Proposal Identification No.: T1787 Date Received: 2003-Feb-06_13:08:21

Technical Page

Proposal Type:	Regular
General Category:	Terrestrial Aeronomy
Sub-Category:	Radar
Observation Category:	Ionosphere
Total Time Requested:	35 Hours

Proposal Title: Ionospheric Effects on Coherent Integration in Satellite Tracking

ABSTRACT:

This proposal describes a radar experiment in which satellites with precisely known orbits will be illuminated and received by different UHF, L-band, and X-band radars, including the Arecibo UHF radar in Puerto Rico, the Millstone Hill UHF and L-band radars, and the Haystack X-band radar, all located in Westford, MA. The motivation for this experiment is to explore the effects of the ionosphere on coherent integration times at different frequencies. Longer coherent integration times are becoming more desirable due to the increasingly smaller sizes of satellites, and the possibility of a satellite break-up in geosynchronous orbit.

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Service Observing Request

- [X] None
- [ ] All of the observing run.
- [ ] Part of the observing run.
- [ ] Queue Observing

Remot e Observing Request

- [X] No
- [ ] Maybe
- [ ] Yes

Instrument Setup

430 G L-wide 430 CH radar S-low X-high

Atmospheric Observation Instruments:

Ionosonde

Description of Observer Equipment: Geodetic quality GPS receivers for TEC measurement s will be provided by Lincoln Laboratory. The goal would be install one or perhaps two closely space GPS receivers near the radar site. These receivers would sample GPS data at high rates (<1 sec).

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

We are interesting in receiving:

435-440 MHz
1295 MHz
10 GHz

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with AFTWF within the band 425-435 MHz.