



Studying thunderstorm-ionosphere relationships by ionograms recorded at Pruhonice in two summer campaigns of 2013

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The thunderstorms in the lower atmosphere can affect the ionosphere through the electrical and electromagnetic phenomena (red sprites, blue jets etc.) and upward propagating waves in the neutral atmosphere, like Atmospheric Gravity Waves (AGWs) and Infrasound waves. To study the troposphere-ionosphere coupling mechanisms ionograms obtained from the Digisonde DPS4D at Pruhonice, which is operated by the Institute of Atmospheric Physics AS CR, have been studied in those time intervals when a thunderstorm passed through the Czech Republic. Measurements related to thunderstorms were carried out during two campaigns in summer of 2013 on 29th of May (09:50 - 15:25) and on 20th of June (18:00 - 24:00). During the campaigns ionograms were recorded every minute. LINET lightning data and METEOSAT-9 infrared maps were used in this work to identify the thunderstorms. The thunderstorm – ionosphere coupling was studied in the same time intervals using a five-point continuous Doppler sounding system operating at 3.59 MHz, developed at the Institute of Atmospheric Physics AS CR. Furthermore several sprite events were observed from Sopron, Hungary during the night of June 20 above that thunderstorm which passed through the Pruhonice region. The analysis of data obtained from the collocated different instruments means a good possibility to disclose further thunderstorm-ionosphere coupling mechanisms.