

Water-Data Report 2013

## 14240446 CASTLE LAKE NEAR MOUNT ST. HELENS, WA

Lower Columbia Basin  
Lower Cowlitz Subbasin

LOCATION.--Lat 46°15'23", long 122°16'28" referenced to North American Datum of 1983, in SE ¼ SW ¼ sec.14, T.9 N., R.4 E., Cowlitz County, WA, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, on right bank near outflow of Castle Lake, 5.0 mi north by northwest of the northwest edifice of Mount St. Helens (at Toutle Glacier).

DRAINAGE AREA.--1.3 mi<sup>2</sup>, at spillway entrance.

### SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1993 to current year (records of contents for water year 1994 published in WDR-WA-94-1 are unreliable and should not be used).

REVISED RECORDS.--WDR WA-04-1: 2003.

GAGE.--Water-stage recorder. Datum of gage is 2,498.95 ft above NGVD of 1929, (U.S. Army Corps of Engineers benchmarks). To convert to NAVD of 1988, add 1.84 feet (USGS Level 1 GNSS survey as per USGS T&M 11-D1).

REMARKS.--As a result of the collapse of the north face of Mount St. Helens on May 18, 1980, a debris avalanche blocked the flow of South Fork Castle Creek forming Castle Lake. Castle Lake would have overtopped the blockage in late 1981 or early 1982. Overtopping most probably would have resulted in a quick release of lake waters as a result of rapid erosion of the blockage. Serious flooding probably would have resulted from the breakout of Castle Lake. As a result, the level of Castle Lake was stabilized with the construction of a spillway in 1981. Refer to report by Schuster, R.L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Castle Lake as it was formed and impacted by the eruption and actions taken to reduce the resulting flood threat. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,582.76 ft, Feb. 8, 1996; minimum elevation, 2,577.57 ft, Oct. 5, 2012.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,580.45 ft, Nov. 20; minimum elevation, 2577.57 ft, Oct. 5.

## 14240446 CASTLE LAKE NEAR MOUNT ST. HELENS, WA—Continued

**LAKE OR RESERVOIR WATER SURFACE ELEVATION ABOVE NGVD 1929, FEET**  
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**  
**DAILY OBSERVATION AT 2400 HOURS**

| Day         | Oct      | Nov      | Dec      | Jan      | Feb      | Mar      | Apr      | May      | Jun      | Jul      | Aug      | Sep      |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1           | 2,577.68 | 2,579.54 | 2,579.22 | 2,578.32 | 2,578.78 | 2,578.81 | 2,578.78 | 2,578.80 | 2,578.87 | 2,578.11 | 2,577.78 | 2,577.83 |
| 2           | 2,577.68 | 2,579.37 | 2,579.47 | 2,578.28 | 2,578.74 | 2,578.94 | 2,578.84 | 2,578.74 | 2,578.80 | 2,578.09 | 2,577.78 | 2,577.82 |
| 3           | 2,577.63 | 2,579.25 | 2,579.53 | 2,578.21 | 2,578.69 | 2,578.96 | 2,578.87 | 2,578.71 | 2,578.73 | 2,578.08 | 2,577.78 | 2,577.84 |
| 4           | 2,577.65 | 2,579.08 | 2,579.69 | 2,578.27 | 2,578.63 | 2,578.86 | 2,579.06 | 2,578.73 | 2,578.66 | 2,578.05 | 2,577.78 | 2,577.84 |
| 5           | 2,577.64 | 2,578.93 | 2,579.62 | 2,578.25 | 2,578.66 | 2,578.84 | 2,579.46 | 2,578.79 | 2,578.60 | 2,578.03 | 2,577.77 | 2,577.92 |
| 6           | 2,577.63 | 2,578.82 | 2,579.48 | 2,578.24 | 2,578.68 | 2,578.78 | 2,579.67 | 2,578.84 | 2,578.54 | 2,578.02 | 2,577.77 | 2,578.09 |
| 7           | 2,577.62 | 2,578.73 | 2,579.39 | 2,578.40 | 2,578.65 | 2,578.72 | 2,579.76 | 2,578.88 | 2,578.48 | 2,578.01 | 2,577.76 | 2,578.07 |
| 8           | 2,577.63 | 2,578.64 | 2,579.18 | 2,578.47 | 2,578.60 | 2,578.65 | 2,579.59 | 2,578.89 | 2,578.43 | 2,577.99 | 2,577.76 | 2,578.05 |
| 9           | 2,577.63 | 2,578.57 | 2,578.98 | 2,578.73 | 2,578.55 | 2,578.58 | 2,579.37 | 2,578.89 | 2,578.39 | 2,577.98 | 2,577.77 | 2,578.03 |
| 10          | 2,577.63 | 2,578.50 | 2,578.89 | 2,578.71 | 2,578.51 | 2,578.55 | 2,579.28 | 2,578.89 | 2,578.34 | 2,577.97 | 2,577.77 | 2,578.00 |
| 11          | 2,577.63 | 2,578.56 | 2,578.89 | 2,578.66 | 2,578.48 | 2,578.52 | 2,579.19 | 2,578.88 | 2,578.32 | 2,577.95 | 2,577.76 | 2,577.98 |
| 12          | 2,577.66 | 2,578.57 | 2,578.74 | 2,578.60 | 2,578.46 | 2,578.53 | 2,579.13 | 2,578.86 | 2,578.30 | 2,577.94 | 2,577.75 | 2,577.97 |
| 13          | 2,577.71 | 2,578.52 | 2,578.67 | 2,578.55 | 2,578.47 | 2,578.59 | 2,579.06 | 2,578.86 | 2,578.30 | 2,577.92 | 2,577.75 | 2,577.95 |
| 14          | 2,577.77 | 2,578.50 | 2,578.62 | 2,578.50 | 2,578.47 | 2,578.68 | 2,578.97 | 2,578.79 | 2,578.27 | 2,577.92 | 2,577.75 | 2,577.94 |
| 15          | 2,577.98 | 2,578.47 | 2,578.59 | 2,578.46 | 2,578.47 | 2,578.80 | 2,578.86 | 2,578.72 | 2,578.24 | 2,577.90 | 2,577.75 | 2,577.94 |
| 16          | 2,578.02 | 2,578.44 | 2,578.71 | 2,578.42 | 2,578.52 | 2,578.95 | 2,578.77 | 2,578.66 | 2,578.21 | 2,577.90 | 2,577.74 | 2,577.94 |
| 17          | 2,578.02 | 2,578.50 | 2,578.75 | 2,578.38 | 2,578.51 | 2,578.95 | 2,578.71 | 2,578.63 | 2,578.19 | 2,577.89 | 2,577.74 | 2,577.92 |
| 18          | 2,578.03 | 2,578.80 | 2,578.72 | 2,578.36 | 2,578.50 | 2,578.89 | 2,578.68 | 2,578.59 | 2,578.17 | 2,577.88 | 2,577.73 | 2,577.92 |
| 19          | 2,578.14 | 2,580.28 | 2,578.80 | 2,578.34 | 2,578.48 | 2,578.86 | 2,578.86 | 2,578.55 | 2,578.16 | 2,577.88 | 2,577.72 | 2,577.92 |
| 20          | 2,578.17 | 2,580.34 | 2,578.89 | 2,578.32 | 2,578.46 | 2,579.18 | 2,578.93 | 2,578.50 | 2,578.21 | 2,577.87 | 2,577.72 | 2,577.88 |
| 21          | 2,578.17 | 2,580.01 | 2,578.76 | 2,578.30 | 2,578.48 | 2,579.23 | 2,578.96 | 2,578.56 | 2,578.20 | 2,577.86 | 2,577.71 | 2,577.91 |
| 22          | 2,578.20 | 2,579.64 | 2,578.71 | 2,578.28 | 2,578.54 | 2,579.12 | 2,578.93 | 2,578.64 | 2,578.17 | 2,577.86 | 2,577.71 | 2,578.02 |
| 23          | 2,578.20 | 2,579.52 | 2,578.72 | 2,578.31 | 2,578.53 | 2,578.99 | 2,578.88 | 2,578.67 | 2,578.19 | 2,577.85 | 2,577.70 | 2,578.06 |
| 24          | 2,578.20 | 2,579.41 | 2,578.64 | 2,578.35 | 2,578.47 | 2,578.86 | 2,578.83 | 2,578.64 | 2,578.19 | 2,577.84 | 2,577.70 | 2,578.07 |
| 25          | 2,578.16 | 2,579.19 | 2,578.57 | 2,578.37 | 2,578.48 | 2,578.77 | 2,578.81 | 2,578.61 | 2,578.19 | 2,577.83 | 2,577.70 | 2,578.06 |
| 26          | 2,578.16 | 2,579.02 | 2,578.61 | 2,578.40 | 2,578.42 | 2,578.70 | 2,578.80 | 2,578.61 | 2,578.20 | 2,577.82 | 2,577.72 | 2,578.04 |
| 27          | 2,578.30 | 2,578.88 | 2,578.44 | 2,578.44 | 2,578.40 | 2,578.66 | 2,578.81 | 2,578.70 | 2,578.19 | 2,577.81 | 2,577.72 | 2,578.12 |
| 28          | 2,578.48 | 2,578.83 | 2,578.42 | 2,578.56 | 2,578.63 | 2,578.64 | 2,578.79 | 2,578.74 | 2,578.16 | 2,577.80 | 2,577.72 | 2,578.80 |
| 29          | 2,578.83 | 2,578.82 | 2,578.39 | 2,578.58 | ---      | 2,578.64 | 2,578.92 | 2,578.93 | 2,578.15 | 2,577.80 | 2,577.83 | 2,579.35 |
| 30          | 2,579.23 | 2,578.89 | 2,578.29 | 2,578.70 | ---      | 2,578.66 | 2,578.88 | 2,578.97 | 2,578.13 | 2,577.79 | 2,577.85 | 2,579.59 |
| 31          | 2,579.46 | ---      | 2,578.37 | 2,578.78 | ---      | 2,578.72 | ---      | 2,578.94 | ---      | 2,577.78 | 2,577.83 | ---      |
| <b>Mean</b> | 2,578.03 | 2,579.02 | 2,578.86 | 2,578.44 | 2,578.55 | 2,578.80 | 2,579.01 | 2,578.75 | 2,578.33 | 2,577.92 | 2,577.75 | 2,578.09 |
| <b>Max</b>  | 2,579.46 | 2,580.34 | 2,579.69 | 2,578.78 | 2,578.78 | 2,579.23 | 2,579.76 | 2,578.97 | 2,578.87 | 2,578.11 | 2,577.85 | 2,579.59 |
| <b>Min</b>  | 2,577.62 | 2,578.44 | 2,578.29 | 2,578.21 | 2,578.40 | 2,578.52 | 2,578.68 | 2,578.50 | 2,578.13 | 2,577.78 | 2,577.70 | 2,577.82 |

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**Water Year 2013**

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| <b>Mean</b> | 2,578.46 |
| <b>Max</b>  | 2,580.34 |
| <b>Min</b>  | 2,577.62 |

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