

Technical Page

Proposal Type: Regular
 General Category: Planetary Radar
 Sub-Category: Radar
 Observation Category: Solar System
 Total Time Requested: 9.5 Hours
 Minimum Useful Time:

Proposal Title: Radar Studies of the Moon’s Geologic History

ABSTRACT:

We are requesting a total of 9.5 hours of combined Arecibo and GBT observing time to collect high-resolution, dual-polarization radar image data of the Moon at 12.6 cm wavelength. The requested observations address significant outstanding questions regarding the geologic history of the Moon’s surface. Our recent work has led to the development of a method for focusing radar images collected over long integration periods, yielding spatial resolution as fine as 20 m, comparable to the best existing large-area spacecraft photos. The proposed work builds on analyses of similar 12.6-cm and 70-cm wavelength observations over the past several years that address issues such as ice at the lunar south pole, the origin of dark haloes around many impact craters, and the distribution of Mare Orientale related cryptomaria. Results of the 12.6-cm and 70-cm radar mapping projects have appeared in nine recent papers. Note - This proposal is very similar to that submitted for requested observations in September, 2007. None of the scheduled time could be used due to painting of the structure at Arecibo. We will recover one day in December, 2007, but this proposal requests three additional runs to make up the difference.

Name	Institution	E-mail	Phone	Student
Bruce A Campbell	Smithsonian Institution	campbellb@si.edu	202 633 2472	no

Remote Observing Request

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

Instrument Setup

S-Band radar

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

2380 MHz