VIDEO INCLUDED

International Team of Scientists Explore Santorini Volcano in Greece

A NASA-funded, international oceanographic research expedition will study the seabed around the active submarine volcano of Kolumbo, off the Cycladic island of Santorini (Greece), the Greek state-run news agency ANA-MPA reported. The international mission, made up of 30 scientists from the US, Greece, Australia and Germany, is backed by the Greek-owned vessel *DP-2 CLV Ocean Link*, granted by the company Maritech International. The expedition team will work in Santorini until November 27.

NASA's goal is to test so-called intelligent technologies with AUVs in the sea, which in the coming decades are intended to be used to explore extraterrestrial oceans in Jupiter and Saturn's distant satellites, Europa and Enceladus respectively. Scientists will seek submarine traces of life in the extreme, uncharted and potentially dangerous environments of the satellites.

Robotic Probe Technology

The programme, aimed at optimizing robotic probe technology, brings together researchers from the Woods Hole Oceanographic Institution of Massachusetts (led by Dr. Richard Camilli, who is also the head of the mission), MIT, the University of Michigan, the University of Sydney, the Department of Geology and Geoenvironment of the University of Athens, and the Institute of Marine Biology, Biotechnology and Aquaculture of the Hellenic Centre for Marine Research (ELKETHE).

"The Kolumbo volcano presents challenges similar to those of planetary exploration. Although remote-controlled submarines have previously landed in Kolumbo's crater, autonomous underwater vehicles (AUVs and gliders) will be used in this mission to collect oceanographic data, due to the complex and potentially hazardous environment," Dr Paraskevi Nomikou, Assistant Professor in Geological Oceanography and Natural Geography at the Faculty of Geology and Geoenvironment at the University of Athens, told ANA-MPA.

About the Kolombo

Kolumbo is an active submarine volcano in the Aegean Sea, about 8km northeast of Cape Kolumbo, Santorini island (Greece). The largest of a line of about twenty submarine volcanic cones extending to the northeast from Santorini, it is about 3km in diameter with a crater 1.5km across. It was discovered when it breached the sea surface in 1649-50, but its explosion was not to be compared to the well-known Thera explosion and caldera collapse, currently dated ca. 1630 BCE, with its devastating consequences for the Minoan civilization.

Collapsed into its Caldera

The Smithsonian Institution's Global Volcanism Program treats it as part of the Santorini volcano. The 1650 explosion, which occurred when the accumulating cone reached the surface, sent pyroclastic flows across the sea surface to the shores and slopes of Santorini, where about seventy people and many animals died. A small ring of white pumice that formed was rapidly eroded away by wave action. The volcano collapsed into its caldera, triggering a tsunami that caused damage on nearby islands up to 150km away. The highest parts of the crater rim are now about 10m below sea level.

In 2006, seafloor pyroclastic deposits from the two Aegean explosions were explored, sampled and mapped by an expedition by NOAA Ocean Explorer, equipped with ROV robotics. The crater floor, averaging about 505m below the sea surface, is marked in its northeast area by a field of hydrothermal vents and covered by a thick bacterial community, the 2006 NOAA expedition discovered. Superheated (measured as hot as 224 °C) metal-enriched water issuing from the vents has built chimneys of polymetallic sulfide/sulfates to a maximum height of 4m, apparently accumulated since the 1650 event.

Tsunami

The 2006 expedition initiated new seismic air-gun techniques in order to determine the volume and distribution of the submarine volcanic deposit of pumice and ash on the seafloor around Santorini, which has been studied extensively since 1975. Revised, more accurate estimates of the total dense rock equivalent volume of the Minoan event(s), consisting of pyroclastic seafloor deposits, distal ash fallout and ignimbrites on the island of Santorini, is likely to be about 60 km³, a greatly increased estimate, comparable to the largest historic explosion, Mount Tambora 1815; the increased estimate affects the size of the ensuing tsunami as it has been widely modelled.

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