The plasma density structure of the equatorial ionosphere observed by PPS on-board the EXOS-C satellite

Jyunpei Uemoto[1], Takayuki Ono[2]

[1] astoro&Geophys Sci, Tohoku Univ, [2] Department of Astronomy and Geophysics, Tohoku Univ.

http://stpp1.geophys.tohoku.ac.jp/

For the purpose of identification of the F3 region that have been predicted by Balan and Bailey (1995),topside ionograms obtained on-board the EXOS-C satellite are analyzed. F3 ionosphere was predicted based on the model analysis of the formation of ionosphere applying effects of electric fields near the equator as well as the neutral wind system of thermosphere. Formation of F3 region was verified based on the analysis of ground based ionosonde observation data (Balan et al., 1997: Jenkins et al., 1995). Raghavarao and Sivaraman (1974) reported the 'Ionization ledge'based on the data analysis of ISIS satellite topside ionograms, however, some major characters of the F3 ionosphere such as seasonal dependence and temporal evolution of the F3 layer has not been clarified yet. The EXOS-C satellite launched on 1984 was operational until 1988 installing the planetary plasma sounder (PPS) to observe the ionosphere structure. The present study is to prepare data analysis tool to achieving and analyzing the EXOS-C sounder observations and to analyze the ionograms to study on the structure and dynamics of equatorial ionosphere, especially focused on the F3 ionosphere. The results of the initial analysis reveal several candidate signatures of the F3 structure near the geomagnetic equator regions.