

AEM011-06

Room: Function Room A

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Day-to-day variations of the thermosphere/ionosphere simulated by an atmosphere-ionosphere coupled model

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Recent observational and modeling studies have revealed that the energy input from the lower atmosphere and the magnetosphere produces significant spatial and temporal variations in the thermosphere/ionosphere. In order to investigate the physical mechanism of these variations, we developed an atmosphere-ionosphere coupled model, in which a whole atmosphere general circulation model, an ionosphere model and an electrodynamics model are integrated. By using the coupled model, we can investigate effect of the energy input from the lower atmosphere and the magnetosphere on the variations of the upper atmosphere quantitatively. In this paper, by using this atmosphere-ionosphere coupled mode, we investigate effects of upward propagating atmospheric waves on temporal and spatial variations in the thermosphere and ionosphere. In particular, we focus our attention on behavior of tides and planetary waves and their impacts on the variability in the thermosphere and ionosphere.

Keywords: thermosphere, numerical simulation, atmospheric wave, atmospheric coupling process above and below