



Observations of T-waves recorded at the Western Ionian deep seafloor

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The T-phase is an acoustic wave generated by earthquakes. It propagates within the ocean's low-velocity waveguide, known as the SOund Fixing And Ranging (SOFAR) channel over a great distance with little loss in signal strength. Such signals were first described on coastal seismic stations, where the water-borne phase is converted back to a seismic phase upon incidence with the submerged shelf (Tolstoy and Ewing, 1950). Although the detail mechanism for generating the T-phase at the seafloor is not thoroughly understood, many empirical studies are based on this seismic phase. The study of the possible conversions of the S phases in T phases coming from the slab events can establish the existence of possible discontinuities in subduction zones.

In recent years very clear T-phases were recorded at 2100 m water depth, on broad band seismometer and hydrophone hosted on the SN1 seafloor Observatory deployed offshore of Eastern Sicily (Italy), at a key site of the EMSO (European Multidisciplinary Seafloor and water-column Observatory Research Infrastructure, www.emso-eu.org) in the Ionian sea. We analyzed waves that are generated by earthquakes ($M > 4$) located in the Hellenic Arc and propagate in the Ionian sea as acoustic waves for hundreds of kilometers. These seismoacoustic T arrivals are also recorded by stations part of the Italian Seismic Network (RSNC).

We present a preliminary time and frequency domain analysis performed on a sample dataset of T-phases recorded at coastal and seafloor sites, with the aim to shed light on some aspects on their generation and propagation.