

Volcanoes in the Solar System

Guide for Reading

- ◆ How do volcanoes on Mars and Venus compare with volcanoes on Earth?
- ◆ What volcanic activity is found on the moons of Jupiter and Neptune?

Earth is not the only body in the solar system that shows signs of volcanic activity. Earth's moon has dark, smooth areas where lava flowed onto the surface billions of years ago. Space probes have found evidence of ongoing or past volcanic activity on Mercury, Venus, Mars, and the moons of Jupiter and Neptune.

The space probe *Magellan* traveled to Venus in 1990. *Magellan* found thousands of volcanoes on Venus and signs of widespread volcanic activity that lasted for billions of years. **Like Earth, Venus has volcanic mountains and other features that are probably made of thin, runny lava.** Such lava produces gently sloping shield volcanoes with broad bases, as well as long, riverlike lava flows.

Mars has a variety of volcanic features but far fewer volcanoes than Venus has. **On Mars there are large shield volcanoes similar to those on Venus and Earth, as well as cone-shaped volcanoes and lava flows.** The biggest volcano on Mars, Olympus Mons, is the largest mountain in the solar system. Scientists estimate that volcanic activity on Mars began about 3.5 billion years ago.

Ongoing volcanic eruptions have been observed on only two other bodies in the solar system. Those bodies are Io, a moon of Jupiter, and Triton, a moon of Neptune. The space probe *Voyager 1* took pictures of volcanic eruptions on Io and Triton as it flew past the moons in 1979. **Io and Triton have volcanic features very different from those on Earth, Mars, and Venus.** Io's volcanoes erupt sulfur in jetlike fountains or umbrella shapes above the surface. Triton's volcanoes erupt liquid nitrogen.

Other moons of Jupiter, Saturn, and Neptune show signs of volcanic activity. However, space probes have not yet observed any eruptions in progress on these moons.

SECTION 3-4

REVIEW AND REINFORCE

Volcanoes in the Solar System

◆ Understanding Main Ideas

Answer the following questions in the spaces provided.

1. Look at Figure 14 on page 110 of your textbook. What created the moon's craters? What created the moon's dark areas?

2. Which planet, Mars or Venus, has the greater number of volcanoes?

3. Which planet has the largest volcanic mountain? What is it called?

4. Which three bodies in the solar system are *known* to have active volcanoes?

5. How do volcanic features on Venus and Mars compare to volcanic features on Earth?

6. Are the volcanoes on Io and Triton similar to the volcanoes on Earth? Explain.
