



Characterization of the Earth internal electromagnetic sources

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The detection of Earth internal electromagnetic sources, with particular emphasis on diffusive magnetic signals, is a hot topic of research. Many papers have been published in this direction, but many aspects are still unclear. In fact signals originated inside the Earth are orders of magnitude smaller than measured ones which contain also the external contribution. According to the characteristics of the interferometric system such signals will be prevalently investigated in the frequency range from 0.001 to 100 Hz.

We propose a new approach, based on a brand new method for filtering nonstationary signals as well as on a technique which allows to separate the external contribution from the internal one in an efficient way.

We present results of the application of the aforementioned approach to signals measured in three stations positioned nearby the city of L'Aquila in central Italy. Each signal is detected using a Search Coil ULF ELF Induction coil magnetometers MFS06e which covers a range of frequencies with upper limit 100 Hz and sensitivity around 1 pT.

Such results seem to shed new light in the identification of electromagnetic signals of internal terrestrial origin.