



Hybrid model for long-term prediction of the ionospheric global TEC

Borislav Andonov, Plamen Mukhtarov, and Dora Pancheva

National Institute of Geophysics, Geodesy and Geography, Physics of Ionosphere, Sofia, Bulgaria
(bandonov@geophys.bas.bg)

A new hybrid model for long-term prediction of the global TEC was developed. It is based on the global empirical background TEC model constructed by Mukhtarov et al. (2013a,b) and the availability of regularly arriving fresh CODE TEC data. The cornerstone of the hybrid model consists of applying the method of autocorrelation prediction of the error and the respective correction of the background model with the predicted error. An important question is how the efficiency of the correction procedure depends on the given offset, i.e. the time distance between the dates for which the prediction is made to that with real data. It was found that the correction is really effective if the error prediction is made for a date with a distance up to 60 days from the date with real data. Then the RMSE decreases from 3.2 TECU (for the global background TEC model) to 2.76 TECU (for the hybrid model) which demonstrates the advantage of the presented in this paper hybrid model for long-term prediction with respect to the originally built background TEC model.

REFERENCES

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