



Effects of solar eclipse on the ionosphere observed by the Doppler sounding

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The Doppler sounding of the ionosphere is based on measurements of the frequency shift between the transmitted and received radio wave of a stable known frequency. The frequency shift is related to changes of the phase path of the radio wave and can be influenced by the vertical motion of the reflecting layer due to gravity waves, by compression and rarefaction of gas at a fixed height owing to infrasound waves or by changes of electron density due to changes of ionization rate e.g. during the solar eclipse or solar flares.

We studied effects of total solar eclipses on 20 March 2015 in the Czech Republic and on 9 March 2016 on Taiwan. In both events, the Doppler sounding was located in the area of partial eclipse. Distinct disturbance was observed around the time of the maximum eclipse. We assume that it is related to processes at the site of measurements rather than to waves propagating from the region of total eclipse.