



## **A geochemical and geochronological section through the Eastern Aegean**

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The convergence of Africa and Eurasia and the subduction of a oceanic lithosphere of narrow basins between Gondwana terranes has controlled the geological evolution of the Eastern Mediterranean region since the Cretaceous. This resulted in back-arc extension and lithospheric thinning caused by slab roll-back together with the westward extrusion of Anatolia, in the southwards retreat and stepwise development of the subduction system and also in a low velocity seismic anomaly gap between the Cyprus and Hellenic slab and other slab segments. However, the exact timing of all these events in the Eastern Mediterranean region is still a matter of debate, and the purpose of this study is therefore to disentangle when terrains collided and slab detached in the last 30Ma.

In a N-S transect magmatic rocks of the Aegean plate are studied, including volcanics from the islands Nisyros, Kos, Patmos, Chios, Lesbos and Samothraki. Major- and trace elements as well as Sr-Nd-Hf-Pb-O isotopes are used to interpret the different features of the Aegean subduction zone. With this geochemical approach the extend of upwelling hot asthenospheric material from the slab tear can be traced in the recent to Eocene volcanic rocks. The volcanic rocks give a wide scatter in classification diagrams and pose for example the question how the sodium rich volcanic products of Patmos can be explained. On the other hand Chios seems to play a key role around 15 Ma years in a phase of relatively low volcanic activity. To get a reliable timeline of the subduction in the Aegean since the Eocene we are aiming to tie our chemical and isotopic data to parallel obtained geochronological ages. New  $^{40}\text{Ar}/^{39}\text{Ar}$  data will allow us to get the needed resolution for this time span and material.