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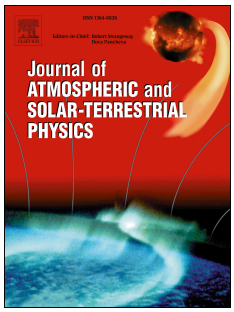

Observation of the solar eclipse of 20 March 2015 at the Pruhonice station

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Observation of the Solar Eclipse of 20 March 2015 at the Pruhonice station

Zbyšek Mošna[a,*], Josef Boška, Petra Koucká Knížová, Tereza Šindelářová, Daniel Kouba, Jaroslav Chum, Luboš Rejfek, Kateřina Potužníková[a], Feza Arikan, Cenk Toker[b]

[a] *Department of Aeronomy, Institute of Atmospheric Physics, CAS, Bocni II 1401, 141 31 Prague, Czech Republic*
[b] *Hacettepe University, Turkey*

Abstract

Response of the atmosphere to the Solar Eclipse on 20 March 2015 is described for mid–latitude region of Czech Republic. For the first time we show join analysis using Digisonde vertical sounding, manually processed Digisonde drift measurement, and Continuous Doppler Sounding for the solar eclipse study. The critical frequencies foE, foF1 and foF2 show changes with different time offset connected to the solar eclipse. Digisonde drift measurement shows significant vertical plasma drifts in F2 region deviating from daily mean course with amplitudes reaching 15-20 m/s corresponding to the time of solar eclipse. Continuous Doppler Sounding shows propagation of waves in the NE direction with velocities between 70 and 100 m/s with a peak 30 minutes after first contact. We observed increased and persistent wave activity at heights between 150 and 250 km at time about 20 – 40 minutes after beginning of SE with central period 65 min.

Keywords: Solar eclipse, Acoustic–Gravity waves, critical frequency, TEC, Digisonde vertical sounding, Digisonde Drift Measurement, Continuous Doppler Sounding

*Corresponding author
Email address: zbn@ufa.cas.cz (Zbyšek Mošna)
URL: www.ufa.cas.cz/profile/mosna-zbysek (Zbyšek Mošna)