# Overview of Data Recorded To-Date by the e-POP Radio Receiver Instrument (RRI)

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Launched in September 2013 into a 325 km by 1500 km elliptical earth orbit inclined at 81°, the Canadian small satellite CASSIOPE carrying the e-POP scientific payload is now about halfway through its estimated orbital life. The ePOP Science Team is contemplating how the remainder of mission resources should be allocated. In the case of the RRI, ePOP scientists have benefitted from productive coincidence experiments with external facilities, and will remain open to such proposals from collaborators throughout the world for the rest of the mission.

The RRI has a 31-kHz bandwidth, and uses two 6-m distributed dipoles to detect spontaneous or artificial electromagnetic waves between 10 Hz and 18 MHz. Two In-phase and two Quadrature dipole voltage signals are each sampled at 62500 $s^{-1}$; most pass lengths are 2-3 min. CASSIOPE-ephemeris, RRI-summary and RRI-detailed-Lv1 data are available at epop-data.phys.ucalgary.ca. An application called eDEx is freely accessible for metadata searches.

At abstract submission time, the RRI had been recorded on about 820 ePOP passes. These include about 350 “VLF” passes band-centred at 15.6 kHz, largely at high latitude. Thanks to the sampling rate, auroral hiss is seen to exhibit time-space fluctuations down to 10 ms. Powerful signals from the US Navy’s VLF communications system are received near apogee at locations far distant from their transmitters. SuperDARN (SD) coherent backscatter HF radar signals have been seen on about 100 passes, mostly from the Saskatoon and Rankin Inlet transmitters. These are being analyzed for the purpose of understanding the importance of propagation effects in the conventional interpretation of SD backscatter. HF signal data have been gathered from various ionospheric heaters during more than 60 e-POP overflights and can be investigated for insight into the access of transmitted power to regions of ionospheric modification