



## **From T-wave energy to fault parameters: empirical relationship and preliminary results from modelling**

Eve Tsang-Hin-Sun and Jean-Yves Royer

Université de Bretagne Occidentale - CNRS, IUEM, LDO - UMR 6538, PLOUZANE, France (eve.tsanghinsun@univ-brest.fr)

T-waves are acoustic waves generated by underwater events that propagate over great distances in the SOFAR channel. Their recordings proved to be very useful for monitoring seafloor tectonic activity, principally because of their low attenuation in the sound channel. Even so, determining seismic source parameters such as focal mechanism, depth or magnitude remains a topical issue. In order to investigate the possible relationship between fault parameters and the T-waves, the acoustic energy was estimated for a subset of earthquakes recorded by both hydrophones and land-based networks so their seismic source parameters are known. Variations of the acoustic source level with azimuth can be compared to seismic wave energy variations, even if such a relationship has to be demonstrated. In an attempt to investigate source radiation in the oceanic crust on T-wave generation we perform 2D numerical modelling to synthesized T-waves seismograms. Modelling was implemented using the SPECFEM2D package and realistic seismic source parameters were extracted from the GCMT database for two source types in the Indian Ocean: normal and strike slip. It seems likely that T-wave energy would show directional patterns because of source radiation anisotropy. Source effects and directivity are presented for both source types.