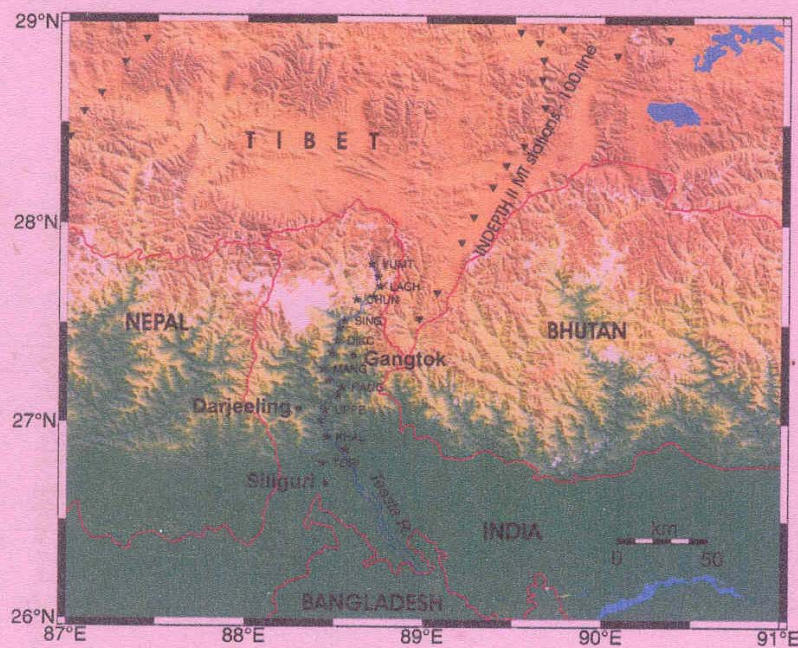


MAGNETOTELLURIC INVESTIGATIONS ALONG SILIGURI - GANGTOK - LACHUNG PROFILE, SIKKIM HIMALAYAS, INDIA



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**MAGNETOTELLURIC INVESTIGATIONS ALONG
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ABSTRACT

The Sikkim Himalaya forms one of the important segment of eastern Himalaya and provides a representative cross section. The four physiography based transverse zones like the Sub, Lower, Higher and Tibetan -Himalaya confirm four major tectonic belts namely foothill, inner, axial and trans axial belts respectively. They are represented by characteristic structural and stratigraphic attributes and are delimited by important dislocations. During 2005 field campaign (May to July) magnetotelluric studies across the Sikkim Himalaya were carried out along 120 km long traverse from Siliguri (south) to Yumthang (north). A total of 20 broad band (0.001 to 1000 s) sites were occupied during this period with a station interval of 5 - 8 km. Due to the noise contamination from electrical power lines etc 3 sites were not considered for processing. Impedances were computed after robust processing of single site and remote reference sites. As the study region is influenced by rugged topography, the effect of topography on magnetotelluric response function is studied. The data reflects the electrical signature of Main Boundary Thrust (MBT) and Main Central Thrust (MCT). MBT has shown as anomalous conductive feature from shallow depth to about 20km, where as MCT exhibited as a resistive feature, of the order of 1000 ohm.m. The conductive feature near MBT extends towards north upto lesser Himalayas. The geoelectric model from the present study together with the 100 line (Indepth II) geoelectric section in Tibet region is also presented.

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