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**First Results from the 2014 Coordinated Measurements Campaign**

Abstract:
The High Frequency Active Auroral Research Program (HAARP) facility was operated in conjunction with over-passes of the enhanced Polar Outflow Probe (ePOP) instruments on the Canadian CASSIOPE satellite. During these overpasses HAARP was operated in several different heating modes and regimes as diagnosed by the characteristics of Stimulated Electromagnetic Emissions (SEE) using ground-based receivers while simultaneously ePOP monitored in-situ HF and VLF signals, looked for ion and electron heating, and provided VHF and UHF signals for propagation effects studies.

The e-POP suite of instruments and particularly the ePOP Radio Receiver Instrument (RRI) offer a unique combination diagnostics appropriate for studying the non-linear plasma effects generated high-power HF waves in the ionosphere. In this presentation, the capabilities of ePOP and the initial results of several innovative experiments performed during two separate 2014 measurement campaigns at HAARP running from 16April to 29April and from 25May to 9June will be discussed.

Experiments covered a wide range of ionospheric effects. These include: Penetration of HF pump waves into the ionosphere via large and small scale irregularities, effect of gyro-harmonic heating and artificial ionization layers, effects of HAARP beam shape and O- and X-mode transmissions, coupling of Lower Hybrid modes into Whistler waves, D/E-region VLF generation in the ionosphere using VLF modulation of the HF pump and scattering of VHF and UHF signals and a 9.5 MHz probe wave through the region of the ionosphere modified by HAARP.

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