



Tectonic field and deformation in Chalkidiki area, Greece

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Greece is situated on the convergence limits, between the Eurasian and the African lithospheric plate, and as a consequence, is considered as one of the most seismogenic areas on the world. Chalkidiki is part of the region of Central Macedonia in Northern Greece. The region of Chalkidiki is traversed by three faults and it is an area of great tectonic interest.

On a daily basis, earthquakes occur in the seabed between the three peninsulas of Chalkidiki. Concerning the geomorphology of the area, it is covered by three types of rocks, the Serbomacedonian mass, the Perirodopiki zone and Peonia sub zone. The contact with the Serbomacedonian mass has a direct effect on tectonics of the region, since the area has a continuous tectonic activity. The neotectonic activity is characterized by normal faults, as well as horns and tectonic trenches.

Velocity field and strain parameters for a deformation model are evaluated using GPS data from a geodetic network of thirty one points established in the broader area of Chalkidiki.

Apart from these points, all the available observations of permanent stations in the area, were used to determine the final tectonic velocity field. All data were processed using Bernese GNSS Software v.5. The implementation of the reference system ITRF2005, was performed, using nine IGS stations, for the local network. Time series analysis for each point was used, in order to calculate the displacements and tectonic velocities.

Finally, in order to investigate the strain patterns of the area, strain tensors were computed and discussed.