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Neural Network Based M(3000)F2 Global Model: An Option for the M(3000)F2 module within the IRI Global Model

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Abstract content
   (Max 300 words)

We present a new updated version of M(3000)F2 global model. M(3000)F2 represent the propagation factor of the F2 region of the ionosphere. It is the highest frequency at which a radio wave can be received over a distance of 3000 km after reflection in the ionosphere. It is closely related to the peak height of F2 region (hmF2) of the ionosphere.
This new version was developed using artificial neural network technique. It is an update to the existing International Reference Ionosphere (IRI) model which has been found to be inadequate in representing the diurnal variation of the equatorial ionosphere. In particular, the existing M(3000)F2-based hmF2 model is unable to reproduce the sharp post-sunset drop of M(3000)F2 parameter, which correspond to a sharp post-sunset peak in hmF2.
Data from 135 ionospheric stations worldwide, including a good number of equatorial stations were used in this model. The ability of this new model to predict M(3000)F2 parameter especially in the equatorial region, which is known to be problematic for the existing IRI model is demonstrated in this work. The improvement in the prediction of M(3000)F2 parameter by this new version as compared to the IRI model is demonstrated in this paper.

Keywords: Ionosphere, M(3000)F2, Neural Networks

Apply to be
 consider for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD)?

MSc

Main supervisor (name and email)
and his / her institution

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Would you like to <br> submit a short paper <br> for the Conference
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Yes

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