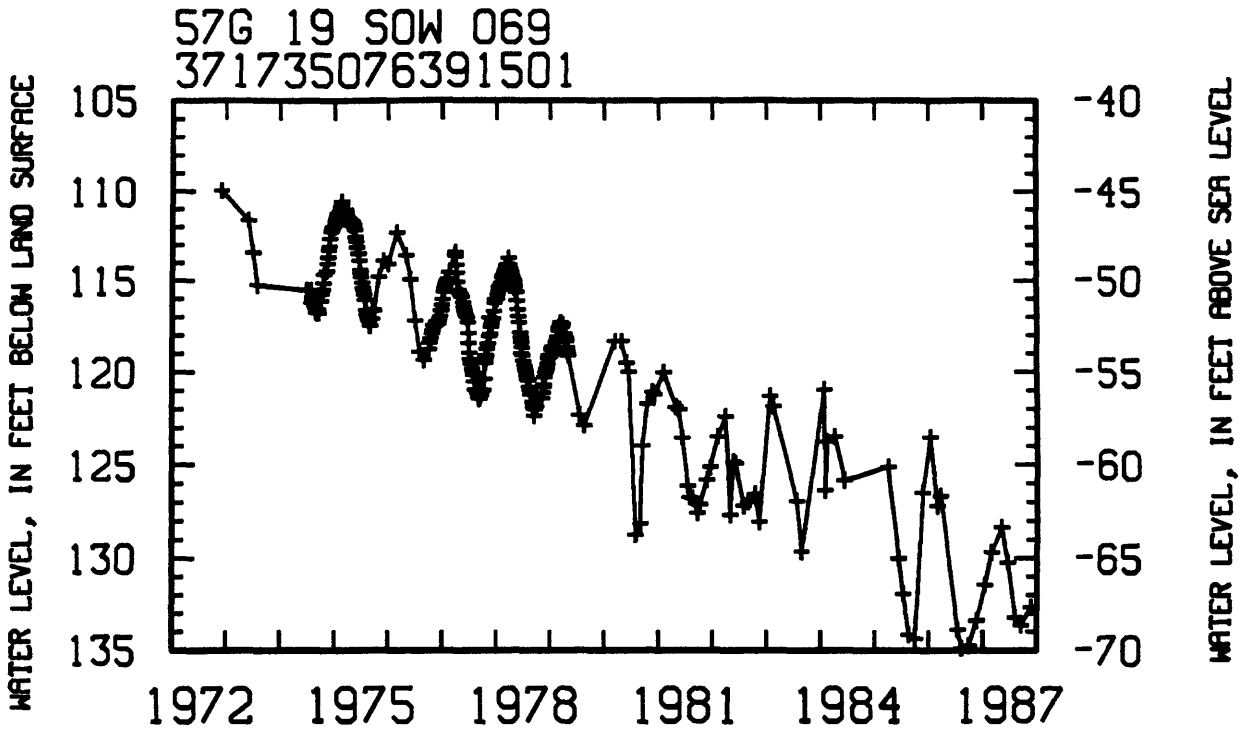
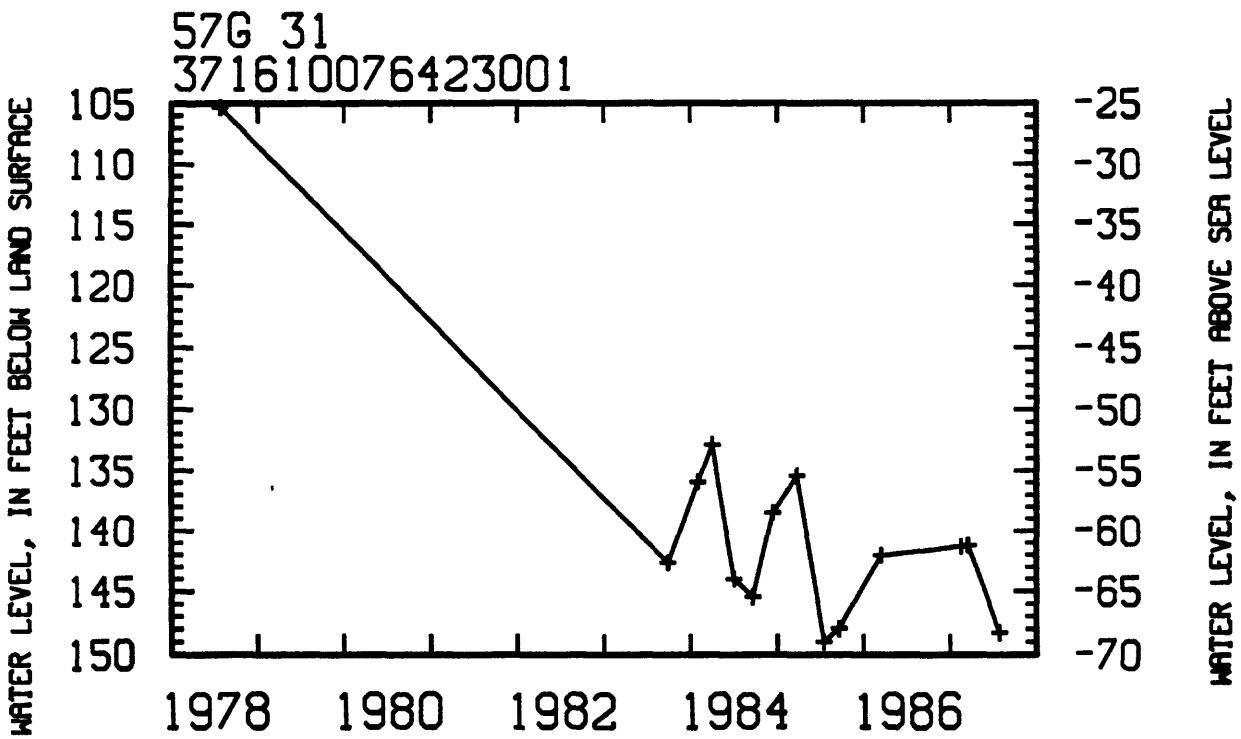
-60
-65
-70
-75
-80
1972
1975
1978
1981
1984
1987


57G 19 SOW 069
371735076391501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
105
110
115
120
125
130
135
-40
-45
-50
-55
-60
-65
-70
1972
1975
1978
1981
1984
1987


57G 31
371610076423001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
105
110
115
120
125
130
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140
145
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-65
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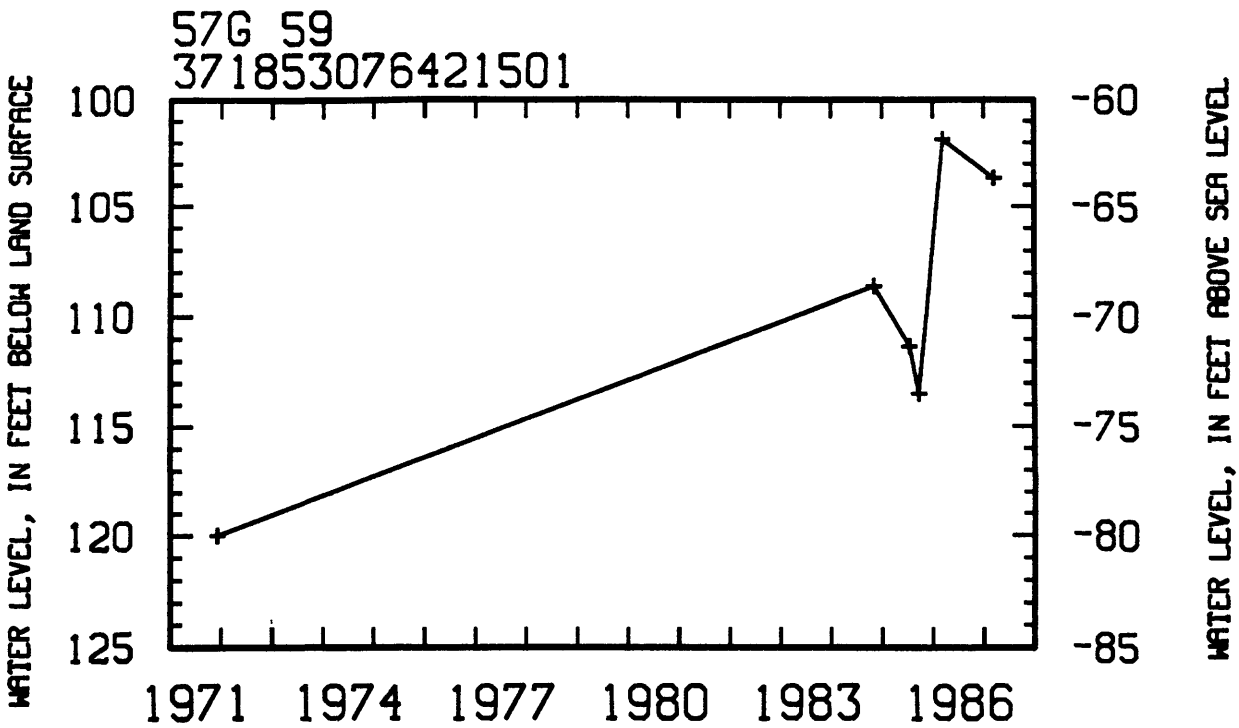
1978
1980
1982
1984
1986


57G 59
371853076421501
WATER LEVEL, IN FEET BELOW LAND SURFACE
100
105
110
115
120
125
-60
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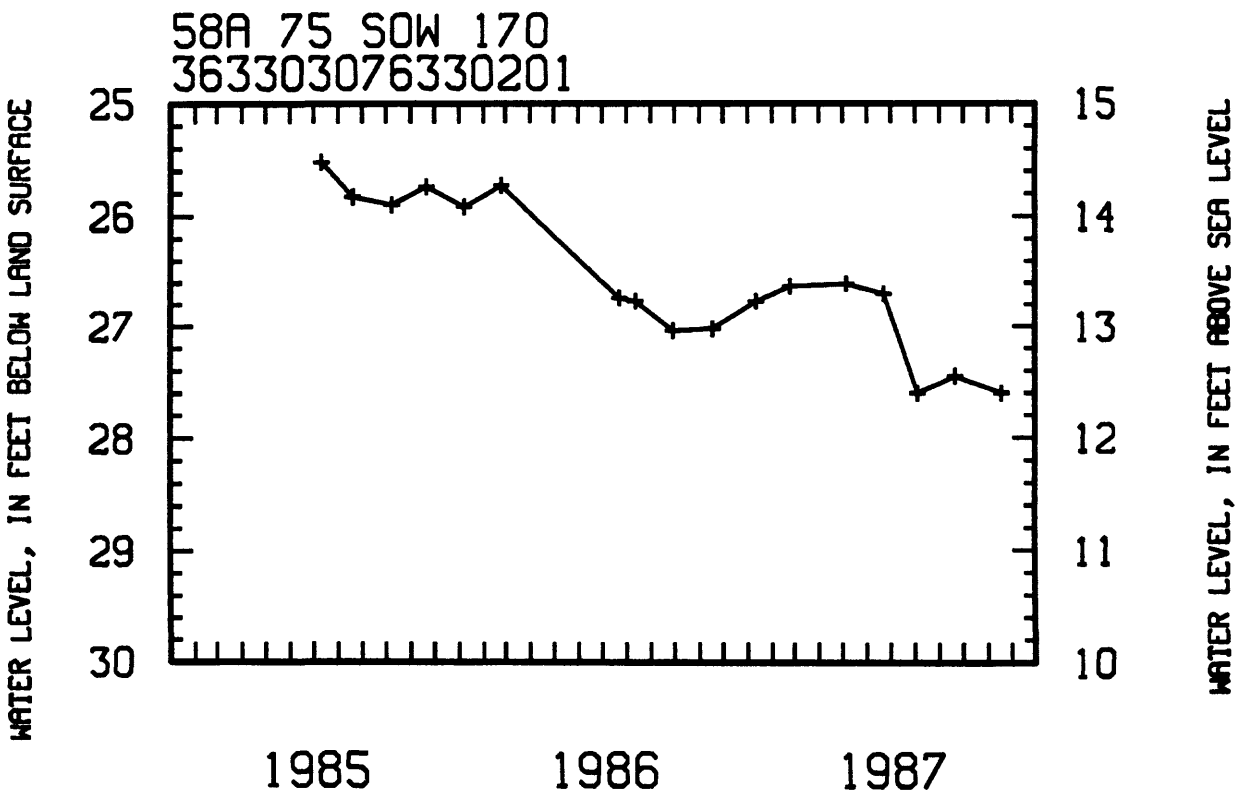
-75
-80
-85
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1971
1974
1977
1980
1983
1986


58A 75 SOW 170
363303076330201
WATER LEVEL, IN FEET BELOW LAND SURFACE
25
26
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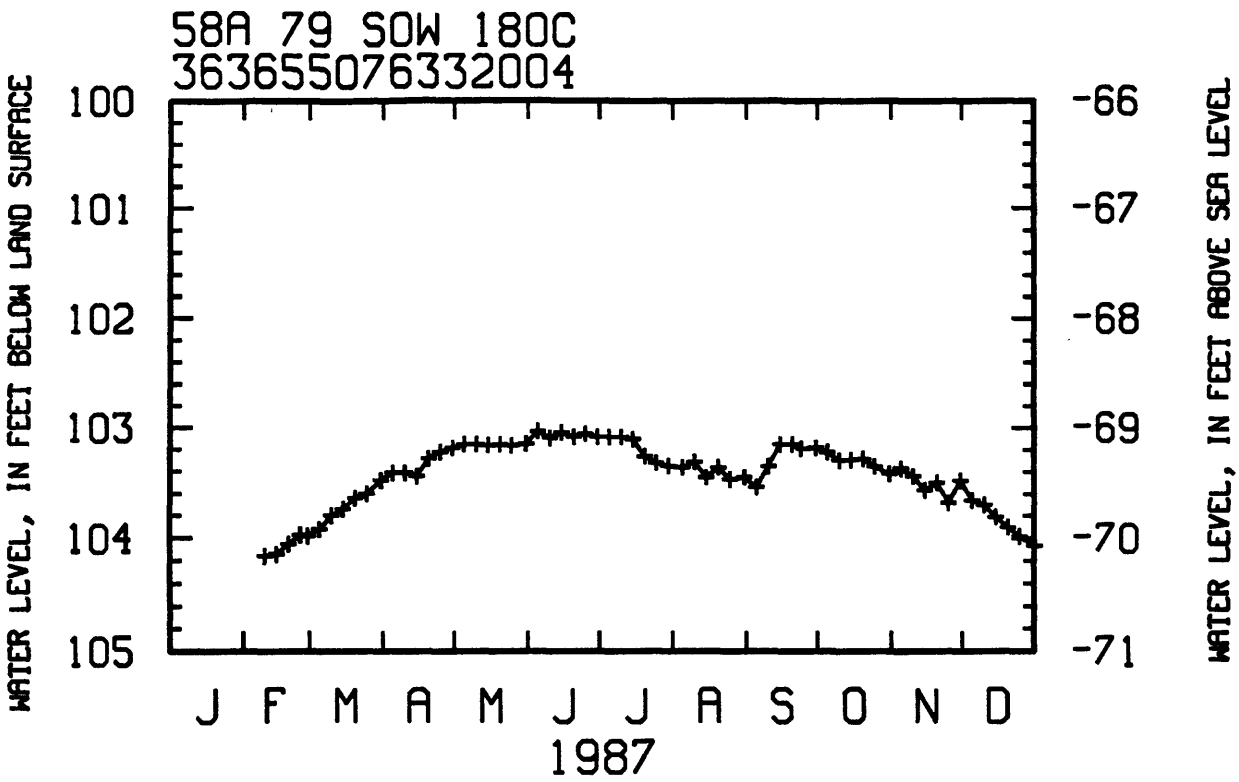
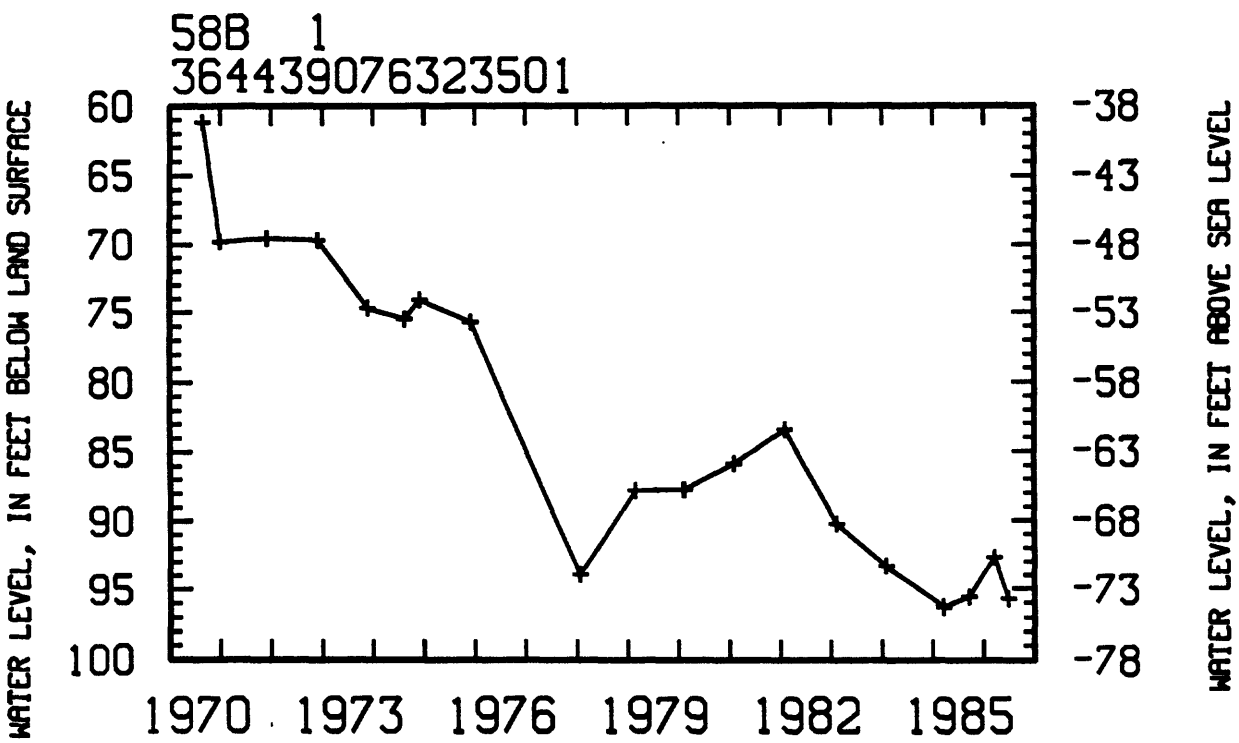
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58A 79 SOW 180C
363655076332004
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
100
101
102
103
104
105
-66
-67
-68
-69
-70
-71
J F M A M J J A S O N D
1987


58B 1
364439076323501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
60
65
70
75
80
85
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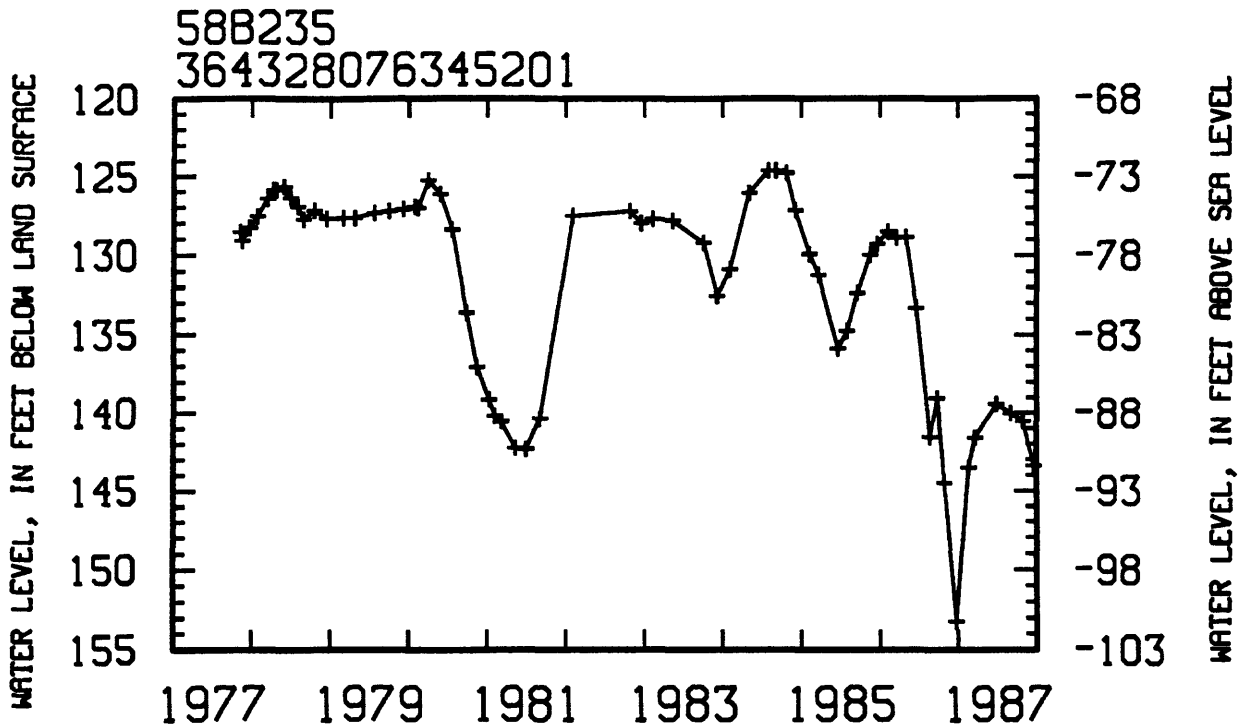
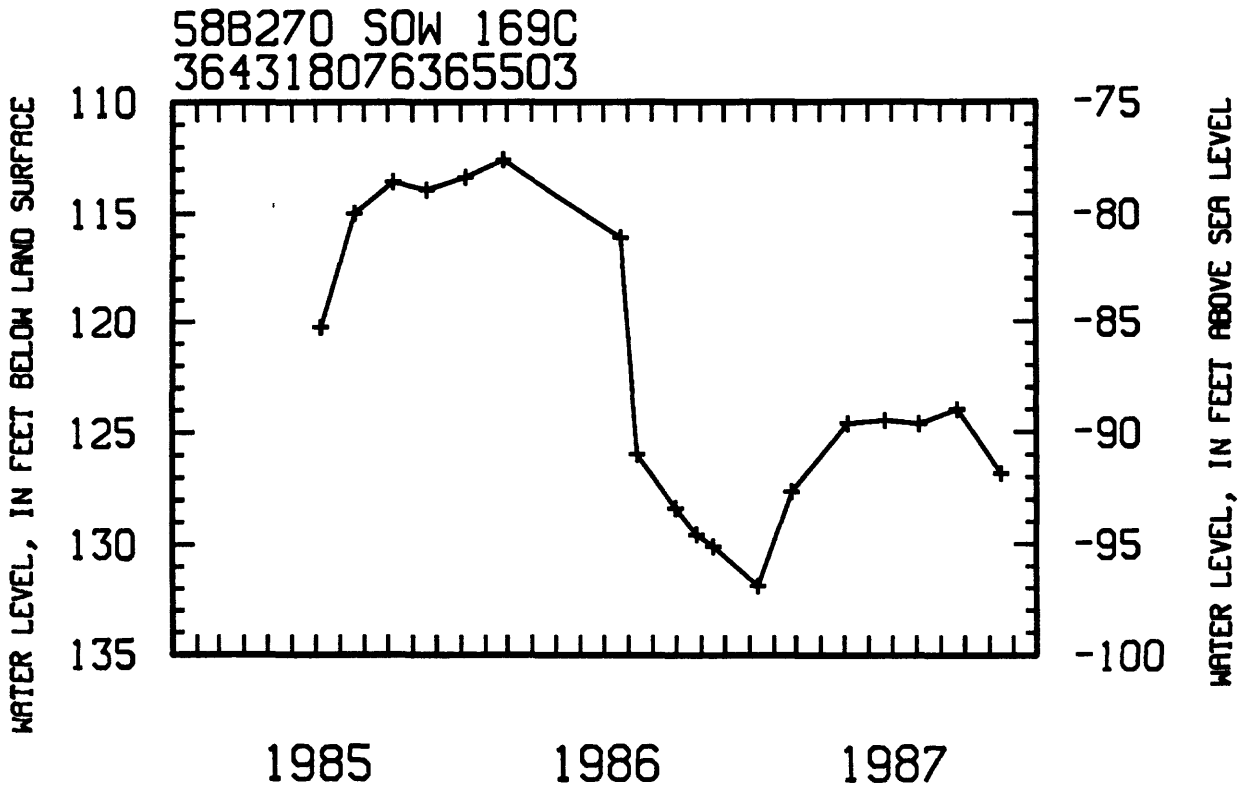
95
100
-38
-43
-48
-53
-58
-63
-68
-73
-78
1970 1973 1976 1979 1982 1985


58B235
364328076345201
WATER LEVEL, IN FEET BELOW LAND SURFACE
120
125
130
135
140
145
150
155
-68
-73
-78
-83
-88
-93
-98
-103
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1977
1979
1981
1983
1985
1987


58B270 SOW 169C
364318076365503
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
115
120
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-85
-90
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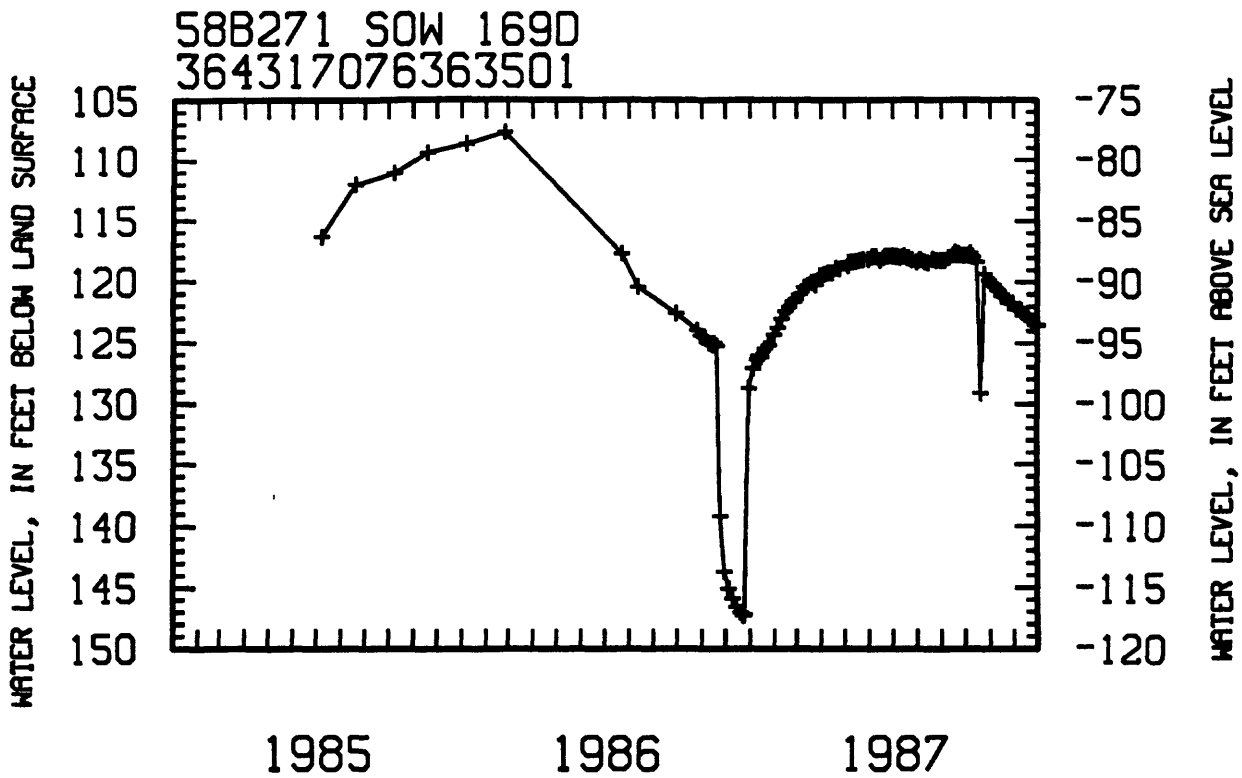
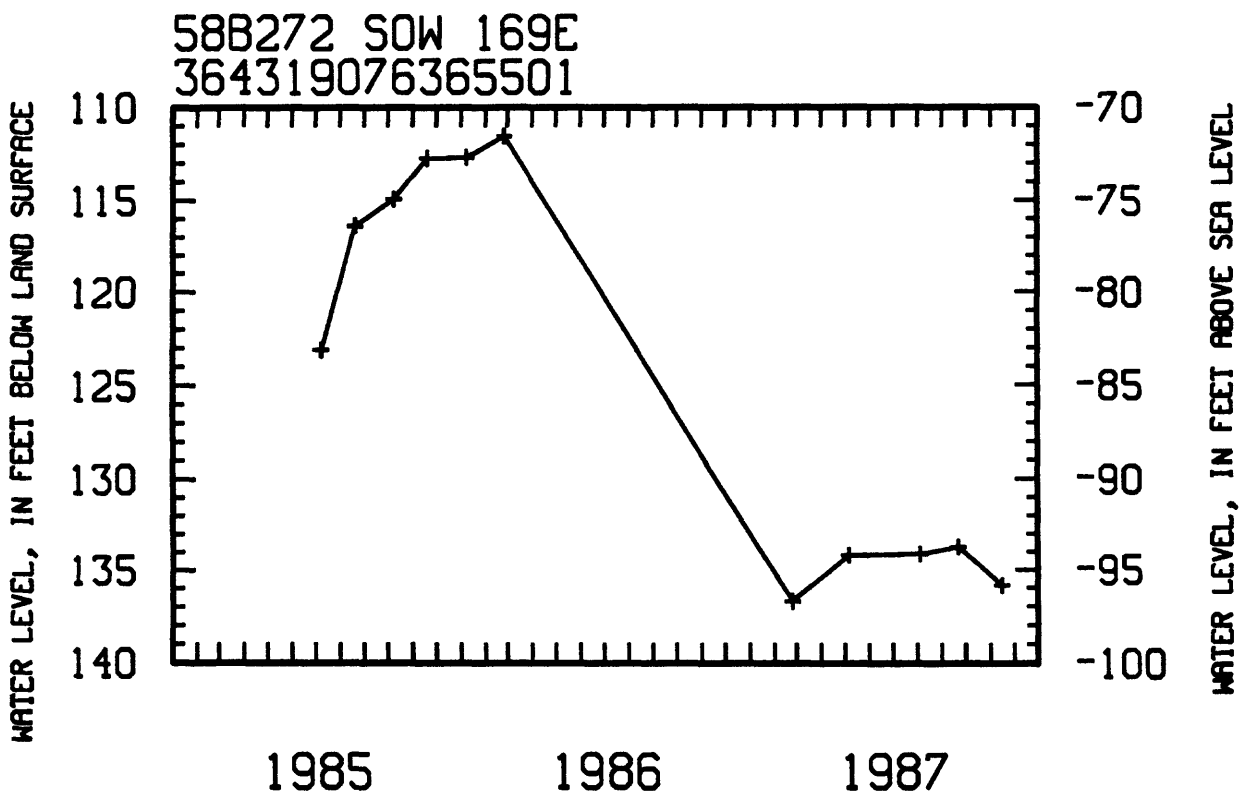
-100
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58B271 SOW 169D
364317076363501
WATER LEVEL, IN FEET BELOW LAND SURFACE
105
110
115
120
125
130
135
140
145
150
-75
-80
-85
-90
-95
-100
-105
-110
-115
-120
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58B272 SOW 169E
364319076365501
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110
115
120
125
130
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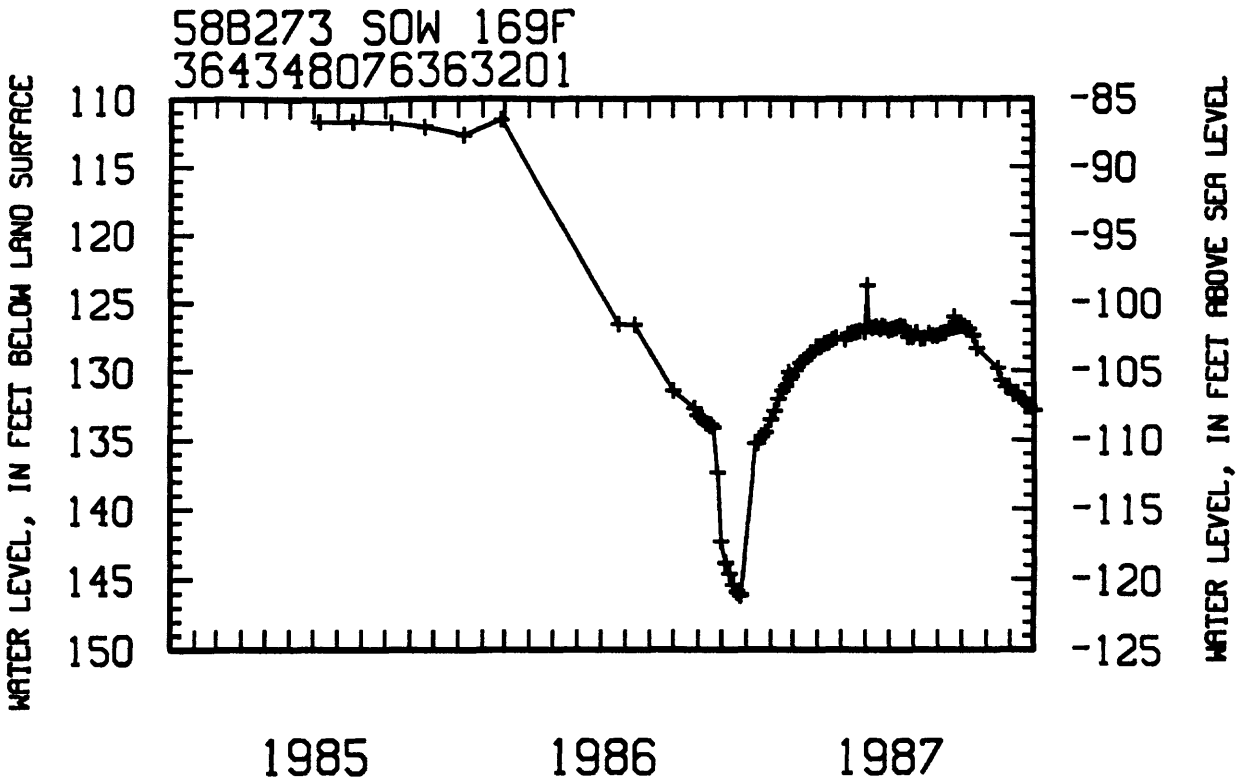
-100
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58B273 SOW 169F
364348076363201
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
115
120
125
130
135
140
145
150
-85
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-105
-110
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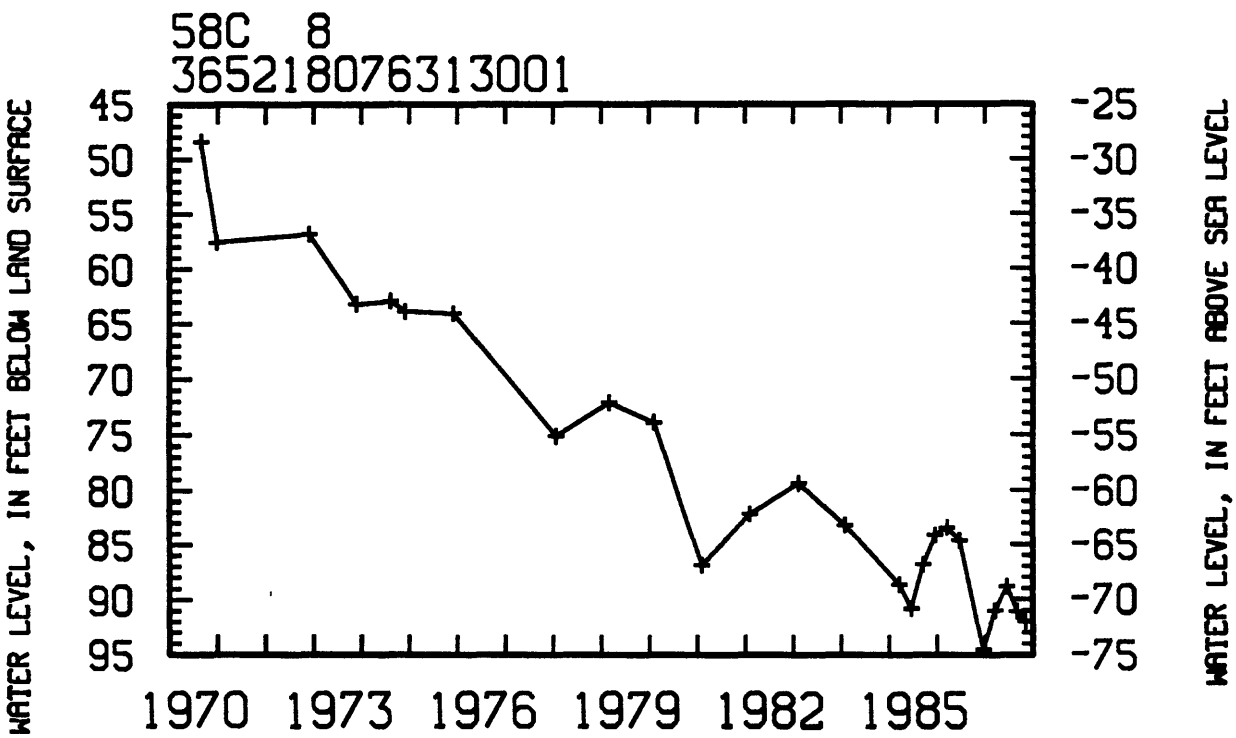
-125
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987


58C 8
365218076313001
WATER LEVEL, IN FEET BELOW LAND SURFACE
45
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75
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85
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-25
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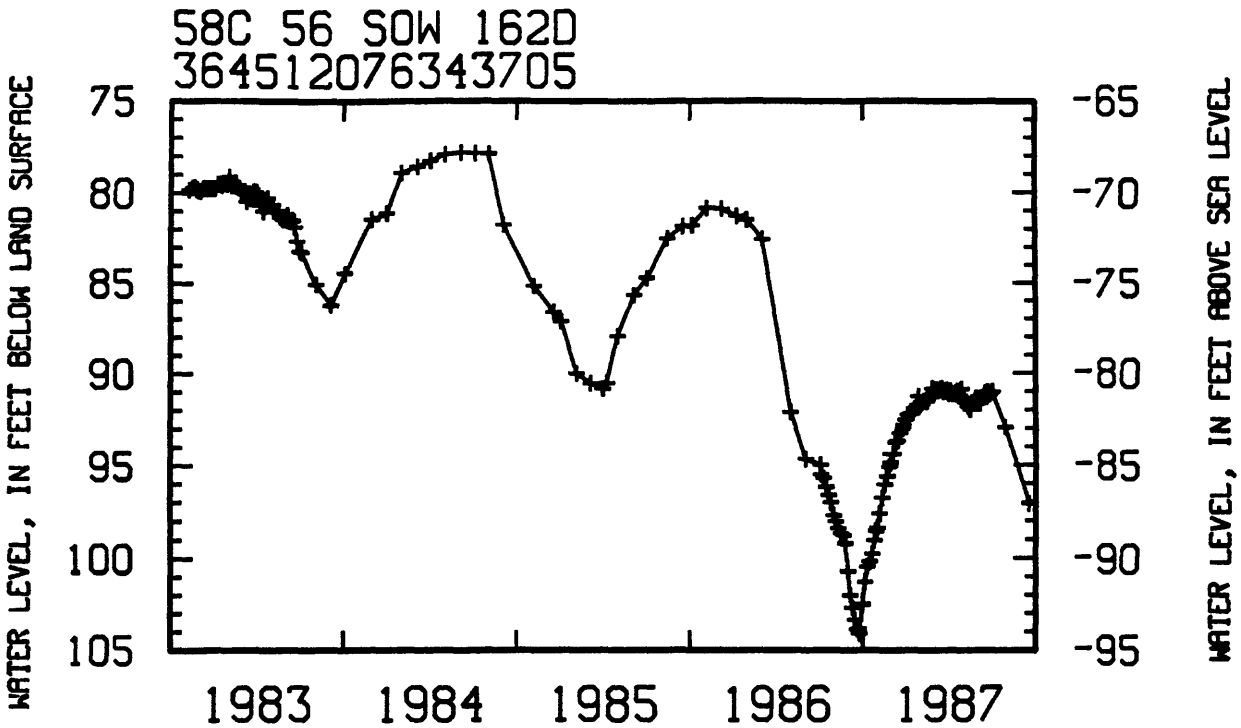
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985


58C 56 SOW 162D
364512076343705
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
80
85
90
95
100
105
-65
-70
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-80
-85
-90
-95
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1983
1984
1985
1986
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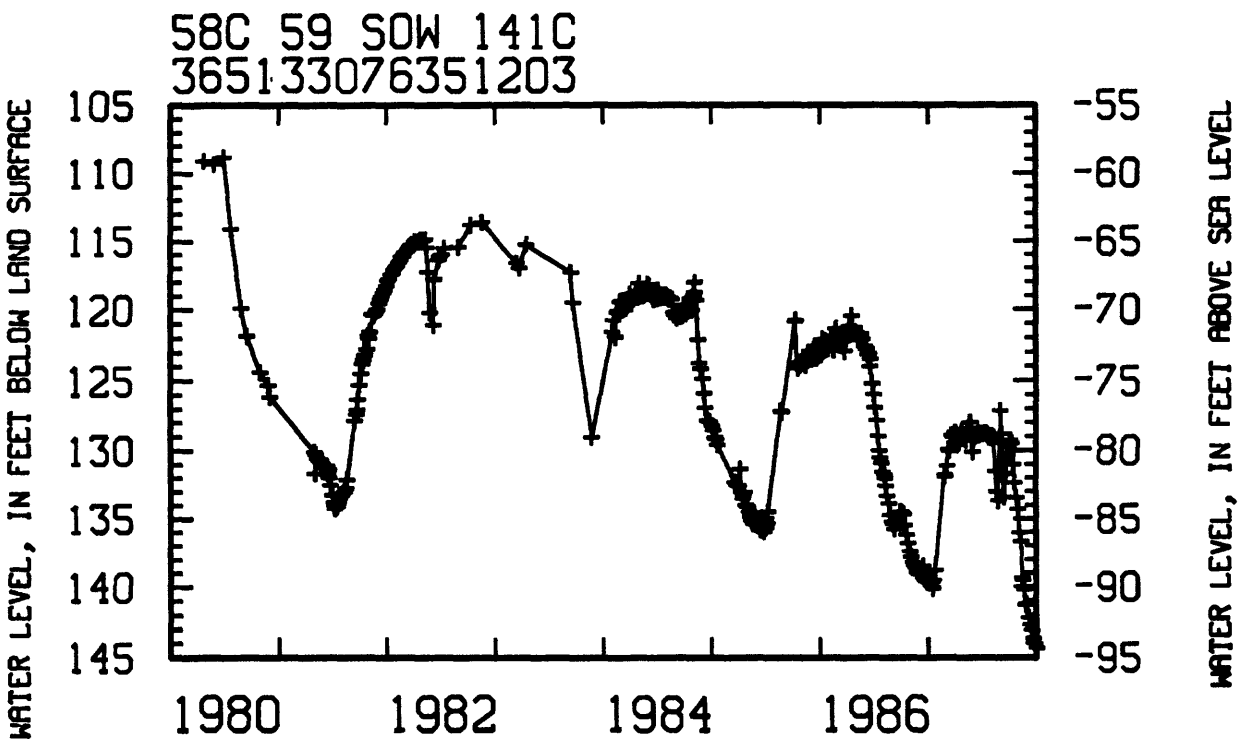
58C 59 SOW 141C
365133076351203
WATER LEVEL, IN FEET BELOW LAND SURFACE
105
110
115
120
125
130
135
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-55
-60
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
1980
1982
1984
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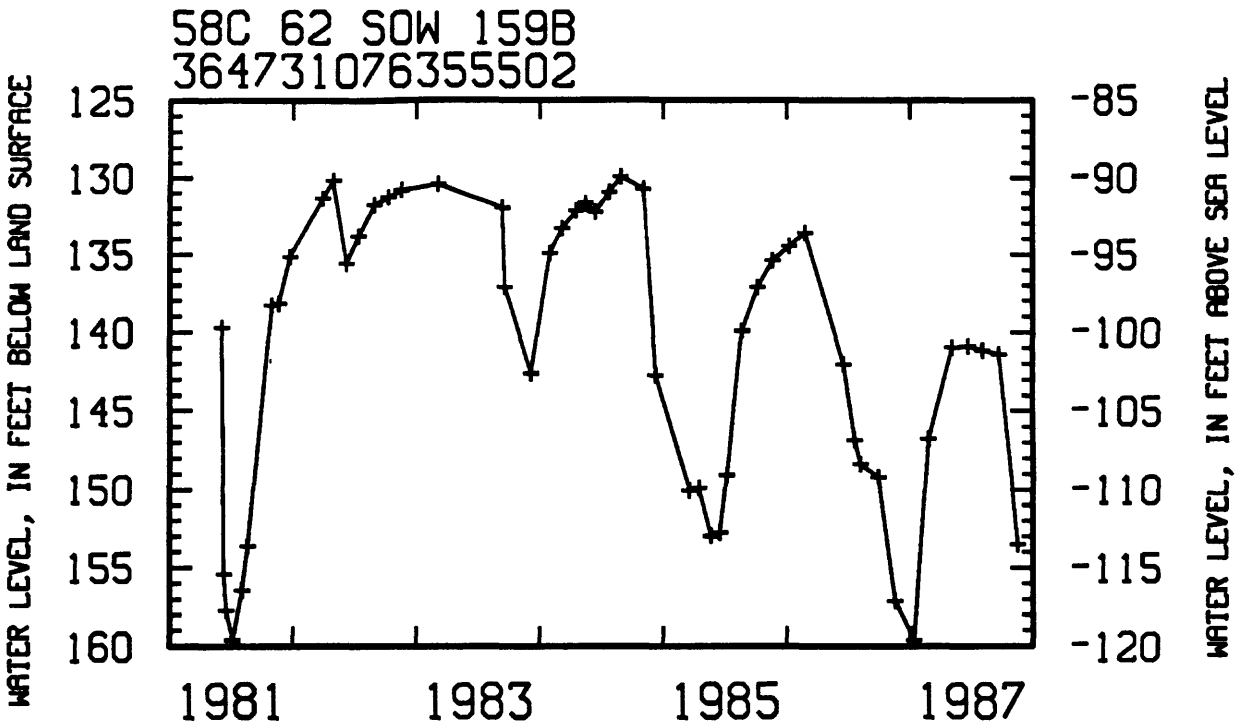
58C 62 SOW 159B
364731076355502
WATER LEVEL, IN FEET BELOW LAND SURFACE
125
130
135
140
145
150
155
160
-85
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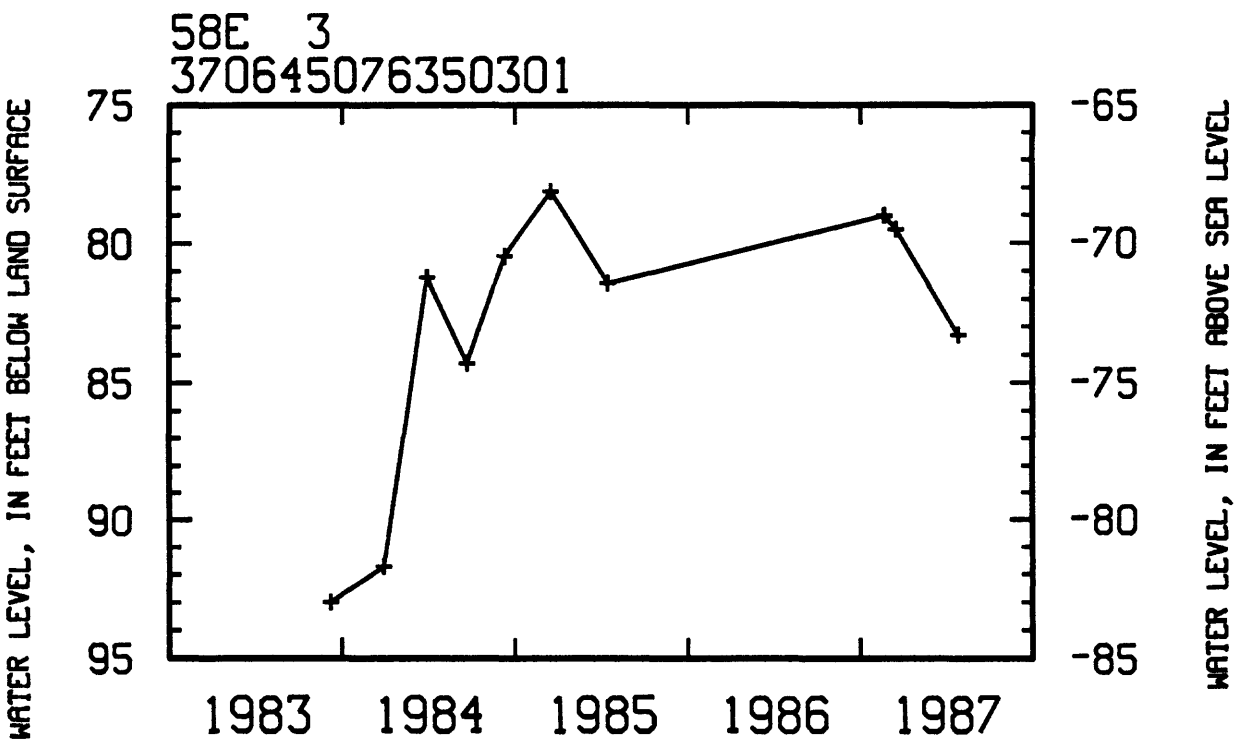
-120
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1981
1983
1985
1987


58E 3
370645076350301
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
1983
1984
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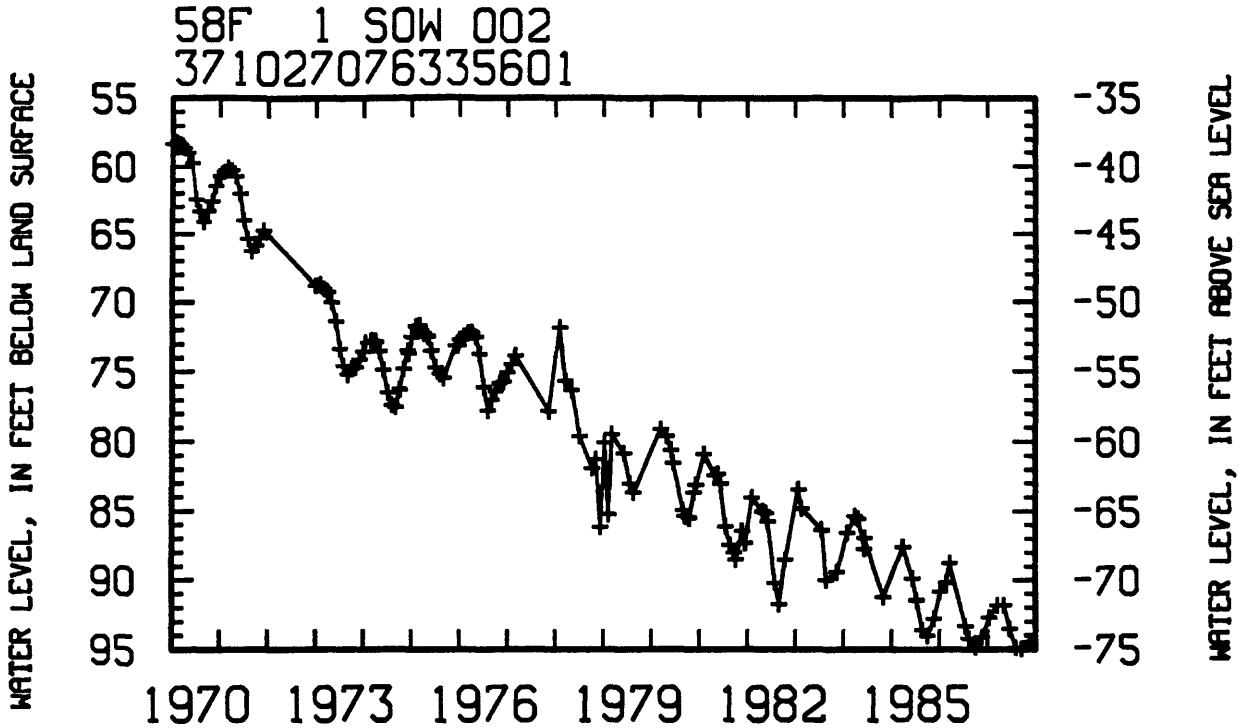
58F 1 SOW 002
371027076335601
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
55
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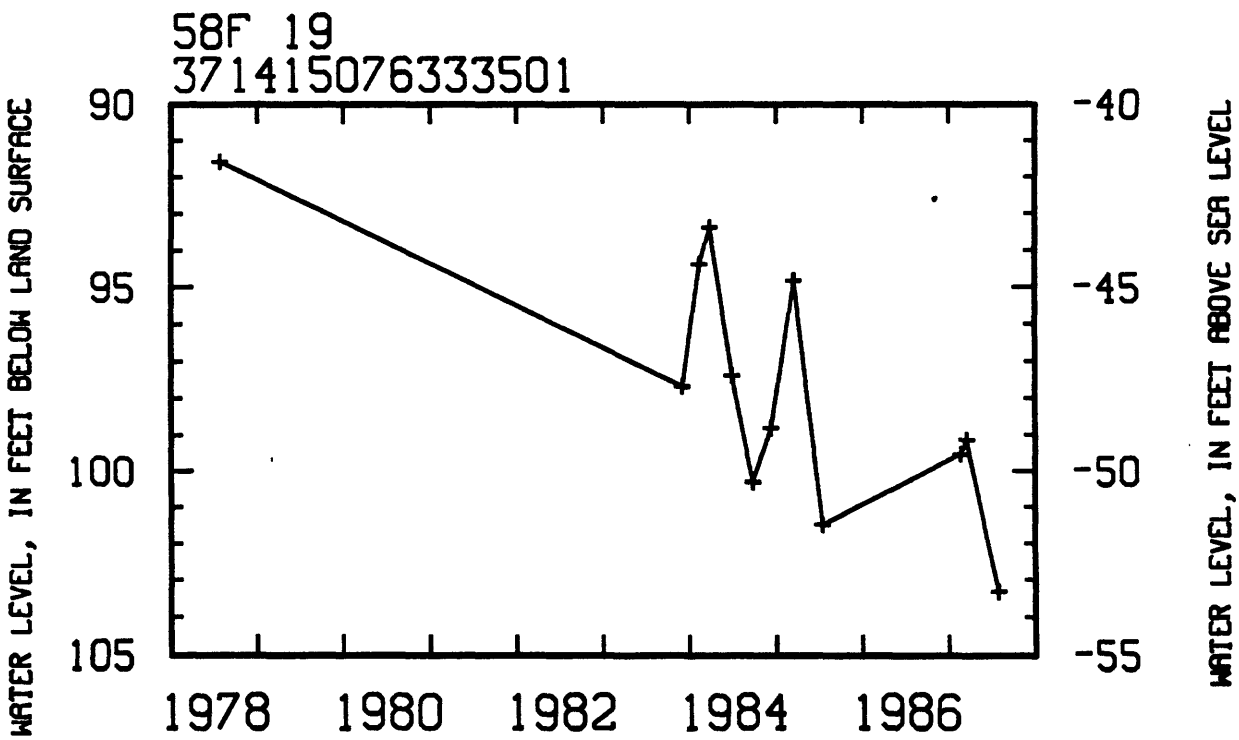
1970 1973 1976 1979 1982 1985


58F 19
371415076333501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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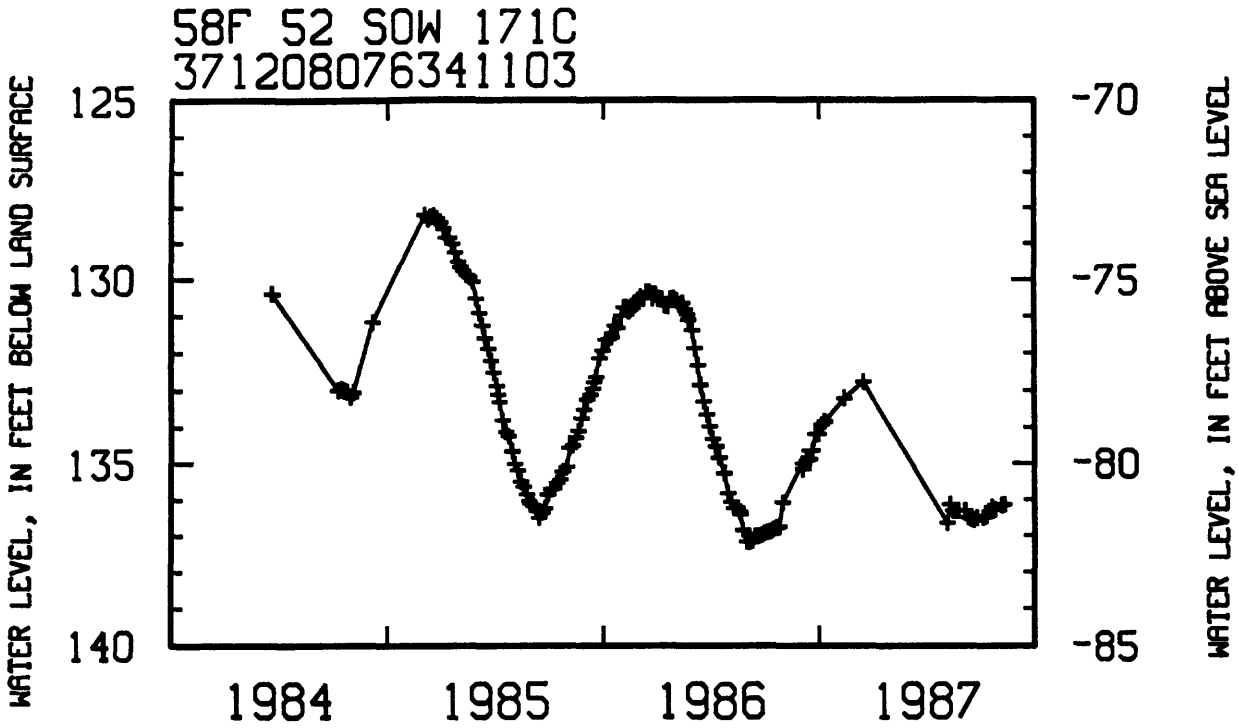
1978 1980 1982 1984 1986


58F 52 SOW 171C
371208076341103
WATER LEVEL, IN FEET BELOW LAND SURFACE
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
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1986
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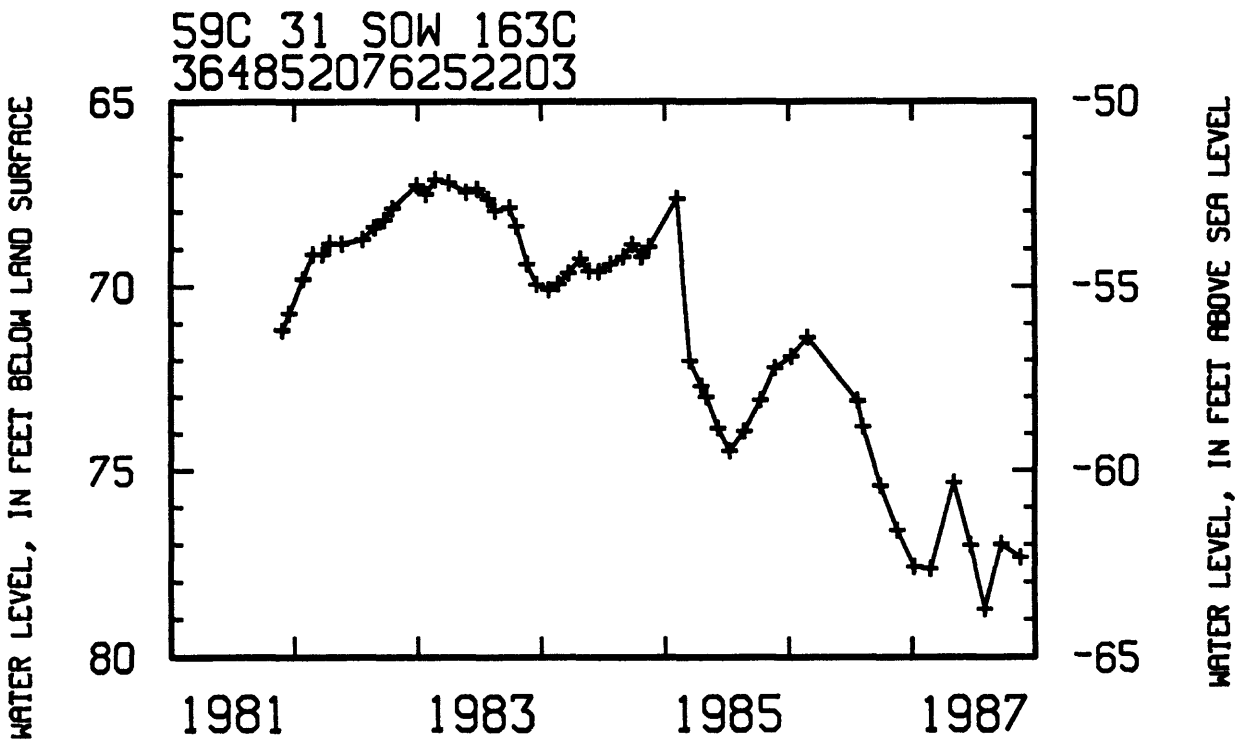
59C 31 SOW 163C
364852076252203
WATER LEVEL, IN FEET BELOW LAND SURFACE
65
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
1981
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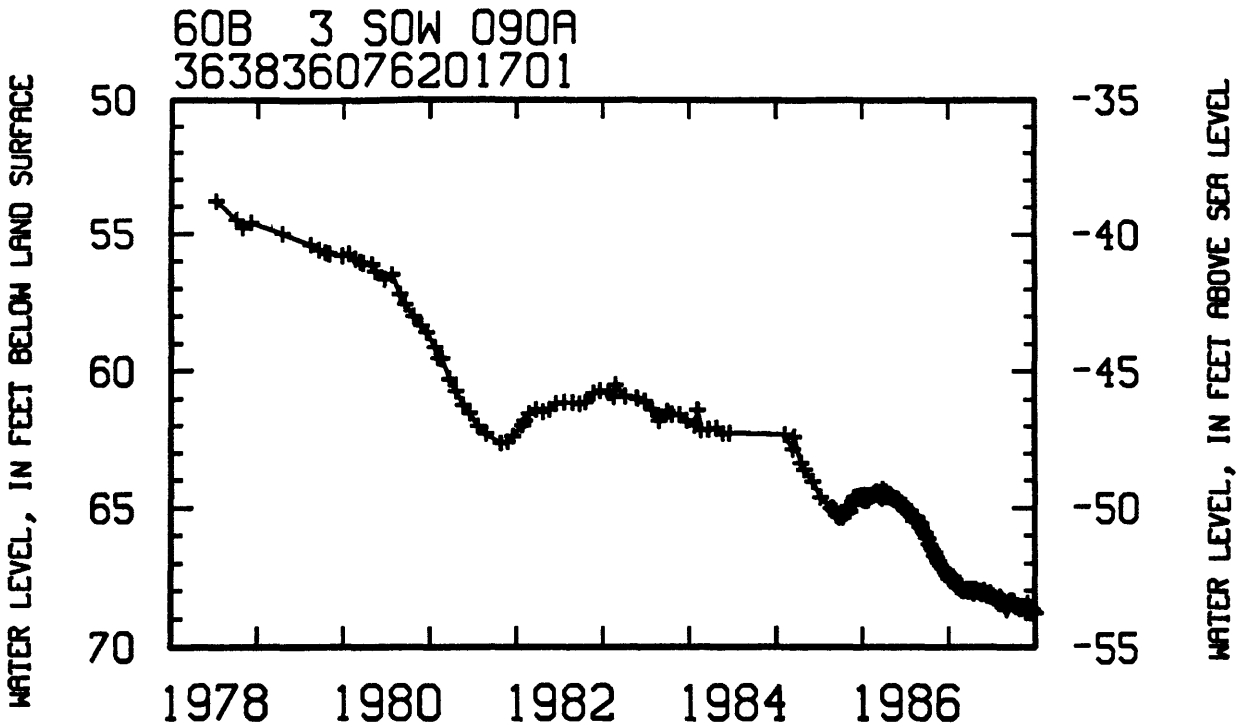
60B 3 SOW 090A
363836076201701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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1978
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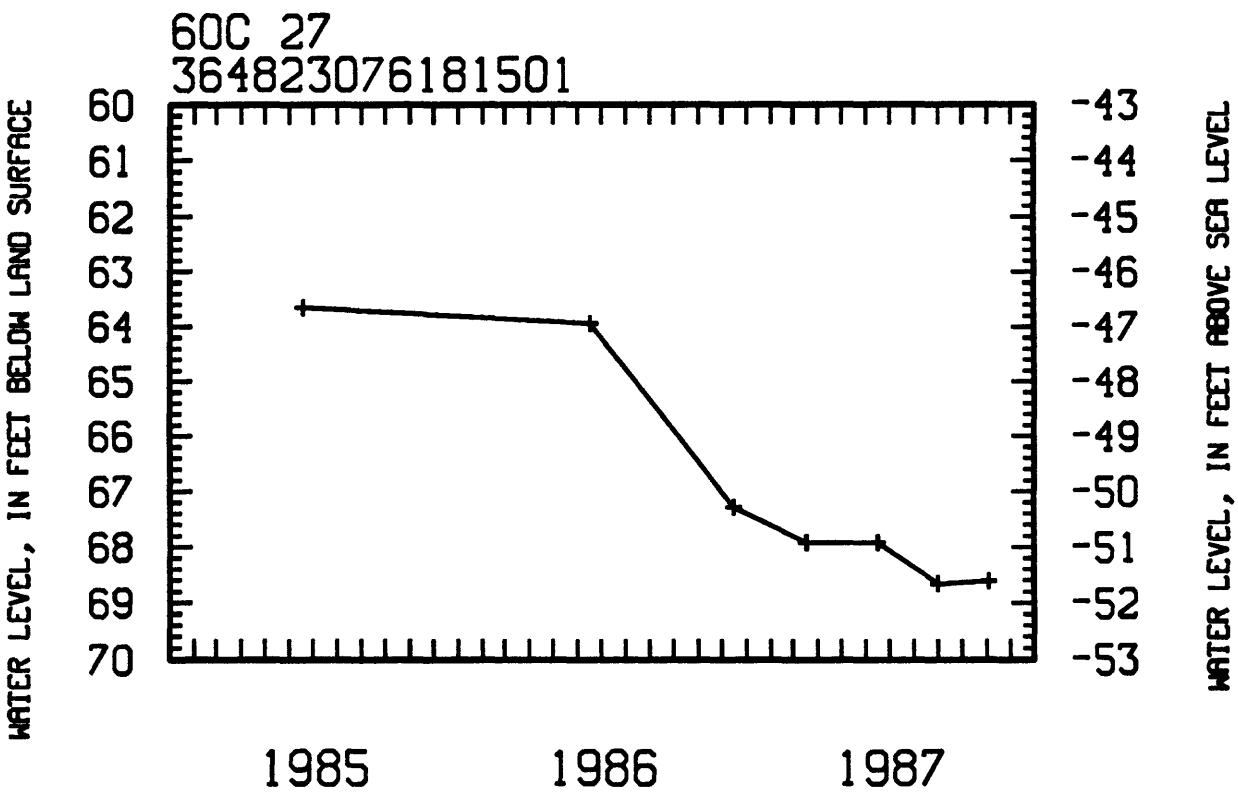
60C 27
364823076181501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
60
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1985
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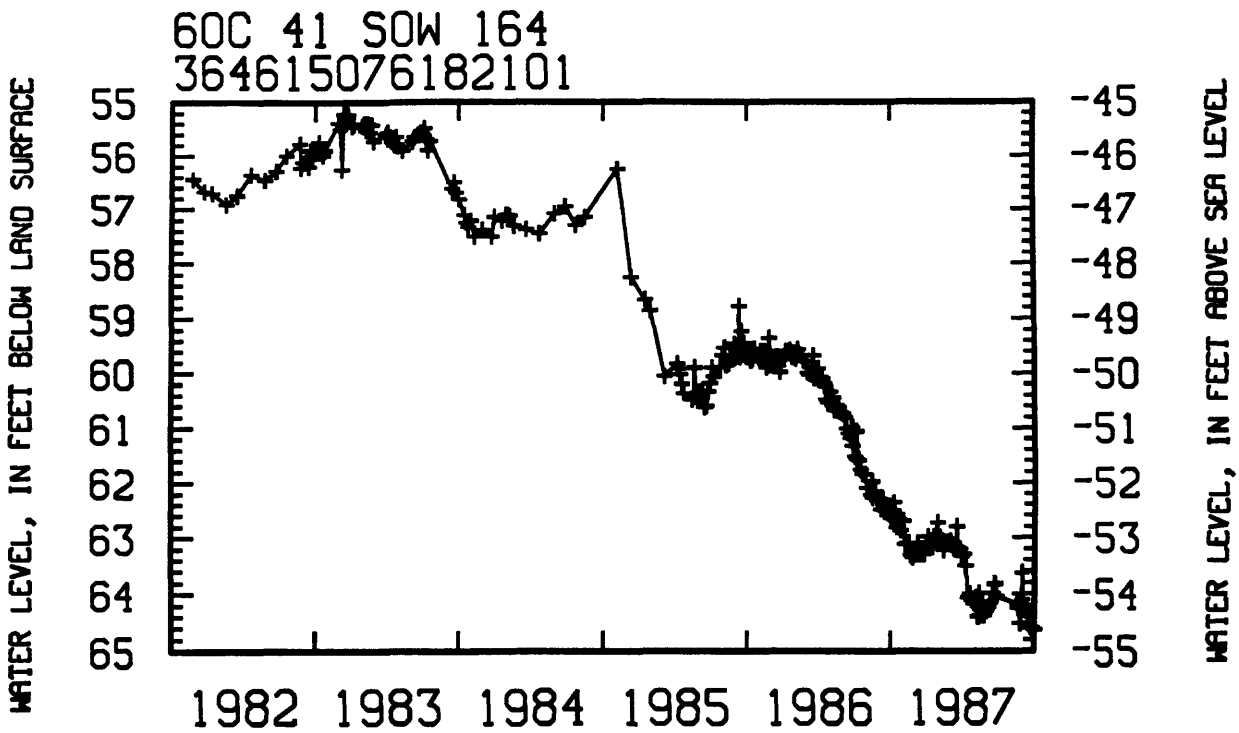
60C 41 SOW 164
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WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
55
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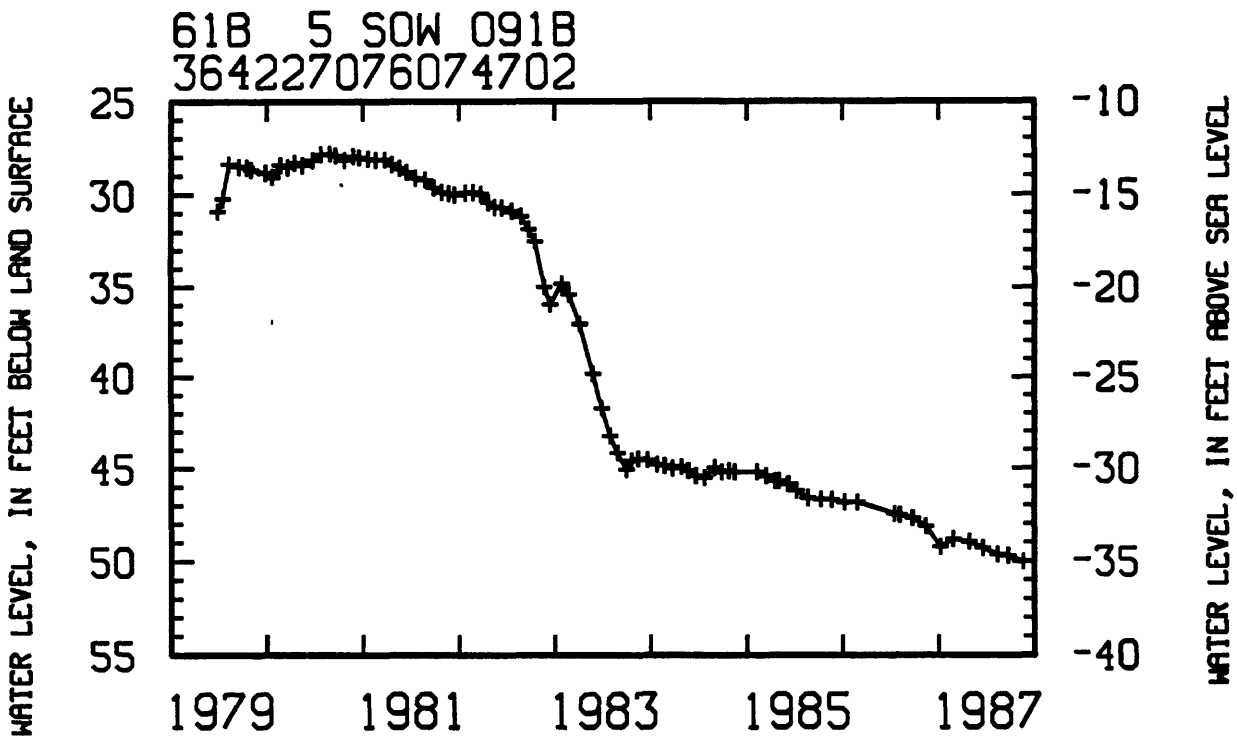
61B 5 SOW 091B
364227076074702
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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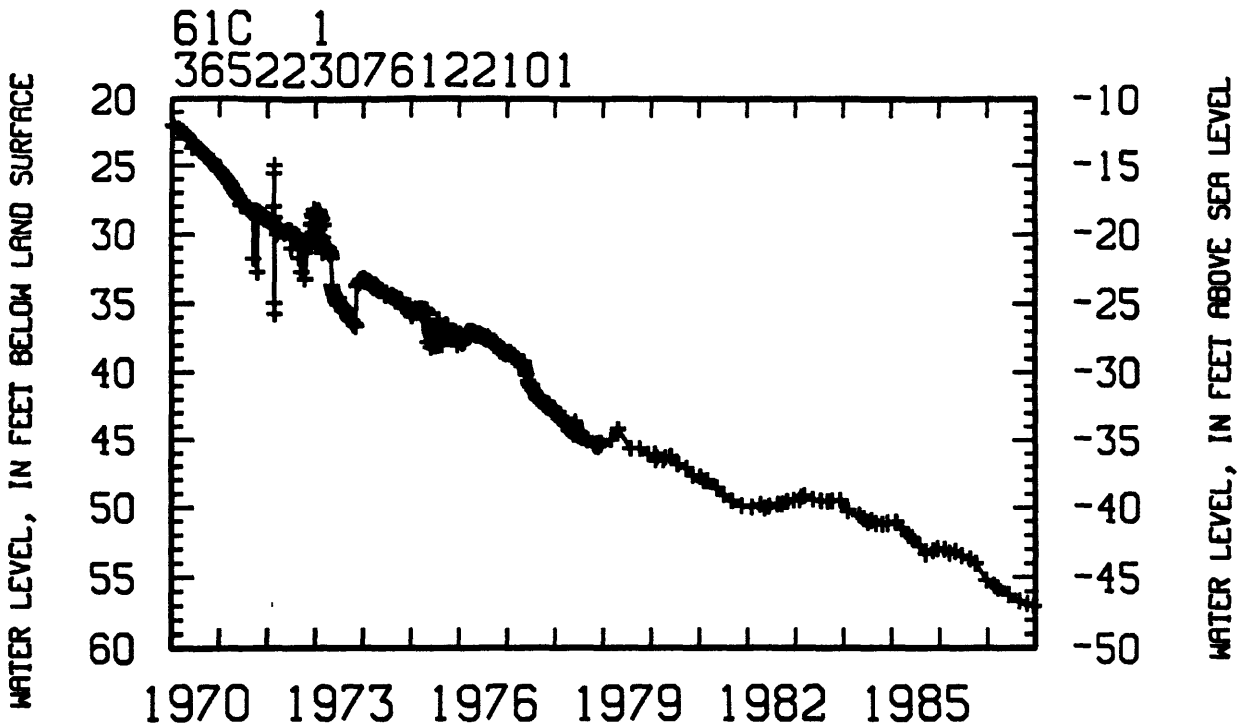
61C 1
365223076122101
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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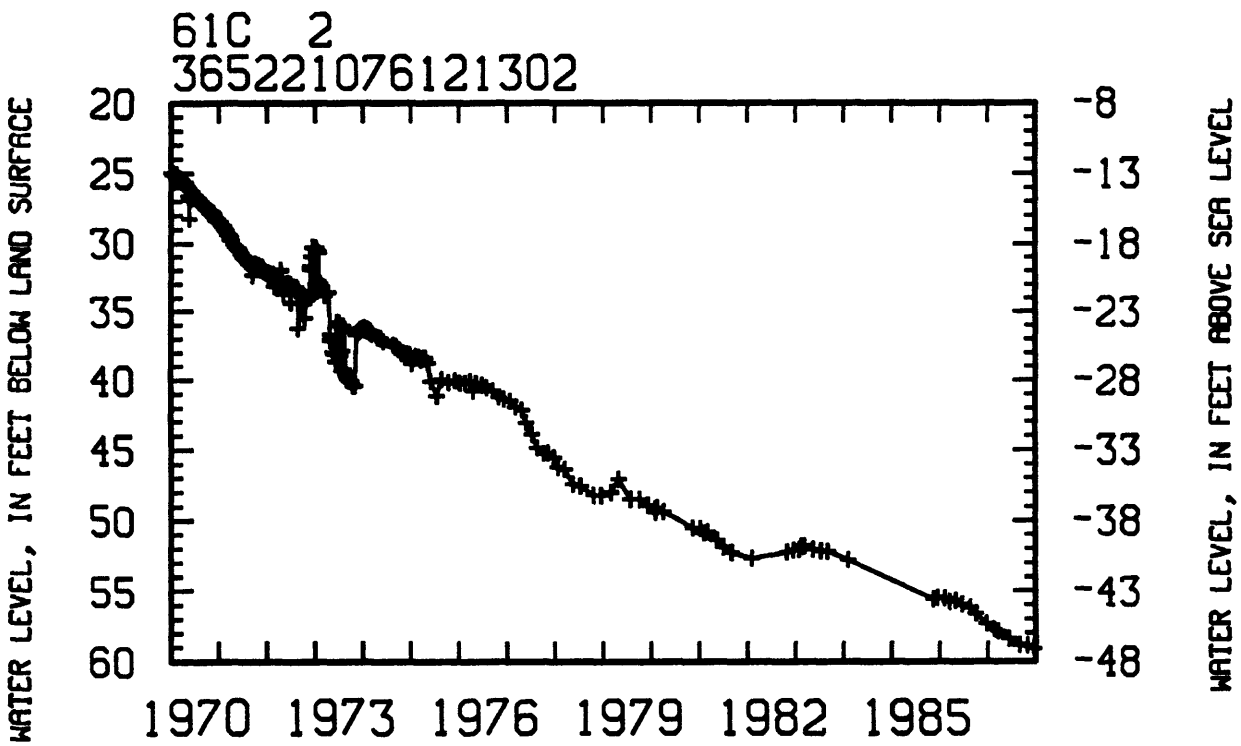
1970 1973 1976 1979 1982 1985


61C 2
365221076121302
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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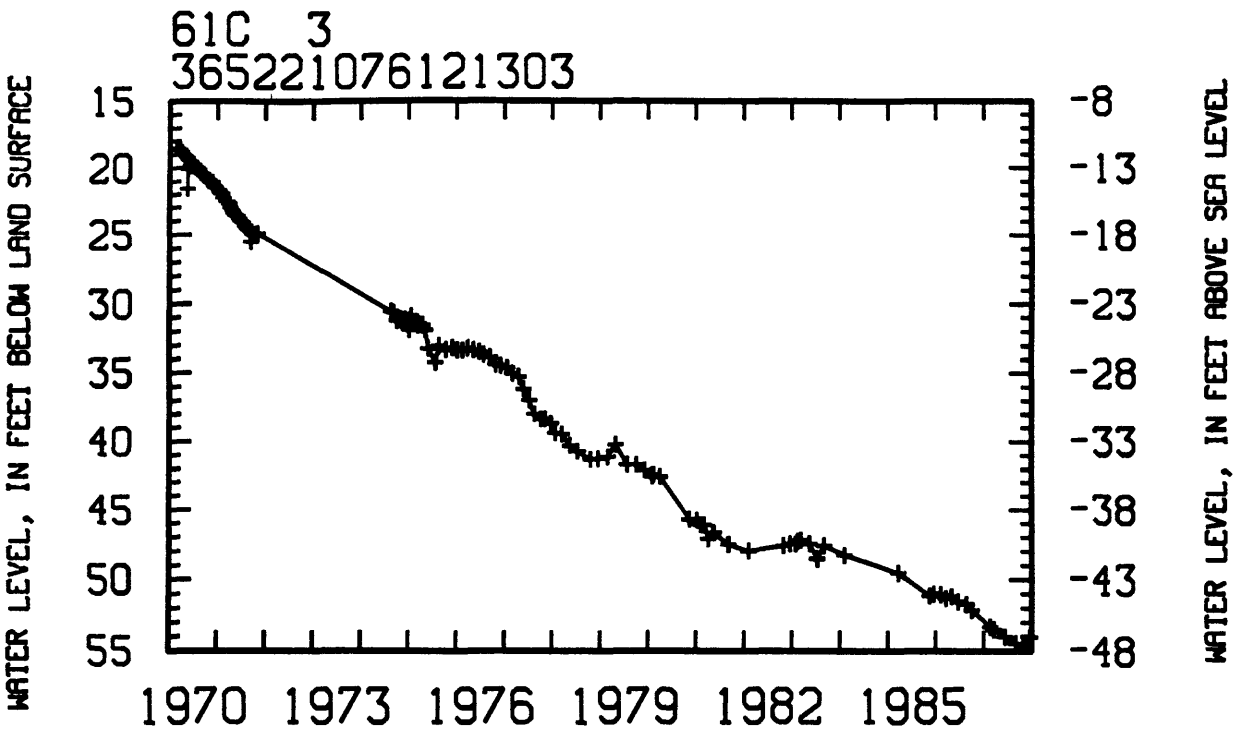
1970 1973 1976 1979 1982 1985


61C 3
365221076121303
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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1970
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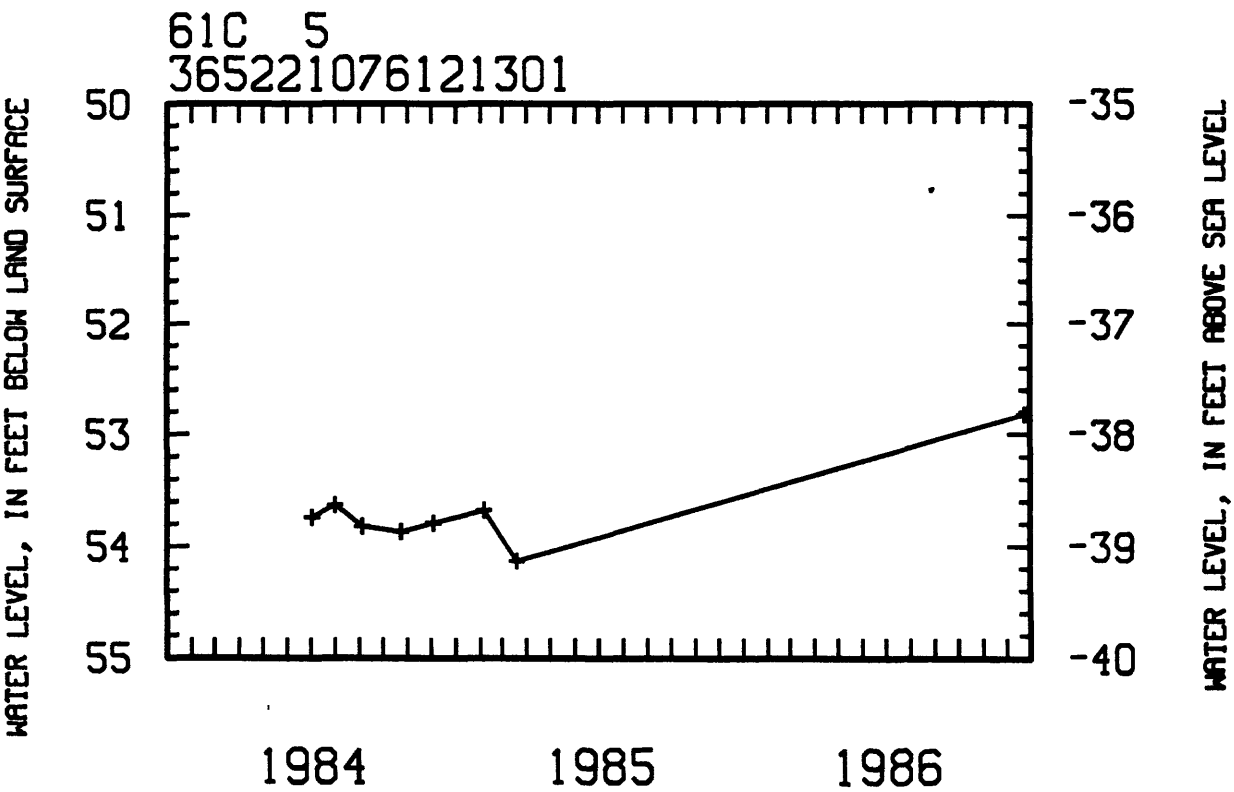
61C 5
365221076121301
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
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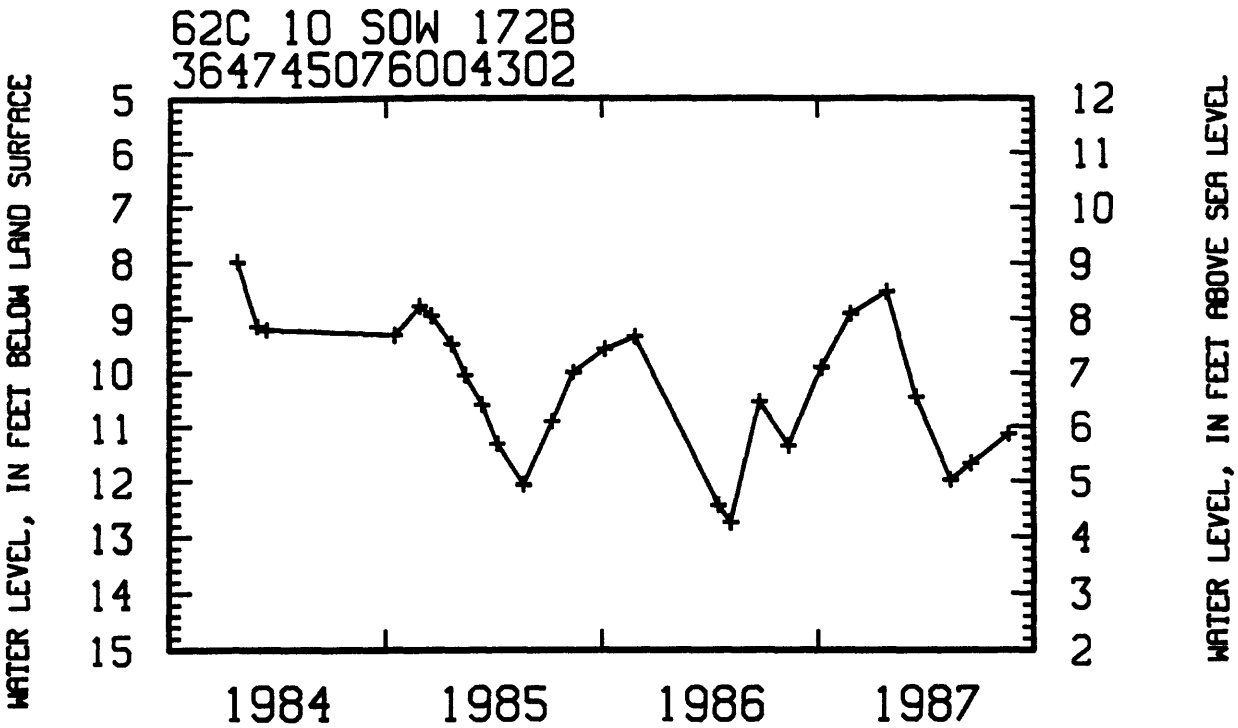
1984
1985
1986

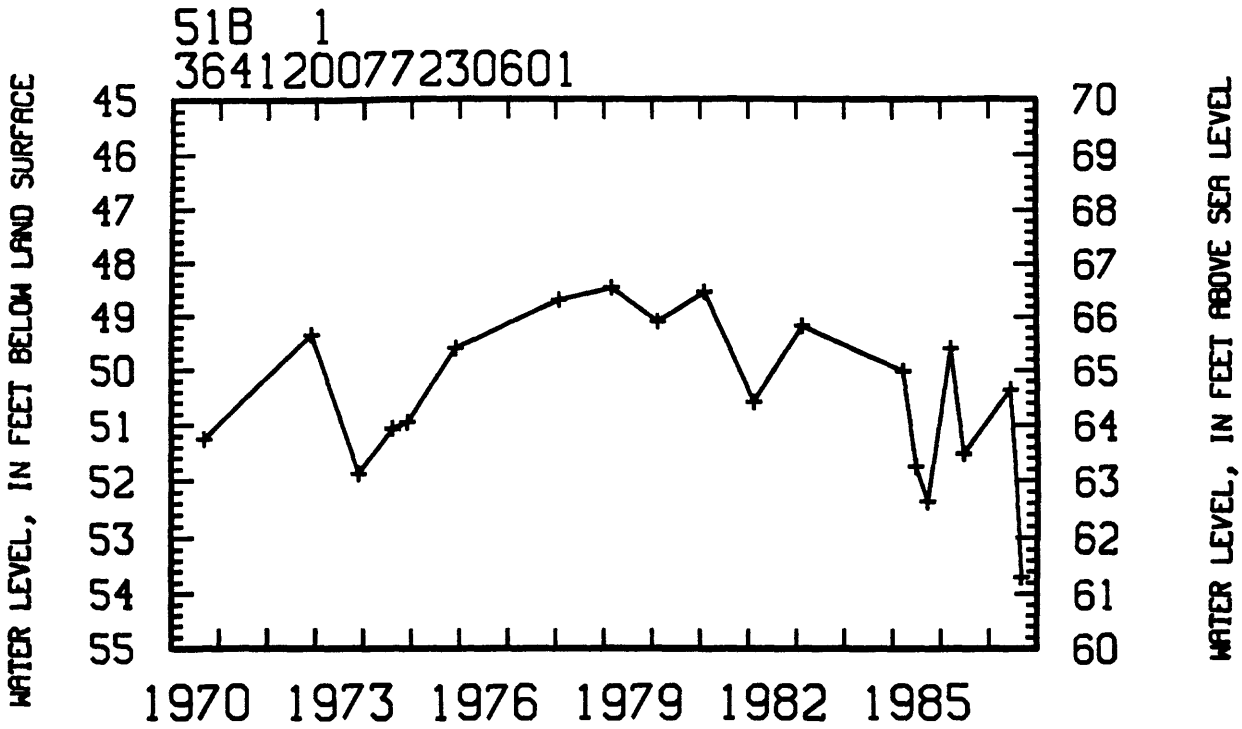

62C 10 SOW 172B
364745076004302
WATER LEVEL, IN FEET BELOW LAND SURFACE
5
6
7
8
9
10
11
12
13
14
15
12
11
10
9
8
7
6
5
4
3
2
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

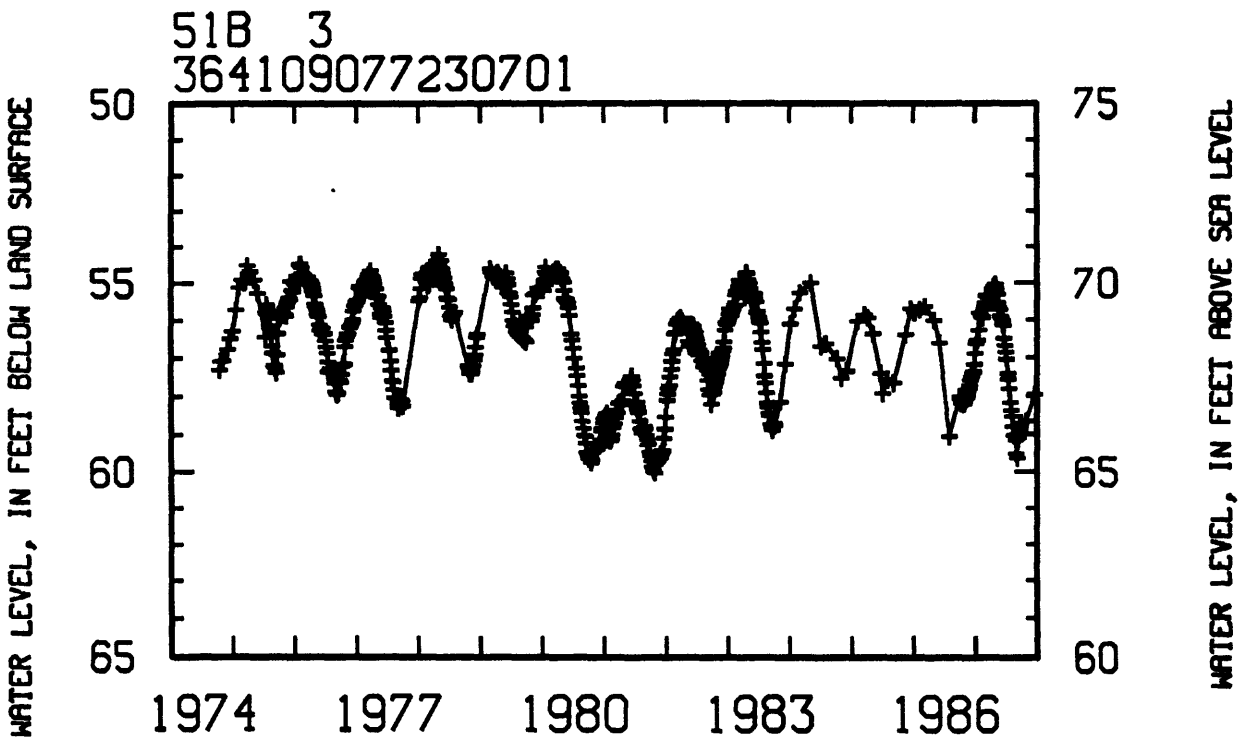
APPENDIX VI

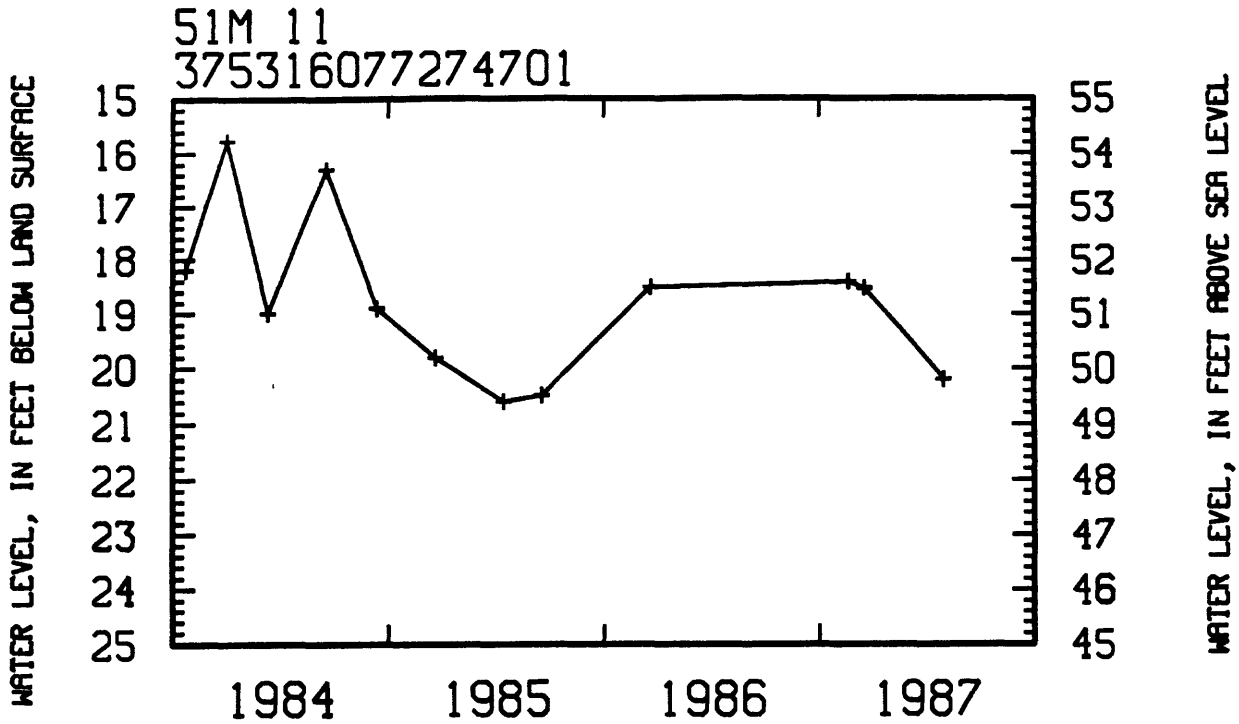
WATER LEVELS IN WELLS IN THE MIDDLE POTOMAC AQUIFER

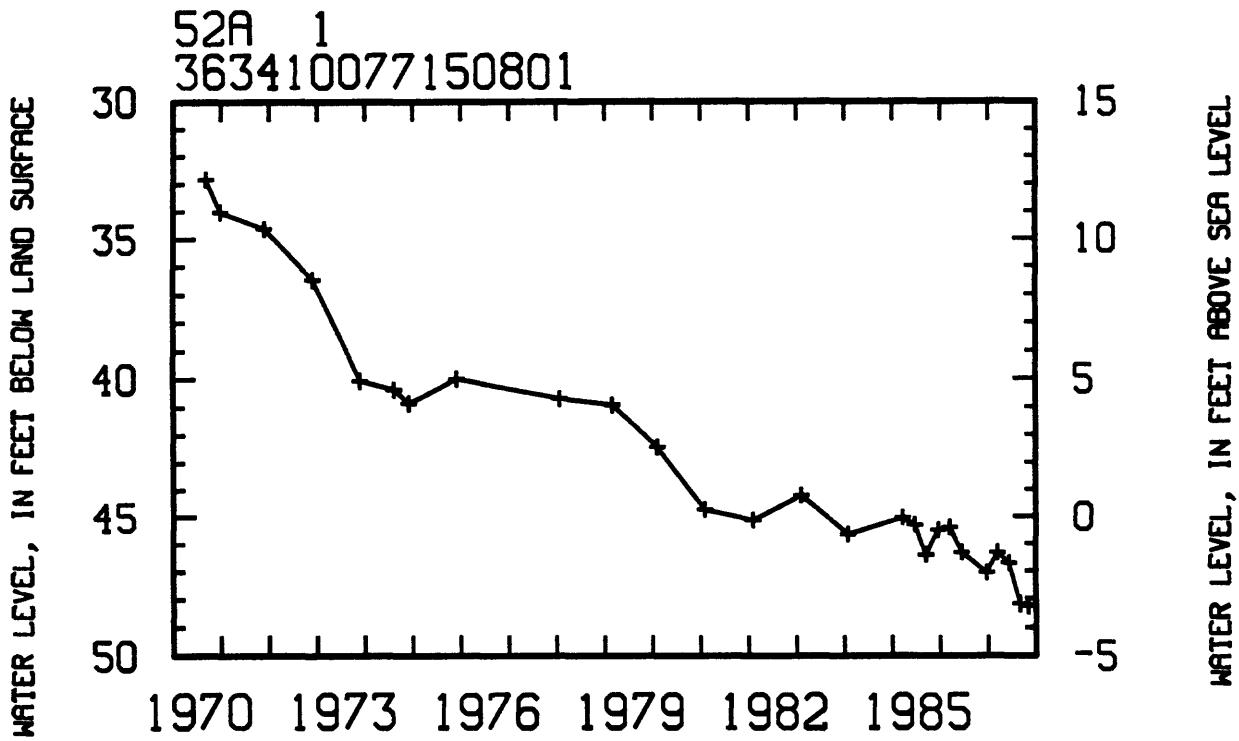
EXPLANATION

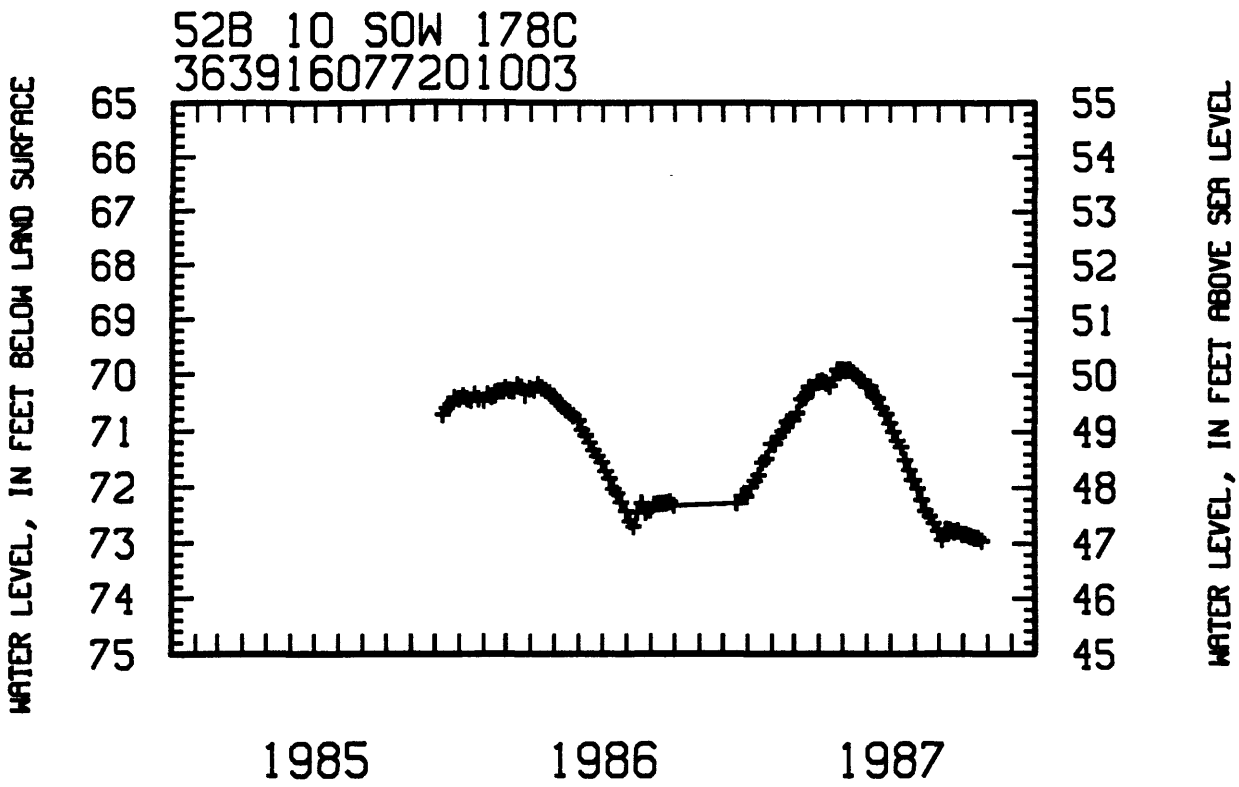
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
52B 10--USGS WELL NO.
SOW 178C--VIRGINIA STATE OBSERVATION WELL NO.
363916077201003--STATION IDENTIFICATION NO.

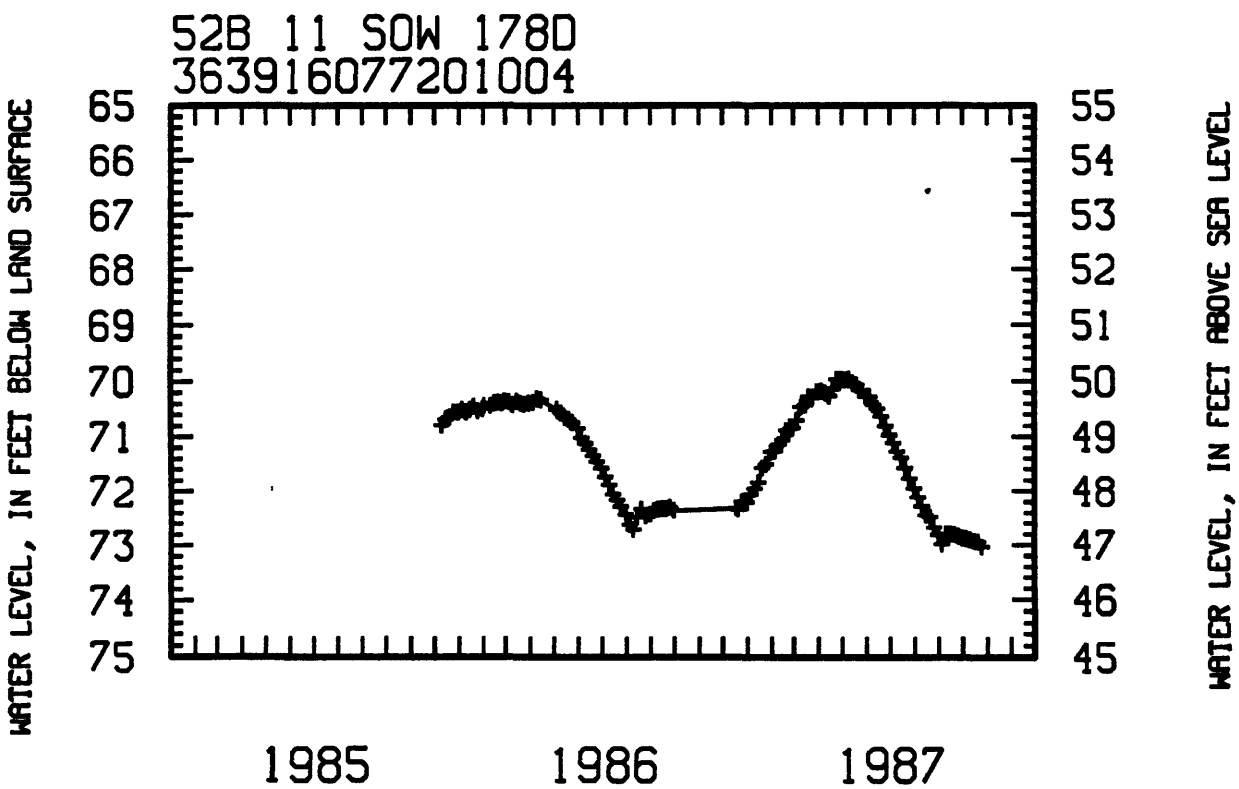

51B 1
364120077230601
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
45
46
47
48
49
50
51
52
53
54
55
70
69
68
67
66
65
64
63
62
61
60
1970 1973 1976 1979 1982 1985

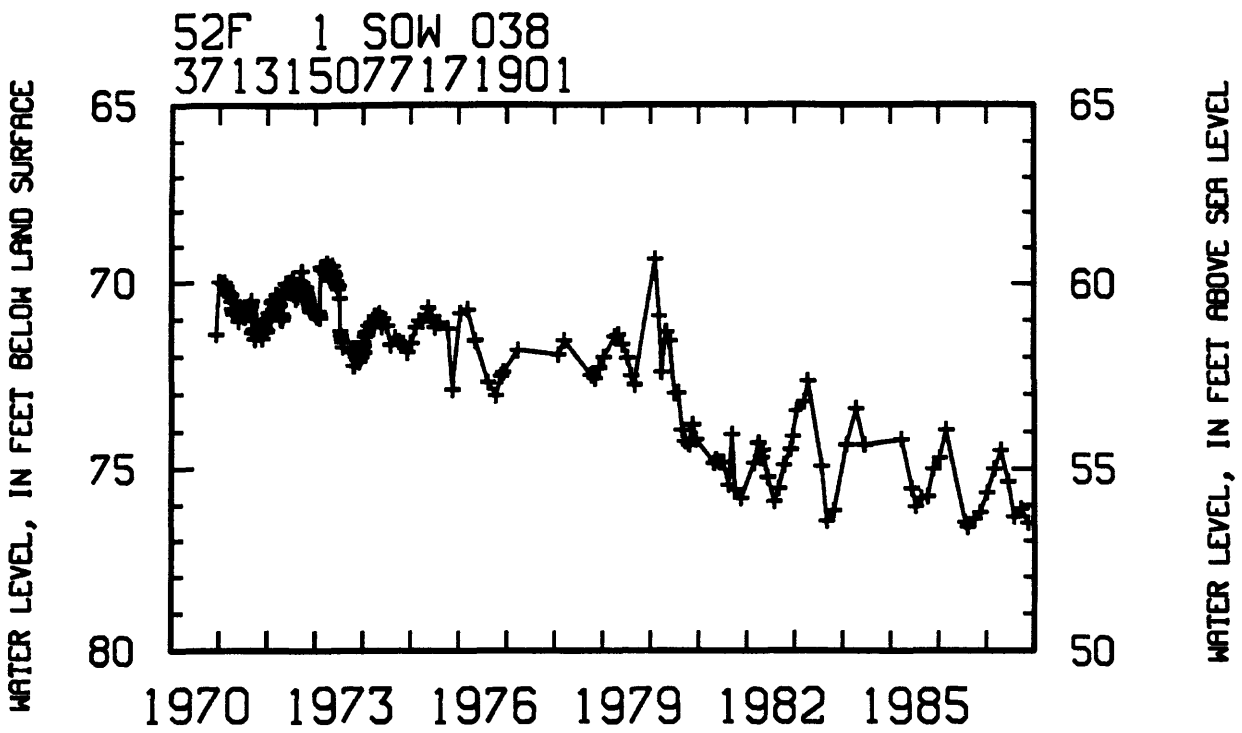

51B 3
364109077230701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
50
55
60
65
75
70
65
60
1974 1977 1980 1983 1986

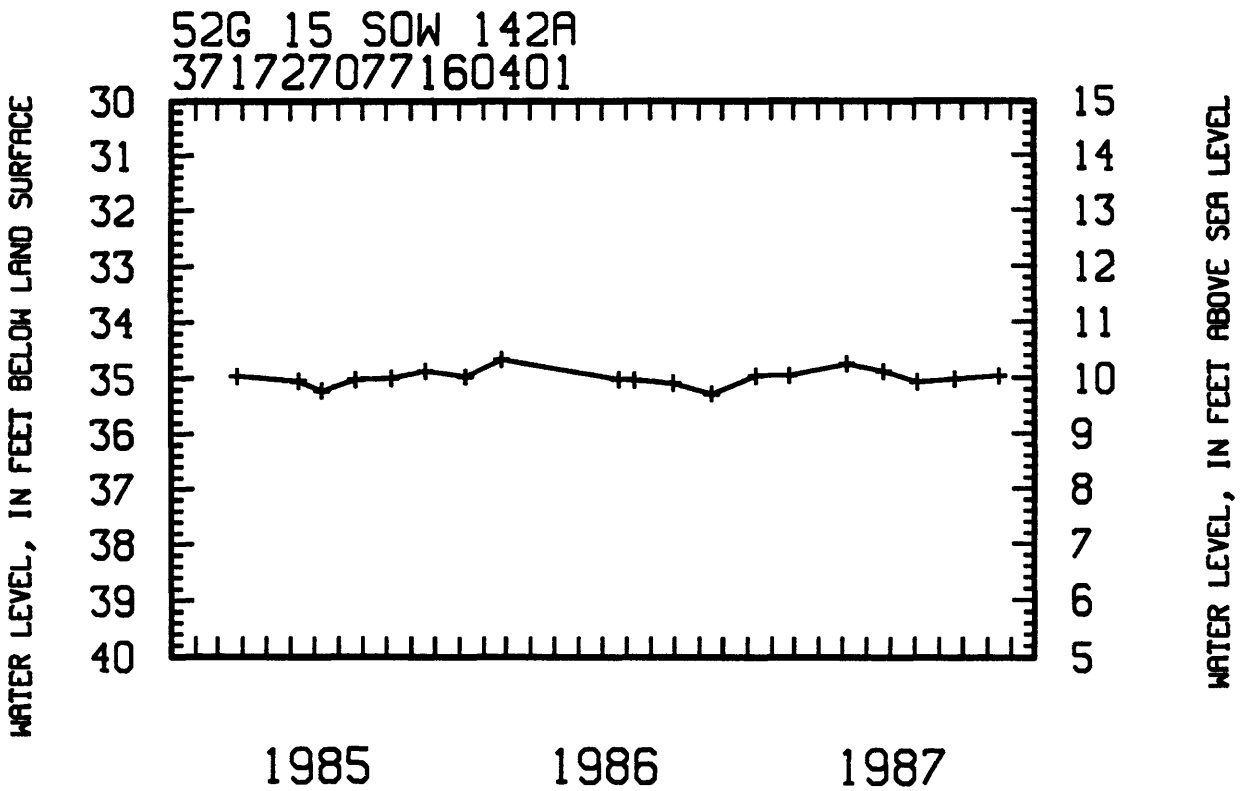

51M 11
375316077274701
WATER LEVEL, IN FEET BELOW LAND SURFACE
15
16
17
18
19
20
21
22
23
24
25
55
54
53
52
51
50
49
48
47
46
45
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

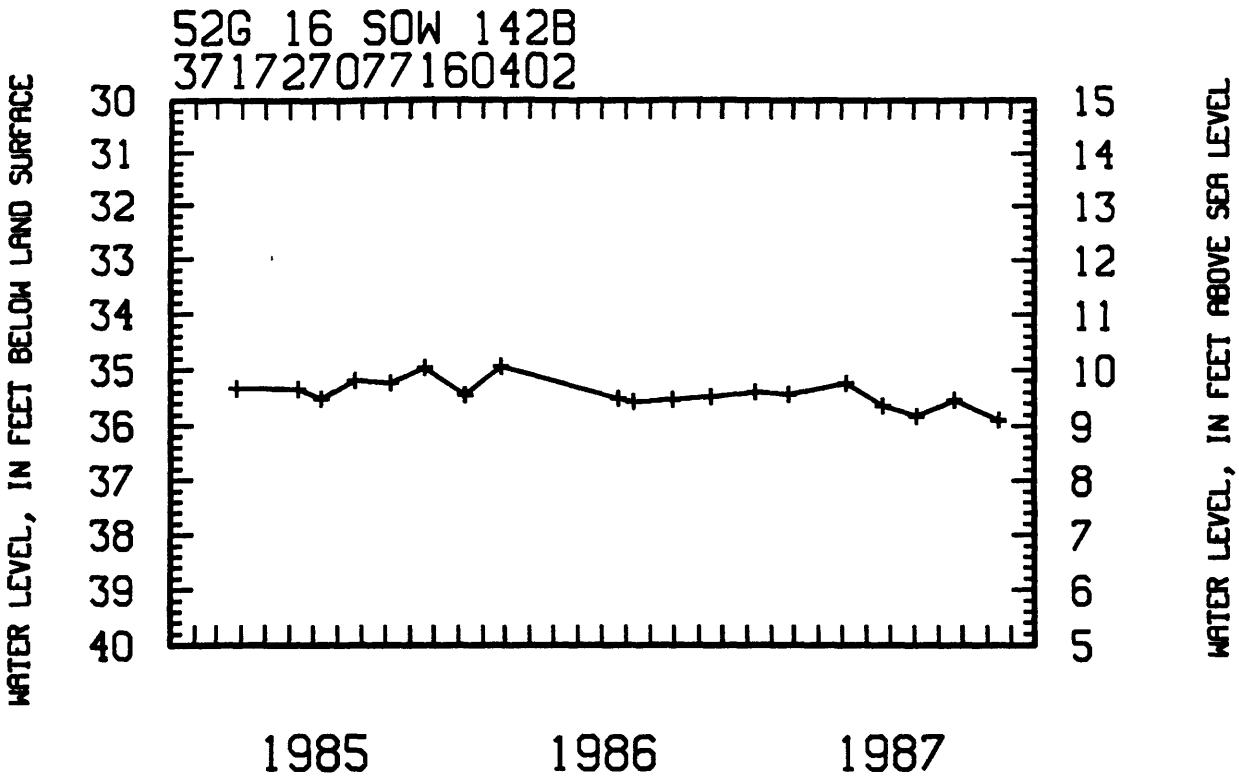

52A 1
363410077150801
WATER LEVEL, IN FEET BELOW LAND SURFACE
30
35
40
45
50
15
10
5
0
-5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970
1973
1976
1979
1982
1985

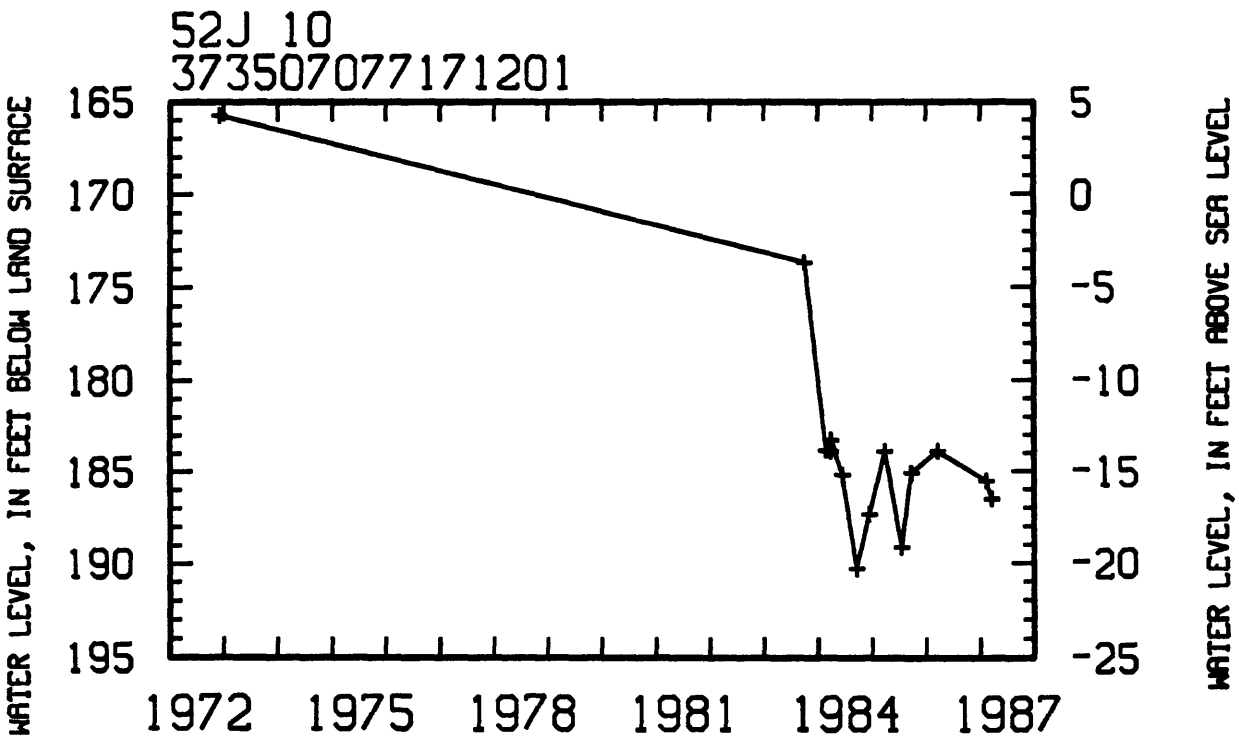

52B 10 SOW 178C
363916077201003
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
65
66
67
68
69
70
71
72
73
74
75
55
54
53
52
51
50
49
48
47
46
45
1985
1986
1987

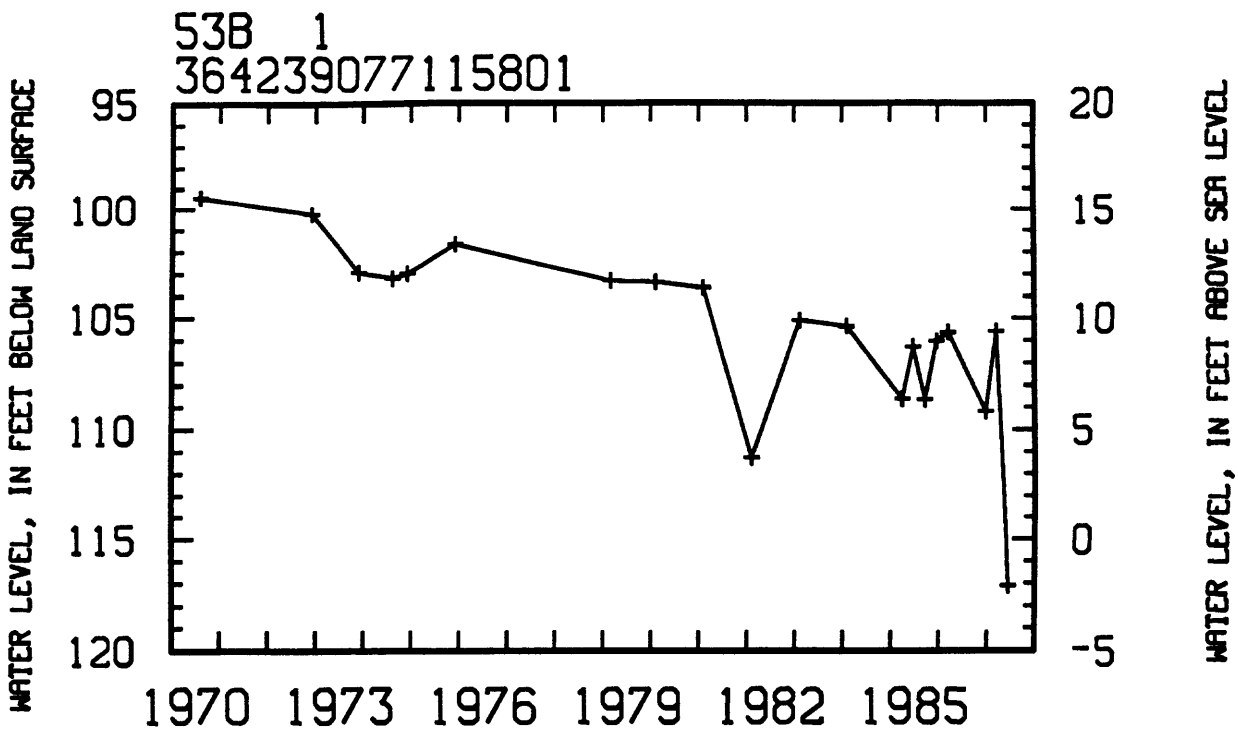

52B 11 SOW 178D
363916077201004
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
65
66
67
68
69
70
71
72
73
74
75
55
54
53
52
51
50
49
48
47
46
45
1985
1986
1987

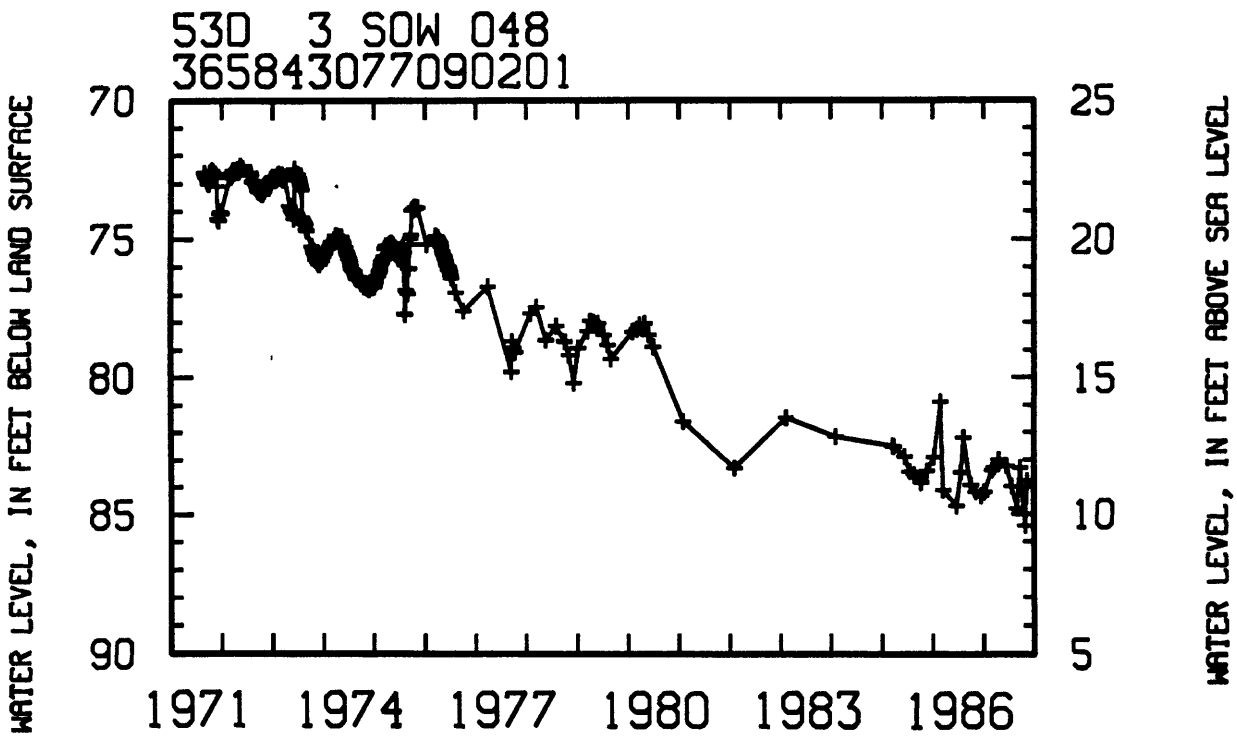

52F 1 SOW 038
371315077171901
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
65
70
75
80
65
60
55
50
1970 1973 1976 1979 1982 1985

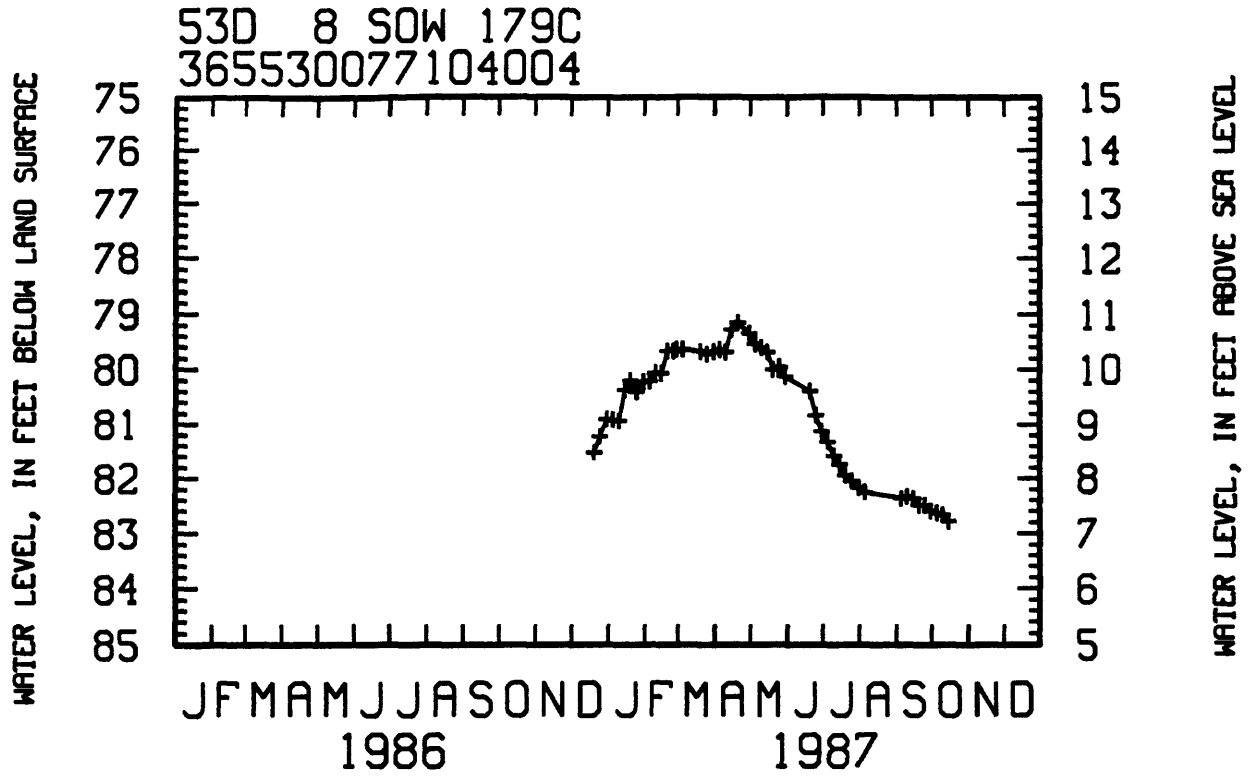

52G 15 SOW 142A
371727077160401
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
30
31
32
33
34
35
36
37
38
39
40
15
14
13
12
11
10
9
8
7
6
5
1985
1986
1987

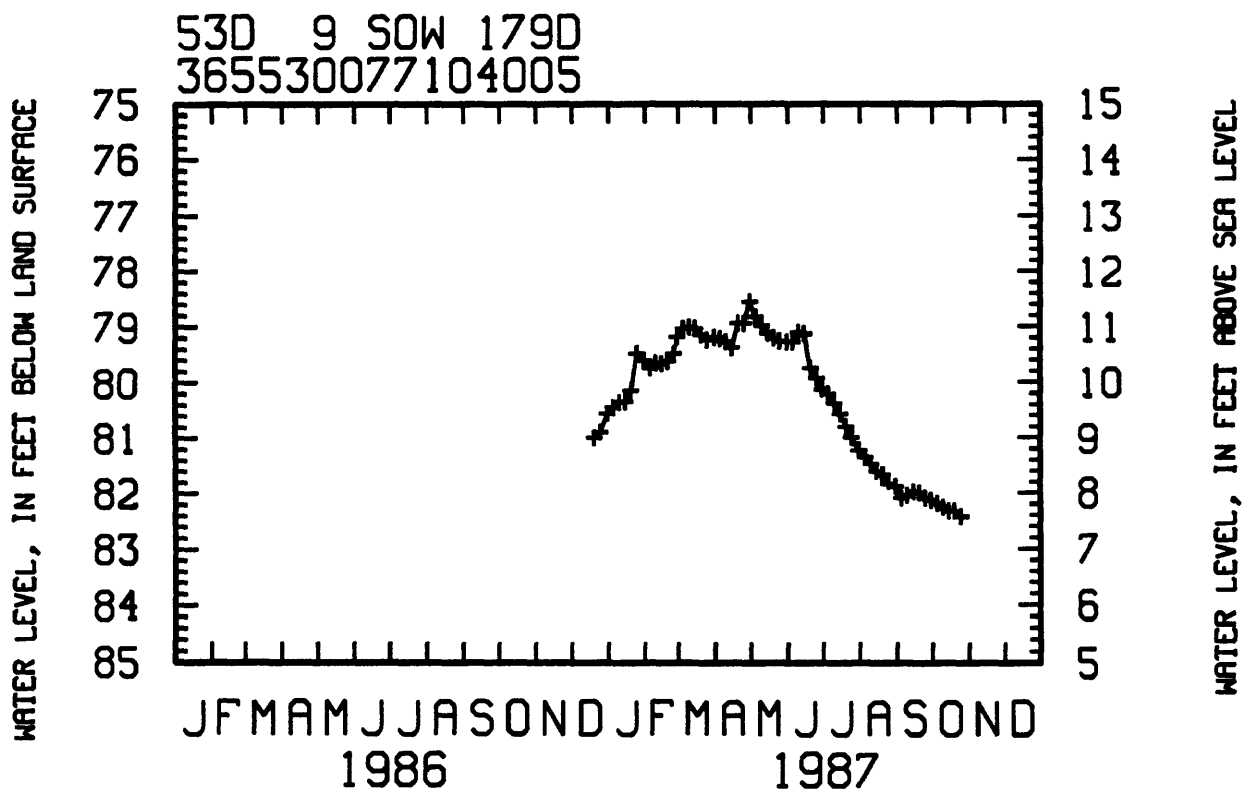

52G 16 SOW 142B
371727077160402
WATER LEVEL, IN FEET BELOW LAND SURFACE
30
31
32
33
34
35
36
37
38
39
40
15
14
13
12
11
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

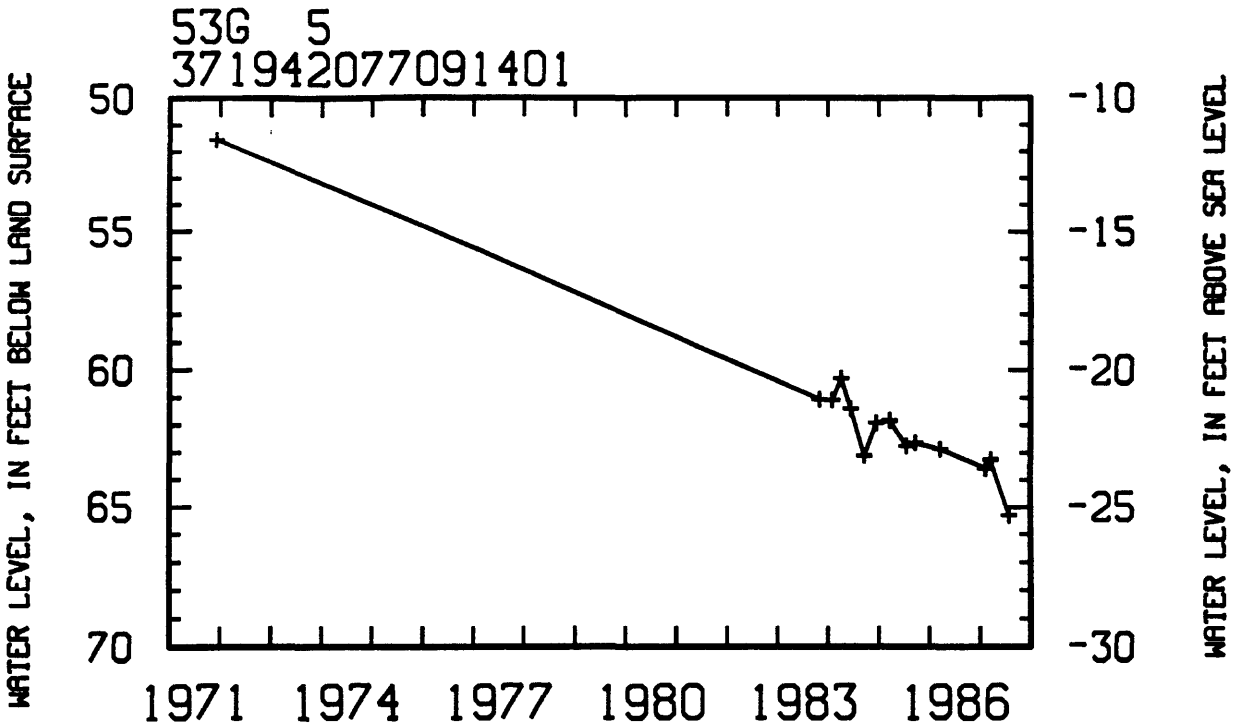

52J 10
373507077171201
WATER LEVEL, IN FEET BELOW LAND SURFACE
165
170
175
180
185
190
195
5
0
-5
-10
-15
-20
-25
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1972
1975
1978
1981
1984
1987

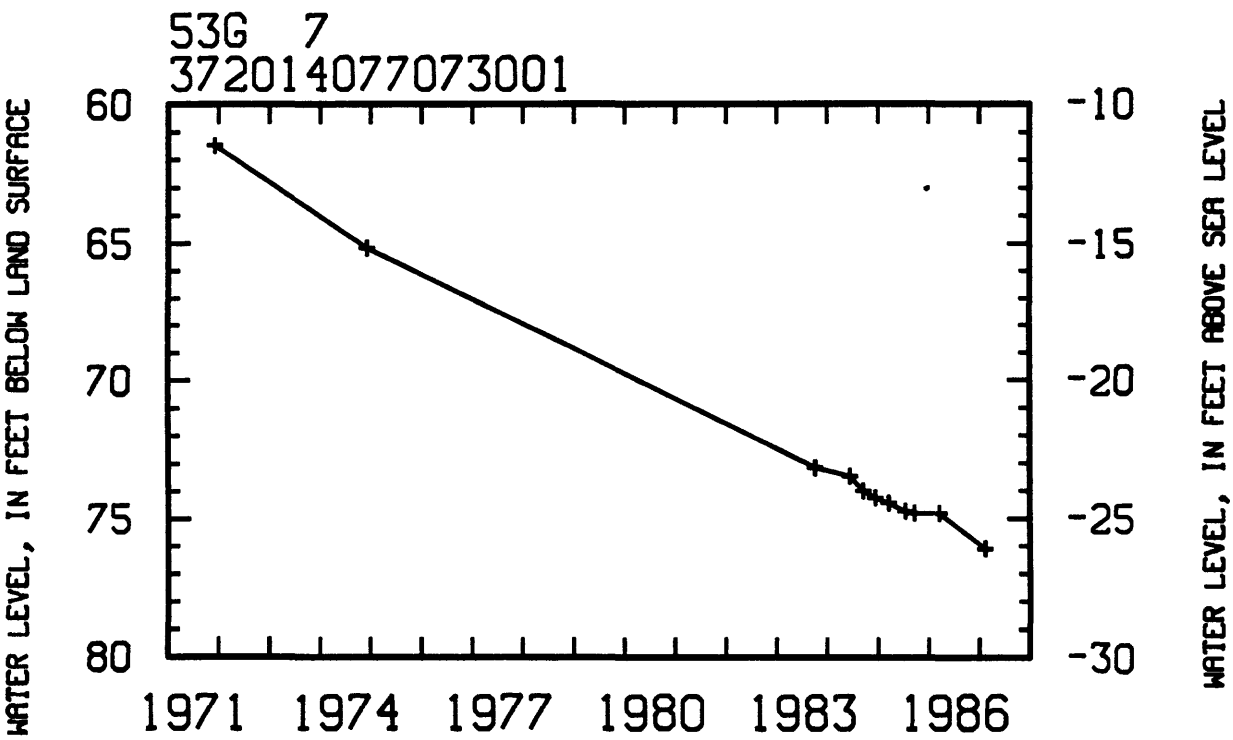

53B 1
364239077115801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
95
100
105
110
115
120
20
15
10
5
0
-5
1970 1973 1976 1979 1982 1985

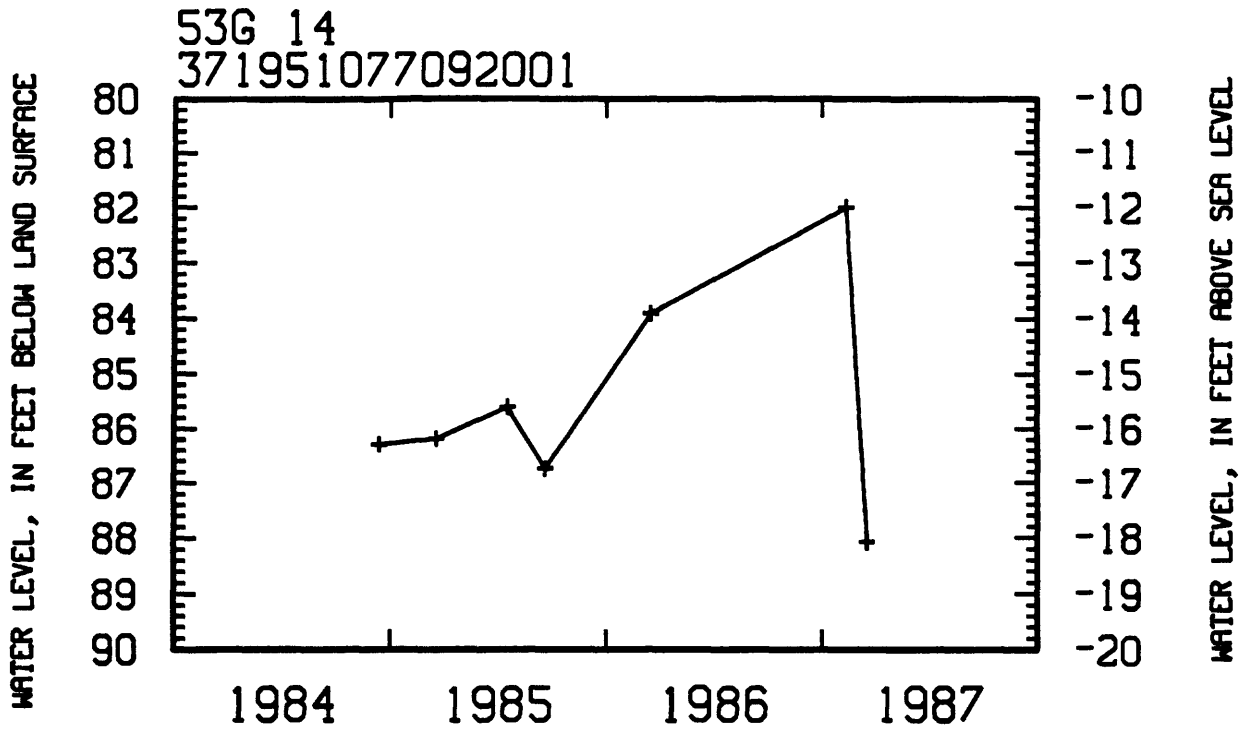

53D 3 SOW 048
365843077090201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
70
75
80
85
90
25
20
15
10
5
1971 1974 1977 1980 1983 1986

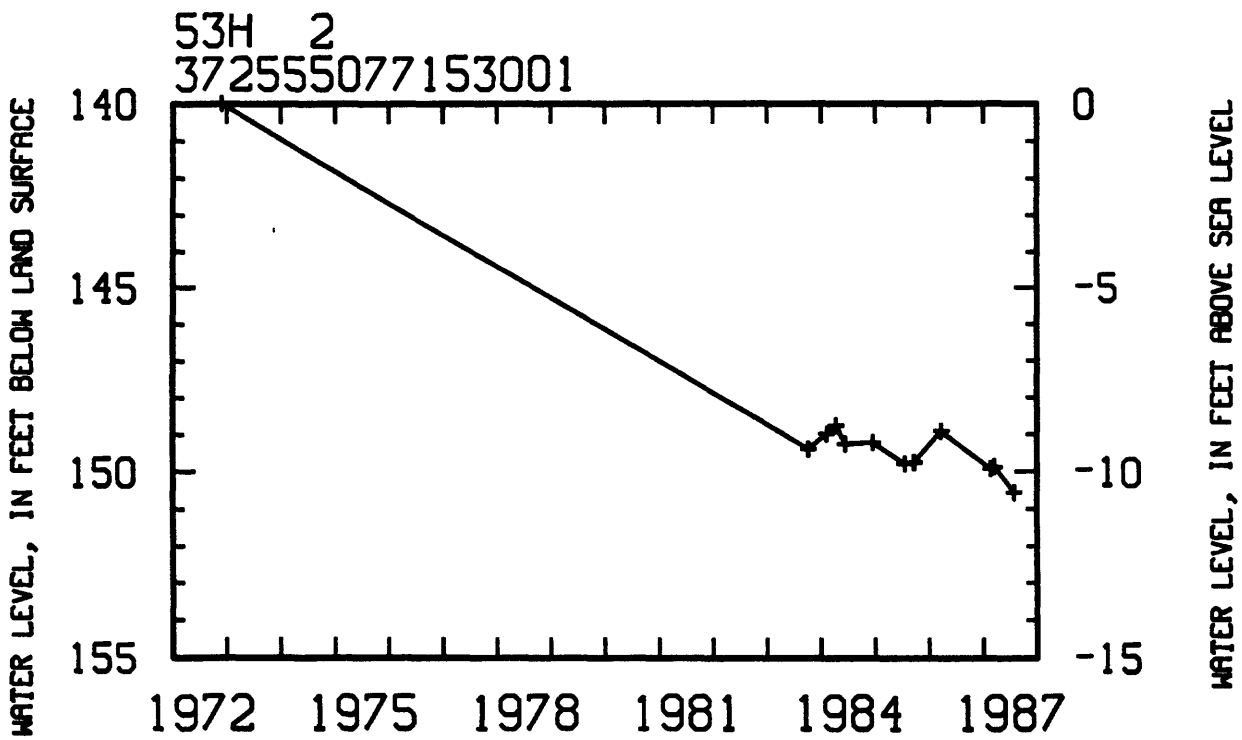

53D 8 SOW 179C
365530077104004
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
75
76
77
78
79
80
81
82
83
84
85
15
14
13
12
11
10
9
8
7
6
5
JFMAMJJASONDJFMAMJJASOND
1986
1987

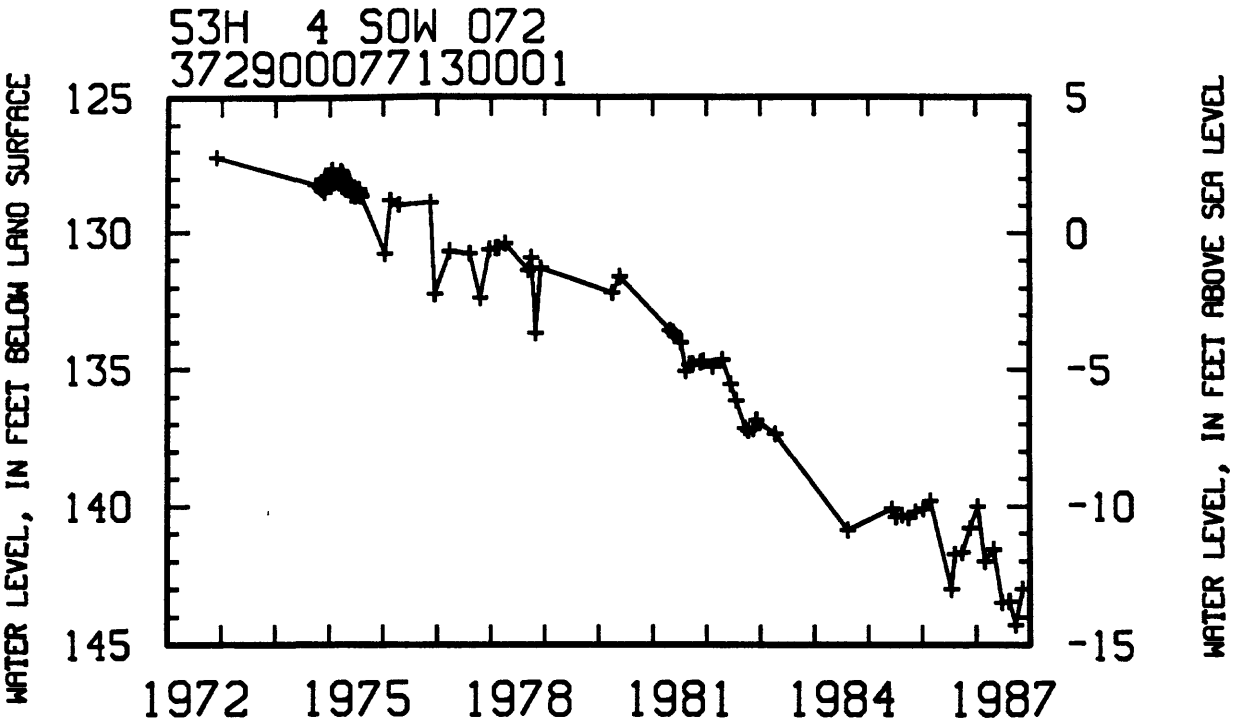

53D 9 SOW 179D
365530077104005
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
75
76
77
78
79
80
81
82
83
84
85
15
14
13
12
11
10
9
8
7
6
5
JFMAMJJASONDJFMAMJJASOND
1986
1987

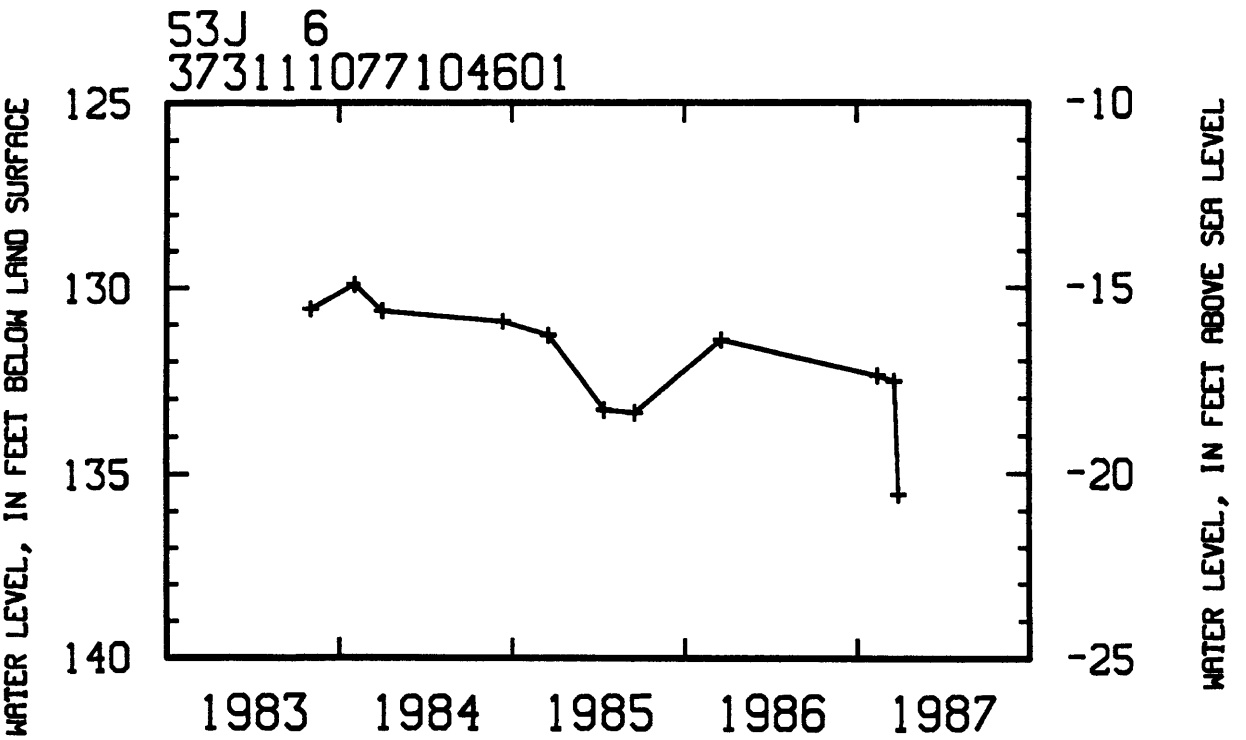

53G 5
371942077091401
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
50
55
60
65
70
-10
-15
-20
-25
-30
1971
1974
1977
1980
1983
1986

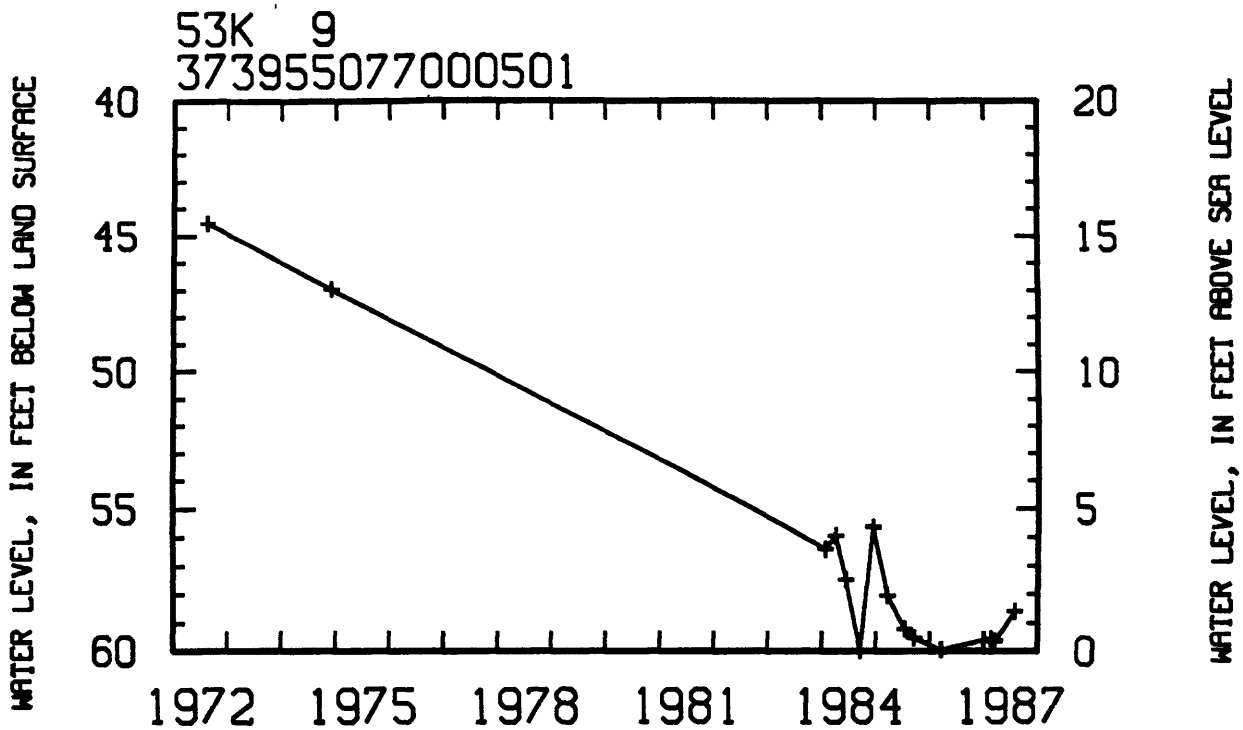

53G 7
372014077073001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
60
65
70
75
80
-10
-15
-20
-25
-30
1971
1974
1977
1980
1983
1986

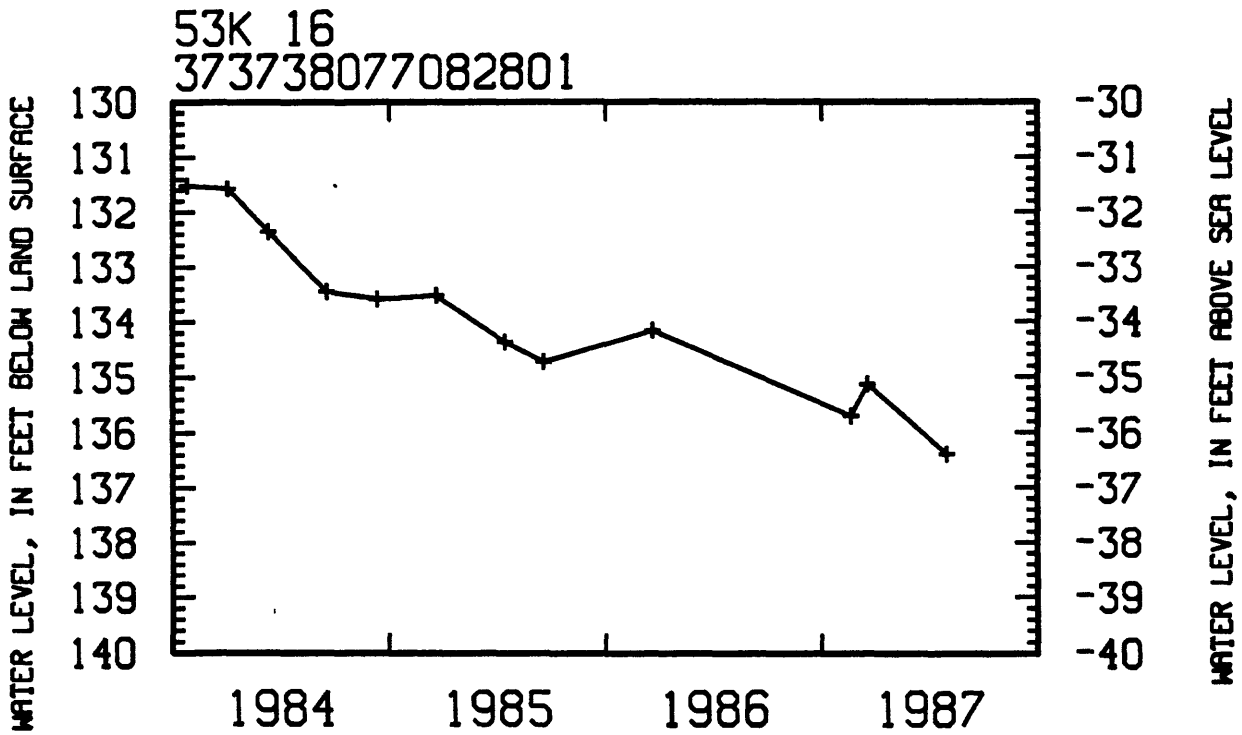

53G 14
371951077092001
WATER LEVEL, IN FEET BELOW LAND SURFACE
80
81
82
83
84
85
86
87
88
89
90
-10
-11
-12
-13
-14
-15
-16
-17
-18
-19
-20
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

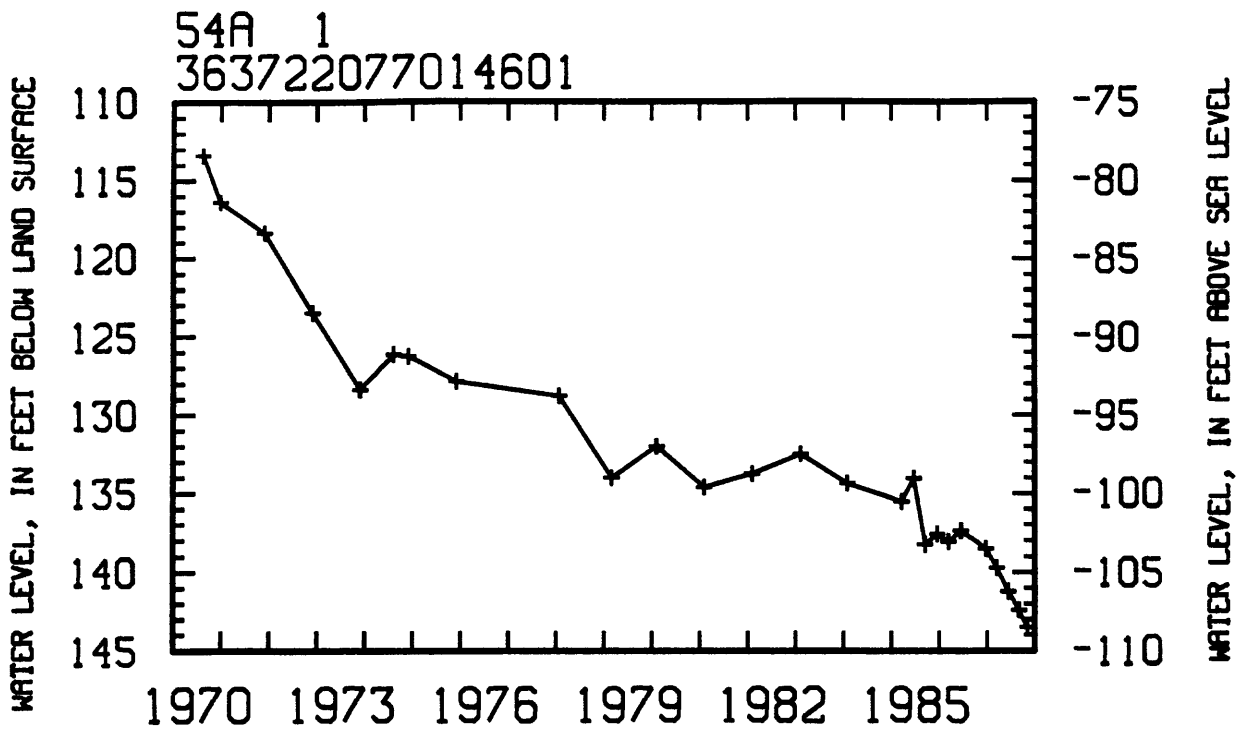

53H 2
372555077153001
WATER LEVEL, IN FEET BELOW LAND SURFACE
140
145
150
155
0
-5
-10
-15
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1972
1975
1978
1981
1984
1987

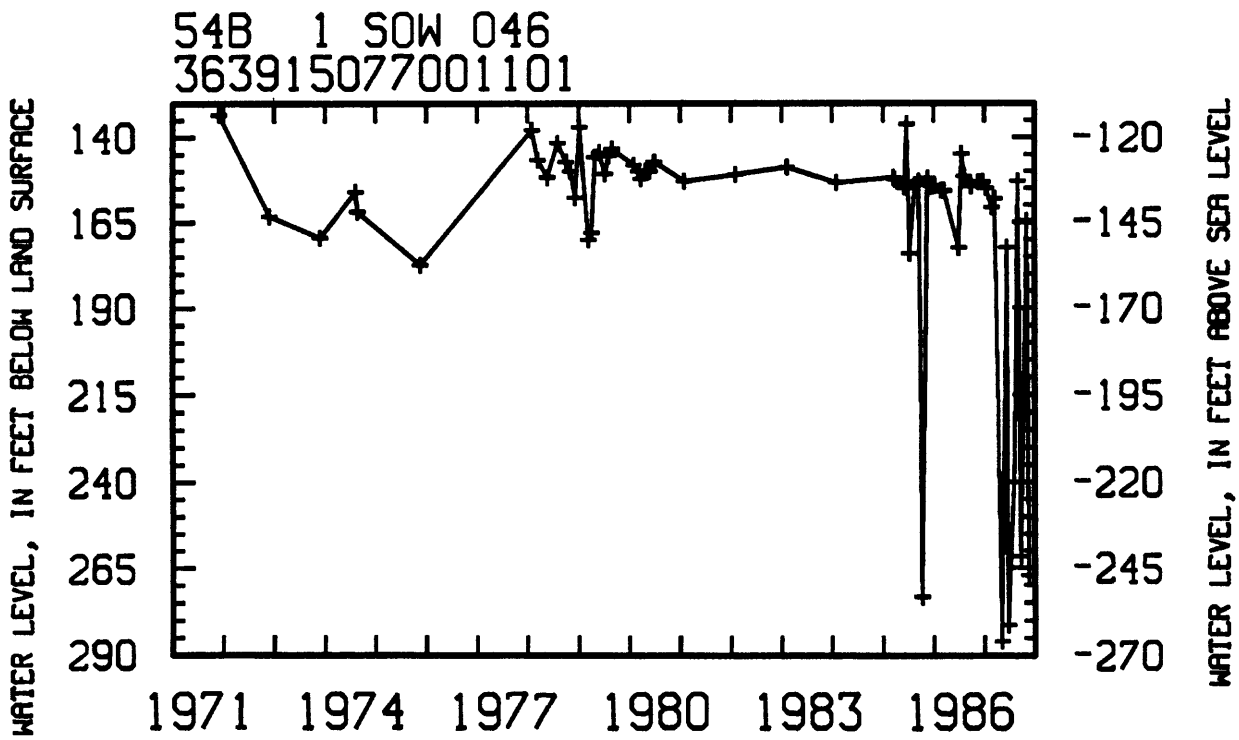

53H 4 SOW 072
372900077130001
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
125
130
135
140
145
5
0
-5
-10
-15
1972
1975
1978
1981
1984
1987

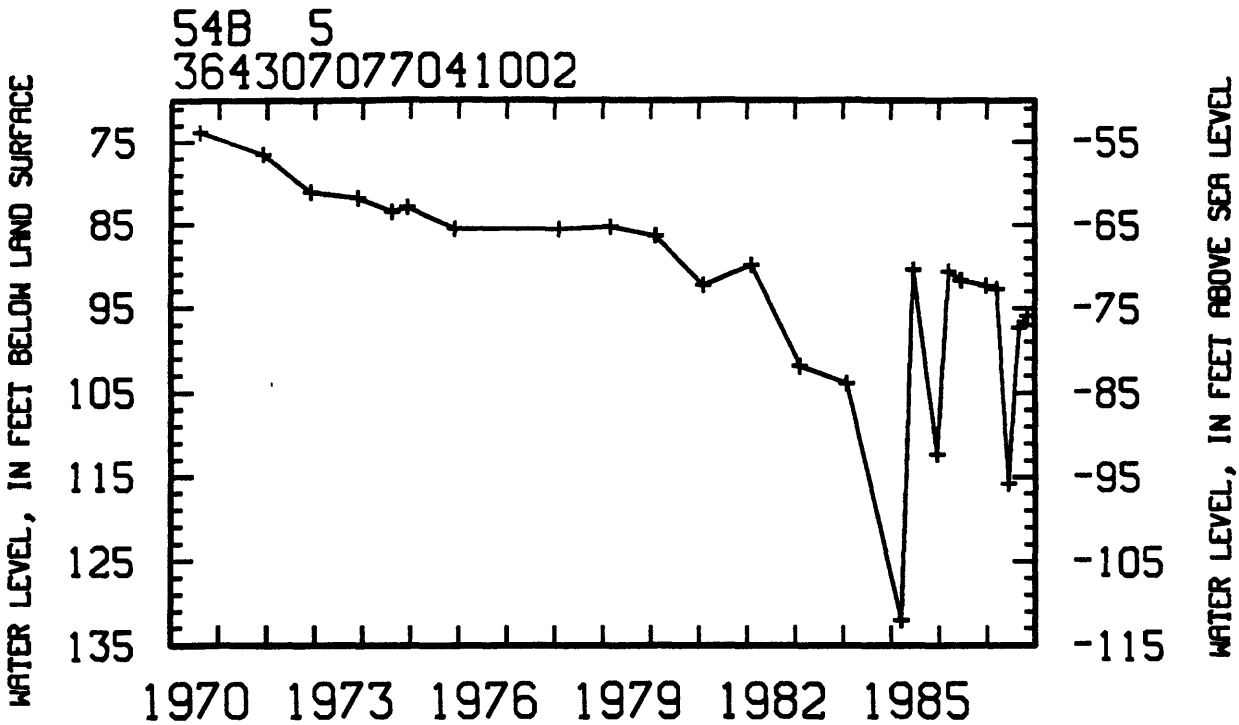

53J 6
373111077104601
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
125
130
135
140
-10
-15
-20
-25
1983
1984
1985
1986
1987

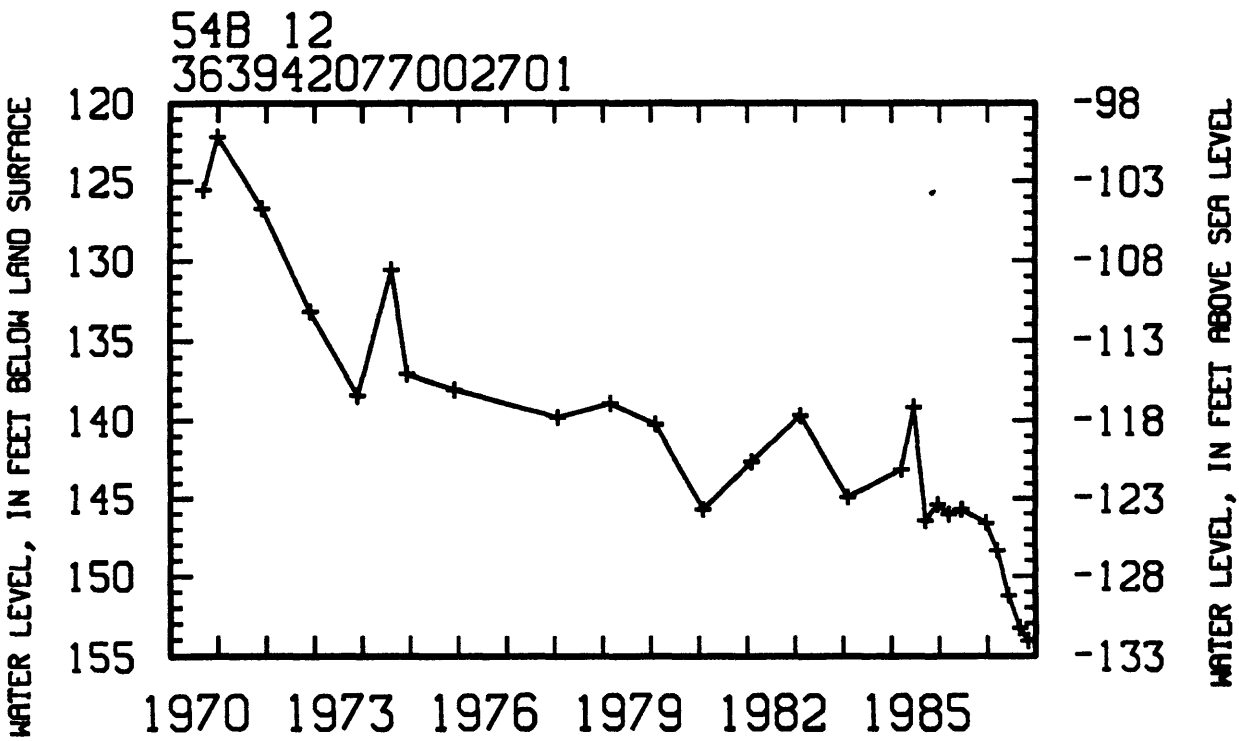

53K 9
373955077000501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
40
45
50
55
60
20
15
10
5
0
1972
1975
1978
1981
1984
1987

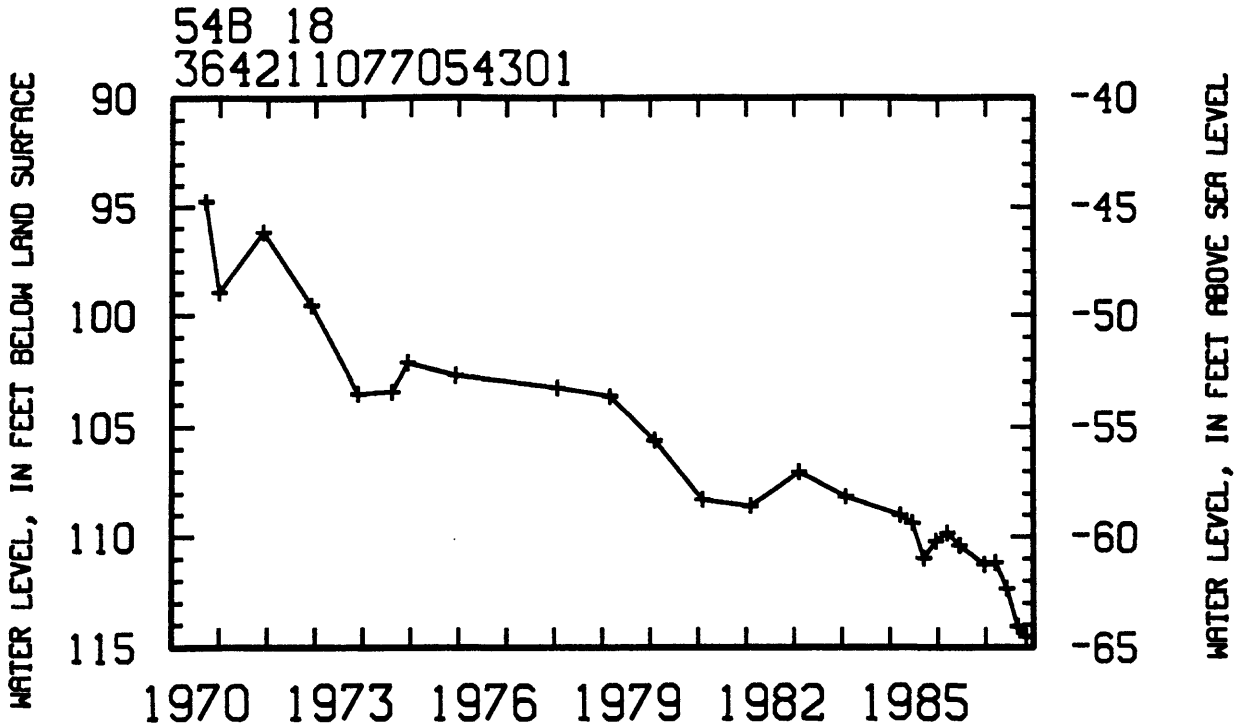

53K 16
373738077082801
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
130
131
132
133
134
135
136
137
138
139
140
-30
-31
-32
-33
-34
-35
-36
-37
-38
-39
-40
1984
1985
1986
1987

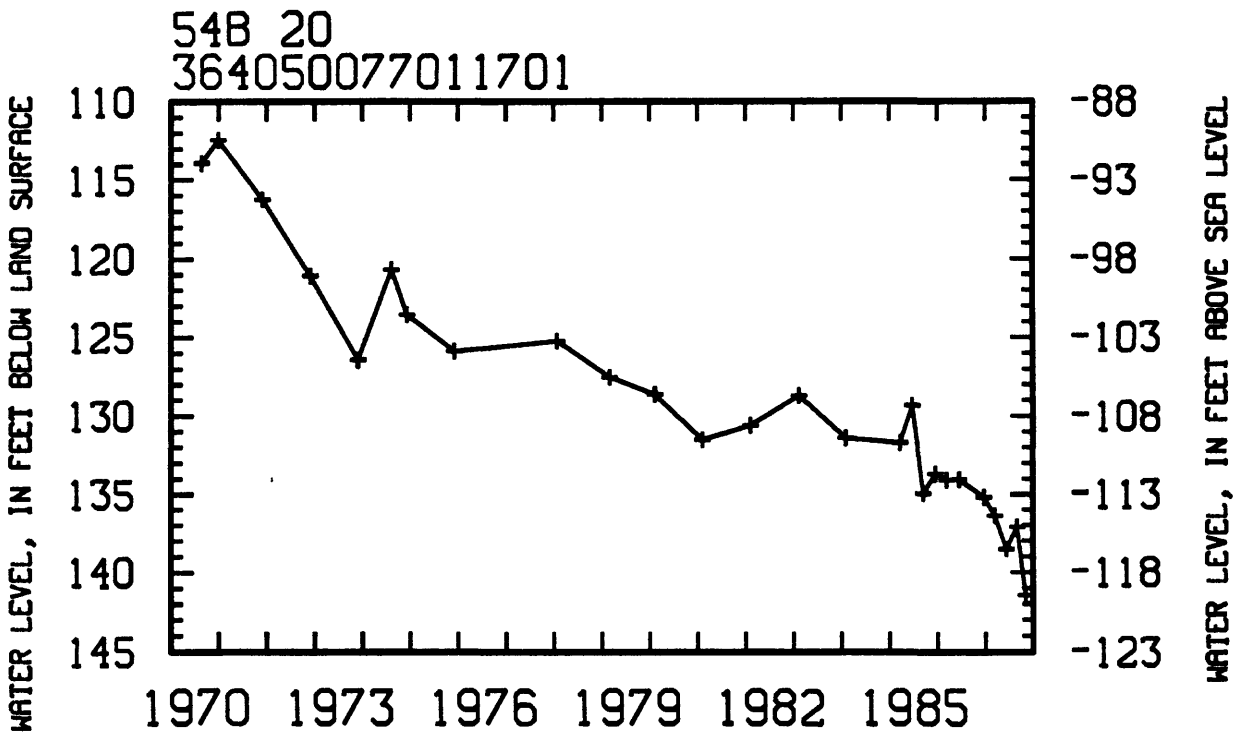

54A 1
363722077014601
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
115
120
125
130
135
140
145
-75
-80
-85
-90
-95
-100
-105
-110
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

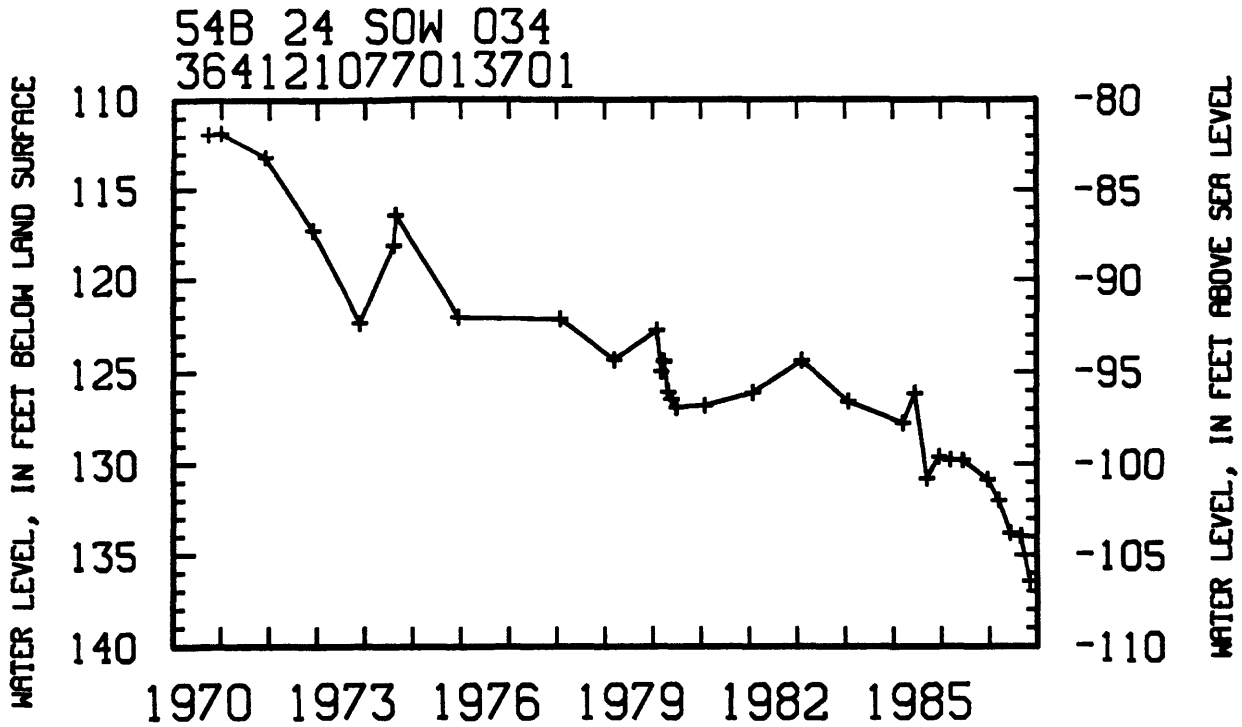

54B 1 SOW 046
363915077001101
WATER LEVEL, IN FEET BELOW LAND SURFACE
140
165
190
215
240
265
290
-120
-145
-170
-195
-220
-245
-270
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1971 1974 1977 1980 1983 1986

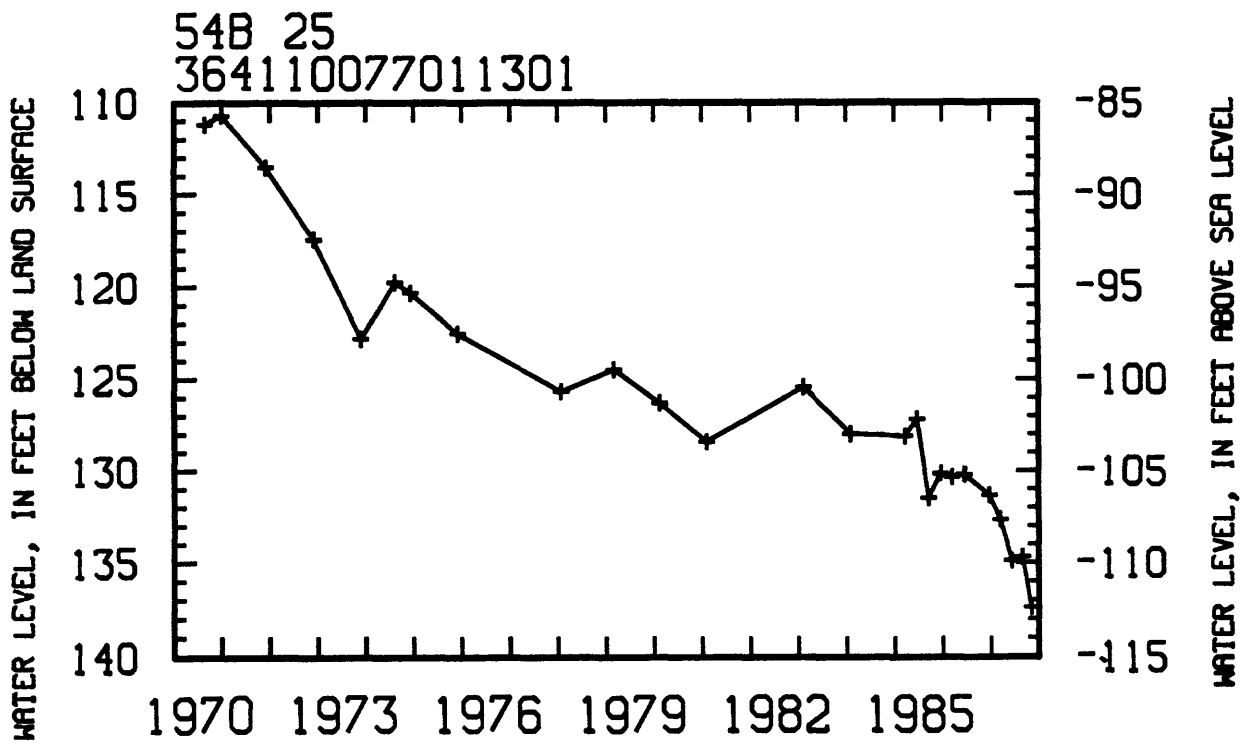

54B 5
364307077041002
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
85
95
105
115
125
135
-55
-65
-75
-85
-95
-105
-115
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

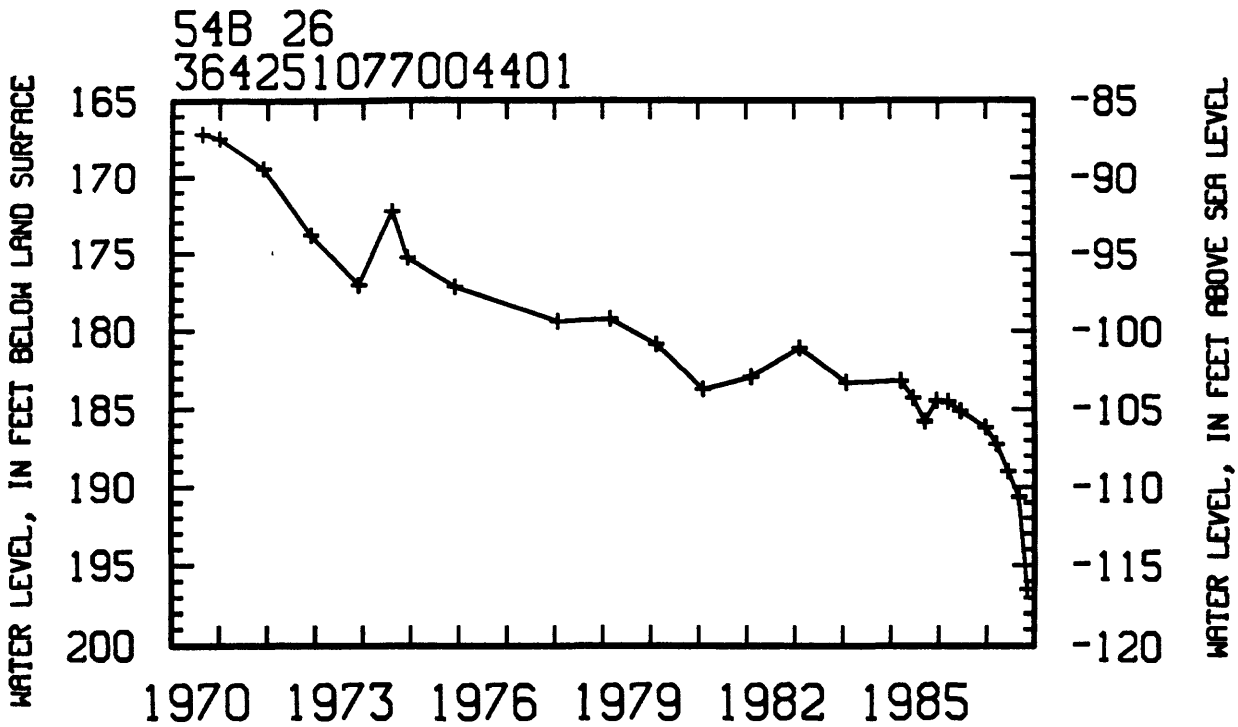

54B 12
363942077002701
WATER LEVEL, IN FEET BELOW LAND SURFACE
120
125
130
135
140
145
150
155
-98
-103
-108
-113
-118
-123
-128
-133
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

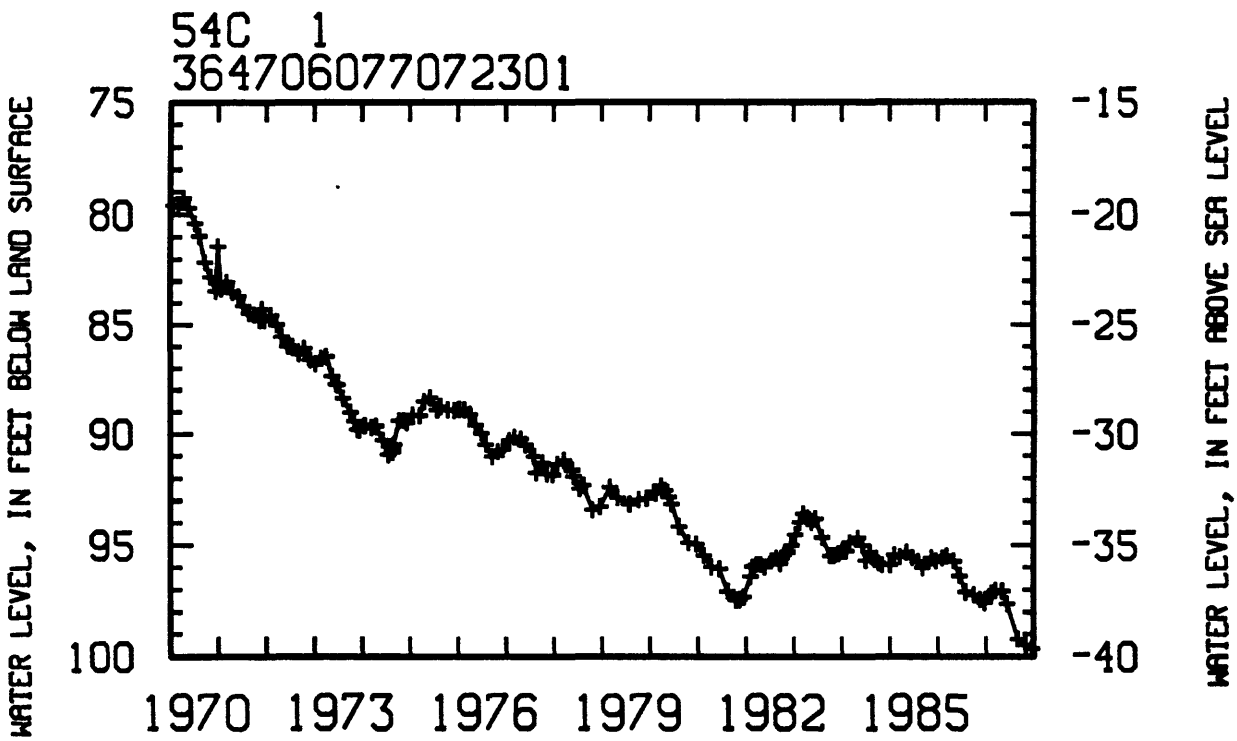

54B 18
364211077054301
WATER LEVEL, IN FEET BELOW LAND SURFACE
90
95
100
105
110
115
-40
-45
-50
-55
-60
-65
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

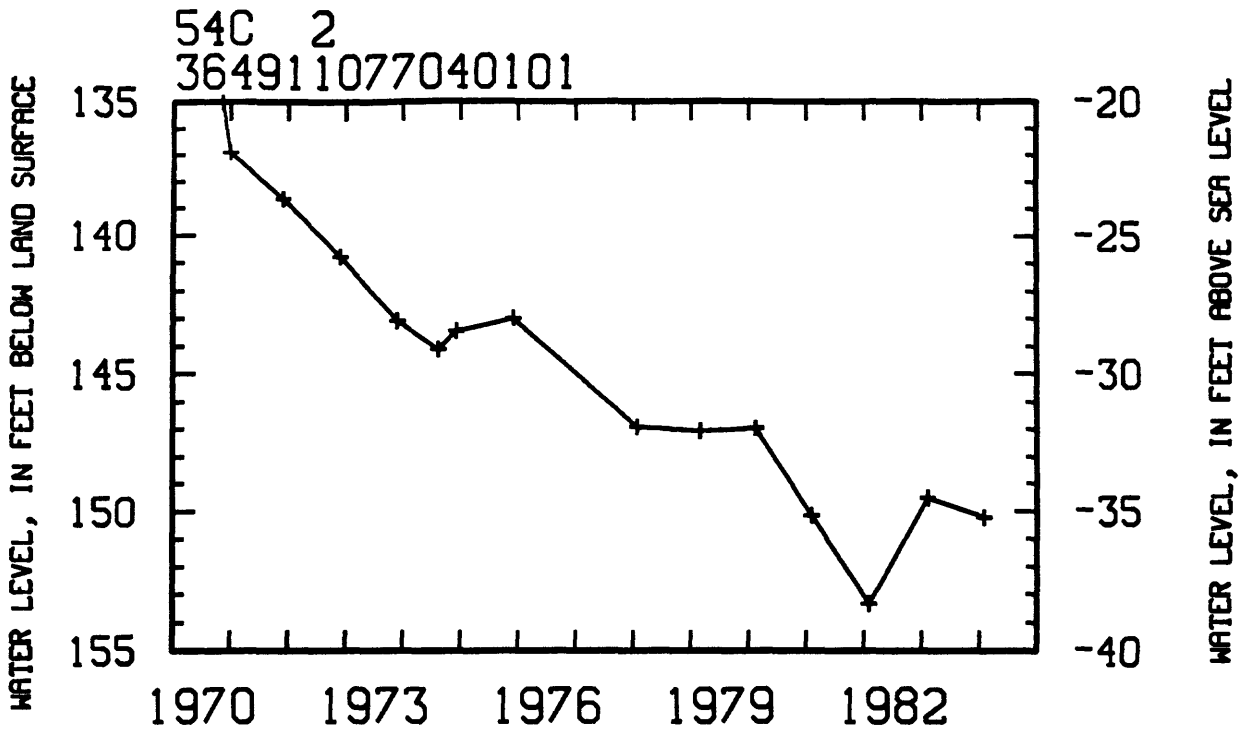

54B 20
364050077011701
WATER LEVEL, IN FEET BELOW LAND SURFACE
110
115
120
125
130
135
140
145
-88
-93
-98
-103
-108
-113
-118
-123
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985


54B 24 SOW 034
364121077013701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
110
115
120
125
130
135
140
-80
-85
-90
-95
-100
-105
-110
1970 1973 1976 1979 1982 1985


54B 25
364110077011301
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
110
115
120
125
130
135
140
-85
-90
-95
-100
-105
-110
-115
1970 1973 1976 1979 1982 1985


54B 26
364251077004401
WATER LEVEL, IN FEET BELOW LAND SURFACE
165
170
175
180
185
190
195
200
-85
-90
-95
-100
-105
-110
-115
-120
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985


54C 1
364706077072301
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
80
85
90
95
100
-15
-20
-25
-30
-35
-40
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985


54C 2
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1976
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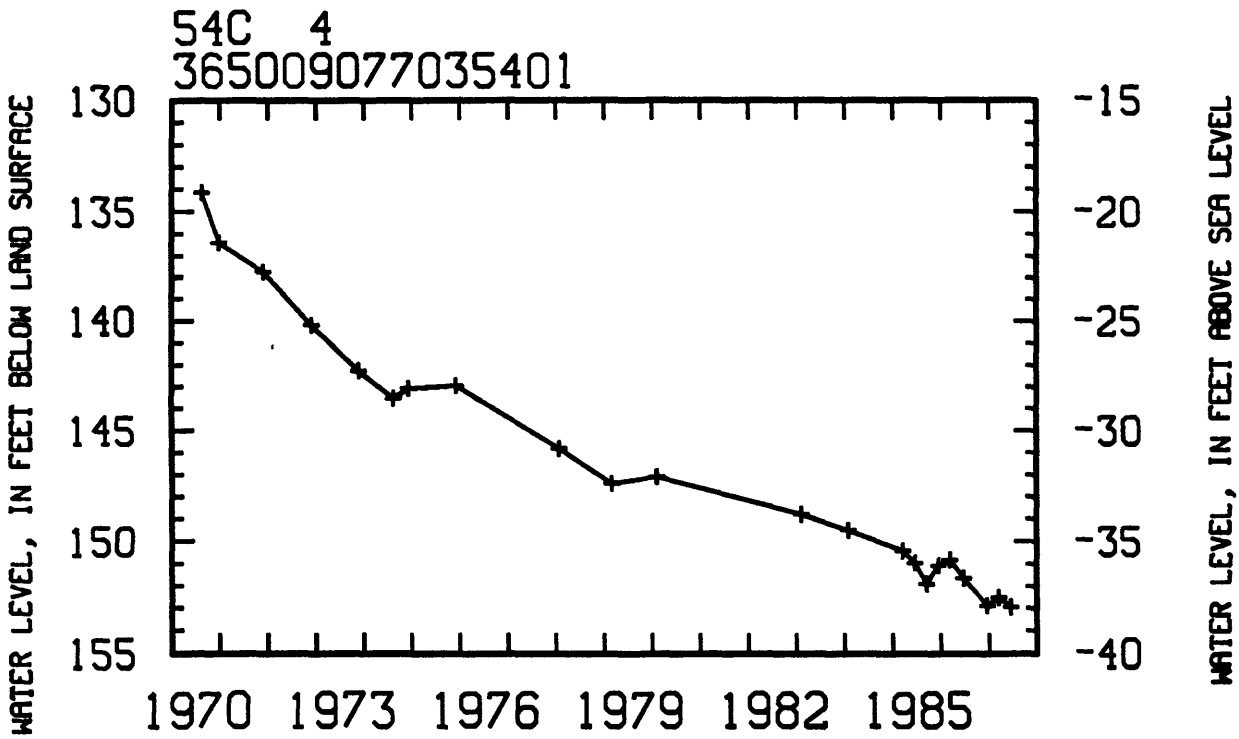
1982


54C 4
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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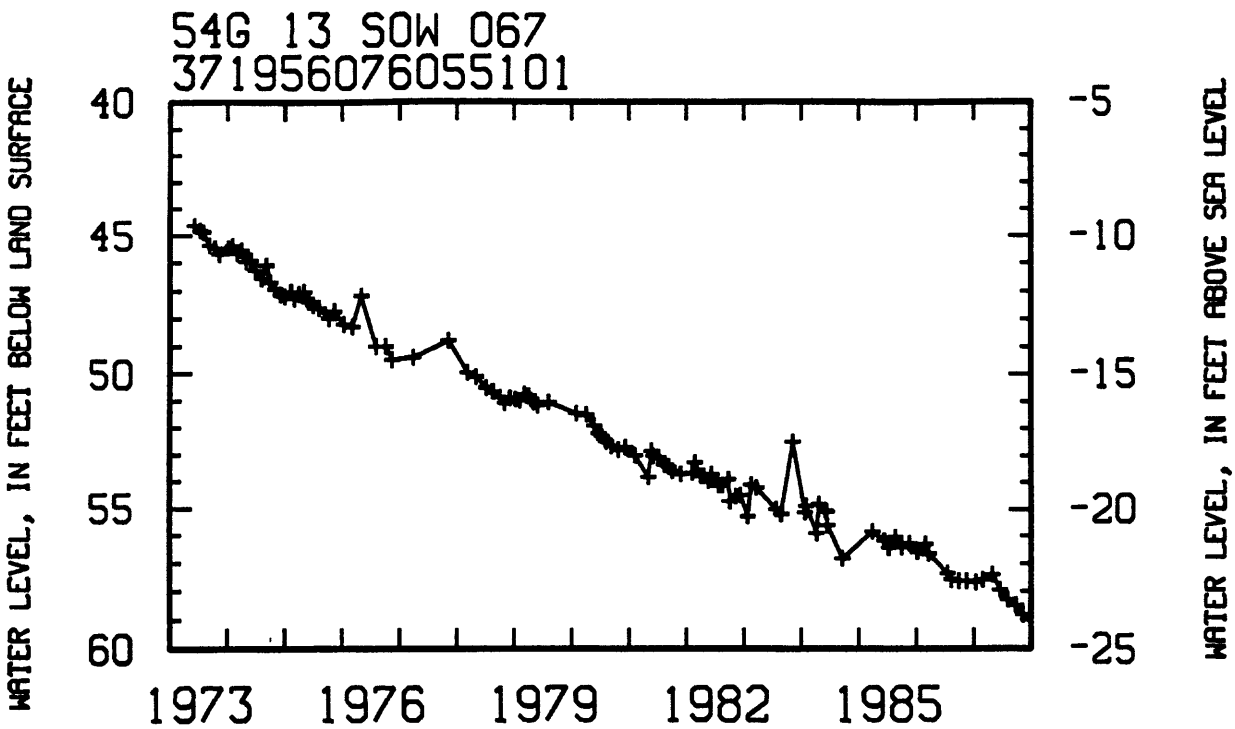
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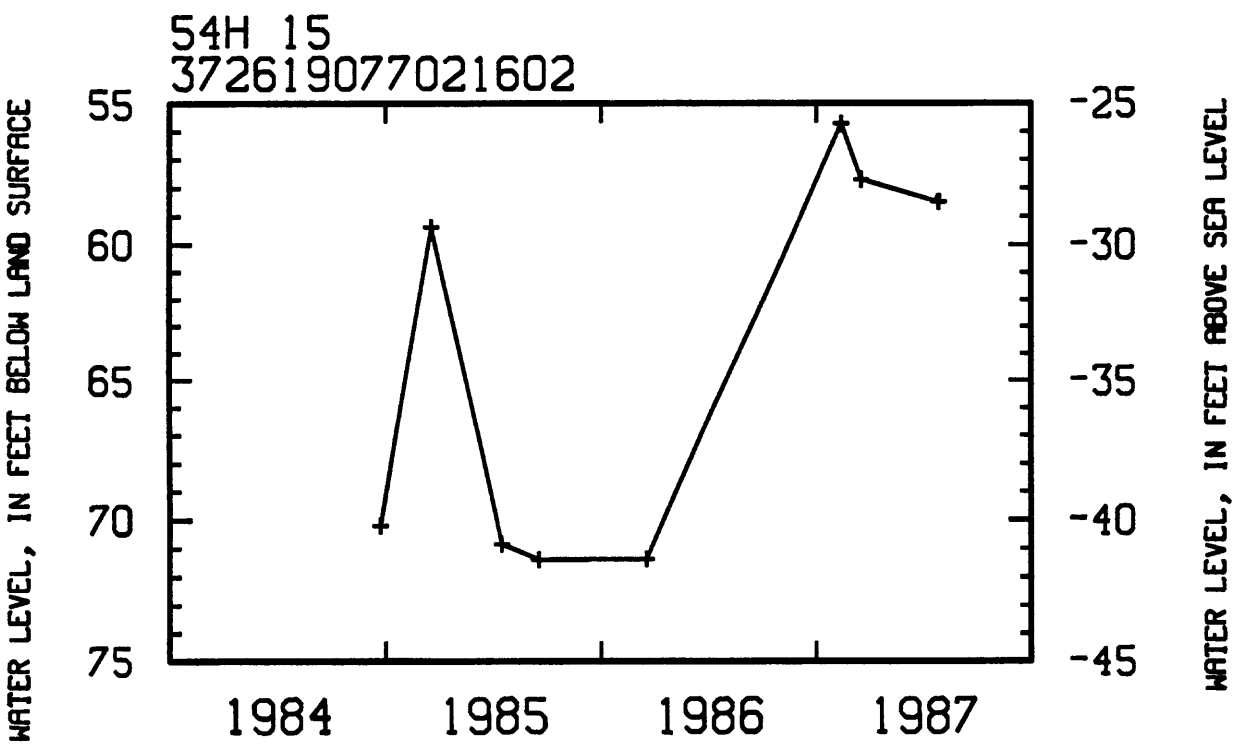
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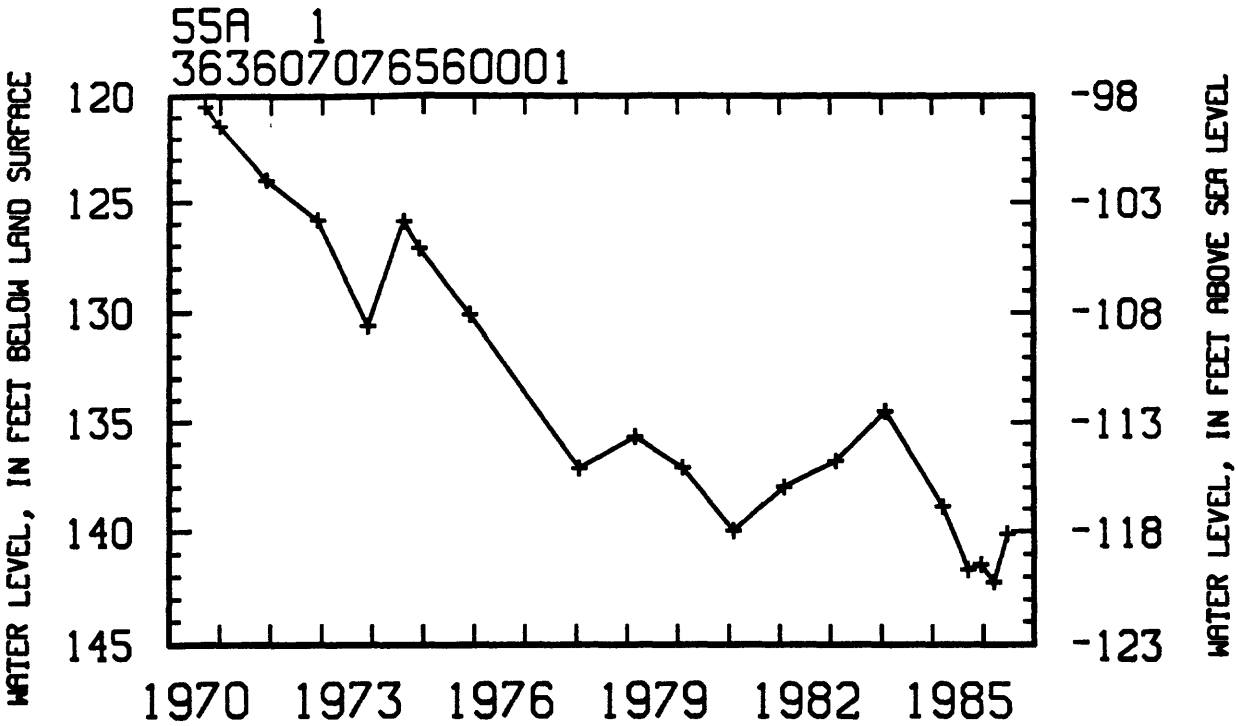
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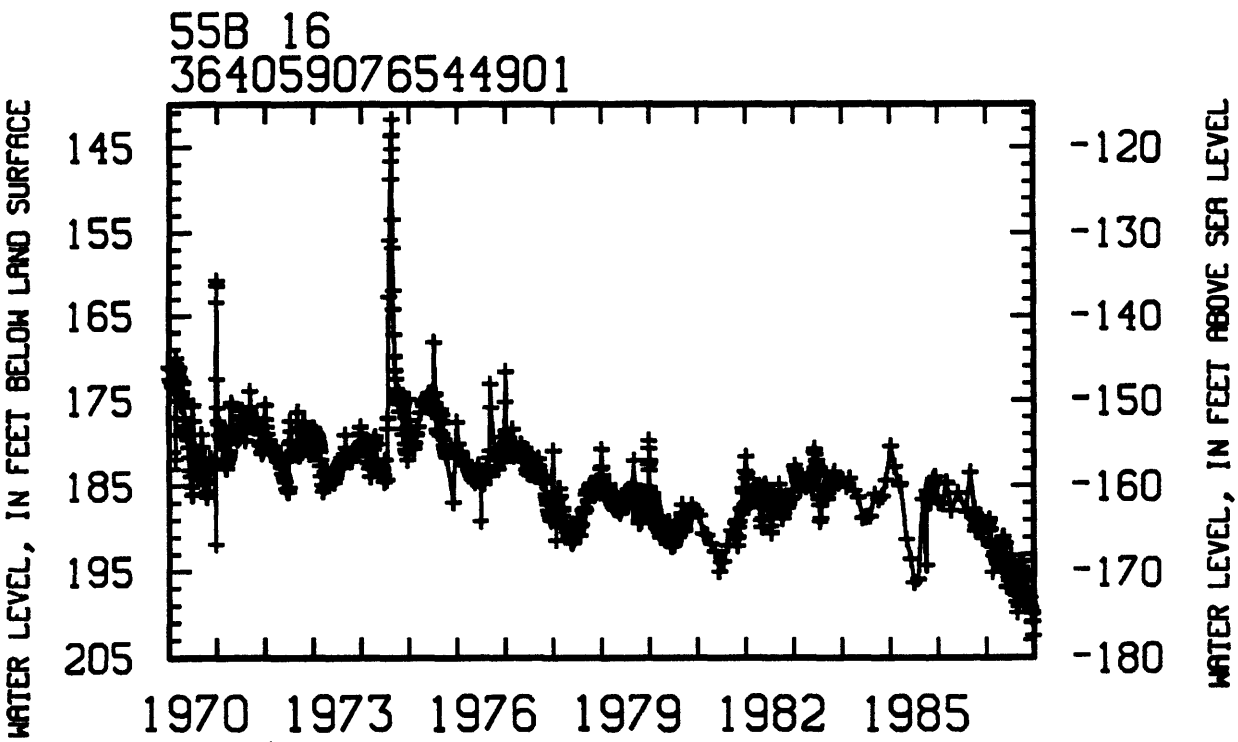
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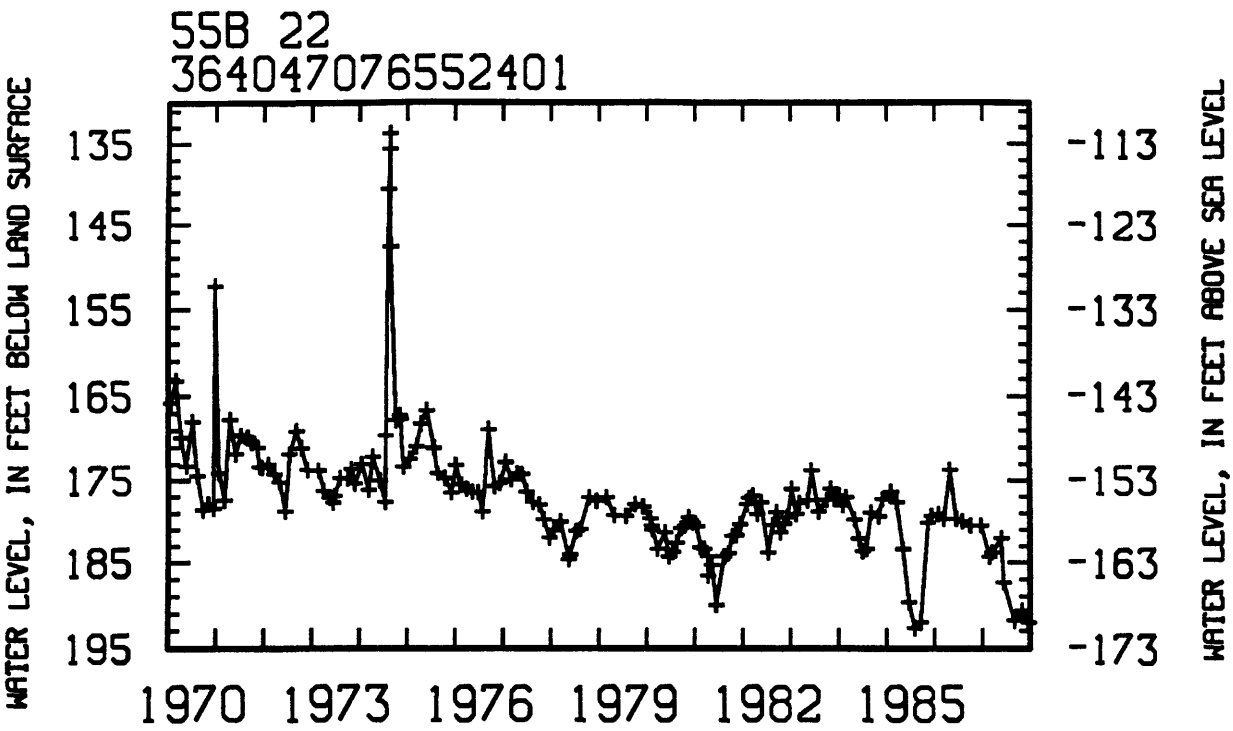
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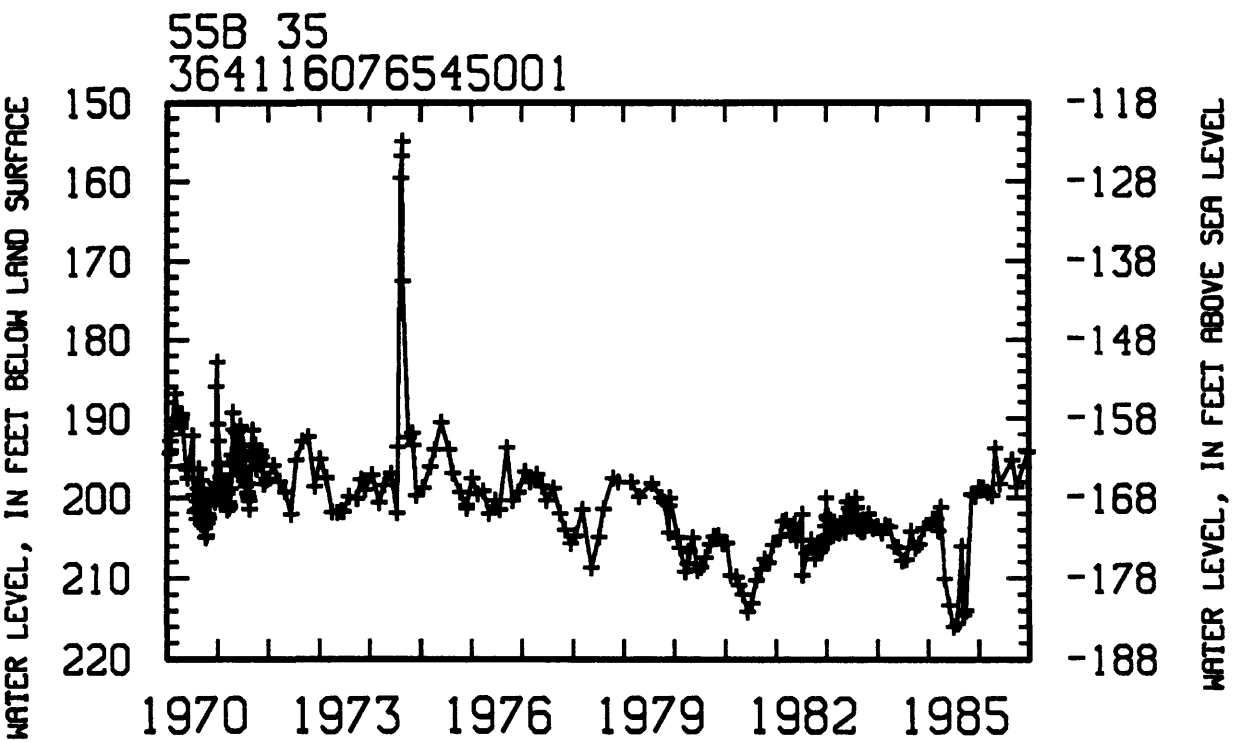
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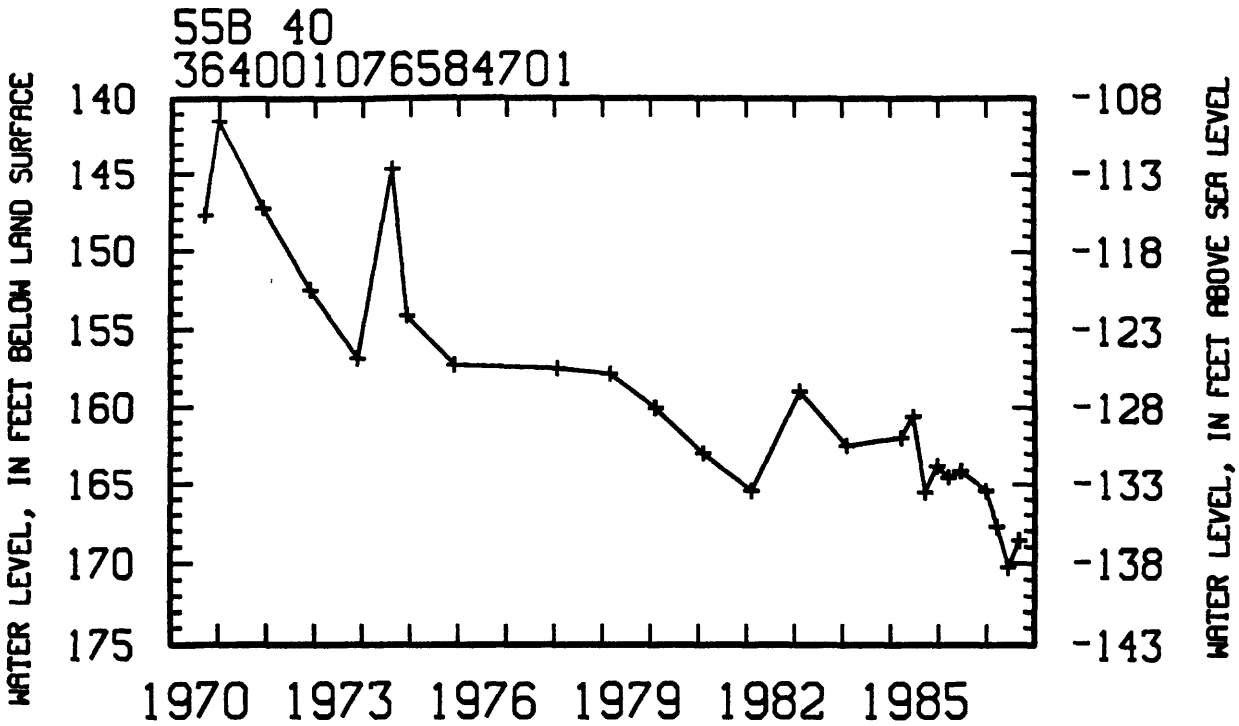
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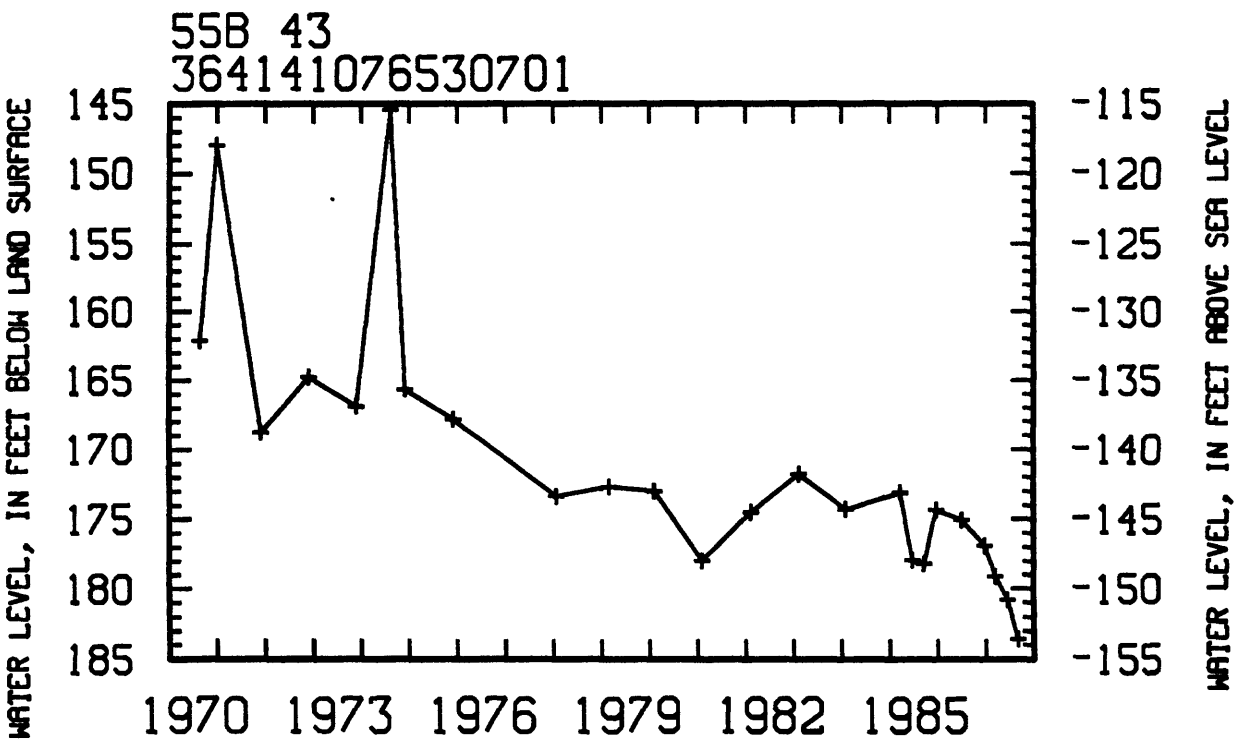
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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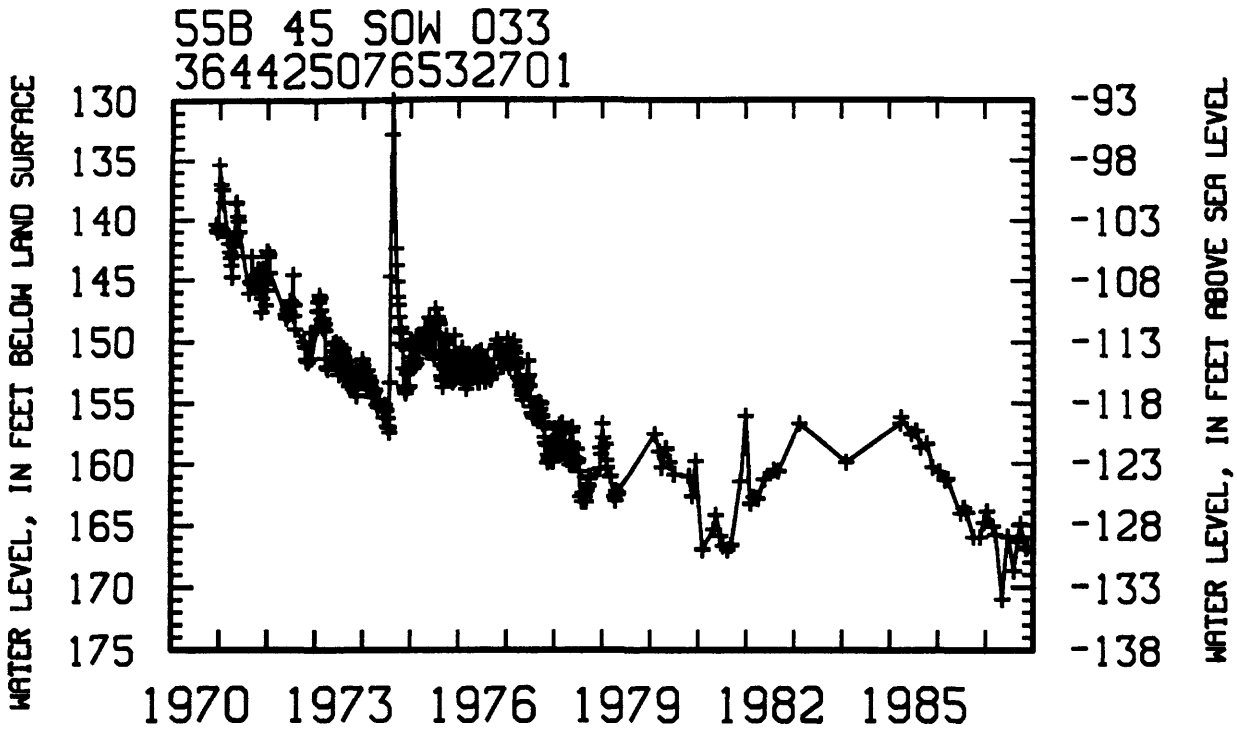
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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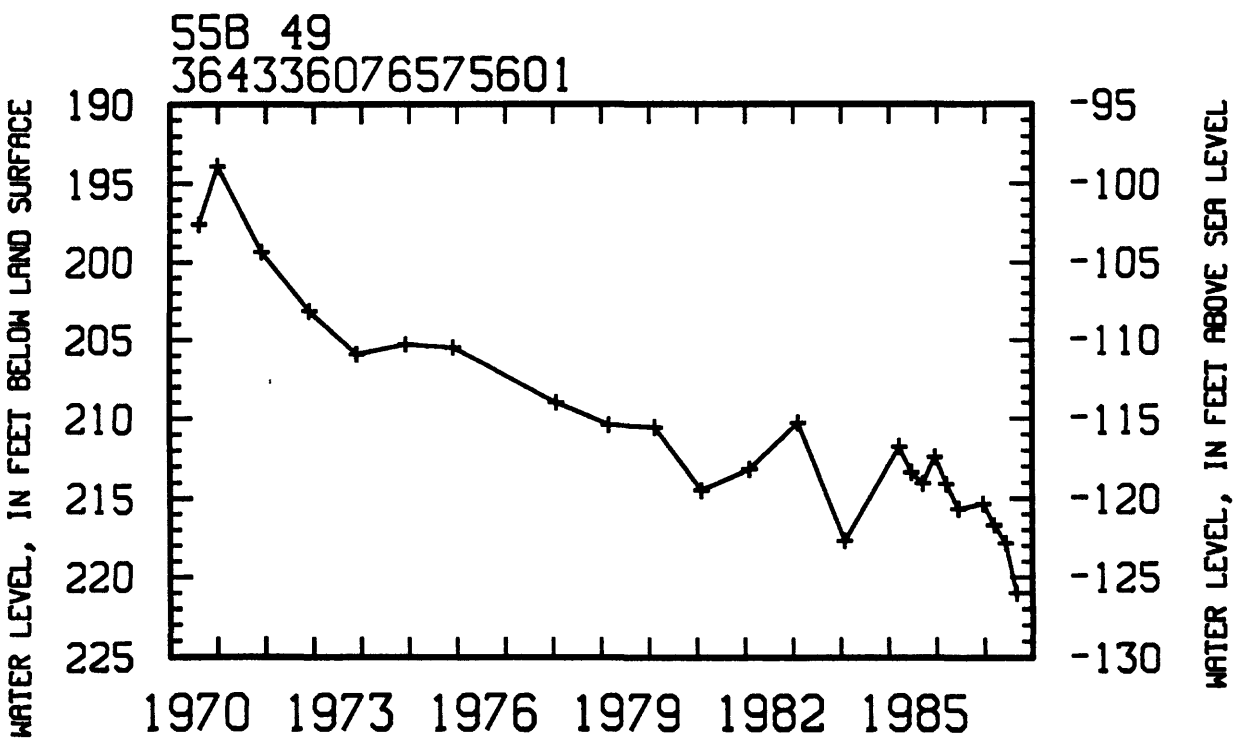
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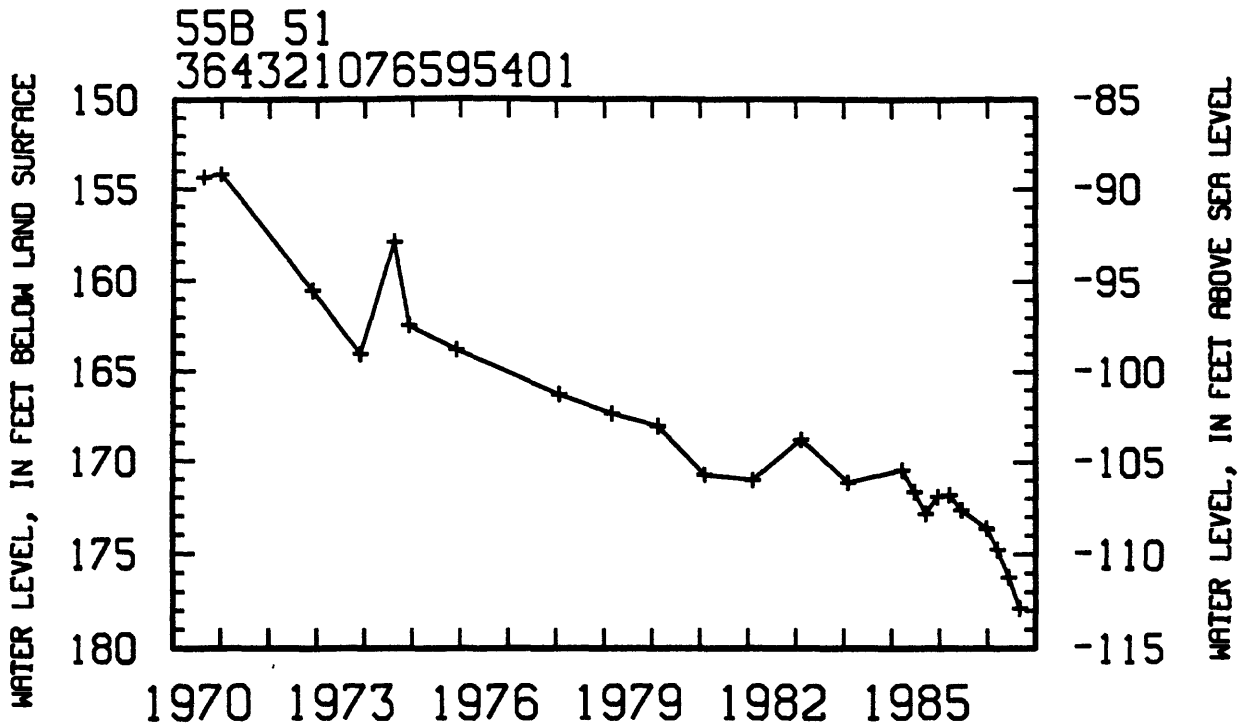
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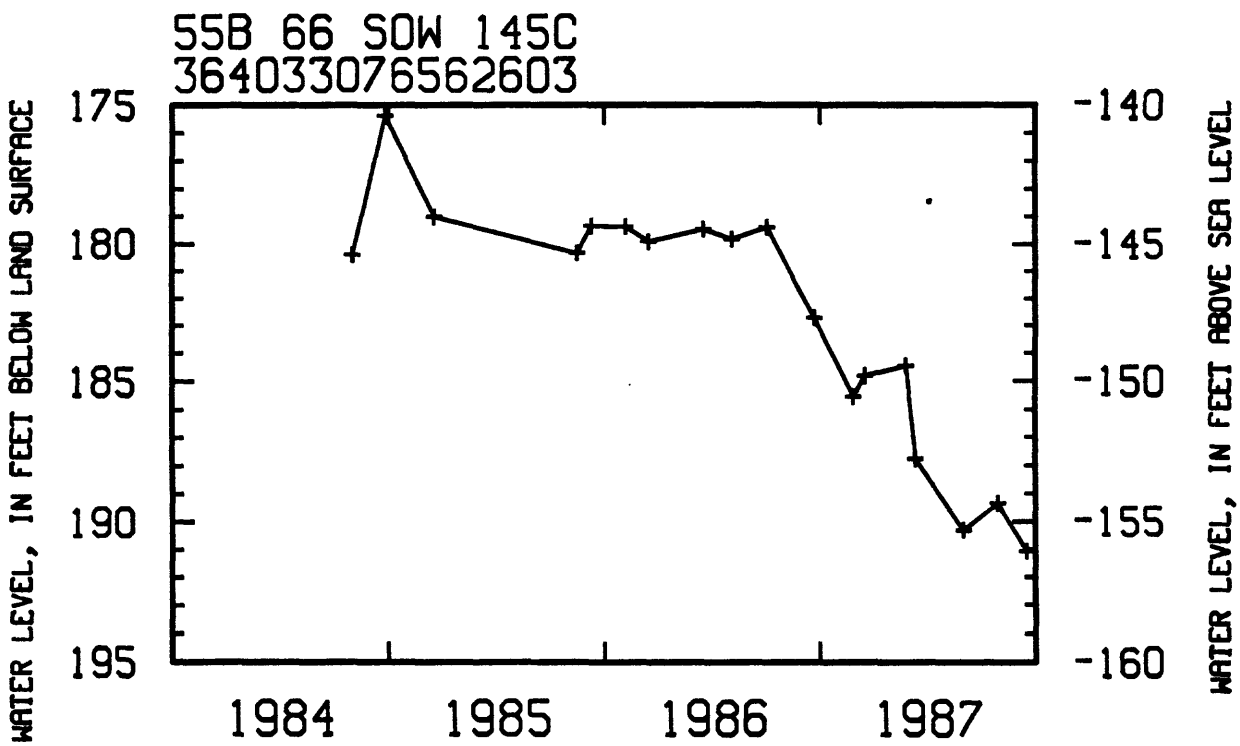
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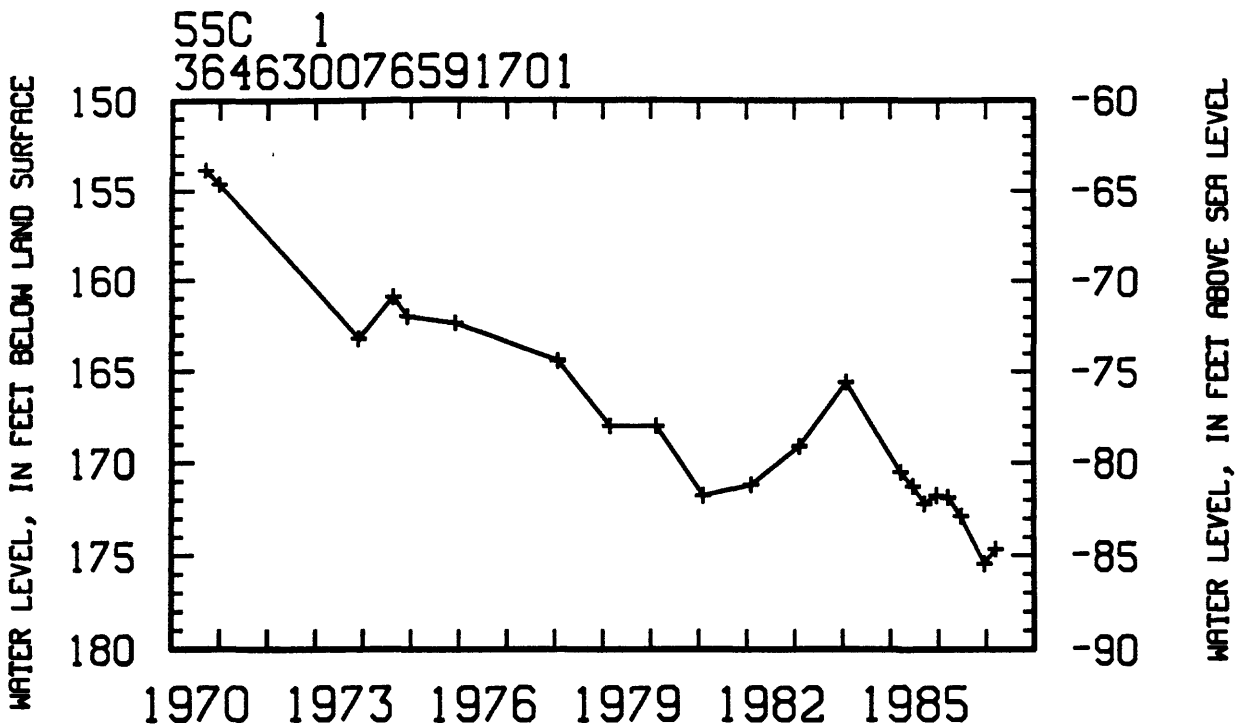
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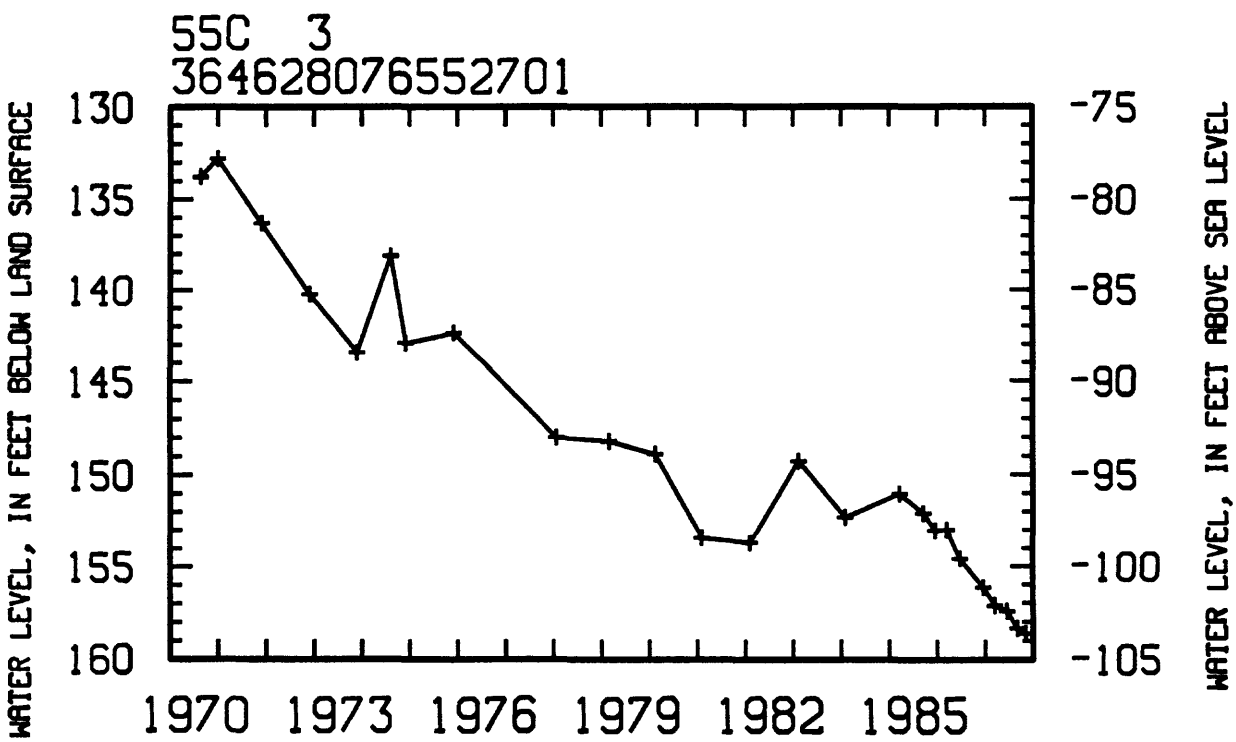
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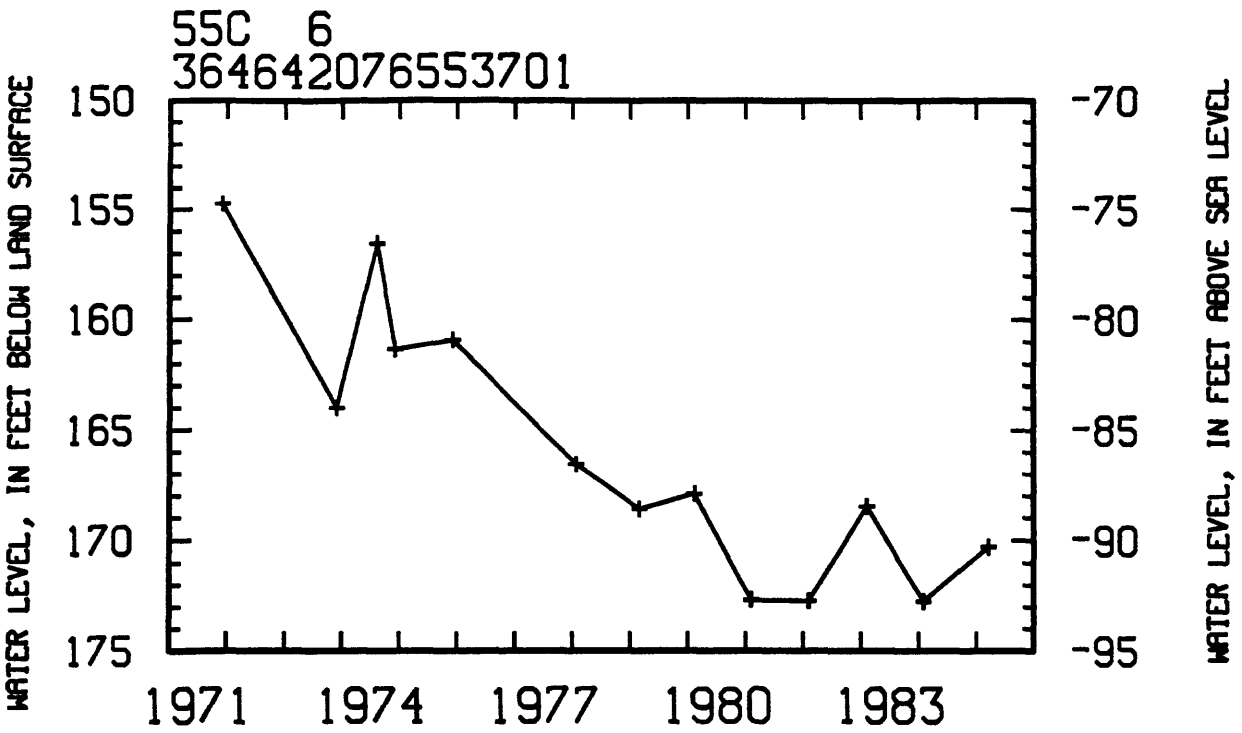
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985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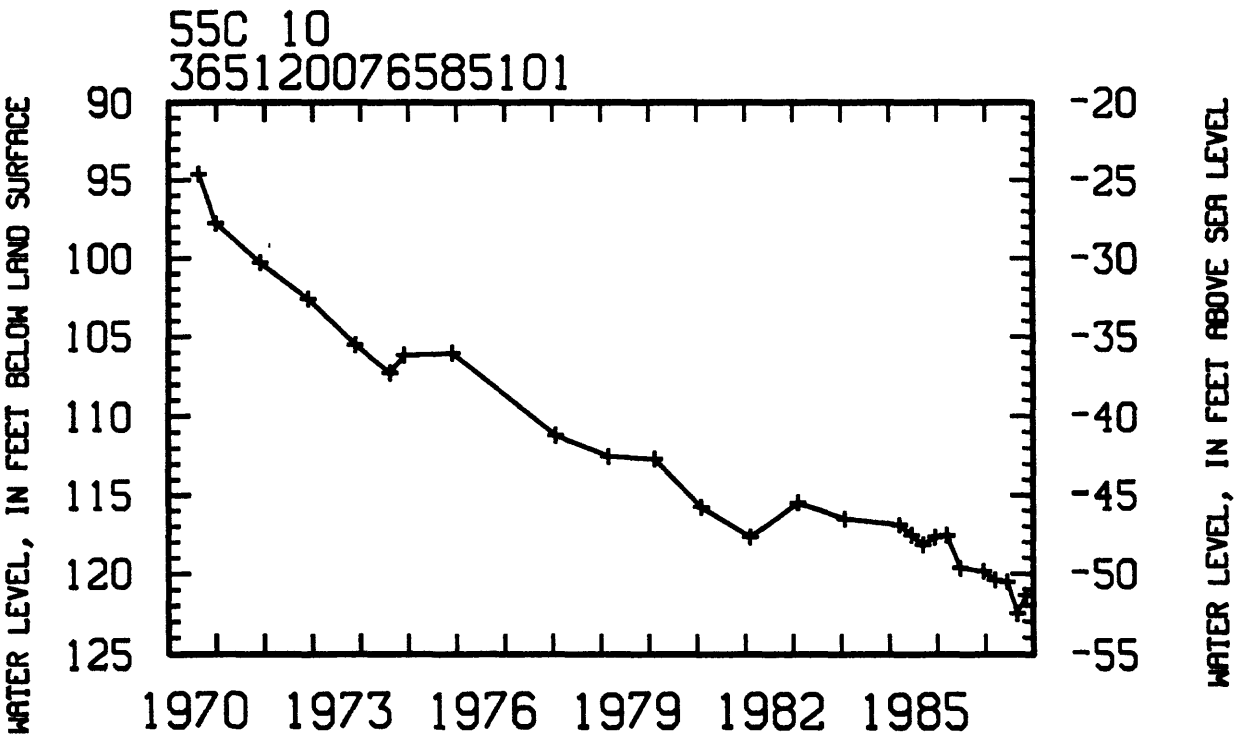
1980
1983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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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1979
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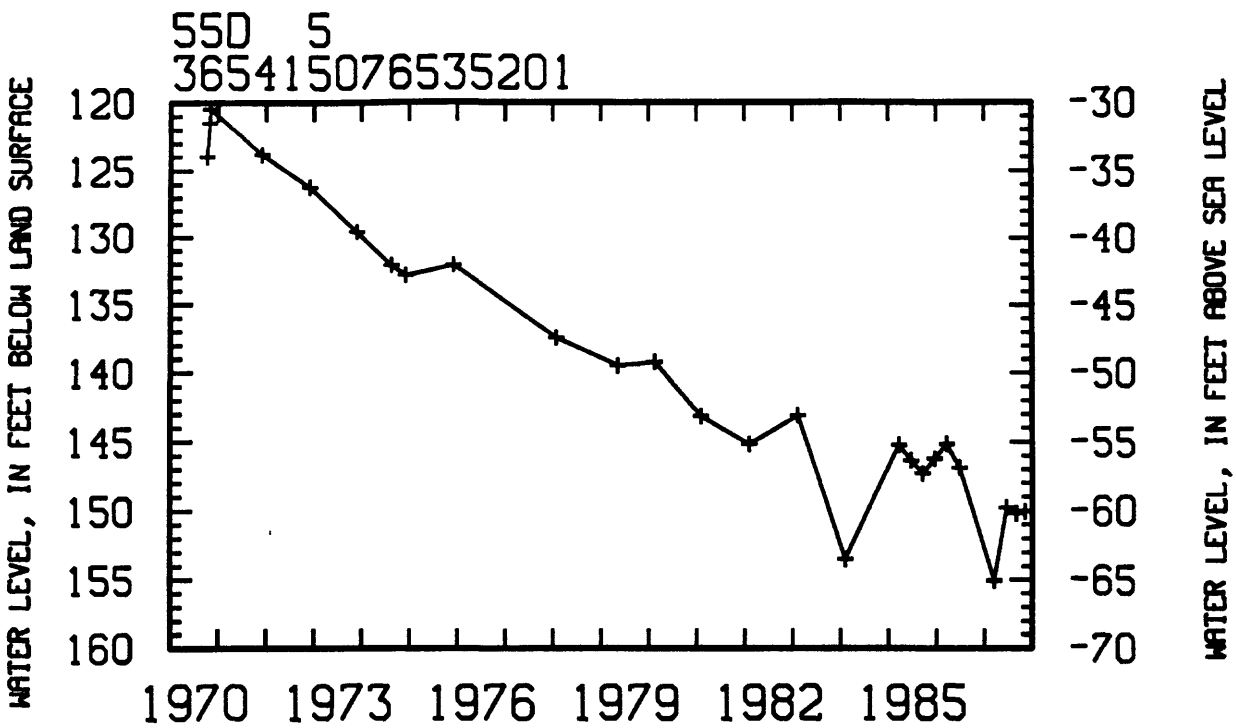
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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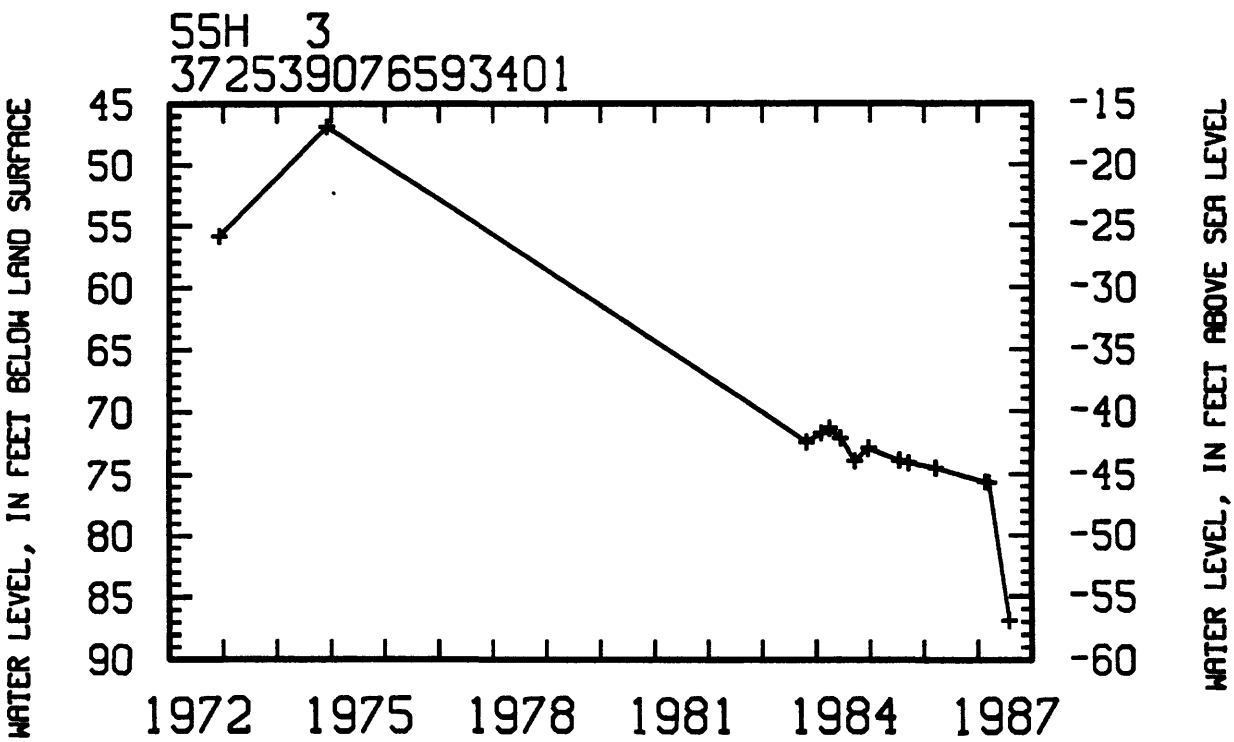
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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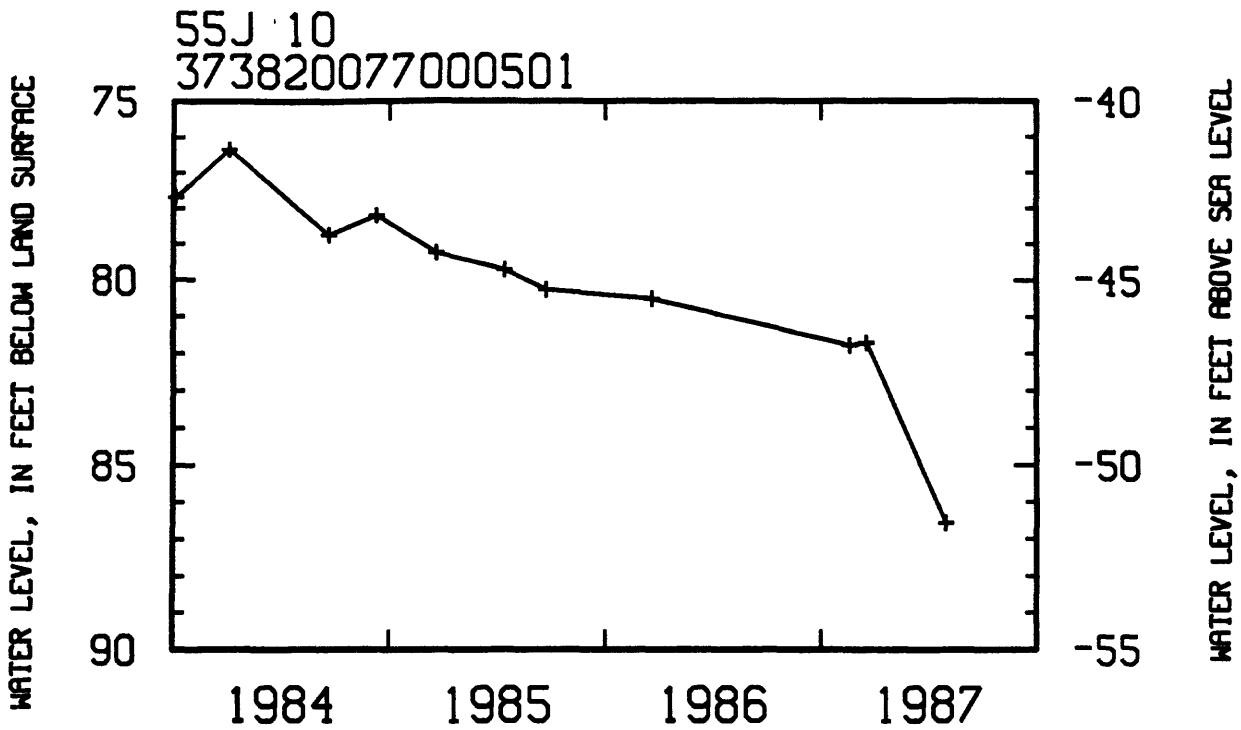
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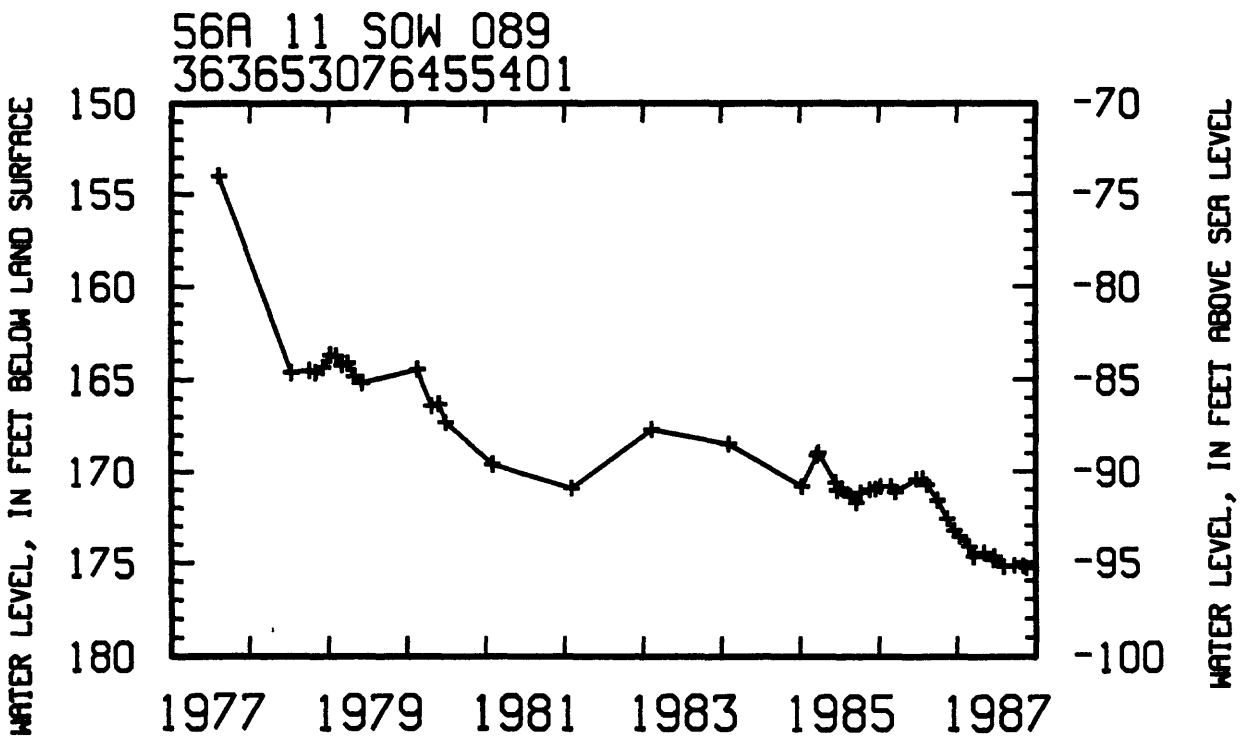
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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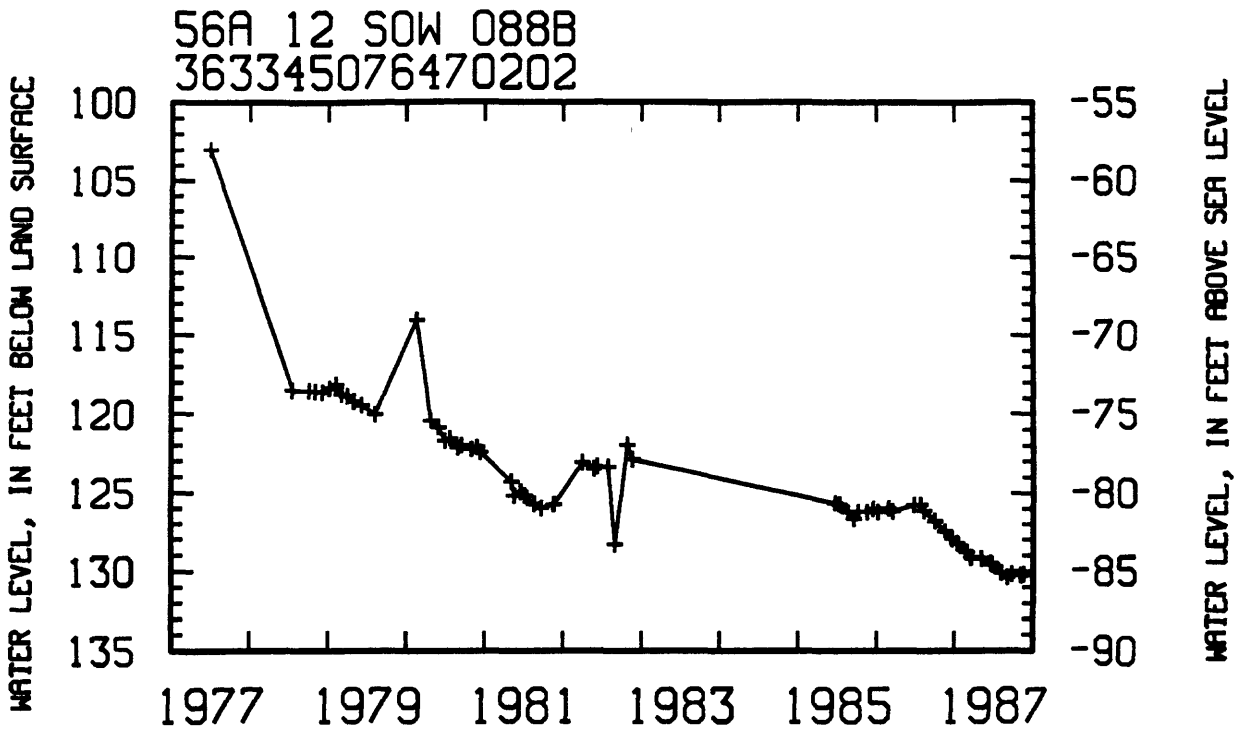
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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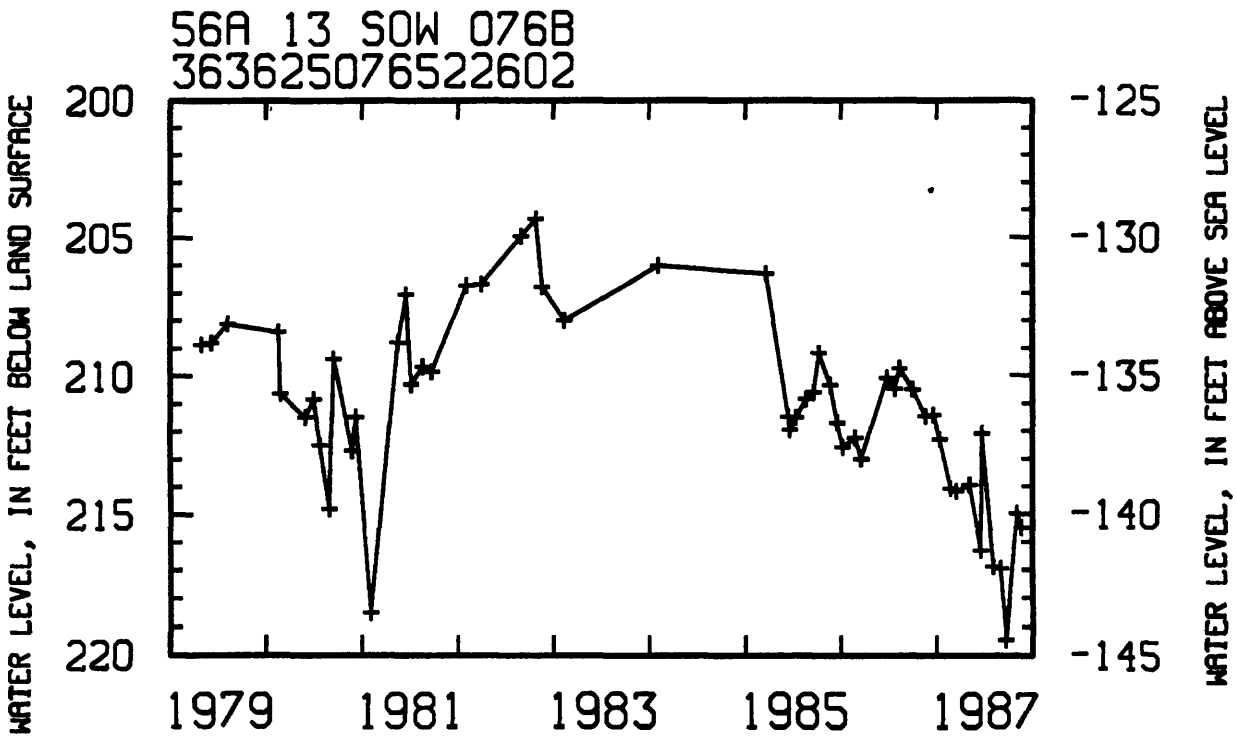
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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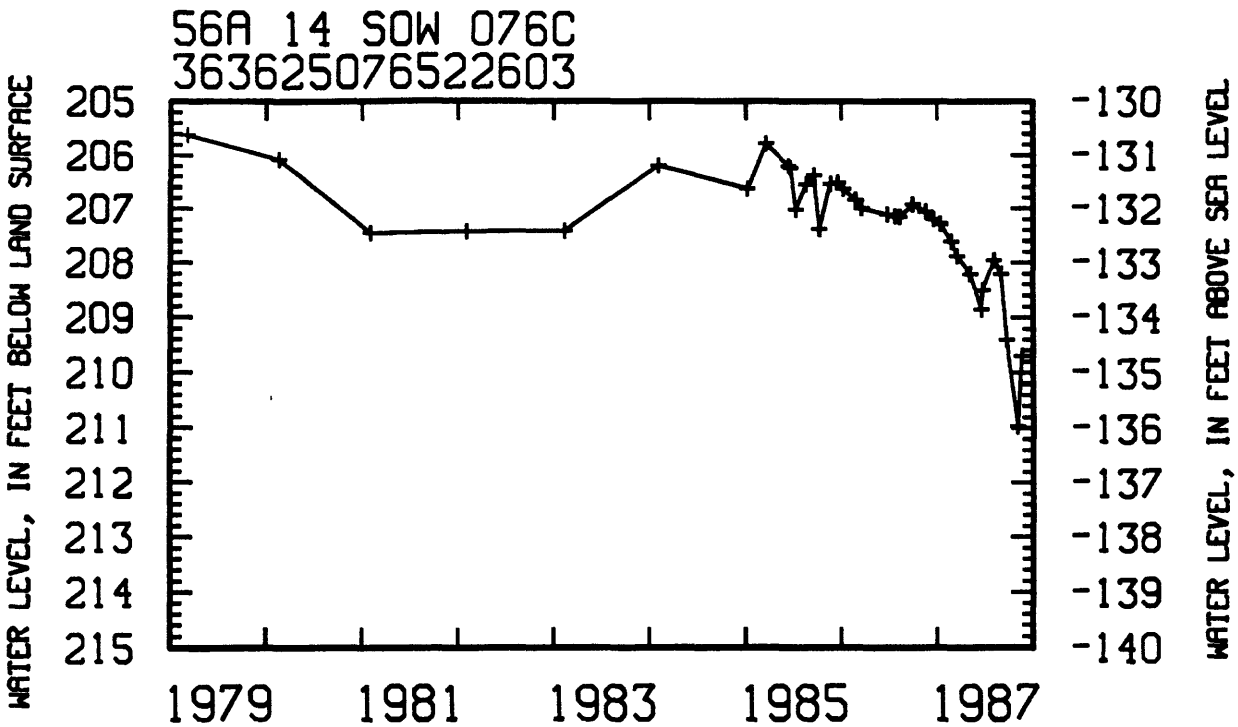
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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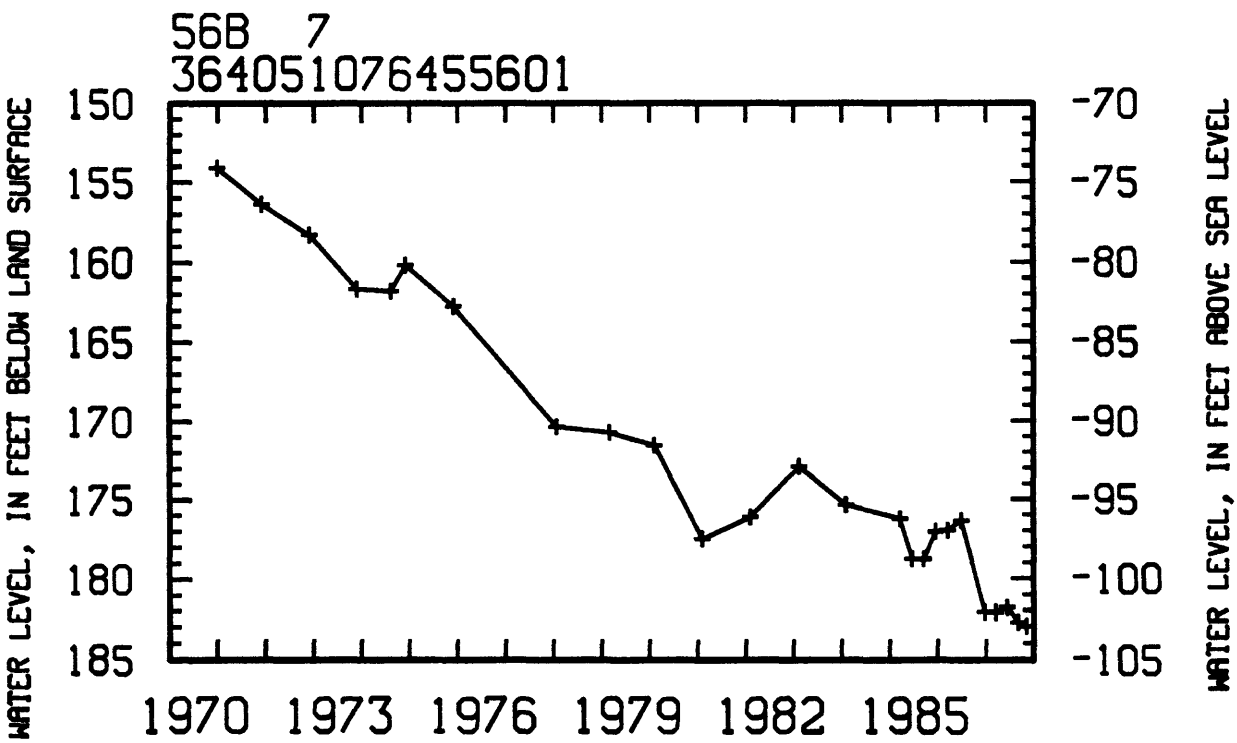
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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1976
1979
1982
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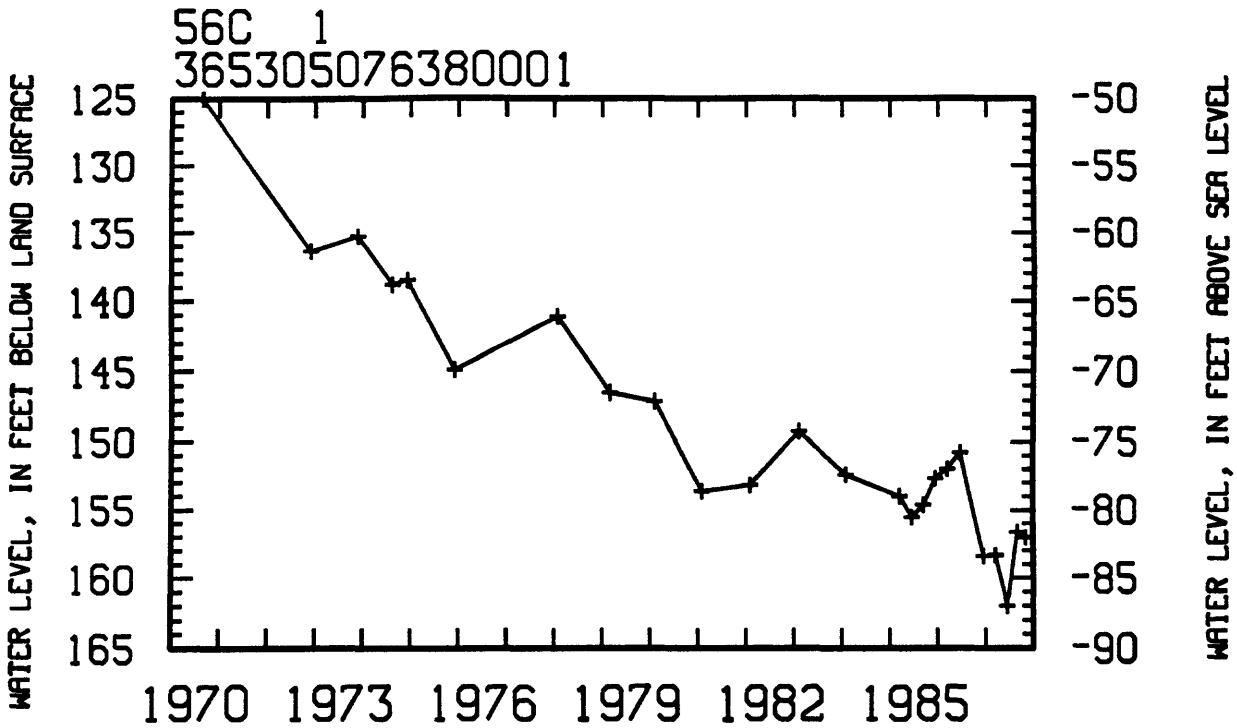
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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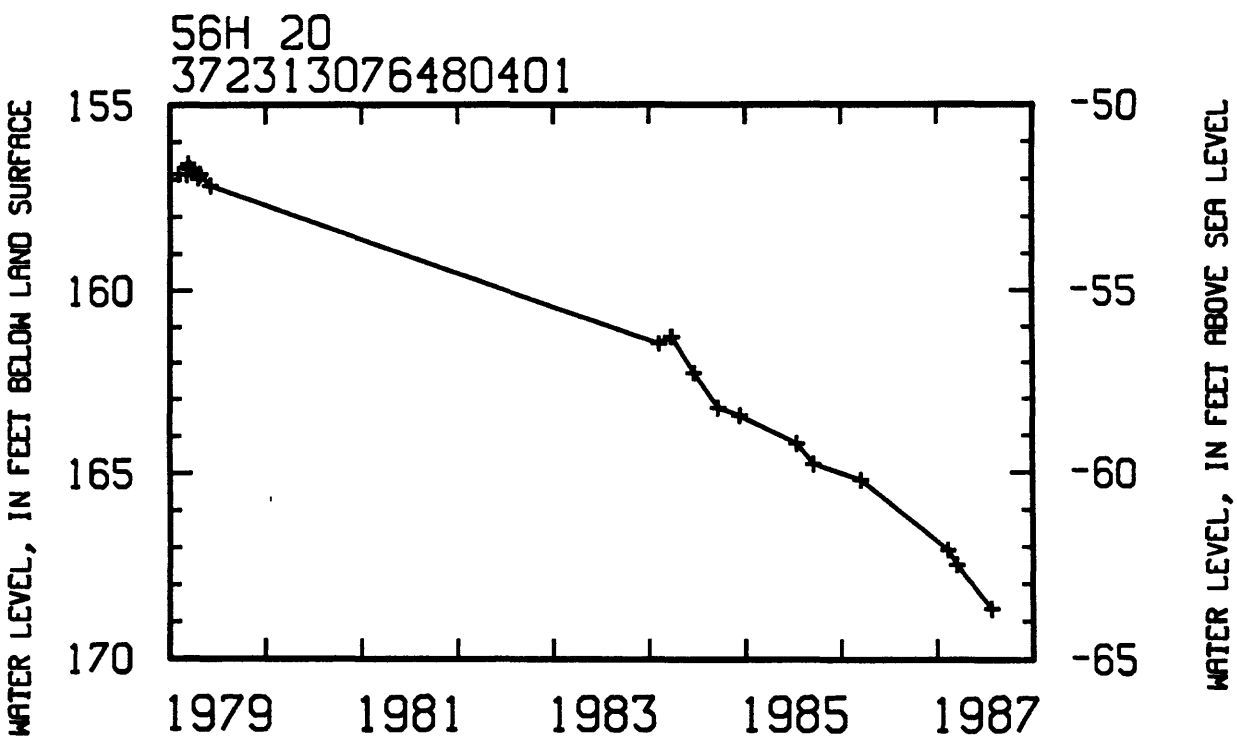
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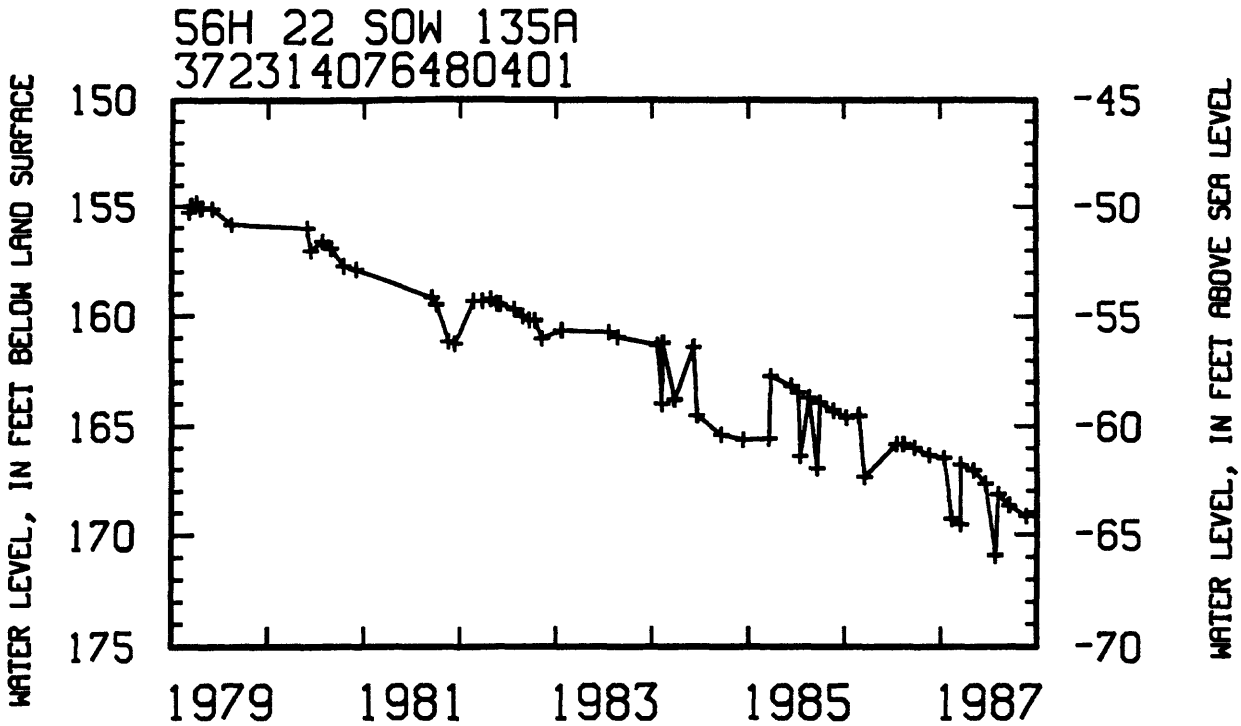
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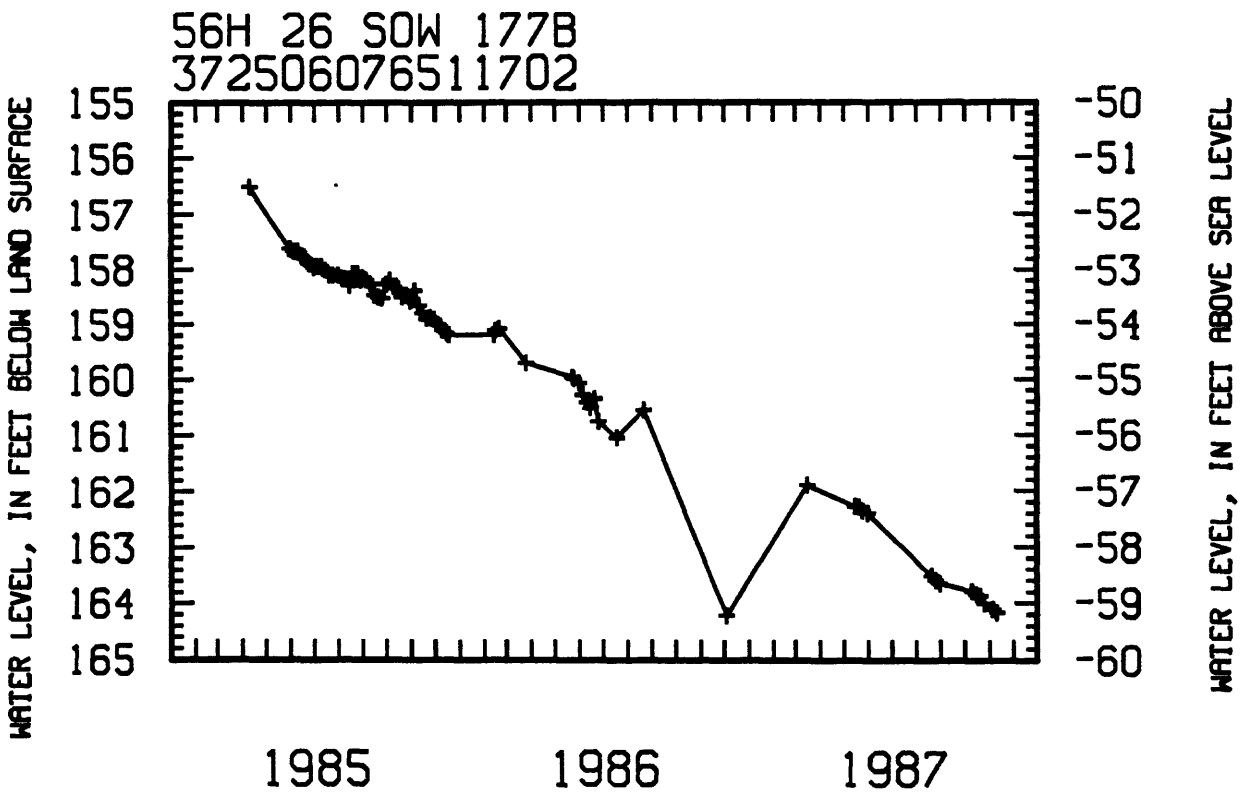
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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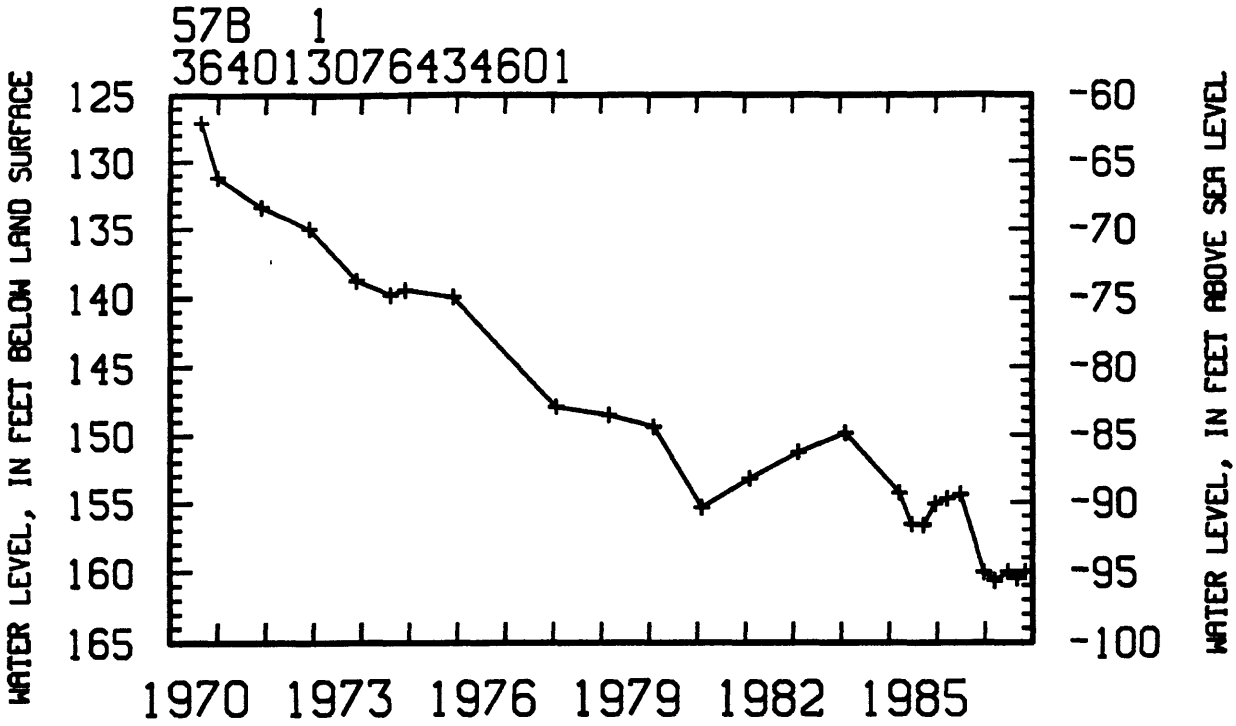
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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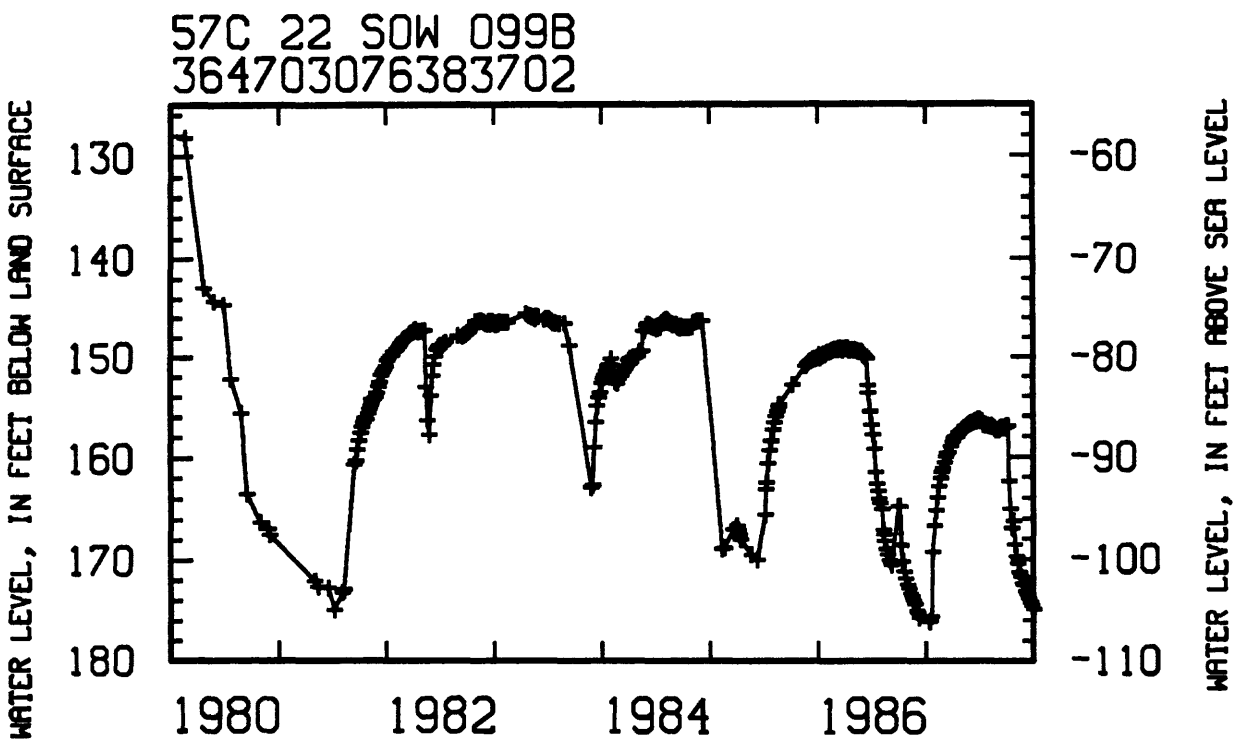
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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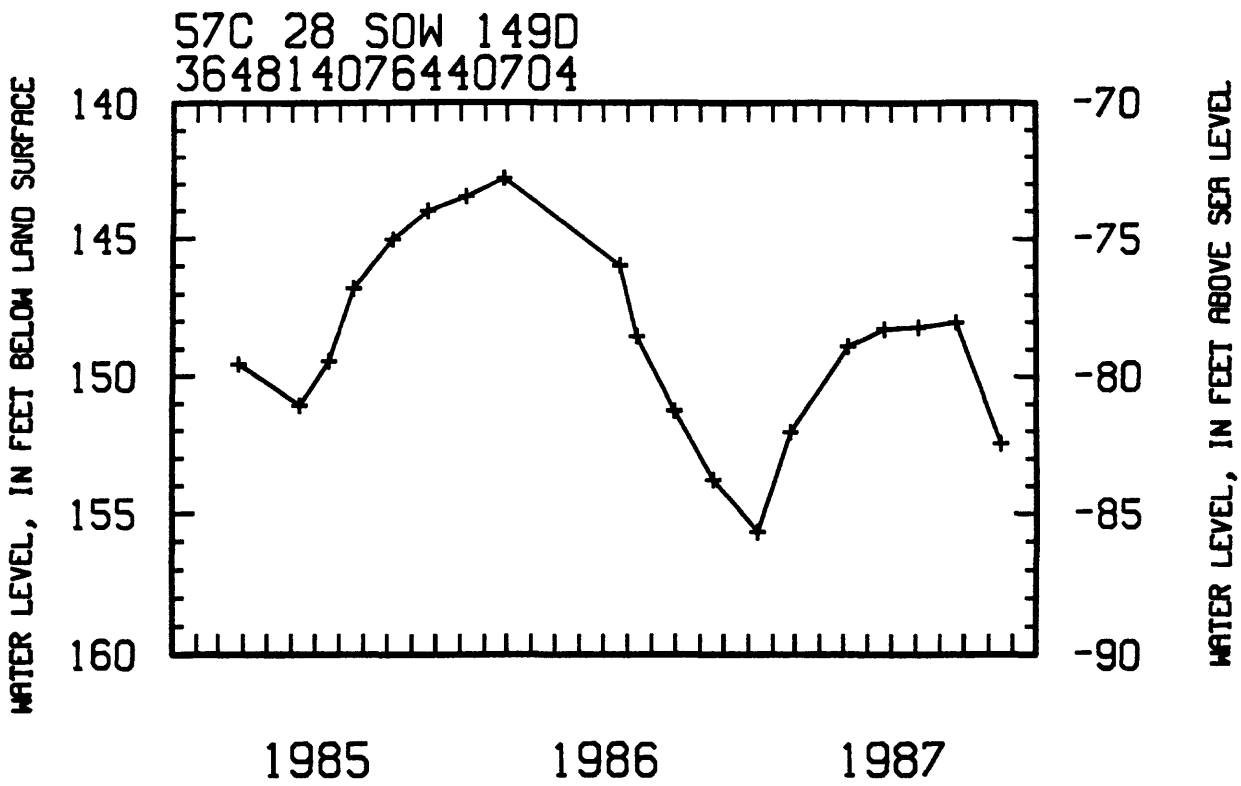
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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1986
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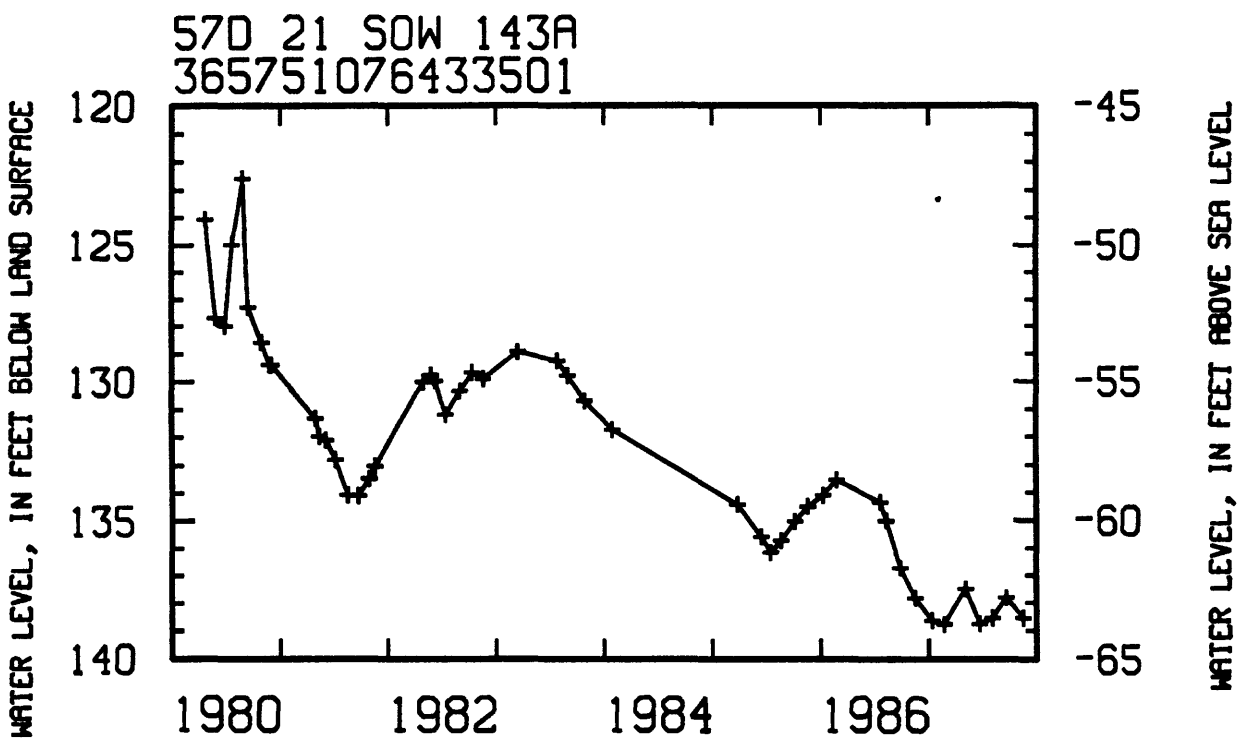
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WATER LEVEL, IN FEET BELOW LAND SURFACE
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WATER LEVEL, IN FEET ABOVE SEA LEVEL
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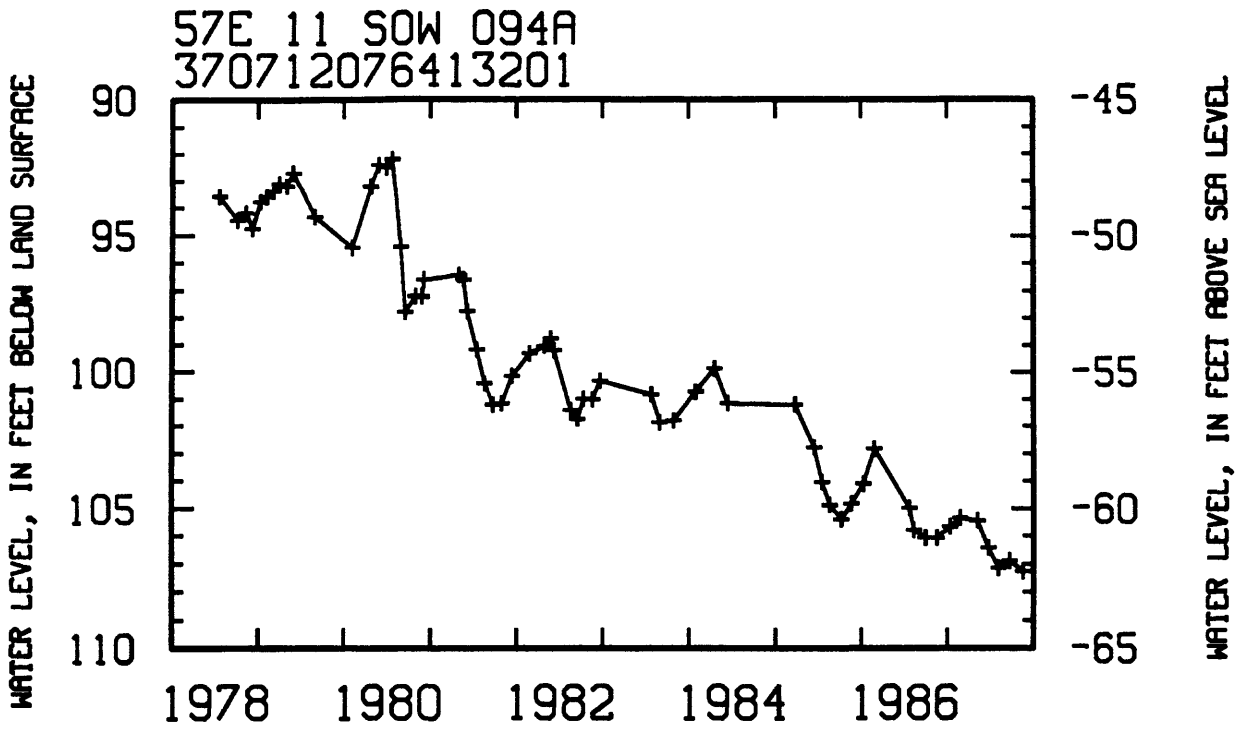
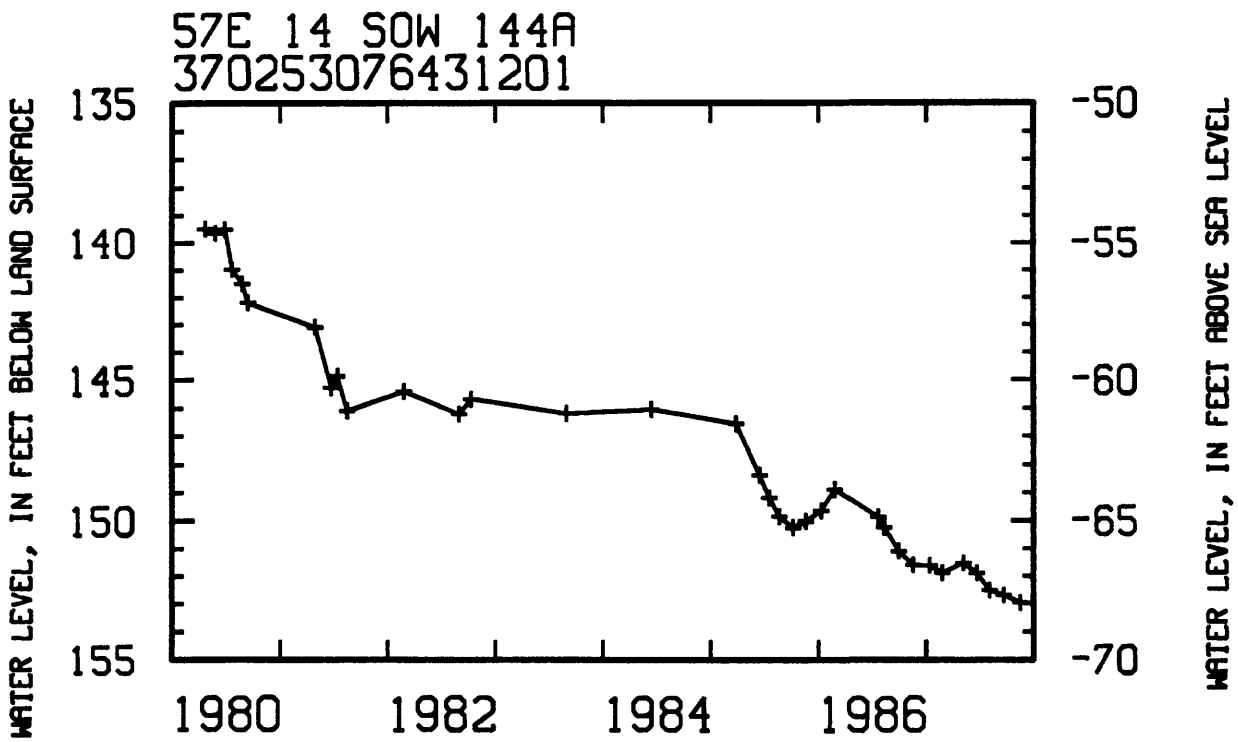
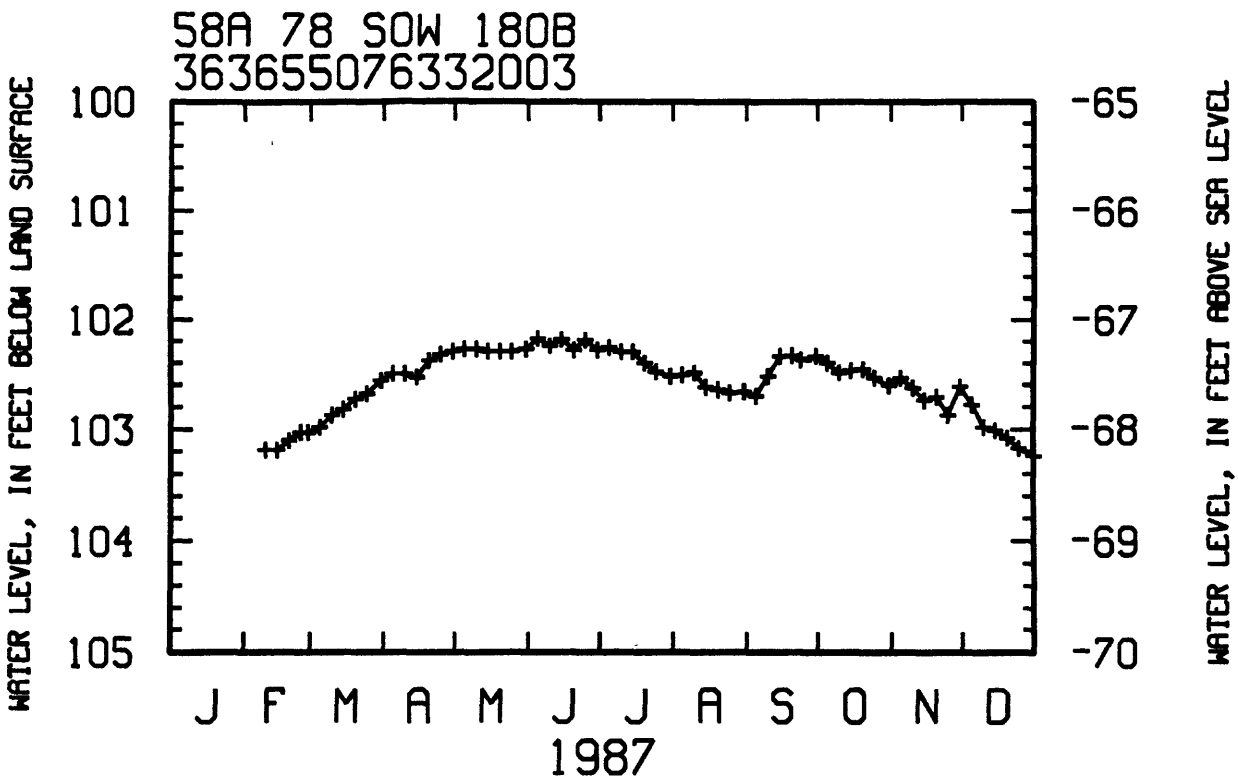
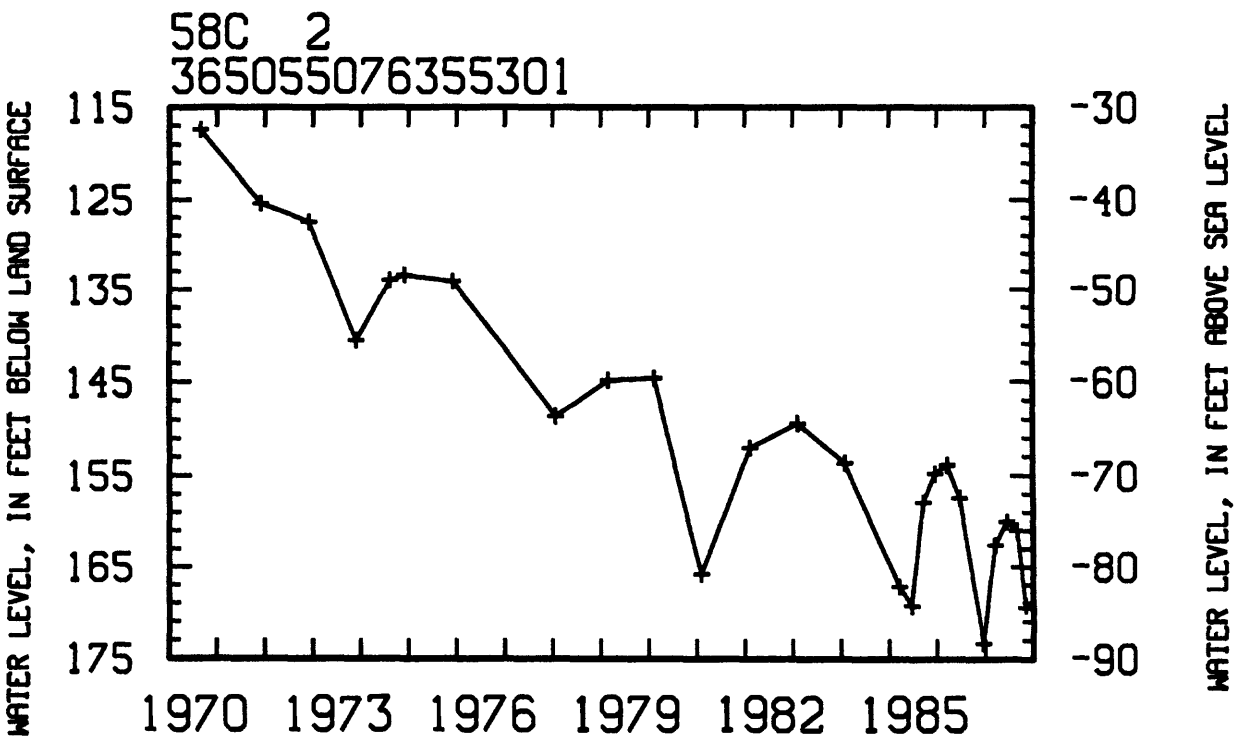
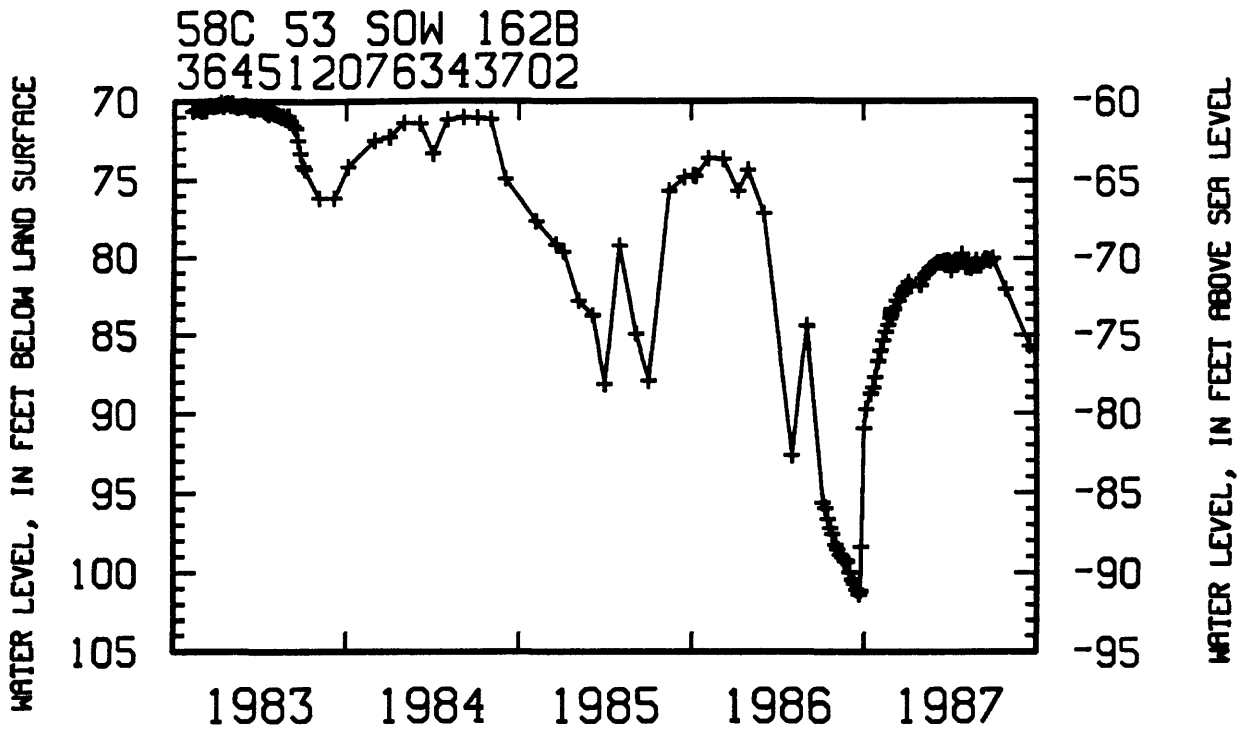
1982
1984
1986

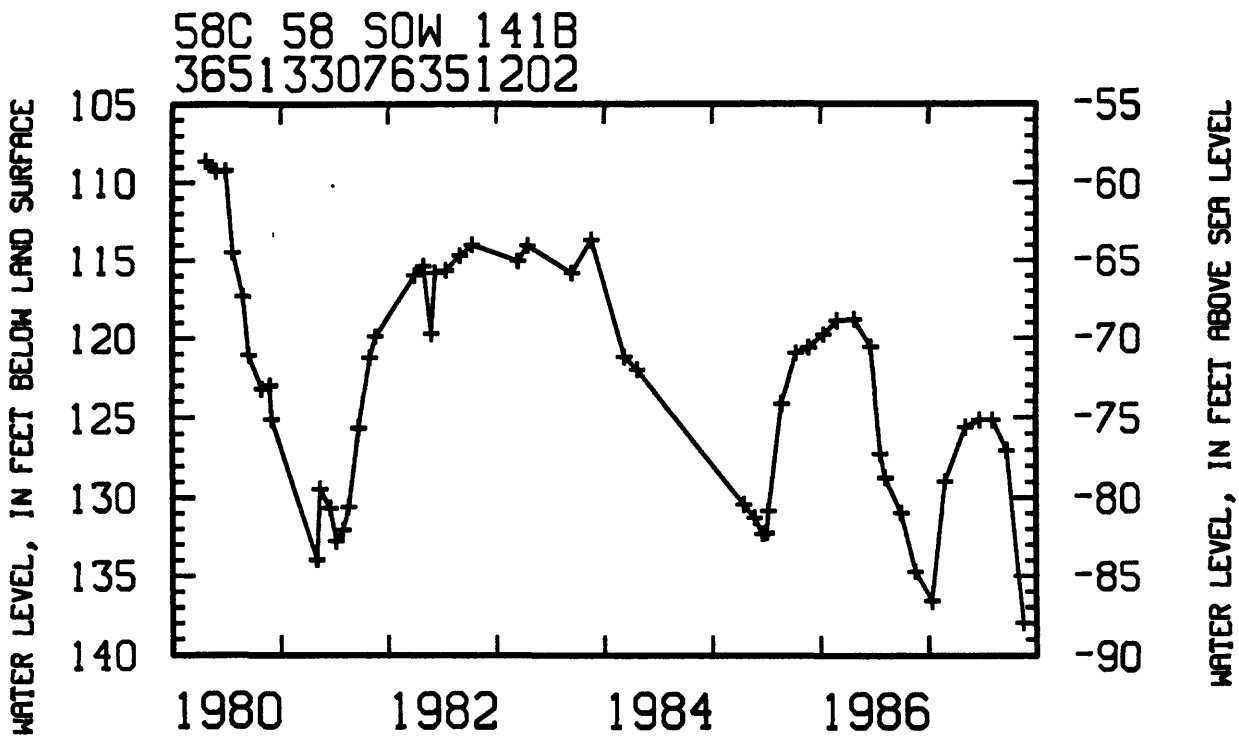

57E 11 SOW 094A
370712076413201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
90
95
100
105
110
-45
-50
-55
-60
-65
1978
1980
1982
1984
1986

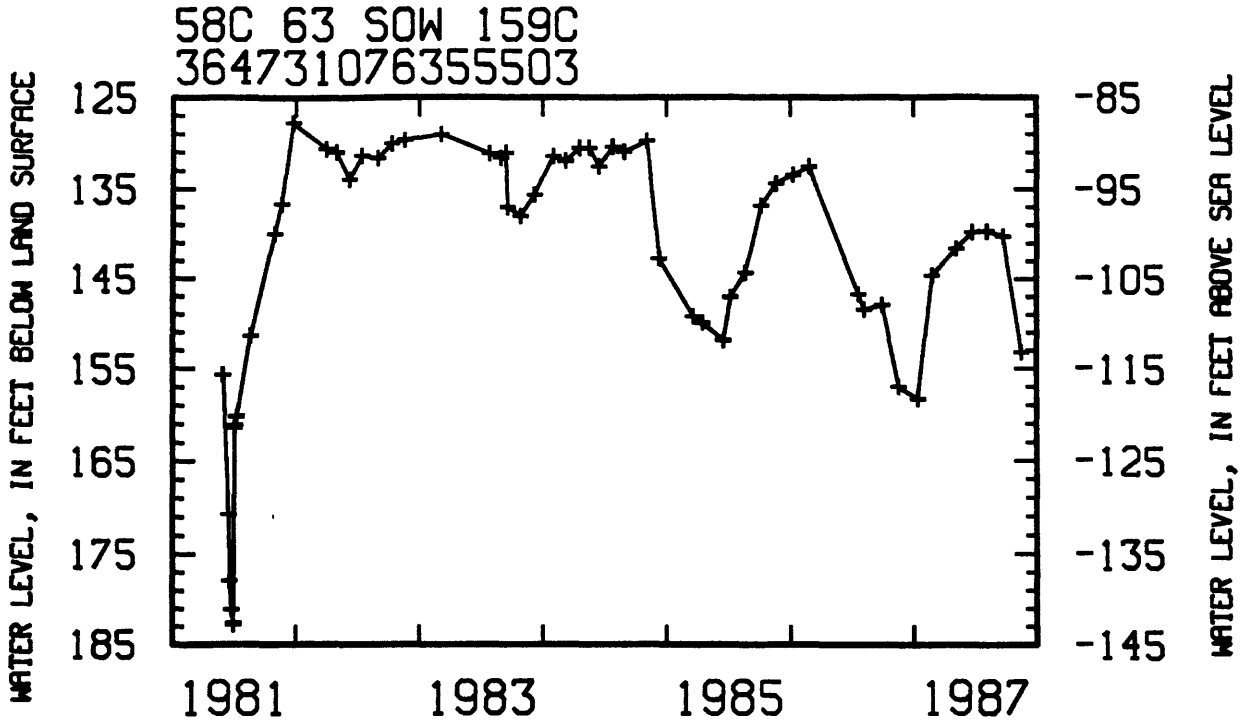

57E 14 SOW 144A
370253076431201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
135
140
145
150
155
-50
-55
-60
-65
-70
1980
1982
1984
1986

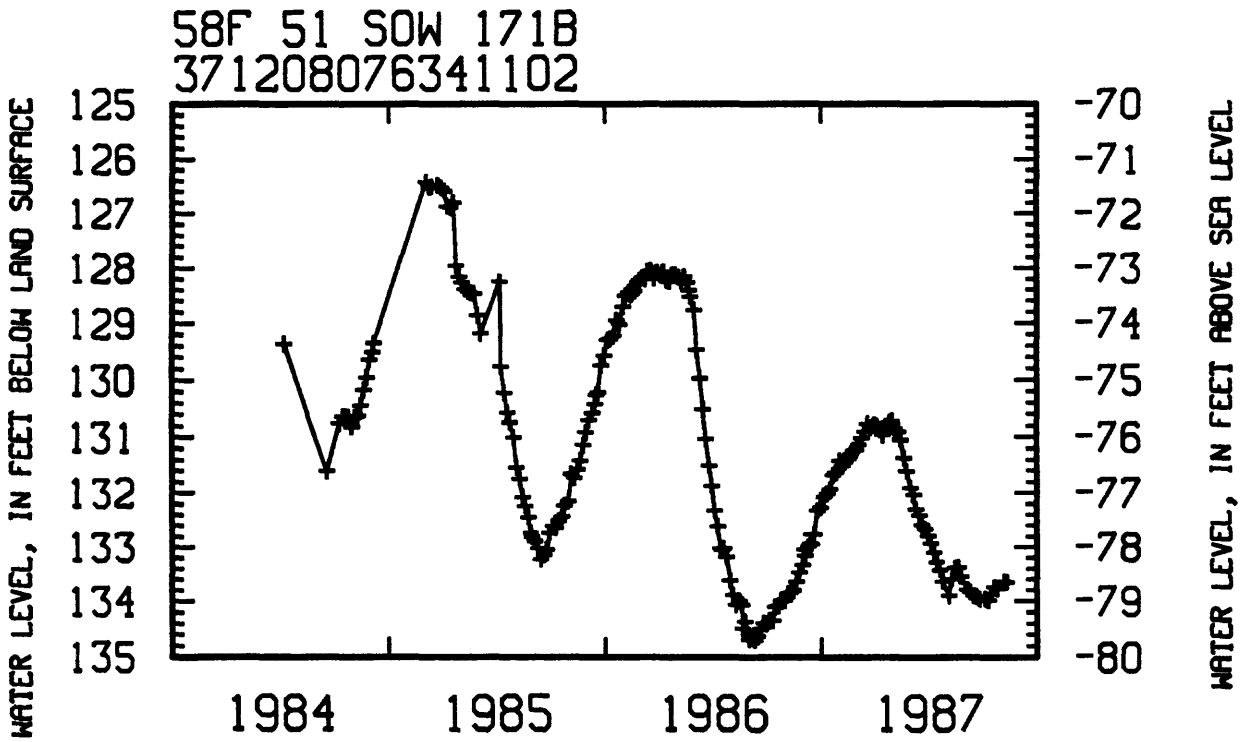

58A 78 SOW 180B
363655076332003
WATER LEVEL, IN FEET BELOW LAND SURFACE
100
101
102
103
104
105
-65
-66
-67
-68
-69
-70
WATER LEVEL, IN FEET ABOVE SEA LEVEL
J F M A M J J A S O N D
1987

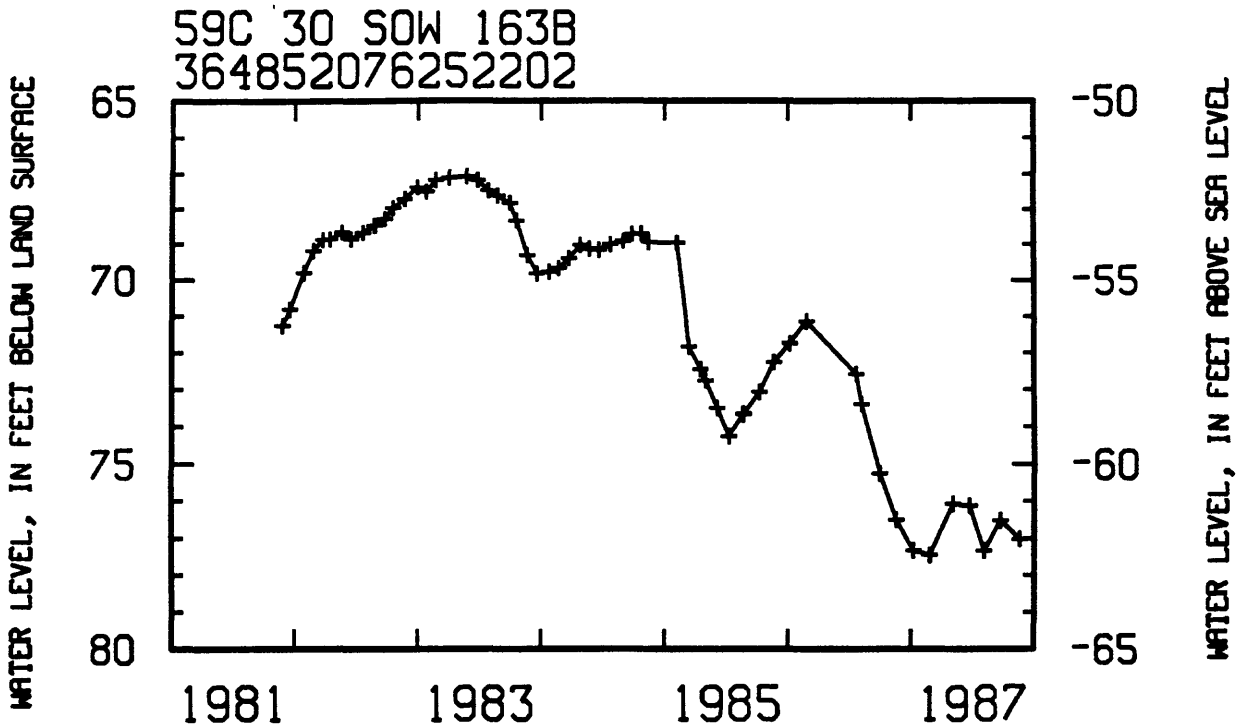

58C 2
365055076355301
WATER LEVEL, IN FEET BELOW LAND SURFACE
115
125
135
145
155
165
175
-30
-40
-50
-60
-70
-80
-90
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985


58C 53 SOW 162B
364512076343702
WATER LEVEL, IN FEET BELOW LAND SURFACE
70
75
80
85
90
95
100
105
-60
-65
-70
-75
-80
-85
-90
-95
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1983
1984
1985
1986
1987


58C 58 SOW 141B
365133076351202
WATER LEVEL, IN FEET BELOW LAND SURFACE
105
110
115
120
125
130
135
140
-55
-60
-65
-70
-75
-80
-85
-90
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1980
1982
1984
1986


58C 63 SOW 159C
364731076355503
WATER LEVEL, IN FEET BELOW LAND SURFACE
125
135
145
155
165
175
185
-85
-95
-105
-115
-125
-135
-145
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1981
1983
1985
1987


58F 51 SOW 171B
371208076341102
WATER LEVEL, IN FEET BELOW LAND SURFACE
125
126
127
128
129
130
131
132
133
134
135
-70
-71
-72
-73
-74
-75
-76
-77
-78
-79
-80
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987

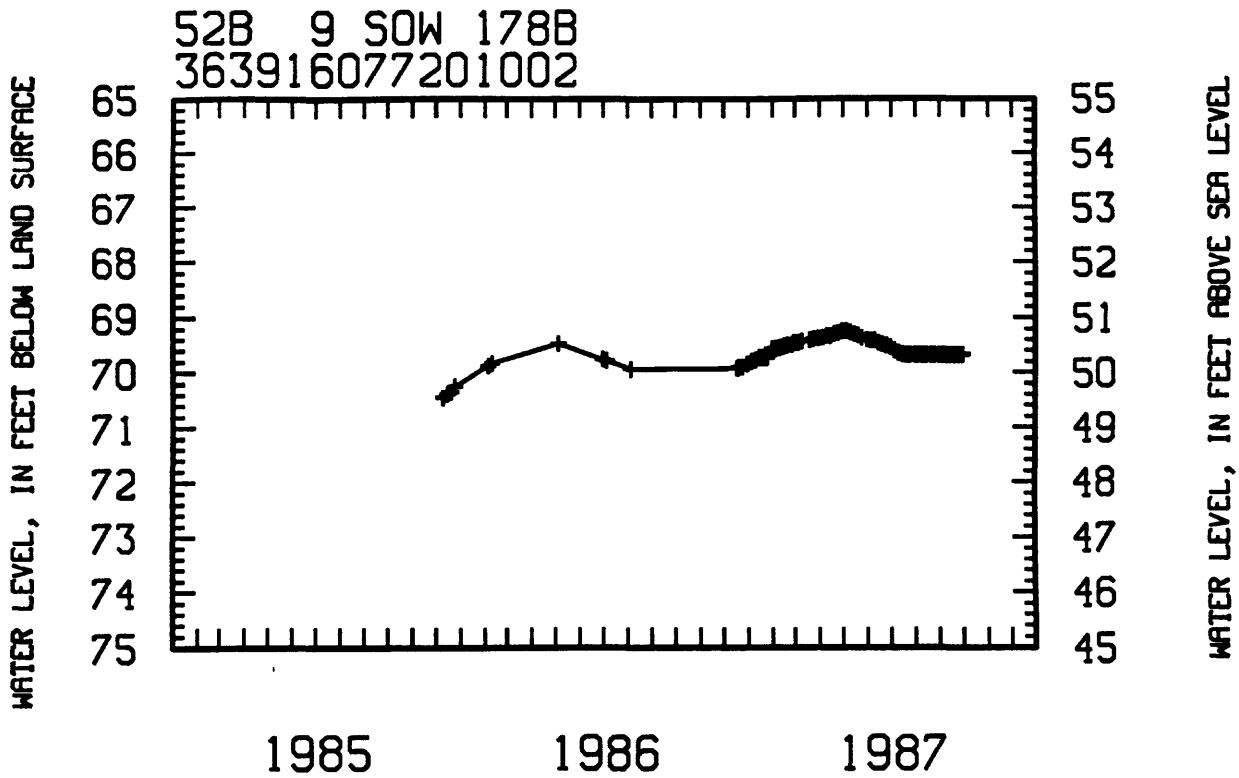

59C 30 SOW 163B
364852076252202
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
65
70
75
80
-50
-55
-60
-65
1981
1983
1985
1987

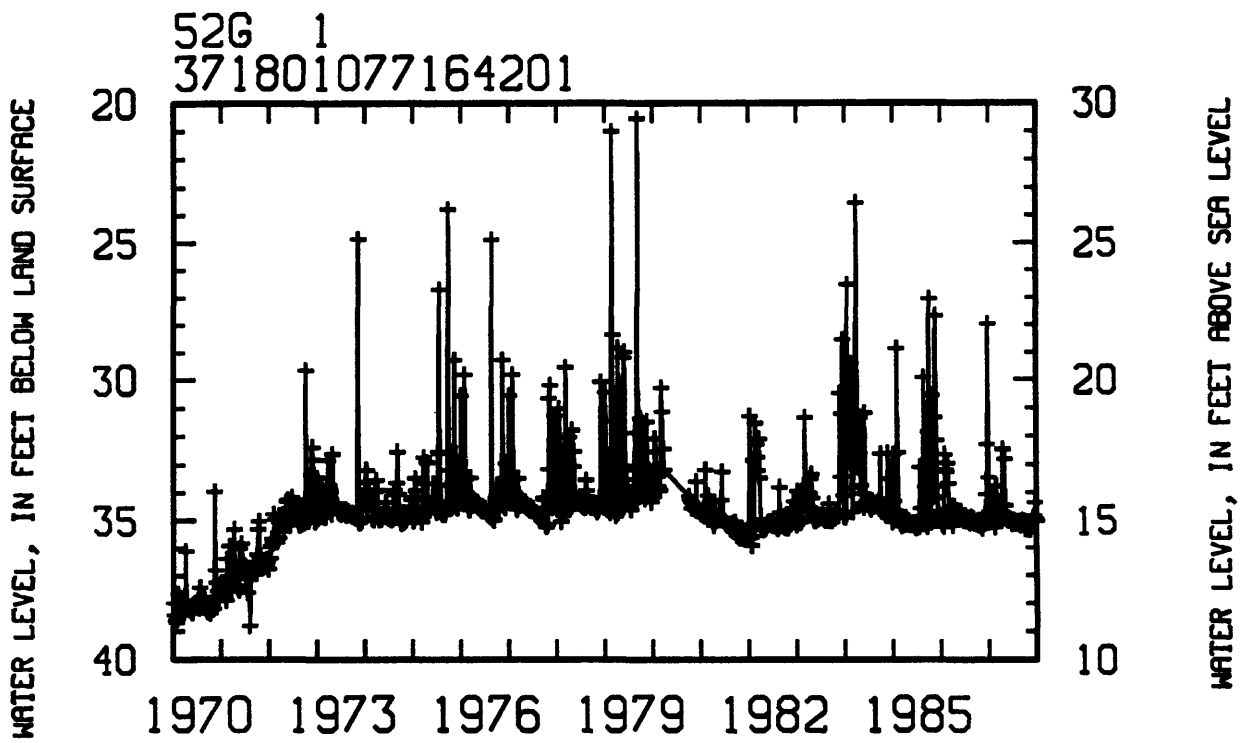
APPENDIX VII

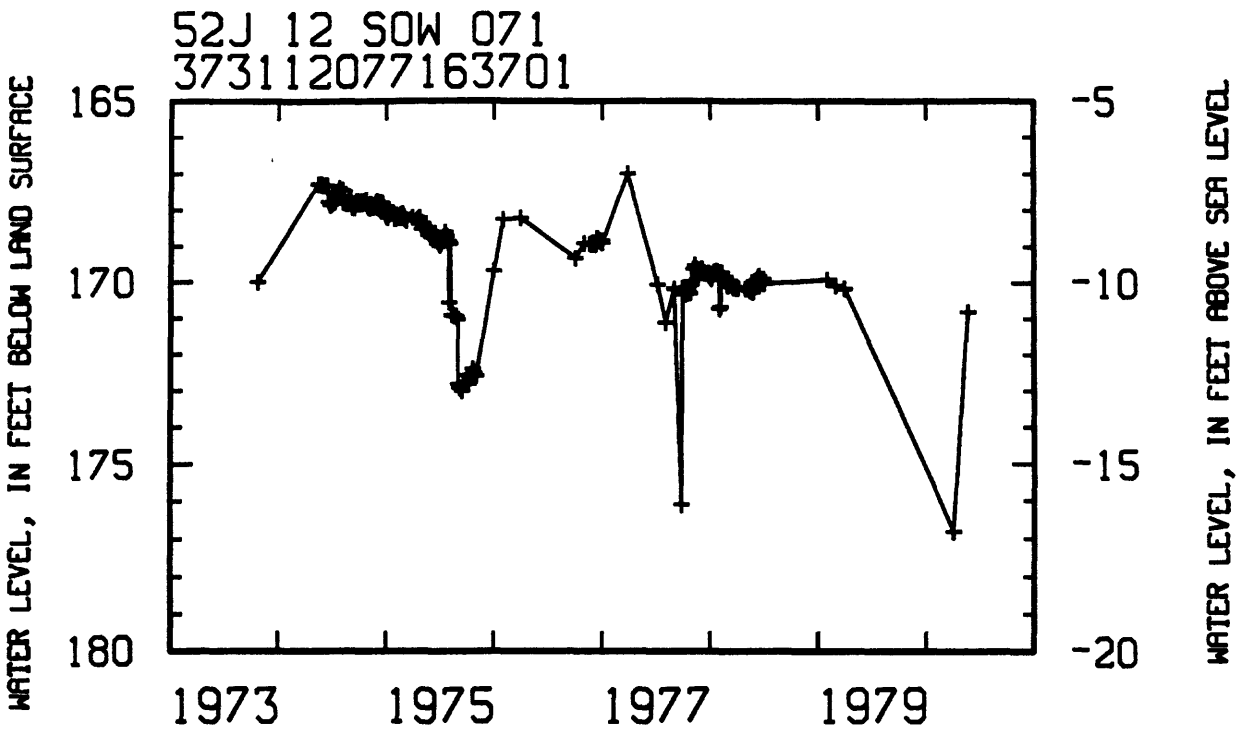
WATER LEVELS IN WELLS IN THE LOWER POTOMAC AQUIFER

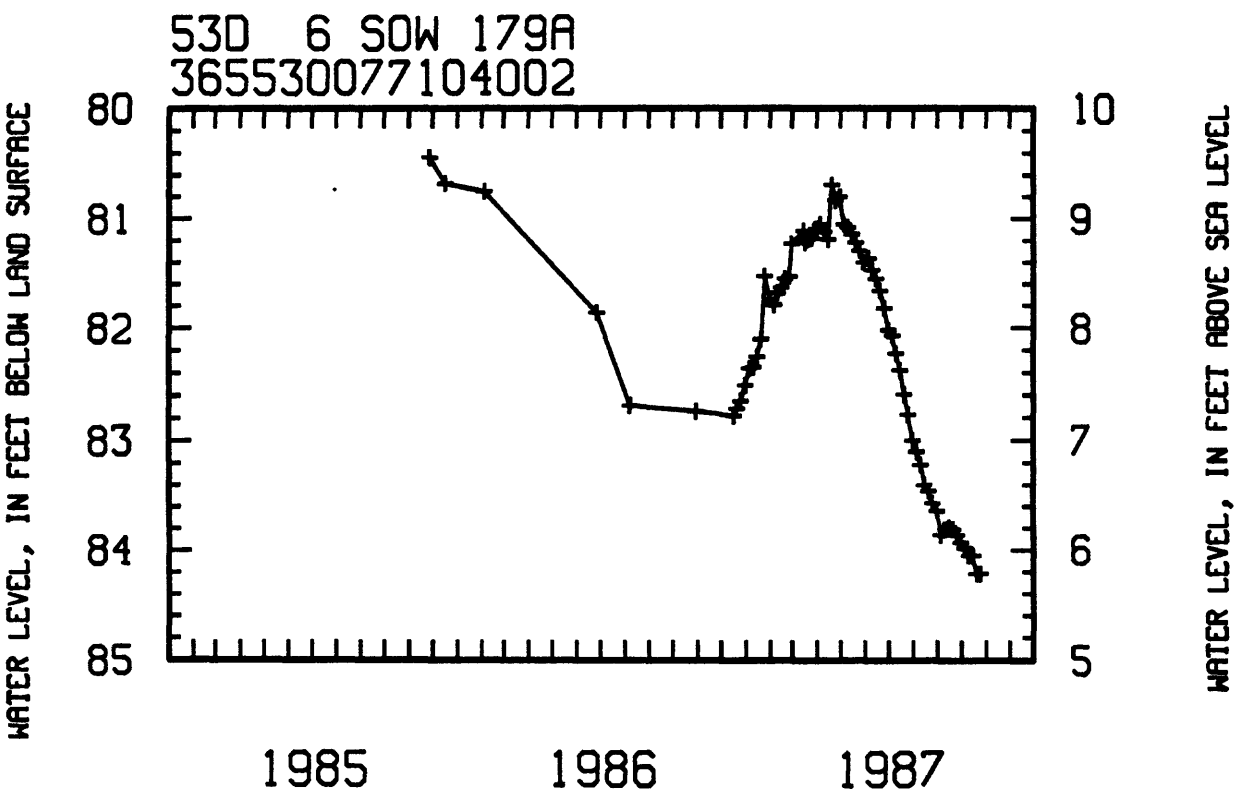
EXPLANATION

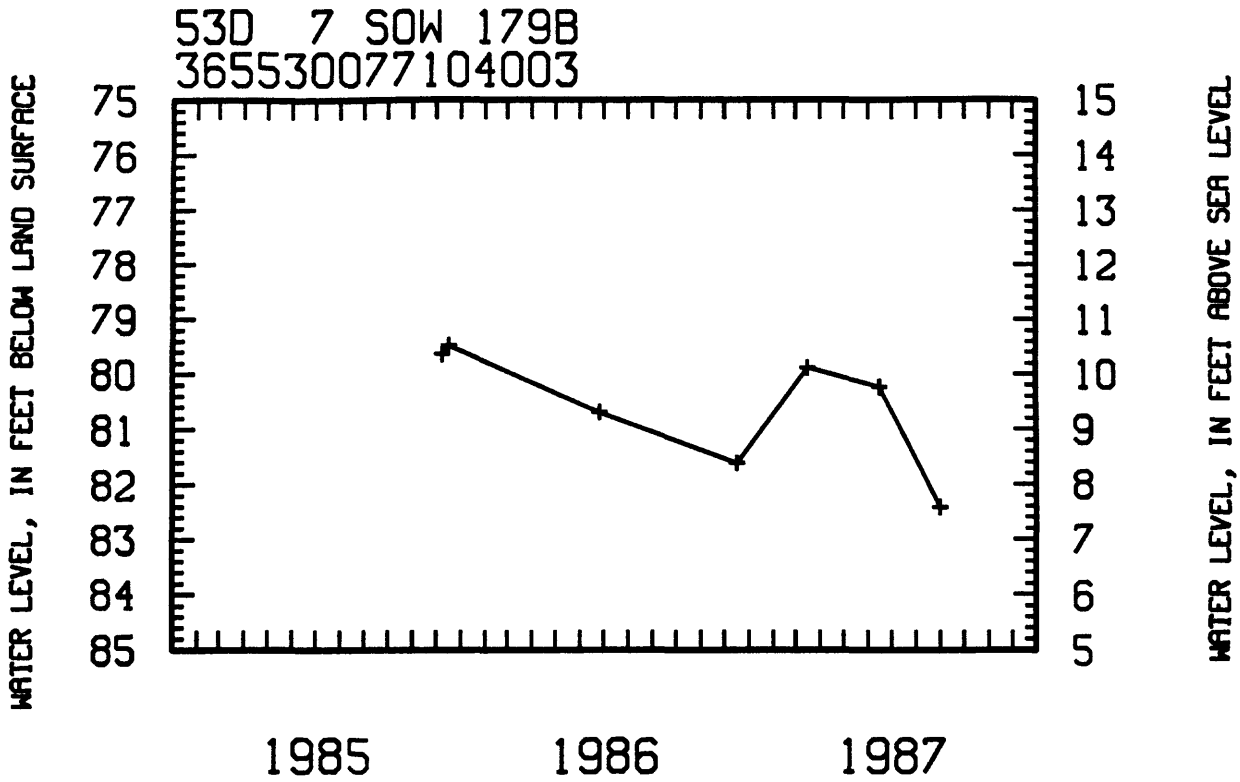
___ --LINE DRAWN BETWEEN WATER-LEVEL MEASUREMENTS
INFERRED TREND AND NOT ACTUAL TREND
\+ --WATER-LEVEL MEASUREMENT
52B 9--USGS WELL NO.
SOW 178B--VIRGINIA STATE OBSERVATION WELL NO.
363916077201002--STATION IDENTIFICATION NO.

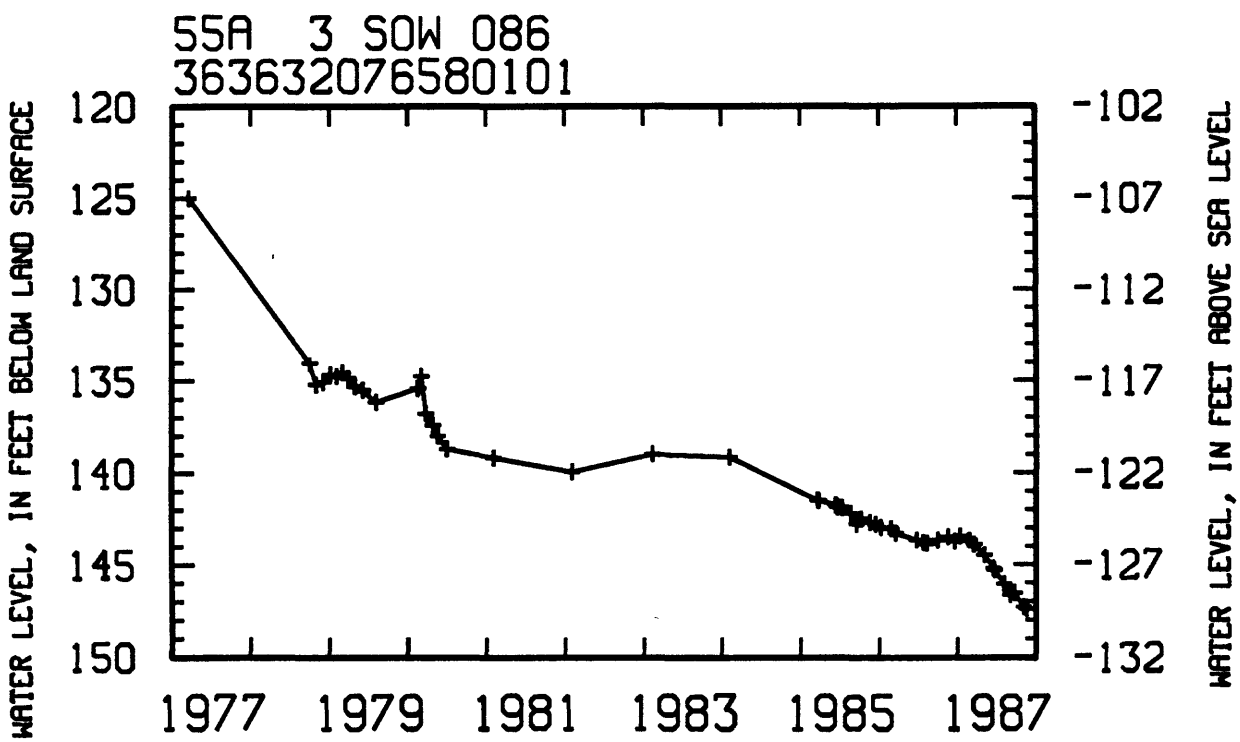

52B 9 SOW 178B
363916077201002
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
65
66
67
68
69
70
71
72
73
74
75
55
54
53
52
51
50
49
48
47
46
45
1985
1986
1987

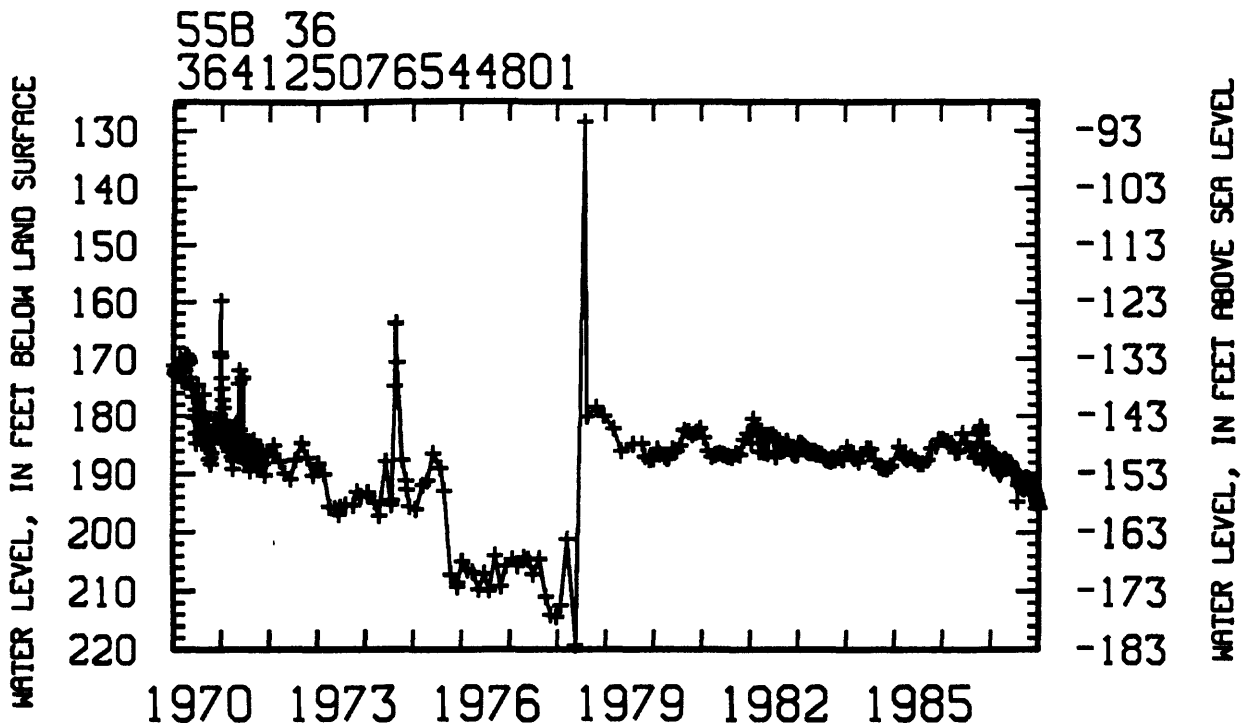

52G 1
371801077164201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
20
25
30
35
40
30
25
20
15
10
1970
1973
1976
1979
1982
1985

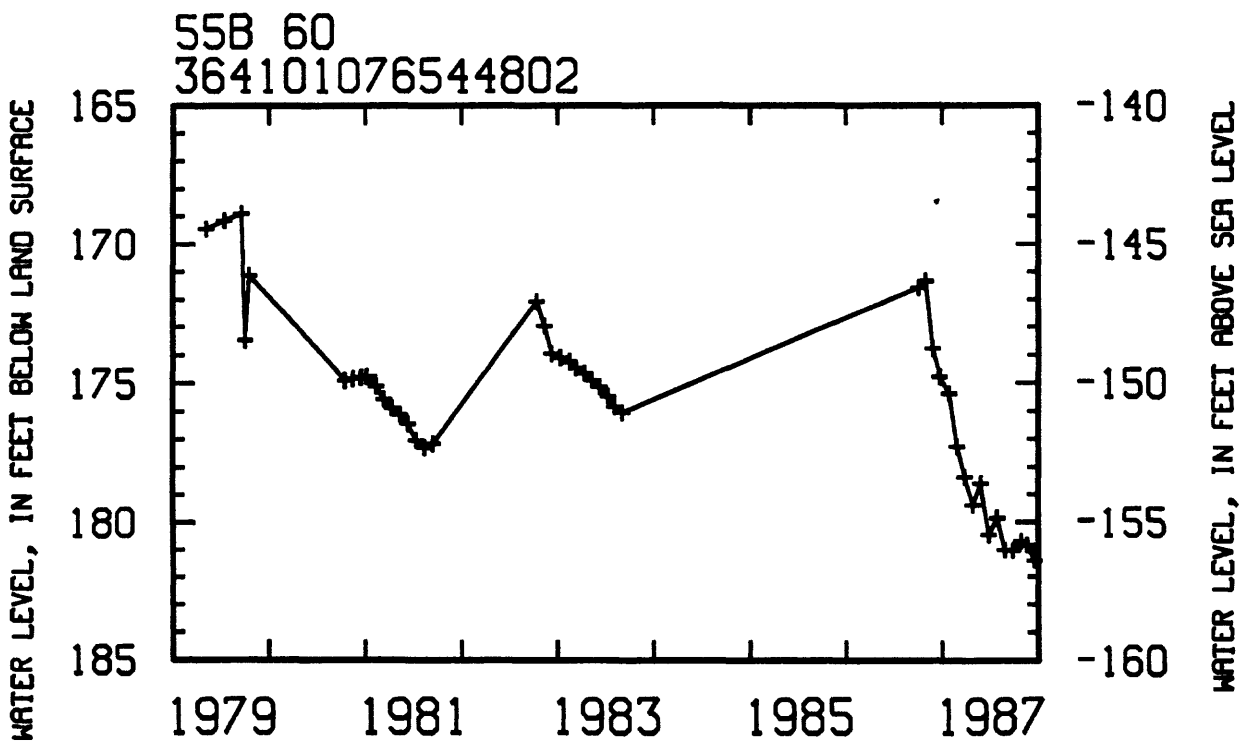

52J 12 SOW 071
373112077163701
WATER LEVEL, IN FEET BELOW LAND SURFACE
165
170
175
180
1973
1975
1977
1979
-5
-10
-15
-20
WATER LEVEL, IN FEET ABOVE SEA LEVEL

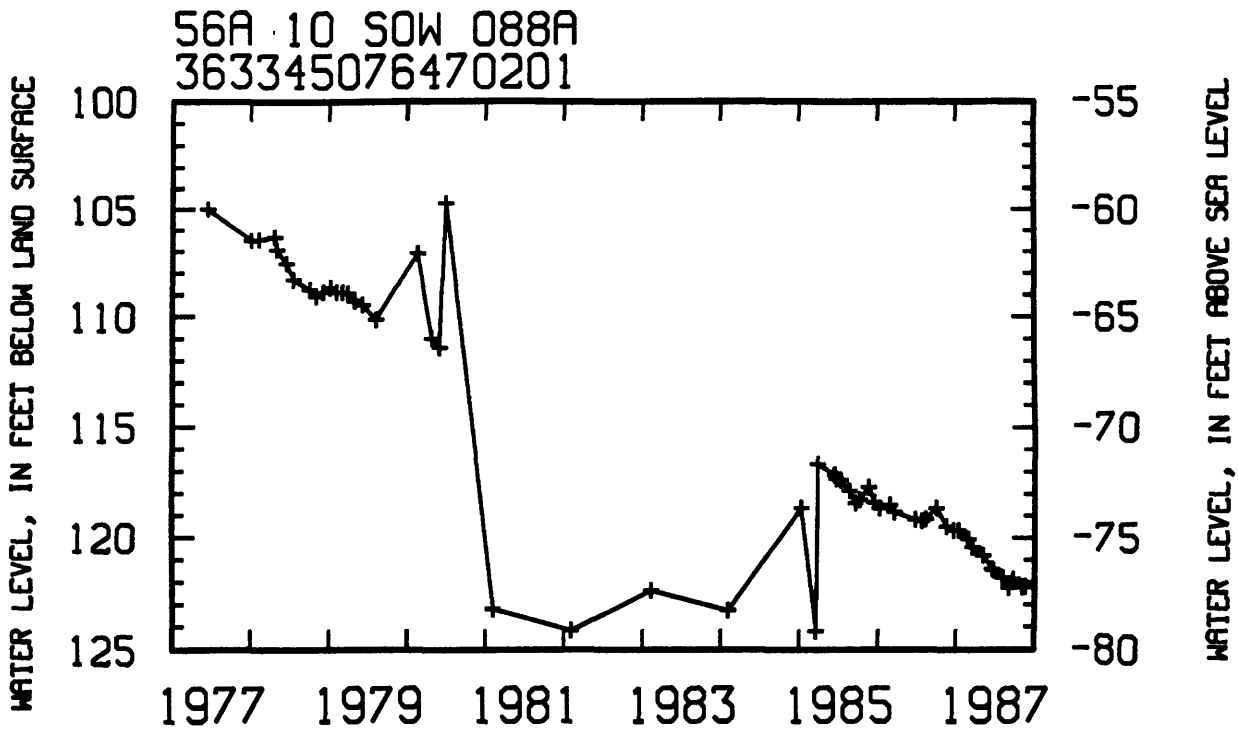

53D 6 SOW 179A
365530077104002
WATER LEVEL, IN FEET BELOW LAND SURFACE
80
81
82
83
84
85
1985
1986
1987
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL

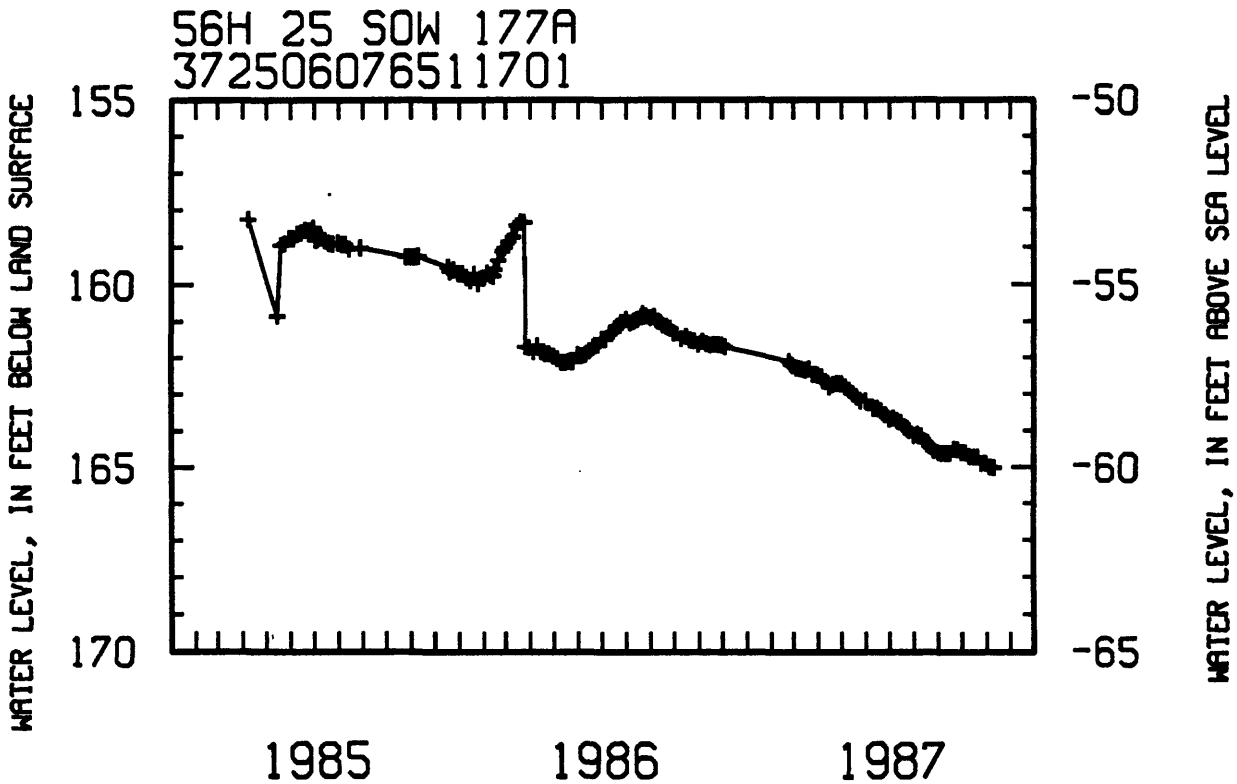

53D 7 SOW 179B
365530077104003
WATER LEVEL, IN FEET BELOW LAND SURFACE
75
76
77
78
79
80
81
82
83
84
85
15
14
13
12
11
10
9
8
7
6
5
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1985
1986
1987

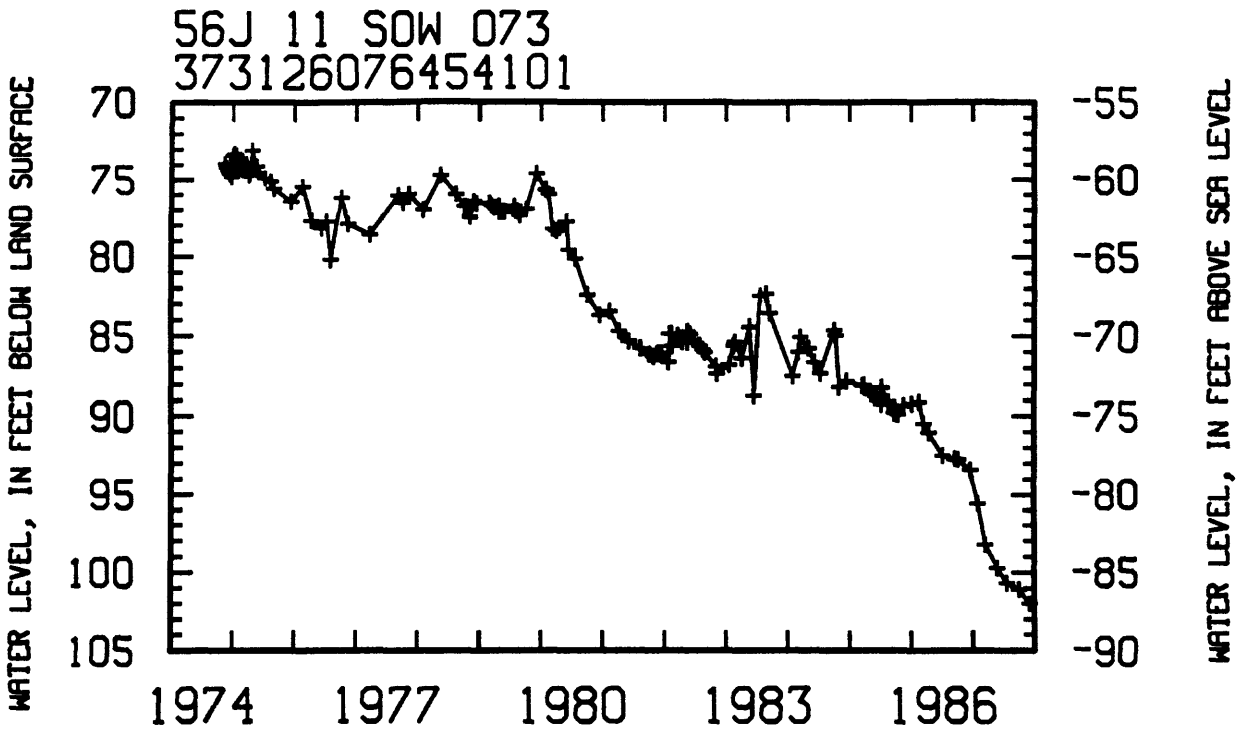

55A 3 SOW 086
363632076580101
WATER LEVEL, IN FEET BELOW LAND SURFACE
120
125
130
135
140
145
150
-102
-107
-112
-117
-122
-127
-132
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1977
1979
1981
1983
1985
1987

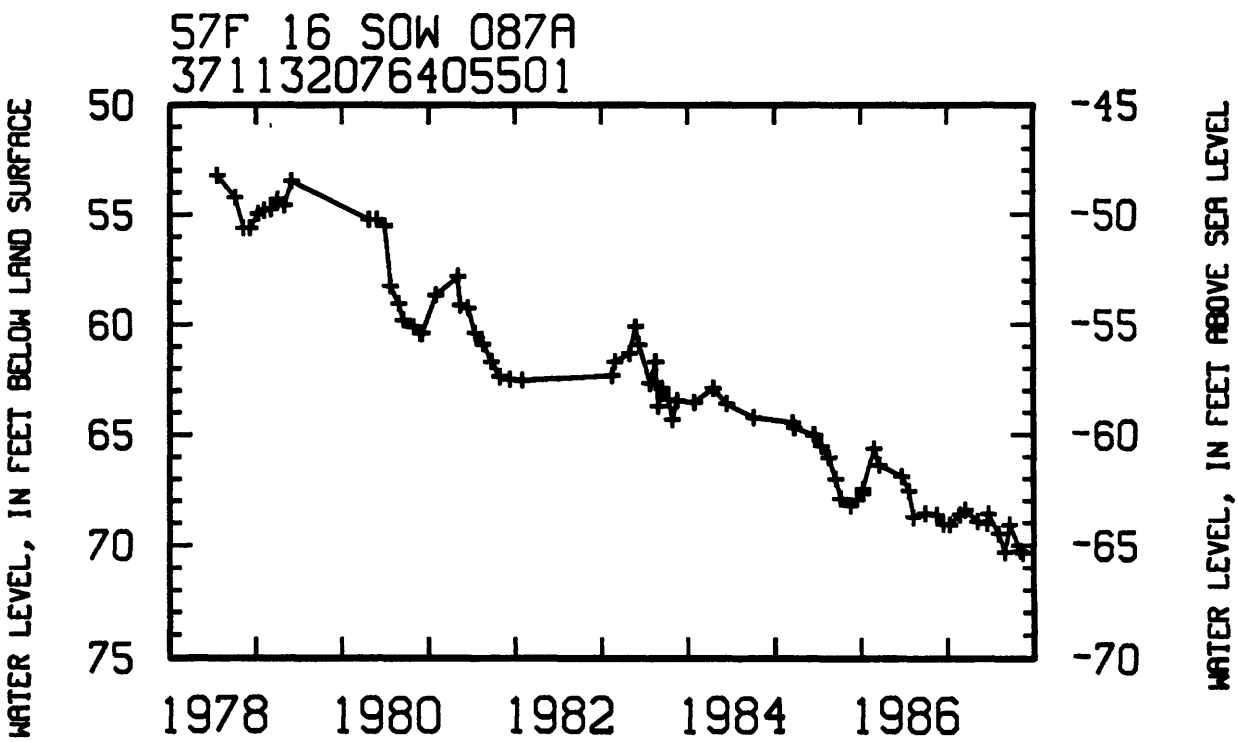

55B 36
364125076544801
WATER LEVEL, IN FEET BELOW LAND SURFACE
130
140
150
160
170
180
190
200
210
220
-93
-103
-113
-123
-133
-143
-153
-163
-173
-183
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1970 1973 1976 1979 1982 1985

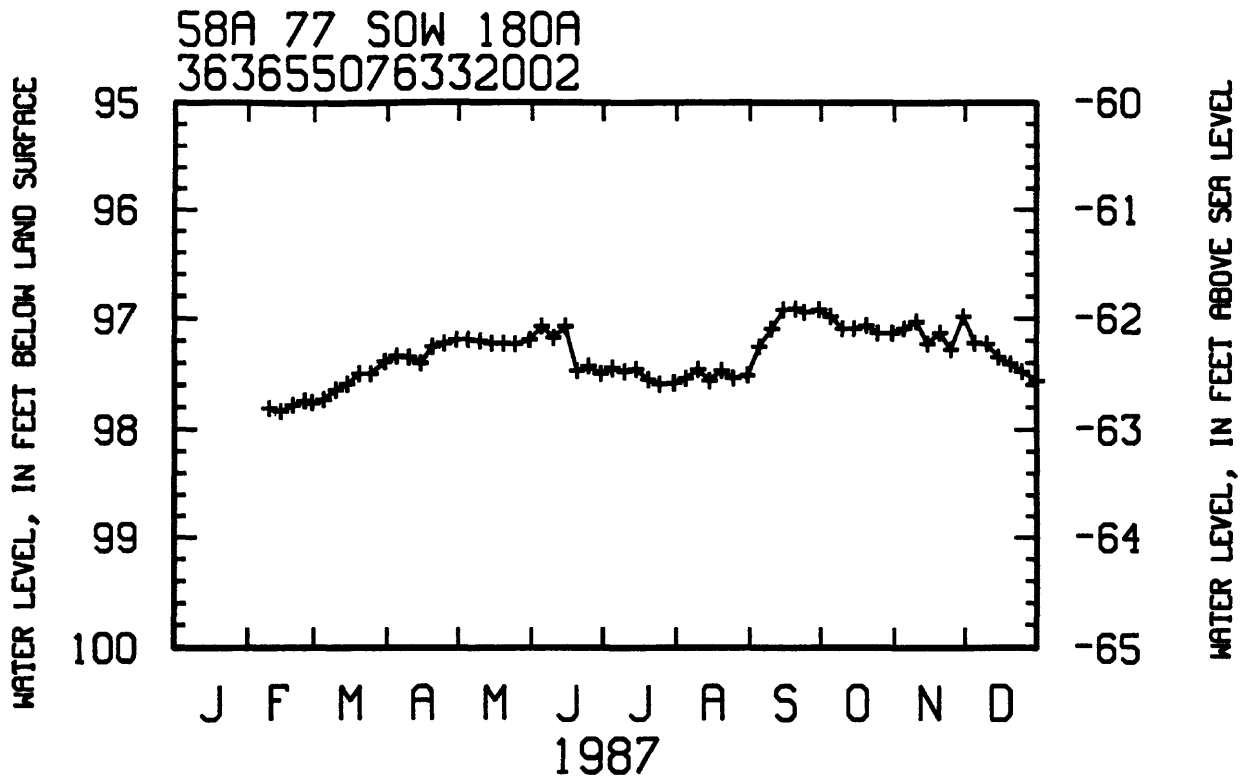

55B 60
364101076544802
WATER LEVEL, IN FEET BELOW LAND SURFACE
165
170
175
180
185
-140
-145
-150
-155
-160
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1979 1981 1983 1985 1987

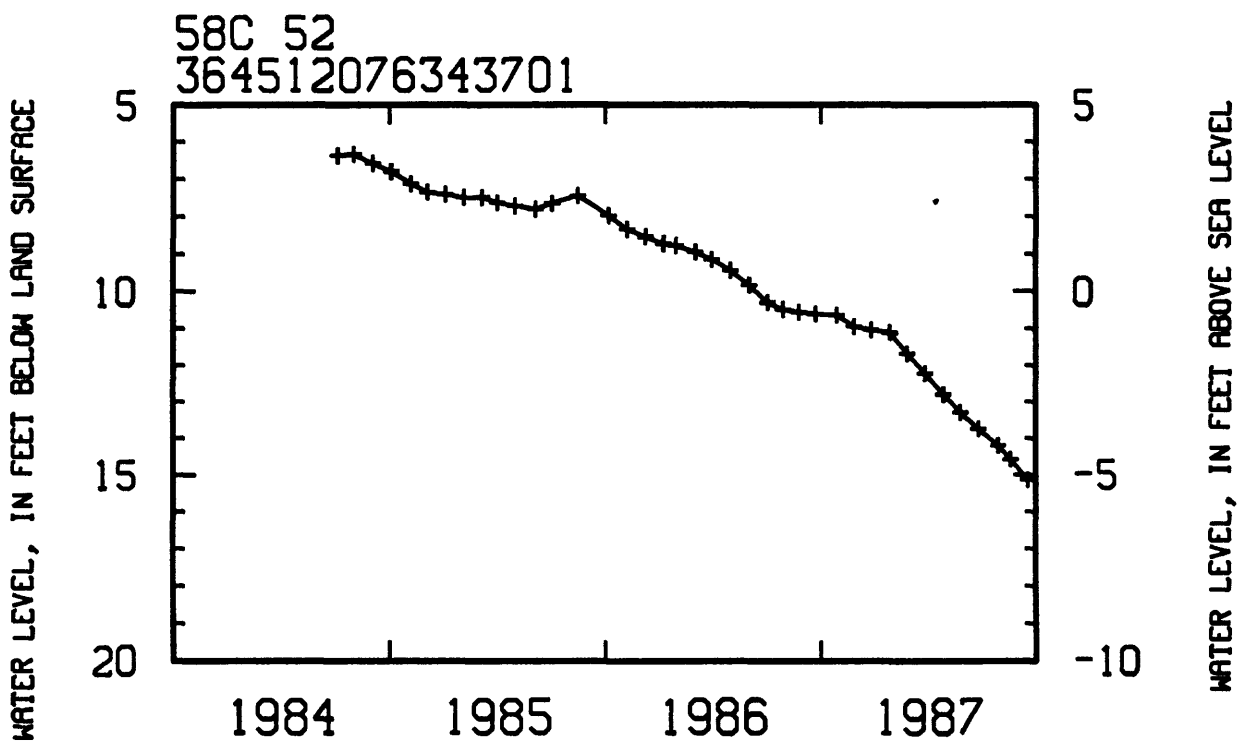

56A 10 SOW 088A
363345076470201
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
100
105
110
115
120
125
-55
-60
-65
-70
-75
-80
1977
1979
1981
1983
1985
1987

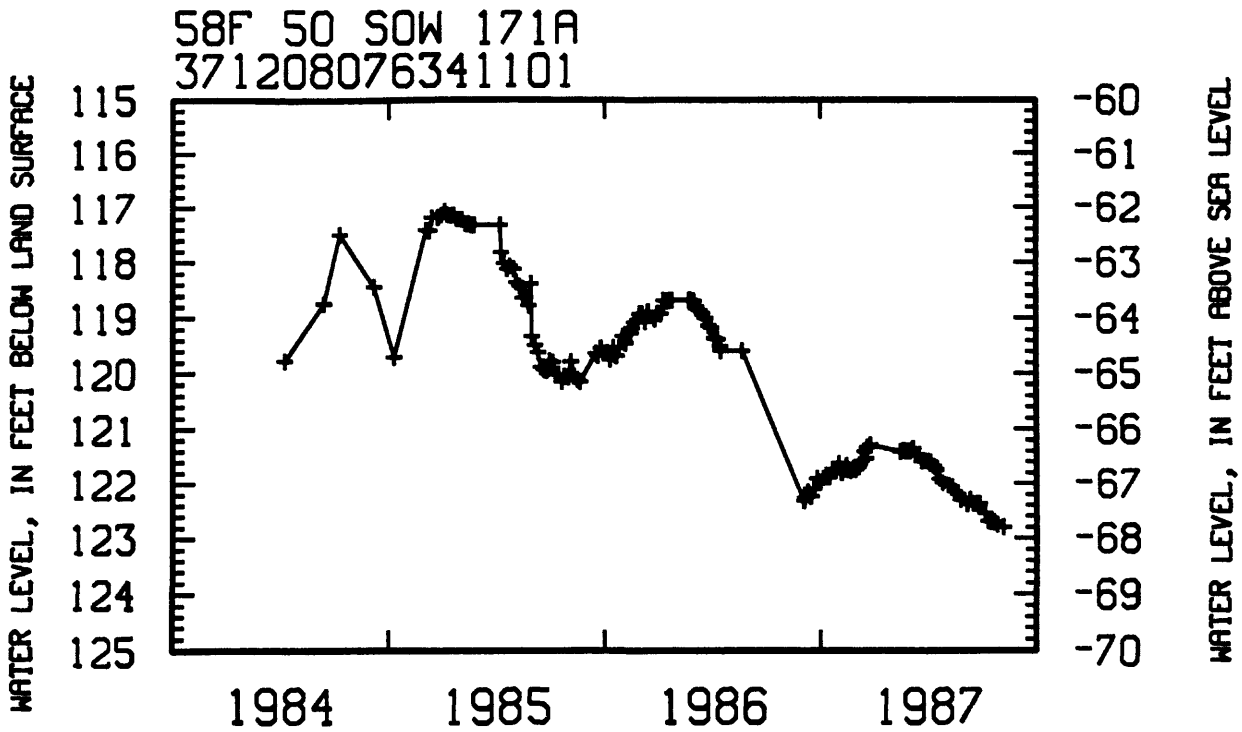

56H 25 SOW 177A
372506076511701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
155
160
165
170
-50
-55
-60
-65
1985
1986
1987


56J 11 SOW 073
373126076454101
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
70
75
80
85
90
95
100
105
-55
-60
-65
-70
-75
-80
-85
-90
1974
1977
1980
1983
1986


57F 16 SOW 087A
371132076405501
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
50
55
60
65
70
75
-45
-50
-55
-60
-65
-70
1978
1980
1982
1984
1986


58A 77 SOW 180A
363655076332002
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
95
96
97
98
99
100
-60
-61
-62
-63
-64
-65
J F M A M J J A S O N D
1987


58C 52
364512076343701
WATER LEVEL, IN FEET BELOW LAND SURFACE
WATER LEVEL, IN FEET ABOVE SEA LEVEL
5
10
15
20
5
0
-5
-10
1984
1985
1986
1987


58F 50 SOW 171A
371208076341101
WATER LEVEL, IN FEET BELOW LAND SURFACE
115
116
117
118
119
120
121
122
123
124
125
-60
-61
-62
-63
-64
-65
-66
-67
-68
-69
-70
WATER LEVEL, IN FEET ABOVE SEA LEVEL
1984
1985
1986
1987