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Combined ULF and VLF observations of seismo-electro-magnetic phenomena in Europe

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A combined analysis of magnetic ultra-low-frequency (ULF) and electromagnetic very-low-frequency (VLF) fluctuations before, during and after earthquakes in south and south-east Europe is presented.
The magnetic fluctuations are studied in the frame of the South European Geomagnetic Array (SEGMA) network. The fluxgate and searchcoil magnetometers, located in Italy, Bulgaria and Hungary perform measurements of fluctuations in the pico-Tesla and nano-Tesla range from milli-Hertz to 100 Hz.
The properties of VLF radio links (10 kHz - 50 kHz) are studied in the frame of the European VLF/LF radio receiver network (INFREP). Single parameter studies of ULF and VLF variations in the vicinity of earthquakes in Europe have been performed in the last decade (Villante et al. 2010, Rozhnoi et al. 2009).
We present the first results of a dual parameter study based on single parameter ULF and VLF observations. The proposed method provides the opportunity to decrease the number of false alerts.
A dual parameter seismo-electro-magnetic reliability number is developed and compared with single parameter quality numbers.

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