

# **A new electron density model for assisting remote sensing of Earth system observations**

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**Keywords** *GNSS, ionosphere model, ionospheric propagation delay*

## **Abstract**

A three-dimensional electron density model named Neustrelitz Electron Density Model (NEDM2020) has been developed at the German Aerospace Center (DLR) for supporting space weather services as well as assisting remote sensing of Earth system observations. The model itself is basically developed on long term data collections including radio occultation and topside navigation data from numerous ground and space based GNSS sensors. The model provides electron concentration at any given location and time in the ionosphere and can be used to mitigate/correct ionospheric propagation delays experienced by trans-ionospheric direct or reflected signals. The talk will address the performance analysis of NEDM2020 against electron density in-situ data from DMSP and Swarm, Van Allen Probes and ICON missions, and topside TEC data from COSMIC/FORMOSAT-3 mission, bottom side TEC data from TOPEX/Poseidon mission and ground-based TEC data from International GNSS Service (IGS) covering both high and low solar activity conditions.