The wideband [0.001 Hz-100 kHz] interferometry project in Central Italy

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Abstract: We are reporting some results and future planning of the Magnetic and Electric fields Monitoring Project. The principal purpose of the project is to create a network of observatories for monitoring the electromagnetic signals in the 0.001 Hz-100 kHz frequency bands in Central Italy. These bands include both natural and artificial signals. The technological objectives of the project are the development of new instrumentation and the know-how transfer to the industry. These instruments were tested in the Geomagnetic Observatory of L'Aquila, the first station of the network. Here we show some examples of the developed electric and magnetic sensors. These instruments are designed for the automatic long-term recording of the electromagnetic fields in a wide band of frequency. The preliminary results of the first operating station of the network are shown taking into account, in the signal elaboration, the single station approach. Here we are reporting some examples concerning the calculation of the ground electric resistivity profile, the evaluation of the magnetic induction vectors and the study of the magnetic sources by the eigenvectors calculation. When all the stations of the network will be in operation, the use of an innovative technique, the wideband interferometry will be proposed. Combining the simultaneous observations of the electromagnetic field measured in each station, we will be able to obtain detailed information about the investigated electromagnetic sources. © 2009 European Association of Geoscientists & Engineers.

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