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The European Network for studying the radio precursors of earthquakes: the case of the May 19, 2011 Turkey earthquake (Mw=5.7)

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Since 2009 a network of VLF (20-60 kHz) and LF (150-300 kHz) radio receivers was put into operation in Europe in order to study the disturbances produced by the earthquakes on the propagation of these signals. In 2011 the network was formed by nine receivers located three in Italy and one in Austria, Greece, Portugal, Romania, Russia and Turkey. On May 19, 2011 an earthquake with Mw=5.7 occurred in western Turkey, that is inside the "sensitive" area of the network. The radio data collected during April-May 2011 were studied using three different methods of analysis which are the wavelet spectra, the principal component technique and the standard deviation trends. Clear anomalies were revealed both in the signals broadcasted by the TRT transmitter (180 kHz) located near Ankara and in some VLF signals coming from transmitters located in western Europe and collected by the receiver TUR of the network located in eastern Turkey. Evident precursors phases were pointed out. Some difference in the efficiency of the methods of analysis were revealed.