

Similarities between Hunga and Nishinoshima volcanoes

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The Tonga-Kermadec Arc is an oceanic arc, which is formed by the subduction of the Pacific Plate from the Tonga-Kermadec Trench to the Indo-Australian Plate and continues for 2,800 km from the North Island of New Zealand to Tonga. The northern and southern parts are called the Tonga Arc and the Kermadec Arc, respectively. The Tonga Trench in the east of the Tonga Arc is the deepest after the Mariana Trench, with the deepest part being 10,800 m.

Since the Tonga-Kermadec Arc has many similarities with the Izu-Ogasawara Arc, they have been traditionally compared and discussed.

Hunga Volcano is one of submarine volcanoes in the Tonga Arc. Interestingly, the Hunga Volcano was formed on a thin crust (approximately less than 20 km thick) and had been erupting andesite magmas in the oceanic arc. Such andesite eruptions on a thin crust is similar to Nishinoshima volcano, which can be another example of continental crust formation in oceanic arcs. Although it has not yet been clarified what type of magma was emitted in the last eruption, we think that the Hunga Volcano and its eruptions should be understood as an important, rather than unique, precedent in future eruptions of Nishinoshima.

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