

Genesis and eruptive environment of lavas from the Kahnuj ophiolitic complex, southeastern Iran

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The Kahnuj ophiolitic complex, part of the Jaz Murian ophiolitic belt, is situated in southeastern part of southern oceanic strands of the Neo-Tethys. It is a well preserved intact ophiolite pseudostratigraphy of Early Cretaceous to early Palaeocene age with bearing on the Mesozoic development of southeastern part of Iran and the region. The Kahnuj ophiolitic complex consists mainly of lava flow, pillow lava with intercalated pelagic limestone, sheeted dyke, gabbro, and plagiogranite with subordinate ultramafic rocks. The volcanic rocks have undergone low grade alteration and metamorphism, exhibiting greenschist facies assemblages.

The basalts exhibit variable enrichment in the light field strength elements (Sr, K, Rb, Ba) relative to the high field strength elements (Ti, Zr, Y, Nb, P). Geochemical data, Th/Nb versus Ce/Nb plot, low La/Nb and Th/Ta ratios, N-type MORB normalized multi-element diagram, and normalized rare earth element patterns (which lack the LREE depletion typical of N-type MORB and many island-arc tholeiites) indicate that the Kahnuj basalts have similarities to transitional MORB and marginal basin basalts. The lack of severe rock deformation as well as preserved original igneous contacts between basalts and pelagic limestones and transitional nature between intrusive and extrusive units suggest that the Kahnuj ophiolite constituents are parautochthonous crust uplifted during closure of the marginal basin without significant internal strain or translation.