

DOPPLER TYPE OBSERVATIONS OF IONOSPHERIC WAVES EMITTED BY NATURAL SOURCES

TEREZA SINDELAROVA, Jaroslav Chum, Dalia Buresova

Institute of Atmospheric Physics, ASCR, Prague, Czech Republic, email: tersin@ufa.cas.cz

Waves of different time and space scales emitted by various natural and artificial sources propagate into the upper atmosphere and influence its structure, dynamics, and composition. The spectrum of waves covers a wide range of periods from tens of seconds to days. Here, we summarize observations of short period waves that have been conducted in the Czech Republic using the continuous high frequency Doppler shift measuring system. We focus on waves emitted by natural sources. Pulsations of the geomagnetic field are one of the most common sources of ionospheric waves. We repeatedly observed short period oscillations in the F2 layer simultaneously with geomagnetic Pi2 pulsations. Waves of periods ~1-3 min were observed simultaneously on all Doppler measuring paths. The observation in years 2005-2007 showed that meteorological activity in Central Europe is not a common source of infrasonic waves. Waves of periods ~2-5 min occurred only in two cases of exceptionally intense meteorological activity in the troposphere. Finally, we analysed observations of wave activity during weak earthquakes that occurred in the western part of the Czech Republic in autumn 2008 (magnitude lower than $M=4$).

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Tereza Sindelarova, Institute of Atmospheric Physics, ASCR, Bocni II 1401, 141 31 Prague 4, Czech Republic, tel. +420 272 016 066, email: tersin@ufa.cas.cz