

Geochemistry and Petrogenesis of Felsic Meta-volcanic Rocks of Bagmara Formation, Sonakhan Greenstone Belt, Central India

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Abstract

The Neo-Archean Sonakhan Greenstone Belt (SGB) is located in the north-eastern fringes of the Bastar craton in Central India and is composed of greenschist to amphibolite facies meta-volcanic rocks and meta-sedimentary sequences. The felsic meta-volcanic rocks from SGB exhibit steep REE pattern ($La/Yb = 66.86$). The trace element geochemistry indicates negative Nb and Ti anomalies in the multi-element spider diagrams suggesting subduction related origin for this volcanic suite. It has been inferred that the felsic and mafic volcanic rocks are characterised by bimodal volcanism. The felsic magmatism in SGB might have been generated by the partial melting of the crustal portion, either due to the heat generated by the diapirism of mafic magma or by the heat generated during the subduction process.

Keywords: Archean Sonakhan Greenstone Belt, Bagmara formation, Suprasubduction zone, Bastar Craton, Central India