

Technical Page

Proposal Type: Regular
 General Category: Terrestrial Aeronomy
 Sub-Category: Radar
 Observation Category: Galactic
 Total Time Requested: 20 Hours

Proposal Title: Observation of the Ulysses/Galileo Dust stream at 1 AU

ABSTRACT:

We propose to observe and study, utilizing the 430 MHz Arecibo radar, the micrometeor flux associated with the interstellar dust stream detected by the Ulysses and Galileo spacecraft. These observations are part of the effort to detect and characterize particles that originate outside the solar system. Out of 12000 events analyzed so far, 155 events were identified as extrasolar particles (ESPs) from which 108 were deemed interstellar particles (ISPs). These observations were performed during November 15-20 1997 and 1998. Most of the ISPs appear to be related to Pioneer 10 and 11 spacecraft ISPs and not with Ulysses/Galileo as was expected. In a paper to be published shortly (Meisel et al., 2002a), we argue that the bulk of the AO ISPs are related to the Geminga supernova explosion. After an extensive search of time periods not favorable for observing the Pioneer/Geminga particles, only 9 particles, which were all post-perihelion, seem to come from the calculated Ulysses/Galileo flow direction. But the November observing window really only lasts 1 hour and is not very optimal for the observation of Ulysses particles. The other Ulysses window is a two hour period daily from July to September. It is imperative that the work is performed between July and September 2002 because to delay will subject the orbits to the strong gravitational perturbations of Jupiter and Saturn which have already influenced the observed Geminga particle flux.

Name	Institution	E-mail	Phone	Student
Diego Janches	Arecibo Observatory	djanches@naic.edu	787-878-2612 x253	no

Service Observing Request

Remote Observing Request

- | | |
|---|--|
| <input checked="" type="checkbox"/> None
<input type="checkbox"/> All of the observing run.
<input type="checkbox"/> Part of the observing run.
<input type="checkbox"/> Queue Observing | <input checked="" type="checkbox"/> No
<input type="checkbox"/> Maybe
<input type="checkbox"/> Yes |
|---|--|

Instrument Setup

430 CH receiver 430 CH radar

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned