



VERTICAL MOTIONS IN THE SOUTH-CENTRAL AEGEAN: A GEOHISTORY ANALYSIS BASED ON THE NEOGENE OF MILOS AND AEGINA ISLANDS (GREECE)

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The ratio between planktonic and benthic foraminifera has previously been proved to be depth-dependent and has been calibrated as a reliable (paleo-)bathymetry measure, if corrections are made for extreme biologic conditions (anoxia, hypersalinity) and downslope transport. In well-dated marine sedimentary sequences, the paleobathymetry data can be used for a geohistory analysis – i.e. correction of the bathymetry trend for sea-level fluctuations and sedimentary basin fill – which provides accurate information on vertical motions through time. A case study was carried out in the south-central Aegean area.

Crustal extension in the south-central Aegean is believed to be the result of gravitational spreading of the Aegean lithosphere. The age, timing and rate of the earliest subsidence in the area, however, are poorly constrained. In order to better understand the kinematics associated with the extension in the south-central Aegean, we have carried out a geohistory analysis on the oldest Neogene successions on the volcanic islands of Milos and Aegina.

The results show that between approximately 5.1 and 4.4 Ma, up to 900 m of rapid subsidence took place on Milos and Aegina.

Between 4.4 Ma and the onset of in situ volcanism, approximately 3.5 Ma, the islands were at least 400 m uplifted, which we tentatively propose to be the response to a combination of flexural uplift due to the crustal thickening of the external Hellenides and the development of the volcanic centres on the studied islands.