

## Geochemistry and geodynamic setting of granitic gneisses in Belqeis Mountain, NW Iran

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As a part of Takab Metamorphic Complex (TMC), Belqeis Mountain has a variety of metamorphic rocks including granitic gneisses, amphibolites, pelitic schists, meta-ultramafics and calc-silicate rocks. This complex was metamorphosed and deformed during Late Neoproterozoic-Early Cambrian Pan-African orogeny and intruded by granitoid magmas during Tertiary times. Geochemically, the protoliths of granitic gneisses of Belqeis Mountain have geochemical features resembling Cordilleran granites [1] including being I-type, slightly peraluminous and showing calc-alkalic to calcic and magnesian properties. The Chondrite-normalized REE patterns are moderately fractionated ( $[La/Yb]_n = 3-27$ ) with slight negative Eu anomalies ( $Eu/Eu^* = 0.35-0.64$ ) that points to the source with residual plagioclase. - Multi elements spider diagram normalized to primitive mantle values exhibits overall enrichment in LILEs against HFSEs. The depletion in HFSEs accompanied with enrichment of LILEs indicating the generation of protolith in subduction-related systems [2]. Tectonic discrimination diagrams suggest a combination of volcanic arc and continental collision settings for samples of interest. All aforementioned geochemical characteristics in addition to occurrence of paleo-suture zone and ophiolitic rocks (i.e. Serpentinites, meta-mafic and meta-ultramafic rocks) around these medium to high grade metamorphic rocks confirm subduction of an oceanic crust followed by collision in the study area [3].

[1] Frost *et al* (2001) *J. Petrology* **42**, 2033-2048. [2] Saunders *et al* (1980) *EPSL* **46**, 344-360. [3] Moazzen *et al* (2009) *EJM* **21**, 149-162.