



Reception conditions of low frequency (LF) transmitter signals onboard DEMETER micro-satellite

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We analyze the flux density variation associated to low frequency (LF) broadcasting transmitters observed by the ICE electric field experiment onboard DEMETER micro-satellite. We select five stations localised around the Mediterranean and the black seas: Tipaza (252 kHz, 02°28'E, 36°33'N, Algeria), Roumoules (216 kHz, 06°08'E, 43°47'N, Monte Carlo), Polatli (180 kHz, 32°25'E, 39°45'N, Turkey), Nador (171 kHz, 02°55'W, 35°02'N, Morocco) and Brasov (153 kHz, 25°36'E, 45°40', Romania). The detection of the LF transmitter signals by DEMETER micro-satellite is found to depend on the radiated power, the emitted frequency, and the orbit paths with regard to the location of the stations. This leads us to characterise the reception condition of the LF signals and to define time intervals where the detection probability is high. We firstly discuss the dependence of the reception conditions on the ionospheric disturbances due to the geomagnetic and solar activities, and we secondly attempt to estimate the global electric environment above the Mediterranean and the black seas.