



## **Preliminary prediction model for the ROTI index at high latitude**

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The variation of electron density can be described by the ROTI index (i.e. the Rate of change of Total electron content Index). This index is indicative of the electron density gradients which can be responsible of loss of satellite communications or loss of lock of GNSS system..

At high latitude, the ionosphere is connected to the magnetosphere through the magnetic field lines. When the magnetic activity increases, particles from the magnetosphere are injected in the ionosphere along the magnetic field lines. They disturb the ionospheric layer and are responsible of changes in the ROTI index. In this paper, we will use the NOAA POES satellites data to study the link between the ROTI index value and the particles flux in the inner magnetosphere. Then we will use the results to develop a preliminary ROTI model.