

PEM021-28

Room: Function Room A

Time: May 25 09:45-10:00

## A study of ionospheric disturbances associated with magnetic storms using an ionosphere-atmosphere coupled model

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The ionosphere is affected by solar EUV and X-rays, energy influx from the solar wind and the magnetosphere, and atmospheric waves from the lower atmosphere. During magnetic storms, ionospheric disturbances are generated by electromagnetic energy and particle precipitation from the magnetosphere. Even if the same magnetospheric input is given to the ionosphere, the response of the ionosphere changes depending on ionospheric and thermospheric conditions. In the mid-latitude region, thermospheric winds generated in the polar region might interact with atmospheric waves propagated from the lower atmosphere. Penetration electric fields from the polar region and dynamo electric fields generated by thermospheric winds might overlap. In order to quantitatively study the effects of the magnetosphere and the lower atmosphere on the ionosphere, we have developed an ionosphere-atmosphere coupled model, which includes the whole atmosphere and ionospheric dynamo processes. We will present the results of the simulation using the model.

Keywords: ionosphere, atmosphere, magnetic storm, disturbances, coupling, simulation