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Decreases in the electric intensity of VLF radio signals and possible connections with the seismicity

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In February 2002 a digital OmniPAL receiver was put into operation at the Department of Physics of Bari University (Southern Italy) to record VLF radio signals. The intensity of the VLF signals transmitted by GB (f=16 kHz, United Kingdom), FR (f=20.9 kHz, France), GE (f=23.4 kHz, Germany), IC (f=37.5 kHz, Island) and IT (f=54 kHz, Sicily, Italy) has been monitored with a 5s sampling frequency. In this study we analysed the raw data averaged over 10 min from February 2002 to June 2006. Several decreases of the electric field strength of the radio signals were revealed some days long and generally they occur in not concomitant periods. Such a phenomenology was pointed out mainly looking the ± 3 days smoothed trends. The GE signals decrease systematically in winter and summer each year and so, it is well founded to suppose the decreases are related to the transmitter. On the contrary, all the other events are sporadic and the previous justification does not seem realistic. On the time occurrence of these events, we investigated the geomagnetic activity, the meteorological conditions in the receiver area and the regional seismic activity. The main result is that, generally, a pre or post seismic effect seems to give the most convincing justification of the quoted radio decreases.