

Technical Page

Proposal Type: Regular
 General Category: Planetary Radar
 Observation Category: Solar System
 Total Time Requested: 11 Hours

Proposal Title: Test of the Yarkovsky Effect Using Radar Ranging to Golevka

ABSTRACT:

The Yarkovsky effect, a subtle nongravitational phenomenon involving accelerations of an object due to anisotropic thermal emission of absorbed sunlight, has been invoked to explain the transport of asteroids into the inner solar system, as a source mechanism for meteorites, as one of the processes that affect the evolution of asteroid spin states, and as a factor that limits the long-term predictability of near-Earth asteroid trajectories. However, despite its profound theoretical importance in asteroid science, Yarkovsky accelerations have never been detected in the motion of natural objects in the solar system. It has been argued that precise radar refinement of the orbits of near-Earth asteroids offers the possibility of detecting the Yarkovsky effect during the next few decades. This is a proposal to make radar astrometric measurements of the half-kilometer asteroid 6489 Golevka (1991 JX) in May 2003 to attempt to detect evidence for Yarkovsky accelerations of this object.

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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