

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Observation Category: Thermosphere
 Total Time Requested: 120 Hours
 Minimum Useful Time: 24

Proposal Title: Coordinated aeronomic observations of 2017 solar eclipse induced ionospheric and thermospheric changes at tropical latitudes

ABSTRACT:

We propose an ionospheric experiment to measure the 21 August 2017 solar eclipse effects on the upper atmosphere using the Arecibo incoherent scatter radar. The main scientific goals are to understand dynamical and photochemical changes in the upper atmosphere caused by the solar eclipse. In particular, observations will examine eclipse triggering of traveling ionospheric disturbances (TIDs) and atmospheric gravity waves (AGWs), full ionospheric profile variations in altitude and time, and eclipse impacts on superthermal photoelectrons using the plasma-line technique. We propose a 5-day continuous experiment spanning 19-23 August, 2017 and centered on the eclipse day, August 21, 2017. Use of continuous swinging beam mode observations is highly desirable in order to determine thermospheric neutral wind. This experiment will support a wide-field, multi-instrument observational research project for this event led by MIT Haystack Observatory under separate NASA Heliophysics support.

Name	Institution	E-mail	Phone	Student
Philip J Erickson	MIT Haystack Observatory	pje@haystack.mit.edu	781-981-5769	no

Remote Observing Request

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

Instrument Setup

430 Xmit

Atmospheric Observation Instruments:

Fabry-Perot Ionosonde

Special Equipment or setup: Both the FPI and ionosonde are highly desired for the run if available.

RFI Considerations

Frequency Ranges Planned