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Poster
Space Weather Ionospheric Network Canada (SWINCan) is a pan-Canadian remote sensing network that will provide continuous, real-time ionospheric monitoring spanning polar, auroral, and sub-auroral regions. SWINCan is an expansion and modernization of the Canadian High Arctic Ionospheric Network (CHAIN), operated by the Radio and Space Physics Laboratory (RSPL) at the University of New Brunswick (UNB) and currently one of the world's largest ionospheric observation networks. New deployments include 100 state-of-the-art global navigation satellite system (GNSS) receivers (100 Hz scintillation monitors) and 10 specialized modular ionospheric sounder (MODIS) systems, adding to the 39 GNSS and 9 ionosonde systems currently installed as part of CHAIN. MODIS systems developed by RSPL are next generation, high-frequency (HF) sounders, which take advantage of the latest developments in software defined radio and signal processing technology. SWINCan capitalizes on Canada's geographic expanse and proximity to the northern magnetic pole, which provides a unique natural laboratory for the fundamental study of solar-terrestrial interactions. This network will observe the multi-scale structure and dynamics of the high-latitude ionosphere with unprecedented detail, providing essential measurements to resolve the internal and geospace coupling processes that drive this complex behaviour. SWINCan will also provide essential input for enhancing 3D modeling capabilities of ionospheric plasma density, and for mitigating the effects of space weather on modern technological systems such as position, navigation, and timing (PNT), radio communication, and over-the-horizon-radar, services critical to social, military, science, and major economic sectors.

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