



Electric environment above European VLF transmitters during the Iceland volcano eruption in spring 2010

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We report on electric field measurements recorded by the ICE experiment above several VLF transmitters in Europe. The aim is to study the variation of the electric environment above those transmitter stations before and after the eruptions of the Eyjafjallajökull volcano in Iceland in spring 2010. We analyze the VLF amplitude signal recorded by the ICE electric field experiment on board DEMETER micro-satellite. The sun-synchronous orbits of the micro-satellite cover an invariant latitude range between -65° and $+65^\circ$ in a time interval of about 40 minutes. We consider the VLF transmitter signals emitted by the following three stations in Europe: DFY (16.58 kHz, Germany), FTU (18.3 kHz, France), JXN (16.4 kHz, Norway). We study the variation of these VLF signals taking into consideration the signal intensity levels before and after the Iceland volcano eruptions. We show that the VLF sub-ionospheric signals are affected by the disturbances produced by geomagnetic activity. The seasonal and the latitudinal effects may also contribute in the variation of the VLF transmitter signal. In this investigation we discuss the methods which lead us to distinguish between the different signal sources in order to display the electric variation which may occur during the sudden activity of the volcano.