Birth of undersea volcano off the east coast of Africa recorded in great detail

October 19 2021, by Bob Yirka

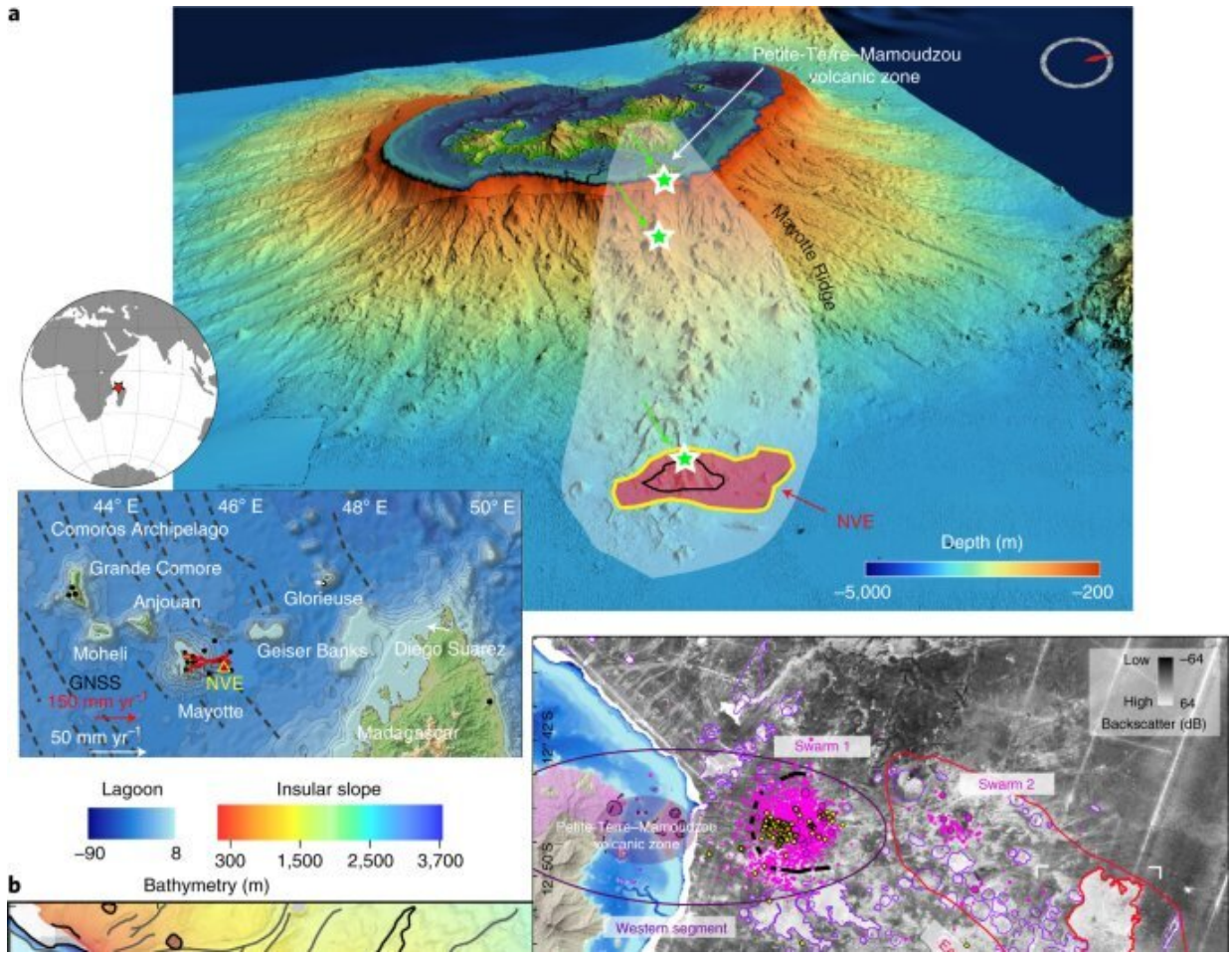

Fig. 1: The volcanic ridge offshore Mayotte. Credit: DOI: 10.1038/s41561-021-00809-x

A team of researchers affiliated with a host of institutions in France has recorded the details and characteristics of an undersea volcano that was born in 2018. In their paper published in the journal *Nature Geoscience*, the group describes the volcano as the largest undersea eruption ever recorded.

The researchers became aware of something rumbling beneath the sea back in the spring of 2018—seismometers suggested something was brewing under the seafloor between Malawi in Africa and Madagascar, near the French island of Mayotte. Intrigued, the researchers installed multiple seismometers under the seafloor and monitored the site with sonar instruments. Over the ensuing several months the team recorded thousands of vibrational events, some coming from as deep as 20 to 50 kilometers below the seafloor, which was much deeper than expected.

In looking at their data and the imagery they created from it, the researchers were able to see that a volcanic mountain had formed on the ocean floor—and that it was still growing. The team continued to monitor the new volcano and amassed data surrounding its birth. By the time the eruption concluded the researchers had enough to piece together how it had formed. They found that it started as a large magma chamber in the mantle just under the crust. Tectonic movement then broke the rock allowing the magma to rise and form into a sort of dike. This initial activity had set off a swarm of tremors. Next, the magma had made its way up to the seafloor and escaped into the water where it cooled and hardened on top of prior layers. Eventually, the volcano reached a height of 820 meters. The researchers estimated that the volume of lava spewed from the new volcano was approximately five cubic kilometers—making it the largest ever recorded undersea eruption.

The researchers suggest that it is possible the volcano could erupt again in the near future, or that other volcanoes in the vicinity could become active. In any case, they and other researchers will continue to monitor

the entire area, watching and waiting to see what might happen next.

More information: Nathalie Feuillet et al, Birth of a large volcanic edifice offshore Mayotte via lithosphere-scale dyke intrusion, *Nature Geoscience* (2021). DOI: 10.1038/s41561-021-00809-x

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