MT. HOOD, OR

HAZARD PROFILE

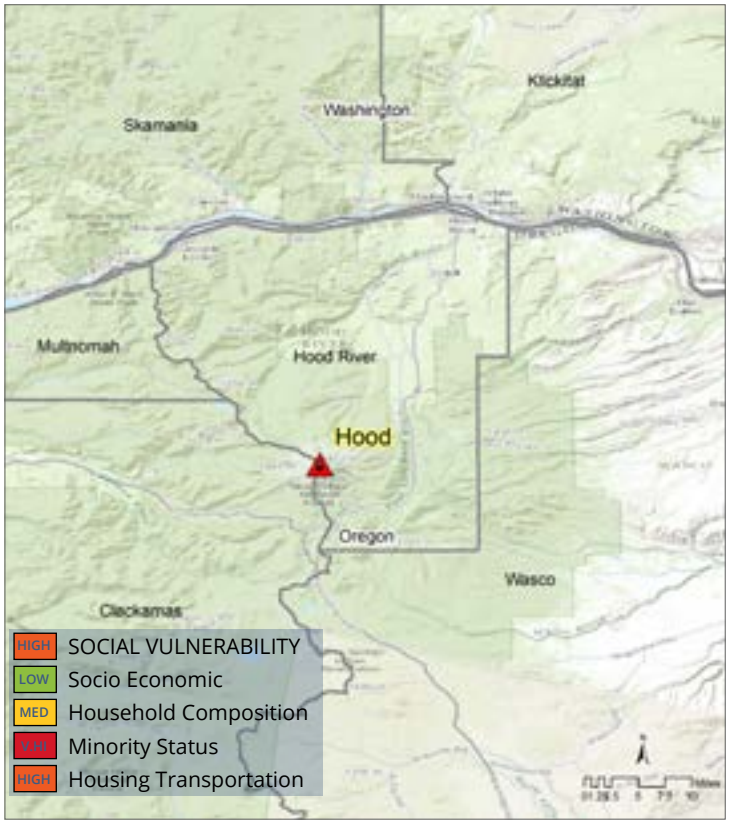
(USGS)

Beautiful Mount Hood, the pastoral backdrop for the city of Portland 45 miles east-southeast, is the tallest mountain in Oregon and a very popular destination for skiers, hikers, and climbers. It is also an important agricultural water source for the Columbia River Valley and Multnomah Native American mythology has at least two legends of how the majestic mountain was formed.

Mount Hood is a stratovolcano made of lava flows and domes, along with airborne ash and block or bomb deposits ejected from the volcano itself and mixed with native rock. Most of the volcano is andesite composition.

The main cone of Mount Hood formed about 500,000 years ago. Mount Hood has grown sporadically, with decades to centuries of frequent eruptions separated by quiet periods lasting from centuries. Lava flows that traveled as far as 7 miles and the buildup of lava domes over the steep flanks demonstrate the primary eruptive style of Mt. Hood. Additionally, modest tephra fallout accompanied both types of eruptions.

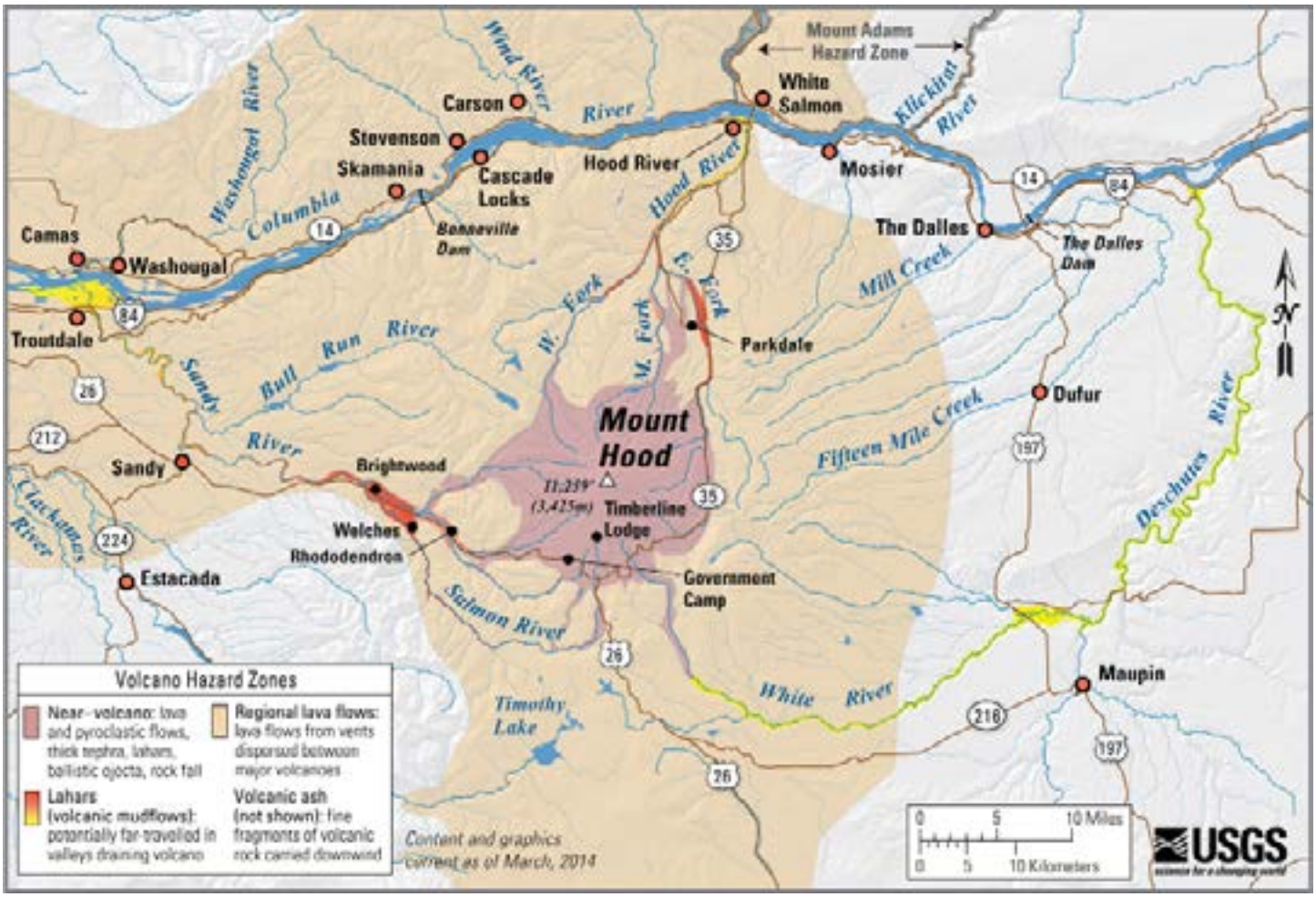
The Crater Rock area is the largest fumarole field in the Oregon Cascades, producing vigorous gas emission and extensive hydrothermal alteration of rock masses over broad areas



FEMA

URBAN DESIGN & PLANNING

AREAS OF IMPACT



MONITORING

Mount Hood is one of the most seismically active volcanoes in the Washington and Oregon Cascades, and the most seismically active volcano in Oregon. It was designated as a very high threat volcano by the USGS in its 2005 National Volcanic Early Warning System (NVEWS) assessment of volcanic threat because of how it erupts and the communities within its reach.

Mt. Hood seismicity is monitored by the Pacific Northwest Seismic Netwrok (PNSN) and Cascades Volcano Observatory (CVO) via a regional network that includes 5 seismic stations within 20 kms of the volcano.

The USGS-Cascades Volcano Observatory, in cooperation with the U.S. Forest Service and Mount Hood National Forest, has proposed to install and maintain four new volcano monitoring stations on the flanks of Mount Hood, all located within the Mt. Hood Wilderness boundary. The stations will improve CVO's ability to detect subtle signals that can indicate volcanic unrest, earlier and with greater confidence than current capabilities allow.

Other monitoring capabilities include:

- Cameras
- Real time GPS
- Temperature Gauges
- Stream flow monitors

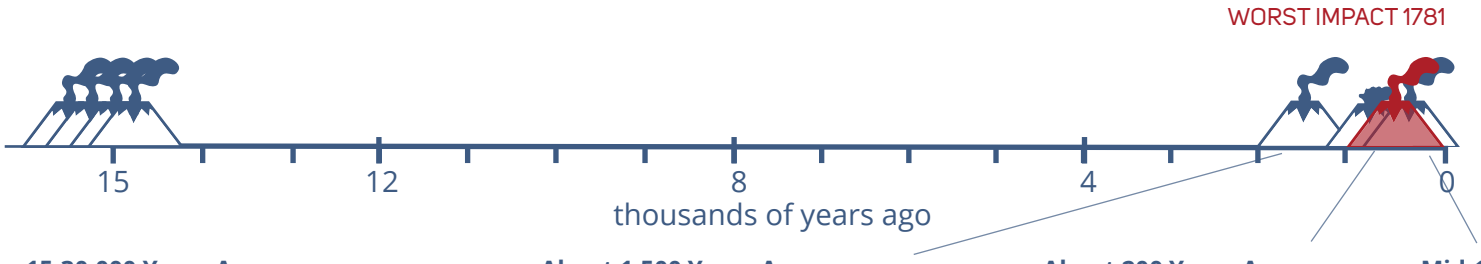
MOUNTAIN FACTS

coordinates	45.374° N, 121.695° W
summit / elevation	3,426 m / 11,237 ft
last known eruption	1866 CE
population	within 5 km / 0 10 km / 850 30 km / 9,721 100 km / 2,067,520
county	OR, Clackamas/ Hood River Counties
nearby communities	Parkdale, Rhododendron, Welches, Brightwood, Sandy, Mosier, White Salmon, Hood River, Cascade Locks, Carson, Stevenson, Skamania, Washougal, Camas, Troutdale

GEOLOGICAL SUMMARY

Mount Hood, Oregon's highest peak, forms a prominent backdrop to the state's largest city, Portland. The eroded summit area consists of several andesitic or dacitic lava domes. Major Pleistocene edifice collapse produced a debris avalanche and lahar that traveled north down the Hood River valley and crossed the Columbia River. The glacially eroded volcano has had at least three major eruptive periods during the past 15,000 years. The last two occurred within the past 1800 years from the central vent high on the SW flank and produced deposits that were distributed primarily to the south and west along the Sandy and Zigzag rivers. The last major eruptive period took place beginning in 1781, when growth of the Crater Rock lava dome was accompanied by pyroclastic flows and lahars down the White and Sandy rivers. The Sandy River lahar deposits extended to the west as far as the Columbia River and were observed by members of the 1804-1805 Lewis and Clark expedition shortly after their emplacement. Minor 19th-century eruptions were witnessed from Portland.

ERUPTION HISTORY



15-30,000 Years Ago

Mutiple eipsodes of lava-dome growth, pyroclastic flows, lava flows, lahars, and tephra fall; valleys on all flanks affected

About 1,500 Years Ago

Debris avalanche from upper south flank; lava dome near Crater Rock, pyroclastic flows, lahars in south and west valleys' substantial tephra falls near volcano

About 200 Years Ago

Lava dome at Crater Rock; pyroclastic flows, lahars in south and west valleys; tephra falls

Mid-1800

Small steam and ash explosions

FEMA
URBAN DESIGN & PLANNING

VOLCANO THREAT ASSESSMENT

OVERALL THREAT
VERY HIGH

HAZARD THREAT
HIGH (12)

EXPOSURE THREAT
HIGH(17.8)

MONITORING

REQUIRED	CURRENT
4	2

Overall Threat
This is an overall ranking based on multiple factors including tectonic setting, population density, eruption frequency, and potential to erupt again. The variations in these factors make this volcano uniquely dangerous.

Hazard Threat
This includes volcano type, max volcano explosivity index, explosive activity, eruption recurrence, holocene - pyroclastic flows, lava flows, lahar, tsunami, hydrothermal explosion potential, sector collapse potential, primary lahar source, and historical unrest.

Exposure Threat
This is based on volcano population index, population downstream, historical fatalities and evacuations, local and regional aviation exposure, infrastructure, major development of sensitive areas, and populated island location.

Current Monitoring
This assesses the current ability to detect and track pre-eruptive and eruptive changes in real-time, including what is occurring. This assessment considers seismic, deformation, gas, hydrologic, and remote sensing monitoring capabilities.

MORE RESOURCES

Suscribe to Volcano Notification Service
http://volcanoes.usgs.gov/vns/

Find Designated Public Shelter
Text SHELTER + ZIP code to 43362 (4FEMA)

Mount Hood Coordination Plan
The Mount Hood Facilitating Committee (2005)
http://www.oregon.gov/DOGAMI/earthquakes/mthoodplanfinal0905.pdf

Snohomish County
Volcano Preparedness
Information relating to eruption history and preparedness
http://www.clackamas.us/dm/volcano.html

Oregon State Department of Natural Resources
Volcano Hazards
Information about understanding volcano hazards as well as Emergency Preparedness.
http://www.oregon.gov/DOGAMI/Pages/earthquakes/volcanoes.aspx

BE INFORMED.
MAKE A PLAN.
BUILD A KIT.

FEMA
URBAN DESIGN & PLANNING

CRATER LAKE, OR

HAZARD PROFILE

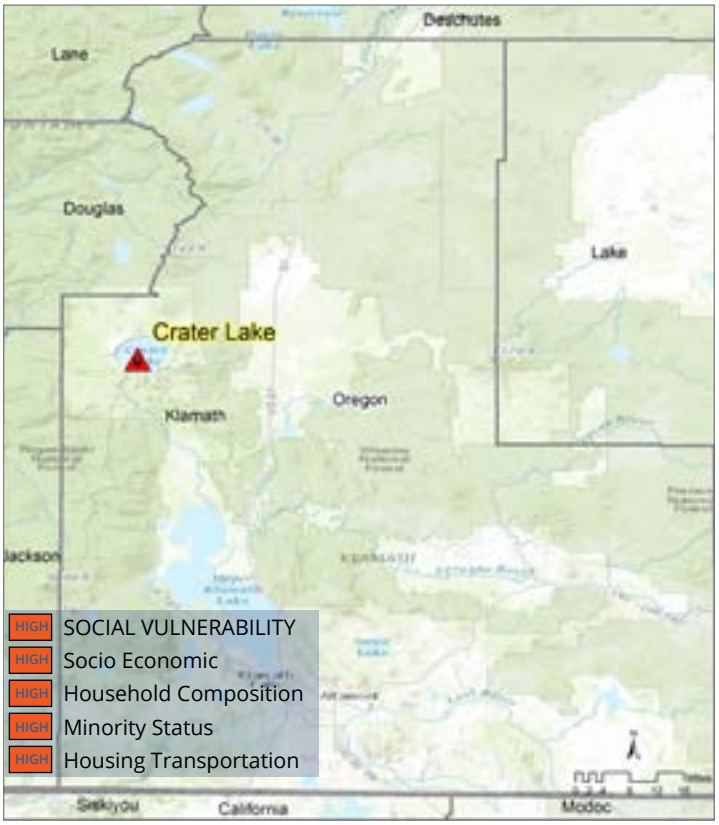
Crater Lake is famous for the deep blue color of its clear water. It's a caldera lake, created from the Mazama volcanic eruption about 7, 700 years ago. Located 55 miles north of Klamath Falls City, and about 60 miles northeast of Medford, Crater Lake has its own little history of eruptions.

Shortly after the Mazama eruption, new vents inside the caldera continually erupted forming the base of Wizard Island and central platform. These eruptions continued as rain and snow began to fill the caldera in somewhat equal quanities.. Lava tubes formed from a crater on the west edge of the central platform which sent lava across the caldera floor. Short-lived Merriam Cone, developed from a vent on the northern part of the caldera never reached the surface, as the lake water continued to rise faster than the cone could build itself.

Eventually, central platform was also downed, leaving Wizard island the only survivor able to keep above the waterline.After reaching near present day depth, the water level reached a thick layer of permeable deposits in the northeast caldera wall. This effectively stopped the water level from rising because it the porous layer absorbs the water.

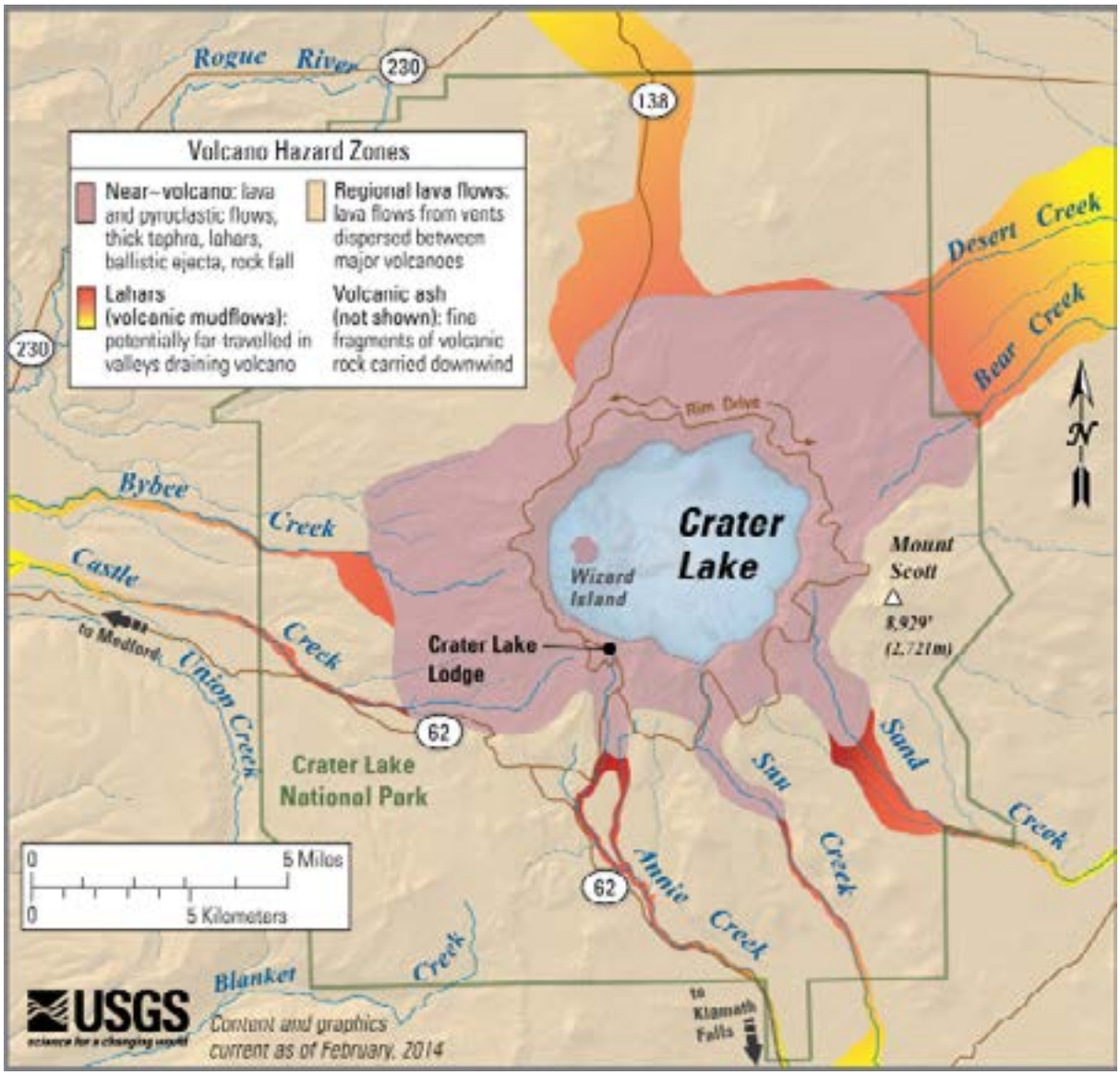
About 4,800 years ago, the last known eruption at Crater Lake occurred on the east flank at the base of Wizard Island. A small lava dome erupted under water. Since then, the volcano has been quiet.

The 8 x 10 km wide 1200 m deep Crater Lake caldera, one of the most spectacular features of the Cascade Range, was formed during one of the world's largest Holocene eruptions.



FEMA
URBAN DESIGN & PLANNING

AREAS OF IMPACT



MONITORING

A recent USGS report on a proposed National Volcano Early Warning System said Crater Lake receives the least monitoring for possible eruptions among the region's five most active volcanoes, partly because it lies so far from population centers. Crater Lake isn't expected to have renewed volcanic activity any time soon, but geologists with the U.S. Geologic Survey and Crater Lake National Park officials would like to install six to 10 seismic monitoring stations at and near the park.

"Crater Lake is the worst-case scenario," said US Cascades Volcano Observatory seismologist Seth Moran. There is a network of seismic monitors up and down the Cascades, but the monitor nearest to Crater Lake is 29 miles away, compared to a monitoring station within 5 miles in other cases. The park had a monitor several years ago but it was reported removed.

There is a network of webcams and GPS system for monitoring Crater Lake.

(Source: Crater Lake Institute)

(Smithsonian Institute)

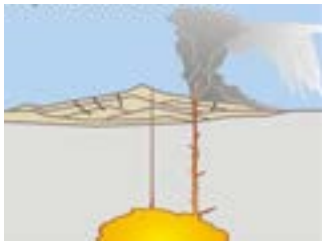
MOUNTAIN FACTS

coordinates	42.93° N, 122.12° W
summit / elevation	2487 m / 8157 ft
last known eruption	2850 BCE
population	within 5 km / 52 10 km / 52 30 km / 366 100 km / 272,674
county	Klamath
nearby communities	Fort Kalmath, Union Creek, Diamond Lake, Clearwater, Prospect, Cascade Gorge, Mcleod, Rogue Elk, Medford

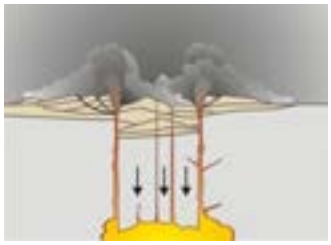
GEOLOGICAL SUMMARY

The spectacular 8 x 10 km Crater Lake caldera in the southern Cascades of Oregon formed about 6850 years ago as a result of the collapse of a complex of overlapping shield and stratovolcanoes known as Mount Mazama. The cone-building stage, during which at least five andesitic and dacitic shields and stratovolcanoes were constructed, took place between about 420 and 40 thousand years ago (ka). A series of rhyodacitic lava domes and flows and associated pyroclastic rocks were erupted between about 30 ka and the climactic eruption. The explosive eruptions triggering collapse of the 8-10 km wide caldera about 7500 years ago were among Earth's largest known Holocene eruptions, distributing tephra as far away as Canada and producing pyroclastic flows that traveled 40 km from the volcano. A 5-km-wide ring fracture zone is thought to mark the original collapse diameter. The deep blue waters of North America's second deepest lake, at 600 m, fill the caldera to within 150-600 m of its rim. Post-caldera eruptions within a few hundred years of caldera formation constructed a series of small lava domes on the caldera floor, including the partially subaerial Wizard Island cinder cone, and the completely submerged Merriam Cone. The latest eruptions produced a small rhyodacitic lava dome beneath the lake surface east of Wizard Island about 4200 years ago.

CATACLYSMIC ERUPTION TO PRESENT



Eruptions of ash and pumice
The cataclysmic eruption started from a vent on the northeast side of the volcano as a towering column of ash, with pyroclastic flows spreading to the northeast.



Caldera collapse
As more magma was erupted, cracks opened up around the summit, which began to collapse. Fountains of pumice and ash surrounded the collapsing summit, and pyroclastic flows raced down all sides of the volcano.

Steam explosions
When the dust had settled, the new caldera was 5 miles (8 km) in diameter and 1 mile (1.6 km) deep. Ground water interacted with hot deposits causing explosions of steam and ash.

(USGS)

Today
In the first few hundred years after the cataclysmic eruption, renewed eruptions built Wizard Island, Merriam Cone, and the central platform. Water filled the new caldera to form the deepest lake in the United States.

FEMA
URBAN DESIGN & PLANNING

VOLCANO THREAT ASSESSMENT

OVERALL THREAT
VERY HIGH

HAZARD THREAT
HIGH (10)

EXPOSURE THREAT
HIGH(16.1)

MONITORING

REQUIRED	CURRENT
4	1

Overall Threat
This is an overall ranking based on multiple factors including tectonic setting, population density, eruption frequency, and potential to erupt again. The variations in these factors make this volcano uniquely dangerous.

Hazard Threat
This includes volcano type, max volcano explosivity index, explosive activity, eruption recurrence, holocene - pyroclastic flows, lava flows, lahar, tsunami, hydrothermal explosion potential, sector collapse potential, primary lahar source, and historical unrest.

Exposure Threat
This is based on volcano population index, population downstream, historical fatalities and evacuations, local and regional aviation exposure, infrastructure, major development of sensitive areas, and populated island location.

Current Monitoring
This assesses the current ability to detect and track pre-eruptive and eruptive changes in real-time, including what is occurring. This assessment considers seismic, deformation, gas, hydrologic, and remote sensing monitoring capabilities.

MORE RESOURCES

Suscribe to Volcano Notification Service
http://volcanoes.usgs.gov/vns/

Find Designated Public Shelter
Text SHELTER + ZIP code to 43362 (4FEMA)

Central Cascades Volcano Coordination Plan
The Central Cascades Facilitating Committee (2012).
Oregon Emergency Management
https://www.oregon.gov/OEM/Documents/Central_Cascades_Coordination_Plan.pdf

BE INFORMED.
MAKE A PLAN.
BUILD A KIT.

Information about seismic activity around Crater Lake, Oregon
Pacific Northwest Seismic Network's Crater Lake Website--https://pnsn.org/volcanoes/crater-lake

Klamath County
Emergency Management
http://www.klamathcounty.org/depts/ems/

Oregon State Department of Natural Resources
Volcano Hazards
Information about understanding volcano hazards as well as Emergency Preparedness.

FEMA
URBAN DESIGN & PLANNING

SOUTH SISTER, OR

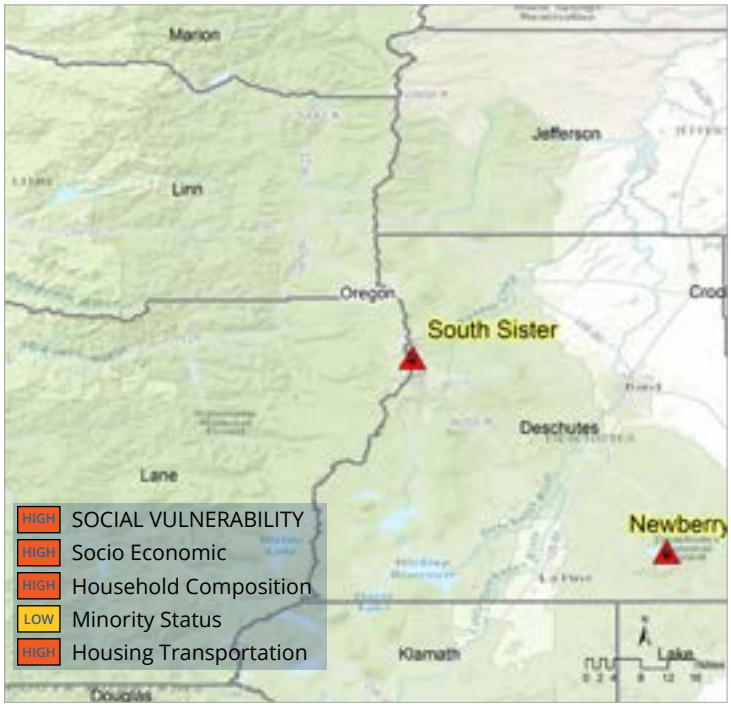
HAZARD PROFILE

Located in Oregon 20 miles west of Bend and about 60 miles east of Eugene, Three Sisters are a cluster of glaciated stratovolcanoes. Within the Cascade Arc, the sisters extend about another 25 miles north and south of the cluster. This area contains some 466 volcanoes, more or less one million years old. Most of these ancient volcanoes had short periods of eruptions. These multiple eruptions left behind conical volcanoes built up of hardened lava, rock fragments, pumice, and volcanic ash. Most of the eruptions were lava flow. The North, Middle, and South Sisters appear similar, but they were actually formed at different times and each is composed of different magma types.

North Sister, Faith, is the oldest and most eroded of the Sisters. Middle Sister, Hope, formed after North Sister became quiet. South Sister, the youngest and the tallest of the three volcanoes began stirring as activity at Middle Sister slowed down.

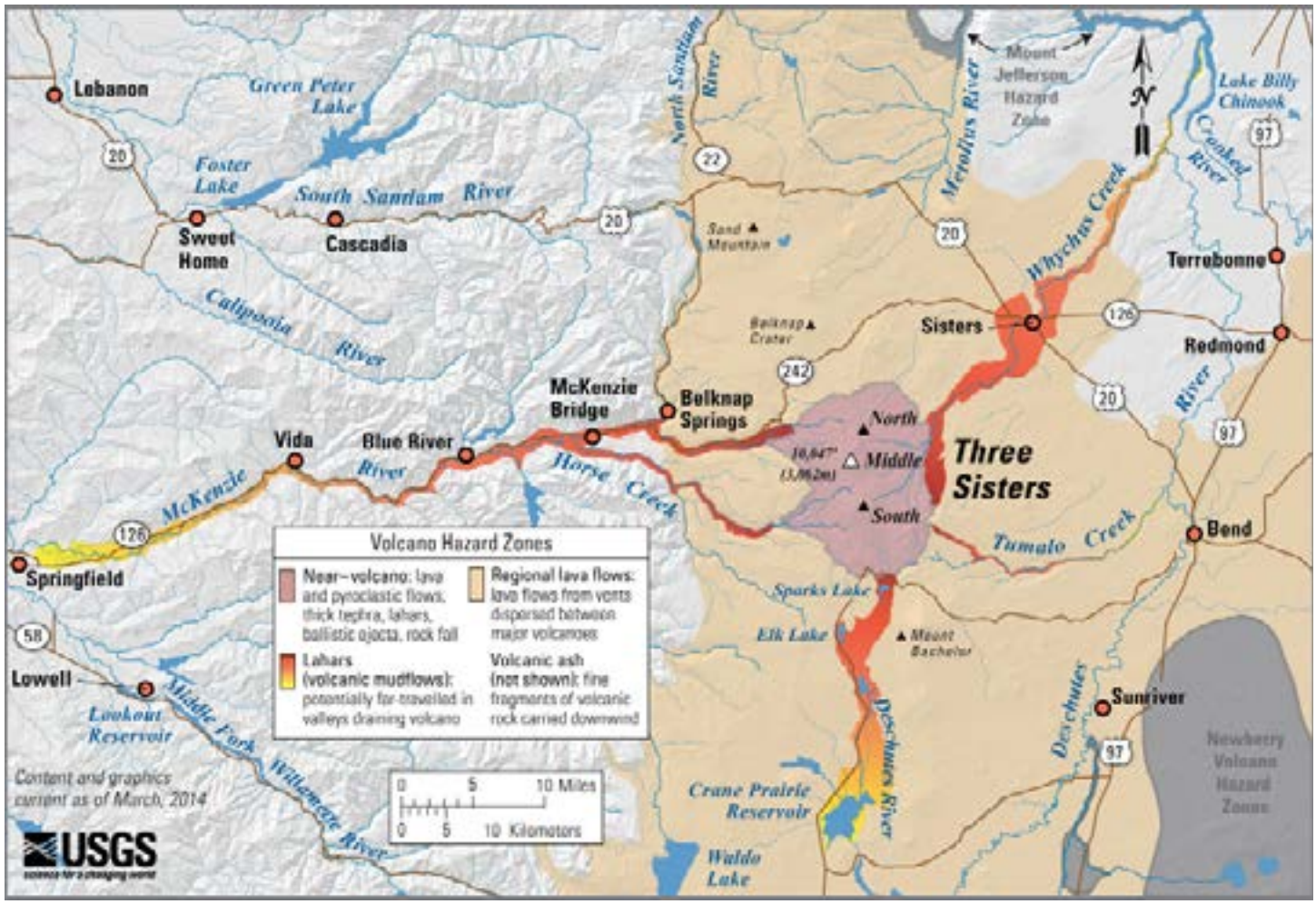
South Sister also contains a summit crater, formed around 30,000 years ago during an intense period of eruptive activity. The most recent South Sister activity occurred around 2000 years ago. The Three Sisters area has experienced eruptions thousands of years and future eruptions are somewhat likely, although North or Middle Sister are unlikely to resume activity . South Sister could become active and inflict great damage up to 6 miles from the volcano summit. There are two types of volcanoes in the Three Sisters region, and each pose different hazards. They may erupt explosively, or could have substantial lava domes that collapse and become high speed flows of hot lava blocks, pumice, ash and volcanic gas.

All three volcanoes ceased erupting during the Pleistocene, but flank vents of South Sister on the left and North Sister on the right have erupted in the past few thousand years



FEMA
URBAN DESIGN & PLANNING

AREAS OF IMPACT



MONITORING

GPS system: he Global Positioning System (GPS) consists of a group of Earth-orbiting satellites that orbit the Earth twice per day and transmit information to a receiver on the ground. To use a GPS system for volcano monitoring, multiple receivers are placed around a volcano in an array. Studying the data from a single receiver over a period of time, it is possible to determine surface ground movement (or deformation)

Tiltmeters: Tiltmeters continuously measure the tilt of the ground surface. When magma accumulates, or drains beneath the ground, the surface will tilt away or toward the resulting surface motion

InSAR: Is a satellite based technique which maps ground deformation using radar images of the Earth's surface that are collected from orbiting satellites?

Electronic Distance Meter (EDM).

Seismometers to study earthquake data: The volcanic gasses from magma rise to the surface from deep below the earth crust causing stress changes in the crust as the material magma gases migrate upward, causing an earthquake.

AFM, Solar powered acoustic flow monitor: USGS scientists developed an inexpensive, durable, portable, and easily installed system to detect and continuously monitor the arrival and passage of debris flows and floods in river valleys draining active volcanoes.

MOUNTAIN FACTS

coordinates	44.133° N, 121.767° W
summit / elevation	3159 m / 10362 ft
last known eruption	440 CE
population	within 5 km / 0 10 km / 0 30 km / 5,672 100 km / 279,885
county	Lane
nearby communities	Sisters, Belknap Springs, McKenzie Bridge, Blue River, Vida, Springfield, Sunriver, Redmond, Terrebonne, Cascadia, Lowell

GEOLOGICAL SUMMARY

The north-south-trending Three Sisters volcano group dominates the landscape of the Central Oregon Cascades. All Three Sisters stratovolcanoes ceased activity during the late Pleistocene, but basaltic-to-rhyolitic flank vents erupted during the Holocene, producing both blocky lava flows north of North Sister and rhyolitic lava domes and flows south of South Sister volcano. Glaciers have deeply eroded the Pleistocene andesitic-dacitic North Sister stratovolcano, exposing the volcano's central plug. Construction of the main edifice ceased at about 55,000 yrs ago, but north-flank vents produced blocky lava flows in the McKenzie Pass area as recently as about 1600 years ago. Middle Sister volcano is located only 2 km to the SW and was active largely contemporaneously with South Sister until about 14,000 years ago. South Sister is the highest of the Three Sisters. It was constructed beginning about 50,000 years ago and was capped by a symmetrical summit cinder cone formed about 22,000 years ago. The late Pleistocene or early Holocene Cayuse Crater on the SW flank of Broken Top volcano and other flank vents such as Le Conte Crater on the SW flank of South Sister mark mafic vents that have erupted at considerable distances from South Sister itself, and a chain of dike-fed rhyolitic lava domes and flows at Rock Mesa and Devils Chain south of South Sister erupted about 2000 years ago.

FEMA
URBAN DESIGN & PLANNING

VOLCANO THREAT ASSESSMENT

OVERALL THREAT
VERY HIGH

HAZARD THREAT
HIGH (12)

EXPOSURE THREAT
HIGH(16.2)

MONITORING

REQUIRED	CURRENT
4	2

Overall Threat
This is an overall ranking based on multiple factors including tectonic setting, population density, eruption frequency, and potential to erupt again. The variations in these factors make this volcano uniquely dangerous.

Hazard Threat
This includes volcano type, max volcano explosivity index, explosive activity, eruption recurrence, holocene - pyroclastic flows, lava flows, lahar, tsunami, hydrothermal explosion potential, sector collapse potential, primary lahar source, and historical unrest.

Exposure Threat
This is based on volcano population index, population downstream, historical fatalities and evacuations, local and regional aviation exposure, infrastructure, major development of sensitive areas, and populated island location.

Current Monitoring
This assesses the current ability to detect and track pre-eruptive and eruptive changes in real-time, including what is occurring. This assessment considers seismic, deformation, gas, hydrologic, and remote sensing monitoring capabilities.

MORE RESOURCES

Suscribe to Volcano Notification Service
http://volcanoes.usgs.gov/vns/

Find Designated Public Shelter
Text SHELTER + ZIP code to 43362 (4FEMA)

Central Cascades Volcano Coordination Plan
The Central Cascades Facilitating Committee (2012).
Oregon Emergency Management
https://www.oregon.gov/OEM/Documents/Central_Cascades_Coordination_Plan.pdf

Lane County
Emergency Management
http://www.lanecounty.org/cms/one.aspx?pageId=4182678

Oregon State Department of Natural Resources
Volcano Hazards
Information about understanding volcano hazards as well as Emergency Preparedness.
http://www.oregon.gov/DOGAMI/Pages/earthquakes/volcanoes.aspx

BE INFORMED.
MAKE A PLAN.
BUILD A KIT.

FEMA
URBAN DESIGN & PLANNING

NEWBERRY, OR

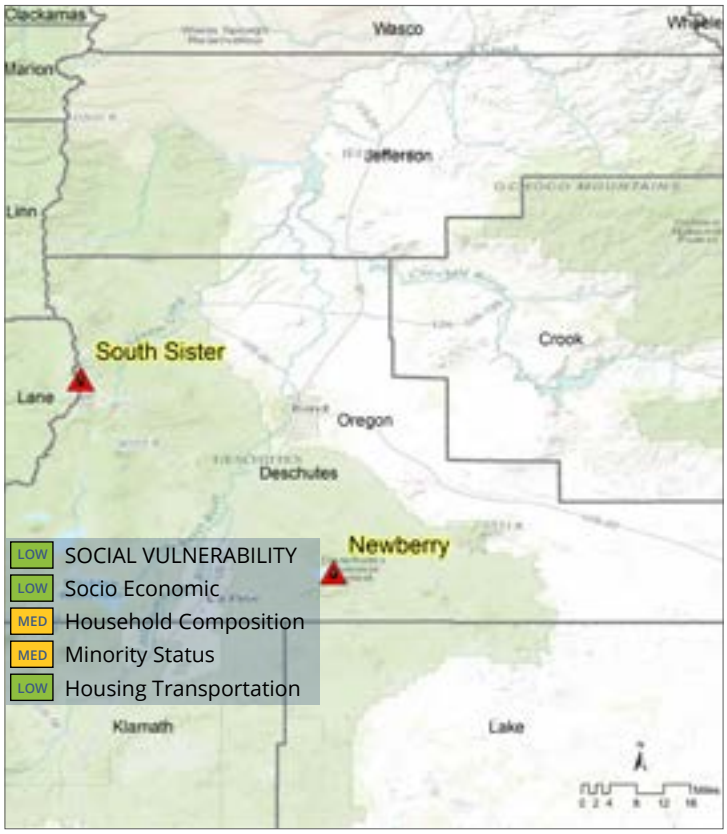
HAZARD PROFILE

Newberry Volcano is a potentially active shield volcano about 20 miles southeast of Bend, Oregon, and features cinder cones, fissures, caves, lava tubes, and rift zones. Roughly the size of Rhode Island, Newberry is not a typical shield volcano but shares some eruption attributes of nearby stratovolcanoes.

During its growth, the volcano has experienced eruption styles ranging from explosive spewing ash plumes, to vast lava flows. A tremendous explosive eruption gushed so much hot ash, lava fragments, and gases (pyroclastic material) from its vent, that it emptied the magma chamber causing it to collapse and form the large oval shaped summit caldera. The caldera contains two lakes, cinder cones, lava flows, and obsidian domes. Volcanic ash matching that of the caldera composition has been found as far away as San Francisco. Downtown Bend is built on Newberry lava flows.

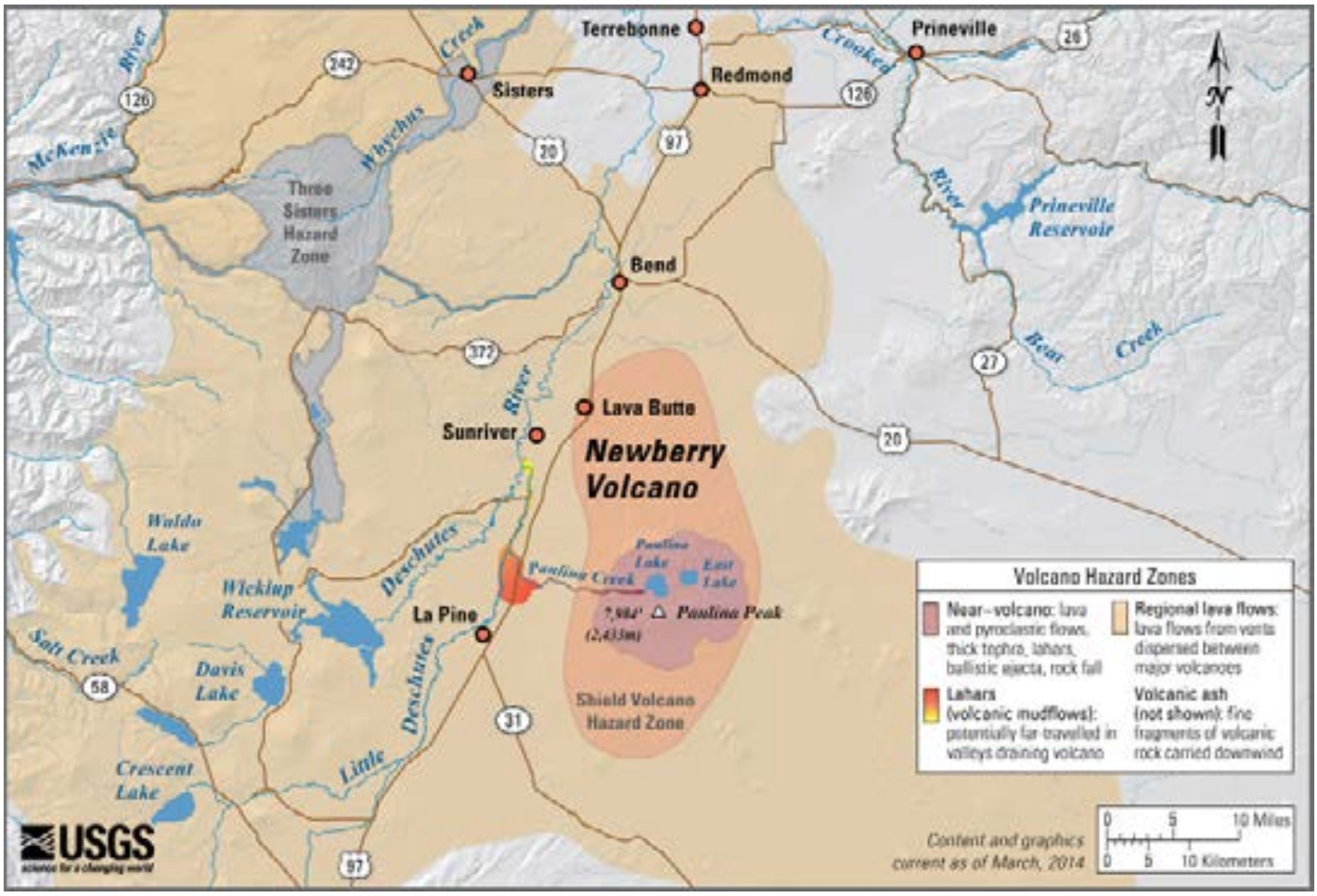
The three lava tubes on the northern flank, Horse Lava Tube, Arnold Lava Tube, and Lava Top Butte, formed from smooth, billowy basaltic lava. These smooth, wavy surface features indicate very fluid lava movement beneath the solidified crust. The NASA Apollo Training Program sent some of their astronauts to Newberry for training in parts of the volcano that resembled the Moon's surface.

A major eruption about 6400 years ago produced the large Central Pumice Cone in the center of Newberry caldera, a pumice ring, and obsidian lava flows



FEMA
URBAN DESIGN & PLANNING

AREAS OF IMPACT



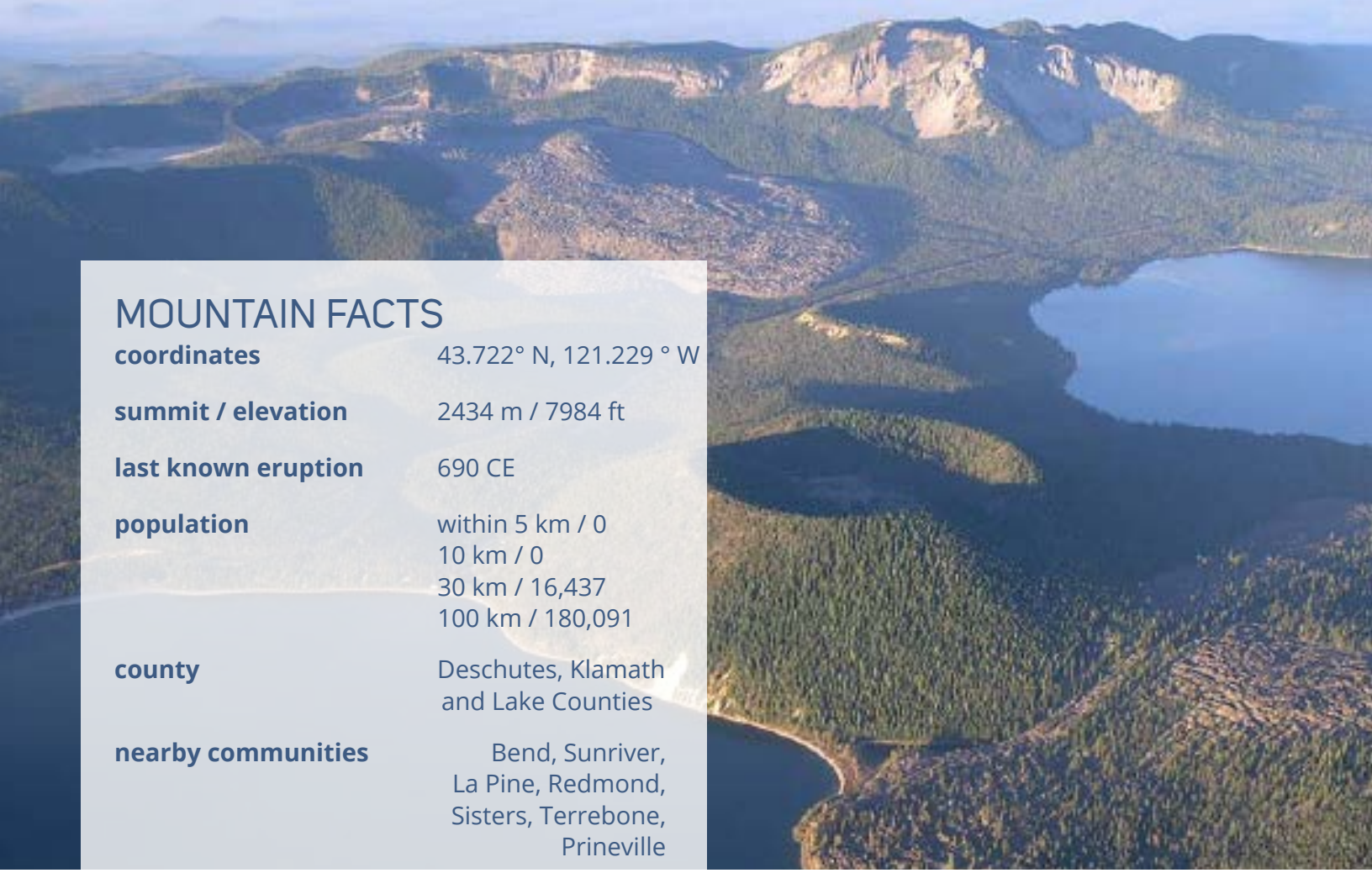
MONITORING

Newberry Volcano, despite being a Very High Threat Volcano, was once thought to be one of the most seismically quiet of the monitored volcanoes in Washington and Oregon before a major seismic network upgrade in 2011. The U.S. Geological Survey (USGS) considers Newberry Volcano to be a very high threat volcano because of its recent volcanic activity (within the past 1,500 years) in an area where numerous people live.

Leveling Surveys: CVO conducted leveling surveys across Newberry Volcano in 1985, 1986, and 1994 for comparison to an initial USGS survey in 1931. The 1994 results indicated that the summit area of the volcano moved upward about 4 inches with respect to its base sometime between 1931 and 1994.

GPS to study ground deformation: Until 2011, Newberry Volcano was not continuously monitored for patterns of deformation. In 2002 and 2009, scientists deployed short-lived "campaign" GPS surveys that included measurements of ground position at 27 locations

9-Real time seismometer array: Prior to 2011, only one seismic station had operated near Newberry. In 2011 the Cascades Volcano Observatory installed 8 real-time stations that have joint seismic and deformation (GPS) monitoring instruments, significantly bolstering monitoring capabilities. Recent results from these new "continuous" GPS stations are consistent with low rates of deformation measured between 2002 and 2009



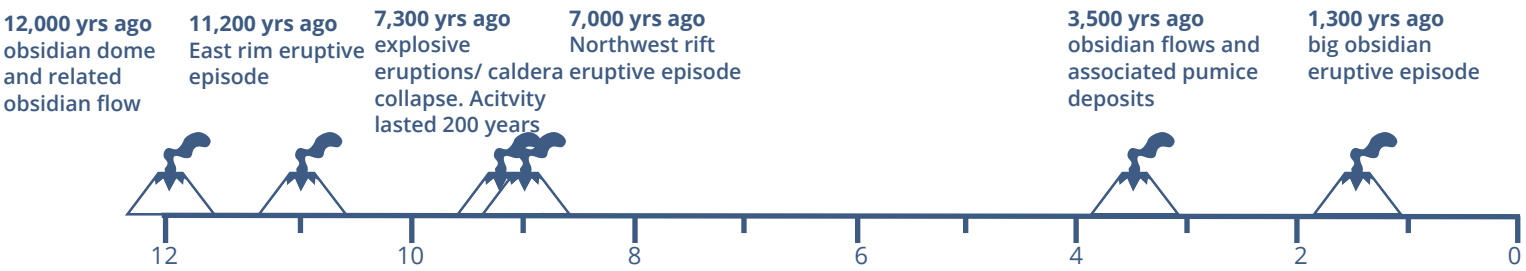
MOUNTAIN FACTS

coordinates	43.722° N, 121.229 ° W
summit / elevation	2434 m / 7984 ft
last known eruption	690 CE
population	within 5 km / 0 10 km / 0 30 km / 16,437 100 km / 180,091
county	Deschutes, Klamath and Lake Counties
nearby communities	Bend, Sunriver, La Pine, Redmond, Sisters, Terrebone, Prineville

GEOLOGICAL SUMMARY

Newberry volcano, situated east of the Cascade Range, is one of the largest volcanoes in the conterminous United States, covering an area of about 1600 sq km. The low-angle basaltic to basaltic-andesite shield volcano is dotted with more than 400 cinder cones; however Newberry has also produced major silicic eruptions associated with formation of a 6 x 8 km wide summit caldera containing two caldera lakes. The earliest eruptive products (<0.73 million years ago) (Ma) consist of a sequence of ash-flow and airfall tuffs. Caldera collapse is thought to be associated with major ash flows emplaced about 0.5 and 0.3-0.5 Ma. these eruptions were preceded by the emplacement of numerous mafic cones and vents and silicic lava domes and flows, many of which are aligned NNW and NNE parallel to regional fault zones. A rhyolitic magma chamber has been present throughout the Holocene. Six major eruptive episodes from the early Holocene to about 1300 years ago have included both the eruption of basaltic lava flows from flank vents and the explosive ejection of rhyolitic pumice and pyroclastic flows and the extrusion of obsidian flows within the caldera.

ERUPTION HISTORY



FEMA
URBAN DESIGN & PLANNING

VOLCANO THREAT ASSESSMENT

OVERALL THREAT
VERY HIGH

HAZARD THREAT
HIGH (9)

EXPOSURE THREAT
HIGH(14.0)

MONITORING

REQUIRED	CURRENT
4	2

Overall Threat
This is an overall ranking based on multiple factors including tectonic setting, population density, eruption frequency, and potential to erupt again. The variations in these factors make this volcano uniquely dangerous.

Hazard Threat
This includes volcano type, max volcano explosivity index, explosive activity, eruption recurrence, holocene - pyroclastic flows, lava flows, lahar, tsunami, hydrothermal explosion potential, sector collapse potential, primary lahar source, and historical unrest.

Exposure Threat
This is based on volcano population index, population downstream, historical fatalities and evacuations, local and regional aviation exposure, infrastructure, major development of sensitive areas, and populated island location.

Current Monitoring
This assesses the current ability to detect and track pre-eruptive and eruptive changes in real-time, including what is occurring. This assessment considers seismic, deformation, gas, hydrologic, and remote sensing monitoring capabilities.

MORE RESOURCES

Suscribe to Volcano Notification Service
http://volcanoes.usgs.gov/vns/

Find Designated Public Shelter
Text SHELTER + ZIP code to 43362 (4FEMA)

Central Cascades Volcano Coordination Plan
The Central Cascades Facilitating Committee (2012).
Oregon Emergency Management
https://www.oregon.gov/OEM/Documents/Central_Cascades_Coordination_Plan.pdf

Snohomish County
Eergency Preparedness
https://www.deschutes.org/health/page/emergency-preparedness

Oregon State Department of Natural Resources
Volcano Hazards
Information about understanding volcano hazards as well as Emergency Preparedness.
http://www.oregon.gov/DOGAMI/Pages/earthquakes/volcanoes.aspx

BE INFORMED.
MAKE A PLAN.
BUILD A KIT.

FEMA
URBAN DESIGN & PLANNING