

Technical Page

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Sub-Category: Radar
 Observation Category: Ionosphere
 Total Time Requested: 80 Hours
 Minimum Useful Time: N/A

Proposal Title: Ionospheric Plasma Effects Induced by NAU-launched Whistler Waves

ABSTRACT:

In the past three years Rezy Pradipta and Joel Cohen together with several other students have conducted experiments for their BS and/or MS thesis research to investigate effects of NAU-launched whistler waves on the ionosphere over Arecibo and the magnetosphere along the $L = 1.35$ magnetic flux tube. Based on their recent theoretical and numerical analyses, we propose experiments for them to further investigate some intriguing phenomena for Ph.D. research, including (1) micropulsations associated with the backscattering of whistler waves and the subsequent interactions with ionospheric plasmas, and (2) the quenching of spread F processes by enhanced E-region conductivity due to the launched whistler waves. Stringent background ionospheric plasma conditions are required for the success of the experiments, viz., the presence of spread F processes and sporadic E layers [please see attached proposal].

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Remote Observing Request

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

Instrument Setup

430 CH radar

Atmospheric Observation Instruments:

Ionosonde

Description of Observer Equipment: All Sky Imaging System (ASIS), VLF/LF receiving system.

Special Equipment or setup: None.

RFI Considerations

Frequency Ranges Planned

None