#423

NIMBUS 4 Earth Sc

BUV RADIANCE VALUES VS EARTH LOCATION
70-025A-05B ESAC-00055

PRIMARY DATA BASE TAPE
70-025A-05E ESAC-00024

~~DETAILED TOTAL OZONE TAPE, BUVALL~~
~~70-025A-05F~~ Deleted

Table of Contents

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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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

NIMBUS 4

BUV RADIANCE VALUES VS EARTH LOCATION

70-025A-05B ESAC-00055

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY THERE WERE 41 9-TRACK, 1600 BPI TAPES WRITTEN IN EBCDIC. THERE ARE 9 RESTORED TAPES. THE TAPES WERE CREATED ON AN IBM 360 COMPUTER. THE DR AND DS TAPES ARE 9-TRACK, 6250 BPI. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR00131	DS00131	D38010	1-321	04/10/70 - 05/07/70
		D38011	322-653	05/07/70 - 06/03/70
		D38012	654-990	06/04/70 - 07/02/70
		D38013	991-1319	07/02/70 - 07/30/70
DR00132	DS00132	D38014	1-328	07/30/70 - 08/27/70
		D38015	329-661	08/27/70 - 09/24/70
		D38051	662-993	09/24/70 - 10/21/70
		D38016	994-1329	10/22/70 - 11/19/70
		D38017	1330-1666	11/19/70 - 12/16/70
DR00133	DS00133	D38018	1-178	12/17/70 - 12/31/70
		D38019	179-573	01/01/71 - 01/28/71
		D38020	574-1007	01/29/71 - 02/25/71
		D38021	1008-1429	02/26/71 - 03/25/71
DR00134	DS00134	D38022	1-321	03/26/71 - 05/06/71
		D38023	322-563	05/07/71 - 06/03/71
		D38024	564-827	06/04/71 - 07/01/71
		D38025	828-1161	07/02/71 - 07/30/71
		D38026	1162-1493	07/30/71 - 08/27/71
DR00135	DS00135	D38027	1-242	08/27/71 - 09/16/71
		D38028	243-638	09/24/71 - 10/21/71
		D38029	639-1014	10/22/71 - 11/19/71
		D38030	1015-1391	11/19/71 - 12/16/71
		D38031	1392-1553	12/17/71 - 12/31/71
DR00136	DS00136	D38032	1-365	01/01/72 - 01/28/72
		D38033	366-720	01/29/72 - 02/25/72
		D38034	721-1065	02/26/72 - 03/25/72
		D38035	1066-1391	03/26/72 - 04/22/72

DR#	DS#	D#	FILES	TIME SPAN
DR00137	DS00137	D38036	1-193	05/07/72 - 06/17/72
		D38038	194-630	06/18/72 - 09/02/72
		D38039	631-851	09/03/72 - 12/01/72
		D38040	852-1006	01/13/73 - 05/06/73
		D38042	1007-1294	05/07/73 - 09/09/73
DR00138	DS00138	D38043	1-152	09/10/73 - 12/08/73
		D38041	153-359	01/11/74 - 05/06/74
		D38044	360-522	05/07/74 - 09/23/74
		D38045	523-727	09/24/74 - 12/31/74
		D38046	728-1015	01/01/75 - 05/06/75
		D38047	1016-1349	05/07/75 - 12/31/75
DR00139	DS00139	D38048	1-270	01/01/76 - 05/06/76
		D38049	271-509	06/07/76 - 12/31/76
		D38050	510-765	01/01/77 - 05/06/77

REQ. AGENT	RAND NO.	ACQ. AGENT
CAW	RD0036	BCD
CAW	RD0037	
DEW	V00001	
CLB, BLA	V00026	

NIMBUS 4

BUV RADIANCE VALUES VS EARTH LOCATION
70-025A-05B

PRIMARY DATA BASE TAPE
70-025A-05E

DETAILED TOTAL OZONE TAPE, BUVALL
70-025A-05F

This data set catalog consists of 246 data tapes. There is 43 N-4 05B, 8 N-4 05E and 15 N-4 05F data tapes. The tapes are 9 track, 1600 BPI EBCDIC and are multiple filed. The tapes were written on a IBM 360 computer. The tapes are listed below and on the following pages along with there time spans and number of files. The formats are located on the following pages also.

70-025A-05B

D#	C#	FILES	TIME SPAN
D-38010	C-20954	321	4/10/70 - 5/07/70
D-38011	C-20955	332	5/07/70 - 6/03/70
D-38012	C-20956	337	6/04/70 - 7/02/70
D-38013	C-20957	329	7/02/70 - 7/30/70
D-38014	C-20958	328	7/30/70 - 8/27/70
D-38015	C-20959	333	8/27/70 - 9/24/70
D-38016	C-20960	336	10/22/70 - 11/19/70
D-38017	C-20961	337	11/19/70 - 12/16/70
D-38018	C-20962	178	12/17/70 - 12/31/70
D-38019	C-20963	395	1/01/71 - 1/28/71

70-025A-05B (Con't)

D#	C#	FILES	TIME SPAN
D-38020	C-20966	434	1/29/71 - 2/25/71
D-38021	C-20967	422	2/26/71 - 3/25/71
D-38022	C-20968	321	3/26/71 - 5/06/71
D-38023	C-20969	242	5/07/71 - 6/03/71
D-38024	C-20970	264	6/04/71 - 7/01/71
D-38025	C-20971	334	7/02/71 - 7/30/71
D-38026	C-20972	332	7/30/71 - 8/27/71
D-38027	C-20973	242	8/27/71 - 9/16/71
D-38028	C-20974	396	9/24/71 - 10/21/71
D-38029	C-20975	376	10/22/71 - 11/19/71
D-38030	C-20978	377	11/19/71 - 12/16/71
D-38031	C-20979	162	12/17/71 - 12/31/71
D-38032	C-20980	365	1/01/72 - 1/28/72
D-38033	C-20981	355	1/29/72 - 2/25/72
D-38034	C-20982	345	2/26/72 - 3/25/72
D-38035	C-20983	326	3/26/72 - 4/22/72
D-38036	C-20984	517	5/07/72 - 6/17/72
D-38038	C-20986	437	6/18/72 - 9/02/72
D-38039	C-20987	221	9/03/72 - 12/01/72
D-38040	C-20988	155	1/13/73 - 5/06/73
D-38041	C-20989	207	1/11/74 - 5/06/74
D-38042	C-20990	288	5/07/73 - 9/09/73
D-38043	C-20991	152	9/10/73 - 12/08/73
D-38044	C-20992	163	5/07/74 - 9/23/74
D-38045	C-20993	205	9/24/74 - 12/31/74
D-38046	C-20994	288	1/01/75 - 5/06/75
D-38047	C-20995	334	5/07/75 - 12/31/75

70-025A-05B (Con't)

D#	C#	FILES	TIME SPAN
D-38048	C-20996	270	1/01/76 - 5/06/76
D-38049	C-20997	239	6/07/76 - 12/31/76
D-38050	C-20998	256	1/01/77 - 5/06/77
D-38051	C-20999	332	9/24/70 - 10/21/70

B R I E F D E S C R I P T I O N
BUV Radiance Values (U-Tape)
70-025A-05B

This set of radiance data is contained on EBCDIC magnetic tapes that were created on an IBM 360 computer. Derived from the Primary Data Base (PDB) tapes (70-025A-05E), the data are calibrated and located backscattered ultraviolet radiances measured at 12 wavelengths between 0.25 and 0.34 micrometer in 32-s scans. The data set also contains quality flags, dark current analyses of the data, orbital information, and housekeeping data.

M A T E R I A L S F O R D I S T R I B U T I O N
70-025A-05B
BUV Radiance Values (U-Tape)

The following items were found in the Data Set Catalog:

1) User's Guide to the Nimbus-4 Backscatter Ultraviolet Experiment Data Sets by Lowrey and Khatri, Jan. 1978 (only up to p. 33 - the rest is obsolete anyway.)
2) U-Tape Format, p. 3-1 to 3-8. Source unknown.
3) Formats of New BUV Data Products p. 1-1 to 1-6. Source unknown.

It's unclear if one document supercedes the others in the above list. (CYN, 9/97)

170-025A-05B

CHAPTER III - U-TAPE

U-Tape is an intermediate tape in the total ozone processing system. It reads the Primary Data Base tape, throws out any duplicate orbits or overlapping orbits and produces the U-Tape.

The U-Tape program converts the raw digitized data into engineering units. It also classifies the data into various types of data, which are

(i) MCSA

(ii) MCSB

(iii) MCSC

(iv) MCSD

(v) DIFFUSERS RECORD

The U-Tape also computes the means of the housekeeping functions. The U-Tape contains both daytime and nighttime data. The tape specifications are:

RECFM = FB, LRECL = 400 bytes, BLKSIZE = 10000 bytes
9 TRACK IBM 360 NL TAPE WRITTEN WITH
1600 BPI

The various types of records are described in the following pages.

U-TAPE FORMAT

I. HEADER FILE OF U-TAPE

A)RECORD 1

WORD	DESCRIPTION	TYPE
1	SATELLITE ID (NIMBUS-4)	R*8; EBCDIC
2	EXPERIMENT ID (bbBUVbbb)	R*8; EBCDIC
3	PROGRAM NAME (U-TAPE bb)	R*8; EBCDIC
4	DATE OF PROGRAM VERSION (E.G.1/20/77)	R*8; EBCDIC
5	VERSION NO. (VERSN 01)	R*8; EBCDIC
6	UNIQUE NO. OF THE OUTPUT TAPE (E.G. 7OUT1515)	R*8; EBCDIC
7-10	DCB OF THE U-TAPE - 4 WORDS (RECFM=FB, LRECL 400, BLKSIZE, 10000, DEN-1600)	R*8; EBCDIC
11-12	DATE OF THE JOB RUN (E.G. TUE 18 JAN 77)	R*8; EBCDIC
13	STARTING WEEK NUMBER OF DATA	R*8; EBCDIC
14	ENDING WEEK NUMBER OF DATA	R*8; EBCDIC
15	CALENDAR YEAR OF DATA (E.G. 70)	R*8; EBCDIC
16-50	ANNOTATION (= 77777777)	R*8; EBCDIC

B) RECORD 2

1	NO. OF FILES ON THE OUTPUT TAPE (ALWAYS -77.)	R*4
2	TOTAL NO. OF LOGICAL RECORDS IN THE HEADER FILE (ALWAYS 2)	R*4
3	DAY OF THE BEGINNING OF THE FIRST SCAN OF THE FIRST ORBIT ON TAPE	R*4
4	TIME IN SECS. OF DAY FOR 3 ABOVE	R*4
5	LATITUDE AT (4) ABOVE (+90.00)	R*4
6	LONGITUDE AT (4) ABOVE (0.00- 360.00; W POSITIVE)	R*4
7-LAST	SPARES (= -77.)	R*4

U-TAPE FORMAT

II. HEADER RECORD OF U-TAPE

4-BYTE WORD

WORD	DESCRIPTION	TYPE
1	LOGICAL SEQUENCE NO. (ALWAYS 1.0)	R*4
2	SPARE (0.0)	R*4
3-4	UNIQUE NO. OF INPUT TAPE	R*8; EBCDIC
5-8	DAY AND DATE OF THE JOB RUN TWO R*8 WORDS (E.G. TUE 18 JAN 77)	R*8; EBCDIC
9-10	JOB I.D. (E.G. ZMVGKUTP)	R*8; EBCDIC
11	DAY OF THE BEGINNING OF THE FIRST GOOD SCAN OF THE FIRST ORBIT ON THE OUTPUT TAPE	R*4
12	TIME IN SECS. OF DAY FOR (11) ABOVE	R*4
13	LAT. (-90.0 TO +90.0) AT (11) ABOVE	R*4
14	LONG. (0 to 360, W + Ve) AT (11) ABOVE	R*4
15	WEEK # OF THE START OF THE ORBIT	R*4
16	ORBIT #	R*4
17-18	PROGRAM NAME (E.G. U-TAPE)	R*8; EBCDIC
19-20	VERSION DATE (E.G. 1/20/77)	R*8; EBCDIC
21-22	VERSION # (E.G. VERSN06)	R*8
23	β_o, PHOTOMETER	R*4
24	β_o, MONOCHROMATOR	R*4
25-26	JULIAN DATE OF JOB RUN (E.G. 77.018)	R*8; EBCDIC
27-100	ANNOTATION (= -77.)	R*4

III. U-TAPE DATA RECORD (100 REAL *4 WORDS)

WORD	DESCRIPTION
1	LOGICAL RECORD NO. ON U-TAPE DATA FILE
2	ORBIT NUMBER
3	JULIAN DAY AT START OF SCAN
4	TIME OF DAY IN SECONDS AT START OF SCAN
5	LOGICAL RECORD NO. ON PDB DATA FILE
6	VIEW LATITUDE AT START OF SCAN
7	VIEW LONGITUDE AT START OF SCAN
8	VIEW LATITUDE AT END OF SCAN
9	VIEW LONGITUDE AT END OF SCAN
10	SOLAR ZENITH ANGLE AT START OF SCAN
11	AZIMUTH ANGLE AT START OF SCAN
12	SPARE
13	SOLAR ZENITH ANGLE AT END OF SCAN
14	AZIMUTH ANGLE AT END OF SCAN
15	SPARE
16	PHOTOMETER AVERAGE U-VALUE*
17	MONOCHROMATOR AVERAGE U-VALUE FOR λ = 2555*
18	SCREENING FLAG**
19-51	SAME AS 16-18, BUT FOR λ = 2735, 2830...3398
52	12 FLAG BITS WHERE i^{th} BIT = 0, IF λi IS PROPER, AND i^{th} BIT = 1 IF NOT
53	VIEW LATITUDE AT START OF SCAN
54	VIEW LONGITUDE AT START OF SCAN
55	ALTITUDE IN KMS, AT BEGINNING OF SCAN
56	PERFORMANCE CHECK FOR 1ST MAJOR FRAME
57	SAME AS 56, BUT FOR SECOND MAJOR FRAME
58	RESISTOR INDICATORS FOR CHANNELS 1-6#
59	RESISTOR INDICATORS FOR CHANNELS 7-12##
60	SPARE (=-77.)
61	DAY/NIGHT/TWILIGHT CODE (0/2/1)
62	DATA TYPE (=0 FOR DATA, =1 FOR MCSA)
63-74	MONOCHROMATOR PULSE COUNT DATA, ONE FOR EACH WAVELENGTH 2555, 2735...,3398 (COUNTS/SEC AT CATHODE)
75-86	SAME AS 63-74, BUT FOR PHOTOMETER
87-92	ENERGETIC PARTICLE COUNTS
93-100	SPARES (=-77.)

NOTE: *U-VALUE = -77 FOR MISSING DATE
= -99 FOR BAD DATA

III. (Continued)

** SCREENING FLAG - 7 DIGITS TO THE LEFT OF THE DECIMAL POINT ARE SIGNIFICANT, E.G. d_7 d_6 d_5 d_4 d_3 d_2 d_1 .0

d_2 represents Lamda blocks does not agree with composition

d_3 represents cam is moving

d_4 represents photometer H. V. indicator = 2 or 3

d_5 represents monochromator H. V. indicator = 2 or 3

d_6 represents photometer high (=1)/low (=0) gain code

d_7 represents monochromator high (=1)/low (-0) gain code

SIX DIGITS TO THE LEFT OF THE DECIMAL POINT ARE SIGNIFICANT, E.G. R_1 R_2 R_3 R_4 R_5 R_6 .0.
WHERE R_1 - Resistors used for 2555 A channel

R_2	"	2735 A	"
R_3	"	2830 A	"
R_4	"	2876 A	"
R_5	"	2922 A	"
R_6	"	2975 A	"

SIX DIGITS TO THE LEFT OF THE DECIMAL POINT ARE SIGNIFICANT R_7 R_8 R_9 R_{10} R_{11} R_{12}.0.
WHERE R_7 - Resistor used for 3019 A channel

R_8	"	3058 A	"
R_9	"	3125 A	"
R_{10}	"	3173 A	"
R_{11}	"	3312 A	"
R_{12}	"	3398 A	"

IV. TRAILER RECORD OF U-TAPE

A) RECORD 1

4-BYTE WORD	DESCRIPTION	TYPE
1	NEGATIVE OF LOG. SEQ. NO. (=N, WHERE N-2 = NO. OF SCANS FOR THIS ORBIT)	R*4
2	ORBIT #	R*4
3	DAY AT THE END OF THE LAST SCAN OF THE ORBIT	R*4
4	TIME IN SECS. OF DAY FOR 2	R*4
5	LAT. (-90.0 TO +90.0) AT (3) ABOVE	R*4
6	LONG. (0 TO 360.0) AT (3) ABOVE	R*4
7	NO. OF PDB RECORDS (SCANS) READ	R*4
8	NO. OF U-TAPE RECORDS (SCANS) WRITTEN	R*4
9-10	UNIQUE # OF THE INPUT TAPE	R*8; EBCDIC
11	# OF SCANS REJECTED COMPLETELY DUE TO I/O ERROR	R*4
12	# OF SCANS REJECTED DUE TO NIGHT/ TWILIGHT DATA	R*4
13	# OF SCANS REJECTED DUE TO SOLAR ZENITH ANGLE BEING GREATER THAN 88^0	R*4
14	# OF SCANS REJECTED DUE TO OVERLAP	R*4
15	# OF SCANS REJECTED DUE TO MODE OTHER THAN 0 OR 1	R*4
16	# OF SCANS REJECTED DUE TO MODE =1; DUOPTION = 0	R*4
17	# OF SCANS REJECTED DUE TO MODE = 1; DUOPTION = 1; & FRAME $\neq$ 0	R*4
18	# OF SCANS REJECTED DUE TO MODE = 1; DUOPTION = 1 & FRAME = 0	R*4
19	# OF SCANS REJECTED DUE TO DIFFUSION RECORD WITH FRAME = 0	R*4
20	# OF SCANS REJECTED DUE TO DIFFUSER RECORD WITH FRAME $\neq$ 0	R*4
21	# OF λ BLOCKS FLAGGED BUT SCAN NOT REJECTED E.G. $d_5d_4d_3d_2d_1$. WHERE THE FIVE DIGITS TO THE LEFT OF THE DECIMAL POINT ARE THE SIGNIFICANT DIGITS. (d_1) the first digit to the left of the decimal point represents IDIF = 1 or 3 (d_2) the second digit to the left of decimal point represents λ block does not agree (d_3) the third digit to the left of decimal point represents cam moving.	R*4

IV. (Continued)

4-BYTE WORD	DESCRIPTION	
	(d_4) the fourth digit to the left of decimal point represents photo H.V. = 2 or 3 (d_5) the fifth digit to the left of decimal point represents mono H.V. = 2 or 3 where d_2, d_3 are pure warning flags.	
22-100	SPARES (= -77.)	R*4

B) RECORD 2

4-BYTE WORD	DESCRIPTION	TYPE
1-10	AVERAGE VALUES OF THE 10 HOUSEKEEPING FUNCTIONS 16101 - 16112	R*4
11-20	STANDARD DEVIATION OF THE 10 HOUSEKEEPING FUNCTIONS	R*4
21-30	MINIMUM VALUES FOR THE 10 HOUSEKEEPING FUNCTIONS	R*4
31-40	MAXIMUM VALUES FOR THE 10 HOUSEKEEPING FUNCTIONS	R*4
41-50	NUMBER OF DATA POINTS FOR THE 10 HOUSE-KEEPING FUNCTIONS	R*4
51-100	ANNOTATION (= -77.)	R*4

V. TRAILER FILE OF U-TAPE

4-BYTE WORD	DESCRIPTION	TYPE
1	TRAILER FILE IDENTIFIER (ALWAYS -1.0)	R*4
2	NO. OF FILES ON THE OUTPUT TAPE (INCLUDING HEADER FILE AND THE TRAILER FILE)	R*4
3	DAY AT THE END OF THE LAST SCAN OF THE LAST ORBIT ON TAPE	R*4
4	TIME IN SECS OF DAY FOR (3) ABOVE	R*4
5	LAT. (-90.0 to +90.0) AT (4) ABOVE	R*4
6	LONG. (0.0 to 360.0 WESTWARD AT (4) ABOVE	R*4
7	NO. OF PDB FILES TO READ	R*4
8	SPARE (= 0.0)	R*4
9-10	UNIQUE # OF THE FIRST INPUT TAPE	R*8; EBCDIC
11-12	UNIQUE # OF THE SECOND INPUT TAPE	R*8; EBCDIC
13-(MM-2)	UNIQUE # OF THIRD - LAST INPUT TAPE	R*8; EBCDIC
(MM-1)-MM=	LAST , INDICATING THAT THERE ARE NO MORE INPUT TAPES	R*8; EBCDIC
(MM+1)=100	SPARES (= -77.)	R*4

FORMATS OF NEW

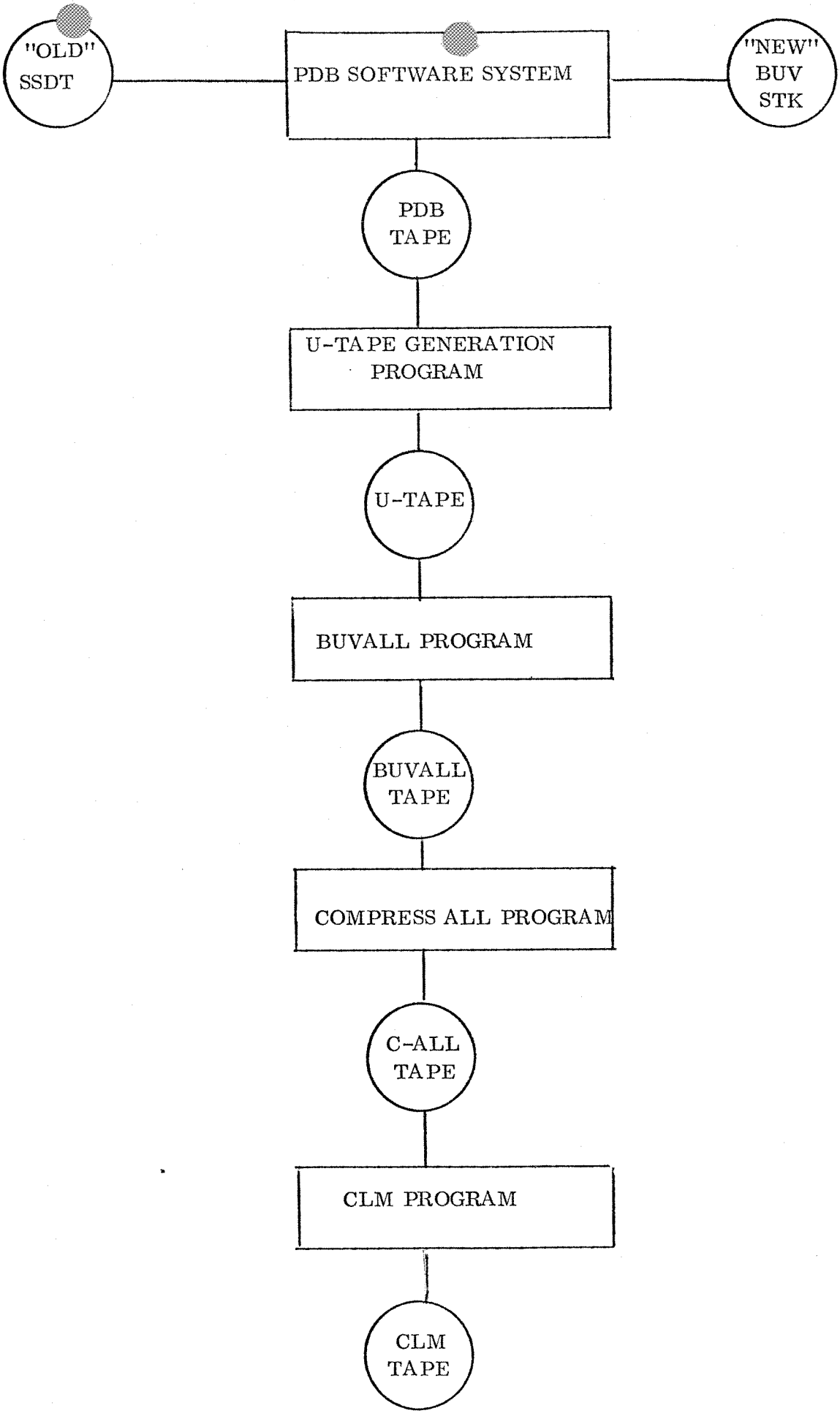
BUV DATA PRODUCTS

CHAPTER 1 - INTRODUCTION

This document contains the formats of the data products produced under the Nimbus-4 Backscatter Ultra-Violet (BUV) project by the new BUV processing system. The purpose of this document is to aid the user in using these data products. Figure 1 gives a schematic diagram of the new BUV processing system.

The raw data is obtained in the form of sensory data tapes, which are of different forms. One, the "old" stacked sensory data tapes (SSDT) and the other, the "new" BUV Stacked Tape (BUVSTK). These raw data tapes are read by two different programs, STRIPOLD and STRIPNEW. The output tapes from these two programs are then merged into one tape, known as the Primary Data Base tape. This Primary Data Base (PDB) tape can by itself be used for analysis of the raw data. Normally there is one week of data on each PDB tape and one orbit worth of data is contained on one file of this tape. Chapter 2 explains the PDB tape generation system in a little more detail.

The PDB tape is read by the U-tape generation program which converts the raw data into engineering units. It computes the U-values for the photometer and the monochromator for each of the 12 wavelengths. The 12 wavelengths for which the instrument takes the measurements are:


"OLD"
SSDT
PDB SOFTWARE SYSTEM
"NEW"
BUV
STK
PDB
TAPE
U-TAPE GENERATION
PROGRAM
U-TAPE
BUVALL PROGRAM
BUVALL
TAPE
COMPRESS ALL PROGRAM
C-ALL
TAPE
CLM PROGRAM
CLM
TAPE

1. 3398A
2. 3312
3. 3175
4. 3125
5. 3058
6. 3019
7. 2975
8. 2922
9. 2876
10. 2830
11. 2735
12. 2555

The U-tape, which is an intermediate tape and normally contains four weeks of data, is read by the BUVALL program. The BUVALL program computes the total ozone and the high level ozone profile. A BUVALL tape normally contains 4 weeks of data and each file of the tape contains an orbit worth of data. Each logical record of BUVALL contains one scan (32 secs) worth of data, which is 300 words long.

Each logical record of BUVALL tape contains a lot of information which goes into the computation of the total ozone and high level ozone profile computation and is not needed for further analysis of the total ozone. So before computing the daily zonal means of the total ozone, the BUVALL tapes are compressed from 300 word output array into 25 word output array. This is done by the compressed-ALL program. Also this compression produces one tape for the entire years data thus facilitating the downstream analysis.

The Compressed-ALL (C-ALL) tape is read by the climatological daily zonal means (CLM) program to compute the means and standard deviation of the total ozone for a prescribed latitude zones. The daily zonal means are also written on a CLM tape for any further analysis.

All the tapes, except the C-ALL and the CLM tapes, contain a header file, a number of data files (one for each orbit), and a trailer file. These files shown schematically in Figure 2 are described below:

1. A Header File. This is the very first file on the tape. It is used to identify the tape. It has satellite identification and also information regarding the program that made this tape, the version number and date of version of the program.

2. Data Files. Every data file is made up of:

a. A Header Record. The very first record of a data file. In addition to some of the information also contained in t the header file, a header record contains the unique number of input tape used to produce the orbital data, the orbit number of the data and day and the job ID of the actual production run.

b. Data Records. One record for each scan. Each scan is 32 seconds in duration.

c. A Trailer Record. The last record of each data file. Contains the tape number of the input tape, summary of number of records and and numb er of records written and an error summary.

3. A Trailer File. The last file of the tape is the trailer file. It gives the number of files on the output tape. It also contains a list of unique numbers of all the input tapes that went into making the tape.

Chapter 2 gives a description of the PDB tape. Because STRIPOLD and STRIPNEW tapes are identical to the PDB in tape specification and tape record

FILE	DESCRIPTION		
1	Header File	Very first file on the tape. Contains tape identification information.	
2	First Data File One orbit/file	Header Record, first record of file.	
		N Data Records	One for each scan
		Trailer record, last record of file . Identified by -(N+2) in the first word.	
3	Second Data File	Same as File 2	
. . .			
M	(M-1)th Data File	Same as File 2	
M+1	Trailer File	The last file on tape. Identified by -1 in the first word. Contains list of input tapes processed by create the PDB.	

Figure 2. Contents of a Tape

format, they are not described separately in this document.

Chapter 3 describes the U-Tape, Chapter 4 the BUVALL tape, Chapter 5 the compress BUVALL tape, and Chapter 6 describes the CLM tape.

NIMBUS 4 BUV RADIANCE '70-0254-05 IS
VALUES (VS) EARTH LOC. D-3100)

DUMP OF TAPE X-374

INPUT TAPE X-374 ON MS1
DATA INPUT H9 NF 320 FL 2 1 1 SR 319 1 SR 319 LAST SR 320 1 SR 320 LAST

NIMB 4 BUV VAAP UTAP EDAC ØCTD 1977 VER6 NAØ6.

04/10/70
ORBIT: 35
THRU
05/07/70
ORBIT: 384

FILE	1ST RECORD	VS-4 LENGTH	800BYTES							
(0)	D5C9D4C2	E4E26DE4	4040C2E4	E5404040	E4E3C1D7	C5C4C1C3	D6C3E340	F1F9F7F7	E5C5D9E2	D540F0F6
(40)	E7E7E4E3	F1F5F1F8	D9C5C3C6	D7E6C6C2	D3D9C5C3	D3E4E0E0	C2D3D2F1	F0F0F0F0	C4C5D57E	F1F6F0F0
(80)	E3C8E440	D5D6E540	F0F36BF1	F9F7F740	40404040	4040F1F5	F7F7F7F7	F7F7F7F7	40404040	F1F9F7F8
(120)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(160)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(200)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(240)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(280)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(320)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(360)	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7	F7F7F7F7
(400)	C24D0000	41200000	42640000	4513B810	423C8DF4	42B04B0C	C24D0000	C24D0000	C24D0000	C24D0000
(440)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(480)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(520)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(560)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(600)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(640)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(680)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(720)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(760)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
	1	1	1	800	0	0	0	0	0

ORBIT - 35

FILE	2ND RECORD	1ST LENGTH	10000BYTES							
(0)	41100000	00000000	F7F0D7C4	C2F1F5C1	E3C8E440	D5D6E540	F0F36BF1	F9F7F740	E9D4D9D2	D2F0F0F1
(40)	42640000	4513B810	423C8DF4	42B04B0C	41F00000	42236FA6	E4E3C1D7	C5C4C1C3	D6C3E340	F1F9F7F7
(80)	E5C5D9E2	D540F0F6	431C96C8	431BFD45	F7F74BF3	F0F74040	C24D0000	C24D0000	C24D0000	C24D0000
(120)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(160)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(200)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(240)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(280)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(320)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(360)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(400)	41200000	42236FA6	42640000	4513B810	41200000	423C8DF4	42B04B0C	423E3986	42B1C285	42369D70
(440)	42F55A1C	00000000	423865E0	42F445EA	00000000	C24D0000	431C4626	42640000	C2630000	4320290B
(480)	42640000	43429B30	432336BF	42640000	C24D0000	C24D0000	42640000	C24D0000	C24D0000	42640000
(520)	C24D0000	C24D0000	42640000	C24D0000	C24D0000	42640000	C24D0000	C24D0000	42640000	C24D0000
(560)	43231F0F	42640000	C24D0000	431A647E	42640000	C24D0000	431C55F0	42640000	433F3E89	C24D0000
(600)	42640000	00000000	423C8DF4	42B04B0C	43451B52	41A00000	41AC0000	45514C80	43D02000	C24D0000
(640)	00000000	41100000	431C35AF	4632085A	44109CB3	45239254	43111FA9	46500671	444B0605	4437F1FC
(680)	44248425	43FC53E7	43EEDE4E	C24D0000	4111C71D	41355561	43A2A4FA	4522907B	4522907B	C24D0000
(720)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	408E38ED	C24D0000	426374D2	408E38ED
(760)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(800)	41300000	42236FA6	42640000	4513BA10	41300000	423E3986	42B1C285	423FE14B	42B361AE	423865E0
(840)	42F445EA	00000000	423A2E36	42F307BC	00000000	433F6604	43213D67	00000000	433F5E1F	43240B0C
(880)	00000000	433F5639	43261C15	00000000	433F5A2C	4326A250	00000000	433F4E54	432893C3	00000000
(920)	433F5A2C	43299461	00000000	433F5A2C	432A0AD2	00000000	433F5E1F	432C62EB	00000000	433F5639
(960)	4331A680	00000000	433F5246	4333EECE	00000000	433F5246	43353E63	00000000	433F466E	433431EC
(1000)	00000000	00000000	423E3986	42B1C285	43452397	00000000	00000000	454EAAE0	4535FB70	C24D0000
(1040)	00000000	00000000	431C1217	408E38ED	4111C71D	408E38ED	4111C71D	4111C71D	408E38ED	408E38ED
(1080)	408E38ED	C24D0000	408E38ED	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	408E38EC	408E38EC
(1120)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	408E38ED
(1160)	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000	C24D0000
(1200)	41400000	42236FA6	42640000	4513BC10	41400000	423FE14B	42B361AE	42418481	42B53021	423A2E36

```
(   960)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1000)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1040)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1080)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1120)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1160)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1200)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1240)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1280)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1320)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1360)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1400)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1440)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1480)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1520)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1560)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1600)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1640)  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777  77777777
(  1680)  77777777  77777777  77777777  77777777  77777777

          FILE    INPUT     DATA RECORDS     MAX.          READ ERROR SUMMARY          INPUT RETRIES
                  RECS.        INPUT         SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
             77       1           1          1700          0      0       0       0       0       0
******    EOF ON COMPLETION OF DUMP FOR REQUEST SR=77=1=1X
******    EOF ON COMPLETION OF DUMP FOR REQUEST SR=77=1=1X

 EOJ         DUMP STOPPED AFTER FILE   77          # OF PERMANENT READ ERRORS  0

START TIME 03/10/78  13:31:09          STOP TIME 03/10/78  13:37:02
```

```
$$
$REW LO
```

70-025A-05E ESAC-00024

DR#	DS#	D#	FILES	TIME SPAN	
DR006148	DS006148	D035269	1-91	08/27/71 - 09/02/71	
		D035268	92-173	09/03/71 - 09/09/71	
		D035267	174-250	09/10/71 - 09/16/71	
		D035266	251-341	09/24/71 - 09/30/71	
		D034530	342-452	10/01/71 - 10/07/71	
		D034531	453-554	10/08/71 - 10/14/71	
		D034532	555-652	10/15/71 - 10/21/71	
DR006149	DS006149	D034533	1-100	10/22/71 - 10/28/71	
		D034534	101-201	10/29/71 - 11/04/71	
		D034535	202-290	11/05/71 - 11/11/71	
		D034536	291-390	11/12/71 - 11/18/71	
		D034537	391-495	11/19/71 - 11/26/71	
		D034538	496-593	11/26/71 - 12/02/71	
		D034539	594-692	12/03/71 - 12/09/71	
DR006150	DS006150	D034540	1-82	12/17/71 - 12/23/71	
		D034541	83-171	12/24/71 - 12/31/71	
		D035213	172-286	12/24/71 - 12/31/71	
		D034548	287-373	01/01/72 - 01/07/72	(c)
		D034547	374-486	01/08/72 - 01/14/72	(d)
		D034546	487-586	01/15/72 - 01/21/72	(e)
DR006151	DS006151	D034543	1-99	01/29/72 - 02/04/72	
		D034544	100-178	02/05/72 - 02/11/72	
		D034549	179-275	02/12/72 - 02/18/72	
		D034551	276-364	02/26/72 - 03/03/72	
		D034552	365-457	03/04/72 - 03/10/72	
		D034553	458-547	03/11/72 - 03/17/72	
DR006152	DS006152	D034554	1-91	03/18/72 - 03/24/72	
		D034555	92-140	03/25/72 - 03/30/72	
		D034556	141-235	04/01/72 - 04/07/72	(f)
		D034558	236-333	04/15/72 - 04/21/72	
		D034559	334-430	04/22/72 - 04/28/72	
		D034542	431-528	04/29/72 - 05/05/72	
DR006153	DS006153	D035225	1-95	05/06/72 - 05/12/72	
		D035227	96-178	05/13/72 - 05/19/72	
		D035228	179-268	05/20/72 - 05/26/72	
		D035229	269-352	05/27/72 - 06/02/72	
		D035224	353-445	06/03/72 - 06/09/72	
		D035223	446-532	06/10/72 - 06/16/72	

DR#	DS#	D#	FILES	TIME SPAN	
DR006154	DS006154	D035222	1-70	06/17/72 - 06/23/72	
		D035239	71-157	07/01/72 - 07/07/72	
		D035238	158-173	07/08/72 - 07/14/72	
		D035237	174-200	07/15/72 - 07/21/72	
		D035236	201-232	07/22/72 - 07/28/72	
		D035235	233-267	07/29/72 - 08/04/72	
		D035231	268-298	08/05/72 - 08/11/72	
		D035232	299-332	08/12/72 - 08/18/72	
		D035233	333-360	08/19/72 - 08/25/72	
		D035234	361-384	08/26/72 - 09/01/72	
		D035078	385-405	09/02/72 - 09/08/72	
		D035079	406-432	09/09/72 - 09/15/72	
		D035077	433-453	09/16/72 - 09/22/72	
		D035076	454-476	09/23/72 - 09/29/72	
		D035074	477-494	09/30/72 - 10/04/72	
		D035075	495-521	10/07/72 - 10/13/72	
		D035072	522-530	10/15/72 - 10/19/72	
		D035080	531-594	10/21/72 - 11/10/72	
		D035073	595-632	11/11/72 - 11/30/72	
		D035070	633-698	01/19/73 - 03/04/73	
DR006155	DS006155	D035071	1-112	03/07/73 - 05/06/73	
		D035067	113-136	05/07/73 - 05/13/73	
		D035068	137-181	05/14/73 - 05/27/73	
		D035069	182-207	05/28/73 - 06/05/73	
		D035066	208-230	06/25/73 - 07/01/73	
		D035195	231-269	07/16/73 - 07/29/73	
		D035194	270-301	07/31/73 - 08/12/73	
		D035193	302-332	08/13/73 - 08/26/73	
		D035192	333-367	08/27/73 - 09/09/73	
		D035191	368-397	09/10/73 - 09/23/73	
		D035190	398-414	09/24/73 - 09/30/73	
		D035189	415-442	10/08/73 - 10/20/73	
		D035188	443-468	10/22/73 - 11/03/73	
		D035187	469-509	11/05/73 - 11/25/73	
		D035186	510-530	11/26/73 - 12/08/73	
		D035185	531-546	01/11/74 - 01/16/74	(g)
DR006156	DS006156	D035182	1-27	01/24/74 - 02/11/74	
		D035183	28-76	02/12/74 - 03/04/74	
		D035184	77-121	03/05/74 - 03/25/74	
		D035181	122-167	03/26/74 - 04/15/74	
		D035277	168-181	04/16/74 - 04/21/74	(h)
		D035276	182-214	04/23/74 - 05/06/74	
		D035275	215-258	05/07/74 - 06/02/74	
		D035274	259-264	06/04/74 - 06/06/74	
		D035230	265-338	06/25/74 - 07/01/74	
		D035278	339-352	07/09/74 - 07/25/74	
		D035279	353-410	07/30/74 - 08/26/74	
		D035280	411-473	08/27/74 - 09/23/74	
		D035281	474-533	09/24/74 - 10/21/74	

DR#	DS#	D#	FILES	TIME SPAN	
DR006157	DS006157	D035282	1-57	10/22/74 - 11/18/74	
		D035283	58-121	11/19/74 - 12/16/74	
		D035284	122-160	12/17/74 - 12/31/74	
		D035272	161-217	01/01/75 - 01/23/75	
		D035273	218-279	02/04/75 - 02/25/75	
		D035285	280-364	02/26/75 - 03/25/75	
		D035270	365-465	03/26/75 - 04/22/75	
		D035271	466-499	04/23/75 - 05/06/75	
		D035241	500-559	05/07/75 - 05/31/75	
		D035240	560-583	08/10/75 - 08/26/75	
		D035245	584-625	08/27/75 - 09/23/75	
DR006158	DS006158	D035244	1-67	09/24/75 - 10/21/75	(i)
		D035243	68-136	10/22/75 - 11/18/75	
		D035242	137-240	11/19/75 - 12/31/75	
		D035249	241-315	01/16/76 - 01/28/76	
		D035248	316-376	01/29/76 - 02/18/76	
		D035247	377-432	02/19/76 - 03/24/76	
		D035246	433-501	03/25/76 - 04/21/76	
DR006159	DS006159	D035250	1-32	04/22/76 - 05/05/76	
		D035256	33-88	05/06/76 - 06/11/76	
		D035255	89-198	09/03/76 - 11/17/76	
		D035254	199-297	11/18/76 - 12/31/76	
		D035253	298-339	01/01/77 - 01/25/77	
		D035251	340-391	02/02/77 - 02/25/77	
		D035201	392-431	02/26/77 - 03/24/77	
		D035226	432-515	03/30/77 - 04/22/77	
		D035065	516-565	04/23/77 - 05/06/77	

(a) D035085 - 1 ERROR, REC. 14, FILE 10
(b) D035264 - 1 ERROR, REC. 1, FILE 58
(c) D034548 - 1 ERROR, REC. 4, FILE 2
(d) D034547 - 1 ERROR, REC. 16, FILE 20
(e) D034546 - 1 ERROR, REC. 16, FILE 28
(f) D034556 - 1 ERROR, REC. 9, FILE 84
(g) D035185 - 2 ERRORS, REC. 1, 2, FILE 3
(h) D035277 - 1 ERROR, REC. 1, FILE 2
(i) D035244 - 1 ERROR, REC. 16, FILE 11

70-025A-05E

D#	C#	FILES	TIME SPAN
D-35115		22	4/09/70 - 4/10/70
D-31003	C-19829 Released	77	4/10/70 - 4/15/70
D-35084		77	4/10/70 - 4/15/70
D-35082		87	4/16/70 - 4/22/70
D-35083		88	4/23/70 - 4/30/70
D-35085		90	4/30/70 - 5/07/70
D-35086		91	5/07/70 - 5/14/70
D-35087		90	5/14/70 - 5/20/70
D-35089		86	5/21/70 - 5/27/70
D-35040		84	5/28/70 - 6/03/70
D-35112		84	6/04/70 - 6/11/70
D-35088		87	6/11/70 - 6/17/70
D-35114		94	6/18/70 - 6/25/70
D-35113		85	6/25/70 - 7/02/70
D-35216		80	7/02/70 - 7/08/70
D-35217		84	7/08/70 - 7/15/70
D-35218		88	7/16/70 - 7/23/70
D-35219		88	7/23/70 - 7/30/70
D-35220		85	7/30/70 - 8/06/70
D-35221		83	8/06/70 - 8/13/70
D-35198		84	8/13/70 - 8/20/70
D-35200		90	8/20/70 - 8/27/70
D-35197		88	8/26/70 - 9/02/70
D-35196		89	9/02/70 - 9/09/70
D-35199		84	9/10/70 - 9/17/70
D-35215		87	9/17/70 - 9/24/70
D-35149		88	9/24/70 - 10/01/70

D#	FILES	TIME SPAN
D-35150	88	10/01/70 - 10/08/70
D-35081	83	10/08/70 - 10/09/70
D-35147	90	10/15/70 - 10/21/70
D-35148	86	10/22/70 - 10/28/70
D-35145	84	10/29/70 - 11/05/70
D-35146	86	11/01/70 - 11/12/70
D-35143	87	11/12/70 - 11/19/70
D-35140	88	11/19/70 - 11/26/70
D-35142	87	11/25/70 - 12/02/70
D-35141	92	12/02/70 - 12/09/70
D-35144	86	12/10/70 - 12/16/70
D-35212	89	12/17/70 - 12/23/70
D-35214	85	1/01/71 - 1/08/71
D-35211	94	1/08/71 - 1/14/71
D-35210	96	1/15/71 - 1/21/71
D-35209	122	1/22/71 - 1/28/71
D-35208	116	1/29/71 - 2/04/71
D-35204	123	2/05/71 - 2/11/71
D-35203	96	2/12/71 - 2/18/71
D-35202	126	2/20/71 - 2/25/71
D-35207	141	2/26/71 - 3/03/71
D35206	123	3/04/71 - 3/10/71
D-35205	110	3/11/71 - 3/18/71
D-35119	106	3/19/71 - 3/25/71
D-35120	93	3/26/71 - 4/02/71
D-35121	88	4/02/71 - 4/08/71
D-35116	71	4/23/71 - 4/29/71
D-35117	66	4/30/71 - 5/06/71

D#	FILES	TIME SPAN
D-35118	65	5/07/71 - 5/13/71
D-35122	70	5/13/71 - 5/20/71
D-35064	58	5/21/71 - 5/27/71
D-35063	56	5/29/71 - 6/03/71
D-35123	72	6/04/71 - 6/10/71
D-35061	71	6/11/71 - 6/17/71
D-35062	66	6/18/71 - 6/24/71
D-35260	65	6/25/71 - 7/01/71
D-35258	69	7/02/71 - 7/08/71
D-35257	91	7/09/71 - 7/15/71
D-35259	83	7/16/71 - 7/23/71
D-35261	106	7/23/71 - 7/30/71
D-35262	99	7/30/71 - 8/06/71
D-35263	91	8/06/71 - 8/12/71
D-35264	59	8/13/71 - 8/19/71
D-35265	94	8/26/71 - 8/27/71
D-35269	91	8/28/71 - 9/03/71
D-35268	82	9/03/71 - 9/09/71
D-35267	77	9/10/71 - 9/16/71
D-35266	91	9/24/71 - 9/30/71
D-34530	111	9/27/71 - 10/08/71
D-34531	102	10/08/71 - 10/14/71
D-34532	98	10/15/71 - 10/21/71
D-34533	100	10/22/71 - 10/28/71
D-34534	101	10/29/71 - 11/04/71
D-34535	89	11/05/71 - 11/11/71
D-34536	100	11/12/71 - 11/19/71
D-34537	105	11/19/71 - 11/26/71
D-34538	98	11/26/71 - 12/02/71

D#	FILES	TIME SPAN
D-34539	99	12/03/71 - 12/10/71
D-34540	82	12/17/71 - 12/23/71
D-34541	89	12/24/71 - 12/31/71
D-35213	115	12/24/71 - 12/31/71
D-34548	87	1/01/72 - 1/07/72
D-34547	113	1/08/72 - 1/14/72
D-34546	100	1/15/72 - 1/21/72
D-34545	94	1/22/72 - 1/28/72
D-34543	99	1/29/72 - 2/04/72
D-34544	79	2/04/72 - 2/11/72
D-34549	97	2/12/72 - 2/18/72
D-34550	95	2/19/72 - 2/25/72
D-34551	89	2/26/72 - 3/03/72
D-34552	93	3/04/72 - 3/10/72
D-34553	90	3/11/72 - 3/17/72
D-34554	91	3/18/72 - 3/24/72
D-34555	49	3/25/72 - 3/30/72
D-34556	95	4/01/72 - 4/07/72
D-34557	93	4/08/72 - 4/14/72
D-34558	98	4/15/72 - 4/21/72
D-34559	97	4/22/72 - 4/28/72
D-34542	98	4/29/72 - 5/05/72
D-35225	95	5/06/72 - 5/12/72
D-35227	83	5/13/72 - 5/19/72
D-35228	90	5/20/72 - 5/26/72
D-35229	84	5/27/72 - 6/02/72
D-35224	93	6/02/72 - 6/09/72
D-35223	87	6/10/72 - 6/16/72
D-35222	68	6/17/72 - 6/23/72

D#	FILES	TIME SPAN
D-35239	87	7/01/72 - 7/07/72
D-35238	16	7/08/72 - 7/14/72
D-35237	27	7/15/72 - 7/21/72
D-35236	32	7/22/72 - 7/28/72
D-35235	35	7/29/72 - 8/05/72
D-35231	31	8/05/72 - 8/11/72
D-35232	34	8/12/72 - 8/18/72
D-35233	28	8/19/72 - 8/25/72
D-35234	24	8/26/72 - 9/01/72
D-35078	21	9/02/72 - 9/08/72
D-35079	27	9/09/72 - 9/15/72
D-35077	21	9/16/72 - 9/22/72
D-35076	23	9/23/72 - 9/29/72
D-35074	18	9/30/72 - 10/05/72
D-35075	29	10/07/72 - 10/13/72
D-35072	9	10/15/72 - 10/19/72
D-35080	64	10/21/72 - 11/10/72
D-35073	38	11/11/72 - 11/30/72
D-35070	66	1/19/73 - 3/04/73
D-35071	112	3/07/73 - 5/06/73
D-35067	24	5/07/73 - 5/13/73
D-35068	45	5/14/73 - 5/27/73
D-35069	26	5/28/73 - 6/05/73
D-35066	24	6/25/73 - 7/01/73
D-35195	39	7/15/73 - 7/28/73
D-35194	32	7/30/73 - 8/11/73
D-35193	31	8/12/73 - 8/25/73
D-35192	35	8/26/73 - 9/08/73
D-35191	30	9/09/73 - 9/22/73

D#	FILES	TIME SPAN
D-35190	17	9/23/73 - 9/29/73
D-35189	28	10/07/73 - 10/19/73
D-35188	26	10/21/73 - 11/02/73
D-35187	41	11/04/73 - 11/24/73
D-35186	21	11/15/73 - 12/07/73
D-35185	15	1/11/74 - 1/16/74
D-35182	27	1/24/74 - 2/11/74
D-35183	49	2/12/74 - 3/05/74
D-35184	45	3/05/74 - 3/26/74
D-35181	46	3/26/74 - 4/15/74
D-35277	14	4/16/74 - 4/21/74
D-35276	33	4/23/74 - 5/06/74
D-35275	44	5/07/74 - 6/02/74
D-35274	6	6/04/74 - 6/06/74
D-35230	74	6/25/74 - 7/01/74
D-35278	14	7/09/74 - 7/25/74
D-35279	58	7/30/74 - 8/26/74
D-35280	63	8/27/74 - 9/23/74
D-35281	60	9/24/74 - 10/22/74
D-35282	57	10/22/74 - 11/18/74
D-35283	64	11/19/74 - 12/15/74
D-35284	39	12/17/74 - 12/31/74
D-35272	57	1/01/75 - 1/23/75
D-35273	62	2/04/75 - 2/25/75
D-35285	85	2/26/75 - 3/25/75
D-35270	101	3/26/75 - 4/23/75
D-35271	34	4/23/75 - 5/06/75
D-35241	60	5/07/75 - 6/01/75
D-35240	24	8/10/75 - 8/26/75

D#	FILES	TIME SPAN
D-35245	42	8/27/75 - 9/23/75
D-35244	67	9/24/75 - 10/21/75
D-35243	69	10/22/75 - 11/18/75
D-35242	104	11/19/75 - 12/31/75
D-35249	75	1/16/76 - 1/29/76
D-35248	61	1/29/76 - 2/18/76
D-35247	56	2/19/76 - 3/25/76
D-35246	69	3/25/76 - 4/21/76
D-35250	32	4/22/76 - 5/05/76
D-35256	56	5/06/76 - 6/11/76
D-35255	110	9/03/76 - 11/17/76
D-35254	99	11/18/76 - 12/31/76
D-35253	42	1/01/77 - 1/25/77
D-35251	52	2/02/77 - 2/09/77
D-35201	40	2/26/77 - 3/24/77
D-35226	84	3/30/77 - 4/22/77
D-35065	50	4/23/77 - 5/06/77

B R I E F D E S C R I P T I O N
Primary Data Base Tapes (PDB)
70-025A-05E

This set of raw data is contained on EBCDIC magnetic tapes that were created on an IBM 360 computer. It contains raw counts measured at 12 wavelengths between 0.25 and 0.34 micrometer in 32-s scans. It also contains ephemeris data, experiment subsystem status information, and spacecraft housekeeping and orbit data.

M A T E R I A L S F O R D I S T R I B U T I O N
70-025A-05E
Primary Data Base Tapes (PDB)

The following items were found in the Data Set Catalog:

1) User's Guide to the Nimbus-4 Backscatter Ultraviolet Experiment Data Sets by Lowrey and Khatri, Jan. 1978 (only up to p. 33 - the rest is obsolete anyway.)
2) Chapter II. Primary Data Base Tape, p. 2-1 to 2-11. Source unknown.

It's unclear if one document supercedes the other.
(CYN, 9/97)

70-0254-05E

CHAPTER II. PRIMARY DATA BASE TAPE

The Primary Data Base (PDB) tape of the Nimbus-4 ozone data contains the Backscatter Ultra-Violet (BUV) data for each scan (32 seconds) of an orbit. Each data record contains the

1. Ephemeris data,
2. BUV data,
3. Satellite calibration data,
4. Analog data,
5. Attitude data,
6. Muse data.

at the start and end of every scan.

The Primary Data Base software system consists of three programs that finally produce the Primary Data Base tapes for the Nimbus-4 BUV data. Normally each PDB tape would cover a seven day period. The three programs are:

I. STRIPOLD program

II. STRIPNEW program

III. PDB program

The STRIPOLD program reads a stacked sensory data tape (SSDT) made by Systems and Applied Sciences Corporation from the raw sensory data tapes, and produces a STRIPOLD tape. The STRIPNEW program reads a "new" stacked tape called BUV STK tapes, made by General Electric, and produces a STRIPNEW tape. The STRIPOLD and STRIPNEW tapes, which are identical in tape specifications

and record formats, are then read by the PDB program and merged in time sequence to produce the PDB tape. Figure 3 schematically describes the Primary Data Base tape production system. The tape specifications of the PDB tape are:

RECFM = FB, LRECL = 1700, Bytes, BLKSIZE = 17000 Bytes
9 TRACK IBM 360 NL TAPE WRITTEN WITH ~~1600~~ 6250 BPI

The following pages describe the various types of records of the PDB.

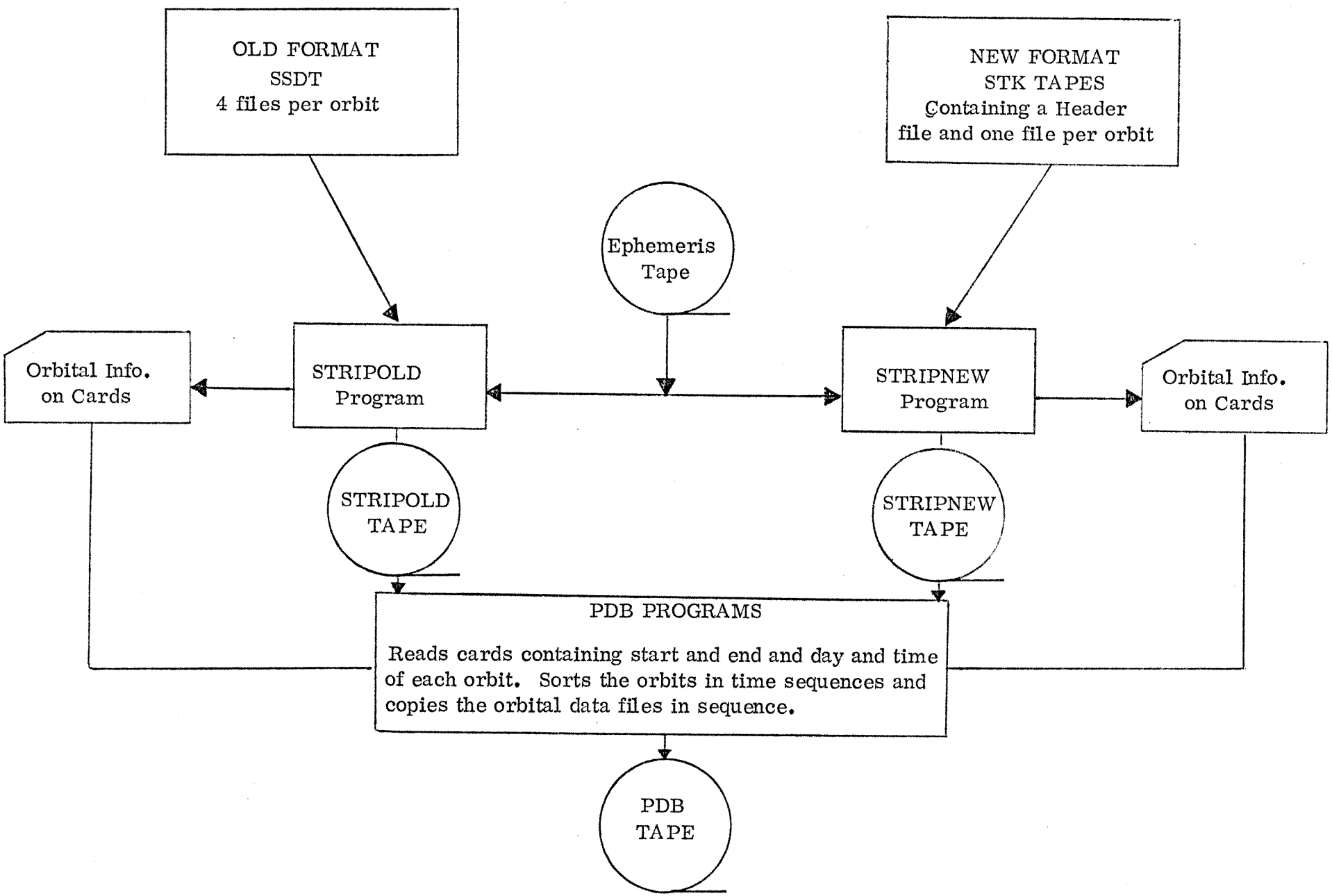


Figure 3. PDB System

PDB TAPE FORMAT

I. HEADER FILE OF PDB TAPE

A) RECORD 1

WORD	DESCRIPTION	TYPE
1	SATELLITE ID (NIMBUS 4)	R*8 EBCDIC
2	EXPERIMENT ID (BUV)	R*8 EBCDIC
3	PROGRAM NAME (E.G. STRIPOLD)	R*8 EBCDIC
4	DATE OF PROGRAM VERSION (10/15/77)	R*8 EBCDIC
5	VERSION NO. OF PROGRAM (VERSN 06)	R*8 EBCDIC
6	UNIQUE # OF OUTPUT TAPE	R*8 EBCDIC
7-10	DCB OF THE OUTPUT TAPE 4 WORDS (RECEM=FB, LREL1700, DEN=1600)	R*8 EBCDIC
11-12	DAY OF WEEK AND DATE OF JOB RUN (THU 15 OCT 77) TWO R*8 WORDS	R*8 EBCDIC
13	STARTING WEEK NUMBER OF DATA	R*8 EBCDIC
14	ENDING WEEK NUMBER OF DATA	R*8 EBCDIC
15	CALENDAR YEAR OF DATA (E.G. 70.)	R*8 EBCDIC
REST	ANNOTATION (= 77777777)	R*8 EBCDIC

B) SUBSEQUENT RECORDS

1	NUMBER OF FILES ON OUTPUT TAPE*	R*4
2	LOGICAL SEQ. NO. **	R*4
3	START DAY OF FIRST ORBIT	R*4
4	START TIME OF FIRST ORBIT	R*4
5	LAT. (-90. TO +90.) OF FIRST ORBIT	R*4
6	LONG. (0 to 360 W) OF FIRST ORBIT	R*4
7	DAY AT END OF FIRST ORBIT*	R*4
8	TIME AT END OF FIRST ORBIT*	R*4
9	LATITUDE AT END OF FIRST ORBIT*	R*4
10	LONGITUDE AT END OF FIRST ORBIT*	R*4
11-18	SAME AS 3-10, BUT FOR SECOND ORBIT*	R*4
19-LAST	EIGHT WORDS FOR EACH ORBIT*	R*4

*These words will be filled with -77.'s if the data is not available, STRIPOLD and STRIPNEW tapes have -77. for words 7 through last but the PDB program fills in the actual data on the PDB tape. A maximum of 50 orbits can be included in each logical record of type B.

** = 2 for first 50 orbits
= 4 for orbits 50-100
= 4 for orbits 101-150

II. HEADER RECORD OF PDB TAPE

2-BYTE WORD

WORD	DESCRIPTION	TYPE
1	LOGICAL SEQ. NO. (ALWAYS =1)	1*2
2	DUMMY WORD TO MAKE 4 BYTES(=0)	I*2
3-6	UNIQUE # OF INPUT TAPE	R*8
7-14	DATE OF JOB RUN (TWO R*8 WORDS)	R*8 EBCDIC
15-18	JOBID OF THE JOB	R*8 EBCDIC
19-20	DAY AT START OF THE ORBIT	R*4
21-22	TIME AT START OF THE ORBIT	R*4
23-24	LATITUDE (-90 TO +90) AT THE BEGINNING OF THE ORBIT	R*4
25-26	LONGITUDE (0 TO 360 WESTWARDS) AT BEGINNING OF THE ORBIT	R*4
27-28	WEEK NUMBER OF START OF ORBIT	R*4
29-32	PROGRAM NAME (E.G. STRIPOLD)	R*8 EBCDIC
33-36	VERSION DATE (E.G. 12/15/76)	R*8 EBCDIC
37-40	VERSION NUMBER (E.G. VERSN 01)	R*8 EBCDIC
41-42	ORBIT NUMBER	R*4
43-46	DATE OF JOB RUN AS A JULIAN DAY (77.035 CORRES. TO FRI. 4 BEB. 1977 IN WORDS 4-5)	R*8 EBCDIC
47-LAST	SPARES(-77.)	R*4

III. PDB DATA RECORD (850 I*2 WORDS)

2 BYTE WORD

WORD	DESCRIPTION
1	LOGICAL SEQUENCE NUMBER
2	SPARE (=0)
3	FLAG FOR MISSING MAJOR FRAME = 0 both major frames present = 1 first major frame absent = 2 second major frame absent
4	DAY OF BEGINNING OF SCAN
5-6*	START TIME IN INTEGER SECONDS OF FIRST MAJOR FRAME
7-8*	START TIME IN INTEGER SECONDS OF SECOND MAJOR FRAME
9	SPARE (=0)
10	DAY OF END OF SCAN
11-12*	TIME IN INTEGER SECONDS AT END OF SCAN
13-14**	ALTITUDE AT BEGINNING OF SCAN (IN KMS)
15-16**	LATITUDE AT BEGINNING OF SCAN (-90 TO +90^{O})
17-18**	LONGITUDE AT BEGINNING OF SCAN (0 - 360 W TUE)
19-20**	SOLAR ZENITH ANGLE AT BEGINNING OF SCAN
21-22**	AZIMUTH ANGLE AT BEGINNING OF SCAN
23-24**	LATITUDE AT END OF SCAN
25-26**	LONGITUDE AT END OF SCAN
27-28**	SOLAR ZENITH ANGLE AT END OF SCAN
29-30**	AZIMUTH ANGLE AT END OF SCAN
31	DAY-NIGHT CODE FOR START OF FIRST MAJOR FRAME = 0,1,2 FOR DAY, TWILIGHT AND NIGHT RESPECTIVELY
32	SAME AS 31 BUT FOR SECOND MAJOR FRAME
33-112	FCN 16200, BUV DATA FOR FIRST MAJOR FRAME
113-192	FCN 16200, BUV DATA FOR SECOND MAJOR FRAME
193	FCN 16012 BUV 10 KHZ - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
194	FCN 16013 BUV MODE LCH/NDR - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
195	FCN 16021 BUV CALIB. - INH/ENA - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
196	FCN 16022 BUV DPLY DIFF - YES/NO - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
197	FCN 16023 BUV STR DIFF - YES/NO - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME

* These two words should be read as one I*4 word through an EQUIVALENCE statement

** These two words should be read as one R*4 word through an EQUIVALENCE statement.

III (Continued)

WORD		DESCRIPTION
198		FCN 16024 BUV DIF DPLYD - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
199		FCN 16025 BUV DIF STRD - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
200		FCN 16030 BUV PWAY CAL. - ON/OFF - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
201		FCN 16031 ELECTRICAL CAL. - ON/OFF - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
202		FCN 16032 PHOTO CAL. - ON/OFF - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
203		FCN 16033 - WC LAMP - ON/OFF - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
204		FCN 16034 MSH DATA - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
205		FCN 16035 MSH PCAL. - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
206		FCN 16036 MSH DCUR - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
207		FCN 16037 PSH DATA - NO/YES - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
208		FCN 16038 PSH PCAL. NO/YES - 3 SAMPLES IN 3 LSB's FOR FIRST MAJOR FRAME
209		FCN 16039 PSH DCUR - NO/YES - 3 SAMPLES IN 3 LSB'S FOR FIRST MAJOR FRAME
210-226		SAME AS 193-209, BUT FOR SECOND MAJOR FRAME
227		FCN 16101: +4 VDC
228	1 sample for each function, right-adjusted, for first major frame	FCN 16102: Thermistor Bias (-6.375V)
229		FCN 16103: Photometer High Voltage
230		FCN 16104: Monochromator High Voltage
231		FCN 16105: Housing Absolute Temperature
232		FCN 16106: Photomultiplier Absolute Temperature
233		FCN 16107: Sensor Mod Elect Temperature
234		FCN 16108: Mtr Cur Limiter Temperature
235		FCN 16109: Static Inverter 1 Temperature
236		FCN 15110: Static Inverter 2 Temperature
237		FCN 16111: Arm Gradient
238		FCN 16112: Housing Gradient
239-250		SAME AS 227-238 BUT FOR SECOND MAJOR FRAME
251-266		FCN 14001 (16 words) MUSE Data

WORD		DESCRIPTION
267-282		FCN 14002 (16 words) MUSE Data
283	for	FCN 14003 MUSE - 3 volts
284	first	FCN 14004 MUSE - 6 volts
285	major	FCN 14005 MUSE Aspect Sensor ATA
286	frame	FCN 14006 MUSE Aspect Sensor EATA
287		FCN 14007 MUSE Cathode Temps
288	for	FCN 14008 MUSE Feedback Res. T.
289	first	FCN 14009 MUSE Elec. Temp.
290	major	FCN 14011 MUSE PITCH EYE 1 1/0 in 2^{o} Bit/1 Sample
291	frame	FCN 14012 MUSE PITCH EYE 2 1/0 in 2^{o} Bit/1 Sample
292		FCN 14013 MUSE PITCH EYE 3 1/0 in 2^{o} Bit
293-295		FCN 14014 MUSE PITCH EYE 4 1/0 in 2^{0} Bit/3 Samples
296-298		FCN 14015 MUSE PITCH EYE 5 1/0 in 2^{o} Bit/3 Samples
299-301		FCN 14016 MUSE PITCH EYE 6 1/0 in 2^{o} Bit/3 Samples
302		FCN 14017 MUSE PITCH EYE 7 1/0 in 2^{o} Bit
303-305		FCN 14021 MUSE YAW EYE 1 1/0 in 2^{o} Bit
306-308	for	FCN 14022 2 3 Samples of Each Information
309-311	first	FCN 14023 3
312-314	major	FCN 14024 4 (3 words each)
315-317	frame	FCN 14025 5
318-320		FCN 14026 6
321-323		FCN 14027 7
324-339		FCN 14030 (16 wds) Reference Ind. in Bit 3
340-355		FCN 14031 (16 wds) Range Bit 1 in Bit 1
356-371		FCN 14032 (16 wds) Range Bit 2 in Bit 5
372-387		FCN 14033 (16 wds) Range Bit 3 in Bit 10
388-390		FCN 14034 (3 wds) MUSE Power On/Off in Bit 1
391-393		FCN 14035 (3 wds) MUSE Man/Auto in Bit 10
394-536		SAME AS 251-393 BUT FOR SECOND MAJOR FRAME
537		FCN 1101 Coarse Pitch Error
538-553		FCN 1102 (16 wds) Fine Pitch
554-569		FCN 1103 (16 wds) Pitch Tach Amp
570		FCN 1201 Coarse Roll
571-586	for	FCN 1202 (16 wds) Fine Roll
587-602	first	FCN 1205 (16 wds) Roll FWD Flywheel Speed
603-618	major	FCN 1206 (16 wds) Roll Rear Flywheel Speed
619-634	frame	FCN 1303 (16 wds) Yaw Tach. Amp.
635		FCN 1322 Yaw Sun Sensor Amp.
636-651		FCN 1351 (16 wds) RUP IND. Rate (Hi. Res.)

III. (Continued)

WORD	DESCRIPTION
652	FCN 1411 Left SAD SSDA
653-655	FCN 1413 (3 words) left SAD Phase-Switch in Bit 7
656-671	FCN 1417 (16 words) Left SAD Tach.
672-687	FCN 1431 (16 words) Left Cosine Pot
688	FCN 2005 Solar Array I
689-840	SAME AS FOR 537-688, BUT FOR SECOND MAJOR FRAME
841	ORBIT NUMBER
842-850	SPARES (=77.)

70-025A-05F

D#	C#	FILES	TIME SPAN
D-35318	C-20824	966	4/10/70 - 7/01/70
D-35319	C-20825	1075	7/01/70 - 10/01/70
D-35320	C-20826	1091	10/01/70 - 12/31/70
D-35321	C-20827	1040	1/01/71 - 4/01/71
D-35322	C-20828	740	4/01/71 - 6/30/71
D-35323	C-20829	943	7/01/71 - 9/30/71
D-35324	C-20830	1109	10/01/71 - 12/31/71
D-35325	C-20831	1026	1/01/72 - 3/30/72
D-35326	C-20832	1079	4/01/72 - 6/30/72
D-35327	C-20833	512	7/01/72 - 11/30/72
D-35328	C-20834	589	1/19/73 - 12/08/73
D-35329	C-20835	569	1/01/74 - 12/31/74
D-35330	C-20836	619	1/01/75 - 12/31/75
D-35331	C-20837	507	1/01/76 - 12/30/76
D-35332	C-20838	254	1/01/77 - 5/06/77

TAPE FORMATS AND DESCRIPTIONS TO ACCOMPANY THE TOTAL OZONE TAPES (DTOZ AND CTOZ) FOR THE NIMBUS 4 BACKSCATTER ULTRAVIOLET EXPERIMENT

(RELEASE II)

OZONE PROCESSING TEAM

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I. INTRODUCTION

This brief document contains the tape formats and descriptions of the tape contents for the Release II detailed total ozone tapes (DTOZ) and the compressed total ozone tapes (CTOZ). There have been several changes made to the CTOZ and DTOZ data record formats and to the DTOZ trailer record format. User's of the original data set should be aware that these formats are different and should use the formats given in this document for the Release II tapes.

The Release II data set represents a cleaner ozone data set. In the course of our investigations into the quality of the data set we discovered an instrument problem that was related to the performance of the spectrometer cam. Fortunately, we were able to identify scans which were affected by this problem and delete them from the data set.

The net result was the deletion of 80 data points from the first year (out of 225,717 scans in Release I). This number increased with aging of the instrument so that for 1977, 2,620 of the 17,958 scans in the original data set have been deleted. The statistics for each of the seven years are given in the table on the next page.

IMPORTANT NOTE:

It is recognized that instrument characteristics and the solar flux may have changed beyond our ability to provide an absolute correction over the seven year data set period. An assessment of the maximum amount of uncorrected drift is in preparation. The magnitude appears small and the data is quite good over any short interval. Users are cautioned that it is necssary to consider the possibility of long-term drift by comparison with some known standard prior to assessing long-term ozone trends from this data set. An effort is currently underway to do this by comparison with the Dobson network. However, changes in the composition of the network and in the relative biases of individual stations make this a nontrivial task.

SUMMARY OF RELEASE I AND II DATA SET VOLUMES BY YEAR

YEAR	RELEASE I	RELEASE II	DIFFERENCE
1970	225717	225637	80
1971	237563	237224	339
1972	175428	173760	1668
1973	77823	76846	977
1974	77517	76437	1080
1975	67090	65959	1131
1976	53469	52153	1316
1977	17958	15338	2620

II. THE DETAILED TOTAL OZONE TAPE

The Detailed Total Ozone (DTOZ) tape contains the total ozone data calculated from the calibrated backscattered ultraviolet radiances on the U-tape. Data for 7 years of the satellite's operation, covering the period April 10, 1970 to May 5, 1977 is stored on 15 tapes, each contains 3 months to 1 year's worth of data. A single file on the DTOZ tape contains data from one or more orbits.

A DTOZ tape, is made up of a header file, a number of data files and a trailer file. The data file contains a header record, a number of data records (one for each scan of data) and a trailer record. The header file is the first file of a tape and contains tape identification information. The format of the header file records is presented in Table 2.1. The header record, which is the first record of a data file, contains information required to identify the orbit data on that file. The format of the header record is described in 2.2.

A data record, described below, contains the measurements and position during one scan. Table 2.3 describes the format of a data record. The last record on a data file is the trailer record which contains a summary of the data processed in the data file. The trailer record, described in Table 2.4 also contains an error summary for data rejected during the processing. The last file on a DTOZ tape is the trailer file, which contains a list of all the input tapes which were processed to generate the DTOZ tape. The format of the trailer file is described in Table 2.5.

The header file, the header record, the trailer record, and the trailer file are primarily used for data management by the production team and may not be of much use to an outside user of DTOZ tape. Hence, these records will not be described in any detail.

The data record contains one complete 12-wavelength scan of the BUV monochromator spanning 32 seconds. The first word is the logical sequence number within the file of the scan in question. Logical sequence number of a data record always starts with two, since one is the logical sequence number of the header record. The logical sequence number of a particular record on the DTOZ tape may be different from the logical sequence number of the same record on the U-tape. This is because scans are rejected in the total ozone computation if the data is during twilight or nighttime, if the solar zenith angle is larger than 82.7^{o} (sun near the horizon), if "bad" data is found or if a calibration procedure occurred during the scan. Words 2 through 6 of the DTOZ data record are self explanatory and are copied unaltered from the U-tape data record. Words 7,8, and 9 contain the latitude, longitude (longitude convention: 0^{o} to 360^{o} WESTWARD) and

the solar zenith angle given as average values for the satellite during the time of the four monochromator readings used to compute the total ozone. Words 10, 11, and 12 contain the same averages during the time the eight monochromator readings used to calculate the ozone profile were taken.

Words 13 and 14 contain resistor flags for each of the 12 monochromator wavelength positions; likewise, words 15 and 16 contain the resistor flags for the photometer channel at the same times. The meaning of these flags is given in Table 2.3a. Because the backscattered radiance decreases rapidly with decreasing wavelengths, the instrument increases gain by switching from feedback resistor and the resistor number used at each wavelength is given in the flag.

Words 17 through 28 contain the twelve monochromator U-values input from the U-tape. A U-value is a radiance in resolution units of the digitizer. In this instrument quantization error in the digitizer exceeds error due to photomultiplier noise in most cases. The instrument uses a logarithmic amplifier such that the U-value is defined as U = 100 log E where E the event rate is the photomultiplier cathode current divided by the electronic charge Q. A wavelength dependent calibration factor relates the cathode current to the radiance. The U-values recorded are exactly as they appear on the U-tape. Before being used to calculate total ozone, they are normalized to 1 A.U. sun-earth distance; the dark current is subtracted; and a scene stabilization correction factor designed to insure long term instrument calibration is applied. This corrected U-value is used to compute N values.

Words 29-40 contain the N-values for the 12 wavelength channels. The N-value is defined as

$$N = -100 \log (I/F_o)$$

where I is the backscattered radiance and F_o is the extra-terrestrial solar irradiance.

Words 41-52 contain twelve photometer (λ = 380.0 nm) N-values measured simultaneously with the monochromator measurements to monitor scene change. These are used in the total ozone algorithm to calculate effective reflectivity.

The remaining elements of the array contain results of the total ozone computation. Total ozone Ω is computed using a pair of wavelengths, and since radiances at four wavelengths are available, two independent estimates of the total ozone can be made. The A wavelength pair is 312.5 nm and 331.2 nm; the B wavelength pair is 317.5 nm and 339.8 nm. The reflecting surface

in the field of view may be at atmospheric pressures other than sea level due to the presence of clouds and elevated terrain. Because of this, the A and B pair ozone values are computed for two surface pressures 1.0 atm and 0.4 atm. Consequently, four ozone and reflectivity sets are derived. The algorithm mixes these ozone amounts based on solar zenith angle and the effective reflectivity to obtain the recommended ozone value.

Words 53, 57, 61, and 65 are ozone termination flags for the four derived ozone values. If this flag is non-zero, no ozone retrieval was possible. This flag can assume the following values listed here along with the reason for setting the flag:

1 - N-value too small (i.e. less than 180 d.u.)

5 - N-value missing or negative

6 - Bad radiance due to cam position problem

9 - N-value too large, exceeds table range

This flag code applies to the unit digit normally, but in intermediate latitude zones the calculation is done for both latitude tables and the results are combined. In this case, the tens digit is as above and applies to the higher latitude computation. The hundreds digit is set to unity if the reflectivity calculated for the 339.8 monochromator channel causes too large a difference in total ozone from that calculated using the photometer reflectivity.

Words 54, 58, 62 and 66 are the derived values of the effective surface reflectivity. This quantity is not the true surface reflectivity for several reasons. Non-uniform cloud cover, non-Lambertian reflectivity, atmospheric haze and terrain elevation are among the functions which will affect this value.

Words 55, 59, 63, and 67 are the derived ozone values in atm-cm.

Words 56, 60, 64 and 68 are the slopes of the N-values curves, i.e. $dN/d\Omega$ where Ω is the total ozone. This quantity is a measure of the sensitivity of the N-value to total ozone.

Word 69 contains the terrain pressure. The terrain pressure is interpolated from tables based on the NOAA/NMC terrain height tape.

Word 70 is the difference between the reflectivity derived using the photometer channel and that derived using the 339.8 nm monochromator channel. This quantity is used by the algorithm as a gross check on the data quality.

The combined reflectivity, total ozone and sensitivity for the A and B pairs are given in words 71 through 76. The combination of the 0.4 and 1.0 atm values is based on a tea-mix rule which uses the 1.0 atm reflectivity as a determinant. Roughly speaking, this rule assigns the terrain pressure for low reflectivities and a nominal cloud top pressure - 0.4 atm for high reflectivities.

Word 79 is the error code for the recommended total ozone. The following situations are possible:

FLAG	MEANING
0	Good Scan
1	Solar zenith angle too large (>85.7°)
2	All necessary ozone values not available
3	Sensitivity ($dN/d\Omega$) too low
4	$R_{3800} - R_{3398}$ exceeds 0.1
5	A and B pair ozone differ by more than 10%
6	Cam position error in one or more of total ozone channels

For error flags 1, 2, 3, 4, and 6, no recommended ozone value is computed. For error flag 5, the recommended ozone appears as a negative number.

Table 2.1

Header File of DTOZ Tape

(A) RECORD 1

WORD	DESCRIPTION	TYPE
1	SATELLITE ID (NIMBUS 4)	R*8 EBCDIC
2	EXPERIMENT ID (BUV)	R*8 EBCDIC
3	PROGRAM NAME (BUVALL)	R*8 EBCDIC
4	DATE OF PROGRAM VERSION (SEP 1977)	R*8 EBCDIC
5	VERSION NO. OF PROGRAM (VERSN 07)	R*8 EBCDIC
6	UNIQUE NO. OF OUTPUT TAPE	R*8 EBCDIC
7-10	DCB OF THE OUTPUT TAPE 4 WORDS (RECM=FB,LRECL=320,BLK=1600,DEN=1600)	R*8 EBCDIC
11-12	DAY OF WEEK AND DATE OF JOB RUN (THRU 20 OCT 77) TWO R*8 WORDS	R*8 EBCDIC
13	STARTING WEEK NUMBER OF DATA	R*8 EBCDIC
14	ENDING WEEK NUMBER OF DATA	R*8 EBCDIC
15	CALENDAR YEAR OF DATA (E.G. 70)	R*8 EBCDIC
REST	ANNOTATION (= 77777777)	R*8 EBCDIC

(B) RECORD 2

1	NUMBER OF FILES ON OUTPUT TAPE (-77.)	R*4
2	LOCIAL SEQ. NO. (ALWAYS 2.)	R*4
3	START DAY OF FIRST ORBIT	R*4
4	START TIME OF FIRST ORBIT	R*4
5	LAT (-90. TO +90.) OF FIRST ORBIT	R*4
6	LONG. (0 to 360W) OF FIRST ORBIT	R*4
7-LAST	SPARES (= -77.)	

Tape Specification = RECFM = FB, LRECL = 320, BLKSIZE = 16000
Density = 1600 B.P.I. (Den = 3)

Table 2.2

Header Record of DTOZ Tape

4-BYTE WORD	DESCRIPTION	TYPE	
1	LOGICAL SEQUENCE NUMBER (ALWAYS 1.0)	R*4	
2	SPARE (0.0)	R*4	
3-4	UNIQUE NO. OF INPUT TAPE	R*8	EBCDIC
5-8	DAY AND DATE OF THE JOB RUN TWO R*8 WORDS(E.G. TUE 18 JAN 77)	R*8	EBCDIC
9-10	JOB ID (E.G. ZMRKKALL)	R*8	EBCDIC
11	DAY OF THE BEGINNING OF THE FIRST GOOD SCAN OF THE FIRST ORBIT ON THE OUTPUT TAPE	R*4	
12	TIME IN SECS. OF DAY FOR (11) ABOVE	R*4	
13	LAT. (-90 TO +90°) AT (11) ABOVE	R*4	
14	LONG. (0 TO 360°W) AT (11) ABOVE	R*4	
15	WEEK NO. OF THE START OF THE ORBIT	R*4	
16	ORBIT NO.	R*4	
17-18	PROGRAM NAME (BUVALL)	R*8	EBCDIC
19-20	VERSION DATE(SEP 77)	R*8	EBCDIC
21-22	VERSION NO. (E.G.VERSN 07)	R*8	EBCDIC
23	β_0, PHOTOMETER	R*4	
24	β_0, MONOCHROMATOR	R*4	
25-26	DATE OF JOB RUN (E.G. 77.018)	R*8	EBCDIC
27-LAST	ANNOTATION = (-77.)	R*4	

Table 2.3

DATA RECORD FORMAT OF DTOZ TAPE

WORD	DESCRIPTION
1	LOGICAL SEQUENCE NUMBER
2	ORBIT NUMBER OF THE DATA
3	DAY AT START OF SCAN
4	SECONDS OF THE DAY (UT)
5	SOLAR ZENITH ANGLE AT START OF SCAN
6	SOLAR ZENITH ANGLE AT END OF SCAN
7	LATITUDE (AVERAGE FOR TOTAL OZONE)
8	LONGITUDE (AVERAGE FOR TOTAL OZONE)
9	SOLAR ZENITH ANGLE (AVERAGE FOR TOTAL OZONE)
10	LATITUDE (AVERAGE FOR PROFILE COMPUTATION)
11	LONGITUDE (AVERAGE FOR PROFILE COMPUTATION)
12	SOLAR ZENITH ANGLE (AVERAGE FOR PROFILE COMPUTATION)
13	RESISTOR FLAG FOR MONOCHROMATOR 2555-2975 MEASUREMENTS #
14	RESISTOR FLAG FOR MONOCHROMATOR 3019-3398 MEASUREMENTS ##
15	RESISTOR FLAG FOR PHOTOMETER MEASUREMENT at 3800Å AT THE SAME TIME WORD 13 WAS TAKEN
16	SAME AS WORD 15 BUT AT THE TIME WORD 14 WAS TAKEN
17-28	12 MONOCHROMATOR U VALUES 2555-3398
29-40	12 MONOCHROMATOR N VALUES 255.5-339.8 NM
41-52	12 PHOTOMETER N VALUES 2555-3398
53	TERMINATION CODE FOR A-PAIR, 1.0 ATM. *
54	REFLECTIVITY FOR A PAIR, 1.0 ATM.
55	TOTAL OZONE FOR A PAIR, 1.0 ATM.
56	DNDX FOR A PAIR, 1.0 ATM.
57-60	SAME AS 53-56 FOR B PAIR, 1.0 ATM.
61-64	SAME AS 53-56 FOR A PAIR, 0.4 ATM.
65-68	SAME AS 53-56 FOR B PAIR, 0.4 ATM.
69	SURFACE PRESSURE
70	R3800-R3398 (RDIF)
71	COMBINED REFLECTIVITY FOR A PAIR
72	COMBINED TOTAL OZONE FOR A PAIR
73	DNA
74	COMBINED REFLECTIVITY FOR B PAIR
75	COMBINED TOTAL OZONE FOR B PAIR
76	DNB
77	RECOMMENDED REFLECTIVITY
78	RECOMMENDED TOTAL OZONE
79	COMBINATION CODE **
80	-77. SPARE

Table 2.3a

SIX DIGITS TO THE LEFT OF THE DECIMAL POINT ARE SIGNIFICANT
E.G. R_1 R_2 R_3 R_4 R_5 R_6 .0.

WHERE R_1 - Resistors used for 255.5nm channel

R_2 " 273.5nm "

R_3 " 283.0 "

R_4 " 287.6nm "

R_5 " 292.2nm "

R_6 " 297.5nm "

##SIX DIGITS TO THE LEFT OF THE DECIMAL POINT ARE SIGNIFICANT

R_7 R_8 R_9 R_{10} R_{11} R_{12} .0.

WHERE R_7 - Resistors used for 301.9nm channel

R_8 " 305.8nm "

R_9 " 312.5nm "

R_{10} " 317.3nm "

R_{11} " 331.2nm "

R_{12} " 339.8nm "

Table 2.4

Trailer Record of DTOZ Tape

4-BYTE WORD	DESCRIPTION	TYPE
1	NEGATIVE OF LOG. SEQ. NO. (=N, WHERE N-2= NO. OF SCANS FOR THIS ORBIT)	R*4
2	ORBIT NO	R*4
3	DAY AT THE END OF THE LAST SCAN OF THE ORBIT	R*4
4	TIME IN SECS. OF DAY FOR 2	R*4
5	LAT.(-90.0 TO +90.0) AT (3) ABOVE	R*4
6	LONG. (0 TO 360.0) AT (3) ABOVE	R*4
7	NO. OF RECORDS (SCANS) READ	R*4
8	NO. OF BUVALL RECORDS (SCANS) WRITTEN	R*4
9-10	UNIQUE NO. OF THE INPUT TAPE	R*8
11	NO. OF SCAN READ FROM U TAPE	R*4
12	NO. OF GOOD BEST OZONE SCANS	R*4
13	NO. OF NEGATIVE BEST OZONE SCANS	R*4
14	NO. OF SCANS REJECTED	R*4
15	NO. OF NIGHT SCAN	R*4
16	NO. OF SCANS REJECTED FOR BAD U-VALUES	R*4
17	NO. OF MCSA SCANS	R*4
18	NO. OF SCANS WITH N VALUE TOO LOW	R*4
19	NO. OF SCANS WITH N VALUE TOO HIGH	R*4
20	NO. OF SCANS WITH PHOTOMETER AND MONOCHROMATOR REFLECTIVITY DIFFERENCE GREATER THAN LIMIT	R*4
21	NO. OF SCANS WITH BOTH PAIRS COMPLETE	R*4
22	NO. OF SCANS WITH A ONLY	R*4
23	NO. OF SCANS WITH B ONLY	R*4
24	NO. OF SCANS WITH NEITHER PAIR COMPLETE	R*4
25	NO. OF SCANS WITH A PAIR AND B PAIR OZONE DIFFERENCE GREATER THAN LIMIT	R*4
26	NO. OF SCANS REJECTED FOR SOLAR ZENITH ANGLE GREATER THAN 85.7	R*4
27	NO. OF SCANS WITH CAM MOTION IN TOTAL OZONE CHANNEL(S)	R*4
28-80	SPARE (BLANK FILLED WITH -77.)	R*4

Table 2.5

Trailer File of DTOZ Tape

4-BYTE WORD	DESCRIPTION	TYPE	
1	TRAILER FILE IDENTIFIER(ALWAYS -1.0)	R*4	
2	NO. OF FILES ON THE OUTPUT TAPE (INCLUDING HEADER FILE AND THE TRAILER FILE)	R*4	
3	DAY AT THE END OF THE LAST SCAN OF THE LAST ORBIT ON TAPE	R*4	
4	TIME IN SECS OF DAY FOR (3) ABOVE	R*4	
5	LAT. (-90.0 TO +90.0) AT (4) ABOVE	R*4	
6	LONG. (0.0 TO 360.0 W) AT(4) ABOVE	R*4	
7	NO. OF U-TAPE FILES READ	R*4	
8	SPARE (=0.0)	R*4	
9-10	UNIQUE NO. OF THE FIRST INPUT TAPE	R*8	EBCDIC
11-12	UNIQUE NO. OF THE SECOND INPUT TAPE	R*8	EBCDIC
13-(MM-2)	UNIQUE NO. OF THIRD - LAST INPUT TAPE	R*8	EBCDIC
(MM-1)-MM	= LAST, INDICATING THAT THERE ARE NO MORE INPUT TAPES	R*8	EBCDIC
(MM+1)-80	SPARES (= -77.)	R*4	

III. THE COMPRESSED TOTAL OZONE TAPE

The Compressed Total Ozone (CTOZ) tapes together represent an abridged version of the seven year set of DTOZ tapes. The CTOZ data record is only 20 words in length and the format is given in Table 3.1. There are no header or trailer files or records on this tape. The CTOZ are available in both 1600 BPI on 4 tapes and 6250 BPI on a single tape.

All the information on the CTOZ tape except for word 3 is also on the DTOZ tape. In table 3.1 the DTOZ word position corresponding to each CTOZ word is given in parenthesis. For a detailed description of each word we refer the user to the text in the previous section on the DTOZ tape.

Table 3.1

Data Record of CTOZ Tape

	20(R*4) WORDS	CORRESPONDING DOTZ LOCATION
1	ERROR CODE FOR RECOMMENDED TOTAL OZONE	(79)
2	ORBIT NUMBER	(2)
3	YEAR	
4	DAY	(3)
5	SECONDS OF DAY (UT)	(4)
6	LATITUDE (AVERAGE FOR TOTAL OZONE)*	(7)
7	LONGITUDE (AVERAGE FOR TOTAL OZONE)**	(8)
8	SOLAR ZENITH ANGLE (AVERAGE FOR TOTAL OZONE)	(9)
9-12	MONOCHROMATOR N-VALUES 312.5-339.8	(37-40)
13-16	PHOTOMETER N-VALUES 312.5-339.8	(49-52)
17	A PAIR TOTAL OZONE	(72)
18	B PAIR TOTAL OZONE	(75)
19	RECOMMENDED REFLECTIVITY	(77)
20	RECOMMENDED TOTAL OZONE	(78)

The tape specifications for the Compressed Total Ozone tape (CTOZ) are:

RECFM = FB, LRECL = 80 bytes, BLKSIZE = 8000 bytes
9 TRACK IBM 360 NL TAPE
Available in both 1600 B.P.I. (Den = 3) and 6250 B.P.I. (Den = 4)

*Latitude is +90 to -90°
** Longitude is 0 to 360° WESTWARD

IV. TAPE CATALOG

The entire DTOZ data set is contained in fifteen 1600 B.P.I. 9-track tapes, the tape specification of which is described in the footnote of Table 2.1. Each DTOZ tape contains three months to one year's worth of data, Table 4.1 contains a list of these tapes and describes the time coverage for each DTOZ tape. The number of files in each tape varies from about 254 files in 1977 to slightly over 1100 files for Oct. - Dec. 1971. When reading the tapes, a check for the presence of the trailer file (see word 1 of Table 2.5) should be made to ensure the end of data on the tape (likewise a check for the presence of a trailer record should be made for the end of each data file).

Since the CTOZ tapes is a stripped-down data set from the DTOZ, the entire CTOZ data set is contained in only four 1600 B.P.I. 9-track tapes with a total of 15 files each of which corresponds to one DTOZ tape coverage. Table 4.2 lists these tapes and describes the time coverage for each CTOZ tape and file. The tape specification for the CTOZ tapes is contained in Table 3.1.

TABLE 4.1: TAPE CATALOG FOR DTOZ TAPES

TAPE #	TIME RANGE
1	April - June 1970
2	July - September 1970
3	October - December 1970
4	January - March 1971
5	April - June 1971
6	July - September 1971
7	October - December 1971
8	January - March 1972
9	April - June 1972
10	July - December 1972
11	January - December 1973
12	January - December 1974
13	January - December 1975
14	January - December 1976
15	January - May 1977

TABLE 4.2: TAPE CATALOG FOR CTOZ TAPES

TAPE #	FILE #	TIME RANGE
1	1	April - June 1970
1	2	July - September 1970
1	3	October - December 1970
2	1	January - March 1971
2	2	April - June 1971
2	3	July - September 1971
2	4	October - December 1971
3	1	January - March 1972
3	2	April - June 1972
3	3	July - December 1972
3	4	January - December 1973
4	1	January - December 1974
4	2	January - December 1975
4	3	January - December 1976
4	4	January - May 1977

DUMP OF TAPE X-378

NIMBUS 4

DETAILED TOTAL OZONE

TAPE, BUVALL

7U-025A-05P

D-31003

```
INPUT TAPE  X-378   ON  MS1
DATA INPUT     H9 NF 320 FL 2 1 1
DATA INPUT     SR 315 1 SR 313 LAST
DATA INPUT     SR 314 1 SR 314 LAST

  FILE      1  RECORD       1  LENGTH     640BYTES
(    0)  D5C9D4C2  E4E26DF4  40C2E4E5  40404040  C2E4E5C1  D3D34040  D5D6E540  F1F9F7F7  E5C5D9E2  D540F0F8
(   40)  F7F0C1D3  F1F5F1F8  D9C5C3C6  D47EC6C2  D3D9C5C3  F1F2F0F0  C2D3D2F3  F0F0F0F0  C4C5D57E  F1F6F0F0
(   80)  E3C8E440  D5D6E540  F1F06BF1  F9F7F740  40404040  4040F1F5  F7F7F7F7  F7F7F7F7  40404040  F1F9F7F0
(  120)  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7
(  160)  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7
(  200)  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7
(  240)  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7
(  280)  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7  F7F7F7F7
(  320)  C24D0000  41200000  42640000  4513BA10  423E3986  42B1C285  C24D0000  C24D0000  C24D0000  C24D0000
(  360)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  400)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  440)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  480)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  520)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  560)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  600)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000

        FILE   INPUT     DATA RECORDS     MAX.          READ ERROR SUMMARY          INPUT RETRIES
               RECS.       INPUT         SIZE      PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
          1      1          1            640         0      0        0      0       0       0

  FILE      2  RECORD       1  LENGTH    16000BYTES
(    0)  41100000  00000000  F7F0E4E3  F1F5F1F8  E3C8E440  D5D6E540  F1F06BF1  F9F7F740  E9D4D9D2  D2C1D3F1
(   40)  42640000  4513BA10  423E3986  42B1C285  41F00000  42236FA6  C2E4E5C1  D3D34040  D5D6E540  F1F9F7F7
(   80)  E5C5D9E2  D540F0F8  431C96C8  431BFD45  F7F74BF3  F1F44040  C24D0000  C24D0000  C24D0000  C24D0000
(  120)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  160)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  200)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  240)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  280)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  320)  41200000  42236FA6  42640000  4513BA10  423865E0  423A2E36  423E74D9  42B1FCA4  4238A5C3  423F4CF9
(  360)  42B2D05F  42398E7E  454EAAE0  4535FB70  43213D67  43240B0C  43261C15  4326A250  432893C3  43299461
(  400)  432A0AD2  432C62EB  4331A680  4333EECE  43353E63  433431EC  3E321264  3E437A49  3E653AAA  3E8E4AA3
(  440)  3ED0AD88  3F17B688  3F2B220E  3F5D339E  42B47640  428CBE90  426100F0  425A0910  4258CB10  42594960
(  480)  4259C7C0  42598890  425A4610  42598890  42598890  42594960  4259C7C0  425A06F0  425A06F0  425AC470
(  520)  00000000  40DC1C38  407AFA52  42931231  00000000  40CCA758  4078FB3E  4264D4EE  00000000  40CCAB98
(  560)  408D4EE6  4280E11B  00000000  40C98220  407E99F6  42613BBD  40CDDBE3  407EA960  40CA6B10  407D2E1B
(  600)  40CC67B4  407E091B  42210000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  640)  41300000  42236FA6  42640000  4513BC10  423A2E36  423BF66B  42401BFB  42B3A26C  423A6E14  4240F1C7
(  680)  42B48E45  423B56BE  454EAAE0  4535FB70  432125B7  4323EF69  43260464  432676E2  4328742D  432974CB
(  720)  4329E74A  432C1BDA  43316B48  4333CF38  43354255  4334372F  3E316753  3E423E18  3E63F895  3E8893B3
(  760)  3ECBC780  3F172849  3F29E269  3F55FE79  42B82B20  428EB810  4260C180  4259B480  42565360  4255D510
(  800)  4255D510  42561440  42561440  42561440  42565360  4256D1C0  4256D1C0  425710F0  42578F40  42584CC0
(  840)  00000000  40E09FCC  407D7138  42973ED5  00000000  40DD0CC0  407AFA0B  42684304  00000000  40DB95B8
(  880)  40835E74  4284763E  00000000  40D83640  408111EC  42604533  40DE1AB8  40806700  40DAA180  407E05FB
(  920)  40DCA9E4  407F6ADE  42210000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  960)  41400000  42236FA6  42640000  4513BE10  423BF66B  423DBEA2  4241BE70  42B578D7  423C3649  4242917E
( 1000)  42B681BA  423D1EF5  454EAAE0  4535FB70  432115EC  4323D7B9  4325E4CF  4326574D  4328588A  43295536
( 1040)  4329C3C1  432BD8BD  4331282A  4333A3CB  43354A3A  433456C4  3E314D8A  3E4162AD  3E619448  3E855169
( 1080)  3EC8140D  3F169BE7  3F28A966  3F4EC70C  42BC5E20  42916F60  42604300  4257BA80  425B42C0  425B03A0
( 1120)  425A8540  425A06FC  42598890  42588BFC  42584CC0  42575010  42575010  425710F0  42575010  42565360
( 1160)  00000000  40EEEC70  407F528F  429A9F9B  00000000  40F10DBC  407CABE8  426BB446  00000000  40E89900
( 1200)  40858D39  4286C958  00000000  40EAC108  40830B0D  426356D0  4CEBC2B8  40826FE0  40EDE758  407FD9FA
( 1240)  40ECA7E5  40815B59  42210000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
( 1280)  41500000  42236FA6  42640000  4513CC10  423DBEA2  423F86A0  42435B52  42B789D7  423DFE78  42442AE8
```

04/10/70
ORBIT 35
THRU
05/07/70
ORBIT 384

DAY 100 ORBIT 35

```
(  160)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  200)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  240)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000
(  280)  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000  C24D0000

          FILE   INPUT     DATA RECORDS      MAX.          READ ERROR SUMMARY          INPUT RETRIES
                 RECS.        INPUT          SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
                 314        1        1          320        0        0        0        0        0        0
 ******      EOF ON COMPLETION OF DUMP FOR REQUEST SR=313=1=1
 ******      EOF ON COMPLETION OF DUMP FOR REQUEST SR=313=1=1

 EOJ         DUMP STOPPED AFTER FILE   314        # OF PERMANENT READ ERRORS  0

START TIME 03/10/78  14:00:18          STOP TIME 03/10/78  14:05:48
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