

DEEP CRUSTAL STUDIES IN ANTARCTICA USING WIDE BAND MAGNETOTELLURIC METHOD

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To map the deep electrical conductivity structure of East Antarctica around Maitri, the Indian permanent station, long period MT studies have been taken up using wide band (1000-0.001 Hz) including short and long period signals covering both AMT and MT signals. A total of six stations have been occupied with a station interval of 3-4 km during January - February 2006. The stations are occupied along a profile oriented in a NE-SW direction. One station occupied near Maitri station on land and remaining five stations are on continental ice sheet area. The MT data have been collected for about 5 days at each station to acquire long period signals and also to obtain good quality of short period signals. Use of titanium electrodes as e-probes has reduced the contact resistance further to kilo-ohms and facilitated to record the high frequency signals. In the present study, results are presented in the form of a deep crustal geoelectric section. From 2-D modeling along NE-SW profile, it is observed a high resistive (10^4 ohm.m) upper crust upto a depth of about 10 km and mid and lower crustal thickness of about 25-30 km. Relatively resistive ($>10^2$ ohm.m) upper mantle is obtained. The crustal structure is compared with south Indian shield region.

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