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POS-15 - Spatial correlation of auroral zone geomagnetic variations

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Magnetic field perturbations in the auroral zone are produced by a combination of distant ionospheric and local ground induced currents. Spatial and temporal structure of these currents is scientifically interesting and can also have a significant influence on critical infrastructure.
Ground-based magnetometer networks are an essential tool for studying these phenomena, with the existing complement of instruments in Canada providing extended local time coverage. In this study we examine the spatial correlation between magnetic field observations over a range of scale lengths. Principal component and canonical correlation analysis are used to quantify relationships between multiple sites. Results could be used to optimize network configurations, validate computational models, and improve methods for empirical interpolation.

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