

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Radar
 Observation Category: Ionosphere
 Total Time Requested: 8 Hours
 Minimum Useful Time:

Proposal Title: ISR and Satellite Observation of Artificial Field Aligned Plasma Density Irregularities Generated by the Arecibo HF Heating Facility

ABSTRACT:

Artificial Field Aligned plasma density Irregularities (FAI) can play a significant role in ionospheric research. Ionospheric modification by radio wave heating is one source to create these FAIs. In summer 2017, a campaign using the HF heater at Arecibo Puerto Rico detected unexpected macro and micro structured electrostatic plasma waves using the Radio Receiver Instrument (RRI) on the Canadian enhance Polar Outflow Probe (ePOP) satellite. In order to better understand the processes and physics producing these artificial FAIs or electrostatic waves from this July 2017 Arecibo heater campaign, here we propose performing this experiment again, except this time optimizing the experiment to gather more information on these unexpected FAI observations. This not only includes using an optimal RRI observation mode, but also more instrumentation, such as the Arecibo Incoherent Scatter radar (ISR), allowing for a more rigorous analysis of these unique artificial FAI observations.

Name	Institution	E-mail	Phone	Student
Ashanthi S Maxworth	University of Saskatchewan, Canada	asm468@mail.usask.ca	13069662908	no

Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

Instrument Setup

430 G 430 Xmit

Atmospheric Observation Instruments:

Ionosonde

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned