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Ionospheric Absorption Modelling: A Sensitivity Study on Input Variables

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Energetic particle precipitation (EPP) increases ionization in the D-region ionosphere, elevating cosmic radio signal absorption. This impact is monitored by a Canadian network of wide-beam passive radio receivers, or riometers. Ionospheric absorption expected during a specific EPP event, as recorded by a Polar Orbiting Environmental Satellite (POES), is modelled and compared with measurements from a riometer in Gillam (56° N, 95° W). This study explores the impact of D-region chemical models and precipitation spectra on the accuracy of modelled ionospheric absorption. Different ionospheric chemistry models are applied to determine which best matches the observed absorption with the variations in precipitation spectra.

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