

## **A Paleomagnetic Study of Late Cretaceous Ophiolites in SE Turkey: implications for palaeolatitudes of S Neotethyan spreading centers and emplacement-related tectonic rotations**

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Two E-W trending ophiolite belts crop out in SE Turkey, The southerly located ophiolites (Hatay, Koçali) were emplaced onto the Arabian Platform in Late Cretaceous whereas the northerly located ophiolites (Göksun, İspendere, Kömürhan, Guleman) were underthrust the S Tauride margin (i.e. Malatya-Keban Platform) in Late Cretaceous. Different tectonic models exist in the literature for the origin of these different ophiolite belts that we test here by a detailed palaeomagnetic study: a) all the ophiolites in Turkey, including those in the study area were rooted from a single ocean basin to the N (i.e. the N Neotethyan Ocean Basin); b) all the ophiolites in SE Turkey were derived from the S Neotethyan Ocean Basin; c) the two ophiolite belts in SE Turkey are believed to have rooted from two different ocean basins; the Berit ocean to the north and the S Neotethys to the S.

Our palaeomagnetic study from 72 different sites was focused on to the sheeted dyke complex, cumulate gabbros and extrusive sequences where available of each ophiolite from the N and S belts. We also sampled the unconformable cover units to distinguish emplacement related tectonic rotations from post-emplacement tectonic rotations. Here we report our first results obtained from the Göksun Ophiolite of the northern belt and the Hatay Ophiolite of the southern belt.

Rock magnetic experiments showed evidence of magnetite/titanomagnetite as the main magnetic carriers at the majority of sites. Progressive thermal and alternating demagnetization revealed that the characteristic remanent component is removed between 500 and 580 °C or 30–100 mT, respectively. Our new paleomagnetic results from the ophiolitic rocks emplaced in Arabian platform and the SE Anatolia show important implications to the spreading centre of the former ocean (s). Large counterclockwise rotations up to 100° are obtained from the sheeded dykes of the Hatay ophiolite in the Arabian plate with a paleolatitude of ~16°, in contrast to the sheeded dykes of the Göksun ophiolite emplaced in the SE Anatolian with clockwise rotation of 90° and a paleolatitude of 22°. The relative movement of the ophiolitic series show their emplacement in the different zones.

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