Selected Meteorological and Micrometeorological Data for an Arid Site Near Beatty, Nye County, Nevada, Calendar Year 1992

By James L. Wood

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
centimeter (cm)	0.3937	inch
kilometer (km)	0.6214	mile
kilopascal (kPa)	0.1450	pound per square inch
meter (m)	3.281	foot
meter per second (m/s)	3.281	foot per second
millimeter (mm)	0.03937	inch
millimeter per hour (mm/hr)	25.40	inch per hour
watt per square meter (W/m^2)	0.005290	British Thermal Unit per square foot per minute

Temperature: Degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) by using the formula $°F = [1.8(°C)]+32$. Degrees Fahrenheit can be converted to degrees Celsius by using the formula $°C = 0.556(°F-32)$.

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929, formerly called "Sea-Level Datum of 1929"), which is derived from a general adjustment of the first-order leveling networks of the United States and Canada.

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ABSTRACT

Selected meteorological, soil-temperature, and soil-heat-flux data were collected at a study site adjacent to a low-level radioactive-waste burial facility near Beatty, Nevada, for calendar year 1992. Data were collected in support of ongoing studies to estimate the potential for downward movement of radionuclides into the unsaturated sediments beneath waste-burial trenches at the arid facility. Data collected for the whole year include air temperature, relative humidity, vapor pressure, incident solar radiation, windspeed, wind direction, barometric pressure, and precipitation. Net radiation, soil temperature, and soil-heat flux data also were collected for part of the year. The data are summarized in tables and graphs.

Instrumentation used at the site is discussed. The discussion includes the type, reported accuracy, and the mounting height of each sensor.

During 1992, the hourly and 20-minute mean air temperatures ranged from -8.6 degrees Celsius, in January, to 42.3 degrees Celsius, in July. Hourly and 20-minute mean relative humidity ranged from 2 percent to 100 percent. Hourly and 20-minute mean vapor pressures ranged from 0.07 to 2.47 kilopascals. Daily maximum incident solar radiation values ranged from 115 to 1,021 watts per square meter. Daily maximum net-radiation values ranged from 195 to 632 watts per square meter. Daily mean windspeed ranged from 0.6 to 8.1 meters per second. Wind direction was primarily from the northwest in fall, winter, and spring and was from the southeast, southwest, or northwest during the summer. Barometric pressures ranged from 100.16 kilopascals to 103.38 kilopascals. Total precipitation for 1992 was 165.3 millimeters, with more than 50 percent in February and March. Daily mean soil temperatures at a depth from 2 to 6 centimeters ranged from 10.7 to 39.1 degrees Celsius between June and October. Daily mean soil-heat flux at a depth of 8 centimeters ranged from -13.4 to 12.2 watts per square meter during the same period.

INTRODUCTION

Meteorological data were collected near the low-level radioactive-waste burial facility near Beatty, Nev., in support of ongoing studies (Andraski and others, 1995) to estimate the potential for downward movement of radionuclides into the unsaturated sediments beneath waste-burial trenches at the facility (fig. 1*B*). This report presents and summarizes the data collected for calendar year 1992. Instrumentation used to collect the data is described also. This report is the sixth in a series of meteorological data reports published for this site (Wood and Fischer, 1991, 1992; Wood and others, 1992; Wood and Andraski, 1992, 1994) that present data for the overall 7-year period 1986-92. The meteorological data collected in calendar year 1992 include air temperature, relative humidity, vapor pressure, incident solar radiation, windspeed, wind direction, barometric pressure, and precipitation. Windspeed and wind vector are assumed horizontal. In addition, data on net radiation, soil temperature, and soil-heat flux were collected from June through October. Hourly, 20-minute, and summary data are available in digital form by contacting the U.S. Geological Survey, Water Resources Division office in Carson City, Nev.

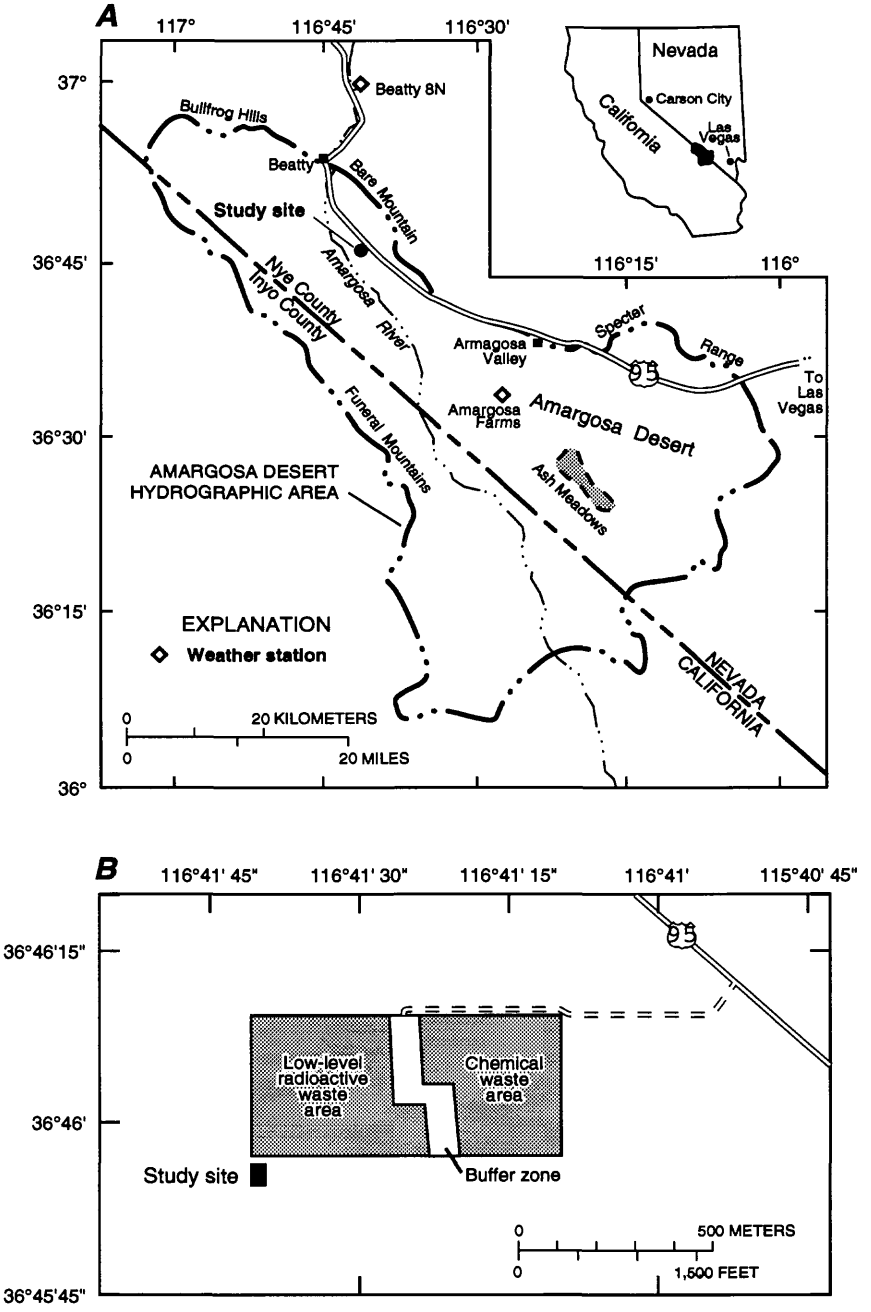

Figure 1. Location of study site and adjacent waste-burial site near Beatty, Nev.

The waste-burial facility in the Amargosa Desert, 17 km southeast of Beatty and 169 km northwest of Las Vegas, Nev., (fig. 1*A*) has been operating since 1962. The disposal facility was the first commercially operated in the United States. Burial of low-level radioactive wastes ceased at the end of 1992, although burial of hazardous chemical wastes continues (fig. 1*B*). At this facility, waste is emplaced in 2- to 15-m deep trenches and covered by backfilling with previously excavated materials. The Amargosa Desert in the vicinity of the waste-burial facility is a northwest trending valley about 13 km wide. Vegetation is sparse, with creosote bush (*Larrea tridentata*) being the dominant species.

The study site (altitude 847 m above sea level), is situated in one of the most arid parts of the United States. Annual precipitation at the study site between 1986 and 1992 ranged from 14 mm in 1989 to 165 mm in 1992 and averaged 90 mm. Mean annual precipitation is about 114 mm at Beatty (altitude, 1,005 m), and 74 mm at Amargosa Farms (formerly Lathrop Wells; altitude, 817 m), 30 km southeast of the site (Nichols,

1987, p. 15). No perennial streams are within 16 km of the site and the dry (ephemeral) bed of the Amargosa River is the principal drainage channel (fig. 1*A*).

A detailed view of part of the study site is shown in figure 2. The site is enclosed by a chainlink fence approximately 2-m high topped with $^1/_2$ m of razor ribbon and is patrolled by security personnel from the adjacent commercial waste-disposal facility; this provides protection against vandalism. In addition to data collected at the meteorological station, soil-moisture data are collected from three neutron-probe access tubes, and soil-temperature and water-potential data are collected from sensors installed at several depths in a monitoring shaft (fig. 2). An undisturbed area is maintained south of the shaft site where no vehicle traffic is allowed and foot traffic is restricted to a designated path. A description of the unsaturated-zone monitoring is presented by Fischer (1992).

INSTRUMENTATION

Meteorological sensors consisting of an air-temperature and relative-humidity sensor, silicon pyranometer, anemometer, wind vane, and tipping-bucket rain gage were installed in July 1991. These sensors were replaced as part of annual rotation in April 1992. Temperature, relative-humidity, solar-radiation, windspeed, wind-direction, and precipitation sensors were replaced with identical sensors during the reinstrumentation procedure. A barometric-pressure sensor was installed in June 1990. Because of cost, the barometer was not scheduled for annual rotation with an equivalent sensor. In June 1992, soil-temperature probes, soil-heat-flux plates, and a net radiometer also were installed at the site. All sensors were factory calibrated prior to installation.

Data from the sensors were recorded using a Campbell Scientific, Inc., (CSI) 21X data logger. The temperature/relative-humidity sensor, silicon pyranometer, anemometer, and wind vane were mounted on a CSI CM10 tripod. The temperature/relative-humidity sensor was installed at 1.6 m above ground level. Windspeed and wind-direction sensors were mounted at 3.4 m. The solar-radiation sensor was mounted on a horizontal arm at a height of 3.0 m, and the precipitation tipping-bucket gage was installed on a separate mount about 10 m from the tripod at a height of 1.0 m. All heights are approximate. The CSI CM10 tripod is approximately 40 m from the CSI data logger housed in a shed on the site (fig. 2).

Soil-temperature probes and soil-heat-flux plates were buried according to accepted procedures about 5 m from the tripod. Two soil-heat-flux plates were used in conjunction with four soil-temperature measuring thermocouples to measure soil-heat flux. Two thermocouples were buried in the soil at depths of 2 cm and 6 cm directly above a heat flux plate, which was buried at a depth of 8 cm. Another thermocouple pair and heat-flux plate were buried in the same manner about 2 m away. The location of the two heat-flux plates/thermocouples was chosen to be representative of the area being studied. The net radiometer was mounted on a separate upright approximately 10 m from the tripod at a height of 2.5 m. An approximate ratio of bare soil to vegetation was determined and the location of the net radiometer was chosen to be representative of this ratio.

The Vaisala HMP35c temperature-relative humidity probe is capable of making measurements over a full range of 0-100 percent relative humidity. The 0-10-percent range is of particular interest at the arid study site near Beatty. According to manufacturer specifications, accuracy of the probe at 20°C against factory references is ±1 percent within the range of 0 to 90 percent relative humidity. The accuracy of the probe against field references is ±2 percent within the range of 0 to 90 percent relative humidity, and ±3 percent within the range of 90 to 100 percent relative humidity. Temperature dependence is listed as ± 0.04 percent relative humidity per degree Celsius, with a typical long-term stability less than 1 percent relative humidity per year. The "worst case" temperature accuracy is ±0.4°C over the range of -33 to +48°C. The Vaisala probe was mounted inside a 12-plate Gill radiation shield.

The anemometer is a model 014A, supplied by MET ONE, with an accuracy of 1.5 percent and a threshold of 0.45 m/s. The wind vane is a model 024A, also from MET ONE, and has a specified accuracy of ±5 degrees and a threshold of 0.45 m/s. The tipping-bucket rain gage is a Weathermeasure model P-501 with a sensitivity and resolution of 0.25 mm and an accuracy of 0.5 percent at 128.7 mm/hr. The silicon pyranometer is a LICOR LI200S calibrated against an Eppley Precision Spectral Pyranometer, which has a maximum error of ±5 percent. The CSI SBP270 barometric pressure sensor has a range of 80 to 110 kilopascals (kPa), and an accuracy of ± 0.02 kPa. The barometer is mounted alongside the data logger inside the shed (fig. 2). All sensor specifications are supplied by manufacturers.

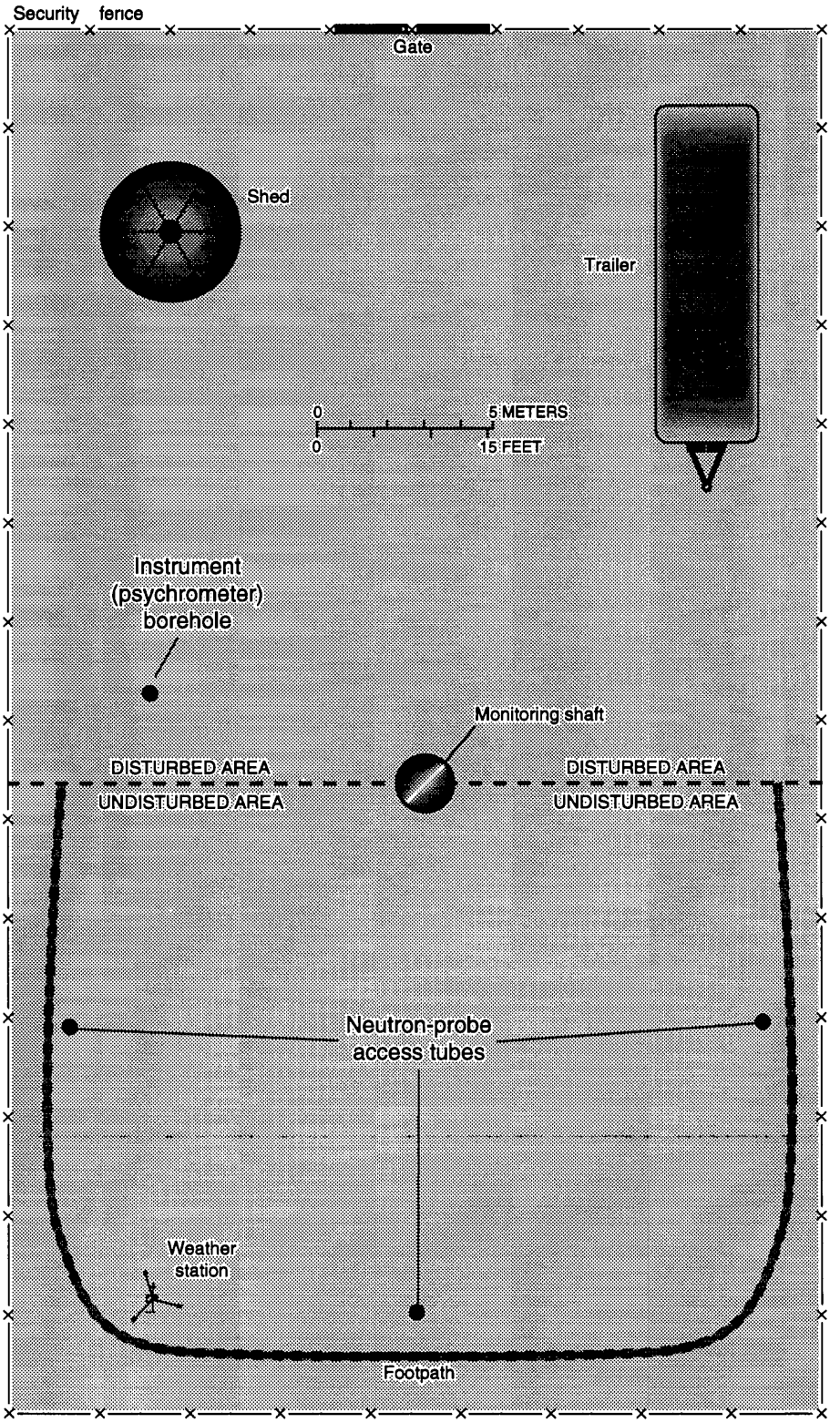

Figure 2. Location of weather station and related unsaturated-zone monitoring shaft, psychrometer borehole, and neutron-probe access tubes at study site near Beatty, Nev. Monitoring shaft is used to measure water potentials and neutron-probe access tubes are used to measure moisture content. Location of study site is shown in figure 1.

The soil-temperature probe is a TCAV Averaging Soil Thermocouple Probe manufactured by CSI. The TCAV probe parallels four separate thermocouple junctions into one. The TCAV probe, which is constructed with Type-E thermocouple wire (chromel-constantan), is used in conjunction with two HFT-1 soil-heat-flux plates (nominal resistance 2 ohms) manufactured by Radiation and Energy Balance Systems, Inc., (REBS) to calculate heat flux at the surface of the soil.

Net radiation is measured with a REBS Q-6 net radiometer, which contains a high-output, 62-junction thermopile. Nominal resistance of the thermopile is 4 ohms.

SELECTED METEOROLOGICAL DATA

Measurements of air temperature, relative humidity, incoming solar radiation, windspeed, and wind direction were made by the 21X data logger every 10 seconds. Barometric pressure, soil temperature, soil-heat flux, and net radiation were measured every 30 seconds. From January 1 to May 31, these measurements were used by the 21X data logger to compute hourly means of air temperature, relative humidity, vapor pressure, solar radiation, windspeed, wind direction, and standard deviation of the wind direction. From June 1 through December 31, these means were computed at 20-minute intervals. An average barometric pressure was computed every 10 minutes for the year. Precipitation was recorded at 5-minute intervals only during storms, and totaled for each day. The hourly and 20-minute mean values and total precipitation values were automatically retrieved from the data logger to a personal computer using telecommunications and data-retrieval programs. Data from the data logger were retrieved daily. A cassette tape connected to the data logger was used as a backup to the automatic data-retrieval system. The hourly mean values were used to compute daily means, daily maximums, and daily minimums of air temperature, relative humidity, vapor pressure, solar radiation, windspeed, wind direction, barometric pressure, soil temperature, soil-heat flux, and net radiation and are summarized in tables 3, 4, and 5 at the end of this report.

Air Temperature

Maximum and minimum values of hourly mean air temperatures for each month and a monthly mean value are listed in table 1. The minimum temperature of -8.6°C was measured on December 21, and the maximum of 42.3°C was measured on August 10.

Seasonal and daily temperature fluctuations are large in the vicinity of the study area. Differences between daily maximum and minimum hourly mean temperatures commonly exceed 20°C. The difference between winter minimum and summer maximum temperatures was more than 50°C. Daily maximum, daily mean, and daily minimum air temperatures for 1992 are shown in figure 3.

Table 1. Monthly maximum, minimum, and mean measured air temperatures at study site near Beatty, Nev., for 1992

[Temperatures are degrees Celsius. Hourly or 20-minute mean values --, indicates missing data]

Month	Maximum	Day	Minimum	Day	Mean
January	20.3	27	-3.7	2	6.1
February	22.6	27	-1.9	4	10.3
March	23.1	11	3.6	24	12.0
April	31.4	30	6.4	20	--
May	34.5	25	11.9	20	24.4
June	38.9	27	7.6	15	25.9
July	41.5	17	13.6	2	29.5
August	42.3	10	10.8	30	29.0
September	37.3	8	9.9	26	25.7
October	34.3	11	6.7	6	19.5
November	25.8	13	-8.4	26	8.6
December	17.4	23	-8.6	21	3.7

Relative Humidity

Relative humidity is the ratio of the amount of water vapor in the air at a specific temperature to the maximum amount of water vapor the air can hold at that temperature and is expressed as a percent. Daily mean, daily maximum, and daily minimum relative-humidity values computed from hourly and 20-minute mean values are listed in table 3. Daily mean relative-humidity values are shown in figure 4. Daily mean values ranged from 6 to 93 percent. In contrast, hourly mean values range from 2 percent during the drier summer months to 100 percent during winter storms.

Vapor Pressure

Water-vapor content of air can be expressed in terms of the partial pressure exerted by the water vapor, or vapor pressure (Campbell, 1977, p. 21). Vapor pressure was determined by first calculating the saturation vapor pressure at the measured air temperature, which is the highest concentration of water vapor that can exist in equilibrium with a plane free-water surface at that temperature. This value was obtained by using the formula from Lowe (1977):

$$E = a_0 + a_1 T + a_2 T^2 + a_3 T^3 + a_4 T^4 + a_5 T^5 + a_6 T^6 \quad (1)$$

where,

E is saturation vapor pressure, in millibars;

T is temperature, in degrees Celsius; and

a_i is numerical constant for each term of the polynomial (i=0,1,...6).

The numerical constants in equation 1 are as follows:

a_0=6.10779991

a_1=4.436518521 × 10^{-1}

a_2=1.428945805 × 10^{-2}

a_3=2.650648471 × 10^{-4}

a_4=3.031240396 × 10^{-6}

a_5=2.034080948 × 10^{-8}

a_6=6.136820929 × 10^{-11}

The saturation vapor pressure value was then divided by 10 to convert from millibars to kilopascals. Ambient vapor pressure was computed each time relative humidity and temperature were measured (10 seconds).

Daily mean, daily maximum, and daily minimum values of vapor pressure are listed in table 3. Daily mean vapor pressures are shown in figure 5. Hourly and 20-minute mean values during 1992 range from 0.07 kPa on October 7 and 8 to 2.47 kPa on May 12. Vapor pressures generally are greater during the warmer summer months and smaller during cooler winter months (fig. 5). Vapor-pressure peaks throughout the year generally correlate with precipitation listed in table 2 and shown in figure 12.

Incident Solar Radiation

Daily mean and daily maximum incident solar radiation computed from hourly and 20-minute mean values are listed in table 3. Incident solar radiation is the amount of short-wave radiation that reaches the earth. Generally, daily mean and daily maximum radiation values were greater from May through August, and smaller from November through February, coinciding with seasonal cycles.

Maximum solar radiation values computed from hourly and 20-minute mean values for each day are shown in figure 6. Computed values ranged from 115 W/m^2 on February 6 to 1,021 W/m^2 on May 24.

Net Radiation

Net radiation is the difference between total upward and downward radiation fluxes and is a measure of the energy available at the ground surface. Alternately, net radiation can be described as the radiative energy retained by the surface for heating soil and air, plant growth, and water evaporation. Net radiation is important because it drives the processes of evapotranspiration, soil and air heating, and other, smaller energy-consuming processes such as photosynthesis (Rosenberg and others, 1983).

Daily mean, daily maximum, and daily minimum values of net radiation are listed in table 4. Daily mean values of net radiation computed from the 20-minute mean values are shown in figure 7. Computed values ranged from 232 W/m^2 on October 29 to 632 W/m^2 on July 15.

Windspeed and Wind Vector

Daily mean, daily maximum, and daily minimum values of windspeed computed from hourly and 20-minute mean values are listed in table 3. Daily mean windspeeds are shown in figure 8. Daily mean windspeeds ranged from a minimum of 0.6 m/s on December 9 to a maximum of 8.1 m/s on January 12. The hourly and 20-minute mean values range from the threshold value of 0.45 m/s on numerous days to 13.6 m/s on January 11 and 12. Because the data logger was programmed to record only values at least as great as the threshold value, actual windspeeds may have been significantly less than 0.45 m/s, possibly approaching zero at times.

Daily mean horizontal wind vector is summarized in table 3 in terms of wind-vector direction and magnitude as described by Campbell Scientific, Inc. (1989, p. 11-4 through 11-8). Wind vector was used in summarizing daily mean wind direction and is reported as a daily mean wind-vector direction.

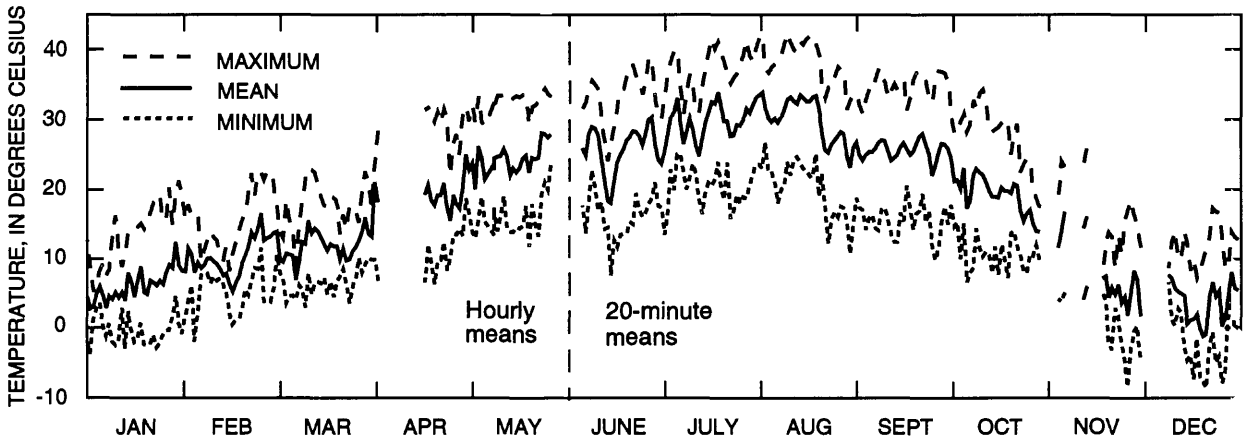

Figure 3. Daily maximum, daily mean, and daily minimum air temperature for a site near Beatty, Nev., 1992, computed from hourly mean values from January 1 to May 31 and 20-minute mean values from June 1 to December 31.

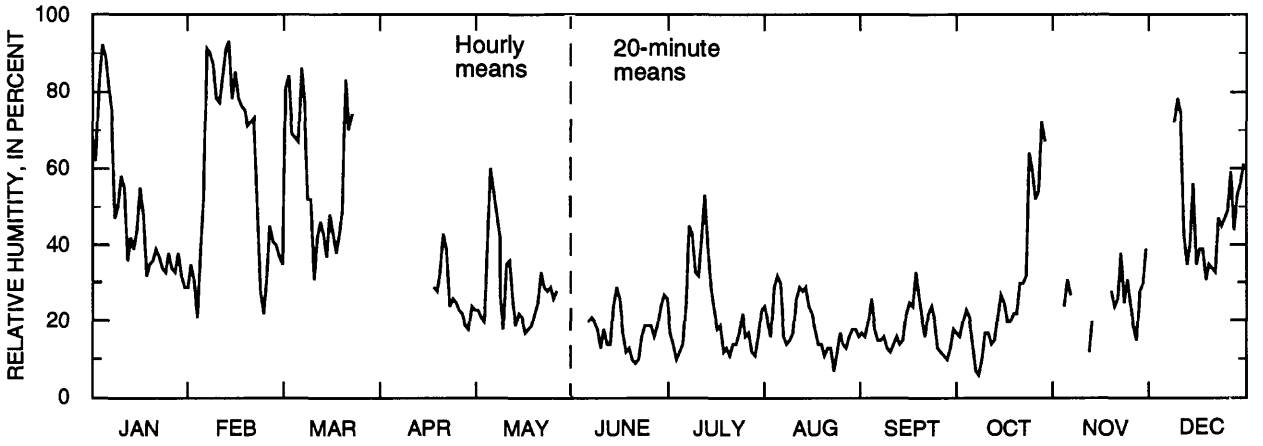

Figure 4. Daily mean relative humidity for a site near Beatty, Nev., 1992, computed from hourly mean values from January 1 to May 31 and 20-minute mean values from June 1 to December 31.

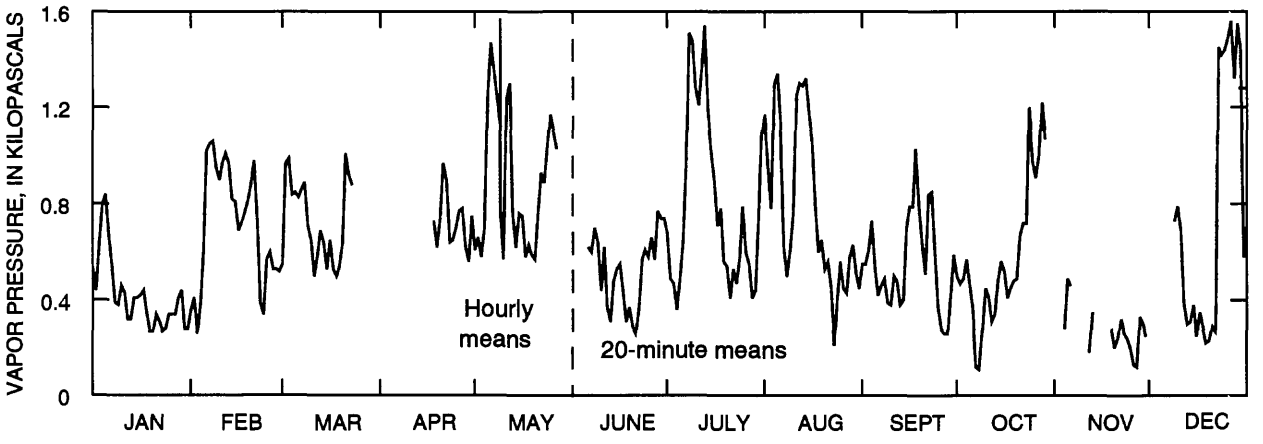

Figure 5. Daily mean vapor pressure for a site near Beatty, Nev., 1992, computed from hourly mean values from January 1 to May 31 and 20-minute mean values from June 1 to December 31.

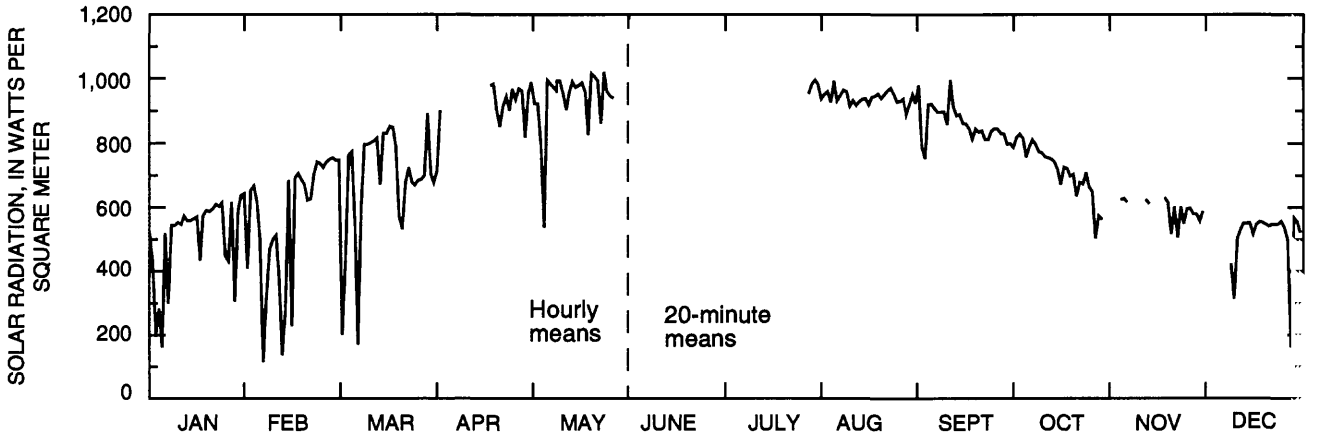

Figure 6. Daily maximum incident solar radiation from a site near Beatty, Nev., 1992, computed from hourly mean values from January 1 to May 31 and 20-minute mean values from June 1 to December 31.

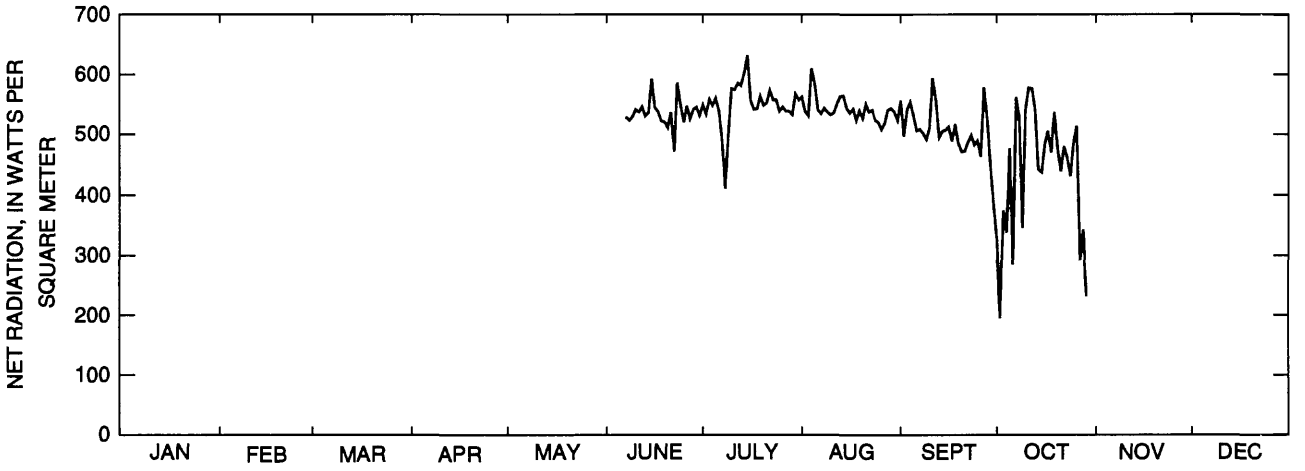

Figure 7. Daily maximum net radiation for a site near Beatty, Nev., 1992, computed from 20-minute mean values.

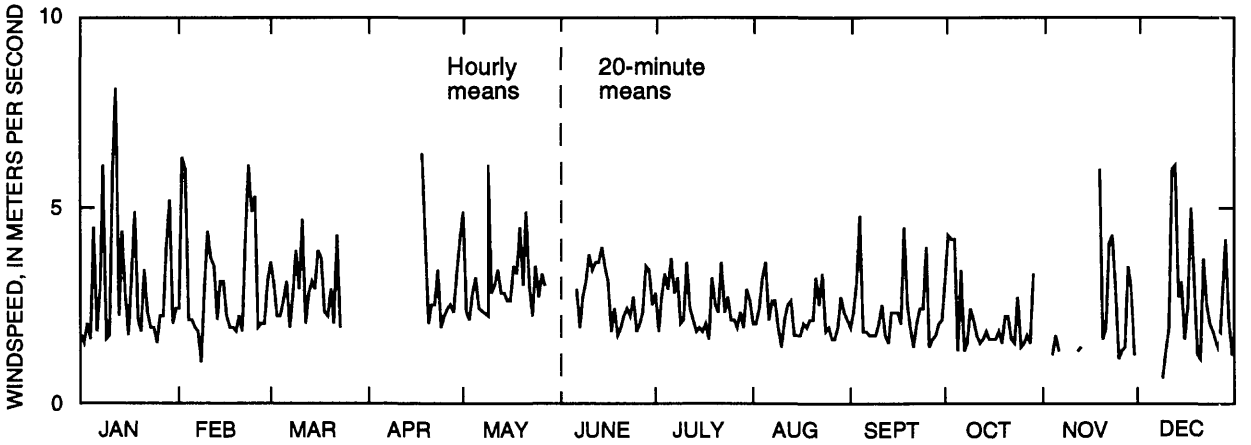

Figure 8. Daily mean windspeed for a site near Beatty, Nev., 1992, computed from hourly mean values from January 1 to May 31 and 20-minute mean values from June 1 to December 31.

Daily mean wind-vector magnitude, in degrees Azimuth, and wind-vector direction, in meters per second, were determined by summing the hourly and 20-minute mean wind vectors as shown in figure 9. At the end of each 24-hour period, the daily mean wind-vector direction ($\bar{\theta}$) was calculated using Campbell Scientific, Inc. (1989a), equation 11-6:

$$\bar{\theta} = \text{atan}\,(\bar{X}/\bar{Y}) \qquad (2)$$

where,

$\bar{X}$ is the sum of each hourly wind-vector magnitude multiplied by the sine of the hourly or 20-minute mean wind-vector direction and divided by the number of mean values. $\bar{X}$ is positive to the east; and

$\bar{Y}$ is the sum of each hourly or 20-minute mean wind-vector magnitude multiplied by the cosine of the hourly wind-vector direction and divided by the number of mean values. $\bar{Y}$ is positive to the north.

The daily mean wind-vector magnitude ($\bar{U}$) was calculated using Campbell Scientific, Inc. (1989a), equation 11-3:

$$\bar{U} = \sqrt{\bar{X}^2 + \bar{Y}^2} \qquad (3)$$

Daily mean wind-vector direction ranges from 0 to 360 degrees Azimuth (increasing degrees clockwise from north). The wind-vector direction calculated from equation 2 was transformed into degrees Azimuth on the basis of $\bar{X}$ and $\bar{Y}$. For positive $\bar{X}$ and $\bar{Y}$, the value calculated from equation 2 is the daily mean wind-vector direction in degrees Azimuth. For negative values of $\bar{Y}$, the calculated value of wind-vector direction is added to 180 degrees, and for a negative value of $\bar{X}$ and a positive value of $\bar{Y}$, the calculated value is added to 360 degrees. Equation 2 is indeterminate when $\bar{Y}$ is zero. Therefore, when $\bar{Y}$=0, the daily mean wind-vector direction was set to 90 degrees Azimuth for positive values of $\bar{X}$ and 270 degrees Azimuth for negative values of $\bar{X}$.

Daily mean wind-vector directions indicate seasonal variability in wind direction for 1992. Wind at the study site was predominantly from the northwest during January and February. Northwest winds also prevailed during March, April, and May but with a somewhat larger proportion coming from the southwest and southeast. Winds in June, July, and August were more evenly distributed from the northwest, southwest, and southeast. Winds changed again in September and northwesterly patterns dominated for the remainder of the year.

Barometric Pressure

A CSI SBP270 Barometric Pressure Sensor is installed next to the 21X data logger in the shed (fig. 2). Ten-minute pressure values were gathered throughout the year. The true barometric pressure at the site was determined by calculating the correction factor (P), in millibars, using the formula (Campbell Scientific, Inc., 1989b):

$$P = mv \times 1.2 + 800 + \left[1 - \left(1 - \frac{\text{altitude}}{44307.69}\right)^{5.253}\right] \qquad (4)$$

where,

mv is millivolt output of barometer,

1.2 is barometer multiplier,

800 is barometer offset,

altitude is in meters above sea level, and

P is output, in millibars, and is multiplied by 0.1 to obtain kilopascals.

Daily mean, daily maximum, and daily minimum values of barometric pressures for 1992 are listed in table 5. Daily mean barometric-pressure values computed from 10-minute mean values are shown in figure 10. The minimum barometric pressure measured in 1992 was 100.16 kPa, on January 5, and the maximum was 103.38 kPa, on November 27.

Precipitation

Due to the infrequent precipitation at the study site, precipitation is not included in table 3, but is summarized in table 2 and figure 11. Total measured precipitation for the year was 165.3 mm, which is the most precipitation measured for any year from 1986 to 1992 (Wood and Fischer, 1991, 1992; Wood and others, 1992; Wood and Andraski, 1992, 1994). Mean annual precipitation from 1986 through 1992 is 90 mm.

Monthly precipitation values measured at the study site are shown in figure 11*A*. Monthly precipitation ranged from 45.0 mm in March to zero in April, June, September, and November. More than 50 percent of the precipitation occurred in February and March. Summer precipitation was from local convective storms, whereas winter events were from regional frontal systems.

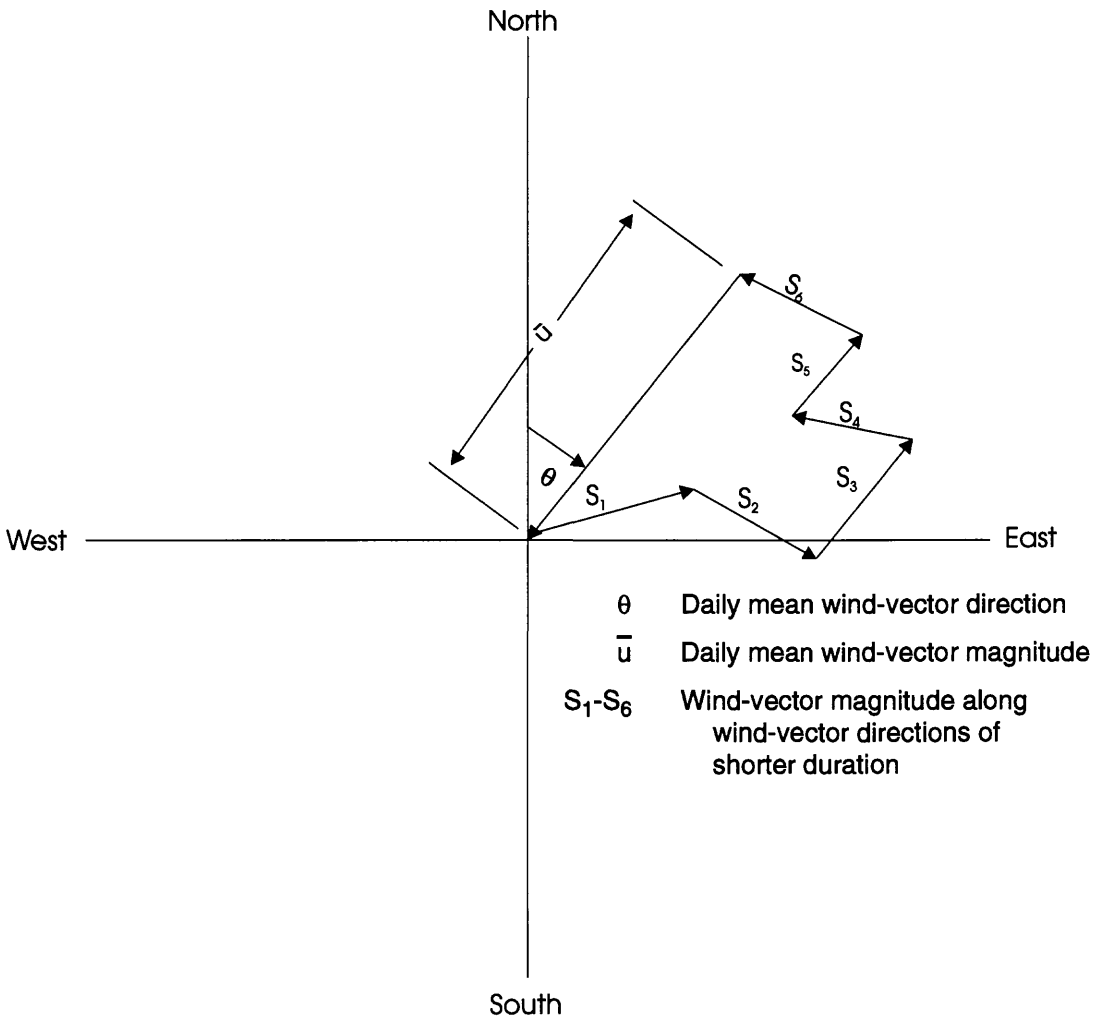

Figure 9. Computation of daily mean wind-vector direction and magnitude for a site near Beatty, Nev., 1992. (Modified from Campbell Scientific, Inc., 1989, figure 11-1.)

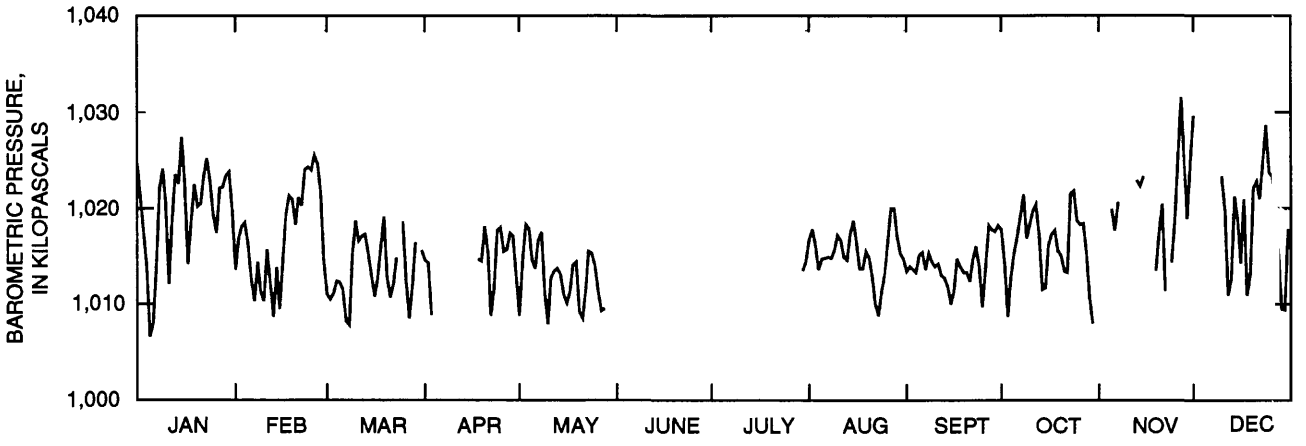

Figure 10. Daily mean barometric pressure for a site near Beatty, Nev., 1992, computed from 10-minute mean values.

Table 2. Daily total precipitation at study site near Beatty, Nev., for 1992. All unlisted dates had no precipitation.

[Values are in millimeters]

Month	Day	Total precipitation	Month	Day	Total precipitation
January	3	2.5	March	27	1.3
January	4	1.5	March	29	5.1
January	5	9.9	March	30	24.9
January	6	1.8	March	31	5.1
February	6	12.4	May	5	2.3
February	7	8.1	May	6	4.1
February	10	4.8	May	8	.8
February	11	2.8	May	29	
February	12	10.7	July	13	
February	13	3.8	August	12	
February	15	2.0	October	26	1.3
February	16	.3	October	28	5.1
March	2	14.0	December	8	24.9
March	3	.3	December	18	5.1
March	6	.5	December	27	2.3
March	7	2.8	December	28	4.1
March	20	3.0	December	29	.8
March	21	5.6			
March	22	1.3			
March	23	2.3			

Figure 11*B* compares monthly precipitation at the study site (altitude 847 m) and two National Oceanic and Atmospheric Administration (NOAA) sites. One of the these sites is designated Beatty 8N (lat. 37°00′ N., long. 116°43′ W.) and is 12.9 km north of Beatty at an altitude of 1,007 m (fig. 1); the other is Amargosa Farms (lat. 36°34′ N., long. 116°28′ W.), which is about 35 km southeast of the study site at an altitude of 747 m. Monthly values can differ considerably between sites.

Daily precipitation totals for the study site are shown in figure 11*C* and table 2. The largest storms occurred during the winter and spring months. Daily precipitation exceeded 10 mm during 4 days in 1992. Summer storms are usually of short duration but can be intense.

SOIL TEMPERATURE AND SOIL-HEAT FLUX

Heat generally is conducted downward into the soil during the day and upward at night. By convention, all energy fluxes from the atmosphere downward through the surface are considered positive, and all energy fluxes upward from the surface to the atmosphere are negative. The flux of heat into and out of soils can be measured by means of soil-heat-flux plates and soil-temperature probes. A soil-heat-flux plate consists of a differential thermopile, which is connected between the top and bottom parts of the sensing plate, and the temperature drop is measured across a known thermal resistance.

Daily mean, daily maximum, and daily minimum values of soil temperature and soil-heat flux at an 8-cm depth are listed in table 4. Daily mean values of soil temperature and soil-heat flux computed from 20-minute mean values are shown in figures 12 and 13, respectively. Daily mean values of soil temperature ranged from 10.7°C on October 27 to 39.1°C on July 19. The daily mean soil-heat flux ranged from -13.4 W/m^2 on October 29 to 12.2 W/m^2 on June 27.

SUMMARY

Meteorological, soil-temperature, and soil-heat-flux data were collected adjacent to a low-level radioactive-waste facility near Beatty, Nev., for calendar year 1992 in support of an ongoing study to estimate the potential for downward movement of radionuclides into the unsaturated sediments beneath waste-burial trenches at the arid facility. This report provides daily

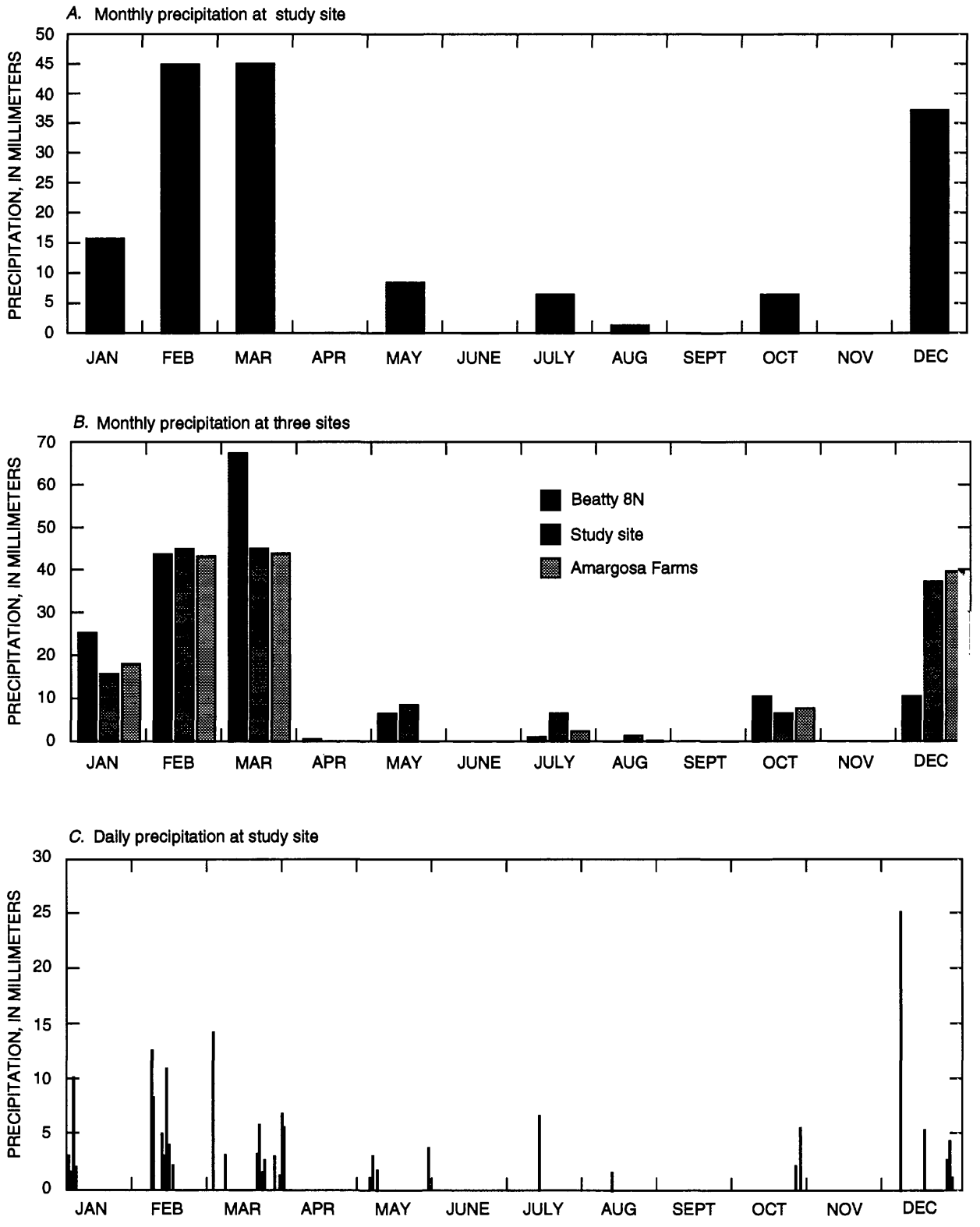

Figure 11. Precipitation at and near study site near Beatty, Nev., for 1992. *(A)* Monthly precipitation at study site. *(B)* Comparison of monthly precipitation at study site with monthly precipitation at two National Oceanographic and Atmospheric Administration (NOAA) sites (Beatty 8N and Amargosa Farms) near study site. *(C)* Daily precipitation a' study site.

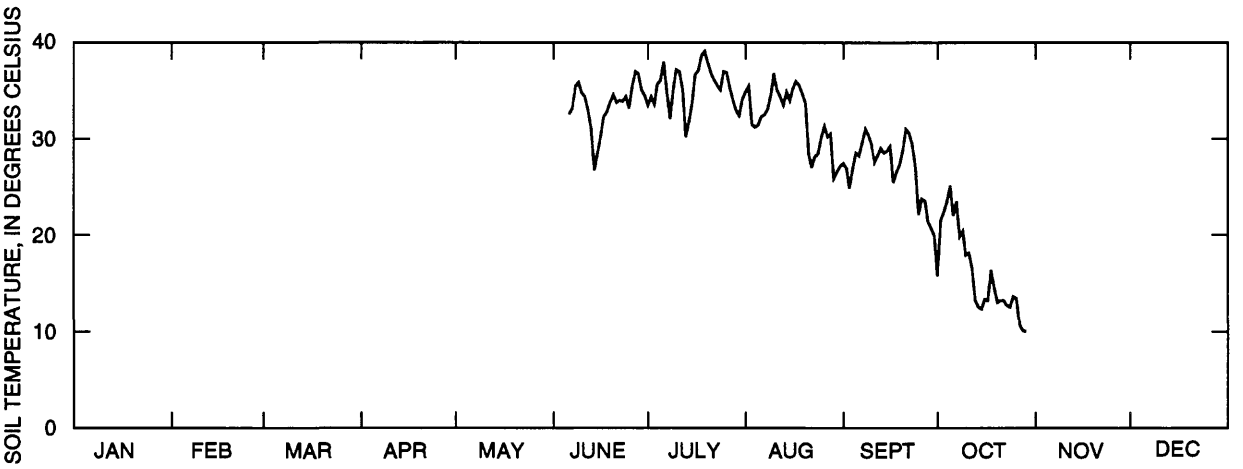

Figure 12. Daily mean soil temperature for a site near Beatty, Nev., 1992, computed from 20-minute mean values.

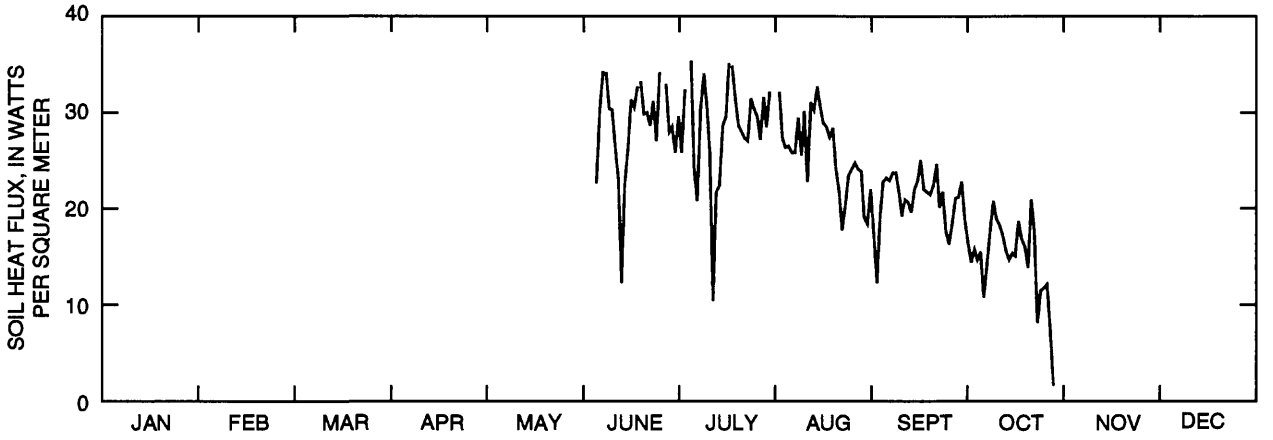

Figure 13. Daily mean soil-heat flux for a site near Beatty, Nev., 1992, computed from 20-minute mean values.

mean values of air temperature, relative humidity, vapor pressure, incident solar radiation, net radiation, windspeed, wind direction, barometric pressure, daily totals of precipitation, soil temperature, and soil-heat flux. A general description of instrumentation used and sensor installation is given.

The hourly minimum and 20-minute mean air temperature for the year was -8.6°C in December and the maximum was 42.3°C in August. Hourly and 20-minute mean values for relative humidity ranged from 2 percent to 100 percent. Hourly and 20-minute mean vapor pressures ranged from of 0.07 kPa in October to 2.47 kPa in May. Daily maximum incident solar-radiation values ranged from 115 W/m^2 in February, to 1,021 W/m^2 in May. Daily maximum net-radiation values ranged from 195 W/m^2 in October to 632 W/m^2 in July. Daily mean windspeed ranged from than 0.6 m/s in December to 8.1 m/s in January. Daily mean wind-vector direction determined from hourly and 20-minute mean data was predominantly from the northwest between January through March and October through December. The wind shifted during the summer months and was commonly from the southeast, southwest, and northwest. Barometric pressures ranged from 100.16 kPa to 103.38 kPa. Total measured precipitation for the year was 165.3 mm. Monthly precipitation ranged from 45.0 mm in March to zero in April, June, September, and November. Daily precipitation totaled more than 10 mm 4 days in 1992. Soil temperature and soil-heat flux were measured from June through October. Daily mean soil temperature at a depth from 2 to 6 cm ranged from 10.7°C on October 27 to 39.1°C on July 19. Daily mean soil-heat flux at a depth of 8 cm ranged from -13.4 W/m^2 on October 29 to 12.2 W/m^2 on June 27.

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BASIC DATA

This section contains tables 3-5, which summarize selected meteorological and micrometeorological data collected at the study site for 1992. Table 3 lists daily mean, maximum, and minimum values of air temperature, incident solar radiation, relative humidity, vapor pressure, windspeed, and wind-vector magnitude and direction. Table 4 lists daily mean, maximum, and minimum values of net radiation, soil temperature, and soil-heat flux for June through October 1992. Table 5 lists daily mean, maximum, and minimum values of barometric pressure for 1992.

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values

[Symbols and abbreviations: --, data not available; max, maximum; min, minimum; std. dev., standard deviation; °az, degrees Azimuth]

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/01/01	24	4.4	12.7/-1.8	130	524	68	92/33	0.53	0.59/0.48	1.7	3.0/0.9	1.5	256	30
92/01/02	24	2.8	8.7/-3.7	84	428	62	88/32	0.44	0.51/0.36	1.5	2.2/0.7	1.2	280	36
92/01/03	24	3.1	5.3/ 1.3	32	196	82	99/65	0.63	0.75/0.48	2.0	4.5/0.9	1.8	285	24
92/01/04	24	5.0	7.0/ 3.0	52	284	92	99/79	0.80	0.87/0.75	1.6	3.3/0.7	1.5	242	22
92/01/05	24	6.0	8.3/ 3.6	34	162	89	96/83	0.84	1.01/0.72	4.5	6.7/1.4	4.3	239	16
92/01/06	24	4.7	9.3/ 0.4	119	519	81	98/50	0.68	0.76/0.56	1.8	4.0/0.9	1.5	271	33
92/01/07	24	2.9	7.6/-1.2	73	300	75	94/58	0.55	0.65/0.48	2.9	7.4/0.9	2.5	303	28
92/01/08	24	4.6	8.5/ 0.6	136	544	47	60/36	0.39	0.47/0.33	6.1	8.9/1.4	5.8	301	22
92/01/09	24	4.2	14.0/-1.9	136	544	50	76/18	0.38	0.50/0.28	1.6	3.0/0.8	1.1	290	49
92/01/10	24	5.2	16.3/-2.4	135	553	58	85/20	0.46	0.57/0.38	1.7	2.4/1.0	1.3	246	37
92/01/11	24	4.4	11.4/-1.5	130	547	55	89/24	0.43	0.54/0.30	6.0	13.6/1.2	5.8	314	19
92/01/12	24	5.2	8.9/ 2.9	141	574	36	44/25	0.32	0.35/0.29	8.1	13.6/3.8	7.9	339	13
92/01/13	24	4.0	10.9/-3.0	136	559	42	66/18	0.32	0.40/0.24	2.2	5.4/1.2	1.7	212	40
92/01/14	24	8.0	13.8/ 2.4	140	559	39	48/28	0.41	0.50/0.32	4.4	6.7/1.7	3.9	301	27
92/01/15	24	6.8	13.7/-0.2	143	565	44	73/24	0.41	0.46/0.37	2.8	6.8/1.2	2.3	257	35
92/01/16	24	4.5	13.9/-2.0	143	571	55	82/23	0.42	0.46/0.36	1.7	2.3/0.8	1.4	339	30
92/01/17	24	7.0	14.7/-1.5	112	435	48	80/23	0.44	0.46/0.39	3.3	7.5/1.0	3.0	287	27
92/01/18	24	8.9	15.2/ 0.7	139	575	32	50/17	0.35	0.46/0.26	4.9	7.7/1.1	4.5	286	28
92/01/19	24	5.2	14.4/-2.3	151	591	35	57/15	0.27	0.31/0.22	2.1	5.8/1.0	1.7	257	38
92/01/20	24	4.9	15.2/-2.5	151	588	36	58/13	0.27	0.35/0.21	1.8	2.8/1.1	1.5	233	33
92/01/21	24	6.9	16.7/-2.3	154	596	39	66/17	0.34	0.38/0.30	3.4	7.0/1.3	3.0	278	24
92/01/22	24	6.6	18.1/-1.0	158	610	37	61/10	0.31	0.38/0.20	2.3	5.2/1.1	2.0	285	29
92/01/23	24	6.2	17.8/-2.8	157	604	34	58/10	0.27	0.33/0.21	1.9	2.9/1.1	1.7	234	27
92/01/24	24	6.9	18.9/-2.1	157	615	33	56/10	0.28	0.33/0.22	1.9	2.6/1.0	1.7	248	26
92/01/25	24	6.4	15.7/-1.0	101	449	38	54/15	0.34	0.42/0.27	1.5	2.9/0.8	1.3	268	34
92/01/26	24	8.0	15.7/-0.3	106	432	34	55/16	0.34	0.40/0.29	2.2	5.6/0.6	1.9	287	32
92/01/27	24	9.2	20.3/-0.3	161	617	33	58/12	0.34	0.40/0.30	2.2	4.9/1.2	1.9	337	29
92/01/28	24	8.7	15.0/ 1.5	76	306	38	52/20	0.41	0.55/0.33	4.0	8.7/0.8	3.8	300	23
92/01/29	24	12.5	19.4/ 4.6	153	591	32	45/17	0.44	0.57/0.31	5.2	9.0/1.7	4.9	304	21
92/01/30	24	9.1	21.3/ 0.7	167	638	29	49/9	0.28	0.34/0.22	2.0	3.0/1.0	1.7	260	30
92/01/31	24	8.3	19.1/-0.8	170	644	29	48/12	0.28	0.32/0.26	2.4	4.0/0.8	2.2	271	21
92/02/01	24	8.2	15.8/ 1.7	101	409	35	50/21	0.36	0.39/0.31	2.4	4.3/1.0	2.3	264	20
92/02/02	24	11.6	17.9/ 4.1	151	655	31	49/20	0.41	0.46/0.35	6.3	8.8/1.4	6.2	313	13
92/02/03	24	10.8	16.3/ 6.2	177	668	21	32/11	0.26	0.32/0.21	6.0	9.2/1.7	5.8	303	18
92/02/04	24	8.1	16.6/-1.9	150	614	38	59/22	0.39	0.46/0.31	2.1	3.2/1.2	1.8	250	26

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/02/05	24	9.5	16.2/ 2.4	112	500	52	82/31	0.60	0.93/0.44	2.1	3.0/1.1	1.9	236	24
92/02/06	24	8.7	9.7/ 7.7	24	115	91	99/81	1.02	1.08/0.88	1.9	2.6/1.2	1.7	292	26
92/02/07	24	9.2	11.4/ 7.8	56	319	90	97/78	1.05	1.10/1.01	1.8	3.6/0.7	1.6	220	27
92/02/08	24	10.1	12.7/ 7.9	77	469	87	98/70	1.06	1.15/1.02	1.0	1.3/0.6	0.7	287	42
92/02/09	24	10.2	14.0/ 6.5	125	500	78	100/55	0.95	1.11/0.88	2.9	6.0/0.9	2.7	317	21
92/02/10	24	9.7	13.2/ 7.5	116	513	77	96/53	0.90	1.02/0.78	4.4	7.1/2.0	4.3	256	14
92/02/11	24	9.3	12.7/ 6.9	85	371	84	97/67	0.97	1.02/0.93	3.7	5.4/1.8	3.6	240	13
92/02/12	24	8.6	10.3/ 7.2	22	137	91	97/81	1.01	1.06/0.95	3.5	5.6/1.2	3.4	239	18
92/02/13	24	7.6	10.0/ 6.3	61	277	93	100/81	0.97	1.04/0.91	2.1	3.9/1.2	1.9	304	23
92/02/14	24	7.9	11.7/ 5.1	141	685	78	96/57	0.82	0.87/0.74	3.1	4.7/1.2	3.0	262	15
92/02/15	24	6.4	8.3/ 2.0	33	228	85	97/76	0.81	0.90/0.69	3.1	6.1/1.3	2.9	264	20
92/02/16	24	5.3	10.9/ 0.5	191	693	78	98/54	0.69	0.83/0.58	2.2	4.0/1.1	1.9	224	27
92/02/17	24	6.6	12.6/ 1.1	173	707	76	95/48	0.72	0.83/0.62	1.9	2.7/0.9	1.7	267	24
92/02/18	24	7.5	14.2/ 1.4	143	689	75	94/48	0.76	0.89/0.64	1.9	2.5/0.9	1.8	254	21
92/02/19	24	9.5	15.6/ 3.1	177	673	71	91/44	0.81	0.99/0.69	1.8	2.5/0.8	1.5	252	29
92/02/20	24	10.5	17.0/ 5.6	162	623	72	91/47	0.88	1.00/0.80	2.2	3.0/1.0	2.0	261	20
92/02/21	24	11.7	19.0/ 4.8	171	627	73	92/46	0.98	1.20/0.78	1.8	2.8/0.8	1.6	244	27
92/02/22	24	13.9	22.4/ 6.9	196	704	51	92/16	0.73	1.09/0.31	4.2	9.7/1.7	4.0	316	19
92/02/23	24	13.1	19.2/ 8.7	209	742	28	44/15	0.39	0.51/0.28	6.1	9.3/3.1	5.9	338	13
92/02/24	24	14.4	22.2/ 8.6	209	738	22	34/9	0.34	0.48/0.24	4.9	8.7/2.2	4.6	316	19
92/02/25	24	16.6	22.5/11.6	206	725	31	43/20	0.57	0.64/0.47	5.3	7.8/2.2	5.0	244	20
92/02/26	24	12.7	21.4/ 3.9	211	742	45	79/18	0.60	0.70/0.47	1.9	3.1/0.8	1.4	234	39
92/02/27	24	13.1	22.6/ 4.1	215	751	41	73/16	0.53	0.70/0.43	2.0	3.1/0.7	1.7	230	30
92/02/28	24	13.3	22.5/ 3.8	212	755	40	68/15	0.53	0.69/0.40	2.0	2.9/0.8	1.8	257	23
92/02/29	24	13.8	20.9/ 5.7	181	747	37	61/18	0.52	0.62/0.43	3.1	5.6/1.2	2.9	224	16
92/03/01	24	14.0	17.7/10.6	147	748	35	45/25	0.55	0.70/0.44	3.6	5.6/1.9	3.3	143	20
92/03/02	24	9.9	13.9/ 7.9	40	201	81	97/39	0.97	1.12/0.62	3.0	5.3/1.1	2.6	136	29
92/03/03	24	9.6	13.1/ 7.1	116	433	84	99/61	0.99	1.05/0.89	2.2	4.1/1.3	2.1	165	19
92/03/04	24	10.8	18.5/ 3.6	220	764	69	98/34	0.84	0.96/0.70	2.2	4.9/1.0	1.9	249	31
92/03/05	24	10.7	15.6/ 4.6	189	774	68	92/48	0.85	0.93/0.77	2.6	4.6/1.9	2.4	215	22
92/03/06	24	10.5	14.1/ 4.7	157	540	67	90/45	0.83	0.98/0.72	3.1	5.0/1.7	2.8	160	22
92/03/07	24	7.0	9.1/ 4.1	46	170	86	94/73	0.86	0.96/0.76	1.9	5.2/0.6	1.6	248	34
92/03/08	24	9.6	15.0/ 6.2	104	601	77	95/43	0.89	1.01/0.74	2.8	6.4/0.9	2.4	206	28
92/03/09	24	12.5	18.2/ 5.6	165	797	52	90/31	0.71	0.89/0.60	3.9	7.3/1.2	3.6	283	24
92/03/10	24	12.2	21.1/ 3.0	233	797	52	90/18	0.65	0.81/0.46	2.9	6.0/1.1	2.8	266	19

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/03/11	24	15.5	23.1/ 7.9	236	802	31	62/13	0.50	0.68/0.37	4.7	7.6/1.3	4.4	301	21
92/03/12	24	13.8	22.9/ 4.9	240	808	42	69/16	0.59	0.78/0.45	2.0	2.9/1.0	1.6	280	31
92/03/13	24	14.5	22.5/ 6.6	240	817	46	73/22	0.69	0.80/0.60	2.8	4.7/1.0	2.5	237	22
92/03/14	24	14.1	20.7/ 6.7	198	672	43	76/18	0.64	0.82/0.42	3.1	6.4/1.4	2.8	220	23
92/03/15	24	13.2	19.1/ 6.5	243	832	37	56/23	0.53	0.64/0.45	2.9	4.2/1.5	2.5	144	28
92/03/16	24	12.2	17.8/ 7.3	247	832	48	64/25	0.65	0.74/0.51	3.9	9.1/1.5	3.6	206	22
92/03/17	24	11.3	17.7/ 4.9	241	852	43	70/22	0.53	0.66/0.42	3.7	5.7/1.8	3.5	311	18
92/03/18	24	12.2	17.6/ 6.8	238	849	38	63/21	0.50	0.63/0.41	2.3	4.1/0.9	1.8	206	35
92/03/19	24	11.9	18.9/ 4.5	199	790	43	65/18	0.54	0.69/0.38	2.2	3.7/0.7	2.0	237	24
92/03/20	24	11.9	18.3/ 7.0	122	573	49	89/23	0.64	0.97/0.46	2.9	5.7/1.4	2.5	261	28
92/03/21	24	10.0	13.7/ 7.4	117	533	83	95/62	1.01	1.07/0.96	2.0	4.2/1.0	1.8	191	25
92/03/22	24	11.5	16.4/ 8.6	177	678	70	90/40	0.92	1.06/0.73	4.3	6.2/0.8	4.0	170	19
92/03/23	24	9.8	14.4/ 6.5	186	724	74	93/48	0.88	0.96/0.78	1.9	3.5/0.8	1.5	243	33
92/03/24	24	10.0	17.7/ 3.6	161	680	--	-- --	--	-- --	--	--	--	--	--
92/03/25	24	11.2	17.0/ 6.1	166	671	--	-- --	--	-- --	--	--	--	--	--
92/03/26	24	11.8	16.9/ 7.3	163	685	--	-- --	--	-- --	--	--	--	--	--
92/03/27	24	12.7	15.3/10.2	159	688	--	-- --	--	-- --	--	--	--	--	--
92/03/28	24	14.0	19.9/ 8.1	190	700	--	-- --	--	-- --	--	--	--	--	--
92/03/29	24	16.0	22.6/ 9.3	259	892	--	-- --	--	-- --	--	--	--	--	--
92/03/30	24	13.7	21.1/10.2	155	703	--	-- --	--	-- --	--	--	--	--	--
92/03/31	24	13.3	17.5/ 9.9	145	678	--	-- --	--	-- --	--	--	--	--	--
92/04/01	24	21.1	24.0/ 9.9	158	714	--	-- --	--	-- --	--	--	--	--	--
92/04/02	24	18.3	28.4/ 6.9	279	901	--	-- --	--	-- --	--	--	--	--	--
92/04/03	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/04	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/05	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/06	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/07	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/08	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/09	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/10	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/11	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/12	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/13	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/14	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/04/15	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/16	*0*	--	--	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/17	24	19.3	31.4/ 6.7	--	--	--	-- --	--	-- --	--	--	--	--	--
92/04/18	24	20.7	31.7/12.1	321	979	29	43/17	0.73	1.20/0.49	6.4	9.0/2.4	6.1	340	17
92/04/19	24	18.5	30.7/ 9.4	325	983	28	39/15	0.62	1.15/0.44	4.2	6.6/1.7	3.7	303	24
92/04/20	24	17.8	29.7/ 6.4	311	904	33	57/14	0.74	1.55/0.50	2.0	3.2/0.7	1.5	254	35
92/04/21	24	19.2	31.1/ 9.7	233	852	43	67/21	0.97	1.95/0.67	2.5	4.1/1.2	2.1	239	30
92/04/22	24	19.2	29.6/ 9.8	274	915	39	71/19	0.90	1.75/0.68	2.5	4.2/1.3	2.1	232	32
92/04/23	24	20.9	31.5/12.5	298	945	24	35/10	0.64	1.72/0.42	3.4	7.4/1.5	3.0	258	27
92/04/24	24	17.5	30.0/ 8.4	286	902	26	48/9	0.65	1.29/0.50	1.9	2.8/0.9	1.6	246	32
92/04/25	24	15.6	22.1/10.2	312	968	25	52/8	0.70	1.29/0.44	2.2	3.2/1.0	1.9	264	26
92/04/26	24	19.2	26.6/13.6	299	936	23	42/9	0.77	1.48/0.61	2.4	3.7/0.9	2.2	210	26
92/04/27	24	18.0	27.9/13.6	323	969	22	45/5	0.78	1.48/0.37	2.5	4.5/1.2	2.2	267	25
92/04/28	24	17.3	25.2/14.4	318	962	19	34/4	0.62	1.21/0.32	2.3	3.5/1.3	2.0	225	30
92/04/29	24	20.3	30.7/13.4	249	820	18	33/6	0.56	0.87/0.40	3.3	6.9/1.2	3.1	214	20
92/04/30	24	25.0	31.8/18.7	326	957	24	46/5	0.75	1.17/0.30	4.2	6.5/1.5	3.9	165	20
92/05/01	24	22.9	29.8/16.6	330	988	23	44/9	0.61	0.87/0.36	4.9	7.3/1.4	4.6	285	19
92/05/02	24	23.8	31.9/13.9	325	923	23	43/9	0.66	0.87/0.45	2.3	6.3/1.0	1.8	231	37
92/05/03	24	20.1	29.7/13.1	295	923	21	41/6	0.58	0.72/0.38	2.1	3.7/0.9	1.7	236	33
92/05/04	24	26.2	33.3/16.0	229	797	20	30/11	0.70	0.97/0.52	2.8	5.2/0.9	2.2	168	36
92/05/05	24	24.6	29.7/18.9	188	538	41	72/24	1.25	1.59/0.91	3.2	7.4/1.7	2.6	157	35
92/05/06	24	21.5	29.1/15.4	212	995	60	90/34	1.47	1.87/1.11	2.4	4.5/1.0	1.9	206	36
92/05/07	24	23.7	32.5/13.5	322	962	42	82/15	1.12	1.46/0.77	2.2	3.0/1.3	1.6	231	37
92/05/08	24	22.8	31.5/17.4	332	957	39	74/20	1.57	1.78/0.97	3.7	6.7/1.3	2.9	217	34
92/05/09	24	24.5	31.9/16.7	332	993	27	75/8	0.78	1.56/0.39	6.1	8.4/1.9	5.7	304	18
92/05/10	24	24.7	33.4/14.1	331	993	18	26/9	0.57	1.03/0.38	2.8	5.4/1.2	2.4	237	29
92/05/11	24	24.8	33.4/16.2	323	954	35	56/20	1.24	2.32/0.58	3.0	4.5/0.9	2.5	191	30
92/05/12	24	25.8	33.5/19.1	323	904	36	57/18	1.30	2.47/0.74	3.4	5.7/1.5	3.1	173	23
92/05/13	24	24.7	33.2/14.5	326	957	25	47/10	0.76	1.17/0.49	2.8	4.2/1.2	2.3	209	32
92/05/14	24	22.1	32.6/14.0	326	990	19	31/8	0.62	1.22/0.40	2.8	4.4/1.5	2.5	238	26
92/05/15	24	23.1	33.1/14.0	340	973	22	36/13	0.76	1.64/0.40	2.6	3.5/1.7	2.3	234	24
92/05/16	24	22.5	33.4/14.7	329	979	21	34/10	0.75	1.59/0.46	2.6	4.6/1.2	2.3	228	26
92/05/17	24	23.1	33.2/14.5	342	987	17	28/7	0.58	0.86/0.38	3.5	5.7/1.6	3.1	209	22
92/05/18	24	24.5	33.5/14.8	335	959	18	31/8	0.63	0.96/0.42	3.3	5.9/1.3	3.0	243	24
92/05/19	24	24.9	33.2/17.7	255	828	19	35/6	0.59	0.74/0.28	4.5	7.8/1.4	4.2	185	23

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/05/20	24	22.5	29.5/11.9	358	1016	22	41/8	0.57	0.87/0.33	3.0	5.1/1.1	2.5	207	31
92/05/21	24	24.6	31.8/18.0	304	1006	25	49/14	0.76	1.09/0.44	4.9	7.6/1.6	4.4	216	25
92/05/22	24	24.4	32.1/15.0	283	993	33	59/17	0.93	1.12/0.63	3.0	6.0/1.1	2.5	193	33
92/05/23	24	24.6	32.6/13.4	302	862	29	52/17	0.89	1.14/0.66	2.2	3.6/0.8	1.7	254	35
92/05/24	24	28.1	33.8/19.4	301	1021	28	40/17	1.04	1.32/0.77	3.5	5.6/1.5	3.1	171	27
92/05/25	24	28.0	34.5/21.1	339	961	29	47/14	1.17	1.53/0.85	2.7	3.9/1.4	2.3	183	30
92/05/26	24	27.5	33.6/20.0	316	946	26	44/12	1.10	1.31/0.82	3.3	4.9/1.6	2.8	172	28
92/05/27	24	27.9	33.3/23.5	324	940	28	42/14	1.03	1.22/0.75	3.0	4.9/1.4	2.6	197	28
92/05/28	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/05/29	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/05/30	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/05/31	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/01	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/02	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/03	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/04	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/05	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/06/06	72	25.9	31.6/17.7	--	--	20	26/13	0.62	0.76/0.51	2.9	4.8/0.6	--	--	--
92/06/07	72	24.9	32.5/13.8	--	--	21	37/11	0.60	0.71/0.50	1.9	4.4/0.5	--	--	--
92/06/08	72	28.0	34.6/18.7	--	--	20	33/11	0.70	0.90/0.51	2.7	4.2/1.1	--	--	--
92/06/09	72	29.0	35.6/22.8	--	--	18	31/6	0.64	0.93/0.35	3.1	4.9/1.5	--	--	--
92/06/10	72	28.8	35.0/20.4	--	--	13	24/5	0.44	0.63/0.25	3.8	5.6/0.9	--	--	--
92/06/11	72	27.8	34.3/17.0	--	--	18	32/12	0.62	0.78/0.50	3.4	5.4/1.1	--	--	--
92/06/12	72	24.5	30.1/18.2	--	--	14	28/2	0.37	0.66/0.09	3.6	6.1/1.1	--	--	--
92/06/13	72	21.3	27.1/14.4	--	--	14	21/7	0.31	0.41/0.24	3.6	6.4/0.6	--	--	--
92/06/14	72	18.4	24.1/14.6	--	--	24	37/12	0.48	0.64/0.33	4.0	8.1/1.2	--	--	--
92/06/15	72	18.1	26.4/ 7.6	--	--	29	47/12	0.53	0.72/0.39	3.5	7.5/0.6	--	--	--
92/06/16	72	21.1	28.8/12.8	--	--	26	48/9	0.55	0.73/0.36	3.1	5.4/0.7	--	--	--
92/06/17	72	23.9	32.2/11.8	--	--	17	33/7	0.43	0.60/0.30	1.8	4.1/0.6	--	--	--
92/06/18	72	25.0	34.3/13.6	--	--	12	23/2	0.31	0.57/0.09	2.4	4.2/0.7	--	--	--
92/06/19	72	25.8	34.4/13.7	--	--	13	23/6	0.37	0.50/0.21	1.7	3.4/0.5	--	--	--
92/06/20	72	27.1	36.3/13.8	--	--	10	20/2	0.29	0.43/0.14	1.9	4.0/0.8	--	--	--
92/06/21	72	27.5	37.7/15.4	--	--	9	19/2	0.26	0.40/0.14	2.2	4.7/0.5	--	--	--
92/06/22	72	28.4	37.8/15.1	--	--	10	19/4	0.37	0.54/0.20	2.4	5.3/0.8	--	--	--
92/06/23	72	28.3	36.0/19.5	--	--	16	28/8	0.57	0.75/0.43	2.2	4.8/0.5	--	--	--

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/06/24	72	27.7	35.5/17.1	--	--	19	35/6	0.61	0.82/0.34	2.7	5.2/0.7	--	--	--
92/06/25	72	26.4	33.6/16.1	--	--	19	33/11	0.58	0.70/0.49	1.8	4.4/0.5	--	--	--
92/06/26	72	28.0	35.7/16.8	--	--	19	32/11	0.66	0.87/0.53	2.0	4.2/0.5	--	--	--
92/06/27	72	30.0	38.9/18.0	--	--	16	31/7	0.57	0.73/0.43	2.3	4.3/0.8	--	--	--
92/06/28	72	30.4	38.1/18.8	--	--	19	29/10	0.77	1.04/0.48	3.5	7.3/0.6	--	--	--
92/06/29	72	26.6	32.9/21.0	--	--	24	43/11	0.74	1.04/0.51	3.4	5.8/1.2	--	--	--
92/06/30	72	24.3	30.6/17.7	--	--	27	41/11	0.74	0.87/0.37	2.5	4.7/0.7	--	--	--
92/07/01	72	23.7	30.2/17.5	--	--	26	43/13	0.68	0.89/0.50	2.8	4.7/0.6	--	--	--
92/07/02	72	25.5	33.5/13.6	--	--	17	32/9	0.49	0.63/0.43	1.8	3.7/0.6	--	--	--
92/07/03	72	27.7	36.7/16.6	--	--	14	25/7	0.47	0.53/0.40	2.7	5.3/0.6	--	--	--
92/07/04	72	30.3	38.4/22.9	--	--	10	22/2	0.36	0.64/0.11	3.3	5.2/1.0	--	--	--
92/07/05	72	31.2	39.7/20.0	--	--	12	19/6	0.49	0.61/0.33	2.9	5.2/0.5	--	--	--
92/07/06	72	33.0	39.9/25.1	--	--	14	20/9	0.65	0.75/0.57	3.7	6.3/0.5	--	--	--
92/07/07	72	29.8	34.5/25.2	--	--	25	46/16	0.95	1.44/0.74	2.8	5.7/0.5	--	--	--
92/07/08	72	26.6	30.9/22.5	--	--	45	59/34	1.51	1.73/1.33	3.2	5.6/0.5	--	--	--
92/07/09	72	28.1	34.0/20.1	--	--	43	69/27	1.48	1.74/1.22	2.0	4.3/0.6	--	--	--
92/07/10	72	30.2	36.4/21.7	--	--	33	50/21	1.28	1.48/1.14	2.1	3.9/0.5	--	--	--
92/07/11	72	28.7	34.4/23.7	--	--	32	42/22	1.21	1.34/1.08	3.6	4.7/1.2	--	--	--
92/07/12	72	26.3	31.0/22.4	--	--	42	53/29	1.37	1.53/1.19	2.4	6.5/0.7	--	--	--
92/07/13	72	24.8	31.2/18.6	--	--	53	77/32	1.54	1.98/1.30	2.1	6.9/0.6	--	--	--
92/07/14	72	27.3	35.1/16.5	--	--	40	78/15	1.18	1.54/0.79	1.8	3.4/0.4	--	--	--
92/07/15	72	29.3	36.7/19.4	--	--	29	50/14	1.02	1.31/0.80	1.9	4.4/0.7	--	--	--
92/07/16	72	31.1	39.5/21.0	--	--	23	48/10	0.90	1.16/0.64	1.8	4.4/0.6	--	--	--
92/07/17	72	32.5	41.5/20.6	--	--	18	39/6	0.71	1.00/0.49	2.0	4.8/0.4	--	--	--
92/07/18	72	32.3	40.1/21.5	--	--	19	40/8	0.78	1.06/0.49	1.6	3.7/0.4	--	--	--
92/07/19	72	33.9	41.1/24.0	--	--	12	20/4	0.56	0.77/0.31	3.2	6.8/0.4	--	--	--
92/07/20	72	31.6	39.5/20.3	--	--	13	24/6	0.54	0.66/0.41	2.5	4.5/0.5	--	--	--
92/07/21	72	29.8	38.2/18.6	--	--	11	22/4	0.41	0.57/0.24	2.3	4.5/0.5	--	--	--
92/07/22	72	29.8	36.5/23.9	--	--	14	23/7	0.53	0.68/0.35	3.6	6.0/0.8	--	--	--
92/07/23	72	27.7	35.2/15.9	--	--	14	26/7	0.47	0.58/0.35	2.3	3.9/0.4	--	--	--
92/07/24	72	27.8	36.0/17.0	--	--	17	34/7	0.58	1.06/0.38	2.7	4.6/0.7	--	--	--
92/07/25	72	29.3	36.6/19.3	--	--	22	43/10	0.79	1.15/0.43	2.1	4.0/0.6	--	--	--
92/07/26	72	29.2	38.0/18.1	--	--	16	22/10	0.60	0.82/0.42	2.1	3.8/0.4	--	--	--
92/07/27	72	29.9	39.1/19.0	--	--	17	24/8	0.55	0.61/0.50	1.9	2.9/0.7	--	--	--
92/07/28	72	31.6	41.3/18.8	312	954	12	24/6	0.41	0.49/0.30	2.3	4.0/1.1	1.2	242	39

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/07/29	72	31.0	39.2/20.5	341	982	11	21/4	0.44	0.51/0.32	1.9	3.8/0.6	1.1	246	51
92/07/30	72	32.1	38.3/22.2	314	995	16	24/9	0.75	1.05/0.43	2.9	5.6/1.1	2.3	239	34
92/07/31	72	33.1	40.1/23.6	299	982	23	34/15	1.08	1.26/0.89	2.6	6.7/0.7	1.8	236	46
92/08/01	72	33.5	41.6/23.6	314	937	24	39/15	1.17	1.25/1.10	2.0	3.7/0.5	1.2	261	48
92/08/02	72	33.9	42.0/23.1	325	951	20	38/10	0.96	1.22/0.76	2.0	4.4/0.4	1.3	230	49
92/08/03	72	31.6	37.3/26.8	327	960	16	28/6	0.78	1.07/0.51	2.4	4.1/0.7	1.6	282	44
92/08/04	72	30.3	36.7/22.6	282	927	29	45/17	1.30	1.66/1.02	3.2	4.6/1.5	2.4	349	38
92/08/05	72	29.7	37.5/22.6	313	992	32	44/17	1.34	1.70/1.03	3.6	6.6/0.7	2.9	296	38
92/08/06	72	30.2	37.9/21.3	295	931	30	51/12	1.13	1.52/0.69	2.1	3.9/0.4	1.3	257	46
92/08/07	72	29.6	38.6/18.1	320	947	16	32/5	0.62	0.85/0.24	2.6	4.6/0.7	1.8	295	42
92/08/08	72	30.4	39.2/20.1	330	964	14	26/4	0.50	0.77/0.27	2.6	4.7/1.0	1.8	270	40
92/08/09	72	31.5	40.7/20.4	322	960	15	21/9	0.61	0.77/0.43	1.9	3.8/1.0	1.2	219	46
92/08/10	72	32.9	42.3/24.0	249	915	17	24/10	0.76	0.96/0.57	1.4	2.8/0.4	0.8	239	45
92/08/11	72	33.2	41.0/22.1	313	932	26	53/12	1.25	2.28/0.82	2.1	7.8/0.6	1.3	226	47
92/08/12	72	32.6	40.0/24.2	282	917	29	62/13	1.30	1.71/0.96	2.5	4.8/0.9	1.8	244	42
92/08/13	72	32.3	39.6/24.7	310	928	28	43/16	1.29	1.42/1.17	2.6	8.9/0.4	1.9	215	45
92/08/14	72	33.5	41.1/24.0	293	936	29	45/18	1.32	1.45/1.11	1.7	3.8/0.4	0.9	242	48
92/08/15	72	33.1	40.7/23.2	310	938	24	38/13	1.17	1.32/0.98	1.7	4.4/0.4	0.9	237	53
92/08/16	72	32.6	41.5/22.8	305	919	22	37/12	1.06	1.22/0.87	1.7	4.1/0.4	1.0	267	53
92/08/17	72	32.6	41.9/22.0	313	943	18	34/7	0.79	0.99/0.55	2.0	4.2/0.4	1.3	242	43
92/08/18	72	33.2	42.1/21.8	314	946	14	25/5	0.60	0.80/0.38	1.9	3.4/0.4	1.2	240	47
92/08/19	72	33.4	40.8/25.2	293	953	14	23/6	0.65	0.74/0.49	2.1	4.1/0.4	1.4	246	42
92/08/20	72	31.4	39.5/19.1	311	939	11	21/3	0.53	0.73/0.26	2.1	4.2/0.4	1.5	269	44
92/08/21	72	28.3	34.7/22.3	313	951	13	23/6	0.56	0.74/0.42	3.2	5.8/0.7	2.5	284	39
92/08/22	72	25.7	33.1/17.5	315	963	13	28/4	0.45	0.79/0.18	2.5	4.1/1.0	1.7	291	44
92/08/23	72	25.3	34.6/12.3	318	971	7	13/4	0.21	0.26/0.17	3.3	7.0/0.8	2.8	205	38
92/08/24	72	26.5	34.6/15.9	310	951	12	16/5	0.41	0.64/0.22	1.8	3.3/0.4	1.1	276	49
92/08/25	72	27.1	36.2/16.8	301	928	17	28/8	0.56	0.79/0.42	1.9	3.6/0.4	1.2	256	44
92/08/26	72	27.7	37.5/16.1	301	930	14	24/7	0.45	0.53/0.38	1.6	3.6/0.4	1.0	225	48
92/08/27	72	28.3	37.0/17.6	304	937	13	21/4	0.43	0.54/0.26	1.6	3.4/0.4	1.0	212	45
92/08/28	72	28.0	36.6/17.4	292	889	16	23/10	0.58	0.69/0.48	1.9	4.0/0.4	1.2	254	43
92/08/29	72	24.9	31.5/15.6	297	920	18	27/7	0.63	0.76/0.45	2.7	5.7/0.7	1.9	260	45
92/08/30	72	23.2	32.8/10.8	305	951	18	37/3	0.51	0.91/0.15	2.3	5.1/0.4	1.6	275	42
92/08/31	72	26.0	33.6/15.2	299	924	16	22/12	0.45	0.61/0.26	2.1	4.3/0.5	1.4	244	41
92/09/01	72	26.8	33.6/18.8	283	979	17	27/12	0.55	0.67/0.48	1.9	3.7/0.4	1.2	257	44

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/09/02	72	25.0	32.0/17.5	194	789	16	23/10	0.55	0.63/0.47	2.3	4.3/0.7	1.7	256	38
92/09/03	72	24.2	30.8/17.1	168	754	20	27/13	0.61	0.72/0.51	3.1	6.4/0.9	2.5	240	34
92/09/04	72	25.0	32.9/14.3	294	920	26	43/14	0.73	0.99/0.58	4.8	6.9/2.3	3.7	297	36
92/09/05	72	25.4	34.7/15.9	268	921	18	34/8	0.53	0.65/0.38	1.8	4.5/0.4	1.2	252	45
92/09/06	72	25.4	34.5/16.4	287	909	15	26/5	0.42	0.54/0.28	1.8	3.4/0.4	1.2	240	43
92/09/07	72	25.9	35.8/14.5	282	897	15	22/9	0.46	0.57/0.37	1.7	3.7/0.4	1.0	221	47
92/09/08	72	26.7	37.3/14.2	282	897	16	27/7	0.49	0.61/0.43	1.7	3.4/0.4	1.2	225	43
92/09/09	72	27.1	36.1/17.2	281	898	13	26/5	0.39	0.48/0.29	1.7	3.7/0.4	1.1	235	42
92/09/10	72	27.0	35.4/17.5	265	859	12	20/5	0.38	0.44/0.29	2.0	4.5/0.4	1.4	283	38
92/09/11	72	25.6	33.1/15.9	208	995	14	20/8	0.50	0.63/0.36	2.5	4.4/0.8	2.0	260	33
92/09/12	72	24.2	34.2/13.6	232	914	16	27/7	0.48	0.69/0.34	1.7	3.1/0.7	1.1	252	43
92/09/13	72	24.6	35.1/12.5	276	886	14	24/6	0.38	0.40/0.30	1.5	3.5/0.4	0.9	240	49
92/09/14	72	25.0	34.3/12.5	278	889	15	25/4	0.40	0.57/0.21	2.3	4.1/0.9	1.7	252	38
92/09/15	72	26.1	34.8/16.7	268	862	22	32/15	0.70	0.94/0.39	2.3	4.6/0.4	1.6	274	41
92/09/16	72	26.7	35.6/15.5	262	860	25	43/12	0.79	1.14/0.57	2.3	5.2/0.5	1.7	249	38
92/09/17	72	25.8	31.4/20.6	259	845	24	38/14	0.79	1.13/0.59	2.0	7.0/0.5	1.3	229	50
92/09/18	72	25.0	33.2/17.5	250	814	33	50/18	1.03	1.21/0.81	4.5	8.2/1.6	3.6	288	35
92/09/19	72	25.5	35.7/14.3	258	845	27	46/15	0.79	0.94/0.63	2.5	5.0/0.4	1.9	217	39
92/09/20	72	26.5	36.7/16.6	255	836	21	37/10	0.63	0.71/0.55	1.9	4.2/0.9	1.4	228	37
92/09/21	72	27.6	36.9/17.0	255	839	16	27/8	0.51	0.57/0.46	1.4	2.9/0.4	0.8	237	51
92/09/22	72	28.0	36.5/19.4	245	813	22	32/17	0.84	1.20/0.48	2.0	4.0/0.6	1.5	219	36
92/09/23	72	26.5	35.5/15.3	186	813	24	42/10	0.85	1.09/0.56	2.4	5.1/0.4	1.9	278	38
92/09/24	72	25.2	32.8/17.0	253	838	20	44/6	0.61	1.02/0.34	2.4	6.3/0.6	1.7	240	41
92/09/25	72	22.1	32.6/11.9	254	846	13	23/5	0.37	0.50/0.23	4.0	6.5/0.8	3.3	287	39
92/09/26	72	23.3	35.3/ 9.9	256	845	12	21/5	0.28	0.34/0.25	1.4	2.3/0.5	0.9	223	48
92/09/27	72	25.2	36.9/11.4	251	832	11	20/3	0.26	0.30/0.20	1.6	3.5/0.4	1.1	207	40
92/09/28	72	26.6	36.8/15.3	248	830	10	19/3	0.26	0.31/0.17	1.7	3.3/0.4	1.1	291	41
92/09/29	72	26.5	36.6/17.6	230	798	13	21/7	0.43	0.56/0.28	2.0	4.2/0.4	1.5	211	36
92/09/30	72	25.9	35.3/15.1	224	800	18	28/10	0.59	0.71/0.48	2.1	4.5/0.4	1.5	237	39
92/10/01	72	24.5	31.2/17.8	227	788	17	31/6	0.50	0.71/0.25	3.2	6.7/1.4	2.7	234	32
92/10/02	72	21.3	28.0/14.8	242	819	16	29/6	0.47	0.73/0.26	4.3	7.0/0.9	3.6	256	32
92/10/03	72	21.4	28.9/15.4	244	830	20	29/11	0.49	0.62/0.40	4.2	6.1/1.2	3.5	273	34
92/10/04	72	20.2	29.6/10.1	239	817	23	32/14	0.57	0.62/0.49	4.2	6.6/1.0	3.6	285	34
92/10/05	72	23.1	30.8/15.2	217	758	21	36/11	0.46	0.50/0.42	1.3	2.3/0.4	0.8	234	49
92/10/06	72	17.4	28.3/ 6.7	233	788	14	27/3	0.37	0.56/0.15	3.4	6.7/0.7	2.6	301	42

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/10/07	72	18.5	29.3/ 8.1	232	812	7	16/2	0.12	0.17/0.07	1.3	2.1/0.4	0.8	230	48
92/10/08	72	22.1	32.8/ 8.8	212	798	6	11/2	0.11	0.18/0.07	1.5	3.0/0.5	1.1	210	39
92/10/09	72	23.0	31.6/14.5	225	775	10	17/6	0.27	0.40/0.16	2.4	4.7/0.5	1.8	264	39
92/10/10	72	22.5	33.8/11.7	222	771	17	25/10	0.45	0.50/0.39	2.1	5.4/0.5	1.4	260	49
92/10/11	72	22.2	34.3/10.4	219	759	17	28/8	0.41	0.45/0.36	1.7	3.3/0.5	1.1	231	44
92/10/12	72	21.2	32.0/11.1	218	756	14	27/4	0.31	0.39/0.23	1.5	2.6/0.5	1.0	312	40
92/10/13	72	19.9	29.3/10.6	215	752	15	23/7	0.34	0.40/0.29	1.6	2.6/0.4	1.1	311	38
92/10/14	72	19.0	28.3/ 8.0	210	743	21	30/12	0.48	0.61/0.35	1.8	3.1/0.4	1.3	266	38
92/10/15	72	19.0	28.6/11.8	203	720	27	40/14	0.56	0.67/0.43	1.6	2.9/0.4	1.1	272	42
92/10/16	72	18.9	28.9/ 7.7	191	673	25	39/13	0.52	0.60/0.41	1.6	2.9/0.4	1.1	302	40
92/10/17	72	20.3	29.5/12.1	194	726	20	34/11	0.41	0.47/0.34	1.6	2.8/0.4	1.1	300	37
92/10/18	72	19.8	30.0/10.0	201	722	20	28/12	0.45	0.53/0.39	1.8	2.7/0.6	1.3	233	38
92/10/19	72	19.8	30.0/ 7.3	195	699	22	33/11	0.48	0.55/0.42	1.5	3.6/0.4	1.2	211	42
92/10/20	72	19.5	25.1/13.8	197	704	22	35/12	0.49	0.59/0.35	2.2	5.2/0.6	1.1	253	39
92/10/21	72	20.8	27.6/14.1	126	636	30	39/21	0.67	0.79/0.50	2.2	5.2/0.6	1.7	273	36
92/10/22	72	20.6	29.4/11.7	190	679	30	42/21	0.72	0.81/0.60	1.6	3.5/0.4	1.0	265	49
92/10/23	72	17.0	22.5/10.6	188	674	32	60/18	0.72	1.25/0.62	1.5	5.7/0.4	0.9	257	50
92/10/24	72	15.5	23.6/ 8.1	115	709	64	89/39	1.20	1.44/1.07	2.7	6.6/0.6	2.1	265	39
92/10/25	72	16.6	24.5/ 8.1	182	666	59	86/34	0.98	1.06/0.92	1.4	2.3/0.4	1.0	225	38
92/10/26	72	17.1	24.0/10.8	162	650	52	81/28	0.91	1.00/0.85	1.5	2.3/0.4	1.1	309	38
92/10/27	72	15.2	20.4/10.5	146	504	54	91/31	1.00	1.45/0.84	1.7	4.1/0.5	1.3	240	42
92/10/28	72	14.1	18.8/12.0	150	574	72	96/50	1.22	1.36/1.07	1.5	3.5/0.4	1.0	256	43
92/10/29	72	14.0	17.5/10.0	157	564	67	78/47	1.07	1.10/1.02	3.3	4.2/2.0	2.8	221	29
92/10/30	72	13.8	17.2/ 9.7	152	554	59	67/38	0.97	1.02/0.83	2.7	3.8/1.5	2.3	209	34
92/10/31	72	13.5	17.3/ 9.0	150	555	48	58/36	0.82	0.94/0.59	2.3	4.0/1.2	2.2	267	42
92/11/01	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/02	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/03	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/04	72	11.7	18.3/ 4.2	136	625	24	37/15	0.28	0.32/0.25	1.2	1.8/0.4	0.7	279	48
92/11/05	72	14.1	24.1/ 3.8	194	629	31	49/19	0.49	0.59/0.35	1.7	3.9/0.8	1.1	236	49
92/11/06	72	16.8	23.3/ 5.1	371	618	27	52/17	0.46	0.49/0.42	1.3	1.6/1.0	0.4	250	65
92/11/07	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/08	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/09	72	14.2	20.9/ 3.5	478	639	12	21/8	0.20	0.28/0.16	1.8	2.8/1.2	1.1	283	49
92/11/10	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/11/11	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/12	72	14.5	23.5/ 4.2	172	625	12	22/6	0.18	0.20/0.16	1.3	2.6/0.4	0.9	293	43
92/11/13	72	16.1	25.8/ 6.0	239	613	20	33/13	0.35	0.41/0.27	1.4	2.3/0.4	0.9	224	49
92/11/14	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/15	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/16	72	15.9	23.9/ 5.5	218	591	25	39/17	0.41	0.45/0.33	1.4	2.3/0.5	1.0	244	39
92/11/17	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/11/18	72	7.2	8.2/ 5.1	234	631	--	--	-- --	-- --	--	--	--	--	--
92/11/19	72	7.5	12.5/ 3.8	155	616	28	41/17	0.28	0.39/0.22	6.0	8.1/4.4	5.0	230	32
92/11/20	72	4.4	13.9/-2.0	123	518	24	35/15	0.20	0.22/0.16	1.6	6.5/0.5	1.1	237	48
92/11/21	72	5.9	13.3/-3.1	153	603	26	35/13	0.24	0.38/0.16	1.9	3.9/0.6	1.5	254	39
92/11/22	72	4.9	8.7/ 2.9	109	507	38	44/28	0.32	0.33/0.31	4.1	6.6/1.3	2.8	247	46
92/11/23	72	6.3	13.5/ 1.7	182	603	25	34/18	0.26	0.31/0.24	4.3	6.4/1.4	3.0	244	39
92/11/24	72	3.7	10.7/-2.0	130	550	31	41/22	0.24	0.28/0.18	2.9	5.6/0.4	2.5	223	30
92/11/25	72	4.5	15.5/-4.6	143	596	25	33/16	0.20	0.24/0.12	1.1	2.0/0.4	0.7	237	43
92/11/26	72	1.9	17.0/-8.4	150	598	19	33/8	0.13	0.15/0.11	1.3	2.1/0.4	0.9	258	41
92/11/27	72	5.1	18.5/-3.1	146	581	15	23/6	0.12	0.14/0.11	1.4	2.3/0.4	1.0	262	39
92/11/28	72	8.3	16.4/-0.5	141	580	28	49/16	0.33	0.45/0.13	3.5	6.0/0.7	2.8	239	39
92/11/29	72	7.0	15.0/ 0.3	130	558	30	39/21	0.3	0.35/0.25	2.9	6.0/0.8	2.3	255	39
92/11/30	72	1.8	11.8/-4.1	182	588	39	53/17	0.25	0.29/0.22	1.2	1.7/0.5	0.8	276	47
92/12/01	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/02	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/03	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/04	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/05	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/06	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/07	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/08	*0*	--	--	--	--	--	--	--	-- --	--	--	--	--	--
92/12/09	72	7.7	8.8/ 6.6	131	423	72	89/61	0.73	0.86/0.55	0.6	1.8/0.4	0.4	264	42
92/12/10	72	7.2	12.5/ 1.4	159	314	78	94/64	0.79	0.88/0.62	1.3	2.8/0.4	1.0	291	37
92/12/11	72	5.8	14.1/ 0.4	110	504	74	94/53	0.69	0.82/0.59	1.9	4.8/0.4	1.4	281	41
92/12/12	72	5.3	10.0/ 2.8	128	532	43	78/30	0.39	0.61/0.31	6.0	9.6/1.9	4.8	291	35
92/12/13	72	5.0	10.3/ 2.1	134	551	35	41/26	0.30	0.32/0.28	6.1	8.0/2.7	4.0	289	46
92/12/14	72	4.7	14.0/-2.6	132	551	40	82/22	0.31	0.45/0.23	2.7	8.3/0.4	2.0	252	43
92/12/15	72	0.6	12.2/-4.6	163	552	56	83/27	0.38	0.44/0.24	3.1	6.9/0.6	2.5	225	40

Table 3. Summary of selected meteorological data collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from hourly or 20-minute mean values—Continued

Date	Number of values	Temperature (degrees Celsius)		Solar radiation (watts per square meter)		Relative humidity (percent)		Vapor pressure (kilopascals)		Windspeed (meters per second)		Wind vector		
												Magnitude (meters per second)	Direction	
		Mean	Max/min	Mean	Max	Mean	Max/min	Mean	Max/min	Mean	Max/min		°az	Std. dev.
92/12/16	72	1.1	8.4/-3.9	148	517	35	52/28	0.25	0.27/0.24	1.6	3.6/0.4	1.3	244	32
92/12/17	72	1.3	9.9/-7.3	132	547	39	55/30	0.35	0.63/0.26	2.5	6.9/0.5	2.0	262	38
92/12/18	72	2.0	7.3/-1.5	133	556	39	54/29	0.29	0.52/0.20	5.0	6.8/2.9	4.2	216	31
92/12/19	72	0.0	8.5/-7.3	134	554	31	53/25	0.22	0.26/0.20	3.1	6.8/0.4	2.6	241	38
92/12/20	72	-1.2	10.3/-7.8	127	548	35	55/24	0.23	0.27/0.15	1.2	2.0/0.4	0.9	240	38
92/12/21	72	-0.9	11.6/-8.6	132	542	34	50/28	0.29	0.33/0.12	1.1	2.4/0.4	0.8	238	41
92/12/22	72	4.6	13.4/-2.8	133	548	33	96/19	0.27	0.33/0.17	3.7	5.7/1.3	3.0	215	38
92/12/23	72	6.6	17.4/-0.6	132	547	47	99/19	1.45	1.82/1.17	2.5	5.9/0.5	1.7	206	51
92/12/24	72	4.6	16.9/-5.0	133	549	45	100/21	1.42	1.72/1.11	2.0	7.7/0.6	1.4	233	50
92/12/25	72	5.4	16.7/-4.1	137	557	47	100/13	1.44	2.17/1.09	1.8	6.9/0.4	1.4	225	39
92/12/26	72	0.3	13/ -7.9	133	537	49	100/19	1.49	2.22/1.19	1.5	2.5/0.4	1.2	226	31
92/12/27	72	1.3	8.7/-6.4	88	498	59	100/23	1.56	2.31/1.13	1.3	2.3/0.4	1.0	224	35
92/12/28	72	4.8	8.7/ 1.8	35	162	44	70/32	1.32	2.07/1.02	2.7	5.8/0.6	2.4	269	32
92/12/29	72	8.1	14.0/ 4.9	93	568	53	100/32	1.55	1.86/1.09	4.2	6.9/0.8	3.6	266	33
92/12/30	72	5.8	13.2/-0.4	130	555	56	100/33	1.45	1.79/1.22	2.1	3.7/0.4	1.6	249	37
92/12/31	72	5.5	12.9/ 0.3	139	523	61	88/36	0.58	1.16/0.33	1.2	1.5/0.4	1.0	304	33

Table 4. Summary of soil-temperature, soil-heat-flux, and net-radiation measurements collected at study site near Beatty, Nev., in 1992. Daily mean, daily maximum, and daily minimum values were determined from 20-minute mean values. All listed daily values based on 72 values.

[Symbols and abbreviations: °C, degrees Celsius; W/m^2, watts per meter squared; --, data not available; max, maximum; min, minimum]

Date	Soil temperature (°C)		Soil-heat flux (W/m^2)		Net radiation (W/m^2)	
	Mean	Max/min	Mean	Max/min	Mean	Max/min
92/06/06	32.6	44.7/ 23.9	2.4	42.4/-22.5	131	580/ -94
92/06/07	33.2	49.8/ 19.1	8.1	56.5/-27.8	133	528/ -100
92/06/08	35.5	51.7/ 22.9	11.1	58.1/-20.0	135	523/ -99
92/06/09	35.9	51.1/ 24.0	11.0	56.6/-19.0	133	529/ -102
92/06/10	34.8	49.1/ 23.5	8.2	50.9/-20.3	134	541/ -107
92/06/11	34.4	49.3/ 22.4	8.1	52.4/-22.4	135	537/ -99
92/06/12	33.0	48.4/ 21.8	5.2	50.6/-24.2	130	546/ -117
92/06/13	31.0	47.1/ 19.2	2.7	50.7/-27.9	131	530/ -105
92/06/14	26.7	38.6/ 18.8	-5.4	28.7/-27.6	138	536/ -88
92/06/15	28.5	44.7/ 14.6	2.4	48.4/-32.1	144	593/ -76
92/06/16	30.1	46.8/ 17.3	5.2	51.9/-26.2	142	545/ -99
92/06/17	32.3	49.1/ 17.6	8.9	58.6/-27.8	138	537/ -104
92/06/18	32.8	50.1/ 18.6	8.3	59.4/-27.2	135	522/ -118
92/06/19	33.8	51.6/ 18.5	9.9	61.6/-28.3	131	520/ -107
92/06/20	34.6	52.5/ 19.4	10.3	62.9/-27.6	129	511/ -105
92/06/21	33.8	50.0/ 20.3	7.8	54.6/-26.6	120	536/ -105
92/06/22	34.0	50.8/ 19.6	7.9	57.4/-28.4	114	472/ -78
92/06/23	33.9	48.0/ 23.1	6.9	52.9/-19.9	96	586/ -81
92/06/24	34.4	50.4/ 21.4	8.8	53.5/-23.2	129	550/ -96
92/06/25	33.2	46.7/ 21.0	5.7	47.1/-25.4	108	520/ -92
92/06/26	35.5	51.8/ 20.9	11.0	58.4/-24.4	139	547/ -92
92/06/27	37.0	53.7/ 22.5	12.2	60.6/-23.5	139	525/ -100
92/06/28	36.8	52.7/ 23.3	10.1	57.5/-23.7	140	541/ -82
92/06/29	35.1	49.6/ 25.2	6.4	50.5/-20.5	131	545/ -88
92/06/30	34.5	50.5/ 21.9	6.8	53.8/-25.5	142	531/ -99
92/07/01	33.5	49.2/ 21.7	4.8	50.8/-25.1	143	549/ -95
92/07/02	34.4	51.7/ 19.6	7.6	56.7/-29.4	138	533/ -99
92/07/03	33.6	48.5/ 21.1	4.8	49.3/-26.7	118	558/ -83
92/07/04	35.7	51.9/ 23.2	9.7	56.8/-19.8	139	548/ -110
92/07/05	36.1	51.3/ 23.9	9.5	53.7/-22.0	127	560/ -93
92/07/06	38.0	53.1/ 25.5	11.9	57.2/-20.1	148	538/ -76
92/07/07	34.9	45.4/ 27.1	3.5	38.0/-16.7	74	489/ -59
92/07/08	32.1	41.1/ 25.9	1.0	27.6/-15.3	82	411/ -50
92/07/09	35.2	48.7/ 24.2	8.3	47.6/-17.6	120	500/ -63
92/07/10	37.2	51.6/ 25.0	10.9	54.9/-18.9	135	576/ -64
92/07/11	37.0	51.6/ 27.0	8.2	49.5/-15.9	139	574/ -62
92/07/12	35.2	47.1/ 26.0	4.7	38.3/-18.8	125	585/ -58
92/07/13	30.2	46.1/ 20.7	-6.8	43.9/-34.2	94	581/ -58
92/07/14	31.8	46.8/ 17.7	1.7	65.6/-34.6	156	602/ -78
92/07/15	33.8	46.3/ 22.0	2.2	63.7/-31.6	120	632/ -77
92/07/16	36.7	52.8/ 23.7	6.9	63.5/-26.7	144	556/ -85
92/07/17	37.1	53.0/ 24.3	7.6	56.0/-25.0	139	541/ -85
92/07/18	38.7	55.0/ 24.9	11.7	58.8/-22.3	143	542/ -92
92/07/19	39.1	54.7/ 28.5	11.5	56.2/-18.8	140	563/ -98
92/07/20	37.9	54.4/ 24.6	9.0	56.8/-24.5	143	548/ -94

Table 4. Summary of soil temperature, soil-heat-flux, and net-radiation measurements collected at study site near Beatty, Nev., in 1992—Continued

Date	Soil temperature (°C)		Soil-heat flux (W/m^2)		Net radiation (W/m^2)	
	Mean	Max/min	Mean	Max/min	Mean	Max/min
92/07/21	36.8	53.3/ 22.9	6.9	54.6/-28.1	139	552/ -91
92/07/22	36.2	51.5/ 25.4	6.4	50.2/-20.6	145	573/ -92
92/07/23	35.6	52.1/ 22.6	5.9	53.6/-26.0	141	557/ -100
92/07/24	35.1	51.2/ 21.7	5.7	52.5/-27.5	147	557/ -85
92/07/25	37.0	53.5/ 24.3	9.0	56.5/-21.7	143	538/ -94
92/07/26	36.9	53.6/ 22.6	8.2	56.1/-26.9	144	545/ -90
92/07/27	35.3	50.6/ 23.9	7.6	50.3/-24.5	157	538/ -59
92/07/28	34.0	50.2/ 18.7	5.8	58.5/-28.7	133	538/ -92
92/07/29	33.0	48.1/ 20.4	9.1	58.7/-26.5	137	532/ -93
92/07/30	32.4	47.5/ 22.1	6.8	54.7/-25.3	137	567/ -67
92/07/31	34.1	49.5/ 23.4	9.5	52.7/-19.5	127	557/ -72
92/08/01	34.9	50.8/ 23.5	11.7	54.3/-19.1	141	562/ -75
92/08/02	35.5	50.9/ 23.1	10.4	55.2/-20.4	142	538/ -81
92/08/03	31.5	46.5/ 26.6	9.5	55.0/-22.5	141	530/ -78
92/08/04	31.2	46.1/ 22.5	5.9	50.5/-14.8	114	610/ -73
92/08/05	31.4	46.4/ 22.6	5.2	48.8/-19.3	150	586/ -58
92/08/06	32.3	47.0/ 21.2	5.3	48.2/-19.3	133	540/ -82
92/08/07	32.5	47.8/ 18.1	4.8	49.7/-24.1	137	534/ -99
92/08/08	33.1	48.6/ 20.0	4.8	51.5/-27.0	138	543/ -90
92/08/09	34.6	49.7/ 20.6	7.5	56.4/-25.5	136	536/ -82
92/08/10	36.8	51.5/ 24.1	4.6	44.6/-24.3	93	532/ -74
92/08/11	35.1	50.1/ 22.1	8.0	58.2/-21.8	153	535/ -46
92/08/12	34.4	49.4/ 24.6	2.5	45.4/-26.1	137	551/ -65
92/08/13	33.5	48.9/ 24.5	8.7	50.8/-20.1	156	563/ -59
92/08/14	34.9	50.2/ 23.9	8.1	51.5/-18.6	137	564/ -67
92/08/15	34.0	49.8/ 23.3	9.9	54.1/-19.3	141	543/ -77
92/08/16	35.2	50.7/ 22.9	8.3	52.4/-22.9	137	535/ -73
92/08/17	36.0	50.8/ 22.1	7.1	53.2/-22.6	138	542/ -83
92/08/18	35.6	51.0/ 21.8	6.8	55.4/-24.6	133	523/ -87
92/08/19	34.7	49.9/ 25.1	6.0	54.8/-24.7	126	539/ -78
92/08/20	33.7	48.7/ 19.2	6.7	52.9/-21.1	129	526/ -87
92/08/21	28.4	43.7/ 22.5	3.5	48.4/-24.8	134	550/ -79
92/08/22	27.0	42.0/ 17.8	1.7	47.1/-25.8	126	537/ -89
92/08/23	28.1	43.5/ 12.5	-1.3	44.2/-27.8	123	540/ -91
92/08/24	28.4	43.5/ 16.0	0.6	50.8/-33.3	127	523/ -81
92/08/25	30.1	45.1/ 16.9	3.0	50.4/-26.3	126	520/ -80
92/08/26	31.3	46.6/ 16.3	3.5	52.2/-26.4	124	508/ -81
92/08/27	30.2	45.8/ 17.9	4.0	53.9/-28.3	125	518/ -81
92/08/28	30.5	45.6/ 17.6	3.5	47.0/-24.7	121	540/ -75
92/08/29	25.8	40.7/ 15.7	3.3	50.1/-24.9	130	543/ -71
92/08/30	26.5	41.9/ 11.2	-0.3	43.8/-28.5	125	537/ -86
92/08/31	27.1	42.9/ 15.3	-0.8	48.2/-32.4	128	523/ -73
92/09/01	27.4	42.9/ 18.8	1.9	48.9/-26.7	116	556/ -54
92/09/02	26.9	41.9/ 17.6	-1.6	32.0/-21.1	75	497/ -65
92/09/03	24.8	40.0/ 17.2	-5.4	27.8/-22.3	62	541/ -62
92/09/04	26.8	42.1/ 14.8	-0.1	35.4/-20.7	135	554/ -60
92/09/05	28.5	43.5/ 16.1	2.5	47.0/-25.3	114	531/ -70
92/09/06	28.2	43.3/ 16.5	2.8	50.4/-25.4	120	506/ -82
92/09/07	29.6	45.0/ 15.0	2.6	48.5/-25.5	121	508/ -76
92/09/08	31.0	46.3/ 14.0	3.2	51.5/-25.7	119	502/ -81
92/09/09	30.4	45.5/ 17.5	3.2	52.8/-27.4	118	491/ -79
92/09/10	29.4	44.4/ 17.7	1.6	45.0/-24.7	109	510/ -71

Table 4. Summary of soil temperature, soil-heat-flux, and net-radiation measurements collected at study site near Beatty, Nev., in 1992—Continued

Date	Soil temperature (°C)		Soil-heat flux (W/m^2)		Net radiation (W/m^2)	
	Mean	Max/min	Mean	Max/min	Mean	Max/min
92/09/11	27.5	42.4/ 16.5	-0.2	40.6/-23.0	86	594/ -58
92/09/12	28.2	43.3/ 14.2	1.1	46.7/-23.3	90	556/ -64
92/09/13	29.0	44.2/ 12.7	0.9	49.1/-28.2	113	494/ -78
92/09/14	28.5	43.4/ 12.8	0.1	46.8/-27.8	117	505/ -75
92/09/15	28.7	43.5/ 16.9	1.9	48.3/-27.0	120	507/ -62
92/09/16	29.2	44.3/ 15.8	2.6	46.3/-21.5	120	512/ -66
92/09/17	25.4	40.6/ 20.6	4.2	48.8/-24.3	117	488/ -56
92/09/18	26.5	42.0/ 17.5	1.9	37.0/-16.1	116	516/ -59
92/09/19	27.3	42.8/ 14.9	1.7	45.2/-21.2	110	485/ -73
92/09/20	28.8	44.5/ 17.5	1.5	47.7/-25.2	110	471/ -69
92/09/21	31.0	46.0/ 17.3	2.2	49.3/-25.3	106	472/ -76
92/09/22	30.6	45.9/ 19.4	3.9	47.7/-22.9	113	486/ -59
92/09/23	29.4	44.4/ 15.4	0.5	41.8/-19.6	82	498/ -47
92/09/24	27.0	41.9/ 17.3	1.7	44.7/-23.6	106	482/ -72
92/09/25	22.1	37.2/ 12.4	-1.4	34.7/-23.0	103	489/ -71
92/09/26	23.7	38.7/ 10.8	-2.4	44.8/-30.5	99	463/ -77
92/09/27	23.5	39.1/ 11.8	-0.7	48.6/-29.5	95	578/ -83
92/09/28	21.4	36.4/ 15.5	1.2	49.1/-26.6	96	524/ -78
92/09/29	20.7	35.7/ 17.7	1.3	44.4/-24.5	68	446/ -62
92/09/30	19.9	34.8/ 15.3	2.5	44.6/-19.0	60	383/ -61
92/10/01	17.7	30.4/ 15.8	-0.5	37.4/-22.9	49	323/ -52
92/10/02	21.5	37.1/ 14.8	-2.3	30.8/-21.1	30	195/ -63
92/10/03	22.4	38.0/ 15.8	-3.8	30.3/-21.2	58	374/ -68
92/10/04	23.4	38.6/ 9.9	-2.8	30.2/-20.2	48	338/ -61
92/10/05	25.0	40.2/ 14.9	-3.6	38.1/-27.5	79	476/ -73
92/10/06	22.0	37.1/ 7.9	-3.0	32.3/-23.2	38	285/ -62
92/10/07	23.4	38.4/ 8.8	-6.5	37.8/-32.6	92	561/ -83
92/10/08	19.8	34.9/ 9.7	-4.0	39.3/-28.1	76	528/ -76
92/10/09	20.4	35.4/ 15.0	-1.3	38.3/-26.5	62	346/ -70
92/10/10	17.9	32.8/ 11.6	1.0	39.9/-21.0	86	541/ -59
92/10/11	18.1	33.4/ 11.1	-0.4	43.8/-24.5	90	577/ -76
92/10/12	16.5	31.3/ 11.0	-0.9	44.1/-25.9	93	576/ -75
92/10/13	13.2	28.2/ 11.0	-1.7	41.3/-24.8	97	540/ -68
92/10/14	12.5	27.5/ 8.7	-2.9	34.9/-24.6	83	442/ -61
92/10/15	12.3	27.5/ 12.0	-3.6	34.2/-24.8	76	437/ -60
92/10/16	13.3	28.2/ / 8.1	-3.1	32.7/-22.2	81	482/ -69
92/10/17	13.2	28.4/ 12.4	-3.3	37.5/-25.9	81	505/ -59
92/10/18	17.3	32.2/ 10.2	-0.6	37.0/-20.1	89	470/ -65
92/10/19	14.5	29.5/ 7.9	-2.0	38.0/-22.2	89	536/ -68
92/10/20	13.0	24.9/ 14.2	-2.6	38.6/-26.0	81	478/ -65
92/10/21	12.8	26.7/ 14.5	-4.2	27.0/-19.4	71	439/ -43
92/10/22	13.2	28.5/ 12.4	1.1	34.7/-15.8	78	479/ -64
92/10/23	12.7	22.4/ 10.8	-1.3	34.3/-22.5	86	462/ -62
92/10/24	12.5	22.7/ 8.4	-8.5	19.4/-24.3	25	431/ -48
92/10/25	13.6	23.9/ 8.5	-6.0	33.6/424.6	92	485/ -60
92/10/26	13.4	23.7/ 11.1	-5.8	30.9/-24.8	77	513/ -58
92/10/27	10.7	19.7/ 10.6	-5.5	24.7/-19.6	22	292/ -60
92/10/28	12.1	18.6/ 10.1	-9.2	28.3/-26.4	42	343/ -67
92/10/29	11.0	17.6/ 10.0	-13.4	18.5/-25.1	38	232/ -36

Table 5. Summary of barometric-pressure data collected at study site near Beatty, Nev., in 1992. All daily mean, daily maximum, and daily minimum values were determined from individual measurements made every 30 seconds and averaged and recorded at 10-minute intervals

	Barometric pressure (kilopascals)				Barometric pressure (kilopascals)		
Date	Mean	Maximum	Minimum	Date	Mean	Maximum	Minimum
92/01/01	102.46	102.66	102.32	92/02/16	101.45	101.77	101.02
92/01/02	102.08	102.44	101.65	92/02/17	101.94	102.10	101.78
92/01/03	101.40	101.65	101.22	92/02/18	102.13	102.29	102.00
92/01/04	101.39	101.65	101.28	92/02/19	102.09	102.28	101.86
92/01/05	100.66	101.27	100.16	92/02/20	101.83	101.96	101.68
92/01/06	100.80	101.22	100.35	92/02/21	102.11	102.28	101.95
92/01/07	101.40	101.94	101.15	92/02/22	102.03	102.40	101.74
92/01/08	102.21	102.48	101.93	92/02/23	102.40	102.58	102.19
92/01/09	102.41	102.65	102.25	92/02/24	102.43	102.73	102.18
92/01/10	102.05	102.41	101.67	92/02/25	102.40	102.58	102.20
92/01/11	101.21	101.66	100.89	92/02/26	102.55	102.81	102.30
92/01/12	101.89	102.39	101.28	92/02/27	102.46	102.70	102.24
92/01/13	102.35	102.62	102.17	92/02/28	102.17	102.44	101.89
92/01/14	102.26	102.43	102.10	92/02/29	101.44	101.88	101.05
92/01/15	102.74	103.00	102.42				
92/01/16	102.27	102.86	101.70	92/03/01	101.10	101.25	100.95
92/01/17	101.42	101.70	101.21	92/03/02	101.05	101.26	100.85
92/01/18	101.86	102.21	101.47	92/03/03	101.11	101.23	101.00
92/01/19	102.25	102.50	102.07	92/03/04	101.24	101.41	101.08
92/01/20	102.02	102.20	101.81	92/03/05	101.23	101.42	101.07
92/01/21	102.05	102.23	101.89	92/03/06	101.15	101.31	101.03
92/01/22	102.33	102.50	102.15	92/03/07	100.82	101.12	100.55
92/01/23	102.52	102.72	102.33	92/03/08	100.78	101.11	100.55
92/01/24	102.28	102.52	102.01	92/03/09	101.53	101.99	101.11
92/01/25	101.92	102.15	101.67	92/03/10	101.87	102.15	101.59
92/01/26	101.75	102.03	101.60	92/03/11	101.66	101.89	101.42
92/01/27	102.21	102.43	102.01	92/03/12	101.71	101.91	101.55
92/01/28	102.22	102.33	102.05	92/03/13	101.73	101.96	101.52
92/01/29	102.34	102.51	102.17	92/03/14	101.53	101.75	101.33
92/01/30	102.38	102.57	102.19	92/03/15	101.30	101.56	101.10
92/01/31	101.97	102.30	101.58	92/03/16	101.08	101.25	100.83
92/02/01	101.36	101.58	101.15	92/03/17	101.26	101.42	101.14
92/02/02	101.69	101.89	101.42	92/03/18	101.59	101.82	101.41
92/02/03	101.81	101.98	101.58	92/03/19	101.91	102.20	101.69
92/02/04	101.85	102.05	101.69	92/03/20	101.27	101.68	100.83
92/02/05	101.62	101.82	101.39	92/03/21	101.07	101.27	100.90
92/02/06	101.26	101.43	101.03	92/03/22	101.22	101.39	101.07
92/02/07	101.03	101.30	100.88	92/03/23	101.48	101.83	101.22
92/02/08	101.44	101.65	101.29	92/03/24	--	--	--
92/02/09	101.13	101.40	100.83	92/03/25	101.86	102.15	101.35
92/02/10	101.03	101.35	100.68	92/03/26	101.24	101.35	100.84
92/02/11	101.57	101.73	101.34	92/03/27	100.85	100.94	100.75
92/02/12	101.22	101.64	100.94	92/03/28	101.21	101.51	100.78
92/02/13	100.87	101.27	100.68	92/03/29	101.64	101.86	101.37
92/02/14	101.38	101.58	101.25	92/03/30	--	--	--
92/02/15	100.95	101.24	100.68	92/03/31	101.56	101.69	101.26

Table 5. Summary of barometric-pressure data collected at study site near Beatty, Nev., in 1992—Continued

Date	Barometric pressure (kilopascals)			Date	Barometric pressure (kilopascals)		
	Mean	Maximum	Minimum		Mean	Maximum	Minimum
92/04/01	101.46	101.58	101.34	92/05/16	101.01	101.19	100.81
92/04/02	101.43	101.56	101.17	92/05/17	101.12	101.30	100.95
92/04/03	100.89	101.71	100.41	92/05/18	101.41	101.54	101.23
92/04/04	--	--	--	92/05/19	101.44	101.73	101.15
92/04/05	--	--	--	92/05/20	100.92	101.17	100.62
92/04/06	--	--	--	92/05/21	100.85	101.08	100.61
92/04/07	--	--	--	92/05/22	101.15	101.51	100.84
92/04/08	--	--	--	92/05/23	101.55	101.69	101.40
92/04/09	--	--	--	92/05/24	101.53	101.76	101.28
92/04/10	--	--	--	92/05/25	101.40	101.61	101.14
92/04/11	--	--	--	92/05/26	101.13	101.39	100.80
92/04/12	--	--	--	92/05/27	100.93	101.18	100.63
92/04/13	--	--	--	92/05/28	100.95	101.24	100.66
92/04/14	--	--	--	92/05/29	--	--	--
92/04/15	--	--	--	92/05/30	--	--	--
92/04/16	--	--	--	92/05/31	--	--	--
92/04/17	--	--	--	92/06/01	--	--	--
92/04/18	101.47	101.60	101.35	92/06/02	--	--	--
92/04/19	101.45	101.89	101.15	92/06/03	--	--	--
92/04/20	101.81	102.05	101.55	92/06/04	--	--	--
92/04/21	101.54	101.92	101.12	92/06/05	--	--	--
92/04/22	100.88	101.16	100.59	92/06/06	--	--	--
92/04/23	101.16	101.47	100.86	92/06/07	--	--	--
92/04/24	101.77	101.96	101.47	92/06/08	--	--	--
92/04/25	101.80	102.03	101.58	92/06/09	--	--	--
92/04/26	101.55	101.74	101.33	92/06/10	--	--	--
92/04/27	101.57	101.73	101.43	92/06/11	--	--	--
92/04/28	101.74	101.90	101.62	92/06/12	--	--	--
92/04/29	101.71	101.96	101.48	92/06/13	--	--	--
92/04/30	101.29	101.53	100.98	92/06/14	--	--	--
92/05/01	100.88	101.07	100.64	92/06/15	--	--	--
92/05/02	101.45	101.67	100.98	92/06/16	--	--	--
92/05/03	101.83	102.06	101.65	92/06/17	--	--	--
92/05/04	101.79	102.03	101.57	92/06/18	--	--	--
92/05/05	101.47	101.69	101.15	92/06/19	--	--	--
92/05/06	101.37	101.53	101.21	92/06/20	--	--	--
92/05/07	101.67	101.89	101.45	92/06/21	--	--	--
92/05/08	101.75	101.99	101.49	92/06/22	--	--	--
92/05/09	101.11	101.53	100.72	92/06/23	--	--	--
92/05/10	100.79	101.09	100.64	92/06/24	--	--	--
92/05/11	101.27	101.46	101.09	92/06/25	--	--	--
92/05/12	101.34	101.57	101.13	92/06/26	--	--	--
92/05/13	101.37	101.59	101.14	92/06/27	--	--	--
92/05/14	101.31	101.52	101.08	92/06/28	--	--	--
92/05/15	101.10	101.31	100.82	92/06/29	--	--	--
				92/06/30	--	--	--

Table 5. Summary of barometric-pressure data collected at study site near Beatty, Nev., in 1992—Continued

Date	Barometric pressure (kilopascals)			Date	Barometric pressure (kilopascals)		
	Mean	Maximum	Minimum		Mean	Maximum	Minimum
92/07/01	--	--	--	92/08/21	101.27	101.55	100.98
92/07/02	--	--	--	92/08/22	101.00	101.24	100.71
92/07/03	--	--	--	92/08/23	100.88	101.09	100.56
92/07/04	--	--	--	92/08/24	101.14	101.33	100.94
92/07/05	--	--	--	92/08/25	101.32	101.48	101.11
92/07/06	--	--	--	92/08/26	101.65	101.83	101.47
92/07/07	--	--	--	92/08/27	102.00	102.24	101.75
92/07/08	--	--	--	92/08/28	102.00	102.26	101.75
92/07/09	--	--	--	92/08/29	101.71	101.94	101.46
92/07/10	--	--	--	92/08/30	101.53	101.76	101.31
92/07/11	--	--	--	92/08/31	101.47	101.71	101.20
92/07/12	--	--	--	92/09/01	101.34	101.52	101.12
92/07/13	--	--	--	92/09/02	101.39	101.56	101.25
92/07/14	--	--	--	92/09/03	101.60	101.79	101.43
92/07/15	--	--	--	92/09/04	101.33	101.62	100.91
				92/09/05	101.51	101.68	101.17
92/07/16	--	--	--				
92/07/17	--	--	--	92/09/06	101.54	101.80	101.32
92/07/18	--	--	--	92/09/07	101.36	101.52	101.21
92/07/19	--	--	--	92/09/08	101.53	101.76	101.38
92/07/20	--	--	--	92/09/09	101.44	101.65	101.22
				92/09/10	101.39	101.60	101.21
92/07/21	--	--	--				
92/07/22	--	--	--	92/09/11	101.42	101.65	101.22
92/07/23	--	--	--	92/09/12	101.30	101.53	101.09
92/07/24	--	--	--	92/09/13	101.27	101.48	101.10
92/07/25	--	--	--	92/09/14	101.18	101.43	100.93
				92/09/15	101.00	101.23	100.75
92/07/26	--	--	--				
92/07/27	--	--	--	92/09/16	101.13	101.29	100.95
92/07/28	--	--	--	92/09/17	101.47	101.70	101.31
92/07/29	--	--	--	92/09/18	101.39	101.66	101.13
92/07/30	101.35	101.58	101.06	92/09/19	101.33	101.47	101.21
92/07/31	101.45	101.58	101.26	92/09/20	101.33	101.58	101.04
92/08/01	101.68	101.85	101.46	92/09/21	101.24	101.41	101.07
92/08/02	101.78	102.00	101.53	92/09/22	101.46	101.64	101.31
92/08/03	101.60	101.85	101.33	92/09/23	101.60	101.82	101.43
92/08/04	101.36	101.59	101.11	92/09/24	101.39	101.63	101.15
92/08/05	101.47	101.67	101.28	92/09/25	100.97	101.20	100.61
92/08/06	101.48	101.66	101.30	92/09/26	101.39	101.68	101.03
92/08/07	101.49	101.73	101.21	92/09/27	101.82	102.08	101.64
92/08/08	101.48	101.71	101.26	92/09/28	101.78	101.99	101.56
92/08/09	101.57	101.78	101.35	92/09/29	101.76	101.94	101.58
92/08/10	101.72	101.94	101.51	92/09/30	101.82	102.03	101.67
92/08/11	101.67	101.93	101.44	92/10/01	101.78	102.01	101.56
92/08/12	101.49	101.69	101.26	92/10/02	101.43	101.74	101.08
92/08/13	101.46	101.65	101.25	92/10/03	100.87	101.11	100.60
92/08/14	101.74	101.91	101.58	92/10/04	101.26	101.42	100.96
92/08/15	101.87	102.10	101.63	92/10/05	101.52	101.74	101.36
92/08/16	101.65	101.91	101.32	92/10/06	101.70	101.87	101.56
92/08/17	101.37	101.61	101.08	92/10/07	101.91	102.11	101.73
92/08/18	101.37	101.55	101.21	92/10/08	102.14	102.44	101.93
92/08/19	101.55	101.73	101.36	92/10/09	101.69	101.96	101.38
92/08/20	101.48	101.72	101.23	92/10/19	101.54	101.72	101.38

Table 5. Summary of barometric-pressure data collected at study site near Beatty, Nev., in 1992—Continued

Date	Barometric pressure (kilopascals)		
	Mean	Maximum	Minimum
92/10/11	101.97	102.19	101.72
92/10/12	102.04	102.30	101.85
92/10/13	101.73	102.04	101.42
92/10/14	101.15	101.43	100.87
92/10/15	101.17	101.34	100.98
92/10/16	101.61	101.80	101.35
92/10/17	101.73	101.89	101.60
92/10/18	101.77	101.99	101.59
92/10/19	101.56	101.78	101.31
92/10/20	101.50	101.67	101.39
92/10/21	101.34	101.59	101.10
92/10/22	101.33	101.76	101.08
92/10/23	102.15	102.38	101.77
92/10/24	102.18	102.48	101.86
92/10/25	101.87	102.21	101.60
92/10/26	101.83	101.97	101.69
92/10/27	101.84	102.03	101.65
92/10/28	101.52	101.73	101.24
92/10/29	101.08	101.38	100.78
92/10/30	100.80	100.91	100.70
92/10/31	100.76	100.90	100.64
92/11/01	--	--	--
92/11/02	--	--	--
92/11/03	--	--	--
92/11/04	--	--	--
92/11/05	101.99	102.28	101.86
92/11/06	101.77	101.95	101.57
92/11/07	102.06	102.29	101.77
92/11/08	--	--	--
92/11/09	--	--	--
92/11/10	101.28	101.45	101.10
92/11/11	--	--	--
92/11/12	--	--	--
92/11/13	102.29	102.44	102.20
92/11/14	102.23	102.46	102.10
92/11/15	102.33	102.39	102.27
92/11/16	--	--	--
92/11/17	101.30	101.58	101.17
92/11/18	--	--	--
92/11/19	101.35	101.50	101.30
92/11/20	101.75	102.19	101.31
92/11/21	102.04	102.36	101.68
92/11/22	101.14	101.68	100.74
92/11/23	101.31	101.70	100.98
92/11/24	101.44	101.75	101.30
92/11/25	101.88	102.10	101.70
92/11/26	102.53	103.05	102.07
92/11/27	103.15	103.38	102.99
92/11/28	102.53	103.03	101.98
92/11/29	101.89	102.14	101.73
92/11/30	102.47	102.88	102.12
92/12/01	102.96	103.08	102.85
92/12/02	--	--	--
92/12/03	--	--	--
92/12/04	--	--	--
92/12/05	--	--	--
92/12/06	--	--	--
92/12/07	--	--	--
92/12/08	--	--	--
92/12/09	--	--	--
92/12/10	102.33	102.46	102.19
92/12/11	101.98	102.38	101.49
92/12/12	101.09	101.47	100.79
92/12/13	101.27	101.86	100.93
92/12/14	102.12	102.35	101.82
92/12/15	101.87	102.22	101.36
92/12/16	101.43	102.23	101.22
92/12/17	102.09	102.36	101.89
92/12/18	101.09	101.93	100.49
92/12/19	101.31	101.92	100.58
92/12/20	102.21	102.40	101.91
92/12/21	102.28	102.44	102.17
92/12/22	102.10	102.27	101.87
92/12/23	102.46	102.71	102.16
92/12/24	102.86	103.08	102.68
92/12/25	102.37	102.77	102.08
92/12/26	102.33	102.58	102.15
92/12/27	101.98	102.21	101.79
92/12/28	101.51	101.80	101.14
92/12/29	100.95	101.13	100.75
92/12/30	100.94	101.09	100.75
92/12/31	101.78	102.30	101.07