GLOSSARY

Absolute age – The date of an event usually expressed in years and related to a specific time scale; also referred to as a "numerical age." Absolute ages are most commonly obtained using radiometric dating methods.

Active volcano – A volcano that is currently erupting or has erupted during recorded history and has potential to erupt again.

Amphibole – A mineral group composed of complex silicates, the most common variety being hornblende which is usually dark green to black in color. Amphiboles are found in igneous and metamorphic rocks.

Andesite – A gray extrusive volcanic rock containing 58-63 percent silica with a moderate viscosity (resistance to flow) when in a molten state. Intermediate in color, composition, and eruptive character between basalt and dacite. It is fine-grained, and sometimes displays bubbles (vesicles).

Ash – (see volcanic ash)

Ash cloud – Cloud of ash formed by volcanic explosions or derived from a pyroclastic flow. It is sometimes called an eruption cloud.

Ash (volcanic) – Fragments less than 2 millimeters (0.1 inch) in diameter of lava or rock blasted into the air by volcanic eruptions.

Ash fall – Ash falling from an eruption column or ash cloud.

Asthenosphere – (also spelled aesthenosphere) A ductile layer of the Earth's upper mantle just below the lithosphere. This layer is composed of rock that can flow slowly because it is at high temperature and pressure. The rigid lithosphere is thought to "float" or move around atop the slowly flowing asthenosphere. The asthenosphere is about 180 kilometers (110 miles) thick.

Bar – The bar and the millibar are units of pressure. They are not SI units (International System), but they are accepted for use with the SI. The bar is still widely used in descriptions of pressure because it is about the same as atmospheric pressure. 1 bar = 105 Pascals = 14.52 pounds per square inch. 1 atmosphere = 1.013 bars.

Basalt – Hard, gray to black extrusive volcanic rock. Contains 45 to 52 percent silica, is mafic, rich in iron and magnesium, fine-grained, often displays frozen gas bubbles (vesicles), and sometimes contains phenocrysts of feldspar, olivine, pyroxene, and iron titanium oxides. Because of low silica content, basalt has a low viscosity (resistance to flow).

Therefore, basaltic lava often can flow with ease, equivalent first to the pace of a run, then as it cools, at the speed of a fast walk. Basaltic lava frequently flows 20 kilometers (12 miles) or more from the vent. The low viscosity typically allows volcanic gases to escape non-explosively.

Basaltic andesite – A volcanic rock that contains 52 to 57 percent silica, dark gray to black; a subcategory of andesite.

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Beaker – A container for liquids that is straight sided and cylindrical in shape, commonly used in laboratories.

Benchmark – A permanent metal tablet or other metal marker firmly embedded in rock indicating a precisely determined latitude, longitude, and elevation above sea level.

Blocks – Solid rock fragments greater than 64 millimeters (2.5 inches) in diameter that are ejected from a volcano during an explosive eruption. Blocks commonly consist of pieces of old lava flows that were torn away from conduit walls.

Bomb (volcanic) – Tephra larger than about 64 millimeters (2.5 inches) that are in a semi-solid or plastic condition. Volcanic bombs undergo widely varying degrees of aerodynamic shaping, which depends upon their fluidity during flight through the atmosphere. Based on their shapes after they hit the ground, bombs are described as "spindle or fusiform," "ribbon," or "cow-dung."

Bread-crust bomb – A type of volcanic bomb characterized by a network of opened cracks on its surface, due to continued expansion of the interior after solidification of the crust.

Breccia – A coarse-grained rock composed of angular broken rock fragments in a finer matrix that is commonly found on the margins of lava flows, especially top and bottom.

Caldera – A large volcanic depression, commonly circular or elliptical in shape. Formed by collapse during withdrawal or ejection of a large volume of magma that leaves the roof of the magma reservoir unsupported.

Cascadia Subduction Zone – A long fault that stretches from mid-Vancouver Island to Northern California. It separates the oceanic Juan de Fuca and Gorda plates from the continental North American plate. New ocean floor is being created offshore of Washington and Oregon. As material wells up along the ocean ridge, the ocean floor is pushed toward and beneath the continent.

Chemical elements – (see elements)

Cinder cone – A steep-sided volcanic cone generally basaltic in composition and formed by accumulation of scoria and bombs around a volcanic vent during explosive eruptions.

Columbia River Basalt Group – One of the largest series of flood basalts ever to appear on Earth's surface engulfed about 160,000 square kilometers (63,000 square miles) of eastern Washington, Oregon and western Idaho. During late Miocene and early Pliocene times (between 17 and 6 million years ago), lava accumulated to a thickness of more than three kilometers (two miles) in places. Numerous linear vents, some over 145 kilometers (90 miles) long, show where lava erupted near the eastern edge of the Columbia River Basalts.

Composite volcano – A long-lived and steep-sided volcano composed of many layers of volcanic rocks, usually of high-viscosity lava and fragmented debris such as lahar and pyroclastic deposits. Also called a stratovolcano. Examples include the major edifices of the Cascades, such as Mounts Rainier, St. Helens, Shasta, Hood and others.

Conduit – A subterranean passage through which magma reaches the surface to drive volcanic eruptions.

Cone – (see volcanic cone)

Continental crust – The portion of Earth's crust that includes the continents and the continental shelves. (see crust)

Contour line – A line on a map or chart that connects points of equal elevation.

Contour interval – The difference in elevation between two adjacent contours.

Convergent plate boundary – The boundary between two tectonic plates that are moving toward each other. One plate may be dragged down (or subducted) beneath the other, or they may collide and force the uplift of a mountain range.

Core – The innermost layer of the Earth made mostly of iron and nickel. The core, divided into a liquid outer core and a solid inner core by its internal properties, has a thickness of 3,500 kilometers (2,200 miles). The core is the most dense of the Earth's layers. It is the source of Earth's magnetic field.

Crater – The typically circular depression containing a volcanic vent, commonly less than 2 kilometers (1.2 miles) across. Formed by volcanic explosions and usually involving the accumulation of erupted material around the vent rather than by subsidence of the crater floor.

Crust – The outermost layer of the Earth. Oceanic crust is 5 to 10 kilometers (3 to 6 miles) thick and is composed mostly of basalt. Continental crust is 20 to 70 kilometers (12 to 40 miles) thick and is composed mostly of granitic and sedimentary rock.

Crystal – A solid compound composed of ordered, three-dimensional array of atoms chemically bonded together.

Dacite – An extrusive igneous rock most often light gray, but can be dark gray to black. Dacite lava consists of about 63 to 70 percent silica (SiO_2). The principal minerals that make up dacite are feldspar, pyroxene, and, or, hornblende. Dacite generally erupts at temperatures between 800 and 1000 degrees C. (1470 to 1830 degrees F.), and is one of the most common rock types associated with eruptions with large eruption columns. Dacitic lavas tend to erupt explosively, thereby ejecting abundant tephra into the atmosphere.

Deadman Flats assemblage – An assemblage of lahar deposits in the White River valley formed during an eruption(s) between 800 to 1260 years ago.

Debris avalanche – A gravity-driven rapid mass movement of unsorted rock and soil. Debris avalanches commonly originate as large rockslides that, during movement, disintegrate into fragments ranging in size from small particles to blocks hundreds of meters across. If the avalanche has a high water content, parts of it may continue to flow down valley as a lahar after some of its coarser parts have come to rest.

Debris flow – A flowing mixture of water and solid debris that moves down a river channel under the force of gravity. A debris flow is sometimes referred to as a lahar (if originating at a volcano) or a mudflow, and when moving, resemble flowing concrete. Debris flows are can be initiated by numerous processes: landslides of water-saturated debris; heavy rainfall eroding volcanic deposits; rapid melting of snow and ice; or breakout of water from glaciers, crater lakes, or from lakes dammed by volcanic eruptions. At Mount Rainier, the USGS uses the term solely for small non-eruptive events related to slope failure, rainfall or glacier outbursts, which travel only a few kilometers (miles) and do not affect large human populations.

Density – Density is equal to the mass of an object divided by its volume.

Deposit – Earth material of any type that has accumulated by any natural process or agent.

Deposition – The laying, placing or accumulating of material onto Earth's surface. In geology it refers to the accumulation of rocks or sediment.

Diapir – A domed rock formation where a core of rock has moved upward and pierced through more brittle overlying strata, as with an intrusive diapir of rising magma.

Dike – A tabular body of igneous rock that fills a rock fracture.

Diorite – An intrusive igneous rock formed from magma deep within the Earth and made of plagioclase feldspar, and a small amount of quartz, biotite, and amphibole or pyroxene. It is called "salt and pepper" rock because of its nearly equal proportions of light-colored minerals (mostly plagioclase feldspar and quartz) and dark-colored minerals (amphibole, pyroxene and biotite). Diorite is the intrusive equivalent of andesite.

Disaster supplies kit – Items stored in case of emergency, to help residents endure long periods without electrical power, heat or running water.

Divergent plate boundary – A linear zone along which two tectonic plates move away from each other, allowing magma from the mantle to rise up and solidify as new crust.

Dormant volcano – A volcano that has not erupted within historical time but is capable of erupting again.

Earthquake – The shaking of the ground caused by an abrupt shift of rock along a fault in the Earth.

Electron Mudflow – A lahar that occurred on the west flank of Mount Rainier approximately 500 years ago and flowed down both branches of the Puyallup River. This lahar, which presumably began as a debris avalanche, has not been correlated with any eruptive activity at Mount Rainier; thus it may have occurred without precursory eruptive phenomena. The Electron Mudflow was about 30 meters (100 feet) deep as it exited the Cascade mountain front (about 36 kilometers (22 miles) west of Mount Rainier), and flowed onto the Puget Lowland.

Elements – A substance composed of a single type of atom. Examples include hydrogen, helium, carbon, oxygen and others. Elements are defined by the number of protons in each nucleus.

Elevation – Height of a geographic location above a fixed reference point, often mean sea level.

Emergency contact information – A list of telephone and other contact information (relatives, doctors, schools, work) for each family member. Information can be stored on wallet cards, cell phones, or spreadsheets and should be readily available in the event of an emergency.

Emergency plan – A plan assembled prior to an emergency that identifies course of actions to be taken during an emergency.

Epigraph – An engraved inscription on a statue, tablet or building.

Erosion – The removal and transport of Earth materials by gravity, running water, glaciation, wind, or chemical dissolution.

Eruption – The ejection of lava and other eruptive products from a volcano or a fissure onto Earth's surface.

Eruption cloud – A cloud of tephra and gases that travels downwind of an eruption column.

Eruption column – The vertical column of tephra and gases rising above a volcanic vent.

Eruptive period – A time span during which a volcano erupts multiple times.

Explosion – A sudden and energetic release of lava or debris from a volcanic vent due to the expansion of materials during pressure release.

Explosive eruption – An eruption or phase of an eruption characterized by the forceful ejection of tephra and volcanic gases into the atmosphere.

Exsolution – The separation of an initially homogeneous solid solution into distinct crystalline phases. This process generally takes place during cooling.

Extinct volcano – A volcano that is not now erupting and is not expected to erupt again.

Extrusive rock – An igneous rock produced when magma cools at or very near Earth's surface. Crystals do not have much time to grow, so these rocks have a fine-grained or even glassy texture. Gas bubbles are often trapped in the solidified lava, forming a bubbly, vesicular texture. Pumice, obsidian, and lava are all extrusive igneous rocks. (see volcanic rock)

Family emergency preparedness plan – (see emergency plan)

Fault – A rock fracture or zone along which one side of a fracture has moved relative to the other side.

Fife's Peak Formation – Layers of volcanic rocks formed between 26 and 22 million years ago by eruptions of volcanoes east of present day Mount Rainier.

Flank collapse – Massive catastrophic collapse of a volcano's flank that causes a debris avalanche. They are often triggered by magma intrusion and also, perhaps, by large earthquakes.

Flood basalt – Extensive lava flow fields tens or hundreds of thousands of cubic kilometers (hundreds of thousands of cubic miles) in volume that issue from fissures. The most famous U.S. example of a flood basalt is the Columbia River Basalt, which originated in northwestern Idaho and covers most of southeastern Washington, northern Oregon, extending all the way to the Pacific Ocean.

Folding – The bending of layers of rock.

Fracture – A crack in a rock. A fracture has no relative movement of its walls whereas the walls of a fault have relative motion.

Freezing point – The temperature at which a substance solidifies.

Fumarole – A vent that releases volcanic gases, including water vapor (steam).

Gabbro – A coarse-grained igneous intrusive rock that has cooled slowly from magma deep within the Earth. It is a crystalline mass of feldspars, pyroxene, and olivine, typically dark gray, greenish gray, to black in color. Gabbro's chemistry is approximately equivalent to that of basalt.

Gases – (see volcanic gases)

Geologic time – The period of time covering the physical formation and development of the Earth. Geologic time is divided into eons lasting hundreds of millions to several billion years, eras lasting tens of millions to hundreds of million years, periods lasting millions to tens of millions years and epochs lasting thousands to millions of years.

Geothermal – Pertaining to the heat of the interior of the Earth.

Glacier – A mass of ice that shows evidence of flow over a period of years as indicated by the presence of flow lines, crevasses, and other geologic evidence.

Glacier outburst flood – The sudden release of water stored at the base of or within a glacier, or from a glacier-dammed lake, sometimes referred to by the Icelandic term jökulhlaup.

Glaciation – A term for the collective processes of glacial activity, including erosion and deposition, and the resulting effects of such action on Earth's surface.

Graduated cylinder – A piece of laboratory plastic or glassware, cylindrical in shape with markings indicating increments of volume.

Granite – A coarse-grained intrusive igneous rock that typically contains minerals such as quartz, feldspar, mica, and usually hornblende. Granite forms as magma cools far beneath Earth's surface. Because it hardens deep underground it cools very slowly. This allows crystals to grow large enough to be seen easily by the naked eye.

Granodiorite – A coarse-grained intrusive igneous rock intermediate in composition between granite and diorite. It is principal rock type of the Tatoosh Range at Mount Rainier.

Hazard – Any physical process that can cause damage, harm or adverse effects. (see volcanic hazards)

Hazard zone – (volcanic hazard zone) Area potentially at risk from volcanic hazards.

Holocene Epoch – The time between 10,000 years ago and the present

Hot ash flow (pyroclastic flow) – A turbulent mixture of extremely hot gases and unsorted pyroclastic material (volcanic fragments, crystals, ash, pumice, and glass shards) that can move as rapidly as a few hundred kilometers per hour (around 100 miles an hour).

Hot spot – An area in a tectonic plate where magma rises persistently from the mantle and erupts at the Earth's surface. As the plate moves over the hot spot, a chain of volcanoes sometimes forms, such as the Hawaiian Islands.

Hydrothermal alteration – Chemical alteration of rocks and minerals by reaction with hot acidic groundwater.

Hydrothermally altered rock – Rock that has been altered by long-term immersion in hot acidic gases or groundwater.

Ice age – A period of long-term reduction in the temperature of Earth's climate, resulting in an expansion of ice sheets and mountain glaciers. The most recent global ice age ended about 10,000 years ago.

Igneous rocks – Rocks solidified from a magma.

Infrastructure – The basic facilities and services needed for the functioning of a community or society such as transportation and communications systems, water and power lines, hospitals, schools, post offices, and prisons.

Intrusive – Pertains to magma emplaced in pre-existing rock below Earth's surface.

Isopach – Lines of equal thickness similar to elevation contours on a topographic map, typically used to map tephra deposits.

Juan de Fuca Plate – The oceanic plate that is subducting under the North American continental plate offshore of Oregon and Washington and southern British Columbia.

Juan de Fuca Ridge – A submarine ridge or spreading center offshore of British Columbia, Washington, and Oregon. The eastward side of the ridge is called the Juan de Fuca Plate and the westward side is the Pacific Plate.

Klickitat – Traditional native name for Mount Adams, also Pahto (Pah'to, Patu and Patoe).

Kulshan – An early name given to Mount Baker by Native Americans was "Koma Kulshan." Various translations include "broken or damaged," "blown off," "to shoot" or "Great White One."

Lahar – A flowing mixture of water-saturated rock debris that moves down slope under the force of gravity on the slopes of a volcano. Lahars are sometimes referred to as debris flows or mudflows. Lahars can originate as landslides, but most often are triggered by the production of meltwater during volcanic eruptions, or by the release of stored water.

Landslide (volcanic) – The rapid down slope movement of soil, rock debris, and sometimes glacial ice, with or without water, from the flank of a volcano.

Lava – Magma that erupts onto the Earth's surface.

Lava dome – Rounded, steep-sided mounds built by the extrusion of viscous magma, usually either dacite or rhyolite, but sometimes of andesite. Such magmas are typically too viscous (resistant to flow) to move far from the vent before cooling and crystallizing. Domes may consist of one or more individual lava lobes.

Lava flow – The outpouring from a vent or fissure of molten lava, which flows downhill and cools on the surface as a mass of solidified rock.

Lava fountain – A jet of lava sprayed into the air. Lava fountains typically involve low-viscosity lavas such as basalt.

Lava tube – A tubular subterranean passageway formed by the crusting over of lava channels in some fluid lava flows, especially basalt.

Law of Superposition – A general geologic principle stating that in any sequence of layered rocks that has not been overturned, the youngest layer is at the top and the oldest is at the base.

Lithic – Contains abundant fragments of previously formed rocks.

Lithosphere – Earth's solid and outermost shell. It includes the crust and the uppermost mantle that overlies the hotter and more ductile rock of the asthenosphere. The lithosphere thickness varies greatly, ranging from less than 15 kilometers (9 miles) for young oceanic lithosphere to approximately 200 kilometers (120 miles) or more for ancient continental lithosphere, such as under the interior areas of the continents.

Loowit – A traditional native name for Mount St. Helens meaning "firekeeper," sometimes called Lawe'latla, or La-wa-la-clough ("smoking mountain"), and Loowitlatkla, meaning "Lady of Fire."

Mafic – Igneous rock rich in dark-colored minerals containing abundant magnesium and iron. In volcanoes, it is chiefly basalt and basaltic andesite.

Magma – Molten rock containing crystals and dissolved gases that forms within the upper part of the Earth's mantle and crust. When erupted onto the Earth's surface, it is called lava.

Magma chamber – A subsurface reservoir of magma.

Magmatic eruption – An eruption of magma, as opposed to a phreatic eruption, which blasts only fragments of pre-existing rock into the atmosphere.

Mantle – A solid but plastic zone of Earth's interior between the crust and the core that is approximately 2,900 kilometers (1,740 miles) thick.

Map scale – A scale that defines how many units on the Earth's surface are equal to one unit on the map. It can be expressed as 1/100,000 or 1:100,000. In this example, one centimeter on the map equals 100,000 centimeters (1 kilometer) on the Earth.

Mazama – Native name for the high mountain that became Crater Lake; means "mountain goat"in the local native language.

Metamorphic rock – Rocks that have been subjected to high pressures or heat and are changed from their initial form. Metamorphism does not melt the rocks, but instead transforms them into denser, more compact rocks.

Metaphor – A figure of speech in which an expression is used to refer to something that it does not literally denote in order to suggest a similarity.

Mid-ocean ridge – Where tectonic plates move away from each other (divergent plate boundaries), magma from the mantle rises and accumulates as a chain of volcanoes called a mid-ocean ridge.

Mineral – A naturally occurring homogeneous inorganic element or compound.

Mitigation – Any action taken to permanently eliminate or reduce the long-term risk to human life, property, and functions of a society.

Modoc War – An armed conflict between the Native American Modoc tribe and the U.S. Army in southern Oregon and northern California during 1872 and 1873.

Molten – Reduced to liquid by heating.

Monitor – (see monitoring (volcano))

Monitoring (volcano) – Actions taken to detect and measure changes in the state of a volcano. It generally entails the detection of earthquake swarms and other types of seismic events; swelling or subsidence of a volcano's summit or flanks; and the release of volcanic gases from the ground and vents. Monitoring may also include systems to detect and warn about volcanic ash clouds, lahars, and changes in water chemistry around volcanoes.

Mudflow – General term for a predominantly fine-grained and rapidly moving flow of mud, rocks and debris that possesses a high degree of fluidity during movement. It is sometimes used as a general term that includes lahars and debris flows.

National Lahar – Melting of snow and ice during an eruption between 2,200 and 500 years ago provided water for initiation of the National Lahar. This lahar inundated the Nisqually River valley to depths of 10 to 40 meters (30 to 120 feet) and flowed to Puget Sound. **North American Plate** – The tectonic plate consisting chiefly of the lithosphere underlying North America and the western Atlantic Ocean.

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Observation – The act of deliberately sensing an event or item and noting the details.

Obsidian – Obsidian is dense volcanic glass formed when lava cools so fast that crystals don't have time to grow extensively or at all. Very tiny crystals of iron oxide cause its dark color.

Oceanic crust – Part of Earth's crust that generally underlies the ocean basins. It is thinner than continental crust, generally less than 10 kilometers (6 miles) thick, but it is more dense and is composed primarily of basalt and gabbro.

Oceanic plate – A tectonic plate whose crustal portion is composed chiefly of oceanic crust.

Oceanic ridge – See mid-ocean ridge.

Osceola Mudflow – A large lahar that initiated with collapse of the hydrothermally altered summit and northeast flank of Mount Rainier approximately 5,600 years ago. The collapse, triggered by an intrusion of magma into the volcano, caused a lahar which covered at least 400 square kilometers (150 square miles) and had a volume of almost 3.8 cubic kilometers (almost one-cubic mile).

Ohanapecosh Formation – Widely exposed volcanic and sedimentary rocks in southern Washington related to volcanism between 38 and 24 million years ago. Several of the vents that produced the volcanic rocks of the Ohanapecosh Formation are found within Mount Rainier National Park.

Pacific Plate – The oceanic tectonic plate beneath most of the Pacific Ocean. Interactions with other plates along its margin cause very large earthquake and volcanic activity in a zone dubbed the Pacific Rim of Fire.

Pahto – (see Klickitat)

Pascal – A unit of pressure or stress in the International System of Units (SI). One pascal is equivalent to one newton (1 N) of force applied over an area of one meter squared (1 meter^2).

Pele's Hair – Thin strands of volcanic glass formed during explosive eruptions of basaltic lava. Named for Pele, the Hawaiian goddess of volcanoes. A single strand with a diameter of less than 0.5 millimeters (0.02 inches) may be as long as 2 meters (6 feet).

Phenocryst – The larger crystals surrounded by finer grained material or glass within an igneous rock.

Phreatic eruption – An explosion of steam, mud, or other material that is not incandescent. It is caused by the heating and expansion of groundwater due to an underlying igneous heat source.

Phreatomagmatic eruption – An explosive eruption caused by interaction of magma with groundwater or shallow surface water.

Plagioclase feldspars –A group of minerals that contain sodium, calcium and aluminum silicate in varying amounts and with different properties. Color is in shades of gray, white, greenish, yellowish, or bluish with an iridescent.

Plate tectonics – A theory of global tectonics in which the lithosphere (Earth's crust and upper mantle) is divided into a number of rigid plates that are in motion and interact with one another.

Pleistocene Epoch – This term refers to the segment of time extending roughly from 2 million to 10,000 years ago. During the Pleistocene Epoch, Earth's temperate zones were alternately covered by glaciers during cool periods (ice ages), and uncovered in warmer times, when glaciers retreated (interglacials).

Plutonic rock – An intrusive igneous rock that solidified from magma at great depth, as opposed to at shallow depth, and is typically coarse grained.

Pumice – A light-colored, low-density, frothy volcanic rock, usually of dacite or rhyolite composition, formed by the expansion of gas bubbles in erupting lava.

Pyroclastic flow (or hot ash flow) – An avalanche of hot ash, pumice, rock fragments, and volcanic gas that rushes down the side of a volcano as fast as a few hundred kilometers per hour (around 100 miles an hour).

Pyroxene – A group of silicate minerals that contain oxides of magnesium, iron, calcium, sodium or aluminum, in combination with silica, manganese, and chromium. Pyroxenes are a common constituent of igneous rocks, and based on their chemical composition, range in color from white to dark green or black, though they are typically found in dark-colored igneous rocks.

Reflection Lakes Lahar – A lahar caused by landslide that covered much of Paradise Ridge with boulders and hilly terrain approximately 7,200 to 7,400 years ago. Modern Reflection Lakes fills a depression within the lahar deposit.

Relative age – The age of a rock, geologic feature or event defined relative to other rocks, geologic features, or events rather than in terms of years.

Rhyolite – An extrusive rock similar in composition to granite but with much smaller crystals. Rhyolite is rich in silica and aluminum, and sometimes contains phenocrysts of feldspar (Na- rich varieties), quartz, hornblende, and biotite. Rhyolite's silica (SiO_2) content is between 69 and 77 percent.

Ring of Fire – The name of the extensive area of volcanic and seismic activity that roughly coincides with the borders of the Pacific Ocean.

Risk – The chance or probability that people or property will be harmed, or experience an adverse effect if exposed to a hazardous event.

Rock fall – Free falling of rock from a cliff or steep slope.

Rock rubble – A loose mass of angular rock fragments, commonly found on the tops of lava flows.

Round Pass Mudflow – A lahar caused by a collapse on the west flank of Mount Rainier approximately 2,600 years ago. The lahar traveled a short distance in the Tahoma Creek valley, and in the Puyallup River valley for a longer distance, probably as far as the Puget Sound lowland.

Rubble – (see rock rubble)

Sandstone – A sedimentary rock formed by the consolidation and compaction of sand and held together by a natural cement, such as silica.

Scoria – A vesicular (bubbly) glassy lava rock of basaltic to andesitic composition ejected from a vent during an explosive eruption. The bubbly nature of scoria is due to the escape of volcanic gases during eruption. Scoria is typically dark gray to black or red in color, mostly due to its high iron content.

Seafloor spreading – A process whereby new oceanic crust is formed by upwelling of magma at the mid-ocean ridges as two plates move away from the ridge at a rate of one to ten centimeters (0.4 to 4 inches) per year.

Seamount – An underwater mountain rising from the ocean floor and having a peaked or flat-topped summit below the surface of the sea.

Sediment – Unconsolidated particles, ranging from clay-size to boulders, produced by the weathering of rocks and transported by natural agents such as wind, water, and ice.

Sedimentary rocks – Rock resulting from the consolidation of sediment.

Seismologist – A scientist who studies earthquakes and the structure of the Earth through the study of seismic waves.

Seismograph – A scientific instrument that detects and records vibrations (seismic waves) produced by earthquakes.

Shield volcano – A volcano that has the shape of an inverted warrior's shield. It has long gentle slopes produced by multiple eruptions of fluid lava flows.

Silica – Silicon dioxide (SiO_2), a basic constituent of volcanic rocks and the most important factor controlling the fluidity of magma. The higher a magma's silica content, the greater its viscosity or resistance to flow.

Solidus – The temperature boundary above which solids and liquids exist in equilibrium, and below which no liquid phase exists.

Spindle-shaped bomb – (see bomb)

Spreading ridges – Linear ridges on the ocean floor where tectonic plates separate and magma erupts. About 80 percent of the Earth's volcanic activity occurs on the ocean floor.

Steam explosion – A violent expansion of steam, occurring when water or water vapor is abruptly exposed to low pressure.

Steam vent – A vent from which steam is expelled.

Stevens Ridge Formation – Discontinuous layers of volcanic rocks formed around the same time as the Fife's Peak Formation (between 26 and 22 million years ago), which consist chiefly of pyroclastic flow deposits. These rocks are visible in numerous areas within Mount Rainier National Park.

Stratigraphic column – A diagram that shows in a single column, all rock and sediment layers, from older layers at the base to younger ones at the top.

Stratigraphy – The study of rock and sediment layers aimed at understanding geologic history and Earth-surface processes.

Stratovolcano – A steep-sided volcano composed of many layers of volcanic rocks, usually of high-viscosity lava and fragmental debris such as lahar and pyroclastic deposits. Also called a composite volcano.

Striations – Scratches or minute lines, generally parallel, that are inscribed into a rock surface by a geologic agent, such as a glacier.

Subduction – The process whereby two tectonic plates converge and one sinks beneath the other.

Subduction zone – Where two tectonic plates converge and one descends beneath the other. Magma generated just above the descending plate at a depth of about 80 to 100 kilometers (50 to 60 miles) feeds volcanoes on the overriding plate.

Tahoma – One of several traditional native names for Mount Rainier, also Taxo'ma, Ta-co-bet, Takhoma, Taqomen, and Dah-ko-bed and meaning "place where the waters begin."

Tatoosh pluton – A solidified magma body that formed the roots of earlier volcanoes between 18 and 14 million years ago and now, and now stands, in part, as a granodiorite mountain range along the southern margin of Mount Rainier National Park.

Tectonic plates – A patchwork of rigid slabs (16 major ones identified at present) that make up Earth's lithosphere. These plates float on top of a softer, more plastic layer in the asthenosphere. The plates are in motion and interact with each other to produce earthquakes and volcanoes and to fold and fault the Earth's crust.

Tehama – Traditional native name now applied to an extinct large stratovolcano southeast of Lassen Peak, that is mostly eroded away. Authorities disagree on the exact meaning, which has been reported as "high water," "low land," "salmon" or "shallow."

Tephra – The general term for volcanic ejecta of any size. Other terms are used to describe ejecta of specific ranges. Fragmental volcanic products between 2 to 64 millimeters (0.1 to about 2.0 inches) in diameter are called lapilli; material finer than 2.0 millimeters (0.1 inch) is called ash. Fragments larger than about 64 millimeters (2.5 inches) are called blocks if they were ejected in a solid state and volcanic bombs if ejected in semi-solid, or plastic condition.

Throat – (see conduit)

Topographic map – A map depicting landscape, usually through use of contour lines. The map shows the horizontal and vertical positions of the natural features.

Topography – General configuration of the land surface, including its relief and the position of its natural and man-made features.

Transform fault – The fault zone between two tectonic plates (or two parts of a single plate), where pieces are sliding horizontally past one another.

Transform plate boundary – Zone where tectonic plates slide horizontally past each other.

Transverse fault – (see transform fault)

Trench – A narrow, elongate depression of the deep-sea floor associated with a subduction zone.

Tsunami – A large, rapidly moving ocean wave triggered by a major disturbance of the ocean floor, which is usually caused by an earthquake but sometimes produced by a submarine landslide or a volcanic eruption.

Twin Creek assemblage – An assemblage of lahar deposits in the White River valley, thought to have formed between 1,350-1700 years ago. In some literature, considered part of the Deadman Flats assemblage.

Vent – The opening at the Earth's surface through which volcanic materials (lava, tephra, and gases) erupt. Vents can be at a volcano's summit or on its slopes; they can be circular (craters) or linear (fissures).

Vesicles – Bubbles in volcanic rock caused by the entrapment of gas.

Viscosity – Measure of the physical resistance to flow of a fluid. As an example, taffy and molasses are more viscous than water.

Viscous – Possesses a notable physical resistance to flow.

Volcanic ash – Fragments less than 2 millimeters (0.1 inch) in diameter of lava or rock blasted into the air by volcanic explosions or rising upwards from moving pyroclastic flows.

Volcanic unrest – Changes in earthquake activity, ground deformation, gas emission or geologic features that exceed day-to-day variability, and can signal a change of physical conditions within a volcano. Not all unrest leads to a volcanic eruption.

Volcanic gas – Gas of volcanic origin that consists chiefly of steam (water), carbon dioxide, sulfur dioxide, and hydrogen sulfide.

Volcanic mudflows – (see mudflows, lahars)

Volcanic rocks – Rocks formed by the cooling of lava.

Volcanism – Any of the processes by which magma and its associated gases rise to the crust from the Earth's interior and are discharged onto the surface or into the atmosphere.

Volcano – A vent (opening) in the surface of the Earth through which magma erupts; a landform that is constructed by the erupted material.

Volcanic cone – Conical mound of lava and pyroclastic debris that builds up around a vent.

Volcanic hazards – Sources of potential danger associated with a volcano. Some more common volcanic hazards include volcanic ashfall, lava flows, pyroclastic flows, lahars, volcanic gases, debris avalanches, and volcanogenic tsunamis.

Volcano hazard map – A map that displays the areas likely to be affected by volcanic processes.

Volcanologist – A scientist who studies volcanoes and volcanic events.

Wy'east – Traditional name for Mount Hood and named for a chief of the Multnomah tribe.