Technical Page

Proposal Type: Urgent
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Solar System
Total Time Requested: 4 Hours
Minimum Useful Time: 1

Proposal Title: Possible cometary outburst of main-belt asteroid 596 Scheila: Urgent proposal for OH observations

ABSTRACT:
The main-belt asteroid 596 Scheila was observed to have a coma by Steve Larson on Dec 11, 2010. This object has been observed before and no hydration features or coma had been seen. IRTF spectroscopy in the 3 micron region does not show significant changes from before the outburst. The OH lines at 1667 MHz are one of the few water products from comets that can be measured easily from the ground. The heliocentric velocity of the object determines the strength of the line, and is favorable at the present time for this asteroid. We propose two nights to look for OH lines and determine the strength, outflow velocity and stability of this outburst. This is a sensitive test of whether the coma is gas, which would be dominated by water dissociation products. This is a rare opportunity to observe an outburst from an asteroid. We will use L-wide at 1665, 1667 and 1720 MHz with the interim correlator with 70 m/s resolution.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellen Howell</td>
<td>Arecibo Obs.</td>
<td><a href="mailto:ehowell@naic.edu">ehowell@naic.edu</a></td>
<td></td>
<td>no</td>
</tr>
</tbody>
</table>

Remote Observing Request

- [ ] Observer will travel to AO
- [ ] Remote Observing
- X In Absentia (instructions to operator)

Instrument Setup

L-wide

Atmospheric Observation Instruments:

Special Equipment or setup: none
RFI Considerations

Frequency Ranges Planned

1665-1667