

# Technical Page

Proposal Type: Urgent  
General Category: Terrestrial Aeronomy  
Sub-Category: Radar  
Observation Category: Thermosphere  
Total Time Requested: 120 Hours  
Minimum Useful Time: 6 hours

**Proposal Title:** Plasma and gyro line measurements to understand the nature of the ever present intermediate layers at Arecibo

**ABSTRACT:**

Wide bandwidth ionospheric experiments with Arecibo are used to make high spectral resolution gyro and plasma line observations that help detect extremely weak spectral features. The sensitivity of the gyro line to the low electron densities can be utilized to detect night time intermediate layers near 150 km. Previous observations at Arecibo have indicated 6-10 minute period oscillations in these layers after the local sunrise that seemed to be also present at F-region altitudes along with other unexplained features. We propose to combine high range resolution and the long pulse techniques in conjunction with the optical imagers located at and east of Arecibo in South America, and GPS TEC data to detect the intermediate layers and investigate the effect of the solar terminator on the above mentioned oscillations in the layers and at higher altitudes. We propose to make these observations in November 2009 to be compared with previous similar experiments.

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

Special Equipment or Setup: None

## RFI Considerations

## Frequency Ranges Planned