

Technical Page

Proposal Type: Regular
 General Category: Planetary Radar
 Observation Category: Solar System
 Total Time Requested: 30 Hours

Proposal Title: S-Band Radar Observations of the Mid-Sized Saturnian Satellites

ABSTRACT:

We propose S-band radar observations to measure the radar scattering properties of the inner mid-sized moons of Saturn; Enceladus, Tethys, Dione, and Rhea. From optical and infrared measurements, the surfaces of these 500-1500 km diameter objects are known to be fairly clean water ice with a high albedo. Since water ice is extremely transparent at centimeter wavelengths, measurement of radar reflectivities can indicate the presence of additional absorbing components. A likely absorber is ammonia which is expected to be a large component of Saturn's satellites but difficult to observe directly. These observations extend our previous detections of Rhea and Iapetus; the others have not been observed before. We request time near Saturn opposition in January 2005 to maximize echo strength. At least three days per target are requested for adequate integration time, but a total of 10 days should be sufficient as pairings often make two of them observable simultaneously.

Name	Institution	E-mail	Phone	Student
Greg Black	University of Virginia	gblack@virginia.edu	434-243-8941	no

Service Observing Request

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

Remote Observing Request

- No
- Maybe
- Yes

Instrument Setup

S-Band radar S-band receiver

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

2380