

## **Polarization Measurements of Natural Low-Frequency Radio Emissions Observed by ePOP- RRI**

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In this work we present the polarization characteristics of natural emissions observed by the Radio Receiver Instrument (RRI) on the Enhanced Polar Outflow Probe (ePOP), which is on the CASSIOPE spacecraft. RRI consists of crossed orthogonal dipole antennas which may operate as a polarimeter, and this was the configuration of RRI for all the natural emission observations presented here.

The natural emissions observed were the lightning-generated whistlers, including ducted, non-ducted and nose whistlers, chorus waves, hiss and lower hybrid waves. In addition we also observed quasi-periodic emissions.

Polarization information of these natural emissions provides additional characteristics about the properties of the medium from the magnetospheric exit point to the RRI receiver which orbits the ionosphere.

Using polarization information, we were able to estimate the location of the plasma-pause using knee whistlers and plasmaspheric ion composition using lower hybrid waves. We will also be commenting on the concurrent occurrence of the lower hybrid waves and lightning generated whistlers.