



## **Comparison Study between Cosmic Noise Absorption and Flux of Precipitating Energetic Electrons**

**I. Nyland** (1), J. Stadsnes (1), F. Søråas (1), M. I. Sandanger (1), F. Honary (2), D. S. Evans (3)

(1) University of Bergen, Bergen, Norway, (2) University of Lancaster, Lancaster, U.K., (3) NOAA Space Environment Center, Boulder, Colorado, USA

Cosmic radio noise experience absorption in the lower regions of the Earth's ionosphere. Due to its dependence on charge density, the absorption is strongly influenced by the flux of precipitating energetic ( $> 10$  keV) electrons which ionize the lower ionospheric regions. From measurements of the flux of precipitating electrons, it is thus possible to estimate the cosmic noise absorption (CNA). These estimated values can further be compared to the actual riometer measurements.

In this study, measurements of the CNA are provided by the Kilpisjärvi IRIS imaging riometer in Northern Finland (geographical coordinates:  $69^{\circ}05'$  N,  $20^{\circ}79'$  E). Particle flux measurements are obtained from the polar orbiting NOAA TIROS/POES satellites.

We select the electron fluxes measured by a NOAA satellite as it passes over the riometer site in Kilpisjärvi. We then use a model to calculate the electron density in the ionosphere and the resulting CNA. Finally, we select the absorption from the riometer beams closest to the satellite footprint and compare the estimated and measured absorption values. On average, each NOAA satellite passes over the Kilipisjärvi IRIS imaging riometer once each day. This study includes 8 years of simultaneous satellite and riometer observations. As the NOAA satellites orbit on different local time meridians, using several satellites gives us an opportunity to carry out a comparison analysis between estimated and measured CNA when the riometer is situated in various magnetic local time sectors. Some first results from this study will be presented.