

**MAGNETOTELLURIC INVESTIGATIONS IN THE GEOTHERMAL
FIELDS OF SATLUJ-SPITI, BEAS- PARBATI VALLEYS IN
HIMACHAL PRADESH, BADRINATH-TAPOVAN IN
UTTARAKHAND AND SURAJKUND IN JHARKHAND AREAS,
INDIA**

Project supported by

**Ministry of New and Renewable Energy
Government of India
New Delhi**



**Project executed by
National Geophysical Research Institute
(Council of Scientific and Industrial Research)
Hyderabad**

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National Geophysical Research Institute
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ABSTRACT

Although, many countries are utilizing the geothermal energy for power generation, India is yet to join this group. One of the reasons for this is, lack of information about the deeper levels of geothermal regions. Successful identification of deeper anomalous conductive feature related to geothermal source - in Tatapani in Chattisgarh and also in Puga in Jammu and Kashmir, using deep electromagnetic technique, namely, the 'magnetotellurics' - has paved a way to search more geothermal regions of India. In this direction, Ministry of New and Renewable Energy supported this project to investigate and assess four different regions, namely, Satluj-Spiti and Beas-Parbati valleys of Himachal Pradesh, Badrinath-Tapovan region of Uttarakhand, Surajkund region of Jharkand.

Wide band magnetotelluric study has been taken up covering both AMT and MT frequency range. The work was carried out in different field seasons during 2004-08. Each region is covered with number of stations along selected profiles, determined by the logistics in the area. The results have brought out anomalous conductive features, both near the hot springs as well as away from them. They also located at varying depths, ranging from shallow 1-5 km, and in some regions they are underlined by deeper anomalous conductor extending to depths even 10-15 km. Based on the geological and tectonic set up, the magnitude of conductivity, it's spatial variation etc., the nature of the geothermal source is inferred. Based again on the same reasons, deep drilling at a few locations is recommended from the present study for better understanding and estimation of the geothermal parameters.

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