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Geochemistry of Shanderman eclogites, constrains on nature of Palaeotethys oceanic crust

Hadi Omrani (1), Mohssen Moazzen (1), Roland Oberhansli (2), Tatsuki Tsujimori (3), Mohsen Moayyed (1), and Romain Bousquet (2)

(1) Tabriz University, Geology, Tabriz, Islamic Republic Of Iran (moazzen@tabrizu.ac.ir), (2) Institute for Geosciences, University of Potsdam, Germany, (3) Institute for Study of the Earth's Interior, Okayama University, Japan

Shanderman eclogites are exposed at west of Shanderman town, Talesh Mountains in the north of Iran. Protolith of these rocks had basaltic composition. Geochemical studies indicate that most of the samples have tholeiitic features. Mg# versus Cr and Ni show that the original magma experienced olivine and clinopyroxene fractionation. Spider patterns show more fractionation of olivine compared to clinopyroxene. Behavior of relatively compatible trace elements versus major oxides show that major oxides had no significant (except for Na2O and to some extent FeO) variation during alteration and subsequent metamorphism. Based on $\sum$REE, eclogite of the Shanderman can be divided into two groups. The first group shows $\sum$REE= 31.1 ppm and (La/Lu)N=0.6. The second group have $\sum$REE= 139.2 ppm and (La/Lu)N=2.3. Chondrite REE normalized patterns show that they are comparable with N-MORB and E-MORB. This indicate that either Shanderman eclogites parental magma source was not homogenous or it experienced melting with different degrees, indicating a change from low spreading to fast spreading oceanic crust.