Ionosphere-Thermosphere interaction in the polar region- from the view of weak-ionozed plasma -

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Earth’s atmosphere above 80 km is ionized by solar ultraviolet but the rate is very small (called ’ionosphere’). The same region is called ’Thermoshere’ from the temperature structure, which is used to enphasize the neutral atmosphere in many times. Although the ionosphere and thermosphere are same region, the interaction between them has been very important topics. In this presentation I introduce two examples of ionosphere-thermosphere interaction especially in the polar region.

(1) dragged neutral: Plasma in the ionosphere are controled by the condition of the magnetosphere and usually independent of the motion of neutral winds. However, when the magnetospheric convection is stable and the ionospheric plasma continue to flow same direction, small number of plasma drag dominant neutral.

(2) atmospheric heating with aurora: Aurora is made with electric current between magnetosphere and ionosphere. This current heats neutral atmosphere with Joule and particle heating and cause polar winds.

I will show some observed examples of these phenomena obtained with Fabry-Perot Interferometers.