



The Blueschists of the Deyader Complex, Makran, SE Iran - Petrography, Geochemistry and Thermobarometry

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Blueschists are records of past subduction and offer the opportunity to study thermo-mechanical processes and vertical displacement components in convergence zones.

Despite their unique setting in an active subduction zone, the blueschists of the Makran were only scarcely studied. They occur within the metamorphic Deyader Complex and within tectonic mélanges as blocks of various sizes. We report about their petrology, geochemistry and their pressure-temperature evolution.

Mineralogy of the collected samples confirms low temperature blueschist facies metamorphic grade: lawsonite, sodic and sodic-calcic amphiboles, rutile, sphene, aragonite, minor albite and quartz \pm pumpellyite. Field observations, differences in texture and in mineral parageneses indicate mainly basaltic protoliths at the main outcrop, around Kuh-e Taftah, and predominantly metasedimentary blueschists in layers within a mélange west of the Kuh-e Niran.

The geochemistry of basaltic blueschists correlates well with MORB and showing some arc affinity. This feature has been reported in other Tethys-derived ophiolites and is typical for oceanic crust evolved in a supra-subduction environment.

The metamorphic path of the Makran blueschist reconstructed with PERPLE_X indicates burial along a cold gradient to peak metamorphic conditions at 300-350°C and 10-12kbar, which translates to about 40km depth. We discuss the various scenarios that may explain their integration into the Makran accretionary wedge.