

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Observation Category: Middle-Lower Atmosphere
 Total Time Requested: 96 Hours
 Minimum Useful Time: 16 h

Proposal Title: In search of 150 km echoes at mid-latitudes

ABSTRACT:

This observation proposal aims to obtain, for the first time, high-resolution ion and plasma line data for the region between 95 and 200 km to search for 150 km echoes at mid-latitudes. The 150 km echoes or "necklace echoes" are usually observed with VHF radars at the magnetic equator. Extensive studies have been performed to understand their nature. Recent simulations (Oppenheim, M.M. and Y.S. Dimant, 2016) associate the echoes with Langmuir waves produced by photoelectrons. Ion line profiles with similar characteristics at the equatorial 150 km echoes are observed at Arecibo, featuring descending bands during the morning and occasionally ascending during the afternoon. Additionally, plasma line enhancements produced by Langmuir waves are frequently present at Arecibo. Using a wide spectrum plasma line data from a radar configuration of a high-power single-beam radar will enable the researchers to search for possible mid-latitude 150 km echoes and their characteristics.

Name	Institution	E-mail	Phone	Student
Eliana Nossa	Arecibo Observatorio	enossa@naic.edu	787.878.2612	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