

Technical Page

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Sub-Category: Radar
 Observation Category: Meteors
 Total Time Requested: 40 Hours
 Minimum Useful Time: 6 hours

Proposal Title: Simultaneous common volume VHF/UHF radar, camera and lidar observations at Arecibo

ABSTRACT:

Recently there has been much interest, and also controversy, concerning the form that meteoroid mass flux arrives in the upper atmosphere. In particular, there have been contradictory claims on the roles of simple ablation, differential ablation, and fragmentation in the meteoroid mass flux observed by the Arecibo radar. However, meteoroid fragmentation is a well-understood and widely accepted phenomenon when it comes to meteors observed by camera and hence we propose common volume VHF/UHF radar, camera and lidar observations in attempt to settle this debate. We request two clear moderate-moon nights of testing, as these are the first observations of this nature, followed by two nights of observations on new moon nights''scheduling emphasis should be after midnight hours as the meteor rate is higher then. These results would provide valuable insights into determining the form''atomic or nanometer smoke''that meteoroid mass flux arrives in the upper atmosphere and would thus also be vital in understanding the aeronomy of the region.

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Remote Observing Request

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

Instrument Setup

47 CH receiver 47 radar 430 CH receiver 430 CH radar

Atmospheric Observation Instruments:

Lidar

Description of Observer Equipment: Stanford Watec 902H3U camera

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned