

An empirical model of electron density in low latitude at 600 km obtained by Hinotori satellite

Y. Kakinami (1), S. Watanabe (1) and K. -I. Oyama (2)

(1) Department of Earth and Planetary Sciences, Graduate School of Science, Hokkaido University, (2) Institute of Space and Astronautical Sciences, Japanese Aerospace Exploration Agency

We constructed an empirical model of electron density based on Hinotori satellite observation (February 1981 - June 1982) to understand characteristic structures in equatorial F layer. The Hinotori satellite data were separated for solar activity ($F10.7 > 200$ and $F10.7 < 200$) and longitude ($0 < \text{long.} < 120$, $120 < \text{long.} < 240$, $240 < \text{long.} < 360$). Each data set was analyzed for seasons of equinox, northern summer and northern winter. The data sets are modeled as functions of season, magnetic latitude, longitude and F10.7. The range of magnetic latitude is from -25 to 25 degree with the latitude resolution of 5 degrees and local time is from 0 to 24 hour with the time resolution of 30 minutes. Spline interpolation and linear interpolation from nearest point were applied to obtained the model of electron density. We have compared the empirical model from Hinotori satellite observations with International Reference Ionosphere (IRI).