A JURASSIC CONTINENTAL BACKARC BASIN OCEANIC LITHOSPHERE IN SOUTHERN EURASIA & ITS EVOLUTION

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The Küre ophiolite of the Pontide tectonic belt in northern Anatolia is a Penrose-type ophiolite, and is tectonically imbricated along S-directed thrust faults between the Paleozoic, continental basement rocks of the Devrekani Massif (Eurasia) to the north and the late Triassic–early Cretaceous subduction–accretion complexes (Tethys) to the south. The ~5-km-thick crustal lithologies in the ophiolite are crosscut by WNW–ESE–oriented, extensional ductile–brittle shear zones and normal faults, which display hydrothermal mineralization and seafloor alteration effects. The WNW–ESE–striking sheeted dikes and these extensional fault systems indicate a NNE–SSW seafloor spreading direction during the magmatic evolution of the ophiolite. The U–Pb zircon dating of a gabbroic rock has revealed a concordant age of 168.8±2 Ma, which represents the timing of the igneous construction of the ophiolite. Küre lava and dike rocks indicate basalt, basaltic andesite, trachybasalt, basaltic trachyandesite and dacite compositions with tholeiitic to calc-alkaline signatures. Their geochemical features of these rocks also display IAT- and MORB-like affinities with light rare earth enrichment patterns, typical of backarc basin magmas. Sandstone units in the ~3-km-thick turbiditic sedimentary cover of the ophiolite contain Paleo-Archean, Neo-Archean and Proterozoic detrital zircons, derived from the Ukraine Shield and the East European Platform, indicating a proximal position of the Küre basin to Eurasia during its development. The Küre ophiolite hence represents a Middle Jurassic continental backarc basin ophiolite with a Eurasian affinity. We compare this Jurassic ophiolite and its crustal–mantle evolution to those of other examples of ancient and modern continental backarc basin oceanic lithosphere in order to evaluate oceanic crust formation in continental settings.