

#299

ESAD 70

NIMBUS 4

SCR RADIANCE DATA

70-025A-10A-ESAD-00238

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

SCR RADIANCE DATA

70-025A-10A

ESAD-00238

This data set catalog has been restored from 48 7-track, 800 BPI tapes to 14 9-track, 6250 BPI tapes. The original D and C tapes have been released. The DR and DS numbers, along with the total number of files and the time span are as follows:

DR#	DS#	FILES	TIME SPAN
DR00227	DS00227	744	07/27/70 - 08/11/70, 08/25/70 - 09/21/70, 10/07/70 - 10/19/70
DR00228	DS00228	767	10/20/70 - 12/13/70
DR00229	DS00229	972	12/14/70 - 02/09/71
DR00230	DS00230	894	02/10/71 - 04/01/71
DR00231	DS00231	816	04/02/71 - 04/10/71, 04/14/71 - 05/30/71
DR00245	DS00245	1015	05/28/71 - 07/31/71
DR00246	DS00246	806	08/01/71 - 09/16/71
DR00247	DS00247	842	09/17/71 - 11/06/71
DR00248	DS00248	758	11/07/71 - 12/24/71
DR00250	DS00250	721	12/25/71 - 02/10/72
DR00274	DS00274	734	02/28/72 - 04/15/72
DR00276	DS00276	476	05/18/72 - 06/18/72
DR00277	DS00277	724	06/19/72 - 08/06/72
DR00275	DS00275	908	08/07/72 - 01/30/73

*NOTE: NOT ABLE TO RESTORE D23266, TAPE IS BAD.

NIMBUS 4

SDR RADIANCE DATA

70-025A-10A

This data set has been restored. There was originally 48 Binary 7-Track, 800 BPI tapes, one of these tapes was bad. There are 14 restored tapes. The DR and DS tapes are 9-track, 6250 BPI. The tapes were created on an IBM 360 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR00227	DS00227	D18423	1-178	07/27/70 - 08/11/70
		D22611	179-371	08/25/70 - 09/08/70
		D22612	372-566	09/06/70 - 09/06/70,
		"		09/09/70 - 09/21/70
		D22614	567-744	10/01/70 - 10/19/70
DR00228	DS00228	D22615	1-182	10/20/70 - 11/01/70
		D22616	183-379	11/02/70 - 11/15/70
		D22617	380-576	11/16/70 - 11/29/70
		D22618	577-767	11/30/70 - 12/13/70
DR00229	DS00229	D22619	1-192	12/14/70 - 12/27/70
		D22620	193-374	12/28/70 - 01/10/71
		D22601	375-653	01/12/71 - 01/25/71
		D22602	654-972	01/26/71 - 02/09/71
DR00230	DS00230	D22603	1-320	02/10/71 - 02/15/71,
		"		02/19/71 - 02/28/71
		D22604	321-641	03/01/71 - 03/16/71
		D22605	642-894	03/17/71 - 04/01/71
DR00231	DS00231	D22606	1-171	03/28/71 - 03/28/71,
		"		04/02/71 - 04/10/71,
		"		04/14/71 - 04/15/71
		D22607	172-337	04/16/71 - 04/28/71
		D22608	338-580	04/29/71 - 05/14/71
		D22609	581-816	05/15/71 - 05/30/71
DR00245	DS00245	D22610	1-254	05/28/71 - 05/28/71,
		"		05/31/71 - 06/16/71
		D23285	255-506	06/11/71 - 06/12/71,
		"		06/17/71 - 06/30/71
		D23284	507-751	07/01/71 - 07/16/71
		D23283	752-1015	07/17/71 - 07/31/71
DR00246	DS00246	D23282	1-249	08/01/71 - 08/15/71
		D23281	250-526	08/16/71 - 08/31/71
		D23280	527-806	09/01/71 - 09/16/71

DR#	DS#	D#	FILES	TIME SPAN
DR00247	DS00247	D23279	1-268	09/17/71 - 10/01/71
		D23278	269-567	10/02/71 - 10/20/71
		D23277	568-842	10/21/71 - 11/06/71
DR00248	DS00248	D23276	1-270	11/07/71 - 11/22/71
		D23295	271-524	11/23/71 - 12/08/71
		D23294	525-758	12/09/71 - 12/24/71
DR00250	DS00250	D23293	1-242	12/25/71 - 01/08/72
		D23292	243-474	01/09/72 - 01/23/72
		D23291	475-721	01/24/72 - 02/10/72
DR00274	DS00274	D23289	1-260	02/28/72 - 03/15/72
		D23288	261-499	03/16/72 - 03/31/72
		D23287	500-734	04/01/72 - 04/15/72
DR00276	DS00276	D23267	1-244	05/18/72 - 06/02/72
		D23268	245-478	06/03/72 - 06/18/72
DR00277	DS00277	D23269	1-243	06/19/72 - 07/04/72
		D23270	244-490	07/05/72 - 07/21/72
		D23271	491-724	07/22/72 - 08/06/72
DR00275	DS00275	D23272	1-239	08/07/72 - 08/22/72
		D23273	240-475	08/23/72 - 09/06/72,
		"		09/09/72 - 09/09/72,
		"		09/11/72 - 09/15/72
		D23274	476-686	09/17/72 - 10/17/72
		D23275	687-908	10/19/72 - 01/30/73

B R I E F D E S C R I P T I O N
SCR Radiance Tapes
70-025A-10A

This data set contains calibrated, earth-located radiances that were prepared by the experimenter's office on binary magnetic tapes. The radiances, measured by 16 channels at 2.3-15 micrometers with a ground resolution of 25 km, are "declouded" (interpolated and smoothed across regions of cloud). They are grouped into major frames along with orbit, altitude, latitude, longitude, and some ancillary 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-10A
SCR Radiance Tapes

The Selective Chopper Radiometer on Nimbus IV Archived Data,
Atmospheric Physics Memorandum no. 75.1, Claredon Laboratory
Atmospheric Physics, University of Oxford (B29182).

NIMBUS 4

SOL RADIANCE DATA

70-025A-10A

This data set has been restored. There was originally 48 Binary 7-Track, 800 BPI tapes, one of these tapes was bad. There are 14 restored tapes. The DR and DS tapes are 9-track, 9250 BPI. The tapes were created on an IBM 360 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR00227	DS00227	D18423	1-178	07/27/70 - 08/11/70
		D22611	179-371	08/26/70 - 09/08/70
		D22612	372-566	09/08/70 - 09/08/70
		"		09/09/70 - 09/21/70
		D22614	567-744	10/01/70 - 10/19/70
DR00228	DS00228	D22615	1-182	10/20/70 - 11/01/70
		D22616	183-379	11/02/70 - 11/16/70
		D22617	380-576	11/16/70 - 11/29/70
		D22618	577-767	11/30/70 - 12/13/70
DR00229	DS00229	D22619	1-192	12/14/70 - 12/27/70
		D22620	193-374	12/28/70 - 01/10/71
		D22601	375-653	01/12/71 - 01/25/71
		D22602	654-972	01/26/71 - 02/09/71
DR00230	DS00230	D22603	1-320	02/10/71 - 02/15/71
		"		02/19/71 - 02/28/71
		D22604	321-641	03/01/71 - 03/16/71
		D22605	642-894	03/17/71 - 04/01/71
DR00231	DS00231	D22606	1-171	03/28/71 - 03/28/71
		"		04/02/71 - 04/10/71
		"		04/14/71 - 04/15/71
		D22607	172-337	04/16/71 - 04/28/71
		D22608	338-580	04/29/71 - 05/14/71
		D22609	581-816	05/15/71 - 05/30/71
DR00245	DS00245	D22610	1-254	05/28/71 - 05/28/71
		"		05/31/71 - 06/16/71
		D23285	255-506	06/11/71 - 06/12/71
		"		06/17/71 - 06/30/71
		D23284	507-751	07/01/71 - 07/16/71
DR00246	DS00246	D23283	752-1015	07/17/71 - 07/31/71
		D23282	1-249	08/01/71 - 08/15/71
		D23281	250-526	08/16/71 - 08/31/71
		D23280	527-806	09/01/71 - 09/16/71

ORR	OR#	OR#	FILES	TIME SPAN
OR00247	0500247	023279	1-268	09/17/71 - 10/01/71
		023278	269-567	10/02/71 - 10/20/71
		023277	568-642	10/21/71 - 11/06/71
OR00248	0500248	023276	1-270	11/07/71 - 11/22/71
		023295	271-524	11/23/71 - 12/08/71
		023294	525-758	12/09/71 - 12/24/71
OR00250	0500250	023293	1-242	12/25/71 - 01/08/72
		023292	243-474	01/09/72 - 01/23/72
		023291	475-721	01/24/72 - 02/10/72
OR00274	0500247	023289	1-280	02/28/72 - 03/15/72
		023288	281-499	03/16/72 - 03/31/72
		023287	500-734	04/01/72 - 04/15/72
OR00276	0500276	023267	1-244	05/18/72 - 06/02/72
		023266	245-478	06/03/72 - 06/18/72
OR00277	0500277	023269	1-243	06/19/72 - 07/04/72
		023270	244-490	07/05/72 - 07/21/72
		023271	491-724	07/22/72 - 08/06/72
OR00275	0500275	023272	1-239	08/07/72 - 08/22/72
		023273	240-475	08/23/72 - 09/06/72,
		"		09/09/72 - 09/09/72,
		"		09/11/72 - 09/15/72
		023274	476-686	09/17/72 - 10/17/72
		023275	687-908	10/19/72 - 01/30/73

REQ. AGENT
DLB
WKD

RAND NO.
RC3362
RC5122

ACQ. AGENT
JCL

NIMBUS 4

SCR RADIANCE DATA

70-025A-10A

This data set consists of 48 Nimbus 4 SCR Radiance data tapes created on an IBM 360 computer. The tapes are 800 BPI, BIN, 7 track, and are multifiled. Each tape contains data for approximately 15 days.

The time span for the data is as follows:

<u>D#</u>	<u>C#</u>	<u>NO. OF FILES</u>	<u>TIME SPAN</u>
D-18423	C-14992	178	07/27/70 - 08/11/70
D-22611	C-17704	193	08/25/70 - 09/08/70
D-22612	C-17927	195	09/06/70 09/09/70 - 09/21/70
D-22614	C-17928	178	10/07/70 - 10/19/70
D-22615	C-17929	182	10/20/70 - 11/01/70
D-22616	C-17930	197	11/02/70 - 11/15/70
D-22617	C-17931	197	11/16/70 - 11/29/70
D-22618	C-17932	191	11/30/70 - 12/13/70
D-22619	C-17933	192	12/14/70 - 12/27/70
D-22620	C-17934	182	12/28/70 - 01/10/71
D-22601	C-17694	279	01/12/71 - 01/25/71
D-22602	C-17695	319	01/26/71 - 02/09/71
D-22603	C-17696	320	02/10/71 - 02/15/71 02/19/71 - 02/28/71
D-22604	C-17697	321	03/01/71 - 03/16/71
D-22605	C-17698	253	03/17/71 - 04/01/71

<u>D#</u>	<u>C#</u>	<u>NO. OF FILES</u>	<u>TIME SPAN</u>
D-22606	C-17699	171	03/28/71 04/02/71 - 04/10/71 04/14/71 - 04/15/71
D-22607	C-17700	166	04/16/71 - 04/28/71
D-22608	C-17701	243	04/29/71 - 05/14/71
D-22609	C-17702	237	05/15/71 - 05/30/71
D-22610	C-17703	255	05/28/71 05/31/71 - 06/16/71
D-23285	C-18288	252	06/11/71 - 06/12/71 06/17/71 - 06/30/71
D-23284	C-18287	245	07/01/71 - 07/16/71
D-23283	C-18286	264	07/17/71 - 07/31/71
D-23282	C-18285	249	08/01/71 - 08/15/71
D-23281	C-18131	277	08/16/71 - 08/31/71
D-23280	C-18130	280	09/01/71 - 09/16/71
D-23279	C-18129	268	09/17/71 - 10/01/71
D-23278	C-18128	299	10/02/71 - 10/20/71
D-23277	C-18127	275	10/21/71 - 11/06/71
D-23276	C-18126	270	11/07/71 - 11/22/71
D-23295	C-18296	254	11/23/71 - 12/08/71
D-23294	C-18295	234	12/09/71 - 12/24/71
D-23293	C-18294	242	12/25/71 - 01/08/72
D-23292	C-18293	232	01/09/72 - 01/23/72
D-23291	C-18292	247	01/24/72 - 02/10/72
D-23289	C-18291	260	02/28/72 - 03/15/72
D-23288	C-18290	239	03/16/72 - 03/31/72
D-23287	C-18289	235	04/01/72 - 04/15/72
D-23266	C-17935	251	05/02/72 - 05/17/72
D-23267	C-18117	244	05/18/72 - 06/02/72

TO DETERMINE THE NUMBER OF OF FILES ON A TAPE:

Octal dump first file.

Each tape has a SUMMARY FILE at the beginning and at the end of the tape.

Get the number of days on the tape from the SUMMARY HEAD RECORD.

There will be a DAY HEADER FILE and an END OF DAY FILE for each day on the tape.

The number of orbits for each day can be found in the SUMMARY DAY RECORDS (one file for each orbit).

Total number of files is equal to the sum of the SUMMARY FILE, DAY HEADER FILES, ORBIT FILES, END OF DAY FILES, and SUMMARY FILE.

EXAMPLE

D-18423

1	SUMMARY FILE
13	DAY HEADER FILES
150	ORBIT FILES
13	END OF DAY FILES
<u>1</u>	SUMMARY FILE
178	FILES ON THE TAPE

CLARENDON LABORATORY

Atmospheric Physics

The Selective Chopper Radiometer on Nimbus IV

Archived Data

Atmospheric Physics Memorandum No. 75.1

UNIVERSITY OF OXFORD

The Selective Chopper Radiometer on Nimbus IV

Archived Data

The Nimbus IV satellite launched in April 1970 carried an infra-red radiometer to make remote measurements of the atmospheric temperature structure at levels up to 50 km altitude. The instrument, known as a selective chopper radiometer (SCR), has been described by Houghton & Smith (1970) and Abel et al (1970). Details of the instrument may be found in these and other published papers (see references). (Calibration procedures are described by Barnett et al (1972).)

This paper describes the format of the archive tapes, containing frame by frame radiances and other relevant data, which have been prepared for the National Space Science Data Center. A list of events, including those which have a bearing on the quality of the data, is also provided (Appendix 3).

In general, the Nimbus IV SCR performed in a very consistent manner. The archive tapes have been carefully tested and documented. However, during its 2½ years of operation various changes occurred (see Appendix 3) and certain peculiarities have been noted. Should any problems arise, would users please contact the Department of Atmospheric Physics, Clarendon Laboratory, Oxford University.

Tape Format

Introduction

The Nimbus 4 archive tape is a 7 track magnetic tape written at 800 b.p.i.. Each tape contains data for approximately 15 'days' where a 'day' refers to the daily transmission of data from NTCC to Oxford. This normally includes data acquired by the ground station between 0000Z and 2400Z the previous day.

Each tape begins with a file summarizing its contents. Subsequent files provide detailed day by day and orbit by orbit information. An orbit is usually a readout orbit from the spacecraft tape recorder but can also represent one or more sections of real time data. The tape ends with a repeat of the summary file.

The structure of an archive tape is summarized in Table I.

TABLE I

Summary header record	}	Summary file
Summary day records 1 to N where N = number of days on the tape		
End of file (tape mark)		
Day header file	}	Volume table of contents
EOF		
Orbit header record		
Cal/Hsk record		
Data records 1 to M where $M = (\text{No. of major frames} - 1) / 14 + 1$		
End of orbit record		
EOF		
End of day file		
EOF		
Copy of summary file		
EOF mark		
EOF		

Detailed description

In general, for all tables, numbers in the column headed CONTENTS are octal and other numbers decimal. Exceptions are indicated by the subscripts 8 or 10 for octal or decimal.

Each file consists of a series of records and is terminated by a tape mark. Each record is a series of 12-bit integers, each represented by 2 6-bit tape characters with ODD parity, the most significant half of the word appearing first on the tape. The format of a record is as follows:

<u>Word</u>	<u>Contents</u>
0,1	7106, 7106
2	Length L
3	Record Number
4	Identifier
5 to L-3	Data words
L-2	EOR mark
L-1	Checksum

'Length' is the number of 12-bit words in the record from the first 7106₈ up to and including the checksum.

The record number starts at 1 at the beginning of the file and is increased by 1 for each successive record Modulo 4096.

The identifier is a unique code associated with the data content of the record.

The end of record (EOR) mark has one of the following values:

5252	last record of file
5225	file containing one record
6453	last record on the tape
4421	all other records.

The checksum is the 12-bit 1's complement sum of words 0 to N-2 of the record.

<u>Summary Head Record</u>		<u>No. of words</u>	<u>Note</u>
<u>Word</u>	<u>Contents</u>		
0,1	7106, 7106	2	
2	10	1	
3	1	1	
4	4200	1	
5	No. of days on tape	1	
6	EOR	1	
7	Checksum	1	1

Summary Day Record

0,1	7106, 7106	2	
2	Length	1	
3	Record no.	1	
4	4201	1	
5	'day'	1	
6	'year'	1	
7	No. of orbits	1	
8,9	Orbit no.	2	
10	Hdrss	1	2
11	Day	1	3
12,13	Time	2	3
14	No. of major frames	1	
15	No. of bad checksums	1	
16	No. of 1st good m.f.	1	
17	No. good THIR records	1	4
18	Flagword	1	5
	.		
	.		
	EOR		
	Checksum		

Items 8-18 are repeated for each orbit in a 'day'.

Day Header File

<u>Word</u>	<u>Contents</u>	<u>No. of words</u>	<u>Note</u>
0,1	7106, 7106	2	
2	11	1	
3	1	1	
4	4202	1	
5	Day	1	
6	Year	1	
7	EOR	1	
8	Checksum	1	

Orbit Header Record

0,1	7106, 7106	2	
2	16	1	
3	Record No.	1	
4	4203	1	
5,6	Orbit No.	2	
7	Hdrss	1	2
8	Day	1	3
9,10	Time	2	3
11	No. of major frames	1	
12	EOR	1	
13	Checksum	1	

Calibration and Housekeeping Record

<u>Word</u>	<u>Contents</u>	<u>No. of words</u>	<u>Note</u>
0,1	7106, 7106	2	
2	407	1	
3	Record No.	1	
4	4204	1	
5	Ignore	1	
6	Ignore		
7-25	Calibration parameters	19	6
26	No. bad checksums	1	
27,28	Spare	2	
29-104	Max.Housekeeping Fns.	76	7
105-180	Min. " "	76	7
181-256	Mean " "	76	7
257-260	Spare	4	
261	EOR	1	
262	Checksum	1	

Data Record

<u>Word</u>	<u>Contents</u>	<u>No. of words</u>	<u>Note</u>
0,1	7106,7106	2	
2	3501	1	
3	Record No.	1	
4	4205	1	
5	No. of internal records (Max. 16)*	1	
6	204	1	
7,8	Orbit No.	2	
9	Hdrss	1	
10	Transmitted Record No.	1	8
11	Major Frame No.	1	8
12	Day	1	12
13,14	Time	2	12
15	Latitude x 8 ₁₀	1	14
16	Longitude x 8 ₁₀	1	14
17-70	Thir (raw-packed)	54	8
71,72	Housekeeping Averages	2	8
73,74	Thir Bolometer (unpacked)	2	8
75	Altitude	1	9
76-78	Thir max, min, mean	3	12
79,80	Flags	2	10
81,87	Radiances x 16 ₁₀	7	11
88,89	Ch.A,B rads imbalance corrected	2	11
90-138	Analogue Housekeeping	49	13
	.		
	.		
	EOR	1	
	Checksum	1	

Items 7-138 are repeated for each internal record.

*Rate: no. of internal records can be zero on some tapes.

End of Orbit Record

<u>Word</u>	<u>Contents</u>	<u>No. of words</u>
0,1	7106, 7106	2
2	7	1
3	Record No.	1
4	4206	1
5	EOR	1
6	Checksum	1

End of Day File

0,1	7106, 7106	2
2	7	1
3	1	1
4	4207	1
5	EOR	1
6	Checksum	1

End of Tape Record

Copy of Summary File.

Notes

1. The Checksum is the 12-bit 1's complement sum of all preceding numbers in the block.
2. Hdrss: This 12 bit word gives
 - (a) in the most significant 6 bits a BCD code indicating the recorder used in transmission which may be A or B, or R indicating a real time transmission (see Appendix 1).
 - (b) in the least significant 6 bits the Data Acquisition Station which is usually A=Alaska or R=Rosman.
3. This is the day number and time taken from spacecraft clock of the start of the first good major frame in integer seconds from midnight.
4. In a bad THIR record, THIR MAX is set to 0 (see Data Record).
5. Flagword: Bit 2^x is set to 1 when the following conditions are satisfied at any time during the orbit:

x=0 RTTS interference this orbit

- | | | | | |
|---|------------------|---|---|---|
| 1 | IRLS | " | " | " |
| 2 | HDRSS | " | " | " |
| 3 | THIR switched on | " | " | " |
| 4 | No channel C,D | " | " | " |
| 5 | No channel E,F. | | | |

6. These numbers represent factors used in the calculation of the radiances. They are:
 - 7-13 $g=20/\text{gain}(20^\circ\text{C})$ where gain is in volts/unit radiance (see note 11).
 - 14-20 Space signal in bits. 1 bit=6.25 mV.
 - 21,22 Gain at balance for Ch.A,B.
 - 23 Space amplitude - maximum correction for Ch.E; Ch. F corrected by approx. 0.4 of this amount. This correction has increased as a function of time.
 - 24,25 $\text{lat} \times 8$ at night,day; day,night crossings.

For details of the calibration techniques, see Barnett et al (1972).

7. For each of max, min, mean housekeeping functions there are:

0	Spare
1	Spare
2	+8.2 V DC Housing 1
3	-8.2 " "
4	Spare
5	+8.2 V DC Housing 2
6	-8.2 " "
7	Spare
8	+8.2 V DC Housing 3
9	-8.2 " "
10	3.5 V DC
11	4 V DC
12	9 V DC
13	-9 V DC
14,15	Spare
16-21	BB thermistors direct
22-27	BB thermistors amplified
28-33	Bolometer temps.
34-39	Calib mirror temps.
40-45	Radiometer body temps.
46-49	Fixed mirror temps.
50-55	Chopper amplitudes.
56-71	Signal gains and zero settings.
72-75	Module temps.

A method for calculating housekeeping temperatures is given in Appendix 2.

8. Taken from raw data. Transmitted record no. is incremented for each transmitted record even if the same major frame is sent more than once.

9. Altitude is (altitude of spacecraft-1000 km) x 8.

10. Flags: Bit 2^x is set to 1 if the following are satisfied:

Word 1:	x=0	End of orbit detected.
	1	Mag tape checksum error
	2	SCR record checksum error
	3	Bad EOF on SCR record
	4	Bad attitude
	5	Earth view
	6	Space view
	7	BB view
	8	Ch 3 normal (i.e. Ch.C)
	9	Ch 3 ground (i.e. Ch.G)
	10	Ch A,B normal filter
	11	Ch A,B imbalance filter

10. (contd.)

Word 2: x=0 Inconsistent digital B information
 1 Spike detected on SCR signals
 2 THIR on
 3 RTTS "
 4 MUSE "
 5 SIRS "
 6 BUV "
 7 IDCS "
 8 IRIS "
 9 IRLS "
 10 S band A on
 11 " B "

11. Order of channels is A,B,C,D,F,E.G.

1 radiance unit = $1 \text{ mWm}^{-2} \text{ ster}^{-1} (\text{cm}^{-1})^{-1}$.

12 bit integers on magnetic tape are radiance values which have been multiplied by 16.

e.g. 100_{10} radiance units is written on tape as $1600_{10} (3100_8)$

Radiances are set to zero in a particular channel if at least 8 samples are rejected in that channel. During space and black body view, radiances are set to noise which is calculated according to

$$8 \times \left[\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2 \right]^{\frac{1}{2}} \text{ where } N = \text{number of good samples.}$$

12. Time of start of major frame (see note 3).

13. This section contains:

4 x Roll
 4 x Pitch

Yaw

Code

Corresponding voltage)

6 BB thermistors direct

6 BB thermistors amplified

6 Bolometer temps.

6 Calib mirror temps.

6 Radiometer body temps.

4 Fixed mirror temps.

6 Chopper amplitudes

4 Module temps.

) Items 2-13 of list in note 7, sub-commutated code is slot number, i.e. 2-13.

14. Latitude and longitude are in eighths of degrees north and east respectively, e.g. 10°S , 300°E is 4016, 2400 .
 Latitude is a signed integer. Longitude is unsigned.

APPENDIX 1BCD Code

<u>Symbol</u>	<u>Octal</u>	<u>Symbol</u>	<u>Octal</u>
A	61	T	23
B	62	U	24
C	63	V	25
D	64	W	26
E	65	X	27
F	66	Y	30
G	67	Z	31
H	70	Ø	12
I	71	1	01
J	41	2	02
K	42	3	03
L	43	4	04
M	44	5	05
N	45	6	06
O	46	7	07
P	47	8	10
Q	50	9	11
R	51	SPACE	00
S	22		

APPENDIX 2Housekeeping Temperatures

Housekeeping temperatures (for all but the 6 amplified thermistors) can be found using the following cubic fit:

$$T = a + bV + cV^2 + dV^3 \text{ (}^\circ\text{K)}$$

where

$$a = 360.7$$

$$b = 29.21$$

$$c = 4.20$$

$$d = 0.3378$$

V is in Telemetry Volts (TMV)

= -0.025 x 8 bit digital value.

Black Body Radiances

The temperatures of the six internal black bodies is found by examining the output from the amplified black body thermistors (function numbers 15n05). The temperature is then given by the formula

$$T = \frac{E}{\ln \left(\frac{AV + B}{CV + D} \right)} \text{ } ^\circ\text{K}$$

where V = VIP sample in volts (range 0 to -6.25) and A,B,C,D,E are given according to the following table:

Channel	A	B	C	D	E
A	25635.9	-34774.4	-2.561_{10}^{-3}	-0.97874	3444.57
B	"	-34743.0	"	-0.983903	"
C	"	-35434.8	"	-0.972863	"
D	"	-32048.3	"	-0.946499	"
F	"	-34776.8	"	-0.98093	"
E	"	-34620.2	"	-0.978345	"

APPENDIX 2 (continued)

From the temperature the corresponding radiance can be found by substituting into the Planck equation. Alternatively the radiance can be found directly from the amplified black body thermistor output by means of the following numerical approximation:

$$B = \frac{1 + cV + dV^2}{a + bV} \text{ radiance units}$$

where V = volts 0 to -6.25, and a,b,c,d are given in the following table:

Channel	Wave No.	a	b	c	d
A	668 cm ⁻¹	5.01 _{10⁻³}	-1.875 _{10⁻³}	-0.1815	-2.661 _{10⁻³}
B	668	5.002 _{10⁻³}	-1.872 _{10⁻³}	-0.1815	-2.662 _{10⁻³}
C	668	5.046 _{10⁻³}	-1.863 _{10⁻³}	-0.1796	-2.621 _{10⁻³}
G	935	6.183 _{10⁻³}	-2.497 _{10⁻³}	-0.1463	-2.836 _{10⁻³}
D	675	4.954 _{10⁻³}	-1.964 _{10⁻³}	-0.1886	-2.856 _{10⁻³}
F	712	5.065 _{10⁻³}	-1.921 _{10⁻³}	-0.1757	-2.716 _{10⁻³}
E	697	5.037 _{10⁻³}	-1.908 _{10⁻³}	-0.1781	-2.708 _{10⁻³}

APPENDIX 3Historical Information

It has proved difficult to collect precise information on all events which occurred which might affect the SCR data as details from different sources concerning the same event are not always consistent. In some instances the same source produces contradictory statements. It is safe to assume the data is true in the main but to treat fine detail with some caution.

<u>Event</u>	<u>Orbit</u>	<u>Date</u>	<u>Day</u>
Launch 08.17.57 Z		8 April	98/70
SCR turned on	6A	8 April	98/70
SCR heater duty cycle established by	86	14 April	102/70
Latitude & longitude apparently correct by	176	21 April	111/70
Balance temp. of channel B dropped below 17 C	1000	21 June	172/70
Wallops test June to September 1970			
Channel 3 ground last used	1378	19 July	200/70
Nimbus 4 archive data available		27 July 70	208/70
HDRSS A first failed temporarily (used sparingly until orbit 4678)	3707	9 Jan	9/71
THIR first failed	3731	11 Jan	11/71
THIR re-started	3983	29 Jan	29/71
RTTS flag believed defined		10 March	69/71
Channel 5 & 6 failed first	4619	18 March	77/71
HDRSS A again in full action	4678	22 March	81/71
First gyro failed and produced attitude errors.			
Between orbits 4959 & 5356 spacecraft was travelling backwards most of the time.	4905	8 April	98/71
SCR turned off (connected with above)	4936	10 April	100/71
THIR failed again	4973	13 April	103/71
SCR turned on again	4975	13 April	103/71
Ch.5 & 6 showed significant improvement	5022	17 April	107/71
HDRSS A finally failed	5081	17 April	107/71

Continued

APPENDIX 3 (continued)

	<u>Orbit</u>	<u>Date</u>	<u>Day</u>
THIR (which had worked			
intermittently since orbit			
4973) finally failed	5145	26 April	116/71
Ch.5 and 6 good	5266	5 May	125/71
Spacecraft turned and			
travelled forwards	5356	12 May	132/71
Attitudes reported as good			
15 May			
Ch.5 and 6 bad		3 July	184/71
Ch.5 and 6 good again		19 July	200/71
Second loss of attitude, spacecraft			
travelled backwards. Details not		6 Feb	37/72
known but our records return to			
normal by		28 Feb.	59/72
Channels 3 and 4 failed		17 April	108/72
Ch. 5 & 6 occasionally bad or			
marginal from		23 Aug	236/72
Data transmissions alternate			
days only from		7 Sept.	251/72
Routine transmissions discontinued from		1 Dec.	336/72
Nimbus V launched		11 Dec.	346/72

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- (9) Houghton, J.T. & Smith, S.D. (1970). Remote sounding of atmospheric temperature from satellites I. Introduction. Proc.R.Soc.Lond. A320, pp.23-33.
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- (11) Nimbus 4 Users Guide. G.S.F.C.
- (12) Oxford University (1972). Global Stratospheric Analyses for Nimbus 4 SCR.
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- (13) Rodgers, C.D. (1970). Remote sounding of the atmospheric temperature profile in the presence of cloud.
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D - 18423

1
13
150
13
1
178 files

1 DAY	208	1970	12 ORBITS
2 DAY	209	1970	12 ORBITS
3 DAY	210	1970	12 ORBITS
4 DAY	211	1970	11 ORBITS
5 DAY	212	1970	12 ORBITS
6 DAY	213	1970	12 ORBITS
7 DAY	214	1970	12 ORBITS
8 DAY	217	1970	11 ORBITS
9 DAY	218	1970	11 ORBITS
10 DAY	220	1970	12 ORBITS
11 DAY	221	1970	12 ORBITS
12 DAY	222	1970	12 ORBITS
13 DAY	223	1970	9 ORBITS

ORBITS FOR DAY 208 1970

1475RB	0H	44M	33S	460MF'S*
1449RA	0H	0M	0S	461MF'S*
1476RB	4H	34M	9S	363MF'S*
1477AB	6H	17M	53S	361MF'S*
1478AA	7H	54M	25S	391MF'S*
1479AB	9H	38M	57S	399MF'S*
1480AA	11H	25M	37S	396MF'S*

1481AB	13H	11M	29S	397MF'S*
1482AA	14H	57M	5S	390MF'S*

1483AB	16H	41M	21S	385MF'S*
1484AA	18H	23M	45S	626MF'S*

1485AB	20H	8M	33S	397MF'S*
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ORBITS FOR DAY 209 1970

1489RA	22H	0M	1S	460MF'S*
1489RB	23H	59M	13S	449MF'S*
1490RB	5H	32M	33S	389MF'S*
1491AA	7H	16M	33S	367MF'S*
1492AB	8H	54M	57S	394MF'S*
1493AA	10H	40M	17S	400MF'S*
1494AB	12H	26M	41S	405MF'S*
1495AA	14H	14M	41S	375MF'S*
1496AB	15H	54M	57S	389MF'S*
1497AA	17H	38M	41S	395MF'S*
1498AB	19H	24M	17S	401MF'S*
1499AA	0H	0M	0S	402MF'S*

ORBITS FOR DAY 210 1970

1502RA	0H	0M	0S	458MF'S*
1502RB	1H	0M	33S	437MF'S*
1503RB	4H	48M	17S	370MF'S*

1504AA	6H	28M	17S	385MF'S*
1505AB	8H	11M	13S	396MF'S*
1506AA	9H	56M	49S	389MF'S*
1507AB	11H	41M	37S	396MF'S*
1508AA	13H	27M	29S	382MF'S*

This is a listing of a tape already sent to you

AP 4430

1512AA	20H	23M	45S	400MF*S*
1511AB	18H	38M	9S	400MF*S*

* ORBITS FOR DAY 211 1970 *

1516RB	0H	22M	57S	406MF*S*
1516BA	22H	18M	25S	450MF*S*

1517RB	5H	47M	29S	617MF*S*
1519AB	9H	9M	37S	395MF*S*

1520AA	10H	55M	45S	397MF*S*
1521AB	12H	41M	37S	401MF*S*
1522AA	14H	27M	13S	395MF*S*
1523AB	16H	11M	45S	384MF*S*
1524AA	17H	53M	37S	397MF*S*
1525AB	19H	38M	41S	402MF*S*
1526AA	21H	25M	21S	396MF*S*

* ORBITS FOR DAY 212 1970 *

1529RA	0H	0M	0S	447MF*S*
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1529RB	1H	17M	21S	446MF*S*
1530RB	5H	3M	13S	383MF*S*
1531AA	6H	47M	45S	363MF*S*
1532AB	8H	24M	49S	389MF*S*
1533AA	10H	9M	5S	403MF*S*
1534AB	11H	56M	49S	396MF*S*
1535AA	13H	42M	41S	396MF*S*
1536AB	15H	27M	13S	395MF*S*
1537AA	17H	9M	37S	399MF*S*
1538AB	18H	55M	45S	391MF*S*
1539AA	0H	0M	0S	398MF*S*

* ORBITS FOR DAY 213 1970 *

1542RA	0H	29M	53S	453MF*S*
0AA	0H	0M	0S	453MF*S*
1543RB	4H	19M	45S	359MF*S*

1545AA	7H	46M	41S	411MF*S*
1545AB	6H	1M	37S	399MF*S*
1546AA	9H	28M	33S	382MF*S*
1547AB	11H	10M	41S	394MF*S*
1548AA	12H	56M	17S	391MF*S*
1549AB	14H	41M	21S	392MF*S*
1550AA	16H	26M	9S	383MF*S*
1551AB	18H	9M	5S	391MF*S*
1552AA	19H	52M	49S	343MF*S*

* ORBITS FOR DAY 214 1970 *

1556RA	21H	44M	33S	448MF*S*
1556RB	23H	42M	57S	450MF*S*
1557RB	5H	18M	57S	343MF*S*
1558AA	6H	58M	57S	372MF*S*
1559AB	8H	38M	41S	402MF*S*
1560AA	10H	26M	9S	391MF*S*
1561AB	12H	11M	13S	395MF*S*
1562AA	13H	56M	49S	393MF*S*
1563AB	15H	42M	9S	383MF*S*
1564AA	17H	24M	33S	389MF*S*
1565AB	19H	8M	49S	399MF*S*

ORBITS FOR DAY 217 1970

1592AB	19H	50M	41S	296MF*S*
1593AA	21H	9M	53S	402MF*S*
1597RB	4H	53M	21S	340MF*S*
1599AB	8H	9M	5S	395MF*S*
1600AA	9H	54M	25S	392MF*S*
1598RA	23H	2M	25S	454MF*S*
1601AB	11H	40M	33S	397MF*S*
1602AA	13H	26M	57S	390MF*S*
1603AB	15H	11M	45S	372MF*S*
1604AA	16H	53M	37S	390MF*S*
1605AB	18H	39M	45S	393MF*S*

ORBITS FOR DAY 218 1970

1610RA	22H	16M	17S	454MF*S*
1610RB	0H	16M	1S	457MF*S*
1611RB	5H	47M	13S	376MF*S*
1612AA	7H	29M	21S	372MF*S*
1613AB	9H	9M	5S	397MF*S*
1614AA	10H	55M	29S	395MF*S*
1615AB	12H	41M	37S	400MF*S*
1616AA	14H	28M	17S	391MF*S*
1618AA	17H	54M	25S	380MF*S*
1619AB	19H	38M	25S	493MF*S*
1620AA	0H	0M	0S	380MF*S*

ORBITS FOR DAY 220 1970

1636RB	0H	30M	41S	454MF*S*
1637RA	22H	32M	33S	453MF*S*
1637RB	4H	19M	45S	351MF*S*
1639AA	7H	46M	41S	362MF*S*
1639AB	6H	1M	5S	402MF*S*
1640AA	9H	28M	1S	384MF*S*
1641AB	11H	10M	41S	394MF*S*
1642AA	12H	56M	33S	389MF*S*
1643AB	14H	40M	33S	392MF*S*
1644AA	16H	25M	21S	389MF*S*
1645AB	18H	9M	37S	393MF*S*
1646AA	19H	53M	53S	401MF*S*

ORBITS FOR DAY 221 1970

1650RA	23H	29M	21S	1174MF*S*
1650RB	1H	31M	45S	453MF*S*
1652AA	6H	59M	45S	369MF*S*
1652AB	5H	17M	5S	381MF*S*
1653AB	8H	42M	57S	380MF*S*
1654AA	10H	29M	21S	389MF*S*
1655AB	12H	13M	21S	384MF*S*
1656AA	13H	56M	1S	389MF*S*
1657AB	15H	40M	17S	385MF*S*
1658AA	17H	23M	13S	401MF*S*
1659AB	19H	10M	9S	396MF*S*
1660AA	20H	56M	1S	395MF*S*

1663RB 0H 46M 9S 456MF*S*
1664RA 22H 47M 13S 454MF*S*

1664RB 4H 35M 13S 358MF*S*

1665AB 6H 17M 37S 361MF*S*

16661QA 7H 54M 9S 388MF*S*

1667AB 9H 39M 29S 393MF*S*

1668AA 11H 25M 5S 729MF*S*

1669AB 13H 13M 5S 383MF*S*

1670AA 14H 55M 29S 393MF*S*

1671AB 16H 40M 33S 386MF*S*

1672AB 18H 23M 29S 396MF*S*

1673AB 20H 9M 37S 395MF*S*

ORBITS FOR DAY 223 1970

1677RA 0H 0M 0S 451MF*S*

1677RB 0H 0M 17S 444MF*S*

17477MF 0H 23M 31S 488MF*S*

1679AA 7H 13M 53S 371MF*S*

1680AB 8H 54M 25S 394MF*S*

1681AA 10H 39M 45S 403MF*S*

1682AB 12H 28M 49S 378MF*S*

1683AA 14H 10M 25S 584MF*S*

1684AB 15H 54M 25S 367MF*S*

END OF NIMBUS 4 ARCHIVE TAPE CONTAINING 13 DAYS

1 DAY 208 1970 12 ORBITS

2 DAY 209 1970 12 ORBITS

3 DAY 210 1970 12 ORBITS

4 DAY 211 1970 11 ORBITS

5 DAY 212 1970 12 ORBITS

6 DAY 213 1970 12 ORBITS

7 DAY 214 1970 12 ORBITS

8 DAY 217 1970 11 ORBITS

9 DAY 218 1970 11 ORBITS

10 DAY 220 1970 12 ORBITS

11 DAY 221 1970 12 ORBITS

12 DAY 222 1970 12 ORBITS

13 DAY 223 1970 9 ORBITS

0-22601

15
247
15
274 files

1 DAY	12 1971	14 ORBITS
2 DAY	14 1971	15 ORBITS
3 DAY	15 1971	15 ORBITS
4 DAY	11 1971	11 ORBITS
5 DAY	13 1971	15 ORBITS
6 DAY	16 1971	15 ORBITS
7 DAY	17 1971	16 ORBITS
8 DAY	18 1971	15 ORBITS
9 DAY	19 1971	13 ORBITS
10 DAY	20 1971	21 ORBITS
11 DAY	21 1971	21 ORBITS
12 DAY	22 1971	18 ORBITS
13 DAY	23 1971	19 ORBITS
14 DAY	24 1971	18 ORBITS
15 DAY	25 1971	21 ORBITS

ORBITS FOR DAY 12 1971

3742WB	23H	58M	45S	69MF*S*
3743WA	1H	44M	21S	66MF*S*
3745RA	22H	13M	41S	73MF*S*
3745RB	0H	0M	0S	462MF*S*
3746RB	5H	34M	13S	382MF*S*
3747AB	7H	21M	41S	356MF*S*
3748AB	9H	1M	57S	378MF*S*
3749AB	10H	48M	5S	378MF*S*
3750AB	12H	34M	29S	342MF*S*
3751AB	14H	19M	17S	366MF*S*
3752AB	16H	1M	41S	373MF*S*
3753AB	17H	46M	45S	372MF*S*
3754AB	19H	31M	17S	376MF*S*
3755AB	0H	0M	0S	392MF*S*

ORBITS FOR DAY 14 1971

3769WB	0H	13M	57S	69MF*S*
37700B	3H	0M	5S	60MF*S*
3772RA	22H	25M	41S	145MF*S*
3772RB	1H	0M	53S	461MF*S*
3773RB	5H	48M	53S	387MF*S*
3774AB	7H	36M	53S	346MF*S*
3775AB	9H	15M	33S	385MF*S*
3776AB	11H	3M	17S	375MF*S*
3777AB	12H	48M	21S	375MF*S*
3778AB	14H	33M	9S	385MF*S*
3779AB	16H	20M	37S	345MF*S*
3780AA	15H	40M	37S	293MF*S*
3780AA	17H	0M	5S	102MF*S*
3780AB	17H	58M	29S	399MF*S*
3781AB	19H	51M	17S	86MF*S*

ORBITS FOR DAY 15 1971

38830B	2H	15M	33S	57MF*S*
3783WB	1H	14M	29S	66MF*S*
3785RA	4H	37M	41S	73MF*S*
3785RB	1H	58M	45S	461MF*S*
3786RB	5H	5M	25S	388MF*S*
3787AB	6H	57M	9S	333MF*S*
3788AB	8H	30M	29S	387MF*S*
3789AB	10H	21M	25S	377MF*S*

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14 OCT 1975

3792AB	15H	38M	29S	400MF*S*
3793AB	17H	20M	5S	378MF*S*
3794AB	19H	5M	41S	353MF*S*
3795AB	0H	0M	0S	388MF*S*
3795WB	22H	43M	17S	62MF*S*

ORBITS FOR DAY 11 1971

3731RB	1H	26M	45S	460MF*S*
3732RB	4H	36M	21S	383MF*S*
3733AB	6H	23M	33S	347MF*S*
3734AB	8H	1M	25S	375MF*S*
3735AB	9H	47M	1S	377MF*S*
3736AB	11H	32M	37S	375MF*S*
3737AB	13H	17M	25S	389MF*S*
3738AB	15H	5M	57S	363MF*S*
3739AB	16H	49M	9S	372MF*S*
3740AB	18H	32M	53S	370MF*S*
3741AB	20H	16M	5S	386MF*S*

ORBITS FOR DAY 13 1971

3755WB	23H	13M	25S	67MF*S*
3757WA	2H	44M	53S	58MF*S*
3757AA	3H	45M	41S	49MF*S*
48210B	23H	59M	1S	459MF*S*
3759RA	4H	4M	37S	148MF*S*
3759RB	4H	51M	1S	356MF*S*
3760AB	6H	35M	33S	358MF*S*
3761AB	8H	16M	21S	376MF*S*
3762AB	10H	2M	13S	385MF*S*
3763AB	11H	50M	13S	370MF*S*
3764AB	13H	33M	25S	377MF*S*
3765AB	15H	18M	45S	384MF*S*
3766AB	17H	6M	29S	353MF*S*
3767AB	20H	23M	33S	403MF*S*
3769WB	0H	13M	41S	70MF*S*

ORBITS FOR DAY 16 1971

37970A	3H	15M	1S	60MF*S*
3798RB	23H	24M	53S	446MF*S*
3800AB	6H	7M	17S	352MF*S*
3801AB	7H	45M	41S	380MF*S*
3802AB	9H	32M	5S	386MF*S*
3799RA	3H	54M	45S	61MF*S*
3803AB	11H	19M	49S	371MF*S*
3804AB	13H	4M	5S	379MF*S*
3805AB	14H	54M	29S	360MF*S*
3806AB	0H	0M	0S	367MF*S*
3807AB	18H	18M	13S	375MF*S*
3808AB	20H	3M	1S	376MF*S*
3809AB	23H	28M	5S	45MF*S*
3809WA	23H	43M	33S	65MF*S*
38100B	2H	31M	17S	53MF*S*

ORBITS FOR DAY 17 1971

0AA	4H	52M	37S	73MF*S*
3812RB	0H	27M	49S	49MF*S*
3812RB	0H	41M	9S	410MF*S*
3813RB	5H	21M	41S	373MF*S*
3814AB	7H	5M	41S	363MF*S*
3815AB	8H	47M	17S	376MF*S*

3818AB	14H	5M	41S	370MF*S*
3819AB	15H	48M	53S	367MF*S*
3820AB	15H	48M	53S	366MF*S*
3821AB	19H	16M	53S	372MF*S*
3822AB	21H	2M	29S	389MF*S*
3822WB	22H	58M	13S	56MF*S*
38230B	2H	31M	17S	55MF*S*
3824WB	22H	58M	13S	62MF*S*

ORBITS FOR DAY 18 1971

38240A	3H	29M	57S	55MF*S*
3825RB	23H	40M	53S	460MF*S*
3825RA	4H	8M	37S	72MF*S*
3826RB	4H	36M	21S	375MF*S*
3828AB	8H	3M	17S	365MF*S*
3827AB	6H	21M	41S	362MF*S*
3829AB	9H	46M	29S	387MF*S*
3830AB	11H	34M	45S	384MF*S*
3831AB	13H	22M	45S	360MF*S*
3832AB	15H	3M	33S	383MF*S*
3833AB	16H	50M	29S	359MF*S*
3934AB	18H	31M	17S	372MF*S*
3836WB	23H	58M	29S	70MF*S*
3835AB	20H	15M	33S	393MF*S*
38370B	2H	44M	53S	61MF*S*

ORBITS FOR DAY 19 1971

3839RA	5H	6M	45S	80MF*S*
3839RA	5H	6M	45S	53MF*S*
3839RB	0H	36M	53S	461MF*S*
3840RA	6H	19M	1S	39MF*S*
3841AB	7H	17M	9S	372MF*S*
3842AB	9H	1M	57S	388MF*S*
3843AB	10H	50M	45S	362MF*S*
3844AB	12H	32M	5S	389MF*S*
3845AA	14H	21M	41S	73MF*S*
3847AB	17H	41M	25S	404MF*S*
3848AB	19H	34M	29S	378MF*S*
3849WB	23H	13M	25S	65MF*S*
3849AB	21H	20M	53S	381MF*S*

ORBITS FOR DAY 20 1971

3851WA	2H	45M	9S	58MF*S*
3852RA	4H	23M	33S	48MF*S*
3852RB	23H	55M	49S	458MF*S*
5754RA	4H	40M	37S	114MF*S*
3853RA	5H	32M	37S	73MF*S*
3854AB	6H	31M	17S	372MF*S*
3855AB	8H	15M	33S	380MF*S*
3856AB	10H	11M	41S	379MF*S*
3857AB	11H	47M	49S	384MF*S*
3858AA	13H	35M	33S	73MF*S*
3858AB	13H	35M	33S	367MF*S*
1090RR	14H	59M	49S	72MF*S*
3859AA	15H	22M	45S	68MF*S*
1091AR	16H	18M	29S	133MF*S*
3860AA	17H	9M	41S	73MF*S*
3860AR	16H	18M	13S	185MF*S*
3861AB	18H	40M	5S	416MF*S*

3863WR	0H	13M	41S	63MF'S*
3864OR	2H	59M	49S	55MF'S*

ORBITS FOR DAY 21 1971

3865RA	3H	39M	33S	76MF'S*
3865RR	3H	56M	37S	43MF'S*
3866RA	4H	57M	41S	80MF'S*
3866RB	0H	49M	57S	460MF'S*
3865SR	4H	13M	57S	52MF'S*
3866QR	5H	40M	53S	121MF'S*
3867RA	6H	44M	37S	84MF'S*
3868AB	7H	31M	33S	370MF'S*
3869AB	9H	16M	53S	384MF'S*
3870AB	11H	4M	5S	375MF'S*
3871AB	12H	49M	9S	373MF'S*
5953QA	14H	37M	41S	88MF'S*
5953QR	15H	33M	41S	193MF'S*
3873AA	16H	19M	33S	92MF'S*
3873AR	16H	8M	5S	140MF'S*
3874AB	17H	57M	9S	405MF'S*
3875AB	19H	50M	13S	350MF'S*
3872SR	17H	18M	13S	60MF'S*
3876AB	21H	37M	25S	369MF'S*
3876WR	23H	28M	21S	53MF'S*
3878WR	23H	28M	21S	176MF'S*

ORBITS FOR DAY 22 1971

3879RA	4H	33M	41S	87MF'S*
3879RB	0H	13M	57S	461MF'S*
3879RR	4H	55M	33S	112MF'S*
3880RA	5H	58M	45S	88MF'S*
3881AB	6H	45M	57S	381MF'S*
3882AB	8H	32M	37S	375MF'S*
3883AB	10H	17M	25S	377MF'S*
3884AB	12H	2M	29S	391MF'S*
3885AA	13H	53M	41S	88MF'S*
3885AR	15H	10M	45S	89MF'S*
3885SR	16H	33M	9S	64MF'S*
3886AA	15H	36M	37S	88MF'S*
3886AT	16H	52M	21S	96MF'S*
3886SR	18H	19M	33S	49MF'S*
3887AA	17H	30M	45S	87MF'S*
3888AB	18H	55M	1S	400MF'S*
3889AB	20H	46M	29S	386MF'S*
3889JR	23H	6M	13S	49MF'S*

ORBITS FOR DAY 23 1971

3891OR	6H	57M	57S	87MF'S*
3892RA	3H	50M	45S	87MF'S*
3893RB	1H	14M	45S	461MF'S*
3892SR	4H	11M	17S	120MF'S*
3893RR	5H	56M	5S	110MF'S*
3894AA	6H	57M	41S	88MF'S*
3895AB	7H	40M	37S	400MF'S*
3896AB	9H	32M	21S	454MF'S*
3897AB	11H	20M	21S	372MF'S*
3898AB	13H	4M	5S	376MF'S*
3899AA	14H	48M	37S	88MF'S*
3899AR	15H	48M	5S	169MF'S*
3900AA	16H	35M	33S	88MF'S*
3900AR	15H	48M	5S	144MF'S*

3903AB	0H	0M	0S	389MF*S*
3903MR	23H	43M	33S	65MF*S*
3906MR	2H	29M	9S	117MF*S*

* ORBITS FOR DAY 24 1971

3905QR	3H	38M	45S	47MF*S*
3906RA	4H	48M	37S	88MF*S*
3906RB	0H	30M	45S	461MF*S*
3906RR	5H	10M	29S	114MF*S*
3907RA	6H	11M	33S	88MF*S*
3908AB	7H	0M	21S	384MF*S*
3909AB	8H	47M	17S	385MF*S*
3910AB	10H	34M	45S	376MF*S*
3911AB	12H	19M	49S	375MF*S*
3912AA	14H	2M	45S	87MF*S*
3912AZ	15H	38M	45S	50MF*S*
3913AA	15H	49M	41S	88MF*S*
3915AB	0H	0M	0S	407MF*S*
3913AR	16H	48M	37S	116MF*S*
3914AA	17H	36M	37S	88MF*S*
3914AR	18H	35M	1S	43MF*S*
3916AB	21H	3M	1S	380MF*S*
3917OR	1H	44M	5S	55MF*S*

* ORBITS FOR DAY 25 1971

3918OR	3H	30M	13S	53MF*S*
3919RA	4H	4M	37S	88MF*S*
3919RR	4H	25M	41S	96MF*S*
3920RR	6H	14M	13S	88MF*S*
3920RA	5H	25M	41S	87MF*S*
3920RB	23H	44M	53S	461MF*S*
3921AA	7H	12M	37S	88MF*S*
3922AB	7H	56M	53S	399MF*S*
3924AB	11H	34M	29S	377MF*S*
3925AB	13H	20M	21S	367MF*S*
3926AA	15H	3M	33S	88MF*S*
3926AR	16H	3M	1S	154MF*S*
3926SR	17H	48M	37S	55MF*S*
3927AA	16H	50M	45S	86MF*S*
3927AR	18H	11M	1S	80MF*S*
3927QR	18H	4M	5S	22MF*S*
3928AB	18H	24M	53S	399MF*S*
3929AB	20H	17M	57S	373MF*S*
3929JR	22H	34M	45S	62MF*S*
3930WA	23H	58M	29S	62MF*S*

39310A 2H 44M 21S 58MF*S*

* END OF NIMBUS 4 ARCHIVE TAPE CONTAINING 15 DAYS

1 DAY	12 1971	14 ORBITS
2 DAY	14 1971	15 ORBITS
3 DAY	15 1971	15 ORBITS
4 DAY	11 1971	11 ORBITS
5 DAY	13 1971	15 ORBITS
6 DAY	16 1971	15 ORBITS
7 DAY	17 1971	16 ORBITS
8 DAY	18 1971	15 ORBITS
9 DAY	19 1971	13 ORBITS

12 DAY	22 1971	18 ORBITS
13 DAY	23 1971	19 ORBITS
14 DAY	24 1971	18 ORBITS
15 DAY	25 1971	21 ORBITS

1002

1004

1006

1008

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1016

1018

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1066

NIMBUS 4 ARCHIVE TAPE CONTAINING 14 DAYS

D-22616

~~AP 3750~~ AP 4444

14
16
17
19
files

6 OCT 1975

1 DAY	306 1970	12 ORBITS
2 DAY	307 1970	12 ORBITS
3 DAY	308 1970	12 ORBITS
4 DAY	309 1970	12 ORBITS
5 DAY	311 1970	12 ORBITS
6 DAY	310 1970	12 ORBITS
7 DAY	312 1970	12 ORBITS
8 DAY	313 1970	11 ORBITS
9 DAY	314 1970	12 ORBITS
10 DAY	315 1970	12 ORBITS
11 DAY	316 1970	12 ORBITS
12 DAY	317 1970	12 ORBITS
13 DAY	318 1970	12 ORBITS
14 DAY	319 1970	12 ORBITS

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ORBITS FOR DAY 306 1970

2791RB	1H	58M	43S	461MF'S*
2792RA	23H	58M	43S	454MF'S*
2792RB	4H	35M	31S	371MF'S*
2793AB	6H	19M	31S	362MF'S*
2794AA	7H	55M	15S	406MF'S*
2795AB	9H	40M	51S	406MF'S*
2796AA	11H	28M	19S	400MF'S*
2797AB	13H	13M	23S	387MF'S*
27981QA	14H	57M	7S	393MF'S*
2799AB	16H	42M	27S	373MF'S*
2800AA	18H	31M	31S	374MF'S*
2801AB	20H	11M	15S	393MF'S*

ORBITS FOR DAY 307 1970

2805RA	0H	50M	43S	457MF'S*
2805RB	2H	50M	43S	461MF'S*
2806RB	5H	33M	55S	383MF'S*
2807AA	7H	16M	3S	376MF'S*
2808AB	8H	56M	19S	394MF'S*
2809AA	10H	42M	43S	401MF'S*
2810AB	12H	29M	23S	389MF'S*
2811AA	14H	13M	7S	390MF'S*
2812AB	15H	56M	35S	393MF'S*
2813AA	17H	39M	31S	398MF'S*
2814AB	19H	26M	11S	398MF'S*
2815AA	21H	12M	3S	398MF'S*

ORBITS FOR DAY 308 1970

2818RA	0H	13M	39S	458MF'S*
2818RB	2H	13M	55S	459MF'S*
2819RB	4H	50M	11S	381MF'S*
2820AA	6H	30M	43S	377MF'S*
2821AB	8H	10M	27S	399MF'S*
2822AA	9H	56M	19S	413MF'S*
2823AB	11H	44M	3S	389MF'S*
2824AA	13H	28M	3S	393MF'S*
2825AB	15H	13M	23S	388MF'S*

2828AA 0H 0M 0S 397MF'S*

*
ORBITS FOR DAY 309 1970

2831RB 1H 30M 43S 460MF'S*
2832RA 23H 30M 43S 459MF'S*

2832RB 4H 6M 43S 359MF'S*
2833RB 5H 47M 31S 390MF'S*

2834AA 7H 31M 47S 371MF'S*
2835AB 9H 10M 59S 406MF'S*
2836AA 10H 57M 23S 400MF'S*
2837AB 12H 44M 3S 387MF'S*
2838AA 14H 27M 15S 391MF'S*
2839AB 16H 11M 47S 387MF'S*
2840AA 17H 54M 59S 392MF'S*
2841AB 19H 39M 31S 406MF'S*

*
ORBITS FOR DAY 311 1970

2858RB 1H 44M 51S 459MF'S*
2859RA 23H 44M 35S 457MF'S*
2859RB 4H 22M 11S 345MF'S*
2860AB 6H 2M 43S 373MF'S*
2861AA 7H 42M 27S 390MF'S*
2862AB 9H 26M 27S 404MF'S*
2863AA 11H 13M 39S 392MF'S*
2864AB 12H 57M 55S 406MF'S*
2865AA 14H 45M 23S 380MF'S*
2866AB 16H 26M 27S 392MF'S*
2767AA 18H 10M 59S 391MF'S*
2768AB 19H 54M 27S 408MF'S*

*
ORBITS FOR DAY 310 1970

2842AA 23H 10M 43S 668MF'S*
2845RB 2H 28M 51S 461MF'S*

2846RB 6H 35M 47S 40MF'S*
2847AA 6H 46M 43S 414MF'S*
2847AA 6H 46M 43S 376MF'S*
2849AA 10H 13M 7S 394MF'S*
2849AB 8H 26M 43S 459MF'S*
2850AB 12H 9M 7S 351MF'S*
2851AA 13H 42M 59S 394MF'S*
2852AB 15H 27M 47S 389MF'S*
2853AA 17H 11M 47S 386MF'S*
2854AB 18H 54M 27S 400MF'S*

*
ORBITS FOR DAY 312 1970

2872RA 0H 42M 43S 455MF'S*
2872RB 2H 42M 43S 460MF'S*
2873RB 5H 18M 27S 381MF'S*
2874AA 6H 59M 31S 384MF'S*
2875AB 8H 41M 23S 400MF'S*
2876AA 0H 0M 0S 398MF'S*
2877AB 12H 13M 7S 395MF'S*
2878AA 13H 58M 11S 391MF'S*
2879AB 15H 41M 39S 385MF'S*
2880AA 17H 23M 47S 392MF'S*

2882A A 20H 56M 51S 408MF S*

ORBITS FOR DAY 313 1970

2886R A 23H 58M 43S 456MF S*
2886R B 1H 58M 59S 460MF S*
2887A B 6H 19M 31S 364MF S*
2888A A 7H 56M 35S 391MF S*
2889A B 9H 41M 23S 406MF S*
2890A A 11H 27M 15S 397MF S*
2891A B 13H 13M 23S 397MF S*
2892A A 14H 58M 59S 377MF S*
2893A B 16H 39M 31S 397MF S*
2894A A 18H 24M 51S 404MF S*

2895A B 20H 11M 47S 399MF S*

ORBITS FOR DAY 314 1970

2899R A 0H 57M 39S 456MF S*
2899R B 2H 57M 55S 459MF S*
2900R B 5H 35M 15S 375MF S*
2901A A 7H 16M 19S 373MF S*
2902A B 8H 55M 31S 408MF S*
2903A A 10H 42M 43S 415MF S*
2904A B 12H 31M 47S 399MF S*
2905A A 14H 13M 39S 388MF S*

2906A B 15H 57M 7S 388MF S*
2907A A 17H 40M 3S 367MF S*
2908A B 19H 24M 51S 404MF S*
2909A A 0H 0M 0S 417MF S*

ORBITS FOR DAY 315 1970

2912R B 2H 12M 51S 460MF S*
2913R A 0H 12M 35S 456MF S*
2913R B 4H 50M 27S 908MF S*
2915A B 8H 15M 31S 382MF S*
2914A A 6H 34M 27S 361MF S*
2915A A 9H 57M 39S 412MF S*
2917A B 11H 43M 15S 552MF S*
2918A A 13H 28M 51S 380MF S*
2919A B 15H 12M 35S 388MF S*
2920A A 16H 55M 47S 393MF S*
2921A B 18H 40M 19S 398MF S*
2922A A 20H 25M 23S 407MF S*

ORBITS FOR DAY 316 1970

2925R B 1H 30M 59S 460MF S*
2926R A 23H 30M 43S 432MF S*
2926R B 4H 6M 11S 356MF S*
2927R B 5H 48M 3S 386MF S*
2928A A 7H 31M 31S 364MF S*
2929A B 9H 12M 19S 392MF S*
2930A A 10H 57M 7S 399MF S*
2931A B 12H 44M 3S 393MF S*
2932A A 14H 28M 3S 384MF S*
2933A B 16H 10M 11S 399MF S*
2934A A 17H 56M 35S 390MF S*
2935A B 19H 40M 35S 454MF S*

2939RA	0H	28M	1	35S	435MF	S*
2939RB	2H	28M	1	51S	455MF	S*
2940RB	5H	4M	1	51S	380MF	S*
2941AA	6H	46M	1	43S	373MF	S*
2942AB	8H	26M	1	27S	393MF	S*
2943AA	10H	11M	1	15S	401MF	S*
2944AB	11H	58M	1	27S	395MF	S*
2945AA	13H	43M	1	31S	742MF	S*
2946AB	15H	27M	1	15S	390MF	S*

2947AA	17H	11M	1	15S	388MF	S*
2948AB	18H	50M	1	59S	415MF	S*
2949AA	20H	40M	1	51S	399MF	S*

ORBITS FOR DAY 318 1970

2952RB	1H	44M	1	51S	461MF	S*
2953RA	23H	44M	1	35S	451MF	S*
2953RB	4H	21M	1	39S	364MF	S*
2954AB	6H	4M	1	3S	365MF	S*
2955AA	7H	41M	1	7S	393MF	S*
2956AB	9H	25M	1	55S	399MF	S*
2957AA	11H	12M	1	3S	398MF	S*
2958AB	12H	58M	1	27S	395MF	S*
2959AA	15H	41M	1	55S	174MF	S*
2960AB	16H	27M	1	47S	389MF	S*
2963AA	0H	0M	1	0S	403MF	S*
2961AA	18H	10M	1	59S	395MF	S*

ORBITS FOR DAY 319 1970

2966RA	0H	42M	1	43S	455MF	S*
2966RB	2H	42M	1	43S	460MF	S*
2968AA	7H	0M	1	3S	378MF	S*
2968AB	5H	18M	1	27S	379MF	S*
2969AB	8H	52M	1	19S	353MF	S*
2970AA	10H	26M	1	27S	398MF	S*
2971AB	12H	12M	1	51S	407MF	S*
2972AA	13H	59M	1	31S	390MF	S*
2973AB	15H	42M	1	43S	400MF	S*
2974AA	17H	29M	1	55S	375MF	S*
2975AB	19H	5M	1	55S	418MF	S*
2976AA	20H	56M	1	19S	396MF	S*

2 CHECKSUMS
1 CHECKSUM

END OF NIMBUS 4 ARCHIVE TAPE CONTAINING 14 DAYS

1 DAY	306	1970	12 ORBITS
2 DAY	307	1970	12 ORBITS
3 DAY	308	1970	12 ORBITS
4 DAY	309	1970	12 ORBITS
5 DAY	311	1970	12 ORBITS
6 DAY	310	1970	12 ORBITS
7 DAY	312	1970	12 ORBITS
8 DAY	313	1970	11 ORBITS
9 DAY	314	1970	12 ORBITS
10 DAY	315	1970	12 ORBITS
11 DAY	316	1970	12 ORBITS
12 DAY	317	1970	12 ORBITS
13 DAY	318	1970	12 ORBITS
14 DAY	319	1970	12 ORBITS