

SANTORINI VOLCANO

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BASILIS XIOTHS

Santorini caldera is a large, mostly submerged caldera, located in the southern Aegean Sea, 120 kilometers north of Crete in Greece. Visible above water is the circular Santorini island group, consisting of Santorini, the main island, Therasia and Aspronisi at the periphery, and the Kameni islands at the center. It has been designated a Decade Volcano.

The caldera measures about 12 by 7 km, with 300 m high steep cliffs on three sides.

There are two small volcanic islands at the center of the caldera, Nea ("New") Kameni and Palea ("Old") Kameni.

The main island, Santorini has an area of 75.8 km², Therasia 9.3 km², and the uninhabited islands of Nea Kameni 3.4 km², Palea Kameni 0.5 km² and Aspronisi 0.1 km².



Santorini's high walls, draped by whitewashed villages, combined with a sunny climate and good observation conditions, have made it a magnet for

volcanologists, as well as a highlight of tourism in the Aegean.

The volcanic complex of Santorini is the most active part of the South Aegean Volcanic Arc, which includes the active volcanoes of Methana on the mainland of Greece, Milos, Santorini and Nisyros. It is formed by the subduction of the African tectonic plate underneath the Aegean subplate of the



Eurasian tectonic plate, which occurs at a rate of up to 5 cm per year in a northeasterly direction. This subduction causes earthquakes at depths of 150–170 km.

Although dormant, Santorini is an active volcano. Numerous minor and medium-sized, mainly effusive, eruptions have built the dark-colored lava shields of Nea and Palea Kameni inside the caldera.

Their last eruption was in 1950, and now only fumarolic activity, primarily inside the recently active craters, takes place. GPS instruments registered renewed deformation around the caldera in 2011 and 2012.



The huge Minoan eruption of Santorini in the 17th century BC may have inspired the legend of Atlantis. It was rated 7, the highest score for a historical eruption, in the Smithsonian Global Volcanism

Program's Volcanic Explosivity Index.

SANTORINI'S BIGGEST ERUPTION: MINOAN ERUPTION

The **Minoan eruption** was a catastrophic volcanic eruption that devastated the Aegean island Santorini circa 1600 BCE. It destroyed the Minoan settlement at Akrotiri, as well as communities and agricultural areas on nearby islands and the coast of Crete with

subsequent earthquakes and tsunamis. With a VEI magnitude between 6 and 7, resulting in an ejection of approximately 30–80 km³ of dense-rock equivalent, the eruption was one of the largest volcanic events on Earth in human history. Since tephra from the Minoan eruption serves as a marker horizon in nearly all archaeological sites in the Eastern Mediterranean, its precise date is of high importance and has been fiercely debated among archaeologists and volcanologists for decades, without coming to a definite conclusion.



Although there are no clear ancient records of the eruption, its plume and volcanic lightning may have been described in the Egyptian Tempest Stele. The Chinese *Bamboo Annals* reported unusual yellow skies and summer frost

at the beginning of the Shang dynasty, which may have been a consequence of volcanic winter.