

Press Release

10/2021

How dangerous are coastal and ocean island volcanoes?

GEOMAR scientist Dr. Morelia Urlaub received a prestigious Starting Grant from the European Research Council to study volcanic flank collapses

1 February 2021 / Kiel. Blasts, ash falls, lava flows – volcanic eruptions can cause tremendous damage. Ocean island volcanoes and those along shorelines even pose an additional threat. Their flanks can collapse and thereby trigger tsunamis that are harmful to coasts many thousands of kilometers away. But what is the actual hazard of a flank collapse and how can we better assess it? Geoscientist Dr. Morelia Urlaub from the GEOMAR Helmholtz Centre for Ocean Research Kiel strives to answer these questions. She is receiving 1.5 million euros over five years from a Starting Grant from the European Research Council.

At the end of 2018, an article in the scientific journal *Science Advances* received a lot of international attention within the scientific community and even beyond. Researchers from Kiel were able to demonstrate for the first time that the eastern flank of the volcano Etna, located at the East coast of Sicily, slowly slides downwards into the Mediterranean Sea. Such movements are discussed as early indication of an impending collapse of the volcano's flank at some point in the future. Such a collapse would most likely lead to a tsunami.

Whether such slow flank movements are indeed precursors of a future collapse and how acute the danger for the surrounding coastal regions actually is, can, however, not be answered with the current knowledge. This is partly because the largest part of ocean island and coastal volcanoes is often situated below water where monitoring is challenging. Only recent technological developments in deep-sea research now provide methods to measure movement of volcanic flanks in the ocean.

In order to advance knowledge of flank collapses at volcanic islands, Dr. Morelia Urlaub of the GEOMAR Helmholtz Centre for Ocean Research Kiel, the lead author of the 2018 study, successfully



