Technical Page

Proposal Type: Regular
General Category: Planetary Radar
Sub-Category: Radar
Observation Category: Solar System
Total Time Requested: 18 Hours

Proposal Title: Radar Mapping of the Moon at 70-cm Wavelength Using Arecibo and the GBT

ABSTRACT:

We request 18 hours of observing time at Arecibo and the GBT over the coming trimester to (1) continue to compile a 70-cm wavelength, dual circular polarization, 450-900 m resolution, radar image mosaic of the near side of the Moon; (2) collect higher-resolution (150-300 m per pixel) maps of targeted sites of major geologic interest.

We were allocated 80 hours of time for the Feb 1-Sept 30, 2005 period, but used only about 30 hours due to transmitter problems at Arecibo and the need to wait for favorable librations to image the lunar limb regions. Our image set to date represents a 10-fold improvement over existing maps at this wavelength, and the highest resolution synoptic radar coverage of the Moon. The great advantage of 70-cm data for lunar geology is their 5-50 m penetration depth and sensitivity to the depth-integrated rock abundance and chemical properties of the Moon’s ubiquitous surface layer of mixed dust and rock.

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
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<td>no</td>
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</tbody>
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Service Observing Request

- X None
-   All of the observing run.
-   Part of the observing run.
-   Queue Observing

Remote Observing Request

- X No
-   Maybe
-   Yes

Instrument Setup

430 CH receiver  430 CH radar

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations
Frequency Ranges Planned

430 MHz