

3D Investigation of gravity waves propagation by Continuous Doppler sounding

*Jaroslav Chum¹, Katerina Podolska¹

1. Institute of Atmospheric Physics of the Czech Academy of Sciences

Multi-point continuous Doppler sounding is a useful tool to investigate short-time fluctuations in the ionosphere. We present analysis of GW propagation in the upper atmosphere and ionosphere in 3D. It is based on multi-point continuous Doppler sounding at three different frequencies; sounding radio waves of various frequencies reflect at different altitudes. The advantage of this analysis is information about the GW propagation in 3D and about the attenuation of wave power with height. The disadvantage is a relatively small number of events that can be analyzed as critical frequency of the ionosphere foF2 has to be larger than the highest sounding frequency and also significant cross-correlation between signals reflecting at different altitudes is necessary.

Keywords: atmospheric internal gravity waves, ionosphere, Doppler sounding, 3D analysis, Attenuation

