

DSC# 833

ARIEL 4

PROTONS, ELECTRONS, CLEAN TAPES

62-006A-11B

SPMS-00281

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

<http://nssdc.gsfc.nasa.gov/nmc/>

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

- a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
<http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/>

- b. Core Catalog Materials

OSO 1

PROTONS, ELECTRONS, CLEAN TAPES

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THIS DATA SET HAS BEEN RESTORED. ORIGINALLY THERE WERE FOUR 7-TRACK, 556 BPI TAPES WRITTEN IN BCD. THERE IS ONE RESTORED TAPE WRITTEN IN EBCDIC. THE TAPES WERE CREATED ON AN IBM 360 COMPUTER. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND THE TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR02969	DS02969	D02558	1-225	03/07/62 - 03/25/62
		D02559	226-450	03/25/62 - 04/14/62
		D02560	451-671	04/14/62 - 05/05/62
		D02561 *	672-805	05/05/62 - 07/08/62

* THIS TAPE SHOWED THAT IT CONTAINED 136 FILES, BUT IT HAD 2 FILES WITH 0 RECORDS.

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62-006A-11B

LAWRENCE RADIATION LABORATORY
P. O. BOX 808
LIVERMORE CALIFORNIA 94550

September 19, 1968

Mr. Leo Davis
Code 601
Goddard Space Flight Center
Greenbelt, Maryland

Dear Mr. Davis:

We have recently finished sorting, categorizing, and organizing a significant portion of Dr. Carl Schrader's data obtained on channel six (6) from the OSO-1 (S-16) satellite launched in March of 1962.

A few weeks ago, I mentioned to you by telephone that we would make four digital magnetic tapes (containing approximately 820 orbits) available to you upon completion of this task.

Initially, we received the channel six information in very badly scattered form on eleven computer tapes from the Goddard Data Center in 1967. These tapes were produced from some 3 million (80 character) card images. Accompanying these tapes was a letter describing the maglignant condition of the tapes and prognostication as to the difficulties expected in separating the desired data and from that time only part-time effort has been devoted to finalizing a format which we have at present and believe to be satisfactory.

A printout of a full orbit of data from one of the tapes is enclosed. All information for a given orbit is packed into a single tape file. There is a variable number of records per file--usually 11 to 14. There are approximately 225 files on each of the 1st three tapes and a somewhat fewer numbers on the fourth tape. The end of all valid data on a tape is signified by 2 end of file marks. Each (BCD) record contains 3200 characters. One record is printed on each page of the enclosed printout. The first two leftmost digits running vertically down each page is what we have called "sort numbers" being that they identify a distinct type of data on that same (80 character) card image.

A complete list of the variety of sort numbers are 48, 17, 18, 19, 20, 27, 28, 29, 30, 31, 32, 4, 24, 25, 26, in the order of their appearance in a file. Our sort-merge operations were performed in a manner such that none of the original information correlated with each of the sort numbers was deleted.

There is no uniform number of card images of a given sort number because many were missing from the original tapes. For this same reason, Universal start and stop times for a full orbit may not appear on sort number 48 card images. Additionally, as seen in Table IV, 233 orbits are missing.

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(2)

For a more comprehensive report of the parameters measured in the OSO-1 experiment, reference should be made to a Martin Company document entitled, "S-16 Satellite Data Program Plan", 2/19/62. Following are several tables which can be used to decode the channel 6 data. I have also included a sample program from which a programmer might decipher formats we used in reading the tapes. Direct any pertinent questions either to myself or to Dr. Jim Waggoner.

Sincerely,

Richard Knox
L-330

(415) 447-1100 X-7201

RN:jar

OCT 2 1962
#2408

LEGEND FOR DATA

TABLE I

F-FAMILY NO. (SEE NEXT PAGE)
 E-ELECTRON COUNT RATE
 P-PROTON, COUNT RATE
 B MAGNETIC
 L-SHELL NO.

SORT NO.	D-DAY N-NITE	TIME/ALTITUDE/LATITUDE/LONGITUDE/DATE/ORBIT/
4	---	TIME/ALTITUDE/LATITUDE/LONGITUDE/DATE/ORBIT/
17	D	LOG (E (AVERAGE))/ TIME/DATE/ORBIT/
18	N	LOG (E (AVERAGE))/ TIME/DATE/ORBIT/
19	D	LOG (E/64 average)/ TIME/DATE/ORBIT/
20	N	LOG (E/64 average)/ TIME/DATE/ORBIT/
24	---	LOG (P)/ TIME/DATE/ORBIT/
25	---	LOG (E)/ TIME/DATE/ORBIT/
26	---	LOG (E/64) /TIME/DATE/ORBIT/
27	D	P/F/B ₁ /L ₁ /B ₂ /L ₂ /B ₃ /L ₃ /B ₄ /L ₄ /B ₅ /L ₅ / DATE/ORBIT
28	N	P/F " " " " " " " " " " " "
29	D	E/F " " " " " " " " " " " "
30	N	E/F " " " " " " " " " " " "
31	D	E(64)/F " " " " " " " " " " " "
32	N	E/64)/F " " " " " " " " " " " "
48	---	Universal start time/ DATE /Universal stop time/ DATE/ORBIT/

The 5 pairs of B-L coordinates on a given card (B₁, L₁/ B₂, L₂/ B₃, L₃/ B₄, L₄/ B₅, L₅/) are values obtained during this orbit during which the counting rate fell in the range of the family number cited on that card.

The orbital card images have been internally sorted such that the relative Universal times are chronological.

TABLE II

COUNT RATE LIMITS

FAMILY
NOS.

1.	0-1.73
2.	1.73-5.65
3.	5.65-17.3
4.	17.3-56.5
5.	56.5-173
6.	173-565
7.	565-1730
8.	1730-5650
9.	5650-17,300
10.	17,300-56,500
11.	Greater than 56,500

TABLE III

TAPE
NOS.

ORBIT NUMBERS

1.	1-271
2.	271-563
3.	563-882
4.	882-1039

