



## **Innovative Seismoelectromagnetic Research at the front of the Hellenic Arc**

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Taking into account the complex nature and rarity of strong seismic events, as well as the form multiplicity and timing variety of possible preseismic signatures, the predominant view of the scientific community still seems nowadays to lean against earthquake prediction, especially the short-term one. On the other hand, seismoelectromagnetic (SEM) research appears to be a promising approach to earthquake prediction research. In this context, the project TeCH-SEM [Technologies Coalescence for Holistic Seismoelectromagnetic Research (Lithosphere-Atmosphere-Ionosphere Coupling)] aims to establish an integrated approach to SEM investigation, by developing and implementing novel-innovative technologies for the study of pre-seismic electric, magnetic and electromagnetic signatures in a broadband spectrum (ULF-ELF-VLF-LF-HF). In this framework, at the natural laboratory of the seismically active south- and south-western part of the Hellenic Arc (broader region of Crete) is being developed a permanent network of ULF-ELF seismoelectromagnetic stations featuring novel design that provides real-time telemetry, extended autonomy, light-weight and small-size but robust and powerful datalogging and self-diagnostics for reliable, long-term operation. This network is complemented by the simultaneous deployment of an innovative ELF-VLF seismoelectromagnetic telemetric network that will attempt to detect, in real conditions, VLF electromagnetic transients that have been repeatedly observed in the laboratory to be emitted from rock samples with various lithologies subjected to fracture under uniaxial compression. Both networks, it is anticipated to remain in operation for many years.

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