

# Traveling ionospheric disturbances induced by earthquakes/tsunamis over the South Pacific Ocean

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**Abstract:** In the Pacific Ring of Fire there is great tectonic activity, as this area is a source of large earthquakes/tsunamis, in which Traveling Ionospheric Disturbances (TIDs) can originate. These TIDs can be generated by shock-acoustic waves and by gravity waves induced by the tsunamis, depending on seismic source features. It is known that TIDs generated by shock-acoustic waves are observed near to the epicenter, while TIDs generated by gravity waves (induced by tsunamis) can be observed up to tens of thousands of kilometers far from the epicenter over the ocean. TIDs can be detected by analyzing Total Electron Content (TEC), which is calculated, indirectly, using signals from Global Navigation Satellite System (GNSS) receivers. This procedure allows studying the ionosphere with good spatial and temporal resolution. This work aims to identify TIDs after strong earthquakes occurred both on the East and West coasts of South Pacific Ocean. A possible association between the parameters of these TIDs and the tsunamis propagated over the Pacific Ocean would contribute to understand the mechanisms involved and could help to develop premature near-real-time warning systems.

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