



## **The timing of rifting-related magmatism in the Levant margins: U-Pb dating of zircons from deep boreholes in the coastal plain of Israel**

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The Levant basin, at the easternmost Mediterranean, formed during the opening of the NeoTethys. Whereas other Tethyan basins were later consumed during Alpine orogenesis, the Levant basin preserves its early history recorded by rifting-related subsidence and magmatism. While the Permian to Jurassic subsurface extensional structure along the Levant SE margins (coastal Israel) was reconstructed in detail, the scope and timing of igneous activity are not well known.

A 2.5 km thick, mostly basaltic sequence, penetrated by the Atlit-1A borehole and named 'Asher Volcanics', was shown to accumulate within a deeply buried fault-bounded NNE trending basin. Previous K-Ar and Ar-Ar dating and biostratigraphic considerations constrained the age of Asher Volcanics and consequently the activation of a Tethyan rift in the Levant to early to middle Jurassic times. Rock cuttings of the topmost ~500 m of Asher Volcanics were recently recovered from the Elijah-3 borehole, 2 km SE of Atlit-1A, and are first studied and dated here. The volcanostratigraphy of Asher Volcanics in Elijah-3 borehole includes from bottom to top: (1) seriate plagioclase basalt, (2) olivine basalt and (3) dolerite.

SHRIMP U-Pb dating of zircon from base keratophyres (Atlit-1A; n=2) and top basalts (Elijah-3; n= 30) indicates that the Asher Volcanics erupted in a relatively short time interval in the latest Triassic (206 to 204 Ma). Other rift-related volcanic sequences, the Dhiarizos group of the Mamonia complex, SW Cyprus and the Gödene zone of the Antalya complex, S Turkey, are of similar age. Based on this age correlation a palaeogeographic reconstruction of the precursor rift of the Eastern Mediterranean basin is suggested.