A Volcano Just Added New Beach to Iwo Jima

Satellites show an underwater eruption building land on a Japanese island, but waves may soon take it away.



A volcanic eruption near a dark beach sends a small plume into the air while floating pumice drifts across the ocean.

An underwater **volcano** has added new land to Iwo Jima, a Japanese island in the Pacific Ocean, according to NASA Earth Observatory. The **eruption** happened in shallow water near the island's southeast shore. It pushed out ash, rock, and other volcanic material until the island's black sand beach grew outward.

The change may not last. NASA reports that the new beach covers about 50 hectares, or 125 acres, which is about the area of 90 American football fields. That would make the island about 1.7 percent larger. But scientists say ocean waves often break apart land made by eruptions like this within weeks or months.

Signs of trouble began in late October. On October 27, **seismic sensors**, which are instruments that detect shaking in the ground, recorded a sharp rise in activity. Japan's Meteorological Agency reported that the first photos of the eruption were taken then. Soon after, several satellites began watching the area from space.

Satellites are important because eruptions do not always happen where people can safely stand and look. Landsat 9, a **satellite** that takes pictures of Earth's surface, saw the coast before the eruption on October 26. On November 11, it got a clear view of the new land. Its instruments also detected **infrared** light, energy that human eyes cannot see but that can show heat from hot volcanic material. The images showed a gray volcanic plume, which is a cloud of ash or gas, and a streak of floating **pumice**, a light volcanic rock full of tiny holes.

Another satellite, called NISAR, helped in a different way. It uses radar, which sends out radio waves and reads the signals that bounce back, so it can collect information even through clouds. On October 28, when clouds covered the area, NISAR still detected a large disturbance in the water. That mattered because the eruption was happening in the same area as another eruption in December 2023.

Japan's Coast Guard confirmed on November 16 that new land had formed and connected to the older beach. That beach is also historically important. NASA notes that it is near the place where American troops landed on February 19, 1945, during World War II. So the same coastline that appears in history lessons is still being changed by forces inside Earth.

Scientists do not yet know whether the new land will survive. Daniel Slayback, a scientist at NASA's Goddard Space Flight Center, said land from the 2023 eruption washed away after only a few weeks. James Garvin, a NASA geologist, explained that eruptions dominated by **tephra**, which means loose volcanic ash and rock fragments, are usually easy for waves to attack. If stronger **lava** mixes in and acts like cement, the land could last longer.

That question makes the eruption more than a cool picture. It is a real example of ideas studied in Earth science: volcanoes, **erosion**, coastlines, and how landforms change over time. It also shows how scientists gather evidence when a place is remote or dangerous. They compare satellite images, heat signals, radar data, and reports from agencies in Japan. The story is still unfolding because the same ocean that helped shape the island may now decide whether this new beach stays or disappears.

Written from reporting by NASA.

THINK IT THROUGH

1. **If new volcanic land may wash away quickly, is it still important for scientists to study it closely? Defend your answer.**

   A strong answer: A strong answer should weigh short-term change against what scientists can learn about volcanoes, erosion, and satellite observation.

2. **How does this story show that a place can be important in both history and science at the same time?**

   A strong answer: A strong answer should connect the World War II coastline with the ongoing geologic changes described in the article.

3. **When scientists cannot safely visit a place, what are the strengths and limits of using satellites as evidence?**

   A strong answer: A strong answer should discuss what satellites can reveal, such as heat and surface change, and what may still require more evidence.

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EROSION ERUPTION INFRARED LAVA PUMICE
SATELLITE SEISMIC SENSORS TEPHRA VOLCANO

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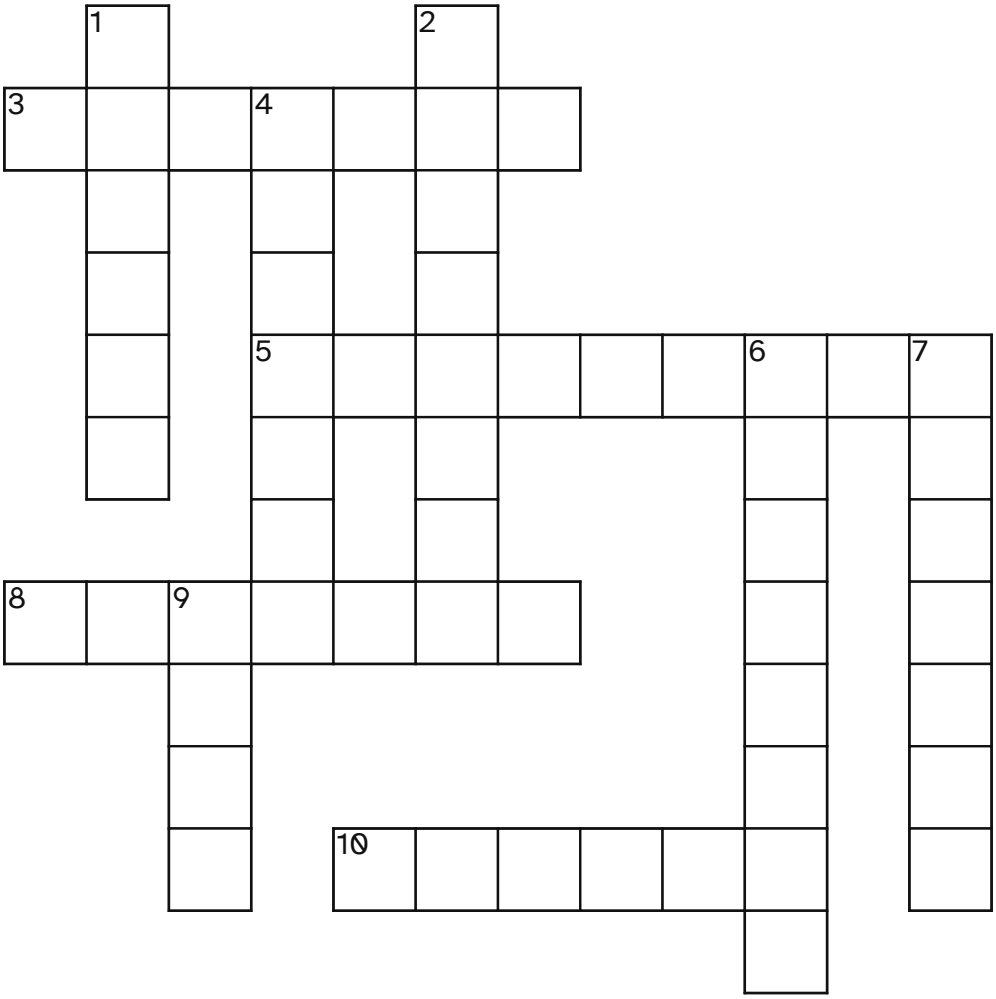


ACROSS

3 Devices that notice and measure heat, light, motion, or shaking

5 Space machine that collects pictures and information about Earth

8 Opening in Earth that can send melted rock, ash, and gases to the surface

10 Light volcanic rock full of tiny holes from trapped gas

DOWN

1 Loose ash and rock pieces thrown into air during volcanic activity

2 Burst of lava, ash, rock, or gas from an opening in Earth

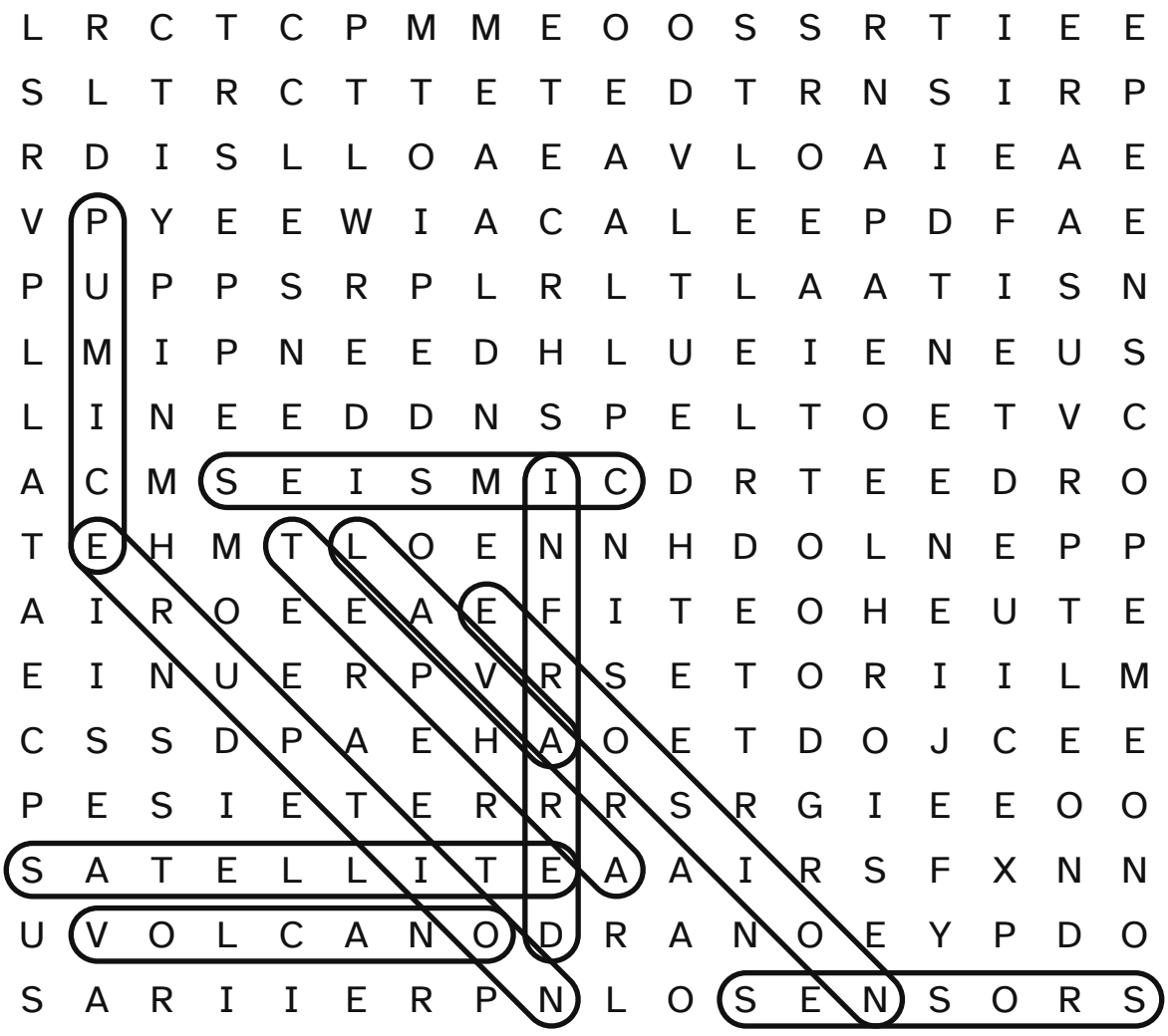
4 Connected with ground shaking caused by movement inside Earth

6 Invisible energy that can reveal an object's heat

7 Slow carrying away of rock or soil by water, wind, ice, or waves

9 Melted rock on Earth's surface

A Volcano Just Added New Beach to Iwo Jima — answer key



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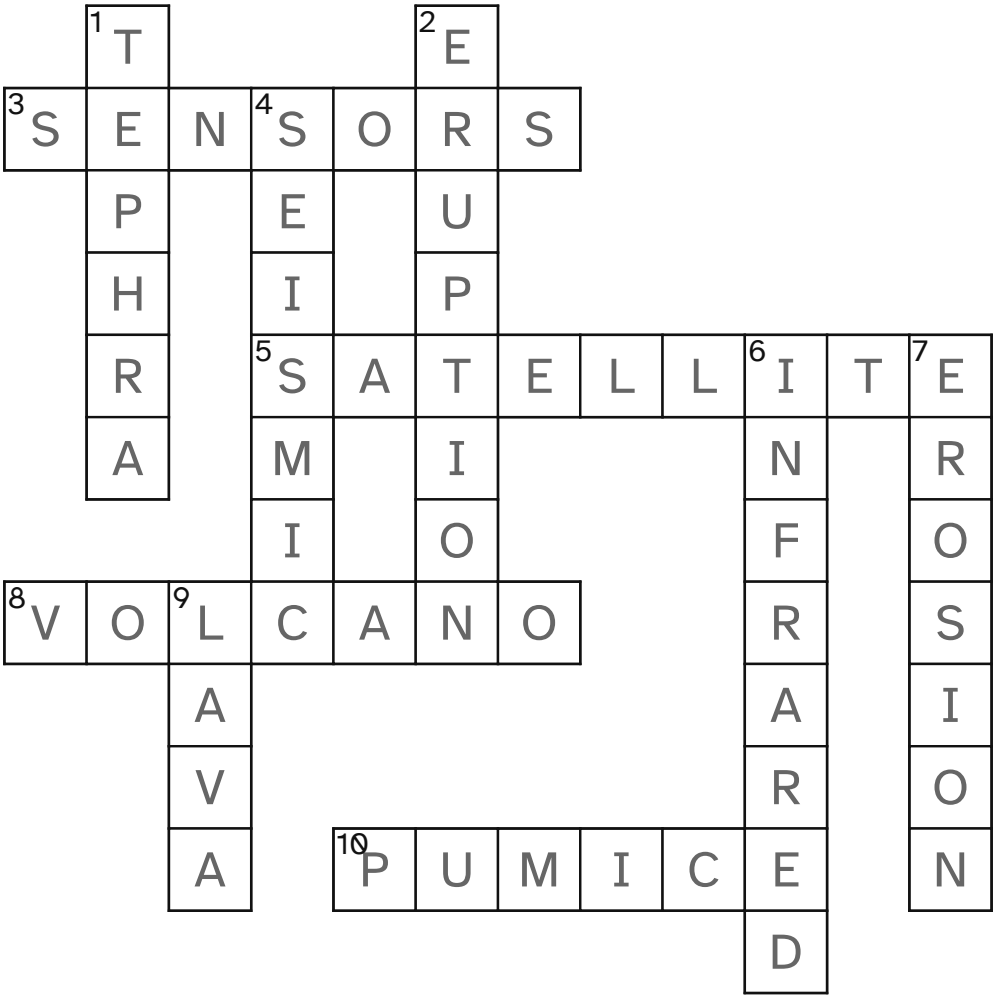

ACROSS

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Where this came from

This article was written for 3andB from the reporting below. It is not a reprint — the wording is ours and the facts are theirs.

NASA

"Eruption Extends Iwo Jima's Beach"

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https://science.nasa.gov/earth/earth-observatory/eruption-extends-iwo-jimas-beach/

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The article with a note on each question, a word search, a crossword, and the answer key to both.

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