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## Detecting Solar Modes in the D-Region using a **Relative Ionospheric Opacity Meter (Riometer)**

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Solar modes are normal modes whose origin lies in the solar interior or the solar surface. Recent findings in the fields of geophysics and space weather have demonstrated that the power spectra of time-series outputs in ground-based detection systems exhibit structure which is characteristic of solar modes. In a physical model which describes the induction of solar-mode disturbances at ground level, it is necessary to identify mode generation and mode transport mechanisms in the ionosphere.

Relative ionospheric opacity meters (riometers) use the intensity of cosmic radio signals to determine the level of radio-wave attenuation in the D-region. In this presentation, the results of an exploratory spectrum analysis will be reviewed, where it is revealed that solar modes likely constitute a significant fraction of the drivers of perturbations in the D-region radio-frequency opacity. The analyzed dataset was a one-second voltage series from the riometer at the Geomagnetic Laboratory in Ottawa. Voltages in this series were recorded over the duration of 2011. The analysis involved implementation of a mode-detection test, whose test statistic is a transfer-function. An interesting problem was the identification of transfer functions which smear the spectral peaks of interest.

Author: Mr MARSHALL, François

Presenter: Mr MARSHALL, François

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