

-waves from Kermadec Earthquakes Acquired by CTBT Hydrophones

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In addition to monitoring the oceans for signs of nuclear explosions, International Monitoring System (IMS) hydroacoustic data have been used for a broad range of civil and scientific applications, including the study of submarine earthquakes. This work analyses T wave signals recorded at CTBT-IMS hydrophone station HA3 (Juan Fernández Islands, South Pacific Ocean) triggered by Kermadec earthquakes from 2014 to 2022. These T waves present complex arrival characteristics at HA3, and different arrivals within the duration of the earthquake signals can be identified. Earlier arrivals are due to the conversion from seismic to acoustic waves far from the epicenter in a generation zone covering the chain of seamounts in the Louisville Ridge and the Kermadec Trench slope. Later arrivals are mainly due to reflected propagation paths induced by bathymetric features along the about 8000 km path from the epicentre to HA3. Although the analysed earthquakes had different magnitudes, epicenters, and fault mechanisms, their T waves present similar arrival characteristics at HA3. A discussion is provided on the similarity and correlation of the arrivals.

E-mail

tiago.oliveira@ctbto.org

Promotional text

Characterizing T waves from Kermadec earthquakes recorded at HA3 sheds light on long range underwater sound propagation in the South Pacific. Moreover, it helps understand the energy transfer from seismic to acoustic waves for Kermadec earthquakes.

Oral preference format

in-person

Primary author: Mr OLIVEIRA, Tiago (CTBTO Preparatory Commission)

Co-authors: Mr METZ, Dirk (CTBTO Preparatory Commission); LIN, Ying-Tsong (Woods Hole Oceanographic Institution); Mr SARAGIOTIS, Christos (CTBTO Preparatory Commission); Ms SLINKARD, Megan (CTBTO Preparatory Commission); ZAMPOLLI, Mario (CTBTO Preparatory Commission); Mr HARALABUS, Georgios (CTBTO Preparatory Commission)

Presenter: Mr OLIVEIRA, Tiago (CTBTO Preparatory Commission)

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