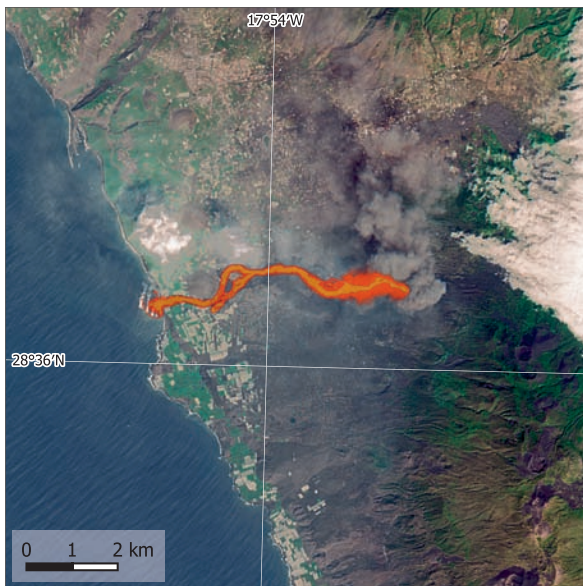
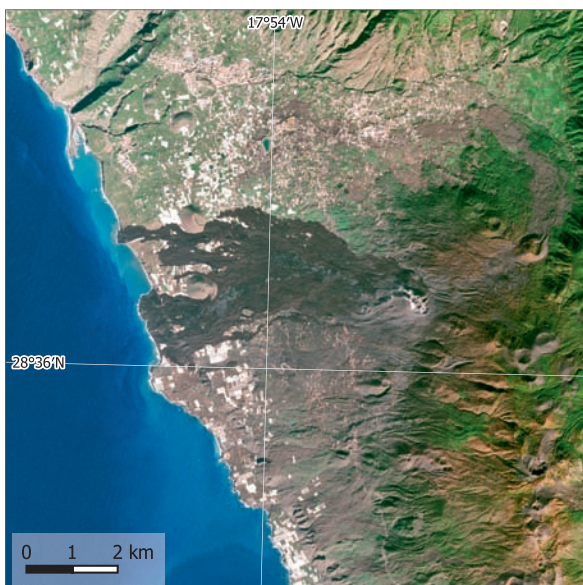


7. True colour image of La Palma, Spain, showing the region around Los Llanos de Ariadne before the eruption in the Cumbre Vieja ridge. Data: Sentinel-2, 2021-08-21.



8. True colour satellite image of La Palma, Spain, highlighting the lava flow during the eruption. Data: Sentinel-2, 2021-09-30.



9. La Palma, Spain, showing the new lava cover. Comparison with the image before the eruption reveals the loss of settlements and fields. Data: Sentinel-2, 2022-01-03.

Hot Spot Volcanism

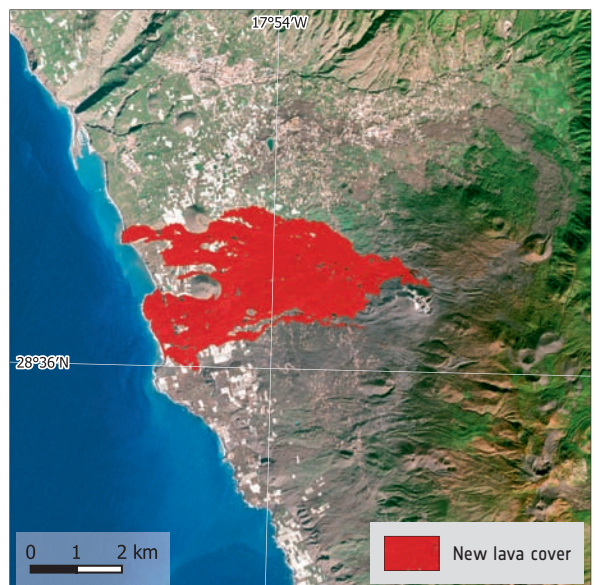
Hotspots are regions of the Earth's crust that are located above so-called mantle plumes, regions in the Earth mantle where magma rises due to convection processes. As a consequence, the Earth crust above the plume can be thinned and the volcanic activity of the region can be increased. When the Earth crust moves across the hotspot, the zone of volcanic activity wanders and can create chains of volcanos. Hawaii and the Canary Islands are prominent examples of hotspot volcanism.

La Palma, Spain

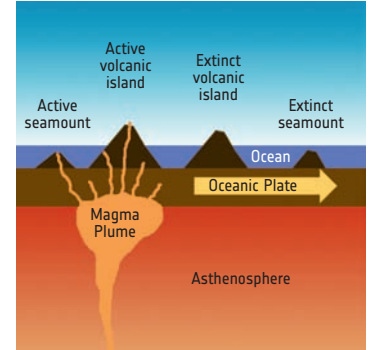
The Canary islands are located above the so-called Canarian hotspot, a hotspot and volcanically active region off the north-western coast of Africa. In the autumn of 2021, the island of La Palma, part of the Spanish Canary archipelago off the coast of West Africa, saw a spectacular volcanic eruption.

On September 19th, the Cumbre Vieja volcano, dormant for decades, erupted violently. In a devastating spectacle it unleashed ash and molten lava. Rivers of red-hot lava flew down the volcano's slopes, engulfing homes, farms, and roads. Although the eruption did not claim any lives, the total damage was huge. It was estimated at over 800 million Euros, including the destruction of infrastructure, residential areas, and agriculture. More than 2,800 buildings were destroyed.

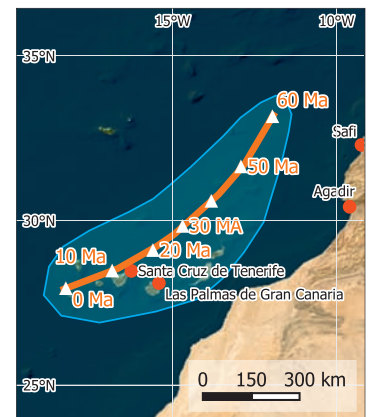
La Palma heavily relies on tourism, which suffered from the eruption. Tourism revenue plummeted by approximately 60%, temporarily causing significant job losses and business closures. Additionally, the destruction of farmland and infrastructure disrupted the island's agricultural and transportation sectors.



10. La Palma, Spain, after the eruption. The overlay highlights in red the new lava cover as derived from the satellite data. Data: Sentinel-2, 2021-09-30.



11. Mechanism of the formation of volcanic island chains by hotspot volcanism.



12. Canary Islands hotspot. During the last 60 million years (Ma) the seafloor has moved almost 1000 km across the hotspot, leaving the chain of the Canary Islands behind.



13. La Palma is the youngest of the larger Canary Islands. Its surface exhibits typical volcanic structures such as craters and lava fields. Data: Sentinel-2, 2022-01-03.