

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Solar System
 Total Time Requested: 50 Hours

Proposal Title: OH Observations of Comets in 2005: Including Deep Impact Mission Target 9P/Tempel 1

ABSTRACT:

As part of a continuing effort to observe the 18-cm OH lines in comets we propose to observe 9P/Tempel 1 and C/2003 T4 LINEAR in spring 2005. These comets are moderately bright, and the predicted strength of the OH lines are easily detectable. Comet 9P/Tempel 1 is the target of the Deep Impact Mission. Unfortunately, the object will not be in the declination range observable from Arecibo at the time of impact. However, it will be observable for about 3 months prior to that time, so that we can establish the baseline water production rate and monitor any variability prior to the impact. This will be very important in order to put the later observations into the proper context. The C/2003 T4 (LINEAR) predicted OH line strength are near the limit at which we can make spatial maps of the coma. We want to determine if collisional quenching of the OH line in the coma can be detected for these low-productivity comets in order to understand discrepancies between the predictions and observations of the water production (Lovell et al. 2004). Since water makes up the bulk of a comet's mass, the mass loss rate inferred from the OH line flux strongly depends upon understanding the quenching mechanism and outflow kinematics.

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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

L-wide

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: ALFA with the OH filters (1600-1750 MHz) would improve the scientific return for the Deep Impact Mission target, Comet 9P/Tempell1. However, if ALFA is unavailable in OH mode, we can use L-wide.

RFI Considerations

Frequency Ranges Planned

1610
1665
1667
1720