U-Pb ages of fault-related calcite from Mt. Hermon: prominent mid-Miocene faulting along a newly-formed plate boundary

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Mount Hermon is a prominent anticlinal structure in northern Israel located at the intersection of the Dead Sea Transform (DST) plate boundary and the Palmyride fold-and-thrust belt. The regional sequence of tectonic events that led to the structural evolution of the Hermon complex and its association with the DST activity is still under debate.

The absolute timing of brittle faulting activity in Mt. Hermon area is constrained by laser ablation (LA) geochronology of fault-related precipitates collected along major fault segments in the Hermon complex. We apply LA *in-situ* U-Pb dating to calcite minerals from syn-faulting structures such as breccia cement along fault planes and riddle shear vein systems. Preliminary results, from a total of 22 samples, yielded 27 well-constrained Tera-Wasserburg ages, delineating two key periods of faulting activity: (1) Maastricht to Eocene (70-37 Ma) and (2) mid-Miocene (18-10 Ma). The latter period is more extensive encompassing the formation of major faults and shearing structures. Surprisingly, none of the ages obtained so far is late Miocene or younger (<10 Ma). We associate the first phase of faulting with intra-plate deformation related to the closure of the neo-Tethys ocean and the evolution of Syrian Arc fold system and the latter with initiation of the Dead Sea transform plate boundary at ~18 Ma.