

Monitoring of Electromagnetic Signals in a Seismogenic Koyna Region, Maharashtra, India.

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Earthquake associated electromagnetic field variations is gaining momentum in recent years. The National Geophysical Research Institute (NGRI), India has taken up a multi-parametric monitoring project near Koyna region in Western Maharashtra. Koyna region has two large reservoir dams, located near a tectonic fault zone. The region shows seismicity for most part of the year since 1967 in correlation with the impounding of the reservoirs with water. The seismic activity is observed to be increasing during monsoon season, especially when the reservoir levels increase at a faster rate. As a part of this experiment, we have recently established 2 MT stationary sites in the region to measure the changes in the subsurface resistivity structure and also to find out anomalies, if any, in the transient variations of electromagnetic field, associated with the earth-quakes. The stationary sites use V8 MT instruments from Phoenix geophysics, Canada for continuous recording of the 3 magnetic field components and 2 electric field components, which will then upload the data directly to the NGRI server through a GSM connection. The current paper discusses the different aspects of installation of instruments, data processing, subsurface structure on either side of the fault zones. Most of the EM signals correlate well with the co-seismic activity. The results of analysis of the signals at the time of four earthquakes (<5) during November, 2007 and their possible relation with the precursory phenomena are also discussed.