

NPL Model for Point-to-Point Link and Area Predictions for HF Communication Applications

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Short wave radio communication at HF frequencies [3-30 MHz], which are still extensively being used by the military and other services for overseas broadcasting. Many point-to-point links remains to be a major mode of long distance communication in tropical region because of a number of natural advantages that tropical latitudes provide. One of the major responsibilities of NPL is to provide ionospheric predictions for long term planning of HF Communications and also warnings through our Regional Warning Center (RWC-India) on possible disruptions caused by a variety of space weather disturbances. Based on 20-30 years of Ionosonde Data collected from 15 stations in Indian as well as neighboring countries, RWC NPL has developed HF prediction models for Point-to-Point Link Predictions and Area Prediction for HF Communication Applications. Both models are based on second degree correlation of monthly median values of ionospheric parameters with Sunspot Numbers (R12) and gives output in both tabular as well as in graphical form, listing Local Time v/s foF2, hmF2, MUF(4000)F2 . These models are well tested with actual observations, and are capable of working on any computer system having window based platform. The minimal parameters required onscreen are the month and year only.