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RISR-C incoherent scatter radar operations

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The Canadian face of the Resolute Bay Incoherent Scatter Radar (RISR-C) saw first light in August of 2015. To date, several different experiments measuring the polar ionosphere have been performed with RISR-C. These experiments are often complemented with data from the co-located northward facing RISR-N radar operated by SRI International. Like other Advanced Modular Incoherent Scatter (AMISR) radars, RISR-C (and RISR-N) use electronic beam steering to sample multiple look directions effectively simultaneously. Measurements of electron density, electron temperature, ion temperature, and line-of-sight velocity are made at various ranges along each of these beams in (typically) 1-minute intervals. Manipulation of the data from multiple beams and ranges allows a reasonable 3-D estimate of ionospheric parameters to be made within the field-of-view of the radar. Initial analysis of data taken by RISR-C shows that the radar is operating well and providing high quality ionospheric measurements. Further, the interesting first results from the radar demonstrate the potential for collaborations with existing ground- and space-based polar instruments.

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