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NIMBUS 7
Earth Radiation Budget (ERB)
MATRIX USER'S GUIDE

Volume II
Tape Specifications

S. N. Ray
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NIMBUS-7

NIMBUS OBSERVATION PROCESSING SYSTEM (NOPS)

REQUIREMENTS DOCUMENT NG#10

EARTH RADIATION BUDGET (ERB) EXPERIMENT

ERB MATRIX TAPE

TAPE SPECIFICATION NO. T134031

REVISION L

JUNE, 1984

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REVISIONS

REV A (12/02/77): Entire document rewritten: new standard header section, new parameters, new MATRIX sizes -- it's all new again!

REV B (03/06/78): Changes to Abstract. Addition of monthly calibration file to gross format.

REV C (05/10/78): Changing bit counts for last two items in Figure VI-1, physical record format for world grids.

REV D (05/23/78): Replaced Table VI-5 (Altitude Pressure/Unit Codes) with a new Table VI-5 containing only UNITS codes.

REV E (05/16/80): Abstract revised. Monthly file spelled out in detail. Parameter 37 (a new parm) included, and appropriate corrections carried out. Other corrections made wherever necessary; entire document updated.

REV F (10/24/80): Added new UNITS codes to Table VI-5.

REV G (07/15/81): Added new standard header specification details.

REV H (07/30/81): Revised Table VI-1, ERB Parameters. Changes in the description of Parameters 5-8, 13-18, 21, 24-30, 32, 36, and 37. This includes more precise data population counters. Parameters 24 and 25 are also output on a monthly and seasonal basis.

REV I (08/26/81): Totally rewritten Abstract, gross format, and data records sections. Updated codes in Table V-2. Removed seasonal map products and updated film spec number for Parameters 24 and 25 in Table VI-3. ERB parameters Table VI-1 modified: (1) Parameter 36 is now average solar insolation output as daily and monthly world grids, (2) clarifications to descriptions of Parameters 21, 26-28, and 32, and (3) removal of all seasonal output products. Rewrote world grid, documentation mercator/polar map, and monthly calibration physical record sections. Updated the above three physical record format diagrams (Figures VI-1, VI-2, and VI-3), and descriptions including: (1) clarified record ID words, (2) removal of seasonal references and algorithm ID words, and (3) spares no longer necessarily zero-filled.

REVISIONS

(Continued)

REV J (06/15/82): Monthly calibration file has been separated from other data files. Monthly data file has been exemplified for clarity. Algorithm ID number field has been added in maps.

REV K (08/30/83): Parameter 22; error for Film Spec No. F133706 corrected.

REV L (03/08/84): Table VI-4; error for upper map limit of average net radiation corrected to 400.

Section V was revised to eliminate redundant descriptions of standard header records.

ABSTRACT

The ERB MATRIX tape is generated by an IBM 3081 computer program and is a 9-track, 1600 BPI tape. The gross format of the tape, given on Page 1, shows an initial standard header file followed by data files. The standard header file contains two standard header records. A trailing documentation file (TDF) is the last file on the tape. Pages 9 through 17 describe, in detail, the standard header file and the TDF.

The data files contain data for 37 different ERB parameters. Each file has data based on either a daily, 6-day cyclic, or monthly time interval. There are three types of physical records in the data files; namely, the world grid physical record, the documentation mercator/polar map projection physical record, and the monthly calibration physical record. The manner in which the data for the 37 ERB parameters are stored in the physical records comprising the data files, is given in the gross format section.

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ERB MATRIX Tape Specification Number T134031.

II. INPUT DATA SOURCE

ERB MAT Tape Specification Number T134081.

III. OPERATING MODE

Data is available only when the ERB instrument is ON. When the ERB subsystem is OFF, daily physical records covering that time period will not be available.

IV. GROSS FORMAT

The gross format of the tape is illustrated below:

FILE #1 FILES #2, #3, ... LAST FILE ON TAPE

STD HDR	IRG	STD HDR	EOF	FILES CONTAINING DAILY, 6-DAY CYCLIC, AND MONTHLY DATA	EOF	MONTHLY CALIBRATION FILE	EOF	TDF	EOF	EOF

There are three portions of the tape: (1) the standard header file, (2) the data files, and (3) TDF. The standard header file is described on Pages 9 through 17. Written in both standard header records are the MATRIX program version date and calibration version date. The data files portion of the tape, illustrated on Page 3 contains a variable number of files depending upon the availability of data in 6-day intervals (cycles) for the month of ERB MAT data being processed. Data are processed for each ERB electronics ON day of the month and are stored on tape on a daily, 6-day cyclic, and monthly basis. The 6-day interval is independent of the ERB electronics being ON or OFF, thus a 6-day cyclic average may be calculated from say four ERB ON days in the 6-day interval. (A 6-day cycle was chosen since it requires six days for full Earth coverage; that is, for Nimbus-7 to return to the same longitude at the descending node). The monthly averages are based entirely on the daily and not the 6-day cyclic data. The monthly period starts at the beginning of the calendar month and ends not necessarily with the last day of the calendar month, but with the last day of the 6-day cycle containing the last day of the calendar month. Examples of contents of the monthly tapes are given on Pages 4 through 8.

For each 6-day interval, a file containing daily data is written to tape followed by a file containing the 6-day averaged data. The daily values will start with File 2, the standard header file being File 1. Cyclic files are written only for complete 6-day cycles that begin on or after the first calendar day of a month. It is possible that the first cycle of a month may have started in the preceding month. In this case, this partial cyclic file is not written after the first daily file, since this cyclic data will have been written to the previous month's tape. Instead, two daily files will precede the first cyclic file. The first daily file will have data from the partial 6-day cycle of the month, the second daily file will have data from the first complete 6-day cycle. It is also possible for two contiguous cyclic files to precede the monthly file when the last day of the month is an OFF day and is also the first day of a cycle. The monthly file always follows the last cyclic file.

The last file on the data files portion of the tape is the monthly calibration file which is described on Page 37. This file is an internal NOPS product and will not be used by IPD.

Thirty-seven ERB parameters are stored in the data files. Parameter descriptions, the time period covered by the parameter (i.e., daily, 6-day cyclic, and/or monthly data), and the format in which the data are saved (i.e., world gridded or film mapping) are given in Table VI-1.

Three types of physical records comprise the data in the data files portion of the tape. These are the world grid (WG) physical record, the documentation mercator/polar map projection (Map) physical record, and the monthly calibration physical record. The world grid physical record has global data for up to three parameters. The Map physical record contains data for a single parameter and is used to generate mercator and polar stereographic microfilm products. The ERB Map film specifications list is given in Table VI-3. The contour intervals and limits on the map film products are given in Table VI-4. All physical records have 117792 bits (14,724 8-bit bytes) of information.

In order to distinguish between the files and to define the type of data in each file, a record ID word is present in each physical record which identifies the physical record and therefore, the file contents.

The following is a breakdown of the data files portion of the tape:

DAILY FILE

← WORLD GRID PHYSICAL RECORDS FOR →								
FIRST THREE DAILY PARMS	IRG	SECOND THREE DAILY PARMS	IRG	THIRD THREE DAILY PARMS	LAST THREE DAILY PARMS*	EOF
← 26 DAILY PARMS FOR UP TO 6 DAYS (MAX 52 PHYSICAL RECS) →						

*May contain one or two unused logical records.

CYCLIC FILE

← DOCUMENTATION MERCATOR/POLAR MAP PHYSICAL RECORDS FOR →						← WORLD GRID PHYSICAL RECORDS FOR →					
6-DAY CYCLIC PARM 16	IRG	6-DAY CYCLIC PARM 23	IRG	6-DAY CYCLIC PARM 26	IRG	6-DAY CYCLIC PARM 27	IRG	6-DAY CYCLIC PARMS 16, 23, 26	IRG	6-DAY CYCLIC FARM 27 & 2 UNUSED LOGICAL RECORDS	EOF

MONTHLY FILE ON THE TAPE

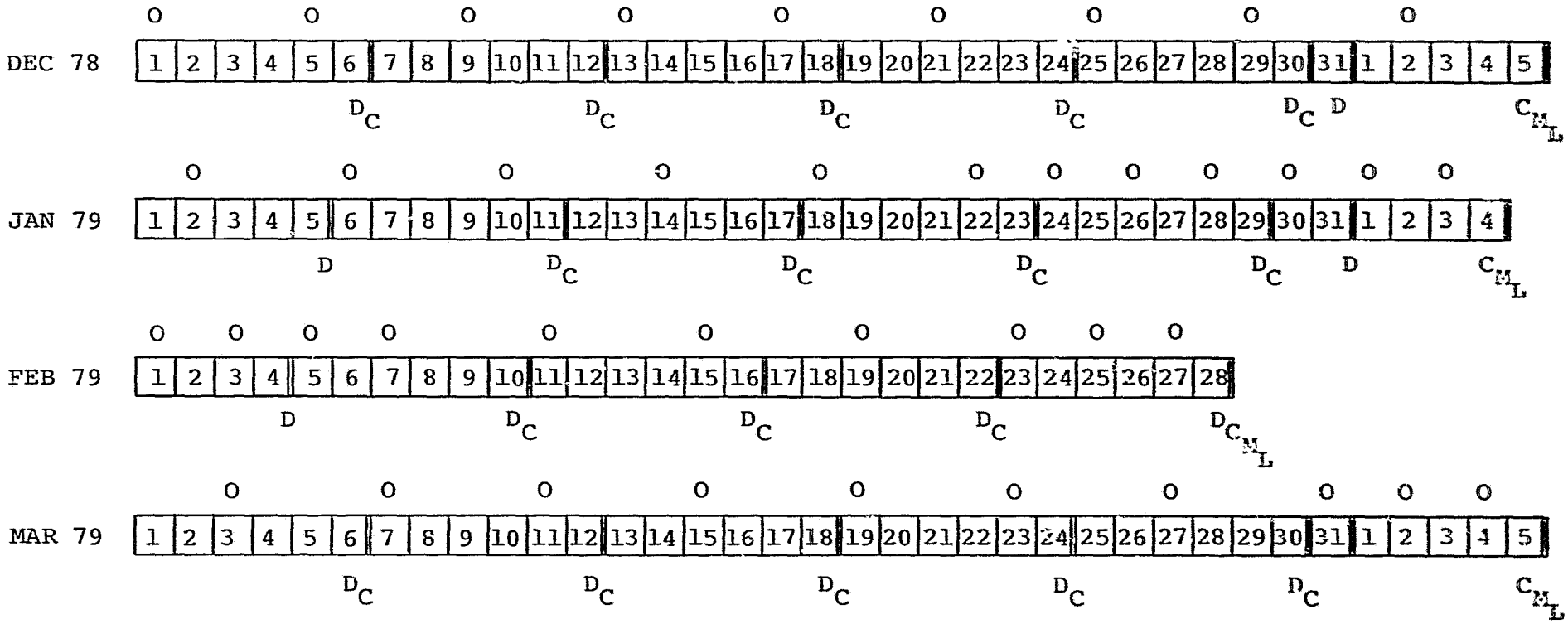
← DOCUMENTATION MERCATOR/POLAR MAP PHYSICAL RECORDS FOR →				← WORLD GRID PHYSICAL RECORDS FOR →					
FIRST MONTHLY PARM	IRG	SECOND MONTHLY PARM	27TH MONTHLY PARM	IRG	FIRST 3 MONTHLY PARMS	IRG	SECOND 3 MONTHLY PARMS	MONTHLY PARM 36	EOF
← 27 FILM PARAMETERS (27 PHYSICAL RECORDS) →				← 37 W.G. MONTHLY PARMS (13 PHYSICAL RECS) →					

LAST FILE IN DATA FILES PORTION OF THE TAPE

MONTHLY CALIBRATION FILE	EOF

Examples of Contents of Monthly MATRIX Tapes

This illustration, in addition to the tables on the following pages, show the order in which daily, cyclic, monthly, and monthly calibration files are written to MATRIX tapes. Note that even though the monthly file follows the last cyclic file, only the ERB ON days of the calendar month are included in the monthly file (i.e., only data days for January 1 through 31 are on the January 1979 monthly file).



D = Daily File
C = Cyclic File
M = Monthly File
L = Monthly Calibration File
O = ERB OFF Day

DECEMBER 1978

FILE NO.	DAYS	TYPE
2	December 1- 6	D
3	December 1- 6	C
4	December 7-12	D
5	December 7-12	C
6	December 13-18	D
7	December 13-18	C
8	December 19-24	D
9	December 19-24	C
10	December 25-30	D
11	December 25-30	C
12	December 31	D
13	December 31- January 5	C
14	December 1-31	M
15	----------	L

JANUARY 1979

FILE NO.	DAYS	TYPE
2	January 1- 5	D
3	January 6-11	D
4	January 6-11	C
5	January 12-17	D
6	January 12-17	C
7	January 18-23	D
8	January 18-23	C
9	January 24-29	D
10	January 24-29	C
11	January 30-31	D
12	January 30- February 4	C
13	January 1-31	M
14	----------	L

FEBRUARY 1979

FILE NO.	DAYS	TYPE
2	February 1- 4	D
3	February 5-10	D
4	February 5-10	C
5	February 11-16	D
6	February 11-16	C
7	February 17-22	D
8	February 17-22	C
9	February 23-28	D
10	February 23-28	C
11	February 1-28	M
12	----------	L

MARCH 1979

FILE NO.	DAYS	TYPE
2	March 1- 6	D
3	March 1- 6	C
4	March 7-12	D
5	March 7-12	C
6	March 13-18	D
7	March 13-18	C
8	March 19-24	D
9	March 19-24	C
10	March 25-30	D
11	March 25-30	C
12	March 31- April 5	C
13	March 1-31	M
14	----------	L

V. STANDARD HEADER SPECIFICATION AND TAPE DOCUMENTATION

V.1 GENERAL

All computer compatible tapes (CCTs) that are used as interfaces within NOPS require some form of identification. This applies to all CCTs that are currently defined by a NOPS tape specification, and that are also used for distribution or archiving purposes.

In addition to defining a "latest" product, data relating to previous products that went into the making of the "latest" product provides useful information when system problems occur.

The purpose of this section is to describe a system that allows the recording of the genealogy of a "latest" product, and in general, adheres to existing tape documentation standards.

In brief, the system consists of the following:

(1) The NOPS standard header (STD HDR) file will be the first file on a tape. The standard header record will reflect both the existence of a TDF and adherence to the IPD standard for sequence numbers.

(2) A documentation file that consists of a string of physical records follows the data on any tape defined by a current NOPS tape specification. This will be referred to as a TDF and will be the last file on a tape when it exists.

The following sections define the NOPS standard header records and file, and the TDF.

V.2 STANDARD HEADER RECORD (SHR) FORMAT

The STD HDR will contain the following:

Two identifical records (physical) of 630 characters (eight bits each) followed by an end-of-file (EOF).

The first 126 characters of the first record will consist of (see Figure V-1):

*NIMBUS-7$_b$NOPS$_b$SPEC$_b$NO$_b$T (1- 24 Characters)

↑ optional[1]

XXXXXX (6-digit spec number)[2] (25- 30 Characters)

$_b$SQ$_b$NO$_b$ (31- 37 Characters)

AAXXXXX (5-digit sequence number)[3] (38- 44 Characters)

NOTE: If sequence number is zero, the tape is not a finished product (i.e., definitive ephemeris not used, artificial VIP data, etc.).

↓ redo character

X (copy number 1 or 2) (45- 46 Characters)

$_b$YYYY$_b$ (4-character subsystem ID) (47- 52 Characters)

YYYY (Generation Facility ID) (53- 56 Characters)

$_b$TO$_b$YYYY (-character Destination Facility ID) (57- 64 Characters)

$_b$START$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (65- 87 Characters)

(start year, day of year, hours, minutes, seconds)

$_b$TO$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (88-106 Characters)

(end data and time of data)

GEN$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (107-126 Characters)

(date and time tape was generated)

The second logical record, consisting of 126 characters, will contain information that is required to complete the history of the product.

---

[1] Character 1 will contain an asterisk (*) and serve to notify all systems that a TDF is likely to follow the main data files and that the next logical record contains information relevant to complete identification.

[2] See Table V-1 for a detailed description of the NOPS specification codes.

[3] See Table V-2 for a description of the NOPS sequence numbering scheme.

CHARACTER 1-12 = Software program name and version number.

CHARACTERS 13-18 = Program documentation reference number, if it exists.

CHARACTERS 20-126 = User-defined comments that may be more relevant to the user than the preceding ones.

The third, fourth, and fifth groups of 126 characters each are intended for the use of the Subsystem Analysts for further identifications of their data. They may contain blanks, EBCDIC, BDC, or binary characters or zeros. However, in the case of CZCS, these logical records are used to define the genealogy of the image rather than the method of V.3.

The second record in the file is a duplicate of the first record for redundancy.

FIGURE V-1. Standard Header (Physical Record Format)

(1 Character = 8 Bits)

	MSB 24 22 20 18 16 14 12 10 8 6 4 2 LSB 1	
1	*NIMBUS-7$_b$NOPS$_b$SPEC$_b$NO$_b$T	
8	↑ IF TDF EXISTS (24 CHARACTERS)	192
9	SPECIFICATION NUMBER (6 DIGITS)	
10	$_b$SQ$_b$NO$_b$ (7 CHARACTERS)	
13	PDFC CODE (2 CHARACTERS)	
14	5-DIGIT SEQUENCE NUMBER - YJJJN (5 CHARACTERS) *FOR CZCS, THESE CHARACTERS (40-45) ARE A 6-DIGIT SEQUENCE NUMBER (INCLUDES REDO)	
15	REDO CHARACTER	408
16	1-CHARACTER TAPE COPY NUMBER / BLANK CHARACTER	
17	SUBSYSTEM I.D. (4 CHARACTERS)	
18	BLANK CHARACTER / SOURCE FACILITY (4 CHARACTERS)	
19	BLANK CHARACTER	
20	(T) CHARACTER / (0) CHARACTER / BLANK CHARACTER	
21	DESTINATION FACILITY I.D. (4 CHARACTERS)	
22	START YEAR, DAY, HOURS, MINUTES, SECONDS $_b$START$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (23 CHARACTERS)	696
29	END DATE AND TIME OF DATA TO$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (19 CHARACTERS)	
36	*SOME FACILITIES MAY NOT INCLUDE END TIME IN HEADER	
42	DATE AND TIME TAPE WAS GENERATED GEN$_b$19XX$_b$DDD$_b$HHMMSS$_b$ (20 CHARACTERS)	1008
84	SOFTWARE PROCRAM NAME (1-12) DOCUMENTATION (13-18) COMMENTS (19-126) BLANK (126 CHARACTERS)	2016
126	BLANK (126 CHARACTERS)	3024
168	BLANK (126 CHARACTERS)	4032
210	BLANK (126 CHARACTERS)	5040

EBCDIC TAPE FORMAT

TABLE V-1.

NOPS Specification Numbering Code

Tapes: A 6-digit number prefixed with a T to denote tape will be used.

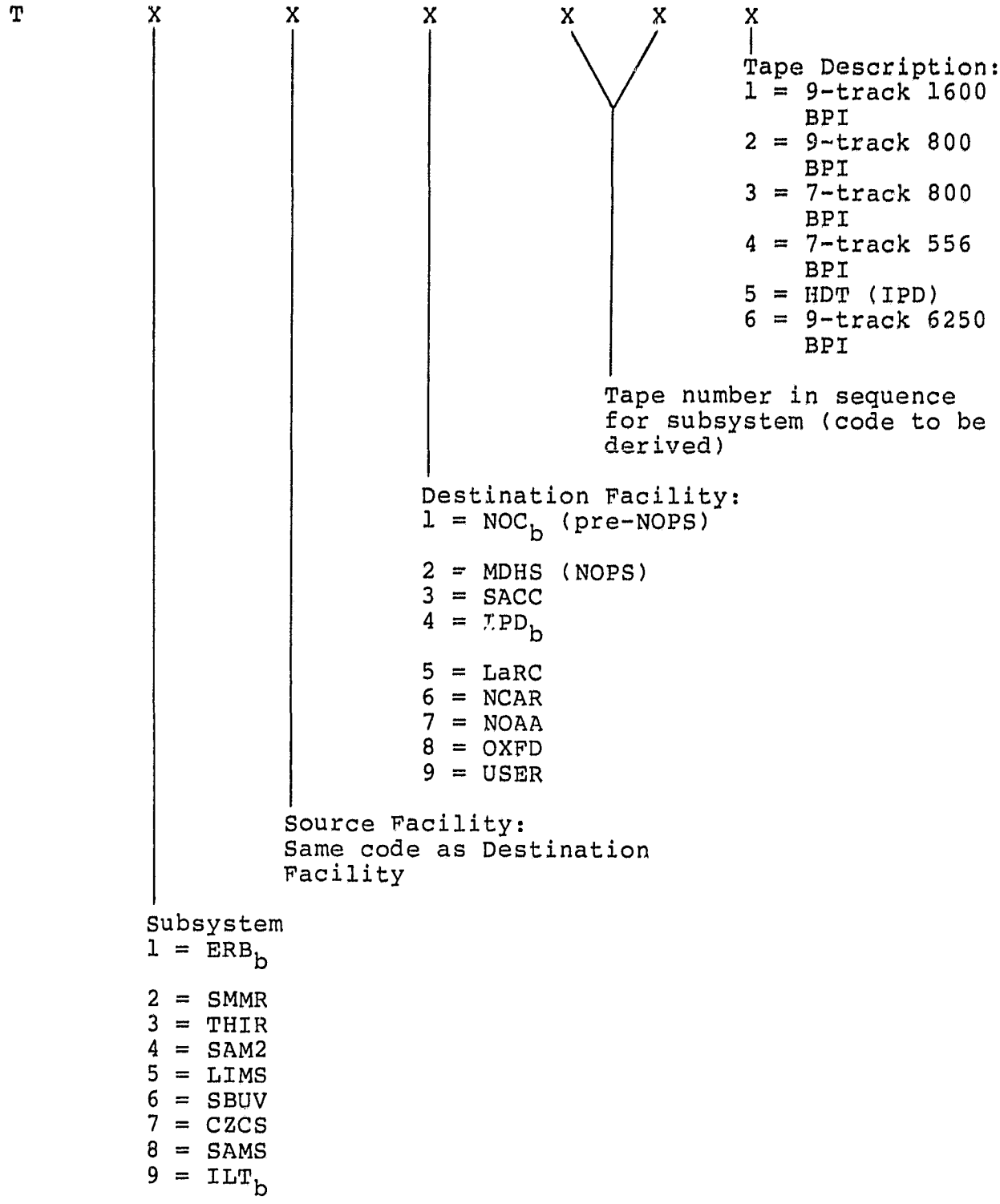


TABLE V-2.

NOPS Sequence Number Specification

CHARACTER 40:	The last digit of the year in which the data were acquired.
CHARACTERS 41-43:	Julian day of the year in which the data were acquired.
CHARACTER 44:	Sequence number for this particular product (usually a 1) (e.g., CLDTs will have a 1 and 2, as there are two products per day).
CHARACTER 45:	The existing hyphen remains unless there is a remake of the tape for any reason. In this case, an ascending alpha character will replace the hyphen, and the most recent reasons for remake will be recorded in Logical Record 4 of the header.
CHARACTER 47:	This will remain as a blank unless it is needed to remove ambiguities in CHARACTER 40. This may occur if data are being acquired on October 24, 1988.

NOTE: For CZCS, CHARACTERS 40 through 45 are a 6-digit sequence number.

The ERB PDFC codes are as defined in Table V-3.

EXAMPLE: An ERB MATRIX tape covering the month of February 1979 is generated by SACC and sent to IPD for production of contour maps on 35mm microfilm. The NOPS standard header file on the tape that IPD receives would contain two of the following records:

*NIMBUS-7$_b$NOPS$_b$SPEC$_b$NO$_b$T134031$_b$SQ$_b$NO$_b$

AA90321-2$_b$ERB$_{bb}$SACC$_b$TO$_b$IPD$_{bb}$START$_b$1979$_b$

032$_b$000432$_b$TO$_b$1979$_b$059$_b$235742$_b$GEN$_b$

1979$_b$104$_b$094500$_b$followed by 504 blanks

First day of time period may not be first data day in the event of multi-day stacked products that are based in an ILT week.

TABLE V-3.

ERB PDF Codes

TAPE ID	PDF	DATA TYPE
MAT	AC	MTAC
SEFDT	AD	SEAD
MATRIX	AA	MAAA
DELMAT	AJ	DEAJ
SAVER	AI	SEAI
TABLES	AB	TAAB
ZMT	AE	ZMAE

V.3 TRAILING DOCUMENTATION FILE (TDF)

The TDF will consist of all NOPS standard header records (non-duplicated) that relate to products that have gone into the making of the current product. Documentation records will be sequenced in accordance with their access; that is, first in is the first recorded. Every TDF is 630 bytes in length.

The first record of this file will serve to identify the file as a TDF. This will be accomplished by placing asterisks in CHARACTERS 1 through 10 followed by NOPS TRAILING DOCUMENTATION FILE FOR TAPE PRODUCT T [SPEC NO (six digits)] GENERATED ON DDD HH MM. The exact spacing of this comment is noncritical as long as it is less than 116 characters. The second physical record will be a repeat of the header file NOPS standard header record for this type with the proviso that data referring to the end time are correct for the data set. Following physical records will be an accumulation of TDFs of all input tapes. For those products that require more than one tape, the TDF will appear on the last tape only as well as the warning asterisk.

V.4 TAPE DUPLICATION

It has been determined that the duplication of master tapes is neither time nor cost effective; thus, the requirement of duplication implied in the preceding specification is rescinded. However, some tapes that require a great deal of effort to produce in terms of manpower and computer time should be duplicated.

If a redo is required due to tape errors or algorithm changes, this will be noted both on the CCT (HEADER C-45) and on the canister.

V.5 SHIPPING LETTERS

IPD will include a shipping letter with every tape distributed. The shipping letter will be printed directly from the first 126 (or 138) characters of the first physical record of the standard header file (SHF). In the event of copies made from CCTs that are not generated in IPD, a new physical record reflecting IPD as the source and the Nimbus experimenter to whom the tape is being sent as the destination, will be added as the second record of the TDF. All existing records in the TDF will be pushed down, but none will be lost. This record should also replace those in the SHF.

VI. DATA RECORDS

This section describes the three types of physical records written in the data files portion of the tape. The manner in which the physical records comprise each file in the data files portion of the tape is given in the gross format on Page 1.

The three types of physical records are the world grid physical record, the documentation mercator/north and south polar stereographic projections physical record, and the monthly calibration physical record. Daily, 6-day cyclic, and monthly data are stored on tape in the world grid physical record format. 6-Day cyclic and monthly data are also saved in the documentation mercator/polar projections physical record format. All physical records are 14,724 8-bit bytes in length and are distinguished by the record code ID word in each physical record. Unless otherwise specified, all negative numbers are 2's complement.

A. World Grid Physical Record Description

Each world grid physical record holds world gridded data for up to three ERB parameters. The definition of each parameter and its time coverage is given in Table VI-1. The world gridded data for each parameter consists of 2070 points (elements) of the ERB target areas (see Table VI-2). World gridded physical records are written for ERB parameters on a daily, 6-day cyclic, and monthly basis; thus, they appear in both even and odd numbered files as well as the next to the last file in the data files portion of the tape (see Gross Format section).

The physical record format is provided in Figure VI-1. Each physical record consists of three logical records, one for each parameter. Unused world grid logical records are zero filled.

In the event that the ERB instrument is off for a full day or more, daily world grid physical records will not appear on tape. A physical record may contain world grid data logical records that begin on one day and end on another day or may be filled (therefore, not to be used) prior to starting the next day's data.

(1) PHYSICAL RECORD NUMBER (12 BITS): This is the number of this record within a file. The same number is repeated in all three logical records if data are available; otherwise, it is zeroed.

(2) RECORD ID (8 BITS): Six LSB of eight bits identifies record type:

31 = Daily World Grid
32 = Cyclic World Grid
33 = Monthly World Grid

Note: If record ID
= 35, see Page 32
= 36, see Page 32
= 38, see Page 37

FIGURE VI-1. WORLD GRID PHYSICAL RECORD FORMAT FOR DAILY, CYCLIC, AND MONTHLY DATA

Word #	MSB 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 LSB 1	BITS
1	PHYSICAL REC. NO. 12 BITS | 4 SPARES | RECORD I.D. 8 BITS | LOGICAL REC NO. 8 BITS	32
2	4 SPARES | RECORDS PER FRAME (12 BITS) | REC. NO. WITHIN FRAME 12 BITS | 4 SPARES	64
3	PARAMETER NO. (8 BITS) | SPARES 24 BITS	96
4	SPARES 24 BITS | DATA COVER CODE (6) | 2 SPARES	128
5	4 SPARES | START DAY NO. (DATA) (12 BITS) | 16 MSB OF START SECOND 16 BITS	160
6	8 LSB OF START SECOND | END SECOND 24 BITS	192
7	END DATA DAY NO. 12 BITS | START YEAR (ANNO.) 12 BITS | 8 MSB END YR NO. (ANNO.) 8 BITS	224
8	END YR 4 LSB | START DAY (ANNO.) 12 BITS | END DAY (ANNO.) 12 BITS | 4 SPARES	256
9	8 SPARES 8 BITS | SCALING COEFFICIENTS (4, 12 BIT WORDS) 48 BITS	288
10	START ORBIT 8 MSB 8 BITS	320
11	16 LSB OF START ORBIT NO. 24 BITS | END ORBIT NO. 16 MSB OF 24 BITS.	352
12	END ORBIT NO. 8 LSB | DATA DISTRIBUTION BITS (96 BITS)	
13		
14		
15	ALGORITHM ID (16 BITS) 8 BITS	480
16	SOUTHERN HEMISPHERE WORLD GRID DATA (1035, 16 BIT ELEMENTS) = 2070 BYTES	
533	16560 BITS | SPARES 16 BITS	17056
	NORTHERN HEMISPHERE WORLD GRID DATA (1035, 16 BIT ELEMENTS) = 2070 BYTES	
1051	16560 BITS | SPARES 24 BITS	33632
1227	5632 SPARE BITS	39264
3681	REPEAT WDS 1 THRU 1227, 2 ADDITIONAL TIMES FOR A TOTAL OF 3 WORLD GRIDS.	117792

3272 36 BIT WORDS 4908, 24 BIT WORDS

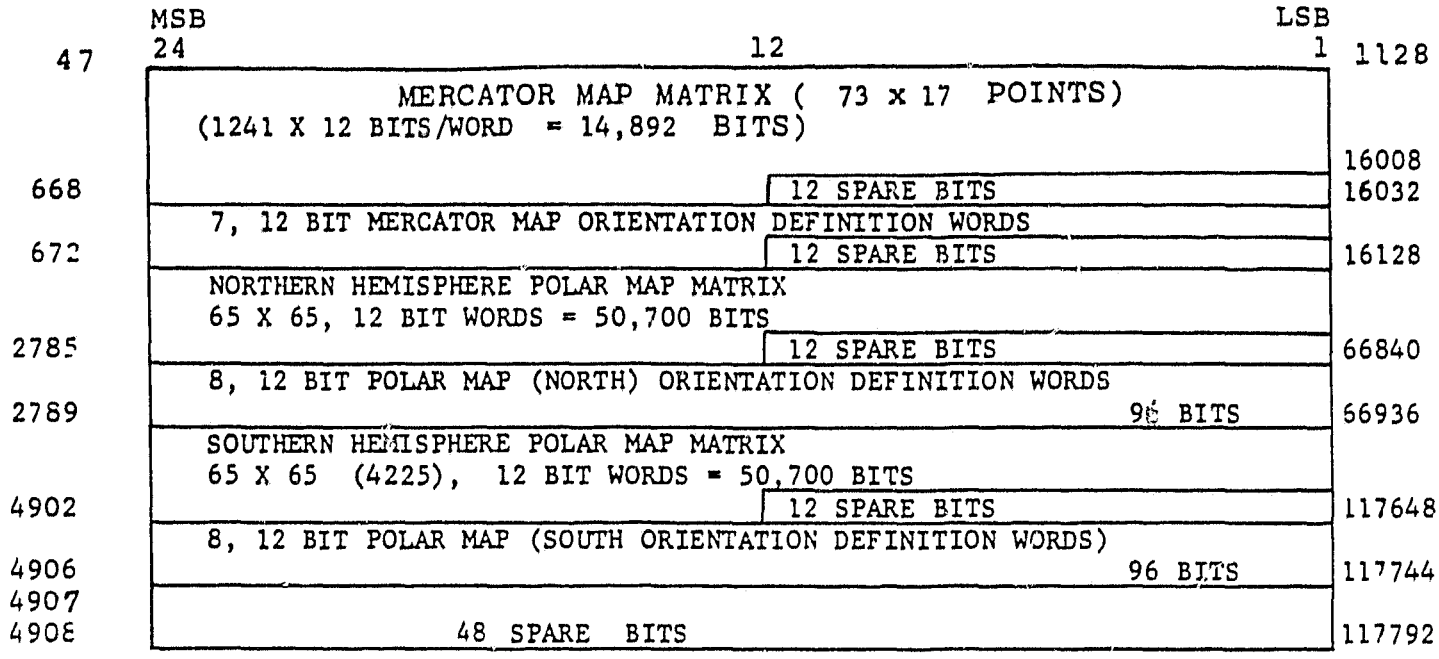
3681 32 BIT WORDS 14,724 BYTES

FIGURE VI-2.

Documentation Mercator/North and South Polar Stereographic Projection Physical Record Format

Word #	MSB 24 22 20 18 16 14 12 10 8 6 4 2 LSB 1	BITS
1	PHYSICAL RECORD NO. (12) | SPARE (4) | RECORD I.D. (8)	
2	SPARES (12) | RECORDS PER FRAME (12)	
3	RECORD NO. IN FRAME (12) | SPARE (4) | PARAMETER NO. (8)	
4	FRAME NO. (24 BITS)	
5	FILM SPEC NO. (24 BITS	
6	DATA COVERAGE CODE (6) | SPARES (6) | START DAY OF DATA (12)	
7	START SECOND (24 BITS)	
8	END SECOND (24 BITS)	
9	END DAY NO. OF DATA (12) | ANNOTATION START YEAR (12)	
10	ANNOTATION END YEAR (12) | ANNOTATION START DAY (12)	
11	ANNOTATION END DAY (12) | SPARE 12 BITS	
12-13	(48 BITS) SCALING COEFFICIENTS	312
14	START ORBIT NO. (24 BITS)	
15	END ORBIT NO. (24 BITS)	
16	DATA DISTRIBUTION (96 BITS)	
19		
20	21 CONTOUR CONTROL WORDS 12 BITS EACH (252 BITS) | APPLIES TO ALL 3 MAPS	
30	UNIT CODE (6) | UNIT SCALE (6)	720
31	MATRIX ALGORITHM ID # (12 BITS) | MAP MATRIX GEN. DATE (12)	744
39	ERB CHANNELS USED FOR ANNOTATION (192 BITS) (24 Characters)	936
47	ANCILLARY DATA USED (192 BITS) (24 Characters)	1128

FIGURE VI-2. (Continued)



3272, 36 BIT WORDS
3681, 32 BIT WORDS
4908, 24 BIT WORDS

14724 BYTES
117792 BITS

TABLE VI-1

ERB Parameters

PARAMETER # (TAPE SPEC)	DESCRIPTIONS
1	Data Population of WFOV Observations - A.N.
2	Data Population of WFOV Observations - D.N.
3	L.W. Terrestrial Flux from WFOV Observations - A.N.
4	L.W. Terrestrial Flux from WFOV Observations - D.N.
5	Computed Maximum Reflected Energy (0.2-4.0 μm) for WFOV - A.N.
6	Computed Maximum Reflected Energy (0.2-4.0 μm) for WFOV - D.N.
7	Computed Maximum Reflected Energy (0.7-3.0 μm) for WFOV - A.N.
8	Computed Maximum Reflected Energy (0.7-3.0 μm) for WFOV - D.N.
9	Reflected Energy from WFOV Observations (0.2-4.0 μm) - A.N.
10	Reflected Energy from WFOV Observations (0.2-4.0 μm) - D.N.
11	Reflected Energy from WFOV Observations (0.7-3.0 μm) - A.N.
12	Reflected Energy from WFOV Observations (0.7-3.0 μm) - D.N.
*13	Earth Albedo from WFOV Observations (0.2-4.0 μm) Using Solar Zenith Angle Correction
*14	Earth Albedo from WFOV Observations (0.2-0.7 μm) Using Solar Zenith Angle Correction
*15	Earth Albedo from WFOV Observations (0.7-3.0 μm) Using Solar Zenith Angle Correction
16	Net Radiation from WFOV Observations

*The daily albedo calculation does not use the solar zenith angle correction; whereas monthly albedo calculations do use the solar zenith angle correction.

TABLE VI-1 (Cont'd)

ERB Parameters

PARAMETER # (TAPE SPEC)	DESCRIPTIONS
17	S.W. Data Population of NFOV Observations - A.N.
18	S.W. Data Population of NFOV Observations - D.N.
19	L.W. Terrestrial Flux from NFOV Observations - A.N.
20	L.W. Terrestrial Flux from NFOV Observations - D.N.
21	Average L.W. Terrestrial Flux from NFOV Observations (Weighted Average of A.N. and D.N. Data)
22	Earth Albedo from NFOV Observations
23	Net Radiation from NFOV Observations
24	L.W. Data Population of NFOV Observations - A.N.
25	L.W. Data Population of NFOV Observations - D.N.
26	Data Population of WFOV Averaged L.W. Flux (Incremented on a Daily Basis)
27	Data Population of NFOV Averaged L.W. Flux (Incremented on a Daily Basis)
28	Averaged L.W. Terrestrial Flux from WFOV Observations (Average of A.N. and D.N. Data)
29	Normalized Dispersion of L.W. Terrestrial Flux from WFOV Observations Based on Parameters 3 and 4
30	Normalized Dispersion of Earth Albedo from WFOV Observations (0.2-4.0 μm) Based on Parameter 13 Daily Values
31	Standard Deviation of Net Radiation from WFOV Observations
32	Normalized Dispersion of Averaged L.W. Terrestrial Flux from NFOV Observations Based on Parameter 21
33	Normalized Dispersion of Earth Albedo from NFOV Observations

TABLE VI-1 (Cont'd)

ERB Parameters

PARAMETER # (TAPE SPEC)	DESCRIPTIONS
34	Standard Deviation of Net Radiation from NFOV Observations
35	Minimum Earth Albedo from NFOV Observations
36	Average Solar Insolation
37	Earth Albedo from WFOV Observations (0.2-4.0 μm) NOT Using Solar Zenith Angle Correction in Calculations

A.N. = Ascending Node
D.N. = Descending Node

TABLE VI-1 (Continued)

TABLE OF PARAMETERS USED IN DAILY WORLD GRIDS, AND CYCLIC, AND MONTHLY WORLD GRIDS AND MAPS.

PARM NO.	DAILY WG	CYCLIC WG	CYCLIC MAP	MONTHLY WG	MONTHLY MAP
1	X	-	-	X	X
2	X	-	-	X	X
3	X	-	-	X	X
4	X	-	-	X	X
5	X	-	-	X	-
6	X	-	-	X	-
7	X	-	-	X	-
8	X	-	-	X	-
9	X	-	-	X	-
10	X	-	-	X	-
11	X	-	-	X	-
12	X	-	-	X	-
13	X	-	-	X	X
14	X	-	-	X	X
15	X	-	-	X	X
37	-	-	-	X	X
16	X	X	X	X	X
17	X	-	-	X	X
18	X	-	-	X	-
19	X	-	-	X	X
20	X	-	-	X	X
21	X	-	-	X	X
22	X	-	-	X	X
23	X	X	X	X	X
24	X	-	-	X	X
25	X	-	-	X	X
26	-	X	X	X	X
27	-	X	X	X	X
28	-	-	-	X	X
29	-	-	-	X	X
30	-	-	-	X	X

TABLE VI-1 (Continued)

PARM NO.	DAILY WG	CYCLIC WG	CYCLIC MAP	MONTHLY WG	MONTHLY MAP
31	-	-	-	X	X
32	-	-	-	X	X
33	-	-	-	X	X
34	-	-	-	X	X
35	-	-	-	X	X
36	X	-	-	X	-
	26	4	4	37	27

X = YES

- = NOT OUTPUT

Note that Parameter 37 is located between Parameters 15 and 16 on the monthly file.

TABLE VI-2

ERB SCANNING CHANNEL TARGET AREAS

TARGET NO.		LATITUDE LIMITS		LONGITUDE INTERVAL *	TARGET SUBDIVISION SIZES DEG.	
SOUTH HEM.	NORTH HEM.	Lower Limit	Upper Limit		LAT.	LONG.
956-1035	1036-1115	EQ. 0.0	4.5	4.5	1.5°	1.5°
876-955	1116-1195	4.5	9.0	4.5		
796-875	1196-1275	9.0	13.5	4.5		
716-795	1276-1355	13.5	18.0	4.5		
644-715	1356-1427	18.0	22.5	5.0		1.666°
572-643	1428-1499	22.5	27.0	5.0		
500-571	1500-1571	27.0	31.5	5.0		
428-499	1572-1643	31.5	36.0	5.0		
368-427	1644-1703	36.0	40.5	6.0		2.0°
308-367	1704-1763	40.5	45.0	6.0		
248-307	1764-1823	45.0	49.5	6.0		
200-247	1824-1871	49.5	54.0	7.5		2.5°
155-199	1872-1916	54.0	58.5	8.0		2.666°
115-154	1917-1956	58.5	63.0	9.0		3.0°
79-114	1957-1992	63.0	67.5	10.0		3.333°
49-78	1993-2022	67.5	72.0	12.0		4.0°
29-48	2023-2042	72.0	76.5	18.0		6.0°
13-28	2043-2058	76.5	81.0	22.5		7.5°
4-12	2059-2067	81.0	85.5	40.0		13.333°
1-3	2068-2070	85.5	Pole	120.0		40.0

* For each latitude band the longitude intervals start at the 0 degree meridian and progress West by the increments listed.

The sequential numbering system assigns a number, between 1 and 2070, to each target area starting from the South Pole. Within each latitude belt the numbers increase westward from the 0° meridian and continue to increase within the adjacent latitude belt to the North.

In each hemisphere there will be 1035 target areas.

TABLE VI-3

ERB MAP FILM SPEC LIST

FILM SPEC NUMBER	ERB PARAMETER NUMBER	TYPE
F133701	3	Monthly
F133702	4	Monthly
F133704	1	Monthly
F133705	2	Monthly
F133707	13	Monthly
F133709	14	Monthly
F133410	16	Six-Day
F133710	16	Monthly
None	5	-
None	6	-
None	9	-
None	10	-
None	7	-
None	8	-
None	11	-
None	12	-
F133711	19	Monthly
F133712	20	Monthly
F133713	21	Monthly
F133714	17	Monthly
F133715	18	Monthly
F133717	22	Monthly
F133419	23	Six-Day
F133719	23	Monthly
F133728	24	Monthly
F133729	25	Monthly
F133406	26	Six-Day
F133706	26	Monthly
F133416	27	Six-Day
F133716	27	Monthly
F133703	28	Monthly
F133721	29	Monthly
F133722	30	Monthly
F133708	15	Monthly
F133723	31	Monthly
F133724	32	Monthly
F133725	33	Monthly
F133718	35	Monthly
F133726	34	Monthly
F133727	37	Monthly

TABLE VI-4

TYPICAL CONTOUR LIMITS AND INTERVALS FOR ERB MAPS

MAPPED QUANTITY	UNITS	BASE	TOP	CONTOUR INTERVAL
Avg. Longwave Terr. Flux	$W.M^{-2}$	100	400	25
Avg. Earth Albedo	%	0	100	10
Avg. Net Radiation	$W.M^{-2}$	-200	400	50
Data Population	(Scaled Integer) Count	0	31	1

TABLE VI-5

UNITS CODE Numbers in the Tape Record and their Corresponding Word Variable for Film Display.

UNITS CODE	DISPLAY	UNITS CODE	DISPLAY
0	W/M^2	33	
1	POINTS/TARGET	34	
2	PERCENT	35	
3	NONE	36	
4	DOBSON UNITS	37	
5	PPM	38	
6	PPB	39	
7	GM/MICROGM	40	
8	GM/NANOGM	41	
9	DEGREES K	42	
10	W/M^2 STER	43	
11	W/M^2 STER/CM	44	
12	KILOMETERS	45	
13	GM/LITER	46	
14	KM^{-1}	47	
15	NUMBER PER CM^3	48	
16	METERS	49	
17	KM	50	
18	K	51	
19	M-ATM-CM	52	
20	COUNTS FOR CM^2	53	
21		54	
22		55	
23		56	
24		57	
25		58	
26		59	
27		60	
28		61	
29		62	
30		63	
31			
32			

A. World Grid Physical Record Description (Continued)

The MSB of this 8-bit word indicates last data record in a file (1 = last record). The second MSB (i.e., 7th bit of the 8-bit word) indicates this data record is in the last data file on tape (1 = record in last file). This applies specifically to the first word in the first logical record of the first physical record of file. These two bits will be identical in Logical Records 2 and 3 if data is present.

(3) LOGICAL RECORD NUMBER (8 BITS): Each logical record of world grid data will be assigned a logical record number starting at 1 for the first in that file and incrementing by 1 for each additional world grid data logical record in the file. Filled logical records excluded.

(4) RECORDS PER FRAME (12 BITS): Identifies the number of records needed for one world grid (always set to 1 for ERB).

(5) RECORD NUMBER WITHIN FRAME (12 BITS): Only one record/ world grid, set to 1.

(6) PARAMETER NUMBER (8 BITS): The ERB parameter number that is presented on this record (see Table VI-1).

(7) DATA COVERAGE CODE (6 BITS): A code to indicate length of data period in this record (01 = daily, 06 = cycle period, 30 = monthly).

(8) START DAY (12 BITS): The day number for the beginning of the data period contained in this physical record.

(9) START SECONDS (24 BITS): Integer seconds of the beginning of the data period contained in this physical record.

(10) END SECONDS (24 BITS): Integer seconds at the end of the data period contained in this physical record.

(11) END DAY (12 BITS): The day number for the end of the data period contained in this physical record.

(12) ANNOTATION START YEAR (12 BITS): This is the start year for the annotation period in this record.

(13) ANNOTATION END YEAR (12 BITS): This is the end year for the annotation period in this record.

(14) ANNOTATION START DAY (12 BITS): The start day for the annotation period in this record.

(15) ANNOTATION END DAY (12 BITS): The end day for the annotation period in this record.

(16) SCALING COEFFICIENTS (48 BITS - 4, 12-BIT WORDS): The first word is the signed integer value, the second word is the base 10 exponent for Word 1. Word 3 is the second integer value followed by its exponent (Word 4). The second pair is the slope. These scaling factors are already applied to data.

(17) START ORBIT NUMBER (24 BITS): The orbit number for the beginning of the data span in this record.

(18) END ORBIT NUMBER (24 BITS): The orbit number for the end of the data span in this record.

(19) DATA DISTRIBUTION (96 BITS): Describes data distribution within a data period. Information is coded to indicate the days contributing to the average, and whether or not data are available for a given day (1 = data that day, 0 = no data that day). Position is chronological from the most significant bit of Word 16 to LSB of Word 19 using format as shown in Figure VI-2. The position of this field is identical on both formats except that the Figure VI-1 is on a 32-bit format.

(20) WORLD GRID DATA (2070 BYTES - 1035, 16-BIT ELEMENTS): Each physical record will contain two hemispheres of World Grid data. The World Grid data will be arranged in target area numbered order (1 through 1035 inclusive for Southern Hemisphere data and 1036 through 2070 inclusive for Northern Hemisphere data) and each target area number has one 16-bit data word associated with it. See Table VI-2 for definition of target areas and numbering system.

B. Documentation Mercator/North and South Polar Stereographic Projection Physical Record Format

Each documentation mercator/north and south polar stereographic projection physical record contains data for a single ERB parameter. These data are used by IPD to create mercator and polar projection maps on microfilm.

The columns marked MAP in Table VI-1 indicate which parameters are output to tape in documentation mercator/polar map physical records on either a 6-day cyclic or monthly basis, and also as microfilm map products.

The order in which the parameters appear on tape is in the Gross Format section. 6-Day cyclic documentation merctor/polar map physical records appear in the even or odd numbered files in the data files portion of the tape while the monthly documentation mercator/polar map physical records appear in the next to the last file in the data files portion.

The format of the documentation mercator/north and south polar stereographic projection physical record is given in Figure VI-2.

(1) PHYSICAL/RECORD NUMBER (12 BITS): This is the number of this record within a file.

(2) RECORD ID (8 BITS): Six LSB of eight bits identifies record type: 35 = Cyclic Map Record, 36 = Monthly Map Record. The MSB of this word indicates last data record in the file (1 = last record). The second MSB indicates this data record is in the last data file on tape (1 = record in last file). NOTE: If record ID = 31 or 32, see Page 18. If record ID = 38, see Page 37.

(3) RECORD PER FRAME (12 BITS): Identifies the number of records needed for one frame of three map projections (ERB = 1).

(4) RECORD NUMBER WITHIN FRAME (12 BITS): This field is currently not used.

(5) PARAMETER NUMBER (8 BITS): The ERB parameter number that is mapped and presented on this record (see Table VI-1).

(6) FRAME NUMBER (24 BITS): Identifies a complete documentation mercator and polar stereographic map set. All records with the same frame number apply to the set of maps used to generate one frame of microfilm output. This number is assigned by SACC/ERB and is used by IPD for film accounting.

(7) FILM SPECIFICATION NUMBER (24 BITS): Film specification defines the output format for the data frame (see Table VI-3).

(8) DATA COVERAGE CODE (6 BITS): A code to indicate length of data period in this record (01 = DAILY, 06 = CYCLIC, 30 = MONTHLY).

(9) START DAY (12 BITS): The day number for the beginning of the data period contained in this physical record.

(10) START SECOND (24 BITS): Integer seconds of the beginning of the data period contained in this physical record.

(11) END SECONDS (24 BITS): Integer seconds at the end of the data period contained in this physical record.

(12) END DAY (12 BITS): The day number for the end of the data period contained in this physical record.

(13) ANNOTATION START YEAR (12 BITS): This is the start year for the annotation period in this record.

(14) ANNOTATION END YEAR (12 BITS): This is the end year for the annotation period in this record.

(15) ANNOTATION START DAY (12 BITS): The start day for the annotation period in this record.

(16) ANNOTATION END DAY (12 BITS): The end day for the annotation period in this record.

(17) SCALING COEFFICIENTS (48 BITS - 4, 12-BITS WORDS): The first word is the signed integer value, the second word is the base 10 exponent for Word 1. Word 3 is the second integer value followed by its exponent (Word 4). The second pair is the slope. These scaling coefficients are to be applied to data to obtain correct reading.

(18) START ORBIT NUMBER (24 BITS): The start orbit number for the data span in this record.

(19) END ORBIT NUMBER (24 BITS): The end orbit number for the data span in this record.

(20) DATA DISTRIBUTION (96 BITS): Describes data distribution within a data period. Information is coded to indicate the days contributing to the average, and whether or not data are available for a given day (1 = data that day, 0 = no data day). Position is chronological from most significant bit of Word 16 to LSB of Word 19 using format as shown in Figure VI-2.

(21) CONTOUR CONTROL WORDS (21, 12-BIT WORDS): (NOTE: The option code will remain set to 20, thus the contour intervals in Table VI-4 are always used). The contour control words will require scaling using the scaling coefficients as described above. Two options will be available:

1) An option which provides evenly spaced contour intervals with contour base, contour top, and contour interval words (Words 2, 3, and 4).

2) An option to provide up to 20 contour levels (Words 2 through 21, inclusive), and will be in ascending numerical order.

NOTE: Any contour word not used will be set to 4095.

The first word of the 21 will be set to 1000 for Option 1 and will be followed by three additional words which are the contour base level, contour top level, and contour intervals. The remaining 17 words will be set to 4095.

If the first word is set to a number between 1 and 20, the option will be for 1 to 20 independent contour levels, respectively (i.e., option number = 5: there are 5 levels). Any unused words will be set to 4095.

WD 1	2	3	4	5	6	7	8	9	10	11	...	21
CODE	C#1	C#2	C#3	C#4	C#5	C#6	C#7	C#8	C#9	C#10		C#20

Option Code = 20. Values are in Table VI-4.

(22) UNIT CODE (6 BITS): A coded number as shown in Table VI-5 which will indicate the units used on the maps or grids.

(23) UNIT SCALE CODE (6 BITS): This number is the exponent to the base 10 that has been applied to the units used above in Item 22. A negative exponent is expressed using a 2's complement.

(24) ALGORITHM ID NUMBER (12 BITS): MATRIX program version number.

(25) GENERATION DATE (12 BITS): Map MATRIX generation date in the SACC/ERB processing facility.

(26) ANNOTATION CHANNELS AND ANCILLARY DATA (384 BITS): Describes the ERB channels used for annotation and ancillary data such as THIR that was used.

(27) MAP MATRIX (14,892 BITS): This MATRIX is made up of 73 values along the horizontal axis (longitudinal) and 17 values along the vertical axis. The latitude limits are defined in the Film Specs and in Item 28 below. With 73 values in longitude, each longitudinal interval will be 5°. The vertical or latitudes will vary in resolution depending on latitude limits specified in Item 29. In any case, the output will be arranged by row and column; with Row 1, Column 1 in the upper left hand corner of MATRIX which is the northernmost and westernmost point in the map and proceeding to Row 17, Column 73 in the lower right hand corner at the southern latitude limit and eastern longitude limit.

MSB 24 LSB 1

48		
	ROW 1, COLUMN 1 (12 BITS)	ROW 1, COLUMN 2 (12 BITS)
49	↓	↓
	ROW 17, COLUMN 73 (12 BITS)	SPARE (12 BITS)
668		

(28) MERCATOR AND POLAR MAP ORIENTATION DEFINITION WORDS (All words are 12 BITS): The following 12-bit words define the maps in the following order:

a) Mercator List

WORD 1 Upper latitude (0° = South Pole and 180° = North Pole) is 122°.

WORD 2 Lower latitude (0° = South Pole and 180° = North Pole) is 58°.

WORD 3 EAST longitude of LEFT side of map is 110°.

WORD 4 Number of mesh intervals of longitude. Number = 72 (one less than grid points).

WORD 5 Degrees per mesh interval of longitude using a scale factor of x 100. All ERB maps used 5° x 100 = 500.

WORD 6 Total number of horizontal map grid/values. Total number = 73.

WORD 7 Total number of vertical map grid/values. Total number = 17.

b) Polar List

WORD 8 Upper latitude (180° if northern hemisphere, map perimeter if southern hemisphere = 90°.

WORD 9 Lower latitude (0° if southern hemisphere, map perimeter if northern hemisphere = 90°).

WORD 10 Orientation of Greenwich (number of degrees CW from the vertical meridian -- 100° if northern hemisphere, 80° if southern hemisphere).

WORD 11 Number of mesh intervals between pole and equator -- Intervals = 32.

WORD 12 Horizontal index of pole (from left of the map) -- Intervals = 33.

WORD 13 Vertical index of pole (from top of the map) -- Index = 33.

WORD 14 Total number of horizontal map grid/values. Total number = 65.

WORD 15 Total number of vertical map grid/values. Total number = 65.

(29) NORTHERN HEMISPHERE (50,700 BITS): This is a 65 x 65 northern hemisphere polar stereographic projection. Data are arranged as described below for southern hemisphere.

(30) SOUTHERN HEMISPHERE (50,700 BITS): This is a 65 x 65, (4225, 12-BIT WORDS) Matrix for a polar stereographic map. There will be 32 values on either side of the vertical meridian and the horizontal meridian. The upper left hand

corner of the Matrix is numbered Row 1, Column 1 and proceeding to the upper right corner to Row 1, Column 65. The pole will then be Row 33, Column 33 and finally the last data point will be Row 65, Column 65. They will be arranged in the output as shown below:

	MSB 24	LSB 1
2790	ROW 1, COLUMN 1 (12 BITS)	ROW 1, COLUMN 2 (12 BITS)
2791	ROW 1, COLUMN 3 (12 BITS)	↓
	↓	
4902	ROW 65, COLUMN 65 (12 BITS)	SPARE (12 BITS)
etc.		

The northern hemisphere data are arranged similarly except for the vertical meridian longitude (Greenwich Map Orientation) which are defined in Item 28.

(31) SPARES: Used to fill the record to standard physical record size.

C. Monthly Calibration Physical Record Format

One monthly calibration physical record makes up the entire last file in the data files portion of the tape (see Gross Format). It is used by ERB/SACC for storage of data needed for longer term processing. IPD does not make use of this record. It is copied, however, when generating copies of the tape for the user community.

The physical record contains 14,724 8-bit bytes and has a record ID equal to 38. The format of the monthly calibration physical record is given in Figure VI-3.

(1) PHYSICAL RECORD NUMBER (12 BITS): This number will always be 1.

(2) RECORD ID (8 BITS): Six LSB of eight bits identifies record type: 38 = Monthly Calibration. (NOTE: If record ID = 31, 32, or 33; see Page 18. If record ID = 35, see Page 32).

The MSB of this word indicates last data record in a file (1 = last record). The second MSB indicates this data record is in the last file on tape (1 = record in last file). This applies specifically to the first word in the first logical record of the first physical record of file. The file control bits will be identical in logical records 2 and 3, if data are present.

FIGURE VI-3

MONTHLY CALIBRATION PHYSICAL RECORD

WORD	MSB 32 — 20	16 — 8	LSB 1	
1	PHYSICAL REC. NO. (12 BITS)	SPARE (4 BITS)	RECORD I.D. (8 BITS)	LOGICAL RECORD (8 BITS)	32
2	START ORBIT # (32 BITS)				64
3	END ORBIT # (32 BITS)				96
4	START DAY (16 BITS)		END DAY (16 BITS)		128
5	START YEAR (16 BITS)		END YEAR (16 BITS)		160
35	30 - 32 BIT INTEGER WORDS FOR THE NUMBER OF ORBITS AND FIRST AND LAST ORBITS FOR TEN DIFFERENT INSTRUMENT STATUS MODES				1120
48	13 - 32 BIT INTEGER WORDS FOR THE MINIMUM, MEAN, MAXIMUM, STANDARD DEVIATION, AND NUMBER OF SAMPLES FOR THE IRRADIANCES FROM CH11, CH12, & CH12-11 WITH THE SHUTTERS OPEN, SCALED BY 100				1536
57	9 - 32 BIT INTEGER VALUES FOR THE SHUTTER TEMPERATURES AND NUMBER OF SAMPLES SCALED BY 10				1824
88	31 - 32 BIT INTEGERS FOR THE NUMBER OF ORBITS ERB IS ON EACH DAY				2816
121	33 - 32 BIT INTEGER VALUES FOR THE LONG WAVE SCANNING CHANNEL CALIBRATION SUMMARY. INTERCEPT SCALED BY 1000, SLOPE SCALED BY 10^5 AND NUMBER OF SAMPLES				3872
138	SPARES (544 BITS)				4416
181	43 - 32 BIT INTEGER VALUES FOR THE ELECTRONIC CALIBRATION MEAN GAIN RATIOS, SCALED BY 1000				5792
238	57 - 32 BIT INTEGER VALUES FOR THE GO/NO GO NET COUNT RATIOS SCALED BY 1000				7616
272	34 - 32 BIT INTEGERS SW CHK RATIOS FOR CH1 AND CH2				8704
3681	109088 SPARE BITS				117792

3272 36 BIT WORDS

3681 32 BIT WORDS

4908 24 BIT WORDS

14,724 BYTES

(3) LOGICAL RECORD NUMBER (8 BITS): This number will always be 1.

(4) START ORBIT (32 BITS): The orbit number for the beginning of the data span in this record.

(5) END ORBIT (32 BITS): The orbit number for the end of the data span in this record.

(6) START DAY (16 BITS): The day number for the beginning of the data period.

(7) END DAY (16 BITS): The day number for the end of the data period.

(8) START YEAR (16 BITS): The start year for the period in this record.

(9) END YEAR (16 BITS): The end year for the period in this record.

(10) INSTRUMENT STATUS MODES (30, 32-BIT WORDS): The number of orbits and first and last orbits for each of ten different ERB instrument status modes.

(11) STATISTICS OF IRRADIANCE (13, 32-BIT WORDS): The minimum, mean, maximum, and standard deviation for Channel 11 irradiances with shutters open are contained in the first four words. Corresponding irradiances for Channel 12 are contained in the next four words. The Channel 12 minus Channel 11 values are presented in the third set of four words. The last word represents the number of samples. All statistics, except number of samples, are scaled by 100.

(12) STATISTICS OF TEMPERATURES (9, 32-BIT WORDS): The minimum, mean, maximum, and standard deviation for Channels 11 and 12 shutter temperatures (scaled by 10) are in the first eight words, and the number of samples in the last word.

(13) DAILY NUMBER OF ORBITS (31, 32-BIT WORDS): The number of orbits of ERB on each day of the month for which data are included.

(14) LWSC CALIBRATION SUMMARY (33, 32-BIT WORDS): Statistics of longwave scanning Channels 19 through 22 are given. The first 12 words contain the maximum, mean, and standard deviation for calibration intercepts (scaled by 1000). The next twelve words represent similar information for calibration slopes (scaled by 100,000). The last word refers to the number of samples.

(15) GAIN RATIOS (43, 32-BIT WORDS): Forty-two integer values for the electronic calibration mean gain ratios (current/prelaunch) for Channels 1 through 14, in three steps each, scaled by 1000. The last word represents the number of samples.

(16) STATISTICS OF GO/NOGO NET COUNT RATIOS (57, 32-BIT WORDS): Minimum, mean, maximum, and standard deviation for Channels 1 through 14 GO/NOGO net count ratios, scaled by 1000. The last word represents the number of samples.

(17) SHORT WAVE CHECK RATIOS (34, 32-BIT WORDS): Minimum, mean, maximum, and standard deviation for Channels 15 through 18 short wave check count ratios for solar Channel 1 are in the first sixteen words, and the number of samples in the 17th. The next seventeen words refer to similar data of solar Channel 2.

(18) SPARE (109,088 BITS): These are used to fill out the standard logical record size.