

Technical Page

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Sub-Category: Radar
 Observation Category: Ionosphere
 Total Time Requested: 48 Hours

Proposal Title: Verification and Calibration of On-orbit Detection of Ionospheric Layers and Conductivity Using the GPS Occultation Method

ABSTRACT:

Verification and Calibration of On-orbit Detection of Ionospheric Layers and Conductivity Using the GPS Occultation Method One of the most exciting developments in Space Weather is the possibility to invert occultations of the signal from GPS satellites using receivers in satellites. Such measurements can in principle be used to generate thousands of plasma density profiles over the globe. These profiles could then be used in assimilative models of the ionosphere which are important for the development of the National Space Weather Program. In March 2006 the most ambitious occultation program to date will begin with the launch of the constellation COSMIC. However the inversion process is difficult and in need of verification. The Arecibo ISR is uniquely suited to make such a calibration and validation. Further from a scientific standpoint the development of Equatorial Spread F is controlled by the E-region conductivity. The only practical way to get information on this parameter is by GPS occultations. Finally the layers are of considerable scientific interest.

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Service Observing Request

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

Remote Observing Request

- No
- Maybe
- Yes

Instrument Setup

430 G 430 CH receiver 430 CH radar

Atmospheric Observation Instruments:

Fabry-Perot Ionosonde Lidar

Special Equipment or setup: There is no place to request dual beam operations which we need. The AO airglow camera is not listed but we would like to use it. For the adjacent World Days we desire plasmaline observations during the day.

RFI Considerations

Frequency Ranges Planned

420-440 MHz