



Broadband seafloor observations of the seismic signals associated to activity of Stromboli Volcano (Italy): tremor and explosion-quakes

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Between December 2000 and May 2001 the Institute of Geophysics of the University of Hamburg (IGH), the Research Centre for Marine Science at Kiel (GEOMAR) and the Istituto Nazionale di Geofisica e Vulcanologia (INGV) carried out a seismological experiment in the Southern Tyrrhenian Sea, namely TYrrhenian Deep sea Experiment (TYDE). A 13-module network of OBS (Ocean Bottom Seismometer) and OBH (Hydrophone) was temporary installed on the seafloor around the Aeolian Islands in the area comprised between Lat. 38.4°N – 39.6°N and Lon. 14.0°E – 15.4°E, at water depths ranging 1500 m to 3500 m. All the stations were equipped with hydrophones (OBH), and six stations also with 3-component seismic broadband sensors (OBS).

In order to improve the study of the seismic signals related to the typical activity of Stromboli volcano (Southern Tyrrhenian Sea), we consider the data recorded by the nearest OBS, located at the base of the structure. The comparison over the same time intervals of the spectra of this OBS with the ones of other seafloor seismometers, farther from Stromboli, allow us to recognize two different spectral contributions associated with sustained tremor and discrete explosions of the volcano. Particle motion and polarization analysis was also performed to discriminate the influence of different wave trains and to constrain the source of the seismic signals. In this regards, preliminary results on the evidences of both shallow and deep sources are presented.