Technical Page

Proposal Type: Long-term
General Category: Astronomy
Sub-Category: Solar System
Sub-Category: Solar System
Observation Category: 
Total Time Requested: 126 Hours

Proposal Title: Radar Observations of the Galilean Satellites

ABSTRACT:
Speculation that Europa and Callisto possess liquid water under an icy lithosphere has greatly increased interest in the Galilean satellites of Jupiter. Lack of impact craters suggests that Europa's surface is relatively young, and perhaps tectonically active. Dual-polarization radar mapping using the recently upgraded Arecibo system will offer new and unique constraints on candidate resurfacing processes. We propose a series of 12.6 cm coded-long-pulse and 70 cm CW observations during the 1999 and 2000 Jupiter oppositions. Range-resolved measurements will constrain the geographic distribution of scatterers, and multi-wavelength measurements will constrain ice absorption and be indicative of lossy materials. The observations are part of a campaign to observe Europa, Ganymede, and Callisto at three different wavelengths at both Arecibo and Goldstone.

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I want to do remote observing.

Instrument Setup

430 G  S-Band radar  430 CH receiver  430 CH radar  S-band receiver

Atmospheric Optical Instruments:

Special Equipment or setup: Coded-long-pulse hardware PN code generator and corresponding analysis software. Frequency switch capability as in previous CW observations of the Galilean satellites, and corresponding data reduction software.

RFI Considerations

Frequency Ranges Planned

not given