

How to make a tiny volcanic island

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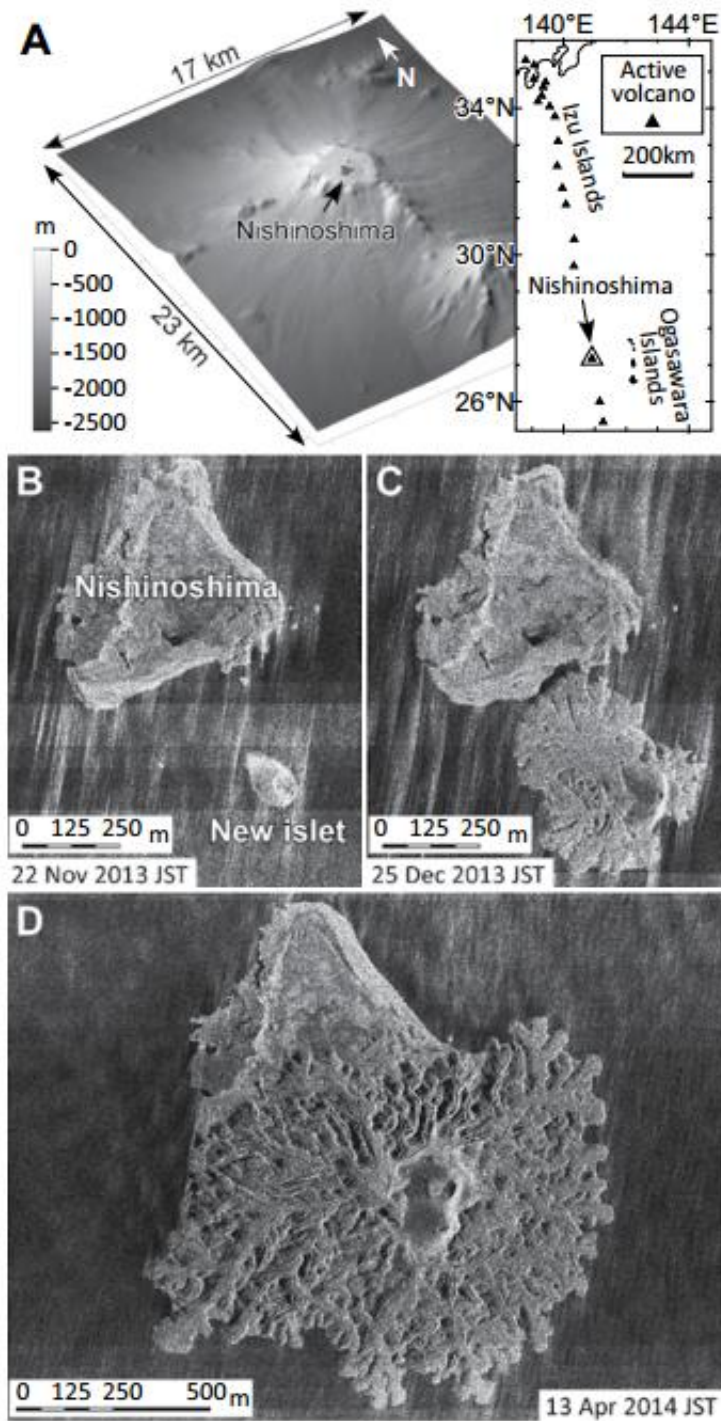


Figure 1 from Fukashi Maeno *et al.* A: Bathymetry of Nishinoshima, Japan, before A.D. 2013 eruption. B-D: TerraSAR-X satellite images of new islet, taken on Nov. 22, 2013, Dec. 25, 2013, and April 13, 2014. Credit: Geological Society of America

On Nov. 20, 2013, the Japan Maritime Self-Defense Force discovered a small islet near Nishinoshima volcano, Ogasawara Islands, Japan. The exact date of the initial eruption that spawned the islet is unknown, but a thermal anomaly was detected in the area in early November 2013. Fukashi Maeno and colleagues are investigating the creation of this islet, which on the day of its discovery was about 150 by 80 meters in size.

Volcanic [eruptions](#) in water environments ("Surtseyan eruptions") can result in the production of new islets like this one. However, the entire sequence of such eruptions is rarely observed. Therefore, discovery of the [islet](#) so close to the eruption date provides a rare opportunity to learn how a volcanic island is created.

On Nov. 21, 2013, Maeno and colleagues carried out aircraft observations of the area and confirmed the Surtseyan eruptions, which within three days changed to Strombolian eruptions, because a pyroclastic cone formed around the vent and prevented external water from flowing into the crater.

The most intriguing characteristic of the [lava](#) flows, say Maeno and colleagues, was the development of a large number of lobes and tubes. Internal pathways that fed lava to the active flow front were eventually developed and dominated the lava transport. The effects of the lava's contact with seawater as well as the variations in the lava discharge rate on the local and overall scales are also important factors affecting the lava transport system.

More information: geology.gsapubs.org/content/ea/25/G37461.1.abstract

Provided by Geological Society of America

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