This proposal has not been submitted before.

Proposal Type: Regular
General Category: Terrestrial Aeronomy
Sub-Category: Radar
Observation Category: Exosphere
Total Time Requested: 28 Hours
Minimum Useful Time: 7

Proposal Title: CONJUGATE IMPACTS OF THE 2019 SOUTHERN TOTAL SOLAR ECLIPSES OVER THE ARECIBO OBSERVATORY

ABSTRACT:

In the following years, South America will experience two Total Solar Eclipses on Jul 02nd, 2019 and Dec 14th, 2020. The totality path will cross Chile and Argentina both times, and will provide the first opportunities for investigating the ionospheric effects induced around the Arecibo Geomagnetic Conjugate Point (AGCP) having the AO ISR on the other end of the magnetic field line. We propose to remotely sense the conjugate changes in the ionospheric F-region and topside ionic and electronic temperatures, densities and velocities on the 2019 eclipse day over Arecibo, taking +- 3 days behavior as a base for comparison. In order to track fast electrons flows in altitudes as high as possible during the eclipse, our goal is to obtain ion line and plasma lines. Moreover, since the totality of the 2019 eclipse will happen towards the Sunset in the AGCP, we also would like to make use of the AO passive and active instruments.

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
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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 Xmit

Atmospheric Observation Instruments:

Tilt-Photometer Spectrophotometer Fabry-Perot Ionosonde Lidar
Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned