Proposal Identification No.: R9999 Date Received: 2005-May-28_18:56:56

Technical Page

Proposal Type:	Regular
General Category:	Planetary Radar
Observation Category:	Solar System
Total Time Requested:	32 Hours

Proposal Title: S-Band Radar Observations of Enceladus, Dione, and Tethys

ABSTRACT:

We propose S-band radar observations of Saturn's moons Enceladus, Tethys, and Dione to extend our previous initial detections. The goals of these new observations are to reduce the uncertainties in their radar cross sections, provide the polarization properties of the echoes in order to understand the scattering mechanism, and probe any large scale variations of scattering properties with longitude. From optical and infrared measurements, the surfaces of these 500-1200 km diameter moons are known to be fairly clean water ice with a high optical albedo. Since water ice can be extremely transparent at centimeter wavelengths, radar measurements probe subsurface structure and can indicate the presence of contaminants. Ammonia is expected to be a large component of Saturn's satellites but is difficult to observe directly, and it would attenuate the radar signal. Time near Saturn opposition is necessary to maximize echo strength. Eight days are requested to obtain adequate integration time and sample opposing longitudes of each moon.

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

Service Observing Request		Remot e Observing Request	
[X]	None	[X]	No
[ ]	All of the observing run.	[ ]	Maybe
[ ]	Part of the observing run.	[ ]	Yes
[ ]	Queue Observing		

Instrument Setup

S-Band radar S-band receiver

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

2380