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IMS hydroacoustic hydrophone station detections associated with volcanic eruptions at Kadovar Island, Papua New Guinea

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Following an eruption series at Kadovar Island, Papua New Guinea, the hydroacoustic datasets acquired by CTBT International Monitoring System (IMS) hydroacoustic (HA) hydrophone station HA11, Wake Island, were examined. HA11 is located approximately 3500 km northeast from Kadovar. Active eruptions restarted in January 2018 after a quiet period of three centuries. Cross-correlation analysis using two months of HA11 triplet data showed that the cumulative number of HA detections increased with time after commencement of the volcanic eruption series. According to local observations of Kadovar, a first eruption at the summit of the island was followed by four additional new vent spots and two vents were created near the shoreline. Our analysis suggests that the hydroacoustic signals detected by HA11 were associated with the volcanic eruptions near to the shoreline. A flank collapse resulting in erosion of the shoreline occurred on 9 February 2018. Hydroacoustic signals of long duration and small amplitude recorded at HA11 could be associated with this flank collapse. The present study demonstrates the potential contributions of the IMS HA stations data to the remote monitoring of underwater volcanic activity over large ocean areas.

Promotional text

A volcanic eruption series at Kadovar Island, Papua New Guinea, was remotely observed by IMS Hydroacoustic hydrophone station HA11, Wake Island. In addition to the eruptive events, the data also contained some small amplitude signals that associated with a flank collapse event.

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