SEISMIC ACTIVITY RECORDED BY THE CORNET NETWORK AND SOURCE PROPERTIES OF THE GULF OF CORINTH (GREECE)

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The Gulf of Corinth is a region characterized by high seismicity, where important earthquakes occurred during the last decades. Seismological networks have been installed around the Gulf to record the seismic activity as well as aftershock sequences of the large earthquakes. The analysis of the data revealed that the seismicity is concentrated mainly between 4-12 km depth, while focal mechanisms combined with tectonic observations showed that the Gulf of Corinth is dominated by normal faults with an approximately E-W direction. Since 1995 the permanent telemetric digital CORNET seismological network is operating around the Gulf of Corinth and has recorded more than 5.000 events, about 2.500 of which have been located and revealed the active areas during this period. Using data recorded by the CORNET network, we determined a multilayered velocity model that is the most appropriate for the event locations. Using an inversion technique that we developed, we determined the constants for the calculation of the duration magnitude M_d. This magnitude was compared with the M_b magnitude calculated by the ISC. We also calculated the moment magnitude M_W, using spectral analysis, as well as the source properties of the analyzed events.
The analysis of local earthquakes revealed the existence of shear-wave splitting. Numerous very shallow microearthquakes have been recorded by only one station of the CORNET network, where shear-wave splitting was evident. We developed an inversion technique for the estimation of the azimuth and the angle of incidence of these events. For the anisotropy study we used both located earthquakes and events that were recorded by only one station, in order to estimate the polarization direction of the fast shear wave and the time delay between the two split shear waves. We present the direction of anisotropy calculated for each station of the CORNET network. These results can be related with the stress field of the area.