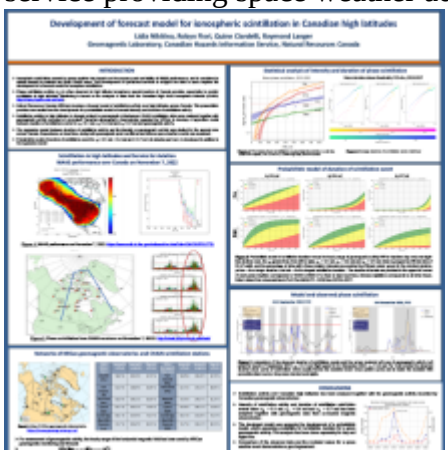
Lidia
Nikitina
Natural Resources Canada
Robyn Fiori, Natural Resources Canada
Quinn Ciardelli, Natural Resources Canada
Raymond Langer, Natural Resources Canada
Poster
Small-scale disturbances in the ionosphere related to space weather activity cause phase and amplitude scintillation of a radio-frequency signal and can lead to degrading of accuracy and availability of GNSS service. Natural Resources Canada (NRCan) is developing an operational service for aviation to provide monitoring and forecast of scintillation activity in the auroral zone for safe operation of aviation including trans-arctic flights. Phase scintillation activity is often observed in high latitude ionosphere, and this work presents an analysis of scintillation activity at high latitudes across Canada together with local geomagnetic activity. Analysis of scintillation activity is based on 15 years of data, 2008-2022, from the Canadian High Arctic Ionosphere Network (CHAIN) http://chain.physics.unb.ca/chain/. This was combined with geomagnetic data recorded by NRCan https://www.spaceweather.gc.ca/data-donnee/geomag/mp-en.php?type=magnetic. A comparison of these datasets demonstrates that the ionospheric scintillations are strongly related to local geomagnetic activity. Regression models were established between ionospheric scintillation and geomagnetic activity, separately for scintillation intensity and duration. To include the daily and seasonal variability of scintillation activity, the solar zenith angle has been added to the regression model. Analysis of this regression model, its stability and statistical significance will be used for further development of NRCan operational ionosphere scintillation service providing space weather advisories.

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