Proposal Identification No.: T2316 Date Received: 2007-Jan-30_12:47:36

Technical Page

Proposal Type:	Regular
General Category:	Terrestrial Aeronomy
Sub-Category:	Radar
Observation Category:	Thermosphere
Total Time Requested:	36 Hours
Minimum Useful Time:	

Proposal Title: Two-dimensional, high-resolution measurements of gravity waves in the Arecibo thermosphere

ABSTRACT:

Tracers of atmospheric gravity waves (AGWs) have been observed in the Arecibo thermosphere using a very sensitive measurement of electron density afforded by the incoherent scatter plasma line [Djuth et al., 1994, 1997, 2004]. The electron density fluctuations as a function of time and altitude give information on the properties of the AGWs that perturb the neutral atmosphere and indirectly the ionosphere through periodic plasma advection and compression. We propose here to expand on previous observations to obtain information on the horizontal wavelengths of the AGWs. The measurements proposed here will allow (a) estimates of AGW spatial scales, amplitudes, directions of propagation, and AGW transport and deposition of momentum, (b) testing of the predictions of the new viscous dispersion relation for AGWs in the thermosphere, and (c) an assessment of the AGW sources that are most influential on thermospheric circulation, structure, and variability.

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Remote Observing Request

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

Instrument Setup

430 G 430 CH receiver 430 CH radar

Atmospheric Observation Instruments:

Ionosonde

Special Equipment or setup: This is a dual-beam experiment.

RFI Considerations

Frequency Ranges Planned

420-440