

### Technical Page

This proposal has not been submitted before.

Proposal Type: Urgent  
General Category: Planetary Radar  
Sub-Category: Radar  
Observation Category: Solar System  
Total Time Requested: 18 Hours  
Minimum Useful Time:

**Proposal Title:** Planetary Radar Observations of Dwarf Planet Ceres

*ABSTRACT:*

Dwarf planet Ceres is the largest known main belt asteroid and the current target of NASA’s Dawn spacecraft. Recent data from Dawn have discovered bright spots on the surface, which may suggest ancient or even recent cryovolcanism. Indeed, ice is suggested to exist in the shallow subsurface of Ceres’ regolith. Ground-based radar studies are an excellent way of probing the shallow subsurface of solar system bodies and uncovering hidden ice. Here we propose to study Ceres with the Arecibo S-band planetary radar, focusing on the variation of its radar albedo and scattering properties throughout one rotation. This year will be the closest Ceres will be until 2023, and expected SNRs will be at least 3 times higher than previous observations. We request a total of 6 days to have significant phase coverage, Feb 21-23 and Feb 26-28.

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### Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

### Instrument Setup

S-Band radar                      S-band receiver

### Atmospheric Observation Instruments:

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**