

Technical Page

Proposal Type: Regular
 General Category: Planetary Radar
 Observation Category: Solar System
 Total Time Requested: 13 Hours

Proposal Title: A Radar Search for Regolith on the Asteroid 2004 VG64

ABSTRACT:

We propose S-band (12.6 cm) radar observations of the near-Earth asteroid 2004 VG64 in order to search for the presence or absence of regolith and to study the surface physical properties. If the incident radar wave refracts into a surface (such as regolith) and is reflected by buried scatterers, the return echo will have a linear-polarized component that can be measured using a full Stokes parameter analysis of the echo. This technique has been successfully applied to the asteroids 1999 JM8 and 4179 Toutatis, and the requested observations are part of a larger project to obtain data for a sample of asteroids and correlate the radar polarimetric properties with different sizes, shapes, and perhaps compositions. The size and rotation period of 2004 VG64 are not known, but its absolute magnitude suggests that it is about 1 km in diameter. The asteroid comes within 0.044 AU of Earth, which will provide the high signal-to-noise ratios needed for the polarimetric analysis.

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Service Observing Request

Remote Observing Request

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

- No
- Maybe
- Yes

Instrument Setup

S-Band radar S-band receiver

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

2378-2382