



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

Mariagrazia De Caro (1), Caterina Montuori (1), Francesco Frugoni (1), Stephen Monna (1), Fabio Cammarano (2), and Laura Beranzoli (1)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy (mariagrazia.decaro@ingv.it), (2) Dipartimento di Scienze Geologiche, Università Roma TRE, Rome, Italy

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](http://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.