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Poster
Space weather has a direct impact on the Arctic ionosphere, producing plasma structure and variability that can degrade the performance of Global Navigation Satellite System (GNSS), radio, and radar systems operating in the region. The Radio and Space Physics Laboratory (RSPL) at the University of New Brunswick (UNB) is dedicated to ionospheric observations, operational model development, and instrument development to better understand the physical mechanisms driving ionospheric variability and to support critical technological systems in the Arctic.
RSPL operates the Canadian High Arctic Ionospheric Network (CHAIN), a ground-based infrastructure spanning polar, auroral, and subauroral regions. By monitoring ionospheric dynamics with 31 GNSS receivers and 10 high-frequency (HF) sounders, CHAIN enables a fundamental understanding of how space weather processes drive ionospheric structuring.
As part of ongoing CHAIN modernization, RSPL has also developed sanimut, a versatile HF measurement platform for both vertical and oblique ionospheric sounding. Fully remotely configurable with respect to pulse shape, transmit and receive frequency, and transmission schedule, sanimut serves as a primary observational framework that can coordinate multi-instrument studies with other ground- and space-based radio systems.
Based on CHAIN and other observations, RSPL develops and maintains operational models to support ionospheric research and HF and GNSS operations in the Arctic. These include the Canadian High Arctic Ionosphere Model (CHAIM) suite for baseline ionosphere specification, the Canadian High Arctic Scintillation Model (CHASM), and the Canadian Arctic Mesoscale Plasma Irregularity Model (CAMPI).
This presentation will highlight recent RSPL advances in Arctic ionosphere observation, sounding capabilities, and operational modeling for characterizing and forecasting multiscale ionospheric variability.
Poster session day
Thursday, April 30, 2026
Poster location
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Meeting homepage
2026 Space Weather Workshop
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