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Complex monitoring and alert network for electromagnetic, infrasound, acoustic seismotectonic phenomena

Victorin - Emilian TOADER, Iren-Adelina MOLDOVAN, and Ionescu CONSTANTIN
National Institute for Earth Physics, SEISMIC NETWORK, MAGURELE, Romania (asyst@asystech.ro)

The Romanian seismicity recorded in 2013 three important events: the largest seismic "silence", the shortest sequence of two earthquakes greater than 4.8R in less than 14 days after the "Romanian National Institute for Earth Physics" (NIEP) developed a digital network, and a very high crustal activity in Galati area. We analyze the variations of the telluric currents and local magnetic field, variations of the atmospheric electrostatic field, infrasound, temperature, humidity, wind speed and direction, atmospheric pressure, variations in the earth crust with inclinometers and animal behavior. The general effect is the first high seismic energy discontinuity that could be a precursor factor. Since 1977 Romania did not register any important earthquake that would generate a sense of fear among the population. In parallel with the seismic network NIEP developed a magneto-telluric, bioseismic, VLF and acoustic network. A large frequency spectrum is covered for mechanical vibration, magnetic and electric field with ground and air sensors. Special software was designed for acquisition, analysis and real time alert using internet direct connection, web page, email and SMS. Many examples show the sensitivity of telluric current, infrasound, acoustic records (from air-ground), and the effect of tectonic stress on the magnetic field or ground deformation. The next update of the multidisciplinary monitoring network will include measurement of ionization, radon emission, sky color, solar radiation and extension of infrasound and VL/LF equipment. NOAA Space Weather satellites transmit solar activity magnetic field data, X ray flux, electron, and proton flux information useful for complex analysis.