

MAGNETOTELLURIC DELINEATION OF DEEP GEOELECTRIC STRUCTURE ACROSS SATPURA MOBILE BELT AND ITS TECTONOMAGMATIC IMPLICATIONS

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Indian subcontinent is collage of cratons like Dharwar, Bundelkhand etc. and mobile belts like Delhi-Aravalli, Satpura etc. The Bundelkhand and Dharwar cratons were sutured through WSW-ENE oriented Satpura mobile belt. The drainage in this area is westward, which is reverse to the general (eastward) pattern over other parts of the Indian subcontinent. This region most of the area is covered by Deccan flood basalts which might have been erupted due to interaction between Reunion mantle plume and the overlying continental lithosphere at ~65 Ma during the northward movement of the Indian plate. Various geophysical data sets (Magnetotelluric, Deep seismic, Gravity etc.) have been utilized to unravel the crustal structure of this region in addition to geological and tectonic studies. Magnetotelluric data acquired along three N-S profiles and one E-W profile cutting across Narmada-Son region have been modeled to derive the electrical structure at crustal and upper mantle depths. These results have been integrated with deep seismic and gravity sections. Presence of high conductive layers at crustal depths within Narmada-Tapi and Cambay regions supports the concept of remobilization within these zones as compared to the adjacent cratonic regions. In addition to this, presence of high conducting layer at subcrustal levels in the NW part of this area has been discussed in light of pre-outburst phase of Reunion plume during 70-65 Ma. The possible relation of the high conductivity anomalies in the Satpura, Vindhyan and Malwa uplifts, may be due to outburst of mantle plume, and also to the mineralized belt of Archaean age is discussed.

Craton, Mobile belt, Upper crust, Conducting layer

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