



## **On the formation of afternoon troughs of ionization in the F-region in the East sector**

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Abrupt decreases of ionization in the F2-layer maximum (falls of  $f_0F_2$  diurnal variation) in afternoon hours have long been observed and associated with a motion of the main ionospheric trough to the equator during geomagnetic storms. A sudden increase of electron density followed by its fall is at times observed in afternoon and evening hours. This phenomenon, well-known as the “dusk” effect, appears during great storms which commence in early evening hours LT at stations located at subauroral and middle latitudes. In East sector, falls of  $f_0F_2$  diurnal variation are more often observed. An explanation for abrupt decreases of critical frequencies of F2 layer in afternoon and evening hours can be the effect of plasma fast convection in a westward direction caused by intense electric fields. The results of the simultaneous satellite and ground measurements of the effects of fast subauroral ion drifts show that the development of a narrow band of a westward drift with high velocities causes the intensive depletion of electron density in the F2 layer for 15–20 min. This is consistent with the fast formation or deepening of the trough in the background ionization. The purpose of this paper is to investigate peculiarities of this phenomenon in the East-Asian region. Ionospheric storms with different intensities are examined based on the data of the meridional chain of ionospheric stations located in the region of East Siberia and China. It has been determined that afternoon troughs can be observed either during the growth and main phases of great and moderate storms if their commencements fall on evening hours or during the recovery phase if they begin some other time. They are mainly observed in the period between equinox and summer. Some preliminary model calculations of electron density variations during observations of afternoon troughs are carried out, and the contribution of different processes to their formation is estimated.