Rainfall and Seasonal Movement of the Weeks Creek Landslide, San Mateo County, California

By Gerald F. Wieczorek, Mark E. Reid, Walter Jodicke, Chris Pearson, and Grant Wilcox

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Introduction

Many different types of landslide occur in the Santa Cruz Mountains of San Mateo County, Calif. (Brabb and Pampeyan, 1972); most slope movement is triggered by strong earthquakes, heavy rainfall, or shoreline erosion. In this area, shallow landslides of loose soil and rock, which may transform into debris flows, commonly occur during individual storms when rainfall exceeds a threshold of intensity and duration (Cannon and Ellen, 1985; Wieczorek and Sarmiento, 1988; Wilson and Wieczorek, 1995). In contrast, deeper rotational and translational slides (Varnes, 1978) typically begin to move only after days to weeks or months of heavy rain. Once started, they can continue to move for months during and after a heavy rainfall season, for example, the Scenic Drive landslide at La Honda, Calif. (Jayko and others, 1998; Wells and others, 2005, 2006). Although the rainfall characteristics triggering rapid, shallow landslides have been documented (Wieczorek, 1987; Cannon and Ellen, 1988), the rainfall conditions leading to repeated deeper-seated slope movements are less well known.

The Weeks Creek landslide (Adam, 1975), near the western crest of the Santa Cruz Mountains north of La Honda in San Mateo County (fig. 1), consists of a large prehistoric section containing a historically active section; both sections have earthflow morphologies. The entire landslide mass, which extends about 1,000 m westward from an elevation of 220 m down to an elevation of 120 m, is about 300 to 370 m wide (Cole and others, 1994); The prehistoric section of the landslide is about 30 m deep and approximately 10 million m^3 in volume (Cole and others, 1994). The smaller, historically active portion of the Weeks Creek landslide (fig. 1) is only approximately 500 m long, 200 m wide, and 13 m deep (Cole and others, 1994). Near the landslide, the Santa Cruz Mountains consist of tightly folded, Tertiary sedimentary bedrock materials of the Butano sandstone and San Lorenzo Formations (Eocene through Lower Oligocene). These sedimentary bedrock materials are locally intruded by Oligocene diabase and capped by Oligocene through Miocene basalt of the Mindego Formation (Brabb, 1980; Cole and others, 1994). Within the active landslide, as documented from multiple borings by Cole and others (1994), deeply weathered mudstone and sandstone of the San Lorenzo Formation extends to a depth of about 10 to 13 m, where the active shear zone is located. Beneath this, within the deeper prehistoric landslide, mudstone extends to a depth of about 24 to 32 m and is underlain by strong diabase bedrock. The basal rupture surface of the prehistoric landslide is located near the mudstone/diabase contact (Cole and others, 1994).

The historically active section of the Weeks Creek landslide, which is crossed by the La Honda road (California Highway 84, fig. 1), was first noticed to partially move during the great 1906 San Francisco earthquake (Lawson, 1908). It has moved repeatedly over the ensuing years but generally only during wet rainy seasons. For some of these active years, ground cracks and lateral displacements were recorded by local residents Walter Jodicke and Chris Pearson, as well as by U.S. Geological Survey (USGS) personnel. In spring 2006, fresh ground cracks were noted in parts of the prehistoric, previously inactive section of the landslide. In this report, we present daily rainfall measurements from 1973 through 2006 obtained at the landslide site and summarize available observations of slope movement over that period. In addition, we present more detailed observations of rainfall, ground-water pressure, and slope movement for three water years[2] spanning the period 1981–84. We conclude with some preliminary observations about rainfall and slope movement at this site.

Rainfall

Several rain-gauge stations are located near the Weeks Creek landslide, mostly southwest of it at slightly lower elevations near the town of La Honda (fig. 1; Brady and others, 2004). Monthly-rainfall measurements from these stations have been com-

[1]La Honda, Calif.

[2]In this report, we use the California water year, defined by the State as extending from July 1 through July 30, to compare annual rainfall and slope movement.

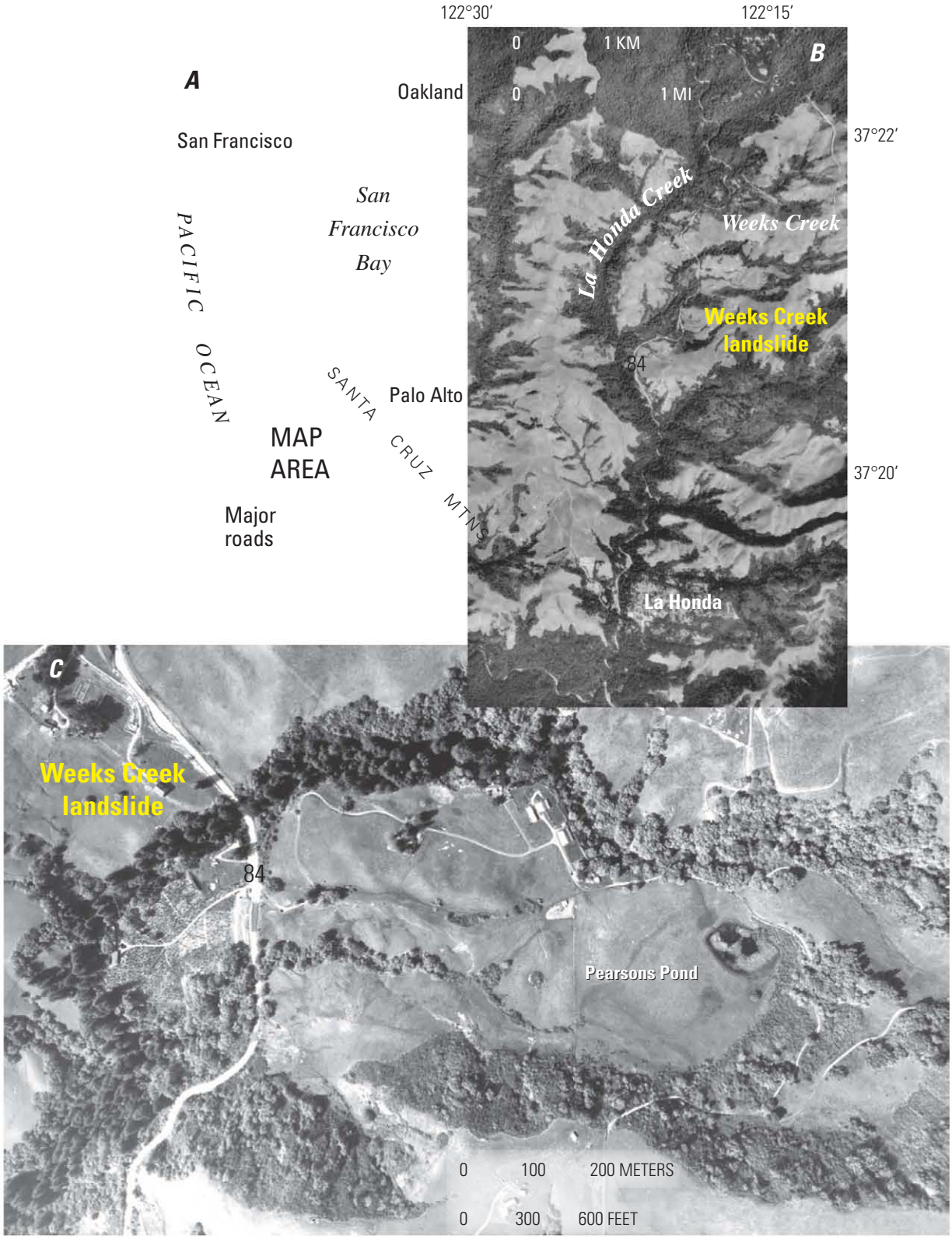

Figure 1. Weeks Creek landslide, San Mateo County, northern California. A, San Francisco Bay region, showing location of study area in the Santa Cruz Mountains. B, Weeks Creek landslide (irregular oval outline) east of La Honda Creek and north of the town of La Honda, Calif. C, Detailed aerial photograph (taken in 1983) of landslide site. D, Topographic map of the Weeks Creek landslide, showing boundaries of prehistoric and historically active sections and areas of 1983–84 and 2005–6 ground cracks.

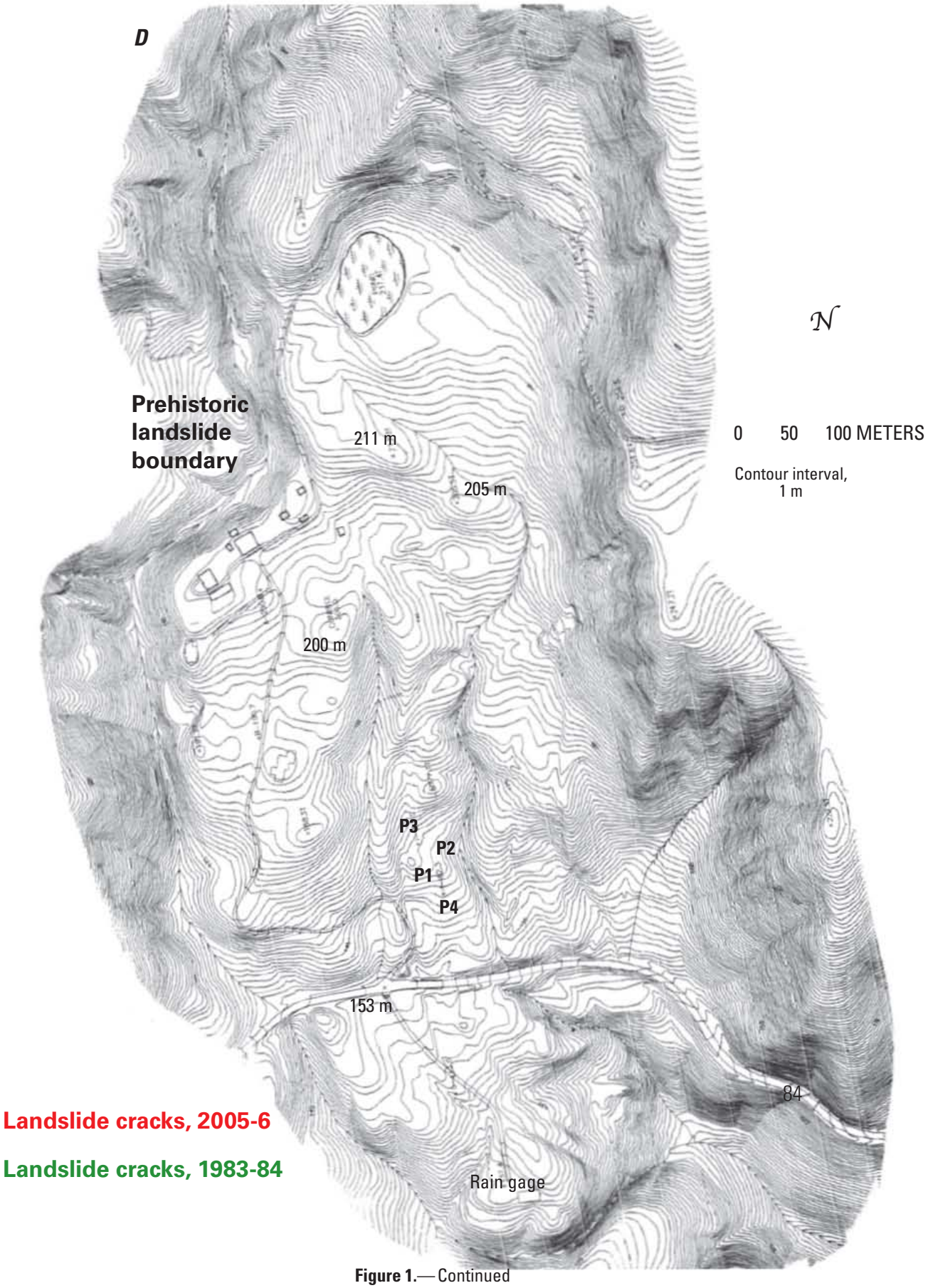

Figure 1.—Continued

piled elsewhere (Western Regional Climate Center, 2007). At the landslide site, local resident Walter Jodicke has measured and recorded daily rainfall with a Springfield-type, cylindrical rain gauge (fig. 2) since fall 1973; his record, which extends through 33 water years from 1973–74 through 2005–6, is presented in the appendix. His rain gauge is located on a small, relatively flat hillside near the family house on the Christmas Tree Farm west of California Highway 84 (fig. 1). This location, at an elevation of about 290 m, is within the western part of the prehistoric section of the landslide (fig. 1). Measurements were typically made in midmorning, with a precision of 0.05 to 0.10 in.; the rain gauge can capture a maximum of 5.0 in. Occasionally, during a day of especially heavy rainfall, two measurements were made, once in the morning and again later in the early evening, both of which are recorded separately in the seasonal-daily-rainfall datafiles (see appendix).

Data from Jodicke's rain gauge generally indicate higher annual rainfall than those recorded at lower elevations near the town of La Honda (fig. 1). During a typical water year at the Weeks Creek landslide, rainfall becomes heavy during October until April and is generally heaviest between November and February. Virtually all precipitation is rain, little of which falls during the summer months. During the period 1973–2006, the mean annual rainfall recorded at the landslide site was 35.40 in., with the highest single total of 59.85 in. measured during water year 2005–6 (table 1). Over this period, the maximum daily rainfall was 6.60 in., recorded on January 29, 1981; however, the maximum daily rainfall for the entire period of record averages only about 2.8 in. (see appendix). The highest annual rainfall recorded in two consecutive water years (table 1) was during the periods of 1981–83 (109.60 in.) and 2004–6 (112.40 in.), and the highest annual rainfall recorded in four consecutive water years was during the periods 1994–98 (185.60 in.) and 2002–6 (185.30 in.).

Figure 2. Springfield-type rain gauge near Walter Jodicke's family house on the Christmas Tree Farm, located in prehistoric section of the Weeks Creek landslide (fig. 1). Gauge, which is about 3 m from house and 15 m from any trees, can collect as much as 5 in. (12 cm) of rainfall.

Slope Movement

Earlier subsurface examination of the deeper, eastern part of the Weeks Creek landslide near Pearsons Pond (fig. 1*C*) indicated that slope movement had occurred prehistorically, at least twice before 3 ka (Adam, 1975). The prehistoric section of the landslide is larger in area than the historically active section, as mapped in figure 1*D*. A smaller part of the landslide moved during the April 18, 1906, M_W~7.9 (Thatcher and others, 1997) San Francisco earthquake along the San Andreas fault (Lawson, 1908). The fault is located about 4 km northeast of the Weeks Creek landslide (Cole and others, 1994). Before the 1906 earthquake, seasonal rainfall in that general region was about 33 in. (Youd and Hoose, 1978). During the earthquake, lateral movement of almost 1 m near the current road through Weeks Creek landslide (Lawson, 1908) was the first documented historical movement of the landslide (table 1). During the 1920s or 1930s, local residents indicated that movement of the historical Weeks Creek landslide was also evident (Close, 1969). However, local resident Chris Pearson's father, living within the eastern part of the Weeks Creek landslide did not notice obvious landslide movement from the 1930s until 1964. Cracks became visible in part of the landslide following heavy rainfall in 1964. Subsequently, during heavy seasonal rainfall in 1966–67 and 1968–69, lateral landslide movement of 2.4 and 1.8 m, respectively, occurred on the landslide (fig. 3; Close, 1969). Comparison of historical aerial photographs indicates that cumulative slope movement between 1941 and 1983, as measured at California Highway 84, was 20 m westward (Cole and others, 1994).

Annual rainfall and lateral displacements on the Weeks Creek landslide are plotted in figure 3 and summarized in table 1. These measurements, however, are incomplete; annual slope movement was continuously observed and accurately measured from 1973 to 1986, a period when both small and large lateral displacements were noted. From 1987 through 2004, however, annual slope movement was measured only occasionally. Most lateral displacement was measured at the northern margin of the historically active section of the landslide where it is crossed by California Highway 84 (figs. 1*C*, 1*D*). This margin generally moves more than the southern margin where it is also crossed by the highway. Annual slope movement ranges from less than 1 cm to more than several meters. Only minor lateral displacement (0.5 cm) was noted along the northern margin after the October 17, 1989, Loma Prieta earthquake (M=7.0, M_s=7.1; Harp and Jibson, 1995), possibly because only 0.8 in. of annual rainfall had occurred before this earthquake. Rainfall associated with lateral displacements of 2.4 m in water year 1966–67 and 1.8 m in water year 1968–69 was not recorded at the landslide site; however, other heavy local rainfall was noted in the town of La Honda (Western Regional Climate Center, 2007). The heaviest annual rainfall (46–59 in.) between 1973 and 2006, in water years 1981–82, 1982–83, 1997–98, and 2005–6, resulted in lateral displacements ranging from about 0.5 to 3.0 m (table 1). Although

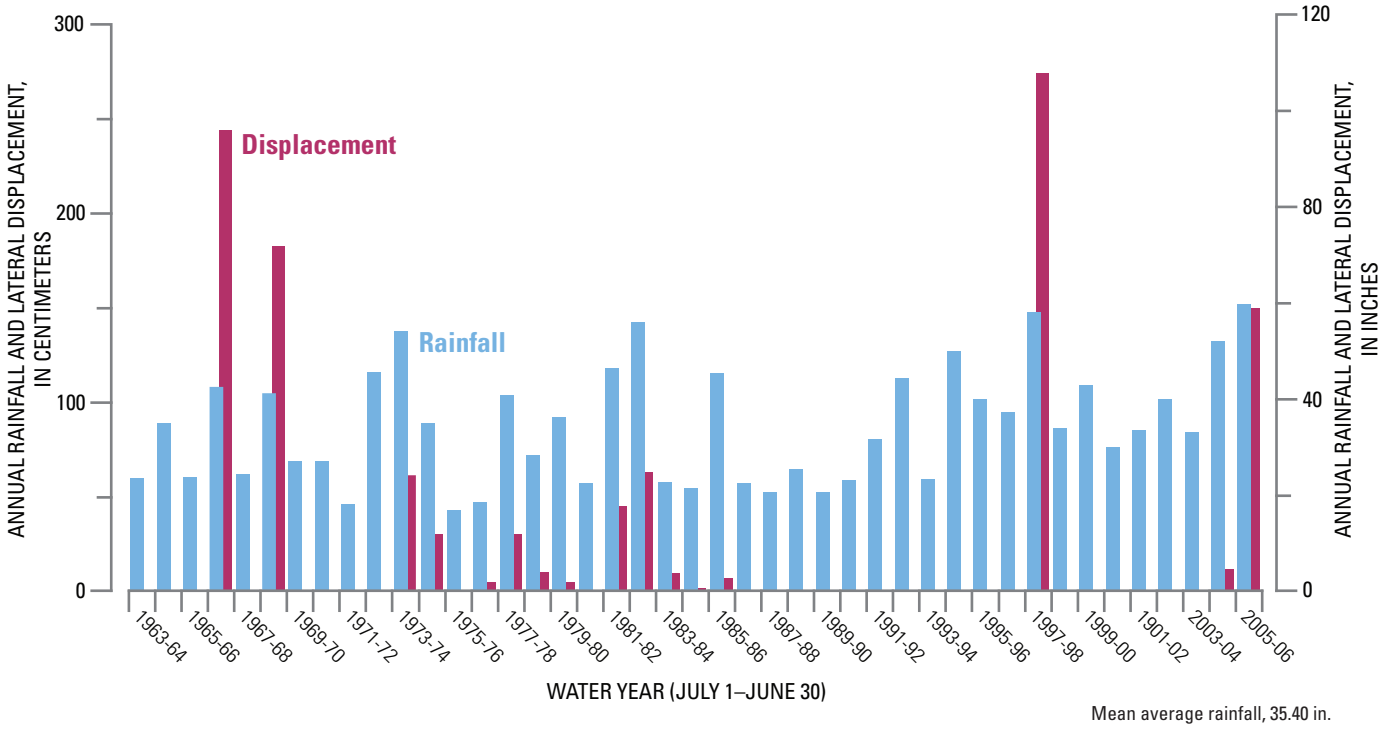

Figure 3. Bar chart of annual (California water year, July 1–June 30) rainfall (blue bars) and lateral displacement (red bars) on the Weeks Creek landslide (fig. 1) during period 1963–2006.

Table 1. Annual rainfall and maximum measured lateral displacement on the historically active section of the Weeks Creek landslide, San Mateo County, California.

[Slope movement was monitored near the northern margin of the historically active section of the landslide at its intersection with California Highway 84. Rainfall at the time of the April 18, 1906, San Francisco earthquake was assumed to be approximately equal to that measured in Santa Cruz, as detailed by Youd and Hoose (1978, p. 4–5). Most detailed landslide–displacement measurements were made during the period 1981–86.]

Water year and (or) date	Total annual rainfall (source)	Maximum annual measured lateral displacement (source)
April, 18, 1906, San Francisco earthquake	~33 in. (total annual rainfall before earthquake) (Youd and Hoose, 1978)	91 cm (3 ft) (Lawson, 1908)
1963–64	23.44 in. (595 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1964–65	34.84 in. (885 mm) at La Honda (Western Regional Climate Center, 2007)	Cracks noticed (Close, 1969)
1965–66	23.72 in. (602 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1966–67	>29 in. (>737 mm) at La Honda (Western Regional Climate Center, 2007)	240 cm (8 ft) (Close, 1969)
1967–68	24.31 in. (618 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1968–69	41.15 in. (1,045 mm) at La Honda (Western Regional Climate Center, 2007)	150–180 cm (5–6 ft) (Close, 1969)
1969–70	26.9 in. (684 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1970–71	26.99 in. (686 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1971–72	18.15 in. (461 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1972–73	45.67 in. (1,160 mm) at La Honda (Western Regional Climate Center, 2007)	No movement reported
1973–74	54.15 in. (Walter Jodicke)	61 cm (2 ft) (Walter Jodicke)
1974–75	34.95 in. (Walter Jodicke)	30 cm (1 ft) (Walter Jodicke)
1975–76	16.85 in. (Walter Jodicke)	0 cm (0 in.) (Walter Jodicke)
1976–77	18.55 in. (Walter Jodicke)	5 cm (2 in.) (Walter Jodicke)
1977–78	40.85 in. (Walter Jodicke)	30.5 cm (1 ft) (Walter Jodicke)
1978–79	28.35 in. (Walter Jodicke)	10.2 cm (4 in.) (Walter Jodicke)
1979–80	36.35 in. (Walter Jodicke)	5 cm (2 in.) (Walter Jodicke)
1980–81	22.55 in. (Walter Jodicke)	0 cm (0 in.) (Gerald Wieczorek)
1981–82	46.50 in. (Walter Jodicke)	45.4 cm (18 in.) (Gerald Wieczorek)
1982–83	56.08 in. (Walter Jodicke)	63.2 cm (2.1 ft) (Gerald Wieczorek)
1983–84	22.8 in. (Walter Jodicke)	9.6 cm (3.78 in.) (Gerald Wieczorek)

Table 1. Annual rainfall and maximum measured lateral displacement on the historically active section of the Weeks Creek landslide, San Mateo County, California—Continued.

[Slope movement was monitored near the northern margin of the historically active section of the landslide at its intersection with California Highway 84. Rainfall at the time of the April 18, 1906, San Francisco earthquake was assumed to be approximately equal to that measured in Santa Cruz, as detailed by Youd and Hoose (1978, p. 4–5). Most detailed landslide–displacement measurements were made during the period 1981–86.]

Water year and (or) date	Total annual rainfall (source)	Maximum annual measured lateral displacement (source)
1984–85	21.40 in. (Walter Jodicke)	1.27 cm (0.5 in.) (Gerald Wieczorek)
1985–86	45.45 in. (Walter Jodicke)	7.0 cm (2.75 in.) (Gerald Wieczorek)
1986–87	22.50 in. (Walter Jodicke)	No data
1987–88	20.80 in. (Walter Jodicke)	No data
1988–89	25.45 in. (Walter Jodicke)	No data
October 17, 1989, Loma Prieta earthquake	0.80 in. by October 17, 1989	0.5 cm (0.19 in.) (Harp and Jibson, 1995)
1989–90	20.80 in. (Walter Jodicke)	No data
1990–91	23.10 in. (Walter Jodicke)	No data
1991–92	31.85 in. (Walter Jodicke)	No data
1992–93	44.50 in. (Walter Jodicke)	No data
1993–94	23.30 in. (Walter Jodicke)	No data
1994–95	50.10 in. (Walter Jodicke)	Ground cracks noted by Chris Pearson after March 21, 1995; moved slightly (Cole and Wallace, 1994)
1995–96	40.00 in. (Walter Jodicke)	No data
1996–97	37.40 in. (Walter Jodicke)	No data
1997–98	58.10 in. (Walter Jodicke)	~2.7 m (~3 yd) (Walter Jodicke)
1998–99	34.10 in. (Walter Jodicke)	No data
1999–2000	42.95 in. (Walter Jodicke)	No data
2000–2001	29.95 in. (Walter Jodicke)	No data
2001–2	33.70 in. (Walter Jodicke)	No data
2002–3	40.10 in. (Walter Jodicke)	No data
2003–4	33.30 in. (Walter Jodicke)	No data
2004–5	52.05 in. (Walter Jodicke)	12.0 cm (4.7 in.) (Mark Reid and Gerald Wieczorek)
2005–6	59.85 in. (Walter Jodicke)	~1.5 m (~5 ft) (Mark Reid and Gerald Wieczorek)

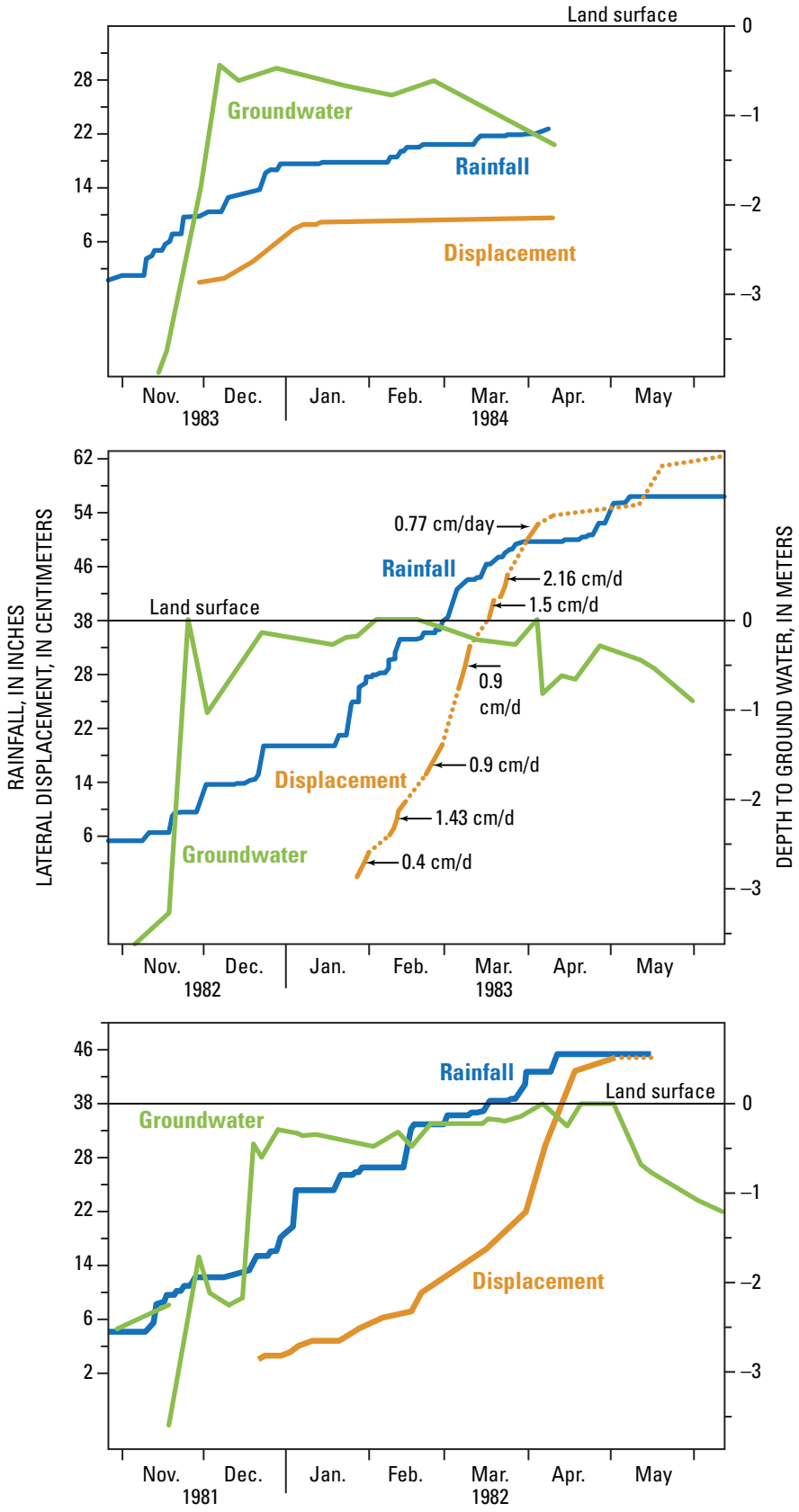

Figure 4. Daily rainfall (blue curves), depth to ground water (green curves), and lateral displacement (yellow curves) on the Weeks Creek landslides (fig. 1) in California water years (July 1–June 30) 1981–82, 1982–83, and 1983–84. Dotted segments of lateral-displacement curve in middle plot represent interruptions in monitoring.

varying amounts of slope movement occurred in different water years, the cumulative lateral displacement from 1964 to 2006, as measured intermittently at the northern margin of the historically active section of the landslide where it intersects California Highway 84, is at least 10.1 m.

The historically active section of the Weeks Creek landslide typically moves during wet water years and is stationary during drier water years (fig. 3). Between 1906 and 1973, the slope movement during wet water years cannot be well correlated with measured rainfall because rainfall was not monitored locally near Weeks Creek and was only intermittently measured at other nearby sites in the La Honda area. Large lateral displacements occurred in water years 1966–67 (2.4 m) and 1968–69 (1.8 m); although rainfall was not recorded at the landslide site, heavy rainfall (>29.08 in. in water year 1966–67; 41.15 in. in water year 1968–69) was measured in the nearby town of La Honda (Western Regional Climate Center, 2007). During the period 1973–86, when annual lateral displacement was measured, the landslide moved every year except during two dry water years (1975–76, 1980–81, table 1). The largest amounts of displacement recorded between 1973 and 2006 occurred in 1982–83 (63 cm), 1997–98 (~270 cm), and 2005–6 (~150 cm). These three water years had the heaviest recorded annual rainfall for this period: 56.08 in. in water year 1982–83, 58.10 in. in water year 1997–98, and 59.85 in. in water year 2005–6 (table 1). The largest annual slope movement in water year 1997–98 may be related to large annual-rainfall totals for the previous 3 water years (fig. 3).

During active years, ongoing movement of the Weeks Creek landslide commonly requires repair of California Highway 84, with occasionally as many as a dozen emergency roadway repairs during a wet rainy season. Annual rainfall at the landslide site was particularly heavy during water year 2005–6, totaling 59.85 in. According to Jack H. Gaines, Public Affairs Officer for Caltrans, slope movement along the highway started in January and continued through May 2006. Emergency roadway repairs by Caltrans began on March 15, 2006, and cost about $750,000. We measured about 1.5 m of recent lateral displacement on May 31, 2006, along the roadway at the north and south edge of California Highway 84 where it crosses the landslide (figs. 4, 5*A*, 5*B*). In spring 2006, local resident Chris Pearson observed a few large ground cracks within the larger, prehistoric section of the landslide, east of the highway and north of the historically active section (fig. 5*C*). Although large lateral displacements were not observed in this area, these ground cracks were the first historical evidence of movement within this part of the prehistoric section of the landslide, suggesting massive reactivation of part of this section. On May 31, 2006, we mapped these ground cracks, as shown in figure 1*D*.

Ground-Water Conditions During Slope Movement

During the period 1981–84, which included heavy-rainfall water years 1981–82 and 1982–83, we monitored piezometric measurements of ground-water pressure at different depths within the historically active section of the Weeks Creek landslide (fig. 1; Wieczorek, 2003). We also measured rainfall (using a locally placed tipping-bucket rain gage) and lateral displacement. We installed four Casagrande porous-stone piezometers at different depths (P1 at 12.5 ft, P2 at 24 ft, P3 at 42 ft, and P4 at 10 ft) and one aluminum inclinometer pipe (I1) perforated at its base of 38 ft for monitoring ground-water levels within the landslide. Depth to ground water from the surface was recorded to the nearest 0.5 in.; measurements were made during daily visits to the landslide site at irregular intervals, as listed in a previously published dataset (Wieczorek, 2003). Rarely, the ground-water level was above the ground surface (Wieczorek, 2003). Cumulative daily rainfall, ground-water levels in piezometer P3, and lateral displacement for water years 1981–82, 1982–83, and 1983–84 are plotted in figure 4. Typically, heavy rainfall begins in late autumn and early winter, with subsequent elevation of ground-water pressures to approximately a plateau, and ensuing slope movement, which continues until rainfall drops off and ground-water levels decline, generally in late spring. Slope movement rates (velocities) range from less than 1 cm/d early in the rainy season to more than 2 cm/d during wetter periods.

Summary

On the basis of relatively long term records of rainfall and slope movement at the Weeks Creek landslide, we note:

1. The historically active part of the landslide moves in response to both earthquake shaking and wet water years.
2. The landslide appears to move the most during wetter water years. Slope movements were greatest during water years 1982–83, 1997–98, and 2005–6, the three wettest water years since 1973.
3. The landslide moves when ground-water levels are high, typically in the winter and spring, and halts when ground-water levels are low, typically in the summer and fall.
4. Cumulative lateral displacement of the landslide from 1964 to 2006 was at least 10.1 m.
5. During the very wet spring of 2006, we observed fresh ground cracks in parts of the prehistoric section of the landslide, suggesting reactivation beyond the historically active section.

Figure 5. Sites of slope movement on the Weeks Creek landslide (fig. 1) during California water year (July 1–June 30) 2005–6. A, Lateral and vertical displacements at northern margin of landslide near intersection with California Highway 84 on April 26, 2006. B, Lateral displacement of roadway at southern margin of landslide on April 28, 2006. Photograph by Katerina Rousseva, graduate student at San Jose State University. C, Slight new ground cracks within east side of prehistoric section of landslide on May 31, 2006.

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Jack Gaines of Caltrans provided up-to-date information, including the documentation of the Christmas Tree (Weeks Creek) landslide. David Jones of the USGS modified and improved the illustrations. William Cole and John Wallace, who had previously monitored the Weeks Creek landslide in 1995 for William Cotton and Associates, Inc., provided helpful reviews of this manuscript, along with Ray Wilson and Vicki Langenheim of the USGS. Lester McKee of the San Francisco Estuary Institute provided detailed rainfall data for the La Honda area. John Sarmiento and Elliot Lips, formerly of the USGS, assisted with the original annual-slope-movement monitoring of the Weeks Creek landslide during the period 1981–83.

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Appendix. Measurements by Walter Jodicke of daily and cumulative annual rainfall in prehistoric section of the Weeks Creek landslide during the period 1973–2006, by water year.

Water year 1973-74

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/21/73		2.8
10/23/73	1.9	4.7
11/6/73	4.3	9.0
11/7/73	0.3	9.3
11/11/73	1.4	10.7
11/12/73	2.1	12.8
11/14/73	0.3	13.1
11/16/73	1.0	14.1
11/18/73	1.3	15.4
11/21/73	0.3	15.7
11/23/73	0.5	16.2
11/24/73	0.3	16.5
11/25/73	0.5	17.0
11/30/73	2.25	19.25
12/1/73	0.3	19.55
12/11/73	0.6	20.15
12/13/73	0.4	20.55
12/18/73	0.5	21.05
12/22/73	1.5	22.55
12/27/73	3.2	25.75
12/28/73	0.6	26.35
12/29/73	1.3	27.65
1/1/74	0.4	28.05
1/4/74	2.6	30.65
1/7/74	0.7	31.35
1/13/74	0.2	31.55
1/17/74	0.3	31.85
1/20/74	0.6	32.45
2/1/74	0.5	32.95
2/12/74	0.4	33.35
2/15/74	0.2	33.55
2/19/74	1.3	34.85
2/22/74	0.2	35.05
2/27/74	0.2	35.25
2/28/74	2.0	37.25
3/1/74	2.6	39.85
3/2/74	0.9	40.75
3/3/74	0.5	41.25
3/6/74	0.1	41.35
3/9/74	0.7	42.05

3/12/74	0.4	42.45
3/25/74	0.8	43.25
3/27/74	0.5	43.75
3/28/74	1.7	45.45
3/30/74	0.9	46.35
3/31/74	0.1	46.45
4/1/74	3.5	49.95
4/2/74	0.8	50.75
4/6/74	0.2	50.95
4/10/74	0.6	51.55
4/19/74	0.4	51.95
4/25/74	0.8	52.75
4/27/74	0.4	53.15

Water year 1974-75

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/28/74	1.75	1.75
10/29/74	0.40	2.15
10/31/74	0.75	2.90
11/1/74	0.10	3.00
11/8/74	0.50	3.50
11/18/74	0.50	4.00
11/21/74	1.20	5.20
11/25/74	0.10	5.30
12/3/74	1.50	6.80
12/4/74	0.10	6.90
12/13/74	0.20	7.10
12/28/74	2.40	9.50
12/29/74	0.10	9.60
1/4/75	0.30	9.90
1/6/75	2.50	12.40
1/7/75	0.30	12.70
1/9/75	1.10	13.80
1/10/75	0.40	14.20
1/29/75	0.20	14.40
1/31/75	1.80	16.20
2/2/75	0.90	17.10
2/3/75	0.10	17.20
2/4/75	1.00	18.20
2/5/75	0.10	18.30
2/7/75	0.30	18.60
2/9/75	0.80	19.40
2/10/75	0.80	20.20
2/11/75	0.20	20.40
2/13/75	2.00	22.40
2/19/75	1.20	23.60
3/2/75	0.10	23.70
3/7/75	1.90	25.60
3/8/75	0.40	26.00
3/10/75	0.25	26.25
3/14/75	1.00	27.25
3/16/75	0.80	28.05
3/20/75	0.15	28.20
3/22/75	2.30	30.50
3/23/75	0.10	30.60
3/25/75	1.90	32.50

4/3/75	0.20	32.70
4/5/75	1.30	34.00
4/6/75	0.40	34.40
4/7/75	0.20	34.60
4/8/75	0.20	34.80
4/15/75	0.20	35.00
4/17/75	0.25	35.25
4/25/75	0.50	35.75
5/3/75	0.20	35.95

Water year 1975-76

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/6/75	0.75	0.75
10/7/75	0.10	0.85
10/10/75	1.10	1.95
10/11/75	0.50	2.45
10/26/75	2.10	4.55
10/27/75	0.20	4.75
10/30/75	0.80	5.55
11/6/75	0.10	5.65
11/8/75	0.30	5.95
11/10/75	0.50	6.45
11/16/75	0.50	6.95
11/20/75	0.10	7.05
11/27/75	0.40	7.45
12/12/75	0.30	7.75
12/22/75	0.20	7.95
1/6/76	0.20	8.15
1/9/76	0.50	8.65
2/5/76	0.20	8.85
2/6/76	0.10	8.95
2/9/76	0.20	9.15
2/14/76	0.40	9.55
2/15/76	0.30	9.85
2/17/76	0.30	10.05
2/19/76	0.30	10.45
2/29/76	1.50	11.95
3/1/76	0.30	12.25
3/2/76	1.00	13.25
3/10/76	0.10	13.35
3/18/76	0.30	13.65
3/31/76	0.05	13.70
4/4/76	0.40	14.10
4/5/76	0.10	14.20
4/7/76	0.50	14.70
4/8/76	0.65	15.35
4/11/76	0.50	15.85
4/12/76	0.30	16.15
4/15/76	0.20	16.35
4/18/76	0.20	16.55
4/23/76	0.05	16.60
5/5/76	0.05	16.65
6/10/76	0.20	16.85

Water year 1976-77

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/14/76	1.00	1.00
9/29/76 (am)	1.70	2.70
9/29/76 (pm)	0.30	3.00
9/30/76	0.30	3.30
10/1/76	0.50	3.80
11/11/76	1.00	4.80
11/12/76	0.10	4.90
11/14/76	0.70	5.60
11/15/76	0.20	5.80
12/9/76	0.05	5.85
12/30/76	1.80	7.65
12/31/76	0.10	7.75
1/1/77	0.10	7.85
1/2/77	1.50	9.35
1/3/77	0.80	10.15
1/5/77	0.10	10.25
1/11/77	0.20	10.45
2/8/77	0.50	10.95
2/9/77	0.20	11.15
2/21/77	1.10	12.25
2/23/77	0.40	12.65
2/24/77	0.10	12.75
2/28/77	0.05	12.80
3/9/77	0.40	13.20
3/12/77	0.10	13.30
3/13/77	0.20	13.50
3/15/77	1.50	15.00
3/16/77	0.60	15.60
3/14/77	0.05	15.65
3/23/77	0.10	15.75
3/24/77	0.25	16.00
4/9/77	0.10	16.10
4/25/77	0.05	16.15
5/1/77	0.40	16.55
5/2/77	0.10	16.65
5/3/77	0.10	16.75
5/8/77 (am)	0.25	17.00
5/8/77 (pm)	0.50	17.50
5/9/77	0.10	17.60
5/10/77	0.30	17.90
5/11/77	0.10	18.00
5/12/77	0.30	18.30
5/19/77	0.20	18.50
5/26/77	0.05	18.55

Water year 1977-78

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/20/77	??	1.00
9/28/77	0.20	1.20
9/29/77	0.20	1.40
10/27/77	0.60	2.00
10/29/77	0.40	2.40
10/30/77	0.20	2.60
11/4/77	0.50	3.10
11/22/77	2.20	5.30
12/11/77	0.20	5.50
12/15/77	1.00	6.50
12/17/77	1.70	8.20
12/18/77	0.70	8.90
12/19/77	0.20	9.10
12/21/77	0.20	9.30
12/22/77	0.40	9.70
12/23/77	1.70	11.40
12/27/77	0.35	11.75
12/30/77	0.50	12.25
12/31/77	0.10	12.35
1/3/78	0.30	12.65
1/5/78	2.10	14.75
1/6/78	0.10	14.85
1/9/78	1.50	16.35
1/10/78	0.05	16.40
1/14/78	2.30	18.70
1/15/78	1.80	20.50
1/16/78	1.30	21.80
1/17/78	1.00	22.80
1/19/78	1.00	23.80
1/21/78	0.05	23.85
2/5/78	1.00	24.85
2/6/78	0.80	25.65
2/8/78	1.00	26.65
2/9/78	1.20	27.85
2/12/78	1.30	29.15
2/14/78	0.50	29.65
2/15/78	0.10	29.75
3/1/78	0.30	30.05
3/2/78	0.90	30.95
3/4/78	0.80	31.75

3/5/78	0.50	32.25
3/9/78	1.30	33.55
3/11/78	0.20	33.75
3/14/78	0.05	33.80
3/22/78	0.80	34.60
3/23/78	0.20	34.80
3/31/78	1.00	35.80
4/2/78	0.15	35.95
4/4/78	0.60	36.55
4/6/78	1.00	37.55
4/7/78	0.10	37.65
4/15/78	1.50	39.15
4/16/78	0.30	39.45
4/21/78	0.55	40.00
4/25/78	0.45	40.45
4/26/78	0.30	40.75
5/15/78	0.10	40.85

Water year 1978-79

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/8/78	0.50	0.50
11/13/78	0.40	0.90
11/20/78	1.00	1.90
11/21/78	0.90	2.80
11/23/78	0.30	3.10
12/1/78	0.60	3.70
12/17/78	0.50	4.20
12/18/78	0.10	4.30
12/13/78	0.20	4.50
1/5/79	0.10	4.60
1/6/79	0.10	4.70
1/8/79	2.10	6.80
1/9/79	0.40	7.20
1/11/79	3.00	10.20
1/12/79	0.30	10.50
1/14/79	1.00	11.50
1/15/79	1.50	13.00
1/16/79	0.05	13.05
1/18/79	0.40	13.45
1/31/79	0.45	13.90
2/2/79	0.10	14.00
2/14/79	3.30	17.30
2/15/79	0.10	17.40
2/16/79	0.30	17.70
2/18/79	0.50	18.20
2/19/79	0.20	18.40
2/21/79	1.30	19.70
2/23/79	1.50	21.20
2/24/79	0.20	21.40
2/26/79	0.60	22.00
3/1/79	0.60	22.60
3/4/79	0.25	22.85
3/15/79	0.80	23.65
3/18/79	0.05	23.70
3/19/79	0.05	23.75
3/27/79	1.90	25.65
3/28/79	0.50	26.15
3/29/79	0.40	26.55
4/6/79	0.15	26.70
4/9/79	0.10	26.80

4/11/79	0.30	27.10
4/16/79	0.10	27.20
4/17/79	0.15	27.35
4/23/79	0.20	27.55
4/24/79	0.05	27.60
4/26/79	0.50	28.10
4/27/79	0.05	28.15
5/6/79	0.25	28.40
5/7/79	0.35	28.75

Water year 1979-80

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/15/79	0.10	0.10
10/19/79	0.85	0.95
10/20/79	0.70	1.65
10/21/79	0.15	1.80
10/25/79	2.20	4.00
10/31/79	0.10	4.10
11/4/79	1.70	5.80
11/7/79	0.10	5.90
11/8/79	0.10	6.00
11/17/79	1.10	7.10
11/23/79	0.60	7.70
11/25/79	0.45	8.15
11/26/79	0.50	8.65
12/19/79	0.50	9.15
12/21/79	0.40	9.55
12/24/79	2.50	12.05
12/25/79	1.70	13.75
12/26/79	0.15	13.90
12/31/79	0.70	14.60
1/1/80	0.10	14.70
1/9/80	0.60	15.30
1/10/80	0.55	15.85
1/11/80	1.20	17.05
1/12/80	1.20	18.25
1/15/80	2.40	20.65
1/16/80	0.40	21.05
1/17/80	0.50	21.55
2/14/80	0.50	22.05
2/15/80	0.50	22.55
2/16/80	1.50	24.05
2/17/80	1.00	25.05
2/18/80	1.00	26.05
2/19/80	2.40	28.45
2/20/80	0.30	28.75
2/21/80	1.25	30.00
2/22/80	0.40	30.40
2/28/80	0.70	31.10
3/3/80	0.30	31.40
3/4/80	0.15	31.55
3/5/80	0.60	32.15

3/6/80	0.50	32.65
3/7/80	0.05	32.70
3/12/80	0.10	32.80
3/15/80	0.10	32.90
3/21/80	0.20	33.10
3/25/80	0.40	33.50
4/5/80	1.60	35.10
4/9/80	0.10	35.20
4/21/80	0.50	35.70
4/23/80	0.30	36.00
5/10/80	0.35	36.35
5/13/80	0.15	36.50
6/4/80	0.20	36.70

Water year 1980-81

Measurement date (month/date/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
??	??	0.50
10/12/80	0.10	0.60
11/9/80	0.20	0.80
11/22/80	0.40	1.20
12/3/80	0.35	1.55
12/4/80	1.50	3.05
12/22/80	1.10	4.15
1/16/81	0.20	4.35
1/21/81	0.05	4.40
1/29/81 (a.m.)	5.50	9.90
1/29/81 (p.m.)	1.10	11.00
1/30/81	0.20	11.20
2/9/81	0.90	12.10
2/12/81	0.10	12.20
2/13/81	0.10	12.30
2/14/81	0.50	12.80
2/24/81	0.40	13.20
2/25/81	0.45	13.65
2/27/81	0.30	13.95
3/1/81	0.50	14.45
3/4/81	0.70	15.15
3/7/81	0.10	15.25
3/13/81	2.50	17.75
3/16/81	0.40	18.15
3/19/81	0.70	18.85
3/21/81	1.80	20.65
3/25/81	0.50	21.15
3/26/81	0.50	21.65
3/29/81	0.15	21.80
4/1/81	0.05	21.85
4/19/81	0.30	22.15
5/18/81	0.30	22.45
5/20/81	0.10	22.55

Water year 1981-82

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/29/81	0.10	0.10
10/3/81	0.20	0.30
10/7/81	0.40	0.70
10/10/81	0.30	1.00
10/28/81	2.20	3.20
10/29/81	0.60	3.80
11/12/81	1.20	5.00
11/13/81	2.50	7.50
11/14/81	0.40	7.90
11/15/81	0.30	8.20
11/16/81	0.10	8.30
11/17/81	1.10	9.40
11/22/81	0.70	10.10
11/24/81	0.60	10.70
11/26/81	0.60	11.30
11/27/81	0.90	12.20
12/10/81	0.30	12.50
12/13/81	0.50	13.00
12/16/81	0.20	13.20
12/19/81	0.30	13.50
12/20/81	1.70	15.20
12/21/81	0.30	15.50
12/27/81	0.80	16.30
12/29/81	2.00	18.30
12/30/81	0.30	18.60
12/31/81-1/6/82	11.26	29.86
1/18/82	0.10	29.96
1/19/82	0.40	30.36
1/20/82	1.50	31.86
1/21/82	0.80	32.66
1/26/82	0.50	33.16
1/28/82	0.70	33.86
2/14/82	1.10	34.96
2/15/82	2.50	37.46
2/15/82	1.00	38.46
2/16/82	2.00	40.46
2/27/82	0.10	40.56
3/1/82	0.95	41.51
3/2/82	0.20	41.71
3/11/82	0.60	42.31

3/14/82	0.30	42.61
3/16/82	0.60	43.21
3/17/82	1.00	44.21
3/19/82	0.30	44.51
3/26/82	0.50	45.01
3/28/82	0.40	45.41
3/29/82	0.90	46.31
3/30/82	0.30	46.61
3/31/82	1.00	47.61
4/1/82-4/13/82	5.25	52.86
4/14/82	0.50	53.36

Water year 1982-83

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/27/82	??	1.89
10/6/82	0.05	1.94
10/22/82	0.10	2.04
10/25/82	1.60	3.64
10/26/82	1.05	4.69
10/30/82	0.90	5.59
11/8/82	0.20	5.79
11/10/82	0.80	6.59
11/18/82	2.50	9.09
11/19/82	0.30	9.39
11/22/82	0.10	9.49
11/29/82	1.50	10.99
11/30/82	1.40	12.39
12/1/82	1.00	13.39
12/3/82	0.10	13.49
12/14/82	0.20	13.69
12/17/82	0.30	13.99
12/21/82	2.10	16.09
12/22/82	1.60	17.69
1/16/83	0.05	17.74
1/19/83	1.50	19.24
1/22/83	2.60	21.84
1/24/83	2.00	23.84
1/27/83	2.60	26.44
1/29/83	1.00	27.44
1/31/83	0.20	27.64
2/2/83	0.20	27.84
2/5/83	0.50	28.34
2/6/83	1.90	30.24
2/8/83	1.70	31.94
2/9/83	1.20	33.14
2/16/83	0.10	33.24
2/18/83	0.70	33.94
2/19/83	0.20	34.14
2/24/83	0.70	34.84
2/25/83	1.30	36.14
2/27/83	0.40	36.54
2/28/83	0.90	37.44
3/1/83	1.50	38.94
3/2/83	2.10	41.04

3/3/83	0.50	41.54
3/4/83	0.45	41.99
3/6/83	0.35	42.34
3/7/83	0.60	42.94
3/11/83	0.40	43.34
3/13/83	2.10	45.44
3/17/83	0.80	46.24
3/18/83	0.60	46.84
3/21/83	0.85	47.69
3/23/83	0.40	48.09
3/24/83	0.85	48.94
3/25/83	0.30	49.24
3/27/83	0.40	49.64
3/30/83	0.05	49.69
4/11/83	0.20	49.89
4/12/83	0.10	49.99
4/18/83	0.30	50.29
4/21/83	0.65	50.94
4/23/83	0.85	51.79
4/24/83	0.70	52.49
4/28/83	1.40	53.89
4/29/83	0.15	54.04
4/30/83	1.15	55.19
5/2/83	0.30	55.49
5/5/83	0.20	55.69
5/6/83	0.55	56.24

Water year 1983-84

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/22/83	0.10	0.10
9/30/83	0.30	0.40
10/1/83	0.25	0.65
10/30/83	0.10	0.75
10/31/83	0.20	0.95
11/1/83	0.20	1.15
11/10/83	0.20	1.35
11/11/83	2.40	3.75
11/13/83	1.00	4.75
11/14/83	0.10	4.85
11/17/83	1.25	6.10
11/19/83	0.20	6.30
11/20/83	1.85	8.15
11/23/83	0.15	8.30
11/24/83	1.20	9.50
11/25/83	0.30	9.80
11/30/83	0.30	10.10
12/3/83	0.50	10.60
12/4/83	0.20	10.80
12/8/83	0.30	11.10
12/9/83	0.60	11.70
12/10/83	0.40	12.10
12/11/83	0.80	12.90
12/12/83	0.25	13.15
12/16/83	0.30	13.45
12/23/83	0.65	14.10
12/24/83	0.95	15.05
12/25/83	1.35	16.40
12/27/83	0.45	16.85
1/11/84	0.70	17.55
1/17/84	0.10	17.65
1/23/84	0.15	17.80
2/10/84	0.60	18.40
2/14/84	0.80	19.20
2/16/84	0.60	19.80
2/21/84	0.30	20.10
2/25/84	0.10	20.20
3/15/84	1.00	21.20
3/18/84	0.30	21.50
4/1/84	0.30	21.80
4/8/84	0.10	21.90
4/10/84	0.35	22.25
4/18/84	0.45	22.70
4/19/84	0.20	22.90
5/2/84	0.20	23.10
6/5/84	0.20	23.30
6/7/84	0.30	23.60

Water year 1984-85

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/30/84	0.10	0.10
10/11/84	0.85	0.95
10/16/84	1.20	2.15
10/17/84	0.10	2.25
10/19/84	0.15	2.40
10/29/84	0.85	3.25
11/3/84	0.20	3.45
11/6/84	0.20	3.65
11/8/84	1.20	4.85
11/11/84	1.05	5.90
11/13/84	1.70	7.60
11/16/84	0.50	8.10
11/18/84	0.30	8.40
11/21/84	0.35	8.75
11/24/84	0.35	9.10
11/25/84	0.15	9.25
11/28/84	0.90	10.15
12/3/84	0.40	10.55
12/5/84	0.20	10.75
12/6/84	0.20	10.95
12/10/84	0.40	11.35
12/11/84	0.10	11.45
12/12/84	0.15	11.60
12/15/84	1.15	12.75
1/8/85	0.60	13.35
1/10/85	0.10	13.45
1/28/85	0.40	13.85
2/2/85	0.20	14.05
2/8/85	1.60	15.65
2/21/85	0.30	15.95
3/4/85	0.30	16.25
3/6/85	0.80	17.05
3/7/85	0.55	17.60
3/11/85	0.50	18.10
3/18/85	0.50	18.60
3/24/85	0.05	18.65
3/26/85	0.75	19.40
3/28/85	0.40	19.80
4/22//85	0.15	19.95
5/12/85	0.20	20.15
5/28/85	0.20	20.35
6/2/85	1.00	21.35
6/4/85	0.05	21.40

Water year 1985-86

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/8/85	0.10	0.10
9/9/85	0.10	0.20
10/21/85	0.65	0.85
10/23/85	0.15	1.00
11/10/85	0.40	1.40
11/11/85	0.10	1.50
11/24/85	0.80	2.30
11/25/85	0.40	2.70
11/28/85	0.60	3.30
11/29/85	0.30	3.60
11/30/85	0.10	3.70
12/3/85	0.80	4.50
12/5/85	0.20	4.70
12/7/85	0.40	5.10
12/29/85	0.10	5.20
12/30/85	0.70	5.90
1/14/86	0.75	6.65
1/15/86	0.20	6.85
1/17/86	0.50	7.35
1/23/86	0.15	7.50
1/29/86	0.40	7.90
1/30/86	0.20	8.10
1/31/86	0.80	8.90
2/2/86	0.20	9.10
2/3/86	0.50	9.60
2/6/86	0.20	9.80
2/13/86	0.70	10.50
2/14/86	2.70	13.20
2/15/86	0.70	13.90
2/17/86	2.30	16.20
2/18/86	2.00	18.20
2/19/86	1.70	19.90
2/20/86	0.05	19.95
3/7/86	1.50	21.45
3/8/86	1.00	22.45
3/9/86	0.40	22.85
3/10/86	1.30	24.15
3/11/86	0.60	24.75
3/12/86	0.60	25.35
3/13/86	0.70	26.05
3/15/86	1.20	27.25
3/16/86	0.75	28.00
4/7/86	0.30	28.30
4/15/86	0.20	28.50

4/16/86	0.30	28.80
4/20/86	0.15	28.95
5/3/86	0.30	29.25
5/??/86	0.10	29.35

Water year 1986-87

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/16/86	0.20	0.20
9/17/86	0.50	0.70
9/24/86	1.00	1.70
9/25/86	0.05	1.75
9/27/86	1.00	2.75
10/23/86	0.05	2.80
10/30/86	0.20	3.00
11/18/86	0.10	3.10
11/19/86	0.40	3.50
11/21/86	0.20	3.70
11/29/86	0.10	3.80
12/5/86	0.70	4.50
12/14/86	0.10	4.60
12/16/86	0.40	5.00
12/18/86	0.60	5.60
12/20/86	0.90	6.50
12/23/86	0.30	6.80
1/12/87	2.60	9.40
1/23/87	0.70	10.10
1/25/87	0.30	10.40
1/28/87	0.80	11.20
1/30/87	0.60	11.80
2/3/87	1.00	12.80
2/11/87	0.40	13.20
2/13/87	3.80	17.00
2/15/87	0.50	17.50
2/22/87	0.10	17.60
3/6/87	1.10	18.70
3/11/87	0.50	19.20
3/13/87	0.60	19.80
3/15/87	0.50	20.30
3/19/87	0.15	20.45
3/21/87	0.80	21.25
3/22/87	0.10	21.35
3/23/87	0.50	21.85
4/3/87	0.20	22.05
4/18/87	0.05	22.10
4/30/87	0.30	22.40
5/1/87	0.05	22.45
5/31/87	0.05	22.50
6/21 or 6/27/87	0.10	22.60

Water year 1987-88

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/23/87	0.25	0.25
10/28/87	1.00	1.25
10/29/87	0.30	1.55
11/2/87	0.05	1.60
11/6/87	0.05	1.65
11/9/87	0.15	1.80
11/13/87	0.60	2.40
11/17/87	0.90	3.30
11/21/87	0.80	4.10
12/2/87	0.80	4.90
12/3/87	0.20	5.10
12/5/87	1.20	6.30
12/6/87	0.40	6.70
12/7/87	0.80	7.50
12/8/87	0.70	8.20
12/10/87	0.50	8.70
12/11/87	0.05	8.75
12/16/87	0.30	9.05
12/22/87	0.40	9.45
12/28/87	1.20	10.65
12/29/87	0.90	11.55
12/30/87	0.20	11.75
1/4/88	0.40	12.15
1/5/88	0.20	12.35
1/9/88	0.30	12.65
1/15/88	0.80	13.45
1/16/88	0.50	13.95
1/17/88	1.30	15.25
1/18/88	0.30	15.55
1/29/88	0.20	15.75
1/30/88	0.40	16.15
2/28/88	0.60	16.75
3/1/88	0.30	17.05
3/23/88	0.05	17.10
4/15/88	0.20	17.30
4/17/88	0.20	17.50
4/19/88	1.10	18.60
4/20/88	0.10	18.70
4/22/88	0.10	18.80
4/23/88	0.55	19.35
4/29/88	0.10	19.45

5/7/88	0.40	19.85
5/8/88	0.10	19.95
5/13/88	0.10	20.05
5/17/88	0.20	20.25
5/18/88	0.35	20.60
6/7/88	0.10	20.70
6/21/88	0.10	20.80

Water year 1988-89

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/25/88	0.10	0.10
10/14/88	0.20	0.30
11/2/88	0.30	0.60
11/3/88	0.60	1.20
11/6/88	0.10	1.30
11/10/88	0.60	1.90
11/13/88	0.80	2.70
11/14/88	0.20	2.90
11/17/88	0.70	3.60
11/28/88	0.90	4.50
11/23/88	1.70	6.20
11/25/88	0.70	6.90
12/20/88	0.30	7.20
12/21/88	1.40	8.60
12/22/88	0.90	9.50
12/24/88	0.70	10.20
12/26/88	0.60	10.80
12/27/88	0.40	11.20
12/29/88	0.10	11.30
12/31/88	0.80	12.10
1/5/89	0.90	13.00
1/6/89	0.10	13.10
1/7/89	0.40	13.50
1/8/89	0.20	13.70
1/10/89	0.40	14.10
1/23/89	0.50	14.60
2/3/89	0.60	15.20
2/4/89	0.30	15.50
2/9/89	0.70	16.20
2/19/89	0.20	16.40
3/2/89	1.00	17.40
3/6/89	0.20	17.60
3/8/89	0.45	18.05
3/10/89	0.60	18.65
3/11/89	0.90	19.55
3/13/89	0.10	19.65
3/16/89	0.85	20.50
3/18/89	1.10	21.60
3/19/89	0.25	21.85
3/24/89	0.65	22.50

3/25/89	0.50	23.00
3/28/89	0.30	23.30
4/2/89	0.10	23.40
4/3/89	0.10	23.50
4/21/89	0.30	23.80
4/23/89	0.50	24.30
4/24/89	0.60	24.90
4/25/89	0.15	25.05
4/30/89	0.05	25.10
5/12/89	0.20	25.30
5/24/89	0.15	25.45

Water year 1989-90

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/17/89	0.50	0.50
9/18/89	0.30	0.80
10/22/89	0.40	1.20
10/24/89	1.60	2.80
10/25/89	0.10	2.90
10/25/89	0.20	3.10
10/26/89	0.10	3.20
11/24/89	0.40	3.60
11/26/89	1.80	5.40
1/2/90	0.70	6.10
1/8/90	0.30	6.40
1/13/90	1.60	8.00
1/14/90	1.40	9.40
1/16/90	0.40	9.80
1/17/90	0.15	9.95
1/26/90	0.05	10.00
1/30/90	0.60	10.60
1/31/90	0.20	10.80
2/1/90	0.20	11.00
2/4/90	1.00	12.00
2/6/90	0.10	12.10
2/17/90	2.40	14.50
2/19/90	0.30	14.80
3/3/90	0.70	15.50
3/5/90	0.30	15.80
3/11/90	0.40	16.20
3/12/90	0.10	16.30
4/20/90	0.15	16.45
4/24/90	1.30	17.75
5/20/90	0.50	18.25
5/23/90	0.60	18.85
5/26/90	0.05	18.90
5/28/90	1.70	20.60
5/31/90	0.20	20.80

Water year 1990-91

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/23/90	0.15	0.15
10/19/90	0.10	0.25
11/1/90	0.50	0.75
11/17/90	0.10	0.85
11/20/90	0.05	0.90
11/21/90	0.05	0.95
11/26/90	0.50	1.45
12/11/90	0.70	2.15
12/15/90	1.30	3.45
12/16/90	0.80	4.25
12/19/90	0.40	4.65
1/7/91	0.20	4.85
1/9/91	0.30	5.15
1/12/91	0.05	5.20
2/3/91	0.80	6.00
2/5/91	1.80	7.80
2/28/91	0.95	8.75
3/1/91	0.30	9.05
3/2/91	0.30	9.35
3/3/91	1.80	11.15
3/4/91	0.80	11.95
3/5/91	0.60	12.55
3/10/91	1.00	13.55
3/11/91	0.20	13.75
3/13/91	1.00	14.75
3/15/91	0.15	14.90
3/17/91	1.30	16.20
3/18/91	0.05	16.25
3/20/91	0.50	16.75
3/21/91	1.00	17.75
3/24/91 (a.m.)	1.10	18.85
3/24/91 (p.m.)	1.00	19.85
3/25/91	1.50	21.35
3/27/91	0.10	21.45
4/1/91	0.10	21.55
4/6/91	0.05	21.60
4/20/91	0.20	21.80
4/21/91	0.10	21.90
4/25/91	0.10	22.00
4/26/91	0.40	22.40

5/1/91	0.05	22.45
5/8/91	0.10	22.55
5/13/91	0.10	22.65
5/17/91	0.10	22.75
5/30/91	0.35	23.10
6/26/91	0.10	23.20
6/27/91	0.20	23.40

Water year 1991-92

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/7/91	0.20	0.20
8/14/91	0.10	0.30
8/15/91	0.30	0.60
10/25/91	0.60	1.20
10/26/91	2.90	4.10
10/28/91	0.10	4.20
10/29/91	0.10	4.30
11/17/91	0.50	4.80
11/18/91	0.20	5.00
11/27/91	0.10	5.10
12/6/91	0.20	5.30
12/18/91	0.50	5.80
12/28/91	1.10	6.90
12/29/91	2.20	9.10
12/30/91	0.30	9.40
1/5/92	1.10	10.50
1/6/92	1.00	11.50
1/7/92	0.80	12.30
1/8/92	0.10	12.40
1/28/92	0.30	12.70
2/1/92	1.10	13.80
2/6/92	0.10	13.90
2/7/92	0.10	14.00
2/9/92	0.10	14.10
2/10/92	1.00	15.10
2/11/92	1.40	16.50
2/12/92	3.40	19.90
2/13/92	0.80	20.70
2/14/92	0.80	21.50
2/15/92	1.20	22.70
2/16/92	0.40	23.10
2/17/92	0.40	23.50
2/19/92	0.10	23.60
2/20/92	0.90	24.50
2/22/92	0.10	24.60
3/1/92	0.30	24.90
3/2/92	0.10	25.00
3/5/92	2.00	27.00
3/6/92	0.60	27.60
3/7/92	0.05	27.65

3/15/82	0.50	28.15
3/16/92	1.00	29.15
3/17/92	0.05	29.20
3/21/92	0.50	29.70
3/22/92	0.20	29.90
3/23/92	1.00	30.90
3/26/92	0.10	31.00
3/30/92	0.10	31.10
4/13/92	0.40	31.50
5/19/92	0.05	31.55
6/30/92	0.55	32.10

Water year 1992-93

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/29/92	0.05	0.05
9/4/92	0.10	0.15
10/2/92	0.05	0.20
10/21/92	0.30	0.50
10/29/92	1.50	2.00
10/31/92	0.10	2.10
11/1/92	0.10	2.20
11/19/92	0.30	2.50
11/22/92	0.50	3.00
12/3/92	1.00	4.00
12/6/92	1.40	5.40
12/7/92	1.40	6.80
12/9/92	0.90	7.70
12/10/92	0.20	7.90
12/11/92	1.10	9.00
12/17/92	0.30	9.30
12/18/92	0.30	9.60
12/28/92	1.40	11.00
12/29/92	1.00	12.00
12/31/92	0.30	12.30
1/1/93	1.30	13.60
1/2/93	0.05	13.65
1/5/93	0.40	14.05
1/7/93	1.40	15.45
1/8/93	1.10	16.55
1/10/93	0.45	17.00
1/12/93	0.45	17.45
1/13/93	2.80	20.25
1/13/93	1.00	21.25
1/14/93	0.90	22.15
1/16/93	0.70	22.85
1/17/93	1.00	23.85
1/18/93	0.60	24.45
1/21/93	1.30	25.75
1/22/93	0.70	26.45
2/5/93	0.15	26.60
2/8/93	0.65	27.25
2/9/93	1.00	28.25
2/10/93	0.05	28.30
2/12/93	0.40	28.70

2/18/93	1.00	29.70
2/19/93	1.30	31.00
2/20/93	1.50	32.50
2/22/93	0.25	32.75
2/23/93	0.50	33.25
2/26/93	2.30	35.55
3/3/93	0.15	35.70
3/14/93	0.10	35.80
3/17/93	0.50	36.30
3/18/93	0.30	36.60
3/24/93	1.10	37.70
3/26/93	1.10	38.80
3/27/93	0.40	39.20
4/1/93	0.30	39.50
4/9/93	0.20	39.70
4/10/93	0.05	39.75
4/17/93	0.90	40.65
4/24/93	0.50	41.15
5/3/93	0.20	41.35
5/19/93	0.05	41.40
5/20/93	0.10	41.50
5/25/93	0.45	41.95
5/26/93	0.65	42.60
5/28/93	0.40	43.00
6/1/93	0.25	43.25
6/5/93	0.45	43.70
6/7/93	0.25	43.95

Water year 1993-94

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
10/5/93	0.10	0.10
10/15/93	0.40	0.50
10/15/93	0.10	0.60
11/10/93	0.80	1.40
11/11/93	0.10	1.50
11/29/93	1.20	2.70
11/30/93	0.30	3.00
12/9/93	1.50	4.50
12/10/93	0.10	4.60
12/12/93	1.80	6.40
12/15/93	1.10	7.50
12/27/93	0.10	7.60
1/4/94	0.10	7.70
1/23/94	0.40	8.10
1/24/94	1.40	9.50
1/25/94	0.60	10.10
1/27/94	0.30	10.40
2/7/94	1.80	12.20
2/9/94	0.80	13.00
2/10/94	0.50	13.50
2/17/94	1.50	15.00
2/19/94	0.80	15.80
2/20/94	1.50	17.30
2/22/94	0.30	17.60
2/27/94	0.50	18.10
3/5/94	0.10	18.20
3/16/94	0.05	18.25
3/23/94	0.15	18.40
3/25/94	0.40	18.80
4/7/94	0.05	18.85
4/9/94	0.80	19.65
4/23/94	0.40	20.05
4/24/94	0.20	20.25
4/25/94	0.70	20.95
4/26/94	0.50	21.45
5/5/94	0.10	21.55
5/6/94	0.20	21.75
5/7/94	1.00	22.75
5/15/94	0.05	22.80
5/17/94	0.35	23.15
6/6/94	0.05	23.20

Water year 1994-95

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/23/94	0.05	0.05
10/5/94	0.50	0.55
11/2/94	0.10	0.65
11/5/94	0.80	1.45
11/6/94	3.50	4.95
11/7/94	0.40	5.35
11/10/94	0.90	6.25
11/5/94	0.90	7.15
11/17/94	0.40	7.55
11/18/94	0.05	7.60
11/25/94	0.70	8.30
11/26/94	0.90	9.20
11/28/94	0.10	9.30
12/4/94	0.40	9.70
12/6/94	0.10	9.80
12/11/94	0.10	9.90
12/12/94	0.60	10.50
12/13/94	0.80	11.30
12/16/94	0.90	12.20
12/24/94	0.40	12.60
12/28/94	0.15	12.75
1/1/95	0.40	13.15
1/4/95	0.90	14.05
1/5/95	0.65	14.70
1/6/95	0.20	14.90
1/7/95	0.90	15.80
1/8/95	0.40	16.20
1/9/95	0.80	17.00
1/10/95	3.50	20.50
1/11/95	0.40	20.90
1/12/95	0.40	21.30
1/13/95	0.25	21.55
1/14/95	0.50	22.05
1/15/95	0.60	22.65
1/16/95	0.50	23.15
1/17/95	0.05	23.20
1/21/95	0.60	23.80
1/22/95	0.35	24.15
1/23/95	0.85	25.00
1/24/95	0.50	25.50

1/26/95	0.10	25.60
1/27/95	2.10	27.70
1/28/95	0.70	28.40
1/30/95	0.10	28.50
2/8/95	0.40	28.90
2/28/95	0.15	29.05
3/2/95	0.40	29.45
3/3/95	0.70	30.15
3/5/95	0.30	30.45
3/9/95 (a.m.)	2.10	32.55
3/9/95 (p.m.)	0.90	33.45
3/10/95	1.30	34.75
3/11/95	1.05	35.80
3/12/95	0.15	35.95
3/14/95	0.20	36.15
3/15/95	0.40	36.55
3/18/95	0.40	36.95
3/19/95	1.30	38.25
3/21/95	1.15	39.40
3/22/95	1.00	40.40
3/23/95	1.60	42.00
3/24/95	0.20	42.20
4/7/95	0.50	42.70
4/9/95	0.10	42.80
4/13/95	0.40	43.20
4/16/95	0.50	43.70
4/18/95	0.40	44.10
4/20/95	0.30	44.40
4/28/95	0.40	44.80
4/30/95	0.80	45.60
5/1/95	0.60	46.20
5/4/95	0.20	46.40
5/10/95	0.15	46.55
5/13/95	1.20	47.75
5/14/95	0.30	48.05
5/15/95	0.50	48.55
5/16/95	0.35	48.90
6/3/95	0.20	49.10
6/15/95	0.30	49.40
6/16/95	0.70	50.10

Water year 1995-96

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
11/20/95	0.05	0.05
12/4/95	1.20	1.25
12/5/95	0.05	1.30
12/11/95	2.10	3.40
12/12/95 (a.m.)	3.10	6.50
12/12/95 (p.m.)	0.60	7.10
12/14/95	0.85	7.95
12/16/95	1.20	9.15
12/19/95	0.10	9.25
12/22/95	0.50	9.75
12/30/95	2.20	11.95
12/31/95	0.05	12.00
1/16/96	2.00	14.00
1/19/96	1.50	15.50
1/21/96	1.00	16.50
1/22/96	0.20	16.70
1/24/96	0.80	17.50
1/25/96	0.80	18.30
1/27/96	1.00	19.30
1/28/96	0.30	19.60
1/31/96	1.30	20.90
2/1/96	0.05	20.95
2/3/96	0.40	21.35
2/4/96	0.80	22.15
2/4/96	1.40	23.55
2/5/96	0.60	24.15
2/16/96	0.40	24.55
2/17/96	0.20	24.75
2/18/96	0.20	24.95
2/19/96	1.20	26.15
2/20/96	1.50	27.65
2/21/96	1.20	28.85
2/22/96	0.70	29.55
2/23/96	0.30	29.85
2/25/96	0.25	30.10
2/27/96	0.50	30.60
2/29/96	0.80	31.40
3/4/96	0.40	31.80
3/5/96	0.50	32.30
3/6/96	0.05	32.35

3/10/96	0.10	32.45
3/12/96	1.65	34.10
3/13/96	0.40	34.50
3/28/96	0.65	35.15
4/1/96	1.30	36.45
4/16/96	0.70	37.15
4/18/96	0.35	37.50
4/20/96	0.10	37.60
5/15/96	0.90	38.50
5/16/96	0.80	39.30
5/18/96	0.40	39.70
5/21/96	0.20	39.90
5/23/96	0.10	40.00

Water year 1996-97

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/15/96	0.10	0.10
10/19/96	0.15	0.25
10/25/96	0.50	0.75
10/26/96	0.10	0.85
10/30/96	0.65	1.50
10/31/96	0.05	1.55
11/17/96	3.60	5.15
11/18/96	0.95	6.10
11/19/96	0.45	6.55
11/22/96	0.55	7.10
11/23/96	0.40	7.50
11/30/96	0.10	7.60
12/1/96	0.40	8.00
12/5/96	2.60	10.60
12/6/96	0.50	11.10
12/8/96	0.05	11.15
12/10/96	3.10	14.25
12/11/96	0.30	14.55
12/12/96	0.60	15.15
12/13/96	0.15	15.30
12/21/96	2.70	18.00
12/22/96	1.30	19.30
12/27/96	0.80	20.10
12/28/96	0.10	20.20
12/30/96	1.10	21.30
1/1/97	2.30	23.60
1/2/97	2.00	25.60
1/3/97	0.60	26.20
1/5/97	0.20	26.40
1/12/97	0.50	26.90
1/15/97	0.55	27.45
1/20/97	1.30	28.75
1/21/97	0.40	29.15
1/22/97	0.90	30.05
1/23/97	1.50	31.55
1/25/97	1.70	33.25
1/26/97	0.90	34.15
1/27/97	0.20	34.35
2/5/97	0.35	34.70
2/8/97	0.10	34.80

2/17/97	0.20	35.00
3/2/97	0.20	35.20
3/17/97	0.45	35.65
3/31/97	0.10	35.75
4/19/97	0.90	36.65
4/20/97	0.05	36.70
4/23/97	0.20	36.90
5/23/97	0.65	37.55
6/1/97	0.45	38.00

Water year 1997-98

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/19/97	0.10	0.10
10/1/97	0.10	0.20
10/9/97	0.50	0.70
10/11/97	0.10	0.80
11/10/97	0.40	1.20
11/11/97	0.45	1.65
11/13/97	0.30	1.95
11/14/97	0.40	2.35
11/15/97	0.80	3.15
11/16/97	1.00	4.15
11/20/97	0.45	4.60
11/23/97	0.20	4.80
11/25/97	0.50	5.30
11/26/97	2.60	7.90
11/27/97	0.70	8.60
11/30/97	1.20	9.80
12/5/97	0.30	10.10
12/7/97	0.60	10.70
12/8/97	0.80	11.50
12/8/97	0.50	12.00
12/14/97	1.30	13.30
12/15/97	0.15	13.45
1/2/98	1.50	14.95
1/3/98	0.40	15.35
1/4/98	1.00	16.35
1/7/98	0.40	16.75
1/10/98	1.70	18.45
1/11/98	0.30	18.75
1/12/98 (a.m.)	3.00	21.75
1/12/98 (p.m.)	0.80	22.55
1/15/98	2.30	24.85
1/16/98	0.40	25.25
1/18/98	2.20	27.45
1/20/98	0.20	27.65
1/22/98	0.10	27.75
1/24/98	0.10	27.85
1/27/98	0.65	28.50
1/29/98	1.60	30.10
1/31/98	0.40	30.50
2/1/98	0.60	31.10

2/2/98	1.60	32.70
2/3/98	4.10	36.80
2/4/98	0.65	37.45
2/5/98	0.20	37.65
2/6/98	2.30	39.95
2/7/98	1.70	41.65
2/10/98	0.20	41.85
2/12/98	0.20	42.05
2/14/98	0.70	42.75
2/15/98	0.40	43.15
2/17/98	0.80	43.95
2/19/98	1.30	45.25
2/21/98	1.90	47.15
2/23/98	0.80	47.95
2/27/98	0.20	48.15
3/5/98	0.30	48.45
3/6/98	0.30	48.75
3/13/98	0.60	49.35
3/20/98	0.05	49.40
3/24/98	1.50	50.90
3/26/98	0.45	51.35
3/27/98	0.05	51.40
3/28/98	0.40	51.80
3/31/98	0.60	52.40
4/1/98	0.25	52.65
4/3/98	0.60	53.25
4/4/98	0.80	54.05
4/5/98	0.10	54.15
4/6/98	0.10	54.25
4/8/98	0.40	54.65
4/11/98	0.10	54.75
4/13/98	0.60	55.35
4/14/98	0.30	55.65
4/16/98	0.05	55.70
4/24/98	0.10	55.80
5/2/98	0.50	56.30
5/4/98	0.30	56.60
5/5/98	0.50	57.10
5/8/98	0.25	57.35
5/11/98	0.50	57.85
5/13/98	0.15	58.00
5/25/98	0.10	58.10

Water year 1998-99

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/28/98	0.10	0.10
10/24/98	1.20	1.30
11/7/98	0.70	2.00
11/12/98	0.30	2.30
11/17/98	0.15	2.45
11/22/98	0.20	2.65
11/25/98	0.60	3.25
11/28/98	0.90	4.15
12/1/98	2.00	6.15
12/3/98	0.80	6.95
12/6/98	0.40	7.35
12/8/98	0.05	7.40
12/14/98	0.40	7.80
12/21/98	0.30	8.10
1/16/99	0.85	8.95
1/18/99	1.80	10.75
1/19/99	1.00	11.75
1/20/99	1.30	13.05
1/21/99	0.50	13.55
1/23/99	0.80	14.35
1/25/99	0.10	14.45
1/27/99	0.60	15.05
1/31/99	1.00	16.05
2/7/99	2.90	18.98
2/9/99	2.00	20.95
2/14/99	0.30	21.25
2/17/99	2.40	23.65
2/19/99	0.30	23.95
2/21/99	1.20	25.15
2/22/99	0.20	25.35
2/24/99	0.70	26.05
3/3/99	0.30	26.35
3/8/99	0.85	27.20
3/11/99	0.10	27.30
3/15/99	1.70	29.00
3/21/99	0.20	29.20
3/23/99	0.40	29.60
3/25/99	1.20	30.80
3/31/99	0.30	31.10
4/5/99	0.90	32.00

4/6/99	0.40	32.40
4/8/99	0.50	32.90
4/11/99	1.00	33.90
5/4/99	0.20	34.10
6/3/99	0.30	34.40

Water year 1999-2000

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/6/99	0.20	0.20
9/9/99	0.40	0.60
10/28/99	0.50	1.10
11/8/99	1.10	2.20
11/17/99	0.90	3.10
11/21/99	1.10	4.20
11/30/99	0.50	4.70
12/1/99	0.20	4.90
12/2/99	0.20	5.10
12/9/99	0.30	5.40
12/10/99	0.90	6.30
12/16/99	1.60	7.90
12/18/99	1.40	9.30
12/20/99	0.30	9.60
12/23/2000	1.00	10.60
12/24/2000	3.50	14.10
12/25/2000	2.00	16.10
12/26/2000	0.10	16.20
12/30/2000	0.60	16.80
2/1/2000	0.10	16.90
2/3/2000	0.60	17.50
2/5/2000	0.40	17.90
2/10/2000	1.00	18.90
2/12/2000	1.90	20.80
2/13/2000 (a.m.)	1.00	21.80
2/13/2000 (.pm.)	1.60	23.40
2/14/2000	1.60	25.00
2/17/2000	0.40	25.40
2/21/2000	0.80	26.20
2/23/2000	1.90	28.10
2/25/2000	0.30	28.40
2/27/2000	1.50	29.90
2/28/2000	0.50	30.40
2/29/2000	0.70	31.10
3/2/2000	0.20	31.30
3/5/2000	0.80	32.10
3/6/2000	0.50	32.60
3/8/2000	1.00	33.60
3/9/2000	1.00	34.60
3/10/2000	1.20	35.80

4/13/2000	0.60	36.40
4/14/2000	0.20	36.60
4/15/2000	0.10	36.70
4/16/2000	0.10	36.80
4/17/2000	1.70	38.50
4/28/2000	0.30	38.80
5/8/2000	1.70	40.50
5/10/2000	0.15	40.65
5/15/2000	0.60	41.25
5/16/2000	0.70	41.95
5/17/2000	0.10	42.05
6/8/2000	0.50	42.55
6/8/2000	0.10	42.65

Water year 2000-1

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
8/30/00	0.15	0.15
9/2/00	0.40	0.55
9/23/00	0.20	0.75
10/11/00	1.20	1.95
10/26/00	1.20	3.15
10/27/00	1.20	4.35
10/29/00	1.30	5.65
10/31/00	0.70	6.35
11/14/00	0.30	6.65
11/16/00	0.20	6.85
11/22/00	0.60	7.45
11/30/00	0.40	7.85
12/12/00	0.50	8.35
12/14/00	0.40	8.75
12/15/00	0.70	9.45
1/8/01	0.80	10.25
1/10/01	1.80	12.05
1/11/01	0.40	12.45
1/12/01	0.90	13.35
1/24/01	0.80	14.15
1/26/01	1.80	15.95
1/29/01	0.20	16.15
2/10/01	1.30	17.45
2/11/01	1.00	18.45
2/12/01	0.70	19.15
2/16/01	0.10	19.25
2/18/01	0.90	20.15
2/19/01	0.70	20.85
2/20/01	0.30	21.15
2/21/01	0.20	21.35
2/22/01	0.80	22.15
2/23/01	1.10	23.25
2/24/01	0.80	24.05
2/25/01	0.10	24.15
3/2/01	0.30	24.45
3/4/01	1.50	25.95
3/5/01	0.70	26.65
3/11/01	0.20	26.85
3/25/01	0.90	27.75
4/6/01	0.80	28.55

4/7/01	0.60	29.15
4/10/01	0.10	29.25
4/12/01	0.30	29.55
4/19/01	0.20	29.75
4/20/01	0.90	30.65
4/21/01	0.10	30.75
6/26/01	0.20	30.95

Water year 2001-2

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/24/01	0.10	0.10
10/30/01	0.70	0.80
11/11/01	1.00	1.80
11/12/01	2.40	4.20
11/13/01	0.40	4.60
11/17/01	0.10	4.70
11/22/01	0.50	5.20
11/24/01	1.20	8.40
11/26/01	0.40	6.80
11/27/01	1.50	8.30
12/1/01	0.80	9.10
12/3/01	2.70	11.80
12/4/01	0.20	12.00
12/5/01	0.10	12.10
12/9/01	0.20	12.30
12/12/01	0.10	12.40
12/14/01	1.00	13.40
12/17/01	1.00	14.40
12/20/01	0.50	14.90
12/21/01	1.60	16.50
12/22/01	0.10	16.60
12/23/01	0.50	17.10
12/28/01	1.00	18.10
12/29/01	0.50	18.50
12/30/01	0.20	18.80
12/31/01	0.90	19.70
1/1/02	0.10	19.80
1/2/02	1.00	20.80
1/3/02	0.60	21.40
1/22/02	0.20	21.60
1/28/02	1.10	22.70
1/29/02	0.20	22.90
2/8/02	1.00	23.90
2/17/02	1.30	25.20
2/18/02	0.20	25.40
2/20/02	1.40	26.80
2/21/02	0.10	26.90
2/24/02	0.10	27.00
3/7/02	0.70	27.70
3/8/02	0.20	27.90

3/10/02	0.50	28.40
3/18/02	0.80	29.20
3/23/02	1.20	30.40
3/24/02	0.30	30.70
4/9/02	0.30	31.00
4/17/02	0.50	31.50
4/8/02	0.10	31.60
4/29/02	0.20	31.80
4/30/02	0.20	32.00
5/2/02	0.10	32.10
5/20/02	0.50	32.60
5/21/02	0.90	33.50

Water year 2002-3

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
11/7/02	0.60	0.60
11/8/02	2.10	2.70
11/9/02	0.90	3.60
11/11/02	0.20	3.80
12/7/02	0.10	3.90
12/10/02	0.60	4.50
12/13/02	2.00	6.50
12/14/02 (a.m.)	2.00	8.50
12/14/02 (p.m.)	1.40	9.90
12/16/02	2.90	12.80
12/17/02	0.50	13.30
12/19/02 (a.m.)	0.50	13.80
12/19/02 (p.m.)	2.00	15.80
12/21/02	1.00	16.80
12/28/02	0.40	17.20
12/29/02	1.70	18.90
12/30/02	0.30	19.20
12/31/02	1.50	20.70
1/1/03	0.10	20.80
1/10/03	0.80	21.60
1/21/03	0.20	21.80
1/23/03	0.10	21.90
2/12/03	0.30	22.20
2/13/03	0.40	22.60
2/16/03	1.70	24.30
2/25/03	1.20	25.50
2/27/03	1.30	26.80
3/13/03	1.50	28.30
3/16/03	0.30	28.60
3/17/03	0.10	28.70
3/20/03	0.20	28.90
3/24/03	0.20	29.10
3/27/03	0.20	29.30
4/2/03	0.40	29.70
4/3/03	0.30	30.00
4/4/03	0.50	30.50
4/12/03	1.70	32.20
4/13/03	1.50	33.70
4/14/03	0.20	33.90
4/15/03	0.50	34.40

4/17/03	0.20	34.60
4/21/03	0.20	34.80
4/22/03	0.60	35.40
4/25/03	0.70	36.10
4/25/03	0.20	36.30
4/26/03	0.10	36.40
4/28/03	0.80	37.20
4/29/03	0.50	37.70
5/3/03	0.80	38.50
5/4/03	1.00	39.50
5/9/03	0.40	39.90
5/30/03	0.20	40.10

Water year 2003-4

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/10/03	0.10	0.10
10/31/03	0.20	0.30
11/1/03	0.20	0.50
11/3/03	0.30	0.80
11/7/03	0.50	1.30
11/9/03	1.50	2.80
11/10/03	0.10	2.90
11/15/03	0.50	3.40
11/18/03	0.20	3.60
12/1/03	0.40	4.00
12/2/03	0.80	4.80
12/5/03	0.40	5.20
12/7/03	0.80	6.00
12/8/03	0.10	6.10
12/10/03	1.40	7.50
12/11/03	0.70	8.20
12/13/03	0.50	8.70
12/14/03	0.90	9.60
12/20/03	0.40	10.00
12/21/03	0.20	10.20
12/24/03	0.80	11.00
12/25/03	0.60	11.60
12/26/03	0.30	11.90
12/29/03	0.40	12.30
12/30/03	2.90	15.20
1/1/04	2.20	17.40
1/2/04	0.40	17.80
1/4/04	0.20	18.00
1/10/04	0.40	18.40
1/24/04	0.80	19.20
1/28/04	0.40	19.60
1/30/04	0.30	19.90
2/2/04	0.30	20.20
2/3/04	2.10	22.30
2/4/04	0.60	22.90
2/5/04	0.10	23.00
2/17/04	0.90	23.90
2/18/04	2.40	26.30
2/19/04	0.10	26.40
2/21/04	0.20	26.60

2/22/04	0.30	26.90
2/23/04	0.10	27.00
2/24/04	0.30	27.30
2/25/04	0.80	28.10
2/26/04	2.00	30.10
2/27/04	1.00	31.10
3/1/04	0.10	31.20
3/2/04	0.30	31.50
3/28/04	1.10	32.60
3/30/04	0.20	32.80
4/20/04	0.20	33.00
5/28/04	0.30	33.30

Water year 2004-5

Measurement date (month/day/year)	Daily rainfall (in.)	Cumulative annual total rainfall (in.)
9/19/04	0.10	0.10
10/18/04	0.60	0.70
10/19/04	1.20	1.90
10/20/04	1.00	2.90
10/24/04	0.70	3.60
10/26/04	1.30	4.90
11/4/04	0.90	5.80
11/11/04	0.40	6.20
11/13/04	0.10	6.30
11/27/04	0.90	7.20
12/7/04	1.60	8.80
12/8/04	1.50	10.30
12/9/04	0.80	11.10
12/27/04	0.90	12.00
12/28/04	2.10	14.10
12/30/04	2.00	16.10
12/31/04	1.30	17.40
1/1/05	1.40	18.80
1/2/05	0.50	19.30
1/3/05	0.70	20.00
1/6/05	1.00	21.00
1/7/05	1.00	22.00
1/9/05	0.50	22.50
1/11/05	1.50	24.00
1/26/05	0.50	24.50
1/27/05	0.90	24.40
1/29/05	0.50	25.90
2/7/05	0.40	26.30
2/8/05	0.10	26.40
2/12/05	0.10	26.50
2/15/05	1.60	28.10
2/16/05	1.00	29.10
2/18/05	1.20	30.30
2/19/05	0.20	30.50
2/20/05	1.10	31.60
2/21/05	0.30	31.90
2/22/05	0.10	32.00
2/27/05	0.10	32.10
2/28/05	1.00	33.10
3/2/05	0.90	34.00

3/4/05	1.00	35.00
3/5/05	0.10	35.10
3/19/05	0.70	35.80
3/20/05	0.40	36.20
3/21/05	0.40	36.60
3/22/05	1.10	37.70
3/23/05	2.10	39.80
3/24/05	0.50	40.30
3/28/05	1.50	41.80
3/29/05 (a.m.)	1.00	42.80
3/29/05 (p.m.)	0.40	43.20
4/4/05	1.00	44.20
4/7/05	0.50	44.70
4/9/05	1.10	45.80
4/13/05	0.10	45.90
4/24/05	0.20	46.10
4/28/05	0.50	46.60
4/29/05	0.15	46.75
5/5/05	1.00	47.75
5/6/05	0.10	47.85
5/9/05	0.90	48.75
5/19/05	1.40	50.15
5/20/05	0.10	50.25
6/8/05	0.40	50.65
6/9/05	1.00	51.65
6/17/05	0.50	52.15
6/18/05	0.40	52.55