

## Technical Page

Proposal Type: Regular  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Ionosphere  
 Total Time Requested: 80 Hours  
 Minimum Useful Time: none

**Proposal Title:** Effects of Whistler Waves on Space Weather over Arecibo

**ABSTRACT:**

Our several experiments conducted in 2004 and 2005/2006 have yielded interesting results published recently in one GRL and two JGR papers. They include three physical processes: (1) interactions of NAU whistlers with ionospheric plasmas [Labno et al., JGR, 2007], (2) NAU whistler-electron interactions in inner radiation belts [Pradipta et al., GRL, 2007], and (3) ionospheric turbulence over Arecibo triggered by Sumatra tsunami-launched gravity waves on December 26, 2004 [Lee et al., JGR, 2008]. Encouraged by these results, we propose to conduct experiments to further investigate ionospheric effects induced by NAU-launched 40.75 kHz whistler waves. Two phenomena will be investigated: (1) possible effects on spread F caused by NAU-triggered particle precipitation, and (2) backscattered NAU whistler waves interacting with ionospheric plasmas [please see attached proposal]. These experiments will be conducted primarily by three graduate students for their thesis research under the supervision of the two P.I.s.

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 CH radar

**Atmospheric Observation Instruments:**

Fabry-Perot Ionosonde Lidar

**Description of Observer Equipment:** All Sky Imaging System (ASIS) and VLF/LF receiving

system.

**Special Equipment or setup:** none

## **RFI Considerations**

### **Frequency Ranges Planned**

none

This proposal requires coordination with GPS L3 at 1381 MHz.