

EGU22-11426

<https://doi.org/10.5194/egusphere-egu22-11426>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Plasma transport across high latitudes

Dimitry Pokhotelov, Isabel Fernandez-Gomez, and Claudia Borries

German Aerospace Center (DLR), Institute for Solar-Terrestrial Physics, Neustrelitz, Germany (dimitry.pokhotelov@dlr.de)

Plasma anomalies appear at high latitudes, extending across the polar cap as a tongue of ionisation and/or polar patches. Physical mechanisms responsible for plasma uplifts and transport are investigated using global ionospheric circulation models driven by parameterised high-latitude plasma convection models. Various convection models will be considered, including the models based on satellite data, SuperDARN radar data, and data assimilation models. Relative contributions from electrodynamic plasma transport and neutral wind forcing are assessed. The simulations are compared with GNSS and radar observations. The results are discussed in the context of space weather modelling and scintillation environment modelling at high latitudes.