

## Technical Page

Proposal Type: Urgent  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Meteors  
 Total Time Requested: 24 Hours  
 Minimum Useful Time: 1 minute

**Proposal Title:** Common-volume optical and radar observations of low mass meteors

**ABSTRACT:**

We aim to bring two narrow field of view imagers (15 degree and 6 degree) in order to image optical meteors along side the radar. These EMCCD imagers are ideal for capturing low-light levels. We will be imaging at 40 frames per second in order to catch the rapid motion of meteors through the radar beam field of view, detemining direction and horizontal speed. We have conducted common-volume observations alongside high latitude (PFISR) and low latitude (Jicamarca) ISRs and the connection between radar scattering cross section and optical brightness does not appear to be as striaghtforward as we originally believed. Adding observations with the mid-latitude (Aricebo) radar will be a key piece of this puzzle. In addition the high power of Aricebo will allow us to observe the smallest mass meteors, extending our observational comparison to smaller masses, with hopes of finding the limiting mass, where optical emissions become detectable.

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### Remote Observing Request

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

### Instrument Setup

430 G                      430 CH receiver    430 CH radar

### Atmospheric Observation Instruments:

**Description of Observer Equipment:** We will bring 2 imagers for the campaign, provided there is an

empty dome that they can be mounted in. Only needs a small dome as the FOV is fairly narrow.

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**