Recent developments to the Electron Density Assimilative Model (EDAM) and the impact of EDAM on ionospheric radio systems

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Abstract

The Electron Density Assimilative Model (EDAM) has been developed to exploit a diverse range of data sources such as ground and space based TEC measurements, ionograms, and in-situ electron densities. EDAM is a compromise solution for ionospheric imaging that, in terms of complexity, lies between physical model assimilation systems and more data driven solutions. As such, it uses a median model for its background, and uses Gauss-Markov Kalman Filter assimilation. This paper will discuss the techniques used within EDAM; the impact of the choice of background model and variable; and the exploitation of EDAM within radio systems.