Note: 4-page summary is not required.

Polar Cap Electric Field Observations from the Resolute Bay Incoherent Scatter Radar

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The new incoherent scatter radar in Resolute Bay (RISR) is providing first-time observations of fine-scale spatiotemporal electric potential structure in the polar cap ionosphere. The sub-minute resolution ionospheric convection response can be intimately tied to solar wind magnetic pulses measured by the ACE and WIND spacecraft. Furthermore, we present estimates of electric potential maps (~ 400x400 km) constructed using simultaneous multi-beam position line-of-sight velocity measurements and new inversion techniques. The electric field divergence averaged over the mapped regions shows diurnal variation consistent with a two-cell convection pattern.