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# Age of emplacement and geodynamic significance of Armenian ophiolites: evidence for Jurassic Back-arc opening between the Armenian Block and the Asian Active margin

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Armenian Ophiolites have lithological features of slow-spreading oceanic crust: serpentinites are frequently exposed and hydrothermalized at sea-floor level, magmatic rocks are rare and differentiated with mafic norites evolving to gabbros and plagiogranites, normal faults have exposed some of the deep magmatic rocks at sea-floor level. Geochemically, slight calco-alkaline features are superposed to those generally expected for MORBs: enrichments in LILE and negative anomalies in Nb-Ta and Ti, isotopic compositions of Pb, Sr and Nd more radiogenic than MORB. Precise $^{40}Ar/^{39}Ar$ age on amphibole from gabbros evidence a Lower Jurassic age ($165.3 \pm 1.7$ Ma, $2\sigma$) for oceanic crust formation. All these features argue for sub-contemporaneous emplacement of Armenian ophiolites in a back-arc basin, formed above a N-dipping subductions between the Armenian Block and the Asian Active margin. Above the back-arc series, we found the succession of (1) alkaline lavas (age unknown: Upper Jurassic-Lower Cretaceous), and (2) calc-alkaline lavas (Upper Cretaceous: Cenomanian-Coniacian). The alkaline lavas are thought to represent a thick oceanic plateau, while the calc-alkaline lavas are related to volcanic arc activity due to the subduction of the Neo-Tethys ocean.