

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Planetary Radar
 Observation Category: Solar System
 Total Time Requested: 12 Hours
 Minimum Useful Time: 1h

Proposal Title: Mini-RF on LRO and Arecibo Observatory Bistatic Radar Observations of the Moon

ABSTRACT:

The Miniature Radio Frequency (Mini-RF) instrument on NASA’s Lunar Reconnaissance Orbiter (LRO) is a hybrid dual-polarized synthetic aperture radar that operated in concert with the Arecibo Observatory to collect bistatic radar data of the lunar nearside from 2012 to 2015. The purpose of the bistatic campaign was to observe the scattering characteristics of the upper meter(s) of the lunar regolith, as a function of the bistatic angle, and to search for a coherent backscatter opposition response indicative of the presence of water ice. A variety of lunar terrains were sampled over a range of incidence and bistatic angles. Analysis of data for the Cabeus region suggests that the unique nature of the response may indicate the presence of near-surface, wavelength scale (12.6 cm) or larger, deposits of water ice. Mini-RF is proposing to resume operations with AO to acquire new S-band observations of additional polar and non-polar lunar targets to follow up on this important discovery.

Name	Institution	E-mail	Phone	Student
Wesley Patterson	APL	Wes.Patterson@jhuapl.edu		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