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# The Empirical Canadian High Arctic Ionospheric Model (E-CHAIM): NmF2 and hmF2 specification

*Monday 13 June 2016 13:45 (15 minutes)*

It is well known that the IRI suffers reduced accuracy in its representation of monthly median ionospheric variability at high latitudes (Themens et al. 2014, Themens et al. 2016). These inaccuracies are believed to stem from a historical lack of data from these regions. Now, roughly thirty and forty years after the development of the original URSI and CCIR foF2 maps, respectively, there exists a much larger dataset of high latitude observations of ionospheric electron density. These new measurements come in the form of new ionosonde deployments, such as those of the Canadian High Arctic Ionospheric Network, the CHAMP, GRACE, and COSMIC radio occultation missions, and the construction of the Poker Flat, Resolute, and EISCAT Incoherent Scatter Radars systems. These new datasets afford an opportunity to revise the IRI's representation of the high latitude ionosphere. For this purpose, we here introduce the Empirical Canadian High Arctic Ionospheric Model (E-CHAIM), which will incorporate all of the above datasets, as well as the older observation records, into a new climatological representation of the high latitude ionosphere. In this presentation, we introduce the NmF2 and hmF2 portions of the model and present a validation of the new model with respect to ionosonde observations in Alert, Canada. A comparison with respect to IRI performance will also be presented.

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