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JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

CPB-104

August 14, 1975

Mr. Leo Davis
National Space Science Data Center
Code 601.1
Goddard Space Flight Center
Greenbelt, Maryland, 20771

Dear Mr. Davis:

This is to notify you that I have mailed a magnetic tape containing Pioneer 10 Doppler tracking data to you at the National Space Science Data Center (NSSDC). These data, which cover the period 15 October - 28 December 1973 were taken near Jupiter and used by the Pioneer 10 celestial mechanics experimenters, Dr. J. D. Anderson of JPL and myself. The tape you will receive (tape D564) was written at JPL on a Univac 1108 computer in the standard 7 track, 800 BPI Fortran mode with 32 bit word length. Please send a replacement tape to me at the address given above.

The following explanatory materials are enclosed:

1. A description of the data tape format. Note that the ramped transmitter groups, although present, are not used for Pioneer 10.

2. One copy of TR 32-1527 defining the S-band, two-way observable found on the data tape. See pages 19-22, 46-50, 72-75.

3. A photocopy of a Pioneer 10 journal article giving the results of the Pioneer 10 Celestial Mechanics Experiment.

4. A list of Deep Space Net Tracking station locations.

5. Trajectory coordinates sufficient to start a least squares adjustment.

6. A listing of the beginning records of tape D564.

The Pioneer 10 spacecraft was perturbed by orientation manuevers at the following times (UTC)

11 November 73 16^h
15 November 73 21^h
26 November 73 12^h
6 December 73 22^h
13 December 73 16^h
21 December 73 6^h

The velocity perturbations were almost entirely along the earth line with a magnitude of about 1 mm/sec. The tracking data provided is S-band, two-way Doppler data. Each data record contains both the observed Doppler (F) and the transmitter frequency (f_q) as defined in item (2).

We plan to publish some of the trajectory and data characteristics for Pioneers 10 and 11 in a final Pioneer 10 and 11 paper in early 1976, at which time the Pioneer 11 tracking data will be transmitted to NSSDC. Please instruct any potential users of the data to contact me if any questions arise concerning its use. Information concerning the Pioneer 10 solar radiation pressure can be obtained upon request to me; the memos describing this effect were too lengthy and complicated to include in this mailing.

Sincerely yours,

George W. Null

George W. Null
Member of Technical Staff
Tracking & Orbit Determination
(213) 354-2052

GWN/bmr

Enclosure