



## **Volcanic Eruptions in the southern Red Sea 2007-2013**

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After more than a century of volcanic quiescence the southern Red Sea has seen three volcanic eruptions during the past decade. The eruptions occurred on Jebel at Tair Island in 2007-8 and within the Zubair archipelago in 2011-12 and 2013. As the islands are remote, without geophysical instrumentation, and lack direct observers, we obtained most of the information about these eruptions from studying Synthetic Aperture Radar (SAR) and optical satellite images. We used the images to deduce the timing and progress of the volcanic activity and to constrain the geometry of the dikes feeding the eruptions. The Jebel at Tair eruption started energetically and caused damage to Yemeni military buildings on the island and even a few casualties. The erupted lava came from a short summit fissure and covers about 6 km<sup>2</sup>, which is almost half of the island. The fissure orientations of this and previous eruptions indicate that the stress field on Tair Island is temporarily varying and isolated from the regional Red Sea stress field. The eruptions within the Zubair archipelago, which is located about 50 km southeast of Tair Island, produced two new islands and were fed by dikes much larger than the small size of the new islands might suggest. This is indicated by relative displacements between different islands in the archipelago, derived from offset tracking of SAR images. Together the three volcanic eruptions and several seismic swarms indicate that the southern Red Sea has been experiencing a rifting episode with multiple dike intrusions and meter-scale extension, and that this part of the plate boundary is more active than previously thought.