

## Technical Page

Proposal Type: Long-term  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Ionosphere  
 Total Time Requested: 320 hrs. Hours  
 Minimum Useful Time: 6 hrs.

**Proposal Title:** GMOS Diagnosis of Whistler and HF Wave-Induced Micropulsations

**ABSTRACT:**

A long-term (two-year extent) experimental program is proposed for supporting Ph.D. students' thesis research continuously on the subject of "whistler and HF wave-induced micropulsations". It is expected theoretically [Rezy Pradipta, Ph.D. Thesis Prospectus, 2009 (updated)] that NAU-launched whistler waves can be backscattered to parametrically generate a daughter whistler wave and a forced ion acoustic mode in the ionosphere. To facilitate the coupling of NAU signals with the ionosphere, either naturally-occurring or HF wave-created ducts will be desirable for proposed experiments. Diagnostic instruments include Arecibo radar, CADI, magnetometer, optical instruments, and GPS satellites together with our All Sky Imaging System (ASIS) and the newly acquired Geo-Magnetic Observatory System (GMOS). They will be used to diagnose whistler or HF-induced micropulsations as well as the concomitantly induced plasma density fluctuations in the ionosphere, and the subsequent electron precipitation from inner radiation belts (see attached proposal for details).

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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

**Description of Observer Equipment:** All Sky Imaging System (ASIS) Geo-Magnetic Observatory

System (GMOS) VLF receiving system  
**Special Equipment or setup:** None

### **RFI Considerations**

### **Frequency Ranges Planned**

None