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Mount Taftan, southeastern Iran

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Taftan stratovolcano (4050 m.) is located in flysch zone of eastern Iran about 100 km south-southeast of Zahedan city. The Taftan volcano had erupted into the Cretaceous and Eocene sedimentary and igneous rocks. The Taftan is now in an active post volcanic and fumaroles stage. The Taftan and Bazman volcanic centers in Iran and Sultan volcanic center in Pakistan are considered as Baluchistan volcanic arc which were formed by subduction of Oman oceanic crust under Lut and Helmends blocks along southern margin of Makran zone.

Taftan volcanic rocks are mainly pyroclastic, epiclastic rocks and lavas flows. The lavas are mainly consisting of porphyry andesite, dacite and rhyolite. The Taftan volcanic rocks composed of plagioclase, hornblende, biotite, quartz, orthopyroxene and clinopyroxene as main minerals and magnetite, hematite, pyrite, chalcopyrite, titanomagnetite and ilmenite as opaque minerals. These minerals show disequilibrium textures such as zoning, corrosion and etc.

The SiO_2 content in the Taftan volcanic rocks varies from 54.43 to 68.74 wt %. The majority of samples vary from 57-63 wt % in SiO_2. They are always quartz normative varies from 11.84 to 22.59. Hyperstene (1.95 to 7.39) is commonly present in the norm with or without diopside. Harker type diagrams indicate irregular linear trends. The SiO_2 wt % is negatively correlated with contents of (Feo+Fe_2O3), MgO, CaO, Al_2O_3, TiO_2, MnO, Ba and Sr and it is positively correlated with contents of Rb, Na_2O and K_2O. The correlations show similar magma for the Taftan volcanic rocks that were affected by many processes such as assimilation, mixing, crystallization and different eruption stages. The Taftan volcanic rocks are strongly enriched in incompatible elements of Sr, K, Rb, and Th and REE relative to primitive mantle and chondrite respectively. Eu shows a moderate negative anomaly. The Taftan volcanic rocks are

weakly enriched in Y, SC, Cr, Hf, Sm, Ti, and Ce and LREE relative to primitive mantle and chondrite respectively. All data show that Taftan volcano probably evolved in an active continental margin tectonic setting from an enriched mantle and involvement of crustal materials.