

T-wave generation around the eastern coast of Taiwan

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Abstract

T-waves excited by local earthquakes and propagated within the SOFAR channel within oceans are often reported in eastern Taiwan. However, it is not quite well known how T-waves are generated due to the complicated tectonics and bathymetry in that area. To improve the understanding of T-wave generation, we have examined a number of short-period seismic data generated by 180 local earthquakes ($M > 4$) and recorded at the seismic stations (CWBSN) along eastern coast of Taiwan and at the island of Lanyu in 2004. A high-frequency band-pass filter (5-10Hz) has been applied to enhance the signal of the T-phases. Possible ray-paths for most of T-waves are carefully estimated from detailed analyses of travel-time differences between T-phases and P- or S-arrivals. The preliminary results show T-waves were basically generated on the slope of around 1000 m in depth beneath oceans, but it is surprising to see that some converted points from seismic waves to T-waves were far away from both hypocenters and seismic stations. Furthermore, the observation of T-waves generated by both shallow and deep earthquakes indicates T-wave generation was not dependent with the focal depths of local earthquakes. The further characteristics of the T-wave generation will be significantly improved by examining more seismic data in the future.