

PROPAGATION OF IONOSPHERIC DISTURBANCES AS MEASURED BY MULTIPOINT CONTINUOUS DOPPLER SOUNDING OVER THE CZECH REPUBLIC: FIRST RESULTS

J. CHUM, F. Hruška, J. Laštovička, D. Burešová, T. Šindelářová

Institute of Atmospheric Physics, Czech Republic, Prague

Five-point Continuous Doppler sounding system has been run at ~ 3.59 MHz in the western part of the Czech Republic since 2008. We have observed waves induced by fluctuations of geomagnetic fields, Acoustic Gravity Waves (AGW), infrasound waves and various other disturbances. Whereas the ionospheric oscillations caused by the pulsations of geomagnetic field usually occur almost simultaneously (within the precision of the measurements) on all Doppler sounding signals, the ionospheric fluctuations related to the propagation of AGW or infrasound are observed with various time delays on different Doppler sounding paths. That enables us to investigate horizontal propagation velocities of these waves in the ionosphere, including the direction of propagation. In the presented paper we focus on the propagation of a special class of AGW and infrasound waves which resemble an S-shape in the Doppler shift spectrograms. They mostly occur after sunrise and before sunset. We show that they propagate with horizontal velocities from ~ 100 to ~ 200 m/s. Though we observed propagations in any direction, the southeast propagations have prevailed. The waves were often poorly cross-correlated at distances larger than ~ 80 km.

Ionosphere, wave propagation, Doppler sounding

Jaroslav Chum, Institute of Atmospheric Physics, Czech Academy of Sciences, Czech Republic, Bocni II/1401, 14131 Praha 4- Sporilov, email: jachu@ufa.cas.cz