Proposal Identification No.: R2654
Date Received: 2011-Jun-01 09:14:16

Technical Page

Proposal Type: Regular
General Category: Planetary Radar
Sub-Category: Radar
Observation Category: Solar System
Total Time Requested: 24 Hours
Minimum Useful Time: 3.5 hours

Proposal Title: Arecibo-GBT 70-cm Targeted Lunar Radar Mapping

ABSTRACT:

We request 24 hours of Arecibo-GBT time to acquire targeted 70-cm wavelength, dual-polarization radar backscatter maps of the Moon. The new observations will use a 1-μs baud length and about 4.5 total hours of integration time on each target to achieve 200-m spatial resolution with 8 looks per pixel. We have collected proof-of-concept data for Mare Serenitatis that show the exciting science value of these higher-resolution images in the broad context of our earlier 500-600 m scale mapping. In particular, the new observations reveal details of rugged mare lava flow complexes hidden beneath the lunar dust. These rough flows require a major re-evaluation of our understanding of volcanic processes (including the possible role of magmatic water) on the Moon, and our new observations will extend the search to other mare units.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
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<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce A Campbell</td>
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<td>202 633 2472</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:

Special Equipment or setup: none

RFI Considerations
Frequency Ranges Planned

430