



Spatial correlation of foF2 and TEC under quiet and disturbed ionospheric conditions

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This paper presents results of a study designed to improve the accuracy and value of a short-term ionospheric forecasting service. The measurements from the latitudinal and longitudinal chains of ionospheric stations and GPS receivers over Europe are used to simultaneously observe the daily ionospheric variability during the most part of the 23 solar cycles. The suggestions are made on the basis of detailed studies concerning: the spatial correlation of the F2-region vertical incidence critical frequency, foF2 and the GPS-derived total electron content, TEC under quiet and disturbed conditions; new sources of additional solar-geophysical data; and automatic real-time forecasting methods. The predicted trends and relevant applications are discussed in relation to recommended ways in which the ionospheric forecasting service can be improved if this most difficult aspect of HF as well as transionospheric frequency management is to be progressed.