VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS - 1981
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Formal statements released in 1981
Compiled by Bobbie Myers, 2005

1981

January – *includes Volcano Advisories*

February – *includes Volcano Advisories and Alerts and February 5 dome-building eruption*

March – *includes Extended Outlook Advisory*

April – *includes Volcano Advisories and Alerts and April 10 dome-building eruption*

May –

June – *includes Volcano Advisories and Alerts and June 18 dome-building eruption*

July –

August – *includes Extended Outlook Advisory*

September – *includes Volcano Advisories and Alerts and September 6 dome-building eruption*

October – *includes Volcano Advisories and Alerts and October 30 dome-building eruption*

November – *includes Volcano Advisory*

December –

JANUARY 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS

U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Friday, January 2, 1981

The new dome had increased in height to approximately 100 meters by January 1, 1981, the base remaining approximately equal in size to the base of the October dome. The October dome has been pushed northward by the new extrusion. Seismic activity has not yet returned to the background level evident prior to December 25, 1980.

Unusually clear weather has heralded the arrival of 1981. Steam rising from the domes is the only hindrance to visibility today.

Note: The following Volcano Advisory was issued a 9:00 a.m. PST on January 2, 1981.

> *The crater dome is continuing to grow, small to moderate earthquakes continue to be recorded within or immediately beneath the volcano, and the crater floor continues to show signs of updoming. The USGS and the University of Washington interpret this activity to indicate renewed movement of magma (since about 12/26/80) to immediately beneath the crater floor. Until the nature of this new magma can be determined, it is not possible to say whether further activity will be explosive, continued dome growth with or without mild explosions, or non-explosive. This is the first know influx of fresh magma since March and April, combined with the new (post 5/18) geometry of the mountain means we have a different mode of activity with an appropriate need for caution.*

Report at 8:00 a.m., Monday, January 5, 1981

Measurable surface deformation is occurring within the crater. Observations made late last week reported the development of a concentric, outward-facing fault scarp to the south and west of the new dome growth.

The newest dome structure has not obviously increased in height. A slight lateral expansion may have occurred, possibly related to the settling of the extrusion. Low-level seismic activity continues.

The spring-like weather pattern is holding again today.

Report at 8:30 a.m., Tuesday, January 6, 1981

Measurable surface deformation is still occurring within the crater. Fumarolic steam emissions are occurring from many radial cracks and fissures around the new and old domes.

No new increase in new dome height was observed as of mid-day Monday.

The low-level seismic activity has decreased in the last 24 hours, but has not returned to background levels.

Weather held good Monday allowing observation around and within the crater.

HYDROLOGIC CONDITIONS

Streams draining the Mount St. Helens area are still receding following the high flows of December 24-25. There has been no appreciable precipitation since that storm. The flow of the Toutle River near the mouth was about 3,800 cfs* on January 2 and about 2,500 cfs* on January 5.

The Geological Survey has operated a gaging station on the Toutle River near Silver Lake, Washington for 55 years. The average daily flows for January for the 55 year period of record is 3,400 cfs.

*Streamflow is based on preliminary computations and is subject to revision.

Report at 8:00 a.m., Wednesday, January 7, 1981

Continued fair weather allowed clear access to the mountain yesterday.

Deformation measurements were made around the upper flanks of Mount St. Helens; the data has not yet been reduced.

Measurable changes of the crater floor continue. Incandescent rocks are exposed when large rocks fall off the domes. A shallow depression is evident near the apex of the dome that is located in the southeast quadrant of the inner crater.

No major seismic events have been recorded in the past 24 hours.

Report at 8:00 a.m., Thursday, January 8, 1981

Deformation measurements made around the upper flanks of Mount St. Helens on Tuesday, January 6, indicate no measurable inflation of the mountain has occurred.

Measurable surface deformation within the crater is continuing. No significant changes in the height of the latest extrusions have been measured over the past several days.

No major seismic events were recorded in the past 24 hours, marking the third day of decreased activity.

HYDROLOGIC CONDITIONS

Flows are continuing to recede on the streams draining the Mount St. Helens area. There has been no precipitation in the area in January. A Geological Survey field crew measured a flow of 1060 cfs on the Toutle River on January 7. The flows had dropped to about 900 cfs* on January 8.

*Streamflow is based on preliminary computations and is subject to revision.

Note: The following Volcano Advisory was issued a 7:30 a.m. PST on January 9, 1981.

On the basis of recent measurements at Mount St. Helens, scientists of the U.S. Geological Survey and University of Washington feel the potential for a large explosive eruption has decreased. The activity appears to have returned to pre-December 25, 1980 levels.

We believe, the hazards inside the crater, however, continue at higher levels, because the dome remains unstable.

Report at 8:00 a.m., Friday, January 9, 1981

No deformation measurements were made yesterday. Personnel in the field worked on maintenance of monitoring systems. Aerial observers were not able to discern any major changes within the crater.

The unusual good weather has surprised everyone by continuing another day.

HYDROLOGIC CONDITIONS

During the Christmas flood, the flow of the Toutle River at the mouth averaged 17,700 cfs on December 26, with a peak of 26,000 cfs. This was the highest flow on the Toutle River since the May 18 eruption of Mount St. Helens, but was not an extremely high flow. Peaks of this magnitude occur on the average of once every ten years.

For the first time since the Cowlitz channel was dredged to its pre-eruption depth, the channel at Castle Rock filled significantly. About five feet of material was deposited in the Cowlitz near Castle Rock and in the lower Toutle River channel. No overbank flooding occurred on the lower Cowlitz River, and the deposition represents no immediate threat unless the channel continues to fill at a faster rate than dredging can proceed. Nevertheless, this was the first -flood in which a significant amount of channel conveyance was lost in the lower Toutle and Cowlitz River. During the three day period of December 25-27, about 9.3 million tons of suspended sediment was discharged from the Toutle River into the lower Cowlitz River just upstream from Castle Rock. The maximum suspended sediment concentration exceeded 200,000 mg/liter. Concentrations of that magnitude have been measured during each of the three preceding storms this winter. Flows in the Toutle are continuing to recede since the last storm. The flow on the

Toutle River on January 9 is about 900 cfs.

*Streamflow and sediment values are based on preliminary computations and are subject to revision.

Report at 8:00 a.m., Monday, January 12, 1981

Deformation measurements made around Mount St. Helens Thursday, January 9, and Friday, January 10, indicate that no measurable changes are occurring.

High east winds stirred up old ash deposits, impaired visibility, and prohibited access west of the mountain and in to the crater, Saturday, January 11. Attempts at field work were aborted.

No major seismic events around Mount St. Helens were recorded over the weekend.

Report at 8:00 a.m., Tuesday, January 13, 1981

Changes are still observable within the crater. The central depression of the dome has increased slightly. Additional survey stations were established yesterday. Seismicity remains low.

Report at 8:00 a.m., Wednesday, January 14, 1981

No ground work was done yesterday, January 13. No major changes were seen by aerial observers.

Several small events registered on the seismographs in the early morning hours today.

The Forest Service observer plane has reported a new rock avalanche on the west crater wall.

The sun is out today but strong winds are again stirring up the old ash deposits and impairing visibility.

HYDROLOGIC CONDITIONS

There has been no appreciable precipitation in the Mount St. Helens area this month. Streamflows are running below average. Preliminary calculations indicate the average streamflow of the Toutle River near Silver Lake so far this month is 2,200 cfs. The 55 year average stream flow of the Toutle River near Silver Lake is 3,400 cfs. The Toutle River was flowing at about 1,000 cfs on January 13.

Report at 8:00 a.m., Thursday, January 15, 1981

Forest Service aerial observers reported occasional increases (all less than 3,200 meters above sea level) in the elevation of visible plume emissions yesterday.

New rock avalanches were observed; one falling from the west wall of the crater reached the northwest edge of the dome. Hydrological studies were the concentration of yesterday's field work.

Seismicity remains low.

HYDROLOGIC CONDITIONS

There has been no appreciable precipitation in the Mount St. Helens area this month. Streamflows are running below average. Preliminary calculations indicate the average streamflow of the Toutle River near Silver Lake so far this month is 2,200 cfs. The 55 year average stream flow of the Toutle River near Silver Lake is 3,400 cfs. The Toutle River was flowing at about 1,000 cfs on January 14.

Report at 8:00 a.m., Friday, January 16, 1981

High winds prohibited deformation measurements within the crater and around Mount St. Helens yesterday, January 15. There was no significant seismic activity.

HYDROLOGIC CONDITIONS

There has been no appreciable precipitation in the Mount St. Helens area during the month of January. The flows of the streams draining Mount St. Helens have receded and leveled off since the late December storms. Flows are below average for January. The 55-year average for the Toutle River near Silver Lake is about 3,400 cfs. Preliminary calculations indicate the average flow for the Toutle River so far during January 1981 is 1,900 cfs, and the flow on January 15 was 1,100 cfs.

Report at 8:00 a.m., Monday, January 19, 1981

Mount St. Helens has remained generally quiet since the last report, although a small plume of ash and steam condensate rose to 10,000' at approximately 1152 PST on Friday, January 16. This was a short event and not sustained. A seismic burst of activity was recorded in conjunction with this event.

Weather precluded any operations or observations on the mountain Saturday, January 17.

Other small seismic events occurred Saturday at 2053 PST and on Sunday, January 18, at 0029 PST and 2343 PST.

HYDROLOGIC CONDITIONS

Streamflow during January continues below average for the streams draining the Mount St. Helens area. The average flow so far during January is about one-half the long term average January flow of the Toutle River. The 55-year average January flow of the Toutle River near Silver Lake is 3,400 cfs. Preliminary calculations indicate the average flow through January 18 is about 1,700 cfs. The Toutle River is flowing about 900 cfs today.

Report at 8:00 a.m., Tuesday, January 20, 1981

At approximately 1204 PST yesterday Forest Service observers reported an increase in plume emissions including minor amounts of ash. The plume entered the clouds at 9,500'. The increased activity was not sustained.

A seismic burst accompanied this event. Other small seismic events were recorded but clouds obscured the mountain so no correlated changes in emissions could be seen.

HYDROLOGIC CONDITIONS

Streamflow during January continues below average for the streams draining the Mount St. Helens area. The average flow so far during January is about one-half the long term average January flow of the Toutle River. The 55-year average January flow of the Toutle River near Silver Lake is 3,400 cfs. Preliminary calculations indicate the average flow through January 19 is about 1,700 cfs. The Toutle River is flowing about 800 cfs today.

Report at 8:00 a.m., Wednesday, January 21, 1981

Instrument maintenance and hydrological studies were the concentration of yesterday's field work.

No major seismic events were recorded during the past 12 hours.

The winter weather conditions normal to the Northwest have returned today. A deteriorating weather front has brought rain and is expected to bring more.

HYDROLOGIC CONDITIONS

Streamflow in the Mount St. Helens area has not responded to the light rain that started last night. The average flow of the Toutle River this January is about one-half the 55-year average January flow.

Report at 8:00 a.m., Thursday, January 22, 1981

Rain and clouds prohibited field work around Mount St. Helens and obscured the crater from aerial observation yesterday, January 21.

No significant seismic activity has been recorded over the past 24 hours.

Wet weather is continuing today. The freezing level is 7,000' this morning, so fresh snowfall on the upper part of the mountain is expected.

Report at 8:00 a.m., Friday, January 23, 1981

Wet weather and clouds grounded field parties for another day yesterday, January 22. No major seismic events related to Mount St. Helens were recorded over the past 24 hours.

Report at 8:00 a.m., Monday, January 26, 1981

Wet weather inhibited access to the mountain Friday, January 23, and Saturday, January 24. Clouds obscured the crater from the view of Forest Service aerial observers.

The inability to see the mountain and obtain deformation data over the last several days prompted personnel to take advantage of a break in weather that occurred late Sunday morning. Field crews were able to make some close-in observations although spotty clouds prohibited distance deformation measurements. Yesterday's work indicates that crater floor deformation continues at a rate that has decreased considerably since earlier this month.

The University of Washington reported that no major seismic events directly attributable to Mount St. Helens were recorded over the weekend. Activity that did register was similar in character to events that have previously been correlated with rock avalanches and minor venting episodes. Field parties reported evidence that both activities had occurred; both new talus piles and light deposits of ash on fresh snow were seen.

Water Resource Division crews were busy over the weekend installing stream monitoring instrumentation.

Winter weather is still with us, and the outlook for the week includes a series of wet weather fronts passing through the area.

HYDROLOGIC CONDITIONS

The January precipitation on the southwest slope of the Washington Cascades was only five percent of average through January 20. Flows of the streams draining the Mount St. Helens area increased slightly with the precipitation over the weekend. However, the average flow for the Toutle River remains less than one-half the 55-year average flow.

Report at 8:00 a.m., Tuesday, January 27, 1981

No field work was accomplished yesterday, January 26.

No significant seismic activity was recorded over the past 24 hours.

Snow level is estimated at 4,000' this morning. Additional precipitation is expected today.

Report at 8:00 a.m., Wednesday, January 28, 1981

Weather prohibited field work on Mount St. Helens, yesterday January 27.
There was no significant seismic activity over the past 24 hours.
A break in the storm fronts passing through may allow personnel to access the field this morning.

Report at 8:00 a.m., Thursday, January 29, 1981

Bad weather brought attempted field work to an early halt yesterday, January 28.
No significant seismic activity has been recorded over the past 24 hours.

Report at 8:00 a.m., Friday, January 30, 1981

Weather precluded any deformation measurements on Mount St. Helens yesterday, January 29. Field crews were able to make cursory aerial observations of the crater before leaving the area; no major changes were observed.

No major seismic events related to Mount St. Helens have been reported in the past 24 hours.

HYDROLOGIC CONDITIONS

One and one-half inches of precipitation has fallen on the southwest slope of the Washington Cascades during the month of January. The long-term January average is about 9 inches. Flow of the streams draining the St. Helens area is still well below average. The average flow through January 30 is about one-half the 55-year average January flow for the Toutle River.

FEBRUARY 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Monday, February 2, 1981

Fog and low clouds around Mount St. Helens interrupted field work that required helicopter support Friday, January 30. Personnel were able to conduct hydrological studies along Pine Creek where ground access was possible.

Field crews were able to reach Mount St. Helens Saturday, January 31. Scattered clouds prohibited electronic distance measurements, but personnel were able to make measurements to monitoring stations on the crater floor. Measurable changes are still occurring, although at a rate much reduced from that observed during the December eruption.

Several seismic events similar in character to events that have accompanied increased plume emissions were observed over the weekend. Two of these events were correlated with increased emissions, but one observed increase had no significant change in seismic signature associated with it.

This morning at 0336 (all times PST), a seismic burst registered and was followed by an earthquake (magnitude approximately 2.0) at 0340. Very low level tremor followed these events, returning to background level at approximately 0630.

Heavy fog has closed the airports this morning.

Report at 8:00 a.m., Tuesday, February 3, 1981

Fog kept field parties away from Mount S. Helens yesterday, February 2.

University of Washington personnel reported one 35 minute episode of low level tremor last night. Occasional seismic bursts punctuate yesterday's record.

Report at 8:00 a.m., Wednesday, February 4, 1981

Occasional low level tremor and seismic bursts were recorded over the past 24 hours. One event, observed by field parties at approximately 1220 PST, had an associated increase in plume activity including minor amounts of ash.

Data from yesterday's field work has not yet been reduced.

The following Volcano Advisory was issued at 1200 p.m. (2400) PST on February 4, 2004

There has been an increase in the number of shallow volcanic earthquakes beneath Mount St. Helens over the last half day. It is too soon at this time to say whether this will lead to an eruption or, if so, what the nature of that eruption might be. We will advise you if there are any additional changes.

The following Volcano Alert was issued at 0400 a.m. PST on February 5, 1981

The seismic data of the last several hours indicate that an eruption of Mount St. Helens will probably begin within the next 12 hours. This seismic and geologic data indicate the eruption will most likely be of the dome building kind as was the one of December 27-January 4. However, due to some similarities of precursors before the explosive ash eruption of July 22 and October 16 and the current ones, we feel that an explosive eruption is a definite possibility.

The following Volcano Advisory was issued at 1255 hrs PST on February 5, 1981

The crater dome is growing again, and the eruption is following a course very similar to that of the December 27-January 4 eruption.

Report at 8:30 a.m., Thursday, February 5, 1981

At approximately 2400 (all times PST) February 4, the U. S. Geological Survey issued an advisory to the U. S. Forest Service and other interested agencies that seismic activity had increased over the past 12 hours. At 0400 February 5, the University of Washington issued a statement that eruptive activity could be expected to occur within the next 12 hours. Seismic and geologic data indicate the eruption will most likely be of the dome building kind as was the one of December 27 January 4, but an explosive eruption is still a possibility.

Preliminary reports from the Forest Service observer plane this morning indicate periodic increases in plume activity are visible, with emissions reaching approximately five kilometers (15,000'). Steam within the crater prohibited observation of the dome.

Field crews are trying to work around scattered clouds, and rain showers in order to gain more information.

HYDROLOGIC CONDITIONS

Flows continue below average for streams draining the Mount St. Helens area. The 55-year average February flow for the Toutle River is 2960 cfs. A Geological Survey field party measured 858 cfs on the Toutle River on February 2. The average Toutle River flow so far

during February is less than 1,000 cfs.

Report at 8:00 a.m., Friday, February 6, 1981

The expected dome-building eruption at Mount St. Helens was confirmed to have occurred yesterday, February 5. Steam rising from the dome made access and viewing difficult, but scientists were able to make cursory observations. Preliminary reports suggest the new extrusion is approximately 150 meters high, rising through the center of the December composite dome.

U.S. Geological Survey personnel accompanied Forest Service observers in a fixed wing aircraft to keep an aerial watch on the activities of the day. Weather conditions and steam (forming as a result of thermal conditions created by the new dome) limited viewing of the crater. A column of steam, approximately five kilometers high (16,500'), rose from the crater and was sustained at that altitude most of the day. By late afternoon conditions improved-allowing glimpses of the new rock through billowing steam fumaroles. No ash was seen to accompany the eruption, and the steam dissipated within several miles to the west of Mount St. Helens.

Seismic activity decreased throughout the day yesterday. There have been no major seismic events recorded over the past 12 hours.

Clear skies and cold temperatures allowed personnel to make an early start this morning. Good weather is expected to last throughout the day.

HYDROLOGIC CONDITIONS

Flows draining the Mount St. Helens area remain at about one-third the long-term average February flow. There has been light snowfall on the mountain during the past week; however, snowpack remains well below average. The Marble Mountain SNOTEL gage at the 3300' elevation on the south side of Mount St. Helens indicates about a three and one-half inch water-equivalent snowpack. This is about 15% of the average snowpack for this time of year. No precipitation is expected over the weekend.

The "Hydrologic Conditions" section above is prepared by Larry Hubbard, USGS, Water Resources Division, Portland; Portland phone 231-2021 (FTS 429-2021) and Vancouver phone 696-7796 (FTS 422-7796).

The following Volcano Advisory was issued at 1145 a.m. PST on February 7, 1981

> *Seismic activity at Mount St. Helens has remained at a low level for the past 36 hours. Field observations and measurements indicate that the rate of growth of the dome has decreased significantly. If this eruption continues to follow the pattern of the December-January eruption, scientists of the USGS and the University of Washington feel that the potential; for a large explosive eruption in the immediate future has decreased. However, we caution as before that if (repeat if) an explosive eruption were about to occur, we might not see adequate precursors. Local hazards associated with the growing dome remain high. We will issue a further advisory when dome growth has stopped.*

Report at 8:00 a.m., Monday, February 9, 1981

Seismic activity has remained low at Mount St. Helens over the weekend.

Field measurements made on Friday, February 6, and Saturday, February 7, indicate that the new lobe did not exhibit significant vertical growth over that time period. However, slow lateral spreading was observed to occur. Approximate elevation at the top of the February lobe is 2037 meters. Additional field work is needed to determine if the dome will stabilize at this stage of development.

Report at 8:00 a.m., Tuesday, February 10, 1981

Rain showers, snow and low clouds kept personnel away from Mount St. Helens Monday, February 9.

Seismicity remains generally low, the record being punctuated by an occasional seismic burst. One burst, recorded at approximately 0755 PST yesterday, was seen by Forest Service observers to be accompanied by a small increase in plume activity containing minor amounts of ash.

The skies are clear this morning. A strong wind is blowing from the east.

HYDROLOGIC CONDITIONS

Streams draining the Mount St. Helens area are still flowing well below average. According to preliminary calculations, the average daily flow of the Toutle River through February 10 is 740 cfs. This is about 25 percent of the 55-year average February flow of 2957 cfs for the Toutle River. Precipitation and snowpack remain well below average for the area.

(The "Hydrologic Conditions" section above is prepared by Larry Hubbard, USGS, Water Resources Division, Portland –Portland phone 231-2021 or FTS 429-2021 and Vancouver phone 696-7796 or FTS 422-7796.)

The following Volcano Advisory was issued at 0950 a.m. PST on February 10, 1981.

> *The dome has stopped growing, and the latest eruption has apparently ended. Seismicity and other indicators are back to their normal levels. Occasional, small steam emissions may continue.*

Report at 8:00 a.m., Wednesday, February 11, 1981

Seismic activity at Mount St. Helens remains low. Occasional seismic bursts are still being recorded. At 0915 a recorded burst coincided with a steam event that was accompanied by minor amounts of ash. Field crews reported hearing a boom prior to this event. Forest Service observers reported that the plume rose to 13,000' and dissipated after several minutes.

Weather today is cold with freezing rain and snow showers occurring at low elevations.

HYDROLOGIC CONDITIONS

The Mount St. Helens area experienced unseasonably warm, dry weather during the month of January. Snowpack was well below average at the end of the month. The Soil Conservation Service Marble Mountain SNOTEL snow gage at the 3,300 foot level on the south side of Mount St. Helens recorded a three and one-half inch water equivalent snow depth at the end of January {about 15% of average}.

The average January flow of streams draining the Mount St. Helens was less than one-half the long-term average. For example, preliminary calculations indicate average flow of the Toutle River for January 1981 was 1,400 cfs. The 55-year average January flow for the Toutle River near Silver Lake is 3,395 cfs.

Several small rainfalls that occurred during January resulted in relatively high concentrations of sediment and streambank erosion; however, there were no serious sedimentation problems. Sand made up most of the material transported by the January flows.

In the 55 years that the Geological Survey has collected streamflow records on the Toutle River, the highest flow of the year has occurred in February 10 times and in March five times. Regardless of the low flows of January and early February, the potential of seasonal flooding due to rainstorms will still exist through February and March. Over the long-term average, February rates as the third highest runoff month of the year with March being the fourth highest.

Report at 8:00 a.m., Thursday, February 12, 1981

Snow and freezing rains kept field parties away from Mount St. Helens yesterday, February 11.

Seismic activity remains low.

Yesterday's storm continues today with clouds to 25,000' and snow in mountain areas.

Report at 8:00 a.m., Friday, February 13, 1981

Seismic activity at Mount St. Helens remains low. Rain and clouds have prevented any helicopter operations since Tuesday.

The following volcano advisory was issued at 11:45 p.m. on February 13, 1981.

The earthquake which occurred at 10:09 this evening had a Richter magnitude of 5.4-

5.6 and was centered near Elk Lake, 10-12 miles northwest of Mount St. Helens, at a depth of 3 miles. A series of smaller aftershocks is continuing at this time. The earthquake does not appear to be volcanic.

Report at 8:00 a.m., Tuesday, February 17, 1981

Heavy rain showers, low clouds and turbulent winds kept field crews away from Mount St. Helens over the President's Day weekend.

Seismic activity directly related to the volcano remains low.

At 2209 PST, Friday, February 13, a M ~ 5.5 earthquake occurred near Elk Lake which is approximately 12 miles north-northwest of Mount St. Helens. Aftershocks from the earthquake continued with a decreasing trend over the weekend. The majority of aftershocks registered less than 3.0.

Report at 8:00 a.m., Wednesday, February 18, 1981

Wind, rain and low clouds again frustrated personnel in their efforts to reach Mount St. Helens yesterday, February 17.

No significant seismic activity directly related to Mount St. Helens has been recorded over the past 24 hours.

Stormy weather is continuing as a series of low pressure fronts move through the area.

HYDROLOGIC CONDITIONS

The weekend rains brought the accumulative February precipitation for southwestern Washington to 6.8 inches. The total precipitation for February is now slightly above the long-term average. The rain storm caused the streams draining the Mount St. Helens area to reach the highest level since the high runoff during the Christmas storm. Preliminary estimates indicate that flows of about 10,000 cfs occurred in the Toutle River over the weekend. This is less than one-half the peak flow of December 26.

Report at 8:00 a.m., Thursday, February 19, 1981

Seismic activity at Mount St. Helens remains low. Poor weather has prevented access to the field for the past nine days.

Report at 8:00 a.m., Friday, February 20, 1981

Weather has again prevented access to Mount St. Helens. No seismic events have occurred in the last 24 hours. A break in the storms which have prevented field work since February 11 may allow access to the field today.

Report at 8:00 a.m., Monday, February 23, 1981

Seismic activity at Mount St. Helens remains low with minor rock avalanching and occasional aftershocks to the February 13 Elk Lake earthquake.

A break between storms allowed field parties to make some measurements Saturday: however, high winds have prevented access to the crater since then.

Report at 8:00 a.m., Tuesday, February 24, 1981

Seismic activity at Mount St. Helens remains low. Saturday's measurements of the February lobe indicate lateral spreading of 12 meters and then elevation decrease of three meters since February 8.

Monday's high winds and clouds have turned to rain today preventing further field work.

Report at 8:00 a.m., Wednesday, February 25, 1981

Weather prohibited field work on Mount St. Helens yesterday. However, a break in the storms passing through may allow access this morning.

There was no significant seismic activity over the past 24 hours.

Report at 8:00 a.m., Thursday, February 26, 1981

Excellent weather conditions at Mount St. Helens allowed field parties access to the area yesterday. Crews in the crater observed evidence of new snow avalanches on the walls of the crater and numerous minor steam explosions on the north side of the dome. No significant seismic events have been recorded.

Ground fog in Vancouver is delaying today's departure.

Report at 8:00 a.m., Friday, February 27, 1981

Seismic activity at Mount St. Helens remains low. No deformation measurements were

made yesterday; however, field crews are attempting to enter the crater today.

The composition of the February lobe is the same as the August and December domes.

MARCH 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Monday, March 2, 1981

High winds kept personnel away from Mount St. Helens Saturday. Beautiful weather allowed access to the field on Sunday. Data from deformation measurements have not yet been reduced. The mountain remains seismically quiet this morning.

Report at 8:00 a.m., Tuesday, March 3, 1981

Seismic activity at Mount St. Helens remains low. Results from deformation measurements indicate a slight lengthening of lines from Harry's in late February. Field observers have noted a slight increase in fuming.

Rain today is keeping field crews on the ground.

Report at 8:00 a.m., Wednesday, March 4, 1981

No significant seismic activity occurred at Mount St. Helens yesterday. Weather prevented helicopter operations. However, a break in the clouds may allow access today.

Report at 8:00 a.m., Thursday, March 5, 1981

Mount St. Helens has remained seismically quiet over the past 24 hours. Clouds and wind prevented access to the field yesterday. Ground fog is keeping helicopters in Vancouver this morning.

Report at 8:00 a.m., Friday, March 6, 1981

No significant seismic events related to Mount St. Helens have been reported over the past 24 hours.

Fog caused field parties to make a late start yesterday, March 5. Data from measurements taken has not yet been reduced. No major changes have been reported.

Report at 8:00 a.m., Monday, March 9, 1981

Mount St. Helens remains seismically quiet. Field crews had the past weekend off. Today is clear; however, high winds at the mountain may prevent helicopter operations.

Report at 8:00 a.m., Tuesday, March 10, 981

Field crews were able to reach Mount St. Helens yesterday. No changes were apparent inside the crater.

The mountain remains seismically quiet except for occasional seismic bursts, including one confirmed as a minor steam event by field observers at 1521 PST.

Crews are in the field again today.

Report at 8:00 a.m., Wednesday, March 11, 1981

Mount St. Helens has remained seismically quiet over the past 24 hours. Crews working within the crater were forced to return early due to changing weather conditions. Fog is keeping helicopters in Vancouver this morning.

Report at 8:00 a.m., Thursday, March 12, 1981

Clear weather at Mount St. Helens yesterday allowed access to the crater area. No changes were reported. The mountain remains seismically quiet.

Report at 8:00 a.m., Friday, March 13, 1981

Seismic activity at Mount St. Helens remains low. University of Washington reports a possible steam burst or large rock avalanche at 0043 PST.

Clear weather at the mountain permitted instrument maintenance and some crater work.

Today is clear in Vancouver but clouds at the mountain are limiting access.

Report at 8:00 a.m., Monday, March 16, 1981

Weather prevented field work at Mount St. Helens over the weekend. The mountain has remained seismically quiet.

Report at 8:00 a.m., Tuesday, March 17, 1981

Seismicity remains low at Mount St. Helens. Weather conditions at the mountain prevented helicopter operations yesterday. Heavy fog is keeping crews in Vancouver this morning.

Report at 8:00 a.m., Wednesday, March 18, 1981

Seismicity remains low at Mount St. Helens. High winds in the area prevent helicopter operations today.

Report at 8:00 a.m., Thursday, March 19, 1981

High winds in the area of Mount St. Helens are preventing helicopter operations. Seismic activity remains low.

Report at 8:00 a.m., Friday, March 20, 1981

Mount St. Helens remains seismically quiet. High winds continue to prevent crater work. However, crews were able to do some instrument maintenance yesterday.

Report at 8:00 a.m., Monday, March 23, 1981

Partly cloudy weather conditions allowed access to Mount St. Helens over the weekend. Deformation crews working in the crater report some changes are occurring.

Two seismic bursts were recorded over the weekend. The burst at 1416 PST on Sunday was felt by crews in the crater. Seismic activity remained low for the rest of the weekend.

Rain today is keeping crews in Vancouver.

Report at 8:00 a.m., Tuesday, March 24, 1981

Seismic activity remains low at Mount St. Helens. Poor weather prevented field operations yesterday. Crews are trying to reach the crater today to verify minor changes observed over the weekend.

Report at 8:00 a.m., Wednesday, March 25, 1981

High winds yesterday kept field crews out of the crater at Mount St. Helens. Seismic activity remains low with an occasional minor burst being recorded. One burst at 0622 PST this morning was associated with an observed steam puff.

Report at 8:00 a.m., Thursday, March 26, 1981

Yesterday, March 25, the Forest Service observer plane reported fresh ash deposited to the northeast of the volcano over the Plains of Abraham. Weather kept personnel from reaching the mountain till mid-afternoon. Reports at that time indicated that the ash was re-worked dome material, apparently emitted from a new fumarole on the north periphery of the dome. Correlation between the observed steam event and the seismic burst reported in yesterday's update cannot be confirmed, but is a consideration.

No major seismic activity has been recorded in the past 24 hours.

Weather is stormy this morning but expected to improve throughout the day.

Report at 8:00 a.m., Friday, March 27, 1981

Poor weather conditions prevented crews from making any deformation measurements from Harry's Ridge or from entering the crater.

Plans for media to interview geologists working at five sites around the mountain were postponed until today in hopes weather would improve.

The mountain remains seismically quiet with occasional seismic bursts.

Report at 8:00 a.m., Monday, March 30, 1981

Over the past few days there has been a slight increase in seismic activity at Mount St. Helens, possibly associated with occasional increases in venting activity.

Weather has hampered deformation measurements from Harry's Ridge. However, crews were able to work in the crater Friday and Saturday.

Visual observations and spot measurements over the past few months have suggested that considerable amounts of ground deformation are affecting the crater floor around the lava dome. A survey network has been established on the crater floor and the ramp extending down the north

flank to measure this deformation. These measurements have shown that the ground tilts sometimes towards the dome and at other times away from the dome. During the past few weeks, the ground surface has persistently been rising up and tilting outward away from the dome.

Snow storms in the mountains are keeping field crews in Vancouver today.

The following Extended Outlook Advisory was issued at 3:30 p.m. PST on March 30, 1981.

> *Rates of ground deformation in the crater of Mount St. Helens have increased during the past two weeks. In the past, similar deformation has preceded eruptions. Seismicity remains low, although it has increased slightly since mid-March. These increases in activity do not --- repeat, do not --- suggest that an eruption is imminent, but do suggest that if current trends continue, an eruption within the next week or two is likely. It is too soon to forecast the date or probable nature of such an eruption. This extended outlook advisory looks ahead for a longer period than previous advisories, and will be followed by more specific advisories.*

Report at 8:00 a.m., Tuesday, March 31, 1981

Weather again prevented crews from working at Mount St. Helens.

A seismic burst was recorded at 2110 PST. It is not known if there was an associated steam burst.

High winds and clouds are keeping crews in Vancouver today.

APRIL 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Wednesday, April 1, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts. Weather prevented field crews from reaching the Mountain yesterday.

Report at 8:00 a.m., Thursday, April 2, 1981

Changing weather conditions at Mount St. Helens forced crews to return early yesterday. Seismic activity remains low with occasional seismic bursts.

Report at 8:00 a.m., Friday, April 3, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts.
Crews were unable to work yesterday due to snowstorms in the mountains.

Report at 8:00 a.m., Monday, April 6, 1981

Mount St. Helens continues to be obscured by clouds. Deformation crews have been unable to reach the mountain for over a week.
Seismic activity remains low.
Crews are hoping to reach the mountain between storm fronts today.

Report at 8:00 a.m., Tuesday, April 7, 1981

Mount St. Helens remains seismically quiet.
Winter storms continue to keep field crews in Vancouver.

Report at 8:00 a.m., Wednesday, April 8, 1981

Seismic activity at Mount St. Helens continues at the same level as last week.

Field crews took advantage of poor weather to attend a first aid class. Weather forecasts predict continuing storms through Friday.

Report at 8:00 a.m., Thursday, April 9, 1981

Field crews were unable to reach Mount St. Helens due to weather conditions.

Occasional seismic bursts continue to be recorded. University of Washington reported a small earthquake, at 2302 PST yesterday. The exact location and magnitude have not yet been determined.

The following Volcano Advisory was issued at 11:00 p.m. (2300) PST on April 9, 1981.

> *There has been an increase in the number of shallow volcanic earthquakes beneath Mount St. Helens over the past 6 hours. If seismicity continues to increase, an eruption will probably occur within the next day or two. This updates the advisory of 3/30/81, which was based primarily on deformation measurements. We will advise you of additional changes.*

Report at 8:30 a.m., Friday, April 10, 1981

Seismic activity at Mount St. Helens has increased. At 2300 PST yesterday an advisory was issued stating that if seismicity continued to increase an eruption would be probable within the next day. At 0630 this morning the following update alert was issued:

"Seismicity at Mount St. Helens has continued to increase, and an eruption will probably begin this morning. We do not know yet what type of eruption is most likely."

Weather conditions around the mountain are very poor at this time. Two helicopters and the gas aircraft are flying in the area but are unable to see into the crater. A dirty plume rising to 15,500' was reported at 0821. By 0827 it had decreased in elevation. More crews remain on standby in Vancouver, should the weather improve.

After the above update was written, the following alert was sent out at 9:00 a.m., 4/10/81: "There was a small eruption at approximately 8:21 a.m. with an ash-bearing plume which rose to 15,500' and drifted for a short distance to the N-NE. The USGS cautions that more eruptive activity may follow. Clouds still obscure the crater area preventing observation of the dome."

Report at 9:00 a.m., Saturday, April 11, 1981

Seismic activity at Mount St. Helens has declined since 10:00 p.m. on Friday April 10 when the rate of shallow volcanic earthquakes decreased from about 6 per hour to 1 per hour. The total energy of seismic activity has declined.

Weather conditions around the mountain continue to be poor, and no direct observation of the crater has been possible in the past 72 hours. USGS geologic field crews remain on standby to fly to the crater if there should be partial clearing this afternoon. Hydrologic field crews continue monitoring activities at stream gaging stations on North and South Forks of the Toutle River and on the Cowlitz River at Castle Rock.

The Forest Service Red and Blue Zones and the State Red Zone remain closed at this time.

Despite the decline in seismicity, eruptive activity is still possible.

The following Volcano Alert Update was issued at 11:20 a.m. PST on April 11, 1981.

> *Seismicity at Mount St. Helens is continuing but at a lower level than seen yesterday. Present seismicity resembles but is not identical to that of earlier dome-building eruptions. Poor weather has prevented observations on and near the volcano. Further eruptive activity is possible.*

The following Volcano Advisory was issued at 10:00 p.m. PST on April 12, 1981.

> *Late this afternoon U.S. Geological Survey geologists confirmed that renewed dome growth has occurred. Seismic activity remains low. Until more detailed field measurements are made, we do not know whether the dome is still growing or what additional activity, if any, is likely during this eruption.*

Report at 8:00 a.m., Monday, April 13, 1981

Seismic activity at Mount St. Helens has decreased. Occasional seismic bursts are being recorded, some associated with confirmed steam bursts.

Crews were unable to see clearly into the crater this weekend due to clouds and steam. There is clear weather at the mountain today. Crews are in the field observing changes from Friday's eruption, measuring deformation and doing equipment maintenance.

Report at 8:00 a.m., Tuesday, April 14, 1981

The April 10th eruption appears to have been mostly dome building. A new lobe has grown on the north side of the composite dome. This lobe extends perhaps 100 to 200 meters to the N-NE. The crater floor shows extensive signs of deformation. Old cracks have lengthened

and widened, and new radial cracks have formed. Many of these cracks show either vertical or horizontal displacement. Some new thrust faulting is also evident.

A large depression was observed in the center of the February dome. Spalling and glowing rocks were visible on the north slope of the new dome.

Several small steam and ash events were observed by field crews yesterday. One of these events (at 0844 PST) sent steam and ash to 9000 feet and was associated with a seismic burst recorded by USGS and UW seismographs.

Clear weather is allowing access to the mountain today. Crews are measuring deformation and replacing stations lost in the eruption.

The following Volcano Advisory was issued at 8:30 a.m. PST on April 14, 1981.

Recent dome growth has slowed significantly following the general pattern of the December-January and February eruptions. Seismicity remains low. Chances of explosive activity are now significantly lower than when the alert for this eruption was issued. We will advise you when activity returns to pre-eruption levels.

Report at 8:00 a.m., Wednesday, April 15, 1981

Seismicity at Mount St. Helens remains low but has not returned to background level. Occasional seismic bursts are still being recorded. Some of these bursts are associated with confirmed steam bursts.

The new dome elevation is 2031 meters. The E-W width is 377 meters (96 meters wider than formerly). Field crews report continued spalling of rocks off dome, including the large block which was on upper NE quadrant.

Crews are working in the crater again today.

The following Volcano Advisory was issued at 9:10 p.m. PST on April 15, 1981.

Dome growth has essentially stopped. Seismicity remains low though not quite back down to pre-eruption levels. This latest eruption appears to be over, although minor readjustments may still occur in and around the dome

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Report at 8:00 a.m., Thursday, April 16, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts.

Measurements from Harry's Ridge at 0830, April 15, showed no change in height or width

of the dome.

Crews are attempting to work in the crater today.

Report at 8:00 a.m., Friday, April 17, 1981

Mount St. Helens remains seismically quiet with occasional seismic bursts.

Continuing clear weather is allowing access to the crater.

Report at 8:00 a.m., Monday, April 20, 1981

Clear, warm weather on Friday and Saturday allowed crews to work at Mount St. Helens doing detailed measurements in the crater. UW reports seismic activity has returned to background level.

The mountain is obscured by clouds today.

Report at 8:00 a.m., Tuesday, April 21, 1981

Seismic activity at Mount St. Helens is low. Poor weather is preventing crews from working at the mountain.

Report at 8:00 a.m., Wednesday, April 22, 1981

Poor weather is preventing crews from working at the mountain. Seismic activity at Mount St. Helens is low.

Report at 8:00 a.m., Thursday, April 23, 1981

Continuing storms have prevented crews from working at Mount St. Helens. A break between storm fronts may allow crews to reach the mountain today.

Seismicity remains low.

Report at 8:00 a.m., Friday, April 24, 1981

A break between storms allowed crews access to Mount St. Helens. No significant changes were noted.

Seismic activity remains low.

Report at 8:00 a.m., Monday, April 27, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts. Several of these bursts correlate with steam bursts reported by observers in the Forest Service spotter plane and by commercial airline pilots.

Good weather on Saturday allowed crews to do instrument maintenance. Fog and clouds are keeping crews in Vancouver today.

Report at 8:00 a.m., Tuesday, April 28, 1981

Weather prevented field work at Mount St. Helens again.

Seismic activity remains low.

Report at 8:00 a.m., Wednesday, April 29, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts.

Ground fog is keeping crews in Vancouver this morning.

Report at 8:00 a. m., Thursday, Apri1 30, 1 981

Yesterday was beautiful and warm at Mount St. Helens. Crews within the crater reported almost continuous small rock and snow avalanching. Melting snow has created two small lakes within the crater.

University of Washington reports the mountain is still seismically quiet.

MAY 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Friday, May 1, 1981

Another beautiful day allowed access to the crater at Mount St. Helens. Crews were able to observe and measure active mudflows occurring in the crater.

The mountain remains seismically quiet with occasional seismic bursts.

Report at 8:00 a.m., Monday, May 4, 1981

Mount St. Helens remains seismically quiet. Poor weather allowed crews to take the weekend off.

Report at 8:00 a.m., Tuesday, May 5, 1981

Rains continue at Mount St. Helens keeping crews in Vancouver. The mountain remains seismically quiet.

Report at 8:00 a.m., Wednesday, May 6, 1981

Storms continue in the Mount St. Helens area. The mountain remains seismically quiet.

Report at 8:00 a.m., Thursday, May 7, 1981

Stormy weather continues to inhibit field work at Mount St. Helens. Crews have been able to work at lower elevations around the mountain all week, but the crater and Harrys Ridge have remained obscured by clouds.

The mountain continues to be seismically quiet with occasional seismic bursts. U.S. Forest Service crews at Peterson Prairie (about 30 miles SE of Mount St. Helens) reported a light dusting of ash between 1500 PDT and 1530 PDT. A seismic burst recorded at 1415 PDT may have been the source of this ash.

Report at 8:00 a.m., Friday, May 8, 1981

On Thursday, May 7, inclement weather hampered field work once again at Mount St. Helens. Crews from the Water Resources Division were able to work at lower elevations and drainages around the mountain.

The mountain was seismically quiet Thursday, May 7, with occasional to rare seismic bursts.

Report at 8:00 a.m., Monday, May 11, 1981

Weather at Mount St. Helens improved for several days allowing deformation and instrument maintenance crews to work on Friday, May 9, and Saturday, May 10.

Seismic activity remains low with occasional seismic bursts. A slight increase in seismic activity local to the East Dome station was recorded for several hours early Saturday morning.

Portland Weather Radar reported a possible ash plume to 11,000 feet at 0156 Saturday. USGS observers on a fixed wing flight Saturday morning reported a fresh dusting of ash on the southeast slope.

Report at 8:00 a.m., Tuesday, May 12, 1981

Low clouds yesterday, May 11, prevented crews from working at higher elevations around Mount St. Helens.

Seismic activity remains low with occasional seismic bursts. Forest Service observers on a fixed wing flight reported a steam puff to 9500 feet at 1440. The puff appeared to contain minor amounts of ash which drifted to the southeast.

Report at 8:00 a.m., Wednesday, May 13, 1981

It was clear and warm at Mount St. Helens on Tuesday, May 12.

Field crews were able to conduct hydrologic and deformation studies as well as perform maintenance on the radio communication system.

Seismic activity at Mount St. Helens has remained at a low level for the past 24 hours. Periodic small bursts have been recorded and occasionally correlated with an increase in emissions. The increased emissions, primarily gas and steam, sometimes contain minor amounts of ash. . Preliminary calculations indicate that a magnitude approximately 3.6 earthquake (recorded at 2159 PDT) was centered near Elk Lake. A magnitude approximately 2.5 earthquake followed at 2203 (PDT).

Report at 8:00 a.m., Thursday, May 14, 1981

Weather allowed field work at Mount St. Helens until late afternoon on Wednesday, May 13, 1981.

Field crews continued geologic, hydrologic and deformation studies. Maintenance and installation of seismic and communications systems were performed.

Seismic activity at Mount St. Helens has remained at a relatively low level, with occasional seismic bursts during the past 24 hours. A slight increase in seismic activity local to the mountain was recorded for twelve hours starting at approximately 0500 a.m. PDT.

Observed activity during daylight hours included some increase in plume height starting approximately 0500 PDT.

Another increase in plume height was reported at approximately 1430 PDT. The increased emissions, primarily gas and steam condensate, contained some minor amounts of fine ash. The plume was sustained continually throughout the day, at times reaching altitudes of 11,000 to 12,000 feet.

HYDROLOGIC CONDITIONS

Stream flow of the Toutle River is receding as is normal for the mid-spring season; however, flow is somewhat lower than normal for May. Geological Survey hydrographers measured a stream flow of 1450 cfs on May 12 at the mouth of the Toutle River. The 53-year average flow for May is 2200 cfs

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Report at 8:00 a.m., Friday, May 15, 1981

Rain and snowstorms prevented field crews from working at higher elevations on and around Mount St. Helens on Thursday, May 14. However, Water Resources ground crews were able to drive to lower elevation sites on the southeast side of the mountain.

Seismic activity continues at a low level. Several small seismic bursts were recorded during the day. Due to weather conditions, crews were unable to observe whether or not there were associated increases in gas emissions.

Report at 8:00 a.m., Monday, May 18, 1981

A break in storms allowed access to Mount St. Helens on Saturday, May 16.

At 0935 Saturday, crews on the pumice plain observed a phreatic explosion about 800 meters south of Spirit Lake. The explosion lasted about 8 minutes and consisted of two bursts. The first pulse produced a column of ejecta to 100 meters; the second burst was not as vigorous. A small, elliptical crater was formed.

Deformation measurements indicate the mountain is stable at this time.

Seismic activity continues at a low level with occasional seismic bursts. Weather conditions prevented observation of any associated plumes.

Report at 8:00 a.m., Tuesday, May 19, 1981

Storms continue at Mount St. Helens. Yesterday, May 18, crews stayed in Vancouver to attend meetings and catch up on paper work.

Seismic activity remains low with occasional seismic bursts.

Report at 8:00 a.m., Wednesday, May 20, 1981

Crews were unable to work on Mount St. Helens yesterday, May 19, due to weather conditions.

Seismic activity remains low with occasional seismic bursts. At 0615 this morning, May 20, a steam plume rising to 15,000 feet was reported by Portland Weather Service Radar. Seismic signals were recorded at the same time by both Vancouver and UW.

Report at 8:00 a.m., Thursday, May 21, 1981

Poor weather again prevented crews from working at the higher elevations around Mount St. Helens yesterday, May 20. Water Resources crews were able to work at lower elevations in the Pine Creek and Muddy River drainages.

Seismic activity continues at a low level.

Report at 8:00 a.m., Friday, May 22, 1981

Seismic activity remains low at Mount St. Helens with only occasional seismic bursts occurring local to the volcano. At 0147 PDT on May 22, Portland Weather Service radar detected a plume rising to 12,000 feet. Seismic signals were simultaneously reported by USGS personnel in Vancouver.

Low clouds kept Geologic Division personnel from reaching the higher elevations where measurements were needed. Water Resources personnel were successful in reaching several of the temporary lakes and stream drainages and were able to conduct surveys and work on gaging stations.

Report at 8:00 a.m., Tuesday, May 26, 1981

Seismic activity at Mount St. Helens increased slightly over the long weekend. Numerous seismic bursts were recorded on Sunday, May 24. The largest burst, at 2027 Sunday, lasted over 20 minutes.

UW reports that activity has decreased but is not yet down to background level. Another seismic burst was recorded at 0135 this morning, May 26.

Weather prevented visual observations for much of the weekend. Deformation and instrumentation crews were able to work Friday and Saturday. Crews reported observing fresh ash on the south-southeast side on Friday morning. The Forest Service spotter plane reported a fresh dusting of ash on the north and northeast side early this morning, May 26.

HYDROLOGIC CONDITIONS

The water level at Spirit Lake is presently 3423' above mean sea level. This is approximately 225' higher than the pre-eruption level of Spirit Lake. Since the eruption, the lowest level of the lake occurred last August. The lake level has risen about 22' since that time. Coldwater Lake has risen 122' since September 18, 1980, and is about 50% full. Its present volume is about 57,000 acre feet. South Castle Lake is presently about 60% full at its present volume of 14,000 acre feet.

Report at 8:00 a.m., Wednesday, May 27, 1981

Clearing weather allowed crews to work at Mount St. Helens yesterday afternoon, May 26. Morning fog and low clouds hampered deformation measurements; however, crews were able to finish installing hydrogen probes and preparing for the installation of our new radio system.

Seismic activity continues at a low level with occasional seismic bursts. One burst recorded at 2206 had an associated plume to 12,000' reported by Portland Weather Service Radar.

Crews working in the crater today are reporting numerous large rock avalanches off the crater walls.

Report at 8:00 a.m., Thursday, May 28, 1981

Yesterday, May 27, was clear and warm at Mount St. Helens allowing both Geologic and Water Resources personnel to work. Crews continue to work in the crater installing remote instrumentation.

Crews working in the crater reported almost continuous avalanching on the crater walls. Several of these avalanches involved large blocks at or near the crater rim breaking loose and crumbling as they slid.

Seismic activity continues at a low level with occasional "seismic bursts." Most of the bursts recorded during working hours yesterday corresponded to observed rock avalanching.

Report at 8:00 a.m., Friday, May 29, 1981

Fair weather provided an opportunity for Geologic and Water Resources personnel to work. Crews continued to work in the crater installing remote instrumentation.

Crews working in the crater reported several small rock avalanches, some of which were correlated with seismic signals.

Seismic activity continues at a low level with occasional "seismic bursts." Most of the bursts recorded during working hours corresponded to observed rock avalanches.

JUNE 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Monday, June 1, 1981

Crews took advantage of fair weather on Saturday to continue installing instrumentation. Seismic activity remains low with occasional seismic bursts.

Report at 8:00 a.m., Tuesday, June 2, 1981

Crews working at Mount St. Helens yesterday, June 1, were able to observe at close range a steam/ash burst occurring at 0954. The initial pulse produced a dark gray plume about 300 feet wide at the base and rising to 11,500 feet. The plume drifted to the northwest rising to 15,000 feet. Fallout ranged in size from ash to coarse sand, with some large blocks close to the dome. UW reported a four minute seismic coda associated with this event. Crews working in the crater felt a "vibration" just prior to the ash burst.

Seismic activity during the rest of the day was associated with continuing rock and snow avalanches on the east and west crater walls.

Report at 8:00 a.m., Wednesday, June 3, 1981

Poor weather conditions at Mount St. Helens prohibited field work for most of yesterday, June 2. In the afternoon, crews were able to work on instrumentation at lower elevations around the mountain. Seismic activity continues at a low level with occasional seismic bursts.

Report at 8:00 a.m., Thursday, June 4, 1981

Stormy weather prevented helicopter operations at Mount St. Helens yesterday, June 3.

Seismic activity continues at a low level with occasional seismic bursts.

Report at 8:00 a.m., Friday, June 5, 1981

Weather has continued to hamper operations at Mount St. Helens, June 4, 1981.

Seismic activity continues at a low level with occasional seismic bursts.

Crews launched to work at Mount St. Helens Friday morn1ng, June 5, 1981.

Report at 8:00 a.m., Monday, June 8, 1981

Stormy weather continues to hamper helicopter operations at Mount St. Helens. Crews working Friday, June 5, were forced to return early due to deteriorating weather conditions.

Water Resources ground crews are in the field this morn1ng, Monday, June 8.

Seismic activity continues at a low level with occasional seismic bursts.

Report at 8:00 a.m., Tuesday, June 9, 1981

Infrequent low level seismic activity is all that has been recorded at Mount St. Helens over the past 24 hours.

Poor weather inhibited helicopter support so that no measurements were obtained on the volcano. No significant improvement in weather is expected for the next several days.

Water Resources Division personnel were able to drive into certain gaging stations yesterday and will attempt to do so again today.

Report at 8:00 a.m., Wednesday, June 10, 1981

Heavy rain continues to prevent helicopter operations at Mount St. Helens. Water Resources Division personnel are working at lower elevations around the mountain.

Seismic activity continues at a low level with occasional seismic bursts.

Report at 8:00 a.m., Thursday, June 11, 1981

Seismic activity at Mount St. Helens remains low with occasional seismic bursts.

Stormy weather continues to inhibit most field operations.

Report at 8:00 a.m., Friday, June 12, 1981

The mountain remained seismically quiet Thursday, June 11. A steam emission-type seismic burst occurred at 9:25 p.m. PDT (no visual confirmation).

A break in the prevailing inclement weather allowed field parties access to the mountain on Thursday. Geologists and hydrologists spent a long day collecting data related to their

monitoring efforts.

The following Extended Outlook Advisory was issued at 1:00 p.m. PDT on June 12, 1981

Rates of ground deformation in the crater of Mount St. Helens have increased during the past three weeks. Sulfur dioxide gas emissions have also increased over the same period. Similar changes have occurred in advance of previous dome-building eruptions. If current trends continue, an eruption, probably of the dome-building type, will begin within the next week or two. In the meantime, highly visible steam and ash bursts, similar to those of past weeks, are likely to continue. Seismicity remains low, and based on previous experience, seismicity can be expected to increase at least a day or two

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Report at 8:00 a.m., Monday, June 15, 1981

Weather conditions at Mount St. Helens prevented crews from working over the weekend.

Seismic activity remains low with occasional seismic bursts. UW reported a seismic burst at 0552 this morning, June 15. There were no confirmed reports of any steam associated with this burst.

Report at 8:00 a.m., Tuesday, June 16, 1981

Geologists and hydrologists were able to continue field operations yesterday, June 15. Partially cloudy conditions allowed crews to continue monitoring deformation and installing new instrumentation in the crater.

Seismic activity remains low with occasional seismic bursts. Bursts were recorded at 0301 and 0657 this morning, June 16; however, no associated plumes were observed due to rain and overcast conditions.

Report at 8:00 a.m., Wednesday, June 17, 1981

Weather prohibited most field work at Mount St. Helens yesterday, June 16. Seismic activity remains low with occasional seismic bursts. A burst was recorded at 2147; however, no associated plume was observed.

Reported at 8:00 a.m., Thursday, June 18, 1981

An afternoon break in weather yesterday, June 17, allowed access to the higher elevations

at Mount St. Helens. Crews working in the crater reported feeling numerous small earthquakes. Measurements made in the afternoon indicated that rates of deformation are accelerating.

Seismic activity continues at a low level with occasional seismic bursts.

Reported at 8:00 a.m., Friday, June 19, 1981

Seismic activity at Mount St. Helens has increased. At 11:30 a.m. PDT, June 18, an advisory was issued:

> "Rates of ground deformation in the crater and rates of sulfur dioxide gas emissions have continued to increase since the last advisory (6/12/81). There has also been a distinct overnight increase in the number of shallow volcanic earthquakes beneath Mount St. Helens. Based on previous pre-eruption patterns, a dome-building eruption accompanied by increased steam and minor ash emission will probably begin within the next day or two. We will advise you of additional changes."

Seismicity and tilt continued to increase within the crater. These changes prompted a volcano alert to be issued at 5:15 p.m. PDT:

> "Seismicity and crater tilt have increased significantly within the past several hours, and the expected eruption will probably begin within the next 12 hours. Poor weather conditions will make it difficult to know exactly when the eruption begins."

An update was issued at 12:15 a.m.:

> "Changes in ground tilt and seismicity, beginning about 5 p.m., suggest that renewed dome growth may have begun. We will not be able to confirm new dome growth, however, until weather permits visual observations in the crater."

As of 0600 a.m. PDT, June 19, 1981, seismic activity on Mount St. Helens continues but at a slightly lower level than the preceding six hours.

Weather conditions around the mountain are very poor at this time. Two helicopters are flying in the area to attempt visual confirmation of activity on the mountain.

No ash has been detected either by direct observation or Portland Weather Service radar during the past 24 hours.

The following Volcano Alert Update was issued at 12:20 p.m. PDT on June 19, 1981.

> *U.S. Geological Survey scientists have just confirmed new dome growth in the crater and are attempting to gather further information. Weather conditions continue to make observations difficult.*

The following Volcano Advisory was issued at 12:45 p.m. PDT on June 21, 1981.

Observations in the crater indicate that dome growth has essentially stopped. Seismicity remains low, though not quite back down to pre-eruption levels. The eruption appears to be over, although minor re-adjustments may still occur in and around the dome.

Reported at 8:00 a.m., Monday, June 22, 1981

Partially cloudy weather allowed geologists several brief views into the crater on Friday and Saturday. Observations made from the air Friday indicate that a new lobe had grown on the center and west side of the composite dome. The exact size of the new lobe is not yet known; however, the new lobe appears to be several tens of meters higher than the February and April lobes.

The new lobe appeared to be subsiding Saturday afternoon, suggesting that the eruption had ended.

No ash has been detected either by direct observation or Portland Weather Service radar during the past three days.

UW reports that seismic activity has decreased but is not yet down to background levels.

Reported at 8:00 a.m., Tuesday, June 23, 1981

The mountain was shrouded in clouds precluding any views into the crater yesterday, June 22. Water Resources Division crews were able to work at lower elevations. Seismic activity remains low, but has not returned to background level.

Reported at 8:00 a.m., Wednesday, June 24, 1981

Clouds cleared out of the crater at Mount St. Helens yesterday afternoon allowing crews to inspect the damage to the crater seismometer and tiltmeter. Crews were unable to complete measurements on the new lobe of the dome; however, clear, warm weather today is providing ideal conditions for detailed observations and measurements.

Seismic activity is still slightly above background level.

Reported at 8:00 a.m., Thursday, June 25, 1981

Weather conditions yesterday at Mount St. Helens were ideal for work in the crater. Geologists working in the crater report that the new lobe of the dome is on the top center of the composite dome and extends to the west. The east-west width of the composite dome has increased from 377 meters to 415 meters (measured from Harrys Ridge). Measurements indicate that the crest of the new lobe is 44 meters higher than the February and April lobes. The lobe has subsided 5-8 meters since the first measurements were made on Friday.

Seismic activity is still slightly above background level.

A dozen ground and helicopter crews are taking advantage of crystal clear conditions again today.

Reported at 8:00 a.m., Friday, June 26, 1981

Weather conditions yesterday at Mount St. Helens were again ideal for work in the crater.

Seismic activity is still slightly above background level.

A dozen ground and helicopter crews are taking advantage of crystal clear conditions again today.

Reported at 8:00 a.m., Monday, June 29, 1981

Seismic activity at Mount St. Helens has returned to background level.

Deformation, hydrologic and instrumentation crews took advantage of continuing good weather this past weekend.

Reported at 8:00 a.m., Tuesday, June 30, 1981

Weather conditions allowed crews to continue work at Mount St. Helens yesterday, June 29. A crew flying over the Steps reported a steam/ash burst at 1705 PDT. The burst came from the southern edge of the June dome at the February-December intersection. The dark roiling cloud rose to 9500 feet and drifted east.

A second burst, mostly steam, occurred at 1708.

UW reports low level seismicity with occasional seismic bursts.

JULY 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Reported at 8:00 a.m., Wednesday, July 1, 1981

Seismic activity at Mount St. Helens remained at a low level yesterday, June 30. Clouds and rain limited access, allowing crews to work only at lower elevations around the mountain.

Reported at 8:00 a.m., Thursday, July 2, 1981

Seismic activity at Mount St. Helens has returned to background level.
Deformation, hydrologic and instrumentation crews took advantage of good weather yesterday, Wednesday, to continue field studies.

Reported at 8:00 a.m., Monday, July 6, 1981

Seismic activity remained at background level over the long weekend.
Clear, hot weather allowed crews to work on Friday; however, no field work was done on Saturday or Sunday.

Reported at 8:00 a.m., Tuesday, July 7, 1981

Seismic activity at Mount St. Helens remained to background level.
Rain and low clouds inhibited access to higher elevations around the mountain; however, Water Resources crews were able to work at their gaging stations.

Reported at 8:00 a.m., Wednesday, July 8, 1981

Rain and snow at Mount St. Helens yesterday, July 7, greatly restricted field work.
Seismic activity remains at background level.

Reported at 8:00 a.m., Thursday, July 9, 1981

Yesterday, July 9, was clear at Mount St. Helens. Hydrologists and geologists were able to work all day installing instrumentation and performing regular monitoring activities.

Crews working in the crater reported an ash ladened gas emission at 1453 PDT. The emission lasted several minutes. The plume rose to about 9500 feet. Seismic activity remained at background level for the rest of the day.

Reported at 9:00 a.m., Friday, July 10, 1981

Geologic and hydrologic crews were able to access Mount St. Helens Thursday July 9, 1981.

The Harry's ridge television camera is now operating, giving a clear view of the Mountain at 0630 Friday July 10, 1981.

Seismic activity remains at a low level.

Reported at 9:00 a.m., Monday, July 13, 1981

Seismic activity at Mount St. Helens remains at background level.

Breaks in the cloud cover allowed crews to work Friday and Saturday; however, access to the crater was limited. Crews working on the flanks were able to continue installing and servicing instrumentation.

Reported at 9:00 a.m., Tuesday, July 14, 981

Rain and low clouds at Mount St. Helens yesterday, July 13 inhibited field work. Hydrologists and geologists working in river drainages were able to reach their sites; however, deformation and instrumentation crews were not able to reach their sites.

Seismic activity remains at background level.

Reported at 9:00 a.m., Thursday, July, 16, 1981

Low level seismic activity continues at Mount St. Helens. Crews working near the mountain reported several ash ladened gas emissions during the past two days.

7-14-81 (Tue):

1138 PDT -small gas/ash emission just clearing the rim of the crater.

15-81 (Wed):

…….-crews arriving at mountain around 0845 reported a plume (with possible ash) to 9500 ft.

0948 PDT -small ash ladened gas puff from SW portion of Feb Lobe between June and December Lobes. Plume rose 10200 ft.
1442 PDT -gas emission with minor amounts of ash. Plume just clearing rim of crater.
1805 PDT -ash ladened gas emission from vent on SW corner of Feb. lobe.

Reported at 10:00 a.m., Friday, July, 17, 1981

Low level seismic activity continues at Mount St. Helens. The volcano's crater was partially obscured by dust and very light ash emitted from the dome during the day.

7-16-81

1257 PDT ash ladened gas puff from Feb Lobe on Southern portion of dome. Plume rose to 10,000 ft.

Reported at 10:00 a.m., Monday, July, 20, 1981

Seismic activity at Mount St. Helens remains at low level with occasional seismic burst. The vent on the SW portion of the Feb Lobe of the composite dome continues to be the source of most gas and ash emissions. Crews in the crater report almost continuous rock avalanches off the crater walls.

Low clouds cleared by midday on both Friday and Saturday allowing monitoring activities to continue. Deformation measurements indicate the mountain is stable at this time.

Reported at 9:00 a.m., Tuesday, July, 21, 1981

Partially cloudy weather allowed crews to work at Mount St. Helens yesterday July 20. Crews in the crater continued to report periodic gas emissions from the Feb Lobe of the composite dome. Several brief episodes of low level tremor occurred in the late afternoon. The tremor appeared to be associated with slight increases in gas emissions.

Reported at 9:00 a.m., Wednesday, July, 22, 1981

Partially cloudy weather at Mount St. Helens allowed crews to work yesterday July 21. UW and USGS crews are working on a 3 day experiment calibrating seismic equipment and

studying energy release. This experiment will require detonating several small buried charges 1 to 3 KM north of the dome.

Crews working in the crater reported several gas and ash emissions during the day, most from the SW portion of Feb Lobe.

1236 -- gas and ash emission to 9500 ft, some volleyball size projectiles close to vent.
1509 -- gas emission to rim level.
1721 -- moderate ash ladened gas emission to 10,000 ft.
1859 -- gas emission to rim level, no apparent ash. Emission appeared to be coming from E side of Feb Lobe.

Reported at 9:00 a.m., Thursday, July, 23, 1981

Yesterday July 22 UW and USGS crews successfully completed their seismic refraction experiments.

Seismic activity continues at low level, with occasional seismic bursts.

Reported at 9:00 a.m., Friday, July, 24, 1981

Except for low clouds Mount St. Helens was clear and open, July 23, 1981. Hydrologists and geologists were able to work all day performing regular monitoring activities.

Seismic activity continues at a low level, with occasional "rock fall" and "gas emission" type events.

A period of low tremor was recorded Thursday morning which lasted approximately 10 minutes.

Reported at 9:00 a.m.**,** Monday, July 27, 1981

Seismic activity continues at a low level with occasional seismic bursts. A USGS field crew living in Cougar reported a light ash fallout yesterday, July 26, between 0800 and 0900. This ash may have been associated with a burst recorded by UW at 0750.

Reported at 9:00 a.m., Tuesday, July 28, 1981

Clear, warm weather allowed geologists and hydrologists to continue monitoring activities at Mount St. Helens yesterday, July 27. Crews working in the crater reported numerous rockfall avalanches.

Seismic activity continues at a low level.

Reported at 9:00 a.m., Wednesday, July 29, 1981

Crews were able to work at Mount St. Helens yesterday, July 28. Steam and dust in the crater prevented crews from continuing crater activities in the afternoon.

The mountain remains seismically quiet with an occasional seismic burst. At 1605 crews reported a gas emission with a plume just above the crater rim. No ash was visible in the plume. UW reported about five minutes of low level tremor associated with this event.

Reported at 9:00 a.m., Thursday, July 30, 1981

Low clouds and rain prohibited helicopter operations at Mount St. Helens most of yesterday. Access to the crater opened briefly in the afternoon allowing one crew to move a seismic event recorder out of the active avalanche zone. Water Resources ground crews were able to reach their gage stations.

Seismic activity continues at a low level.

Reported at 9:00 a.m., Friday, July 31, 1981

Clear weather allowed geologists and hydrologists of the USGS to work on Mount St. Helens, July 30, 1981.

Seismicity remains at a low level except for occasional "seismic" bursts associated with rockfalls and "gas emissions." At approximately 6:05 p.m. PDT Thursday evening a seismic event occurred accompanied by an ash-laden plume which rose to 11,000 feet. The event was followed by approximately five minutes of low level tremor.

AUGUST 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 9:00 a.m., Monday, August 3, 1981

Seismic activity remained at a low level with occasional seismic bursts. Several episodes of very low level tremor occurred over the weekend. UW reported a seismic burst at 0735 Sunday. No USGS crews were in the field at that time; however, the U.S. Forest Service reported observing a gas emission on the video system relaying pictures of the mountain from Harrys Ridge. The emission rose to 12,000 feet and appeared to be ash-laden.

Report at 9:00 a.m., Tuesday, August 4, 1981

Excellent weather conditions at Mount St. Helens allowed Geologic Division and Water Resources personnel to continue monitoring and research projects yesterday, August 3.

Seismic activity continued at a low level with occasional seismic bursts. UW reported several bursts at about 1905 followed by seven minutes of moderate tremor. U.S. Forest Service and Portland National Weather Service radar confirmed a light ash plume to 12,000 feet.

Report at 9:00 a.m., Wednesday, August 5, 1981

Crews working at Mount St. Helens yesterday, August 4, reported a small ash-laden gas emission at 1133. Seismic activity continues at a low level with several episodes of low to moderate level tremor per day.

Report at 9:00 a.m., Thursday, August 6, 1981

Gas sampling and deformation crews working in the crater yesterday, August 5, observed ash-laden emissions throughout the day. The first observed series of emissions started at 0910 and produced a light gray plume to 10,000 feet. A second series of ash bursts occurred between 0949 and 1115. Emission during this time period was almost continuous. Several dozen individual bursts were reported with periods of light puffing (puffs at 5 to 10 seconds intervals) in between the bursts.

UW reported tremor associated with most of the morning emissions. By evening the mountain appeared to have quieted down; however, at 2303 a seismic burst occurred. Portland Weather radar reported an associated ash-laden plume to 10,000 feet.

Report at 9:00 a.m., Friday, August 7, 1981

Geologists and hydrologists worked on and around Mount St. Helens, Thursday, August 6. Crews worked on seismic equipment, telemetry maintenance and geology of pumice flows north of the mountain.

University of Washington Geophysics Department reports no significant seismic activity for Mount St. Helens in the last 24 hours.

Report at 9:00 a.m., Monday, August 10, 1981

Field work at Mount St. Helens continued Friday and Saturday despite 100 to 105^{o} temperatures. Crews working in the crater reported almost continuous rockfall avalanches off the crater walls.

Seismic activity remained at a low level with occasional seismic bursts. At 1123 on Friday, August 7, a small ash-laden gas emission was observed by USGS crews at Harry's Ridge and in the crater. Another gas emission was reported by the U.S. Forest Service at 1808 Sunday.

Report at 9:00 a.m., Tuesday, August 11, 1981

Seismic activity at Mount St. Helens remains at a low level. Crews working in and near the crater report almost continuous rockfall avalanches off the crater walls.

Two small ash-laden gas emissions were observed yesterday, August 10, at 0859 and 0908.

Report at 9:00 a.m., Wednesday, August 12. 1981

Seismic activity continued at a low level with occasional seismic bursts. Crews working in the crater yesterday, August 11, reported an ash-laden gas emission to 9.000 feet at 1213.

Report at 9:00 a.m., Thursday, August 13, 1981

Seismic activity continues at a low level with occasional seismic bursts. A USGS crew working in the Goat Rocks Wilderness area reported observing a St. Helens plume to 14,000 feet yesterday, August 12, at 0738. UW reported a seismic burst at 0725 followed by seven minutes of tremor.

Crews working in the crater reported almost continuous rock fall avalanches off crater

walls again yesterday.

Report at 8:00 a.m., Friday, August 14, 1981

Seismicity remains at a reasonably low level with occasional bursts. One event occurred at 0620 Thursday, a typical "steam burst" signal with associated low to moderate level tremor.

Seismologists from the USGS and University of Washington worked on calibrating seismic equipment near Mount St. Helens.

Rock falls continue to occur along the inner-walls of the crater.

Report at 9:00 a.m., Monday, August 17, 1981

Crews continued monitoring activities at Mount St. Helens on Friday, August 14, and Saturday, August 15.

Seismic activity remains at a low level with occasional seismic bursts. Most Mount St. Helens seismic signals were associated with rockfall avalanches off the inner crater walls.

Report at 9:00 a.m., Tuesday, August 18, 1981

Clear, hot weather continued at Mount St. Helens. Crews working in the crater reported almost continuous rockfall avalanches. Seismic activity remained at a low level.

Report at 9:00 a.m., Wednesday, August 19, 1981

Excellent weather continued at Mount St. Helens. Seismic activity remains at low level with occasional seismic bursts.

Crews working in the crater reported almost continuous small rockfall avalanches with occasional larger avalanches. Crews near the dome felt several very small earthquakes which appeared to be local to the crater.

Report at 9:00 a.m., Thursday, August 20, 1981

Cooler, cloudy weather returned to the Mount St. Helens area yesterday, August 19. Crews were able to work for several hours during midday. Geologists in the crater reported that the vent on the contact between the February and June lobes has migrated north into the June lobe. UW reports seismic activity is still low level.

Report at 9:00 a.m., Friday, August 21, 1981

Geologists and hydrologists continued work on Mount St. Helens, Thursday, August 20, 1981. Poor weather during the day hampered operations to some extent.

Seismicity remains at a low level, with the occasional "seismic burst." Two events were recorded at the University Washington--one at 0103 a.m. PDT early Thursday morning and another at 0320 a.m. PDT early Friday morning.

Report at 9:00 a.m., Monday, August 24, 1981

Clear, warm weather continued at Mount St. Helens Friday, August 21, and Saturday, August 22. Crews working in the crater reported almost continuous rockfall avalanches and several small felt earthquakes. These earthquakes appear to be local to the crater. Recent measurements indicate that rates of ground deformation are increasing.

UW reports that seismic activity is still low level with occasional seismic bursts. Portland National Weather Service radar reported several gas emissions early Sunday morning.

Report at 9:00 a.m., Tuesday, August 25, 1981

Low clouds and some rain inhibited field operations yesterday morning. The crater cleared in the late afternoon allowing crews to work on instrumentation. UW reports low level seismic activity.

Report at 8:00 a.m., Wednesday, August 26, 1981

The following extended outlook advisory was issued at 8:00 today:

> "Ground deformation rates in the crater of Mount St. Helens have increased during the past week. These changes resemble those that preceded the dome-building eruptions in December, February, April and June. Rates of gas emission are also increasing. If this trend continues, an eruption, probably of the dome-building type, will likely begin in one to three weeks. At this time seismicity remains low, but any future increase may permit a more precise forecast, probably from half a day to about 2 days before a new eruption. This advisory will be updated as conditions warrant."

Seismicity remains at low levels and deformation measurements completed yesterday show a continuation of the trend mentioned in the update.

Report at 8:00 a.m., Thursday, August 27, 1981

Clear weather allowed crews to continue monitoring activities at Mount St. Helens yesterday, August 26. Seismic activity remained at a low level with occasional seismic bursts. Several small gas emissions were observed between 0800 and 0835. The plumes from these emissions rose to between 8,500 and 9,000 feet.

Report at 8:00 a.m., Friday, August 28, 1981

Clear weather allowed crews to continue monitoring activities at Mount St. Helens yesterday, August 27. Seismic activity remained at a low level with occasional seismic bursts.

Crater deformation measurements showed a continuation of the trend that began about one week ago. The recording tiltmeters in the crater also show a continuation of tilt rates and directions that began about one week ago.

Report at 8:00 a.m., Monday, August 31, 1981

Crews continued monitoring activities at Mount St. Helens Friday, August 28. Rain and low clouds forced crews to return early Saturday.

UW reports low level seismic activity.

SEPTEMBER 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Tuesday, September 1, 1981

Wind and clouds forced crews working in the crater at Mount St. Helens to return early yesterday, August 31. Seismic activity remained at a low level.

UW reported a 3.4 magnitude earthquake under Mount St. Helens at 0234 this morning, September 1.

Report at 8:00 a.m., Wednesday, September 2, 1981

Low level clouds and rain kept field crews in Vancouver yesterday. UW reports low level seismic activity, except for quake reported in yesterday's update.

Report at 8:00 a.m., Thursday, September 3, 1981

Weather conditions at Mount St. Helens allowed crews to work most of yesterday, September 2. Crews in the crater reported numerous small felt and heard earthquakes local to the crater. Recent measurements in the crater and from Harrys Ridge indicate that rates of ground deformation are accelerating.

UW reports low level seismic activity with occasional seismic bursts.

Report at 8:00 a.m., Friday, September 4, 1981

Again weather permitted crews to work in the crater of Mount St. Helens Thursday, September 3, 1981. Crews again reported felt and heard earthquakes local to the crater.

The first close-up night observation was undertaken Thursday evening. The crew reported many glowing cracks in all domes (December, February, April and June). The hottest area seemed to be on the top of the June lobe.

University of Washington reports low level seismic activity with occasional recorded volcanic earthquakes local to the mountain.

The following Volcano Advisory was issued at 8:00 a.m., PDT on September 6, 1981.

Rates of ground deformation in the crater have continued to increase since the last advisory (August 26, 1981). In addition, within the past 6-8 hours there has been a distinct increase in the number of shallow volcanic earthquakes beneath Mount St. Helens. Based on previous pre-eruption patterns, a dome-building eruption accompanied by increased fume but little or no ash emission will probably begin within the next 12 to 48 hours. We will advise you of additional changes.

The following Volcano Alert was issued at 01:30 p.m., PDT on September 6, 1981.

Seismicity and crater tilt have increased significantly within the past four hours, and the expected eruption will probably begin within the next 12 hours.

The following "Supplemental Information to Alert" was issued at 01:45 p.m., PDT on September 6, 1981.

U.S. Geological Survey and University of Washington scientists issued a volcano advisory at 0800 AM PDT today, forecasting an eruption within the next 48 hours. This was followed by an alert issued at 1:30 PM PDT stating that the eruption is expected to begin in the next 12 hours. USGS scientists in Vancouver have measured increased rates of ground deformation and observed major avalanching from the dome in the crater of Mount St. Helens. They have also measured increasing sulfur dioxide gas emissions. In addition, University of Washington seismologists report a distinct increase in the number of shallow volcanic earthquakes beneath Mount St. Helens.

Based on previous pre-eruption patterns, the scientists conclude that renewed dome growth will probably begin soon. This eruption is likely to be accompanied by increased fume but little or no ash emission, but there is only a small likelihood of significant explosive activity.

The following Alert Update was issued at 07:00 p.m., PDT on September 6, 1981.

Since the 1:30 PM alert, there has been a leveling off or slight reduction in the frequency of shallow volcanic earthquakes beneath Mount St. Helens. There has also been a reduction in the number of rockfalls from the composite dome. However, USGS field crews report increased radiant heat and structural changes on the ENE side of the dome. A small amount of what may be newly extruded material has been observed near the site of maximum rockfall activity. These observations appear to indicate that a dome-building eruption is in progress.

The following Alert Update was issued at 05:00 a.m., PDT on September 7, 1981.

Earthquake activity has gradually declined since the peak of activity at about 1:00 PM PDT, September 6. Seismic activity at 9:00 PM had subsided to low, but slightly above normal levels.

Rock avalanches from the east and northeast margins of the dome were observed beginning at 8:00 AM, September 6. The frequency of avalanching increased until between 2 and 3 PM and then gradually decreased. In mid-afternoon structural changes were observed at the eastern margin of the dome indicating that new dome growth was in progress. After nightfall, patches of incandescent rock were observed on the east side of the dome in the area of maximum avalanche activity.

As of 5:00 AM, September 7, the seismic activity remains low. Further observations of dome activity will be made at daybreak.

The following Volcano Advisory was issued at 06:00 p.m., PDT on September 7, 1981.

Observations in the crater indicate that dome growth has essentially stopped. Seismicity is at pre-eruption levels. The eruption appears to be over, although minor re-adjustments are occurring in and around the dome.

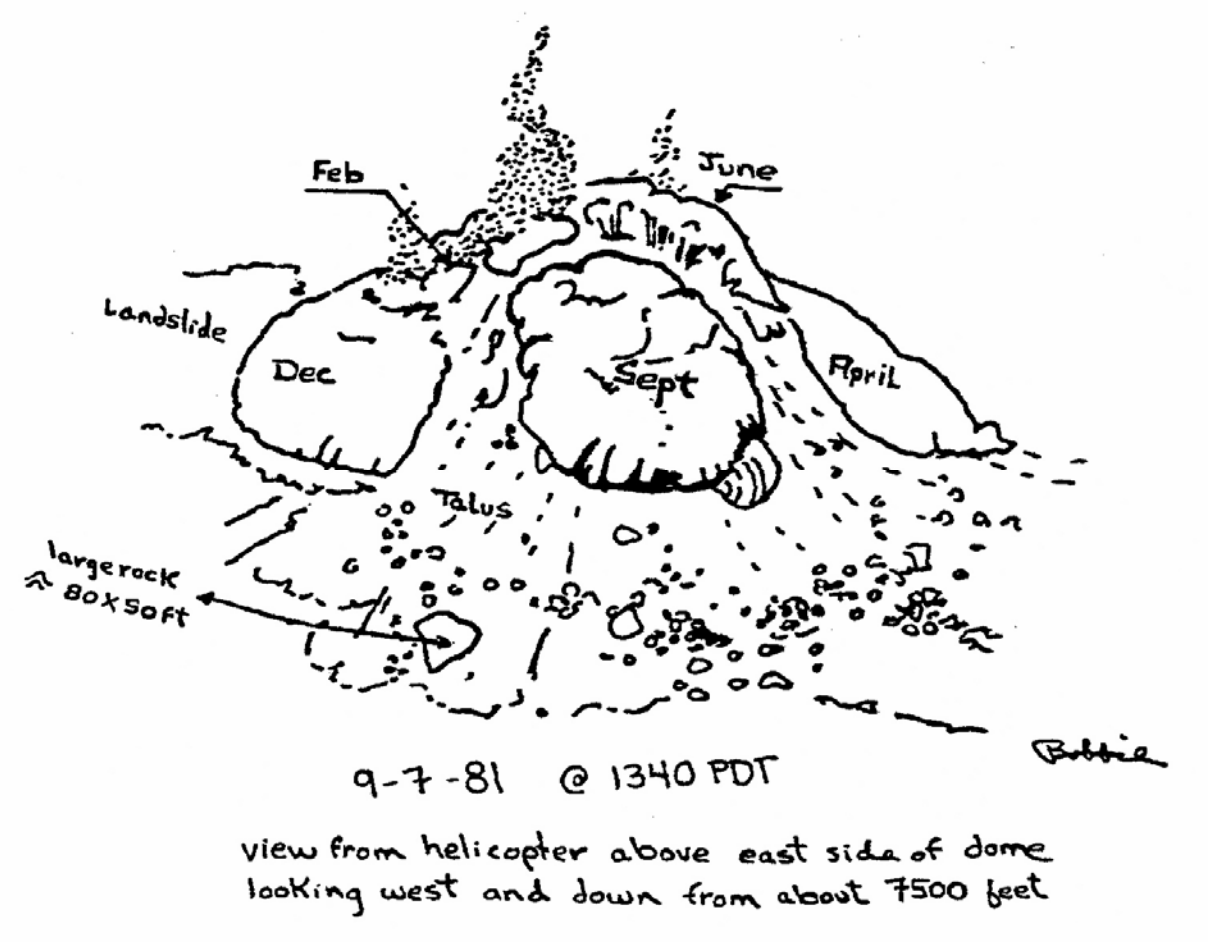
Report at 8:00 a.m., Tuesday, September 8, 1981

Mount St. Helens erupted over the three day weekend adding a new lobe to the composite dome. Crews working in the crater Friday and Saturday reported numerous heard and/or felt quakes local to the crater. Field and telemetered measurements indicated that rates of ground deformation had increased. At 0800 Sunday September 6, a 12 to 48 hour eruption advisory was released. Field crews monitoring crater activity from a helicopter Sunday afternoon reported morphological changes and increased radiant heat on the ENE side of the dome. Large rock slides off the dome with associated plumes were observed from the helicopter and from Harrys Ridge. AT 1900 PDT an update was released stating that a dome building eruption was in progress. Night helicopter and fixed wing flights were made to observe the extrusion of the new lobe.

Crews working in the crater Monday reported continuing hot rock avalanching off the new lobe. Measurements from Deep Throat in the morning indicated that the top of the dome was still rising; however, by afternoon vertical subsidence and lateral spreading were measured. At 1730 PDT an advisory was issued stating, “The eruption appears to be over, although minor re-

adjustments are occurring in and around the dome."

Observers on an early morning fixed wing flight today September 8 reported continuing incandescent avalanches off the new lobe of the dome.



Report at 8:00 a.m., Wednesday, September 9, 1981

Crews continue to monitor the new lobe of the dome. The lobe appears to have spread laterally (downslope) since Monday evening.

Early morning observations today, September 9, were hampered by windblown dust in the crater; however, a large area of incandescence on top of the new lobe was clearly visible. Incandescent linear features were also visible on the eastern part of the April lobe. Several hot spots were apparent on other lobes.

UW reports low level seismicity.

Report at 8:00 a.m., Thursday, September 10, 1981

Seismicity remains at low levels. Deformation measurements are being made today. Preliminary analysis of seismic, deformation and gas emission data indicates a return to "normal" after the dome building eruption last weekend.

Report at 8:00 a.m., Friday, September 11, 1981

Seismicity remained at low levels on Mount St. Helens for Thursday, September 10, 1981. Deformation measurements were made yesterday. Establishing new instrument station sites and refurbishing existing telemetry after this weekend's events continued.

One gas event with an accompanying seismic signal was reported at 4:00 p.m. PDT. Fine ash rose to approximately 10,500'. The event lasted about 15 minutes.

Report at 8:00 a.m., Monday, September 14, 1981

Aerial and ground-based observations of the new dome on Friday and Saturday indicate that the September lobe has stabilized. Gas emissions measured on Friday and Saturday were the lowest measured since mid-August.

Continued good weather today will permit a full complement of crews into the field today.

Report at 8:00 a.m., Tuesday, September 15, 1981

Seismic activity at Mount St. Helens remained at a low level yesterday, September 14. One gas event occurred at 1428.

Excellent weather has permitted crews to continue both pre-dawn aerial observations of the new lobe and regular monitoring activities.

Report at 8:00 a.m., Wednesday, September 16, 1981

Temperatures in the mid-90's and high winds hampered field operations yesterday, September 15. Mount St. Helens remained seismically quiet.

Report at 8:00 a.m., Thursday, September 17, 1981

Crews continued monitoring activities at Mount St. Helens yesterday, September 16. Seismic activity remained at a low level except for occasional seismic bursts.

Crews in the crater reported bursts at 1029, 1031, 1032, 1048, 1330 through 1337, 1453 and 1550. Most of these events produced plumes to the rim.

Report at 9:30 a.m., Friday, September 18, 1981

Warm weather and good flying conditions have continued around Mount St. Helens.

Crews continued monitoring activities yesterday, September 17. Seismic activity remains at a low level except for occasional seismic bursts associated with rockfalls. No steam bursts were observed.

Report at 8:00 a.m., Monday, September 21, 1981

The first of the winter storms arrived Friday afternoon forcing crews to return early. Rain limited access to the mountain on Saturday and will probably do so again today.

Seismic activity continued at a low level with one large burst recorded Sunday afternoon.

Report at 8:00 a.m., Tuesday, September 22 1981

The first day of autumn was marked by high winds and thunderstorms, keeping Geologic Division crews out of the field for the day. Hydrologists, however, endured the miserable conditions and manned gaging stations.

The mountain itself was quiet, exhibiting a low level of seismic activity.

Report at 8:00 a.m., Wednesday, September 23, 1981

Work at Mount St. Helens was hampered by weather. University of Washington reported that seismicity was at a very low level.

Report at 8:00 a.m., Thursday, September 24, 1981

Weather conditions around Mount St. Helens continued to be highly variable with fresh snow fall on the crater floor and mountain flanks.

Monitoring continued in the crater area, although hampered at times by weather. Seismicity remained at a low level, yesterday, September 23.

Report at 8:00 a.m., Friday, September 25, 1981

Weather at Mount St. Helens has continued to be variable but was not so bad as to prevent field work. University of Washington reported low level seismicity.

Report at 8:00 a.m., Monday, September 28, 1981

Seismic activity at Mount St. Helens continued at a low level over the weekend. Rain and light snow hampered field activities for most of the weekend.

Report at 8:00 a.m., Tuesday, September 29, 1981

Weather conditions around Mount St. Helens continued to be highly variable with fresh snowfall on the crater floor and mountain flanks. Water Resource Division crews braved the storms to man gaging stations; however, most other crews were unable to reach their sites.

UW reports low level seismic activity.

Report at 8:00 a.m., Wednesday, September 30, 1981

Seismic activity at Mount St. Helens September 29, 1981, remained at a low level with occasional seismic bursts. Crews working in the crater yesterday afternoon reported hearing and feeling several earthquakes. These quakes appear to be local to the crater.

Clearing weather today, September 30, should allow all crews to work at the mountain.

OCTOBER 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Thursday, October 1, 1981

Good weather conditions yesterday at Mount St. Helens September 30, 1981, enabled geologists and hydrologists to continue with established monitoring and research projects. Recent snowfall in the crater area has slowed down avalanching from the crater walls. UW reported that seismic activity remained at a very low level.

On a more regional note, the establishment of a regional trilateration net was started September 30, 1981.

Report at 8:00 a.m., Friday, October 2, 1981

Mount St. Helens remained seismically quiet yesterday, October 1. Excellent weather in the morning allowed crews to continue monitoring activities.

Report at 8:00 a.m., Monday, October 5, 1981

Mount St. Helens remained seismically quiet over the weekend. Storms which began Thursday afternoon continued through the weekend.

Report at 8:00 a.m., Tuesday, October 6, 1981

Winter storms continue causing high stream flow in the Mount St. Helens area. Water Resources Division crews are manning all gaging stations.

UW reports the mountain remains seismically quiet.

Report at 8:00 a.m., Wednesday, October 7, 1981

Mount St. Helens remained seismically quiet yesterday, October 6. Storms continued in the area causing high, but not flood stage, water levels. Rains are expected to continue intermittently today.

Report at 8:00 a.m., Thursday, October 8, 1981

Mount St. Helens remained seismically quiet yesterday, October 7. Heavy rains turned to intermittent showers causing high stream discharge rates, which peaked Tuesday evening, to decrease.

Report at 8:00 a.m., Friday, October 9, 1981

Seismic activity at Mount St. Helens remained at a low level yesterday, October 8, 1981. Continued stormy weather hampered operations on Mount St. Helens, but Water Resources Division crews continued monitoring of stream levels.

Report at 8:00 a.m., Tuesday, October 13, 1981

After a week of stormy weather, the skies cleared for the three day weekend allowing crews access to the crater. Several feet of snow have accumulated in drifts on the crater floor.

A large rockfall avalanche deposit now covers the southeast crater floor. The avalanche, which probably occurred at 2356 on October 2, buried several instruments with 20 to 50 feet of debris. Several mudflows occurred on the north crater floor enlarging erosional features and endangering several instrument sites. Mudflows on the flanks at the base of Shoestring Glacier also destroyed an instrument site.

The mountain remained seismically quiet over the weekend.

Report at 8:00 a.m., Wednesday, October 14, 1981

Seismic activity at Mount St. Helens remained at a low level yesterday, October 13, 1981.

Clear, cold weather allowed crews to continue winterizing stations. Crews in the crater reported several felt and heard earthquakes. These quakes appeared to be local to the crater. Crews also reported observing a new collapse pit in the Pumice Pond.

Fog is keeping helicopters on the ground this morn1ng.

Report at 8:00 a.m., Thursday, October 15, 1981

Seismic activity at Mount St. Helens remained at a low level yesterday, October 14, 1981.

Morning fog burned off and enabled scientists to conduct seismic calibration experiments

in the crater.

Report at 8:00 a.m., Friday, October 16, 1981

After early morning fog cleared, excellent weather conditions allowed work parties to spend a full day in the field.

University of Washington indicates that seismicity in the Mount St. Helens area remained at a low level yesterday. Crater crews reported feeling and hearing a few very small earthquakes local to the crater; UW instruments did not show any significant seismic signals correlated with these events.

Report at 8:00 a.m., Monday, October 19, 1981

Excellent weather continued over the weekend at Mount St. Helens. University of Washington reported low level seismic activity.

Crews working in the crater continue to report occasional heard and felt earthquakes. Level and thrust fault measurements indicate that the crater floor is slowly being uplifted.

Report at 8:00 a.m., Tuesday, October 20, 1981

Seismic activity at Mount St. Helens remains at a low level. Crews working in the crater continue to report small heard and felt earthquakes.

Report at 8:00 a.m., Wednesday, October 21, 1981

Low level seismicity continued at Mount St. Helens yesterday, October 20. Crews reported a few felt and heard earthquakes local to the crater; at least two of these events were recorded on the University of Washington seismic records. Also a small rockfall occurred at 1143 which was followed by increased fuming with the ash-free plume rising to about 250 meters above the dome; there was a minor seismic signal correlated with this event.

Full scale monitoring activities are being carried out today as the unusual dry, sunny weather persists.

Report at 8:00 a.m., Thursday, October 22, 1981

University of Washington reports that the area of Mount St. Helens has been seismically

quiet. Crater crews continue to feel and hear small local quakes. The continued good weather has allowed repair and winterization of crater monitoring instruments.

Report at 8:00 a.m., Friday, October 23, 1981

Seismic activity at Mount St. Helens remained at a low level, Thursday, October 22. Small earthquakes continue to be felt and heard in the crater area. A continuation of the clear weather allowed full scale monitoring and winterization activities.

Report at 8:00 a.m., Monday, October 26, 1981

University of Washington reported low-level seismicity over the weekend, October 24 and 25. Small, local earthquakes were felt and heard by crews working in the crater.

Level and thrust fault measurements indicate that ground deformation is continuing in the crater.

Report at 8:00 a.m., Tuesday, October 27, 1981

Seismic activity remained at a low-level, Monday, October 26,
Bad Weather prevented field crews from entering the crater.
The following advisory was issued on Saturday, October 24, 1981.

U.S. Geological Survey, Saturday, October 24, 1981

Increases in the rates of movement of the ground near the lava dome in the crater of Mount St. Helens indicate that an eruption is likely within the next two weeks, possibly early in this period. If an eruption occurs, it will most probably consist of the quiet addition of lava to the dome and is not expected to provide hazards beyond the immediate vicinity of the volcano.

Report at 8:00 a.m., Wednesday, October 28, 1981

University of Washington reported a slight increase in the number of small earthquakes, October 27.

Due to poor weather conditions, there were no crews in the crater.

Water resources crews worked at river sites around the mountain.

Report at 8:00 a.m., Thursday, October 29, 1981

Due to weather conditions, field work at Mt. St. Helens was hampered. The University of Washington is reporting a very slight increase of small earthquakes.

Report at 10:00 a.m., Thursday, October 29, 1981

Snow and rain storms are expected to continue in the Mount St. Helens area for the next few days. Although field measurements have not been made since October 25 due to the bad weather, radio-telemetered information from the crater indicates that swelling of the ground near the dome continues.

The extended outlook advisory issued on October 24 remains in effect.

The following Volcano Advisory was issued at 9:15 a.m., PST on October 30, 1981.

> *Seismicity in the crater of Mount St. Helens has increased significantly in the past few hours. From past experience, the current seismic behavior suggests that a dome-building eruption is likely to begin within the next 24 hours.*

Report at 11:30 a.m., Friday, October 30, 1981

Due to poor weather conditions, field work at Mount St. Helens was hampered Thursday, October 29, 1981

At 11:00 a.m. Friday, October 30, 1981 the following advisory was issued:

MOUNT ST. HELENS ADVISORY 10/30/81
11:00 a.m.

Seismicity in the crater of Mount St. Helens has increased significantly in the past few hours, to a level that suggests a dome-building eruption is likely within the next 24 hours. Changes in the pattern of ground tilt beginning yesterday (October 29) resemble those that preceded the June and September eruptions. In the past, this type of eruption has been accompanied by increased steaming, but poses little possibility of explosive activity.

Stormy weather conditions have prevented other measurements and observations from being made during the past several days. As poor weather currently prevails, it is unlikely that the beginning of the eruption will be observed.

U.S. Geological Survey, Vancouver, Washington
Geophysics Program, University of Washington

Personnel from Water Resources Division continue to monitor stream conditions around Mount St. Helens.

The following Eruption Alert was issued at 3:20 p.m., PST on October 30, 1981.

Seismicity in the crater of Mount St. Helens suggests that either an eruption has begun or will begin soon. The seismic pattern resembles that observed during previous dome-building eruptions, but stormy weather is preventing observations by which confirmation of the activity would be possible.

Report at 08:00 a.m., Saturday, October 31, 1981

Fixed wing observations of Mount St. Helens early this morning confirm eruptive activity in the form of renewed growth of the crater dome. Glowing areas and continuous incandescent rockfalls suggest that dome growth is still in progress.

Seismicity has decreased but continues at above background levels. U.S.G.S. field crews are presently on their way to the mountain.

Note: The above statement was issued at 8:00 a.m. as both a Volcanic and Seismic Activity report and as an "Alert Update".

The following Alert Update was issued at 12:30 p.m., PST on October 31, 1981.

Field crews have confirmed this morning's observations of new dome growth. Marginal weather (steam and high winds) is making detailed observations of the new lobe difficult. Sporadic rockfall activity off the dome suggests that dome growth is continuing. Seismic activity continues to decrease and is comprised primarily of rockfall activity.

NOVEMBER 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS

U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 09:30 a.m., Sunday, November 1, 1981

Improved weather on Saturday, October 31, permitted visual confirmation of instrumental indication that Mount St. Helens was indeed in eruption. The first sightings were made during a pre-dawn fixed-wing aircraft flight that showed a new lobe was being extruded from the northern part of the summit of the lava dome. It is not possible to fix the time that the eruption began, but it was probably sometime on October 30.

Crews worked within the crater and vicinity throughout the day, making observations of the activity and measurements at previously established ground deformation stations. The new lobe caps the northern summit and upper flank of the lava dome. Continuing growth was indicated by optical measurements, by a continual shedding of rocks from the oversteepened margins, and by frequent large rockfalls. Measurements taken throughout the day will permit calculations to be made of the dimensions, and rate of growth of the new lobe, but data have not yet been reduced. Continued activity and strong incandescence seen during an early evening flight indicated that the activity was continuing. Extensive deformation and cracking of the older parts of the dome has occurred.

Earthquake activity peaked early on October 30 and then diminished, but the seismic records continued to show the ongoing rockfall and avalanche activity.

Fog has temporarily grounded crews attempting to reach the volcano today, but clearing is expected later.

Report at 10:00 a.m., Monday, November 2, 1981

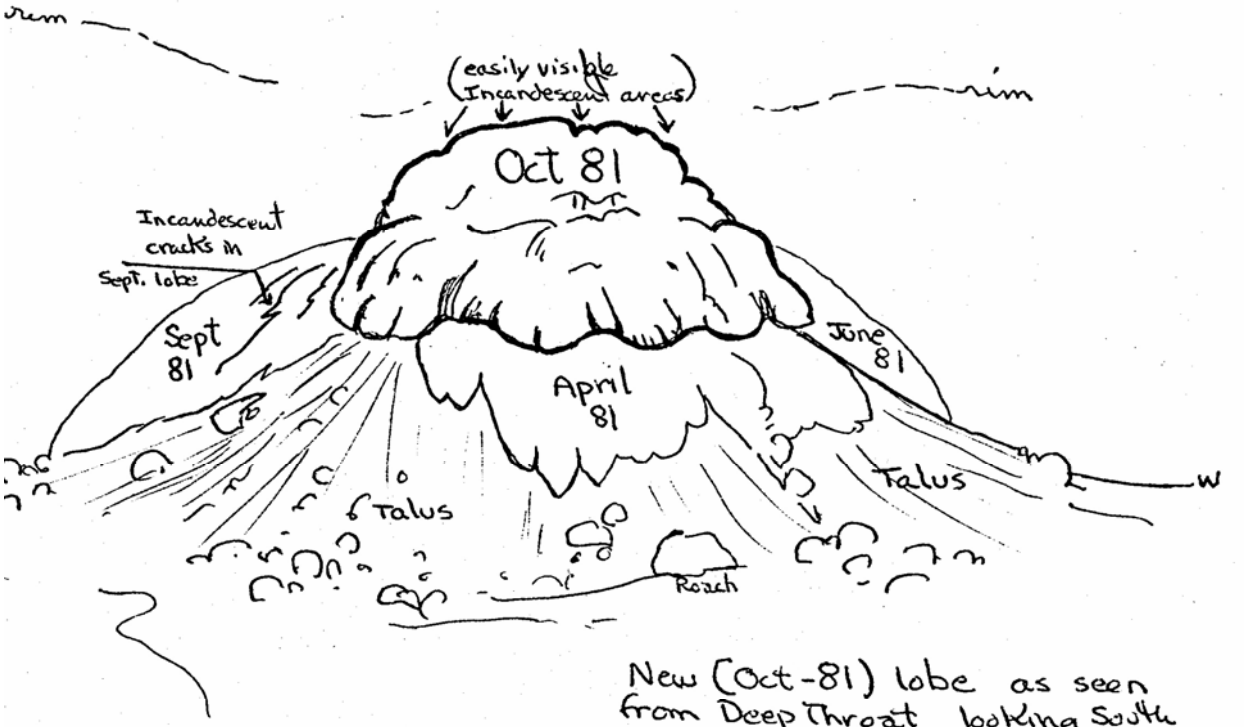
Morning fog cleared yesterday, November 1, allowing crews to continue monitoring the growth of the new lobe. Observations and measurements indicate dome growth is continuing, although at a reduced rate.

Incandescent areas on the new lobe and several of the older lobes are still clearly visible.

The seismic record continues to show the ongoing rockfall activity associated with the dome growth.

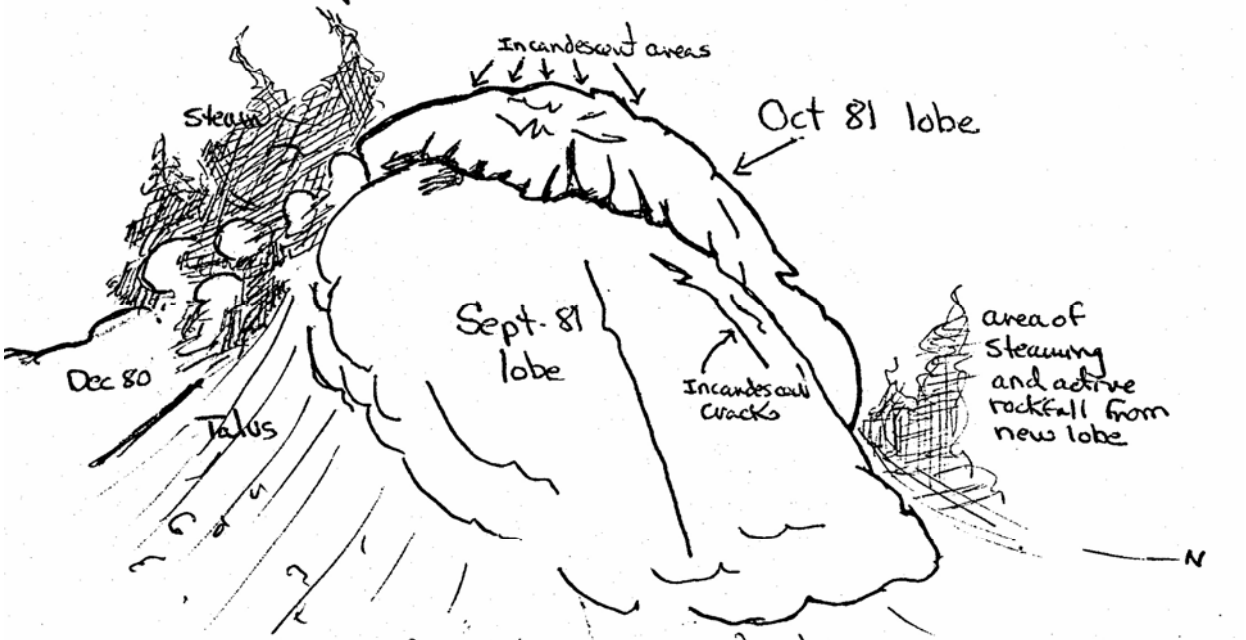
**Sketches of the dome with the new lobe will be telefaxed to Don Kelly, Edna King, and Univ. of Washington.

(sketches included with 11/02/81 report)



New (Oct-81) lobe as seen from Deep Throat looking South
11/1/81 @ 1400
Bobbie Myers

New lobe extruded on top of composite dome. Flowing N down face of April lobe.



View from helicopter hovering at 6500ft on east side of dome.
11/1/81 @ 1340
Bobbie Myers

The following Volcano Advisory was issued at 4:45 p.m., PST on November 2, 1981.

> *Seismicity at Mount St. Helens has declined to a low level. Observations today in the crater suggest that the major phase of lava extrusion has finished, although sluggish movement of the new lobe of lava and associated rockfalls will probably continue, perhaps for a few more days. Volcanic hazards beyond the immediate vicinity of the dome and crater are very low.*

Report at 8:00 a.m., Tuesday, November 3, 1981

University of Washington reports the level of seismic activity is continuing to decrease but is not yet down to background level. Measurements from the crater and Harrys Ridge indicate that the dome continued to grow yesterday, October 2, but at a reduced rate.

Report at 8:00 a.m., Wednesday, November 4, 1981

University of Washington reports low-level seismicity approaching background level.

Bad weather inhibited field crews from doing work in the crater yesterday, November 3. Field crews are able to continue monitoring today.

Report at 8:00 a.m., Thursday, November 5, 1981

Due to good weather field work at Mount St. Helens has continued. University of Washington reports that seismicity is down to background level.

Report at 8:00 a.m., Friday, November 6, 1981

Good weather prevailed over Mount St. Helens, Thursday, November 5, 1981, allowing continued observation and monitoring by Water Resources and Geologic Division personnel.

University of Washington reports seismicity is down to background levels.

Report at 8:00 a.m., Monday, November 9, 1981

University of Washington reports that seismicity continued at background levels over the

weekend at Mount St. Helens. Crews finished leveling in the crater Friday November 6, 1981. Cloudy conditions forced leveling crews to leave the crater early Saturday November 7, 1981. Fog is keeping helicopters on the ground in Vancouver this morn1ng.

Report at 8:00 a.m., Tuesday, November 10, 1981 -- *missing*

Report at 8:00 a.m., Wednesday, November 11, 1981 -- *missing*

Report at 8:00 a.m., Thursday, November 12, 1981 – *missing*

Report at 7:30 a.m., Friday, November 13, 1981

Inclement weather conditions prevented geologists from working on Mount St. Helens yesterday, November 13, 1981.

Hydrologists from the Water Resources Division spent the day monitoring stream and rivers in and around Mount St. Helens.

University of Washington reports seismicity still remains at background levels.

As of 7:00 Friday morning poor weather continues around the mountain.

Report at 7:30 a.m., Monday, November 16, 1981

Stormy weather Friday and over the weekend prevented geologists from performing monitoring activities on Mount St. Helens, November 13th through 15th, 1981.

University of Washington/USGS reports seismicity is at background levels.

Low amounts of precipitation associated with this weekend's storms posed little threat of major flooding. Rain brought the main stem of the Toutle River to a peak discharge of 9,000 cfs. Sediment concentrations were near 100,000 mg/l. The Army Corp's sediment dam is full and the north fork was carrying its normal sediment load.

Report at 8:00 a.m., Tuesday, November 17, 1981

Marginal weather conditions allowed a brief period of clearing for geologists to enter the crater of Mount St. Helens on Monday, 16th November, 1981. Observations showed little change from last week (Nov. 10, 1981). Hydrologists were on station in drainages around Mount St.

Helens, monitoring flow rates of streams in response to last weekend's weather.

University of Washington/USGS reports seismicity remains at background levels.

Report at 8:00 a.m., Wednesday, November 18, 1981

Marginal weather conditions prevented geologists from entering the crater of Mount St. Helens on Tuesday, 17 November 1981. Hydrologists were at stations on drainages around Mount St. Helens, monitoring streamflows in response to last weekend's weather.

University of Washington/USGS reports seismicity remains at background levels.

Report at 8:00 a.m., Tuesday, November 24, 1981

Rain storms continue to prevent crews from reaching Mount St. He lens.

University of Washington reports low-level seismic activity.

Due to the relocation of the USGS office no daily updates have been issued since Wednesday, November 18, 1981. During this period Mount St. Helens has remained seismically quiet.

Report at 8:00 a.m., Wednesday, November 25, 1981

Crews were able to perform some monitoring activities in the Mount St. Helens area yesterday, November 24, 1981.

Water Resources Division crews performed maintenance on the Castle Lake, Elk Rock, Lower and Upper Clearwater, and Muddy River gages.

University of Washington/USGS reported seismicity is at background levels.

Report at 9:00 a.m., Friday, November 27, 1981

During the past week weather conditions have hampered field operations to the extent that a total of about 6 hours have been spent within the crater, monitoring Mount St. Helens activities. Snow depths within the crater have reached (plus) one meter and may cause some problems with reaching monitoring stations. Telemetry continues to allow monitoring of Mount St. Helens despite poor weather.

Hydrologists have had more success in monitoring drainages around the mountain.

University of Washington/USGS reports seismicity quiet and at background levels.

Report at 8:00 a.m., Monday, November 30, 1981

Crews worked Friday and Saturday in the crater digging stations out of the snow and making measurements. University of Washington reports background seismicity.

DECEMBER 1981

VOLCANIC AND SEISMIC ACTIVITY AT MOUNT ST. HELENS
U.S. Geological Survey and University of Washington
Vancouver and Seattle, Washington

Report at 8:00 a.m., Tuesday, December 1, 1981

Rain and low clouds precluded field observations at higher elevations yesterday, November 30.

Report at 8:00 a.m., Wednesday, December 2, 1981

High winds around Mount St. Helens prevented USGS crews from working on the mountain Tuesday, December 1**.**

University of Washington reports background seismicity.

Report at 8:00 a.m., Thursday, December 3, 1981

High winds and clouds prevented crews from reaching Mount St. Helens by helicopter yesterday, December 2. Water Resources crews were able to monitor stream flow at most gaging stations. University of Washington/USGS reports background seismicity.

Report at 8:00 a.m., Friday, December 4, 1981

Poor weather conditions have prevented geologists from on site monitoring of Mount St. Helens during the last two days.

USGS hydrologist continue to keep a watch on drainages around Mount St. Helens and monitor stream conditions.

University of Washington/USGS seismologists report seismicity remains at background levels.

Report at 8:00 a.m., Monday December 7, 1981

Winter storms continue to prevent geologists from reaching the crater at Mount St. Helens.

Water Resources crews worked throughout the weekend monitoring high stream flows.

University of Washington/USGS reports seismicity was at background levels with several period of increased rockfall activity. Over a dozen good sized rockfalls were recorded, however, crews have been unable to give visual confirmation of the size and location of these events.

A break between storms may allow crews to reach the mountain today.

Report at 8:00 a.m., Tuesday, December 8, 1981

Storms continue to prevent crews from working at higher elevations around the mountain. University of Washington/USGS reports background level seismicity.

Report at 8:00 a.m., Wednesday, December 9, 1981

Water Resources crews continue to monitor stream flow around the mountain; however, high winds kept crews from reaching the crater. University of Washington/USG reports background levels seismicity.

Report at 8:00 a.m., Friday, December 11, 1981

Inclement weather still prevailed around Mount St. Helens on Thursday, December 10, 1981, preventing on-site monitoring by USGS geologists. USGS hydrologists continue monitoring stream conditions around the mountain.

Weather for Friday, December 11, 1981 is allowing access to the mountain.

University of Washington/USGS reports seismicity remains at background levels. Preliminary reports from crater on Friday, December 11, 1981 state observations of a new avalanche (no size) deposit located on east crater floor from "APE".

No daily update was issued yesterday, December 10, 1981.

Report at 8:00 a.m., Monday, December 14, 1981

Friday and Saturday geologists were able to reach the crater at Mount St. Helens. Snow and ice avalanches from the inner crater walls have destroyed most of the measurement stations south of the rampart. All but a half dozen stations in the amphitheater (north of the rampart) are buried under 6 to 8 feet of snow.

Crews spent most of their time digging out old stations and installing new ones. The few measurements that could be made indicated that very little ground deformation is occurring at this time.

University of Washington/USGS background seismicity.

Report at 8:00 a.m. Tuesday, December 15, 1981

University of Washington/USGS reported background seismicity yesterday, December 14, 1981.

Rain storms and wind continue to keep geologists in Vancouver and hydrologists at gaging stations around the mountain.

Report at 8:00 a.m., Wednesday, December 16, 1981

Weather conditions prevented geologists from entering the crater of Mount St. Helens on Tuesday, 16 December 1981. Hydrologists were at stream gaging stations around Mount St. Helens throughout the day.

University of Washington/USGS reports background seismicity.

Report at 8:00 a.m., Thursday, December 17, 1981 – *missing*

Report at 8:00 a.m., Friday, December 18, 1981

Weather was clear but very windy, Thursday, December 17, 1981, preventing geologists from on-site monitoring of Mount St. Helens. Hydrologists were able to continue monitoring stream drainages around the mountain.

University of Washington/USGS reports seismicity remains at background levels. One local event took place at approximately 0119 a.m., December 18th. This earthquake was located about 3 km west of Spirit Lake, 5-6 km deep and registered 2.6-2.8 on the Richter scale.

Report at 8:00 a.m., Monday, December 21, 1981

Low clouds and rain continue to hamper field operations at Mount St. Helens.

University of Washington/USGS report background level seismicity and occasional snow avalanches.

Report at 8:00 a.m., Tuesday, December 22, 1981

University of Washington /USGS reports background seismic activity. Winter weather continues to restrict access to mountain.

Report at 8:00 a.m., Wednesday, December 23, 1981

University of Washington/USGS reports seismicity at background levels. Inclement weather prevented access to the mountain yesterday, December 22, 1981.

Report at 8:00 a.m., Thursday, December 24, 1981

University of Washington/USGS reports background seismicity. Partially cloudy skies allowed crews to reach the mountain yesterday, December 23rd. Snow depths in the crater are 6 to 10 feet. Several more large snow/rock avalanches have occurred on the west side of the inner crater wall.

Report at 8:00 a.m., Monday, December 28, 1981

University of Washington/USGS reports background seismicity. Weather conditions over Christmas prevented crews from reaching the mountain.

Report at 9:00 a.m., Tuesday, December 29, 1981

Poor weather continued to restrict access to Mt. St. Helens on Monday December 28, 1981. University of Washington/USGS reports seismicity remains at background levels.

Report at 9:00 a.m., Wednesday, December 30, 1981

A break between storms allowed crews access to the mountain on Tuesday, December 29, 1981. Deformation measurements indicate no changes. University of Washington/USGS reports seismicity remains at background levels.

Report at 9:00 a.m., Thursday, December 31, 1981

University of Washington/USGS reports background seismic activity. Snow kept crews in Vancouver.
