

## Technical Page

Proposal Type: Regular  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Thermosphere  
 Total Time Requested: 64 Hours  
 Minimum Useful Time: 4 hours, postsunset

**Proposal Title:** Common-volume radar observations of sporadic E layers and F region irregularities from Arecibo, Dominica, and St. Croix

*ABSTRACT:*

This is a proposal for an investigation into irregular sporadic E layers and QP echoes in the Caribbean using our coherent scatter radar imager on St. Croix in conjunction with the Arecibo ISR, imager, ionosonde, and lidars. We will focus on aspects of the problem involving neutral dynamic instability in the MLT region and atmospheric-ionospheric coupling leading to plasma irregularities and instability. In addition, we will broaden the investigation to include the relationship between the E region irregularities and F region medium-scale traveling ionospheric disturbances (MSTIDs), electrodynamics, and irregularities. To facilitate this research, we will incorporate a new coherent scatter radar imager soon to be deployed on the island of Dominica in the West Indies. This radar will be able to observe coherent scatter in an F region common volume directly over Arecibo and also on F region field lines that map to the E region over Arecibo.

Name	Institution	E-mail	Phone	Student
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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:

Ionosonde    Lidar

**Description of Observer Equipment:** BU imagers St. Croix, Dominica radars

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**