

CH 4 - VOLCANOES (pp. 96 - 133)

- 4.1 1. Most active volcanoes are located near _____.
2. The two most common gases in magma are _____.
3. Resistance to flow is called _____. _____ magma has the lowest viscosity. _____ and _____ magmas have high viscosities, and also more dissolved _____. Because of their high viscosities and gas content, these magmas are especially _____.
- 4.

VOLCANO TYPES & FEATURES					
TYPE	SHAPE	VISCOSITY	COMPOSITION	ERUPTIONS	EXAMPLES
Shield Volcano					
Composite or Stratovolcano					
Volcanic Dome					
Cinder Cone					

5. The largest, tallest mountains on Earth (measured from the sea floor) are _____ volcanoes such as _____ in Hawaii.
6. Solid rock and dust that is explosively ejected from a volcano is called _____.
7. Magma can move quickly underground through _____.
8. Mount St. Helens and Mount Rainier are _____ or stratovolcanoes, composed of layers of _____ and _____.
9. The Southwest U.S. has many _____ volcanoes, such as SP Crater.
10. Depressions at the tops of volcanoes are called _____. Gigantic depressions formed when the upper cone collapses are called _____, and can be more than _____ km in diameter.
11. Lava erupts through volcanic _____, which when elongated are called _____. These can produce huge lava flow plateaus called _____, such as the _____ Plateau in Washington and Oregon.
12. When groundwater contacts hot rock, it can discharge at the surface as a _____ spring. A periodic release of boiling steam is called a _____.
13. _____ eruptions such as Tambora, Krakatoa and Lake Taupo have led the media to coin the term _____. The most recent ones on North America were at _____ National Park and _____ California. When Mount Mazama erupted around 7700 years ago, it produced the now famous _____ Lake in Oregon.
14. Though Yellowstone and Long Valley have domed upward recently, both are considered _____ calderas, though eruptions there are extremely _____.

15. The Juan De Fuca Plate is _____ beneath North America, producing the _____ Mountain chain of volcanoes that stretch from northern _____ in the south to northern _____ in the north.

16. At Hawaii, magma wells up from great depths at what is called a _____.
A similar one occurs beneath North America at _____ National Park.

4.2 17. The highest risk in the contiguous United States is in the mountains of the _____, at _____ and isolated areas of the Southwest. In contrast, the Eastern U.S. is considered _____.

4.3 18. Worldwide, _____ volcanoes erupt each year, with _____ occurring in the U.S. In the past 100 years _____ people have been killed worldwide.

19. Explosive volcanism is called _____ activity.

20. When an explosion blasts horizontally across the land, it is called a _____.

21. A fast-moving avalanche of hot gas, ash and rock is called a _____.

22. Ash eruptions can destroy _____, contaminate _____, damage or destroy _____, irritate the _____ system and _____, and cause _____ crashes.

23. _____ have killed more people than any other volcanic hazard in the last 2,000 years.

24. Poisonous gases emitted by volcanoes include water vapor, _____, carbon monoxide, _____ and _____.

25. Debris flows and mudflows, also called _____, form when _____ and _____ become saturated with _____ and move downslope.

26. In the state of Washington, _____ of people live on mudflows from Mt. _____. South of the _____ Sound, such a flow would appear as a 30-foot wall of debris moving _____ mph.

27. The United States Geological Survey has developed an automated _____-powered lahar-detection system that can sense ground _____ and sound a siren.

28. Massive volcanic _____ off the coasts of the _____ Islands and Hawaii have produced huge _____ in the past. Such an event in the Canary Islands could affect the U.S. _____ Coast.

29. On Mount St. Helens in 1980, an earthquake triggered the largest _____ in recorded history, which in turn triggered a _____ blast with a velocity of over _____ mph. The blast affected areas more than _____ miles away over an area of _____ square miles. _____ reached New York State.

4.4 30. Volcanoes are linked to other hazards, including fire, _____, land slides, and _____.

31. In modern times, volcanic eruptions have had the effect of _____ world temperatures for periods of many _____. This occurs because the _____ and acid aerosols scatter _____.

4.6 32. There is little humans can do to affect the _____ and _____ of eruptions. The best we can do is _____ the impacts.

4.7 33. An eruption forecast is like a _____ report. It is not as precise as a _____.

34. In the near future, it is _____ we will be able to _____ most volcanic activity, because it requires _____ with actual _____ before the mechanisms are understood.

35. Where volcanoes occur, we try to monitor 1) _____ activity, 2) _____ conditions, _____ or _____ of the volcano, _____ emissions, and the _____ of the particular volcano.

36. _____ may provide the earliest warning of an eruption.

37. Before an eruption, the rise in temperature at the surface can be detected by _____ remote sensing or _____. Heat may melt _____.
38. New magma may also change the _____ properties of rocks.
39. Before eruptions, the surface of Kilauea volcano shows _____ and _____, which can be monitored by tilt meters.
40. We can also monitor changes from the air using satellite-based _____ and networks of _____ receivers.
41. Increases in carbon dioxide and sulfur dioxide emissions can indicate _____ is moving toward the surface.
42. The primary tool for reconstructing geologic history is _____ of volcanic _____. Hazard _____ assist in _____ planning and disaster _____.
43. Like the National Weather Service, the U.S.G.S. issues watches and warnings. A _____ would be issued where there is the potential for a serious eruption, whereas if a hazardous eruption were imminent, a _____ would be issued.
44. However, the decisions about when to evacuate and return are made by _____.

4.8 45. People live near volcanoes because:

- 1) _____;
- 2) _____;
- 3) _____;
- 4) _____.

46. Though the science of volcanoes is well known, science alone is not _____, because people are often stubborn, and refuse to believe an eruption is possible when no eruption has occurred during _____.

47. Perhaps the greatest hazard reduction will arise during a volcanic _____,
when improved communication between _____,
_____ managers, educators, _____ and
_____ is important.
48. The goal is to prevent a crisis from becoming a _____ or a
_____.



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