



Capturing electromagnetic emissions in the HF band possibly related to earthquake events

Gr Koulouras (1), K Kontakos (1), K Ninos (1), D Cavouras (2), and C Nomicos (1)

(1) TEI of Athens, Department of Electronics, Athens, Greece (cnomicos@teiath.gr, +30 210 5385304), (2) TEI of Athens, Department of Medical Technology, Athens, Greece

Abstract

The purpose of this project was to capture electromagnetic emissions in the HF band. Possible correlations of these emissions prior to strong earthquakes were investigated. In order to record the variations of the electromagnetic field in a wide spectrum of frequencies up to the VHF band, a new device was designed and implemented by our research team.

Ten prototype electromagnetic variation (EMV) field stations have already been installed in Greece, at the locations, Corfu, Ioannina, Ithomi (Kalamata), Kefhalonia, Kozani, Mytilini, Rodos, Neapoli (Crete), and Bamos (Crete). This telemetric network was launched in 1999 and since it has been in constant operation. During the period 2005-2008, 14 strong earthquakes occurred in Greece with magnitude over $M_s \geq 6$. Of them, three events were recorded as precursor signals by only one station. Fractal analysis showed that these were precursors and not manmade signals. In eight EQs events, two or three stations recorded simultaneously precursor signals. In one EQ event, recordings in all stations were disturbed by strong magnetic storms twenty days before the event. In two EQs, events did not trigger any station in a time window of up to 10 days.