



The European VLF/LF Radio Network: Advances and Recent Results

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Since 2009 a network of VLF (20-60 kHz) and LF (150-300 kHz) radio receivers has been put into operation in Europe in order to study earthquakes precursors. At the moment the network consists of ten receivers three of which are located in Italy, two in Greece and one in Portugal, Romania, Malta, Cyprus and Turkey. The data (sampling rate of 1min) are downloaded automatically at the end of each day and are collected at the Department of Physics of the University of Bari (Italy) that is the central node of the network. A detailed study of the radio data collected in the radio network from July 2009 to September 2011 was performed, using different methods of analysis. In total 27 cases suitable for analyzing were found and successes, i.e. radio anomalies preceding the subsequent earthquake ($M_w \geq 5.0$) and clearly related to the event, were obtained in 70% of the cases; but increasing the value of the M_w threshold for the earthquakes this percentage seems to increase. Among the different methods of analysis the Wavelet spectra appear to be the most sensitive ones. At the moment a system able to apply on the radio data the Wavelet analysis automatically at the end of each day is being developed. On May 20, 2012 an earthquake with $M_w=6.1$ occurred in north Italy (Emilia region); the epicenter is located inside the "sensitive" area of the network. The results obtained in such occasion are presented.