

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- μ s 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.

Name	Institution	E-mail	Phone	Student
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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:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

430