Technical Page

Proposal Identification No.: T2604  Date Received: 2010-Oct-04 00:35:22

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
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<tbody>
<tr>
<td>Min-Chang Lee</td>
<td>BU and MIT</td>
<td><a href="mailto:mclee@MIT.EDU">mclee@MIT.EDU</a></td>
<td>617 893 2011</td>
<td>no</td>
</tr>
</tbody>
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Remote Observing Request

[ ] X 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