

10. PRESENT NETWORK.

The entire methodology was developed by analyzing data, which refer to the Earth's electric field variations and were acquired by the following monitoring sites and correspond on 5 different periods of time:

1. **Time period: 20th June 1999 to 17th September 2000.** During this period of time, a single dipole (**VOL**) was installed in the area of Volos, Greece. Its length was 120m and of almost **N-S** direction. The used electrodes were the metal casings of two boreholes. The initial recordings were made with a resolution of +/- 1mv.
2. **Time period: 2nd November 2000 to 27th September 2002.** During this period of time, at the monitoring site a second dipole, of similar length, was installed and of almost E-W direction. Technical details and preseismic, electrical signals, recorded by Volos (**VOL**) monitoring site, were presented by Thanassoulas and Tsatsaragos (2000).

The location of Volos (**VOL**) monitoring site is presented in the following figure (10.1).

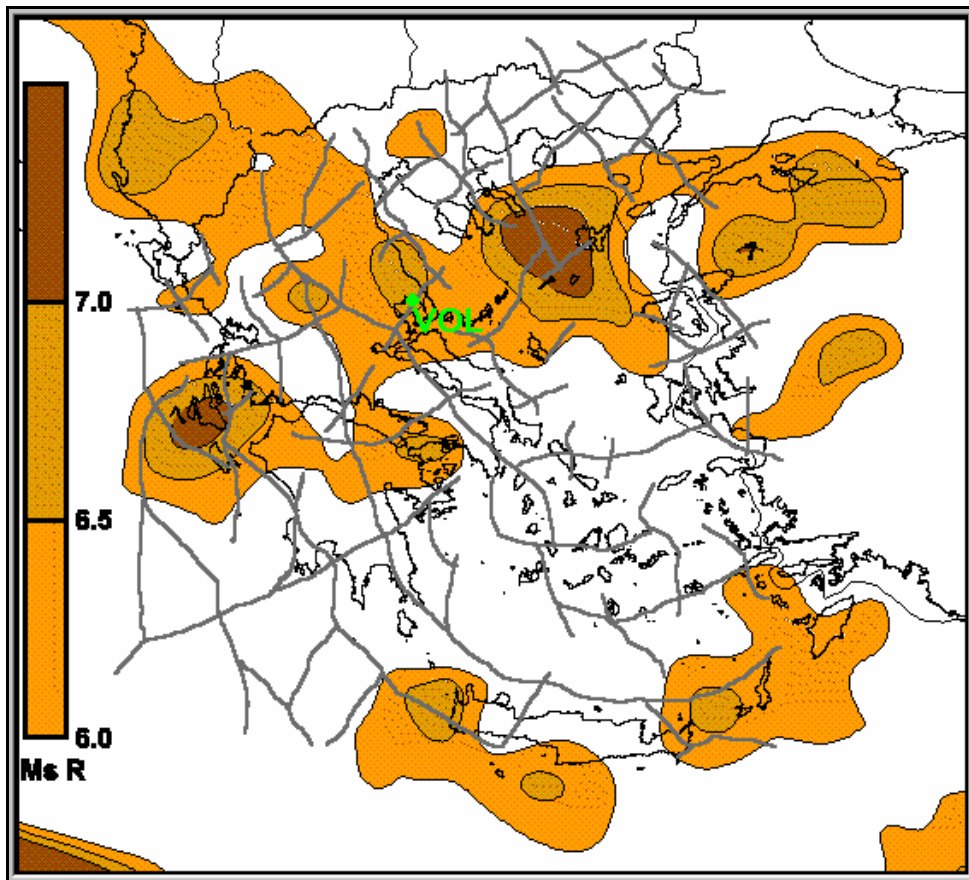


Fig. 10.1. **VOL** monitoring site location (green lettering) is presented in relation to the lithospheric, deep fracturing (gray thick lines) and seismic, potential map of Greece (2003).

Unfortunately, my collaboration with Mr. Tsatsaragos ended on 27th September 2002 for reasons beyond my control. Therefore, there is a time period that follows, for which no data are available at all. Registrations of the Earth's electric field commenced again as follows:

3. **Time period: 15th April, 2003 till present time (June 2007).** Athens (**ATH**) monitoring site was installed and is in continuous operation.
4. **Time period: 23rd May, 2003 till present time (June 2007).** Pyrgos (**PYR**) monitoring site was installed and is in continuous operation.
5. **Time period: 18th March, 2006 till present time (June 2007).** Hios (**HIO**) monitoring site was installed and is in continuous operation.

The locations of Athens (**ATH**), Pyrgos (**PYR**) and Hios (**HIO**) monitoring sites are presented in the following figure (10.2).

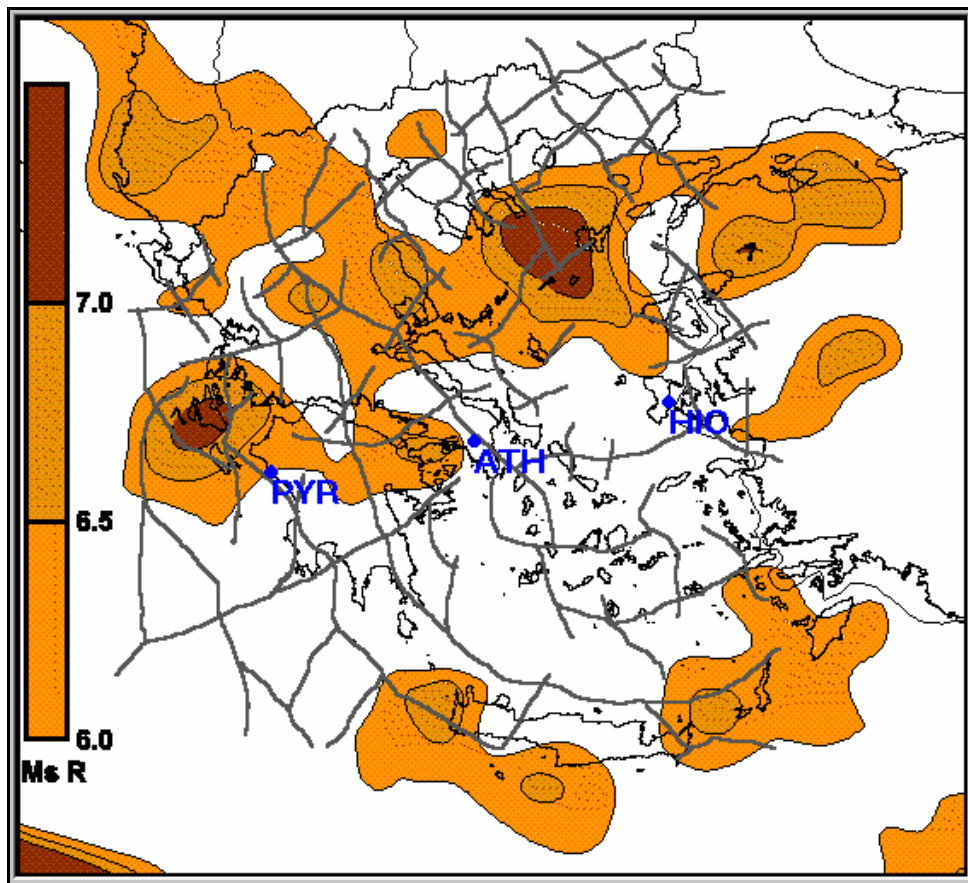


Fig. 10.2. **PYR, ATH, HIO** monitoring sites locations (blue lettering) in relation to the lithospheric, deep, fracturing (gray thick lines) and seismic, potential map of Greece.

The limited number of the installed monitoring sites is due to the following reasons:

- It is difficult and time consuming to find a private volunteer to assist the installation and operation of each monitoring site, at the preselected areas.
- All expenses which were required for the installation of each monitoring site were paid by private, financial contributions, made, by the research team (Dr. Thanassoulas and Mr. Klentos).

- Hardware implementation, software design and computer packages construction (periods 3, 4, 5) were implemented by Dr. Thanassoulas, C. and Klentos, V.

In general, there is no financial support by any kind of source and the appropriate, technical personnel which is needed, for the installation and to keep, smoothly, running a decent, monitoring network, is missing, too.

At this point, I would like to express my thanks to the operators of the two monitoring sites, in Pyrgos (**PYR**, Mr. Verveniotis, G.) and in Hios Island (**HIO**, Mr. Zymaris, N.) for running these sites completely voluntarily and gratis.

Nevertheless, the current network permitted us to come into serious conclusions about the specific, postulated methodology.

11. NETWORK TO BE INSTALLED.

The experience which is obtained from the operation of the monitoring sites in **PYR**, **ATH** and **HIO**, almost after 4 year's time, has shown that, preseismic, electrical signals can be detected at rather large distances, of the order of some hundreds of kilometers. Therefore, an evenly spaced network, all over Greece, requires (taking into account the Greek territory extent) nine (9) monitoring sites, the most.

These future monitoring sites must be located in such a way, so that a group of three of them would comprise an array of almost **E-W** direction. Their location is presented in the following figure (11.1).

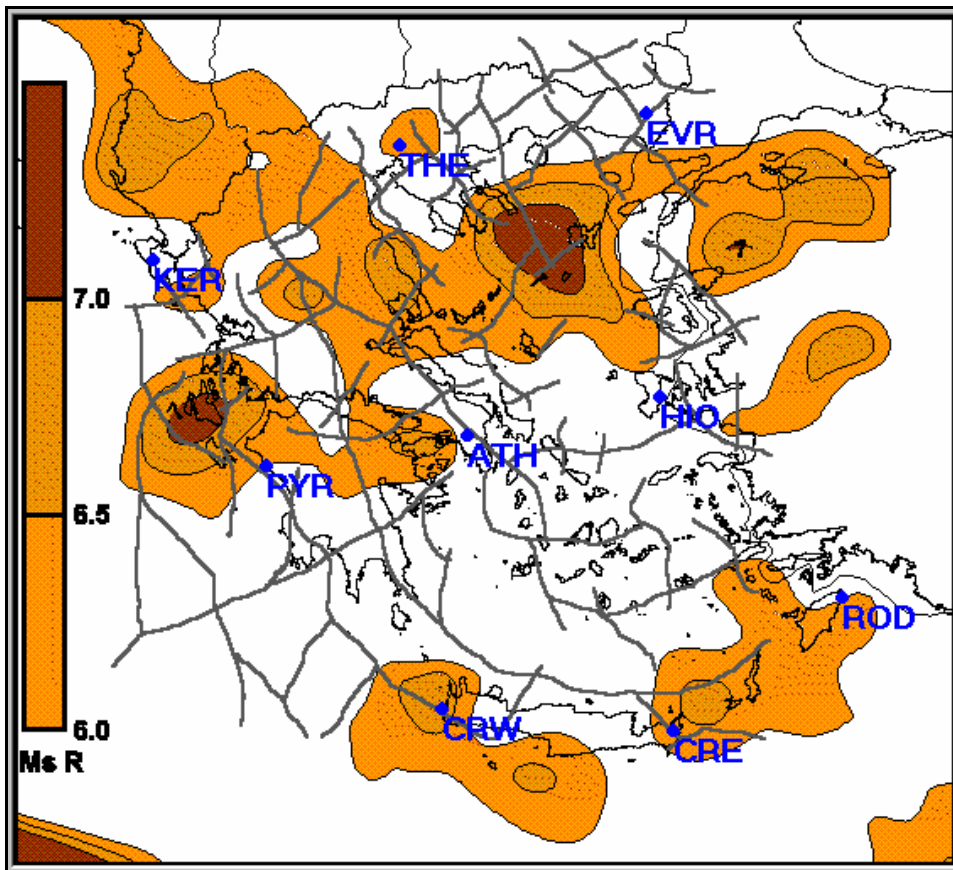


Fig. 11.1. Monitoring network scheduled to be installed in the future.

The northern array will consist of **KER**, **THE** and **EVR** monitoring sites.

The middle array is consisted of the already installed **PYR**, **ATH** and **HIO** monitoring sites.

The southern array will consist of **CRW**, **CRE** and **ROD** monitoring sites.

After the installation of the northern and southern part of the monitoring network (in the near future) the entire methodology will be fully testable.

It is expected that the entire, monitoring network will be capable to detect any preseismic, electric signal which will be generated, from the focal area of any predictable strong earthquake, which could occur in the Greek territory (and neighborhood countries - Turkey, Bulgaria, FYROM, and Albania).

12. HARDWARE PRESENTATION.

What is more important in this methodology, as in any physical experiment, is the data acquisition. Incorrect data will end up into false conclusions. The entire hardware setup was constructed from common in use hardware modules (computer, modem, ADDA card), while the signal preconditioning unit is a direct application of typical integrated circuits (ICs) available in the electronic market, all over the world.

A general lay out of the monitoring site hardware is as follows:

12.1. Block diagram of the monitoring site hardware.

The entire monitoring site consists of the following main units:

- The receiving dipoles (A).** Two dipoles are used, sharing a common ground electrode.
- The preconditioning unit (B).** This unit incorporates the low-pass filters, the band-pass filters, the gain amplifiers and the power supporting **UPS**.
- The desktop computer (C).** This unit consists of a typical desktop computer, fitted, with an Analog to Digital – Digital to Analog (ADDA) card of 12bits conversion.
- The communications modem (D).**

The interconnection of these units is shown in the following figure (12.1.1).

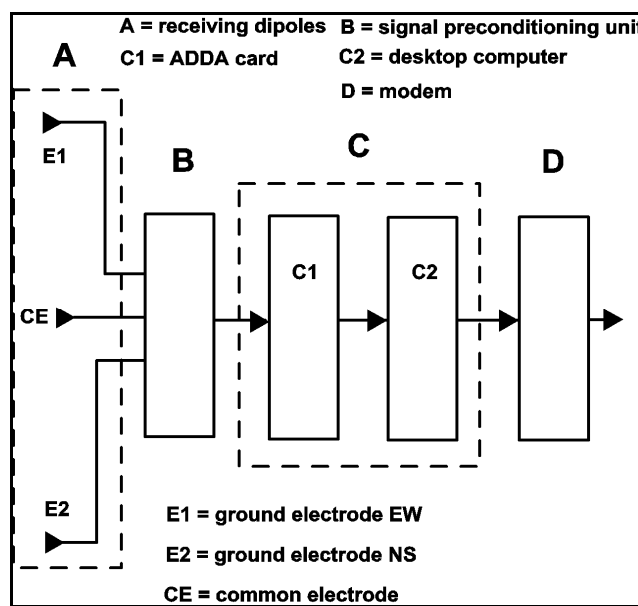


Fig. 12.1.1. Flow-chart of the composition of monitoring site hardware. The arrows indicate the signal flow-path.