

Technical Page

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Sub-Category: Radar
 Observation Category: Ionosphere
 Total Time Requested: 126 Hours
 Minimum Useful Time: 4 hrs

Proposal Title: Gyro line technique to infer night-time electron density and temperature and investigating effect of conjugate photoelectrons on IS spectra

ABSTRACT:

Observations made with the Arecibo Observatory 430 MHz radar in the past have revealed the presence of the gyro line in the incoherent scatter spectra very clearly. Our previous observations have shown that the gyro line is visible during the conditions of low electron density, mainly at dawn and at dusk. The theory of incoherent scatter predicts the shape and the frequency offset for the gyro line. We believe that the gyro line technique can be an accurate measure for the electron density at low values. Also, the sharpness of the gyro line is highly dependent on the electron temperature. We propose to make night-time electron density and temperature measurements by fitting the gyro line data to the theory. We propose to make these measurements in the summer to complement our winter-time measurements that gave rise to many unanswered questions.

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Remote Observing Request

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

Instrument Setup

430 G 430 CH radar

Atmospheric Observation Instruments:

Ionosonde

Special Equipment or setup: We would like to use the Digital Receiver System.

RFI Considerations

Frequency Ranges Planned