

584

NIMBUS 7

ERB ZONAL MEANS TAPE

78-098A-07E

ESRB-00054

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

REQ. AGENT
BER
SAR

RAND NO.
V0184
V0322

ACQ. AGENT
YPS
CYN

NIMBUS 7

ERB ZONAL MEANS TAPE

78-098A-07E ESRB-00054

This data set catalog consists of 8 magnetic tapes for the ERB ZMT data set. Years 1-3 were processed with an obsolete algorithm and were released so no replacement tapes are expected. The tapes are 1600 BPI, 9-track, multifiled and created on an IBM 360 computer. The first file is an EBCDIC header file, followed by Binary data and ending with a trailer file. Documentation for this data set can be found in the filing cabinet. The D and C numbers, along with the time spans are as follows:

<u>D#</u>	<u>C#</u>	<u>FILES</u>	<u>TIME SPAN</u>
D-64839 **	C-24423	8	12/02/81 - 05/31/82
D-64840 *	C-24424	8	06/01/82 - 11/30/82
D-64841 *	C-24425	8	12/01/82 - 05/31/83
D-64842 *	C-24426 ***	8	06/01/83 - 11/30/83
D-73209	C-25760	8	12/01/83 - 05/30/84
D-73210	C-25761	8	06/01/84 - 11/30/84
D-74114	C-26118	8	12/01/84 - 06/01/85
D-74213	C-26155	8	06/01/85 - 11/30/85

* THESE TAPES WERE REPLACED ON 10/05/87

** THIS TAPE WAS REPLACED ON 11/18/87

*** The header file has the wrong time span, the time span above is correct.

B R I E F D E S C R I P T I O N
Zonal Means Radiation Tape (ZMT)
78-098A-07E

The ERB-Zonal Means Tape (ZMT) data set contains zonal means of earth radiation budget parameters obtained from the Earth Radiation Budget (ERB) experiment on Nimbus-7. Parameters include insolation, outgoing longwave radiation (OLR), albedo, and net radiation calculated from the narrow-field-of-view measurements. Data are calculated for 4.5-deg latitude zones on a daily, 6-day, monthly, and seasonal basis. The data set was derived by the Nimbus Project from the ERB SEFDT, MATRIX, and SAVER tapes (NSSDC ID 78-098A-07B, 78-098A-07C, and 78-098A-07I). There are two 9-track, 1600-bpi tapes per year.

M A T E R I A L S F O R D I S T R I B U T I O N
78-098A-07E
Zonal Means Radiation Tape (ZMT)

NOPs #NG-55 Tape Specification T134091 ERB ZMT Rev. E (1983), B36698-000A.

A C K N O W L E D G E M E N T S

When using the data in any reports, publications, or presentations, please acknowledge the National Space Science Data Center and the following individuals or groups:

78-098A-07E

Dr. H. L. Kyle, Nasa/Gsfc, Dr. Herbert Jacobowitz, Noaa/Nesdis, And Members Of The Erb Nimbus Experiment And Information Processing Teams

EXE TPLIST BS

INPUT PARAMETERS ARE: ED AL 1

TAPE NO. 1 FILE NO. 1
RECORD 1 LENGTH 630

*NIMBUS-7 NOPS SPEC NO T134091 SQ NO AE83051A2 ERB SACC TO IPD START 1978 306 000000 TO 1978 334
235959 GEN 1983 080 121621

wrong day
320 actual time

NIMBUS 7

ERB ZMT

~~11/03/78 - 12/01/78~~

D- 57294

C- 23102

3 files

11/16/78 - 12/01/78

TAPE NO. 1 FILE NO. 1
RECORD 2 LENGTH 630

*NIMBUS-7 NOPS SPEC NO T134091 SQ NO AE83051A2 ERB SACC TO IPD START 1978 306 000000 TO 1978 334
235959 GEN 1983 080 121621

***** JOB DONE.
SWE0 LPS

* Stop time is in
the next to last
file. / forward.

(7480)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7520)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7560)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7600)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7640)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7680)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7720)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7760)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(7800)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY				INPUT RETRIES	
				PERM	ZERO B	SHORT	UNDEF.	#RECS.	TOTAL#
2	13	14	7812	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 2 # OF PERMANENT READ ERRORS 0

START TIME 10/20/83 13:27:22 STOP TIME 10/20/83 13:28:05

REV A 08/02/78 DJH
REV B 07/15/81 BJG
REV C 06/14/82 JES
REV D 08/02/82 RMF
REV E 12/16/83 EHL

B36678-000A

MS-098A-07E

NIMBUS-7

NIMBUS OBSERVATION PROCESSING SYSTEM (NOPS)

REQUIREMENTS DOCUMENT #NG-55

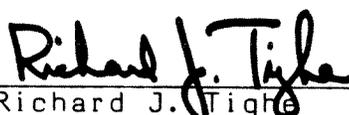
TAPE SPECIFICATION T134091 (ERB ZMT)

ERB ZONAL MEANS TAPE

REVISED BY:


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Contract NAS5-26773

REVISION A: (08/02/78)

REVISION B: (07/15/81)

Added new NOPS Standard Header.

REVISION C: (06/14/82)

Changed Record IDs from 1,2,3,4,5 to 41,42,43,44,45.

REVISION D: (08/02/82)

Rev D of the ZMT Tape Spec has been made after extensive review by the ERB Processing Team (EPT) members. Extensive revisions have been made:

- Tape Spec number changed to T134091.
- Trailing Documentation File information added and Standard Header section rewritten.
- Logical record bytes changed from 1800 to 2604 bytes.
- Input data changed from ERB TABLES Tape Spec #T124061 to #T134031, ERB SAVER Tape Spec #T134071.
- Tables renumbered, Table VI-1 completed, and Table VI-5 added.
- Scaling changed for Earth-Sun distance to show values is 10^4 time actual value.
- Spectral bands for Channels 1-10C changed to conform to values in Nimbus-7 User's Guide. Channel 2 changed to Channel 10C in Net Radiation, and Channel 3 changed to Channel 10C in Earth Albedo.

REVISION E: (12/16/83)

Logical record bytes changed from 2604 to 2628 bytes. This change was needed to provide compatibility with 36 bit hardware (IPD). The five ZMT's already archived will not be reprocessed so this compatibility will not exist for the first two years of ZMT.

ABSTRACT

The ERB Zonal Means Tape will be a 9-track, 1600 BPI IBM compatible tape. It will contain a STANDARD HEADER RECORD written twice for the first file. Each data file will cover 1 month, although the files for the 3rd and 6th month will also contain the seasonal data, and will contain scientific data listings in both integer and IBM 360 floating point notation. Each tape will contain a minimum of 6 months data. The final file contains the TDF followed by a double end of file.

I. REQUIREMENT IDENTIFICATION

ERB ZMT Tape Specification No. T134091.

II. INPUT DATA SOURCE

ERB SEFDT Tape Specification No. T134021.
ERB MATRIX Tape Specification No. T134031.
ERB SAVER Tape Specification No. T134071.

III. OPERATING MODE

Data files are arranged on a 2628-byte logical record basis with 3 logical records per physical record. Listings of longitudinal averages for terrestrial flux from Channel 19 thru 22 will require 3 logical records to complete. All unused logical records will be zero padded to fill out a physical record.

V. STANDARD HEADER SPECIFICATION AND TAPE DOCUMENTATION AND TRAILING DOCUMENTATION FILE SPECIFICATION

V.1 GENERAL

All computer compatible tape (CCT's) that are used to interface within NOPS require some form of identification. This applies to all CCT's that are currently defined by a NOPS tape specification and that are also used for distribution or archiving purposes. A standardized series of records in the initial file on each tape will be used and will be called a NOPS "Standard Header File" (SHF). Some tapes used within a NOPS facility which do not pass an interface will be exempt from this requirement - although it is a recommended procedure.

In addition to defining a "latest" product, data relating to previous products that went into the making of the "latest" product provide useful information when system problems occur. This information will be found in the Trailing Documentation File (TDF) which will follow the data on any tape defined by a current NOPS tape specification as well as in the standard header.

The NOPS Standard Header File (SHF) specification permits minor modifications to the standard header record that reflect both the existence of a TDF and adherence to the IPD standard for sequence numbers. Figure V-1 shows the standard header format in 24-bit words.

Total 24 bit Words	MSB	24	22	20	18	16	14	12	10	8	6	4	2	1	LSB	Total Bits
1	• Nimbus - 7 _b NOPS _b SPEC _b NO _b T └─ If TDF exists (24 Characters)														192	
8	SPEC NO. (6 Digits)															
9																
10	S _b SQ _b NO _b (7 Characters)															
13											PDFC CODE (2 Char.)					
14	5 Digit Sequence No. (5 Characters) YJJJN *For CZCS these characters (40-45) are a															
15	six digit sequence # (includes Redo)										REDO CHARACTER				408	
16	1 Char. Tape Copy No				Blank Character											
17	(4 Characters) SUBSYSTEM I.D.															
18	Blank Character				SOURCE FACILITY											
19	(4 Characters)															
											Blank Character					
20	(T) Character				(Ø) Character				Blank Character							
21	(4 Characters) DESTINATION FACILITY I.D.															
22	(23 Characters)															
	START YEAR, DAY, HOURS, MINUTES, SECONDS S _b START _b 19XX _b DDD _b HHMMSS _b															
29	END DATE AND TIME OF DATA (19 Characters) TO _b 19XX _b DDD _b HHMMSS _b * Some Facilities may not include end time in header														696	
36	(20 Characters)															
	DATE AND TIME TAPE WAS GENERATED GEN _b 19XX _b DDD _b HHMMSS _b															
42															1008	
	BLANK (126 Characters)															
84	SW Program Name (1-12) Documentation (13-18) Comments (19-126)														2016	
	BLANK (126 Characters)															
126															3024	
	BLANK (126 Characters)															
168															4032	
	BLANK (126 Characters)															
210															5040	

EBCDIC TAPE FORMAT

Figure V -1. Standard Header (Physical Record Format)
(1 Character = 8 bits = 1 Byte)

STANDARD HEADER RECORD (SHR)

The STD HDR will contain the following:

The identical record (physical) of 630 characters (eight bits) each followed by an end-of-file.

The first 126 characters (the first logical record) of the first physical record will consist of:

*NIMBUS-7 _b NOPS _b SPEC _b NO _b	(1 - 24 Character Count)
└ indicates presence of TDF	
XXXXXX ¹ /(6 digit spec number)	(25 - 30 Character Count)
_b SQ _b NO _b	(31 - 37 Character Count)
AA ² /XXXXX (5 digit seq. No.) ³	(38 - 44 Character Count)

NOTE: If Sequence Number is zero, tape is not finished product (i.e., definitive ephemeris not used, artificial VIP data, etc.)

└redo character	
-X (copy number 1, 2, or 3)	(45, 46 Character Count)
_b YYYY _b (4 character Subsystem ID)	(47 - 52 Character Count)
YYYY (Source Facility ID)	(53 - 56 Character Count)
_b TO _b YYYY (4 Char Des. Fac. ID).	(57 - 64 Character Count)
_b START _b 19XX _b DDD _b HHMMSS	(65 - 87 Character Count)
(Start year, day of year, hours, minutes, seconds)	

¹See Figure V-2

²PDF Code; see Figure V-3A & B

³For CZCS, characters 40 thru 45 are a 6-digit sequence number.

This scheme will uniquely identify any tape when used in conjunction with the tape specification number, the PDFC code, and the subsystem identification.

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

- CHARACTER 1-12 = Software program name and version name.
- CHARACTER 13-18 = Program documentation reference number, if it exists.
- CHARACTER 20-126 = User defined comments that may be more relevant to the user than the preceding.

Logical records 3, 4, and 5 may be used for anything desired if no remake information is required.¹

The NOPS standard header file will consist of 2 physical records, the second being a duplicate of the first.

EXAMPLE: An ERB MATRIX tape covering the month of FEB 79 is generated by SASC and sent to IPD for production of contour maps on 16mm microfilm. The NOPS STD HDR file on the tape that the IPD receives would contain two of the following records.

*NIMBUS-7NOPS_b SPEC_b NO_b T134031_b SQ_b NO_b 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 might not be first data day in the event of multiday-stacked products that are based in an ILT week.

¹ In the case of CZCS, these logical records are used to define the genealogy of the image rather than the method of V.2.

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 plus the SHF of the product itself. Documentation records will be sequenced in accordance with their access; that is, first in is the first recorded. Every TDF record 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 to 10 followed by NOPS TRAILER DOCUMENTATION FILE FOR TAPE PRODUCT T [SPEC NO (6 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 tape with the proviso that data referring to the end-time are correct for the data set. Following physical records will be an accumulation of TDF's 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

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 SHF. In the event of copies made from CCT's 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.

TABLE V-3A

NIMBUS-G PROJECT DATA FORMAT CODES (MAY 5, 1980) REV. FROM MARCH 3, 1980

SENSOR	TAPE ID	ORIG.	COPIES	PDF	DATA TYPE	HORIZ LABEL	VERTIC COLORS	SENSOR	TAPE ID	ORIG.	COPIES	PDF	DATA TYPE	HORIZ LABEL	VERTIC COLORS		
ERB	MATRIX	12	72	AA	MAAA	D RED	/ L RED	LIMS	MATRIX-M	14	28	EA	MAEA	YELLOW	/ BLUE		
	TABLES	12	-	AB	TAAB	D RED	/ D PINK		MATRIX-C	14	28	EB	MAEB	YELLOW	/ L GREEN		
	MAT*	365	2555	AC	MTAC	D RED	/ D RED		PROFILE-R	7	14	EC	PREC	YELLOW	/ L PINK		
	SEFOT*	12	84	AD	SEAD	D RED	/ YELLOW		PROFILE-I	21	42	ED	PRED	YELLOW	/ M TAN		
	ZMT*	2	14	AE	ZMAE	L RED	/ L PINK		RAT*	210	.945	EE	RAEE	YELLOW	/ D PINK		
									IPAT*	105	.347	EF	IPEF	YELLOW	/ D ORANGE		
									MAT*	70	.294	EG	MTEG	YELLOW	/ GREY		
									CAT*	70	.210	EH	CTEH	YELLOW	/ GREY		
	STAGS	1	-	AG	STAG	D RED	/ D ORANGE		SMAT*	7	.28	EI	SMEI	YELLOW	/ L BROWN		
									SCAT*	7	.21	EM	SCEM	YELLOW	/ D GREEN		
							NMCT@	52	-	EK	NMEK	YELLOW	EXP LABEL				
							UFO@	295	-	UE	UFUE	YELLOW	EXP LABEL				
							ILT@	30	-	LE	ILLE	YELLOW	EXP LABEL				
TOTALS		*379	2653					TOTALS		*469	1845						
	OTHER	25	72							@377	-						
								OTHER (R)	56	112							
SMMR	MATRIX-30	12	-	BA	MABA	L TAN	/ YELLOW	SBUV/ TOMS	MATRIX	24	216	FA	MAFA	D GRN	/ D ORAN		
	MATRIX-LO	12	-	BB	LOBB	L BRWN	/ L GRN		TABLES	12	-	FB	TAFB	L GRN	/ L PINK		
	MATRIX-SS	12	-	BC	SSBC	L BRWN	/ L ORAN		MONTAGE	52	-	FC	MOFC	D GRN	/ D PINK		
	MAP-30*	12	60	BD	MPBD	L BRWN	/ L PINK		RUT-S*	26	26	FD	SRFD	GREY	/ D GRN		
	MAP-LO*	12	60	BE	LOBE	L BRWN	/ BLUE		(R) OZONE-S*	12	100	FE	OSFE	L GRN	/ L BRWN		
	MAP-SS*	12	60	BF	SSBF	M TAN	/ M TAN		(R) OZONE-T*	180	1440	FF	OTFF	D GRN	/ D GRN		
	PARM-30*	60	360	BG	PABG	M TAN	/ YELLOW		ZMT*	2	16	FH	ZMFH	L GRN	/ L PINK		
	PARM-LO*	30	150	BH	LOBH	M BRWN	/ YELLOW		RUT-T*	120	120	FJ	TRFJ	D GRN	/ YELLOW		
	PARM-SS*	30	120	BI	SSBI	M BRWN	/ M BRWN										
	TAT*	183	732	BJ	TABJ	D BRWN	/ YELLOW										
	CELL-ALL*	61	427	BK	DEBK	D BRWN	/ L GRN										
	TOTALS		*400	1969						TOTALS (R)		*340	1702				
		OTHER	36	-						OTHER	88	216					
THIR	SOURCE	5110	-	IA	SOIA	D ORAN	/ D ORAN	CZCS (R)	CRT360*	100	400	ZI	CRZI	BLUE	/ BLUE		
	STT	1095	-	IB	STIB	D ORAN	/ YELLOW		SOURCE	4500	-	ZA	SOZA	STANDARD	STA LABEL		
	BSHT	365	-	IC	BSIC	D RED	EXP LABEL		(R) CRCST*	250	1000	ZB	CRZB	BLUE	/ D GRN		
	CLDT	730	1460	ID	CLID	D ORAN	/ D GRN		CAT	12	96	ZC	CAZC	BLUE	/ D ORAN		
	CLE	219	1095	IE	CLIE	D ORAN	/ D PINK		CRT-L	900	1800	ZD	CRZD	BLUE	/ YELLOW		
	CLT	365	1825	IF	CLIF	M ORAN	/ GREY		ILT	52	-	LZ	ILLZ	BLUE	/ M TAN		
	ILT-T	52	-	LI	ILLI	L ORAN	/ L PINK		(R) CRT	2750	5500	ZE	CRZE	BLUE	/ D GRN		
	ILT-C	52	-	LC	ILLC	L ORAN	/ L BRWN		ILT-L@	52	-	LL	ILLL	BLACK	EXP LABEL		
									(R) CCT-F	225	-	ZH	CCZH	BLUE	/ PINK		
									(R) LOIT#	250	-	ZF	LOZF	L GRN	/ GREY		
							(R) DPIT#	250	-	ZG	DPZG	GRN	/ BLUE				
TOTALS (R)		7988	4320					TOTALS (R)	*350	1400							
									@ 52	-							
								(R)	#500	-							
								(R)	8439	7446							
SAM II	MATRIX	4	24	DA	MADA	D PURP	/ D PURP	SAMS	MATRIX	24	24	HA	MAHA	YEL-OR	/ L PINK		
	PROFILE	12	72	DB	PRDB	D PURP	/ D ORAN		RAT*	180	198	HC	RAHC	YEL-OR	/ YELLOW		
	RDAT*	12	72	DC	RDDC	M PURP	/ D GRN		ILT@	183	-	LH	ILLH	GREY	EXP LABEL		
	BANAT*	12	72	DD	BADD	M PURP	/ YELLOW		NMCT@	52	-	HD	NMHD	GREY	EXP LABEL		
	NMCT@	52	-	DE	NMDE	D ORAN	EXP LABEL										
ILT@	52	-	LD	ILLD	D ORAN	EXP LABEL											
TOTALS		* 24	144					TOTALS	@ 235	-							
		@104	-						* 180	198							
	OTHER	16	75					OTHER	24	24							

	ORIGINALS	COPIES	PDF
(R)	* TOTALS	2,142	27
	@ TOTALS	768	8
(R)	# TOTALS	570	2
(R)	OTHER TOTALS	16,672	30
(R)	GRAND TOTALS	20,082	67

* PROCESSED BY METHOD AND COPIED BY IPD
 @ PROCESSED BY METHOD AND SHIPPED BY TSSP
 # PROCESSED BY METHOD AND COPIED TO FILM BY TSP

(R) - SENSORS WHERE REVISIONS WERE MADE.
 CHANGES TO LABEL COLORS MAY BE MADE DEPENDENT
 ON AVAILABILITY AND COUNTRY.

TABLE V-3A

NIMBUS-7 PROJECT DATA FORMAT CODES

(Continued)

SENSOR	TAPE ID	PDFC CODE
LOCATION	ILT/ERB	LA
	ILT/SMMR	LB
	ILT/THIR	LI
	ILT/ SAM II	LD
	ILT/LIMS	LE
	ILT/SBUV	LF
	ILT/CZCS	LZ
	ILT/SAMS	LH
USER	UFO/ERB	UA
	UFO/SMMR	UB
	UFO/LIMS	UE
	UFO/SBUV	UF
	UFO/ILT	UL

1ST CHARACTER	SOURCE/ SENSOR	2ND CHARACTER	USER/SENSOR OR TAPE NUMBER
ERB	A		
SMMR	B		
THIR	I		
SAM II	D		
LIMS	E		
SBUV/TOMS	F		
CZCS	Z		
SAMS	H		
ILT	L		
UFO	U		

b₁TO_b19XX_bDD_bHHMMSS_b (88 - 106 Character Count)

(End date and time of data)

GEN_b19XX_bDDD_bHHMMSS_b (107 - 126 Character Count)

(Date and time tape was generated)

All sequence numbers will have the following form that is an IPD standard:¹

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., CLDT's will have a 1 and 2, as there are 2 products per day.

CHARACTER 45 = A hyphen 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 46 = =1 for the original copy held at MetOCC,
=2 for copy sent to IPD, and
=3 on copies made by IPD for users.

CHARACTER 47 = A blank unless change is needed to remove ambiguities in CHARACTER 40. This may occur if data are being acquired on October 2, 1988.

¹This does not apply to CZCS Data. For CZCS data, CHARACTER 40 thru 45 represent a 6-digit sequence number.

VI. SCIENTIFIC DATA LISTING RECORDS

Scientific data listing for 5 basic displays are available in each data file and over several time periods. Table VI-1 provides a list of the type of measurements, the time periods covered by the listings and the logical record format type numbers. The format of the first 9, 32-bit words of each logical record are common to all logical records regardless of type. Listings of format types 1 thru 5 will be arranged by logical record with three logical records per physical record (see Figure VI-1, Physical Record Format).

Listings of longitudinal averages for terrestrial flux from Channels 19 thru 22 will require 3 logical records to complete. These listings appear on the Type 2 format and are controlled by table index words.

If less than 3 logical records are available in the last physical record of the file, the unused logical records will be zeroed out. The logical record numbers of the last valid logical record shall be set to a negative record number (using 2's complement) to indicate that it is the last logical record in the file.

The 5 logical record formats are described in detail in subsections VI-A thru VI-E.

The following 16 Items are common in format to all logical record types:

1. PHYSICAL RECORD NO. (12 BITS) - This is the number of this record within a file.
2. SPARE (4 BITS) - These 4 bits will be zero filled.
3. FILE CONTROL/RECORD I.D. (8 BITS) - Identifies logical record type, the last physical record written in a file and physical records in the last file on the tape. The MSB will be set to "1" if that physical record is the last one written in a file. The second most MSB will be set to 1 on all physical records in the last data file on the tape. The file control bit setting for a physical record will be maintained in each logical record of that physical record. The record type of logical record will use the 6 LSB of that byte to identify the type of logical record being read. 41 = FORMAT TYPE 1, 42 = FORMAT TYPE 2, 43 = FORMAT TYPE 3, 44 = FORMAT TYPE 4, AND 45 = FORMAT NO. 5.

TABLE VI-1.

ERB Film Products for ZMT

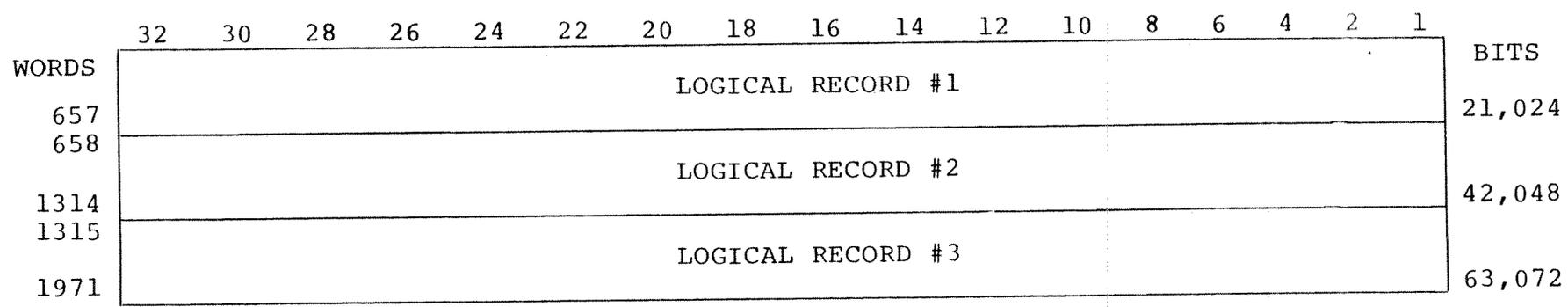
<u>PARM</u>	<u>FILM SPEC NO.</u>	<u>TYPE. FORMAT</u>	<u>FREQUENCY</u>	<u>DESCRIPTION OF PARAMETERS</u>
1	F136160	1	1/Day	Mean Normalized Solar Irradiance (CH 1-10C) and Zonally Averaged Insolation (1 day average)
2	F136460	1	1/6 Days	Mean Normalized Solar Irradiance (CH 1-10C) and Zonally Averaged Insolation (6-day average)
3	F136461	3	1/6 Days	Net Radiation from WFOV Observations (CH 10C, 12, 13) and Zonally Averaged (6-day average)
4	F136462	2	1/6 Days	Net Radiation from NFOV Observations (CH 10C, 15-22) Meridional Variations, (6-day average)
5	F136468	3	1/6 Days	Net Radiation from NFOV Observations (CH 10C, 15-22) and Zonally Averaged (6-day)
6	F136760	1	1/Month	Mean Normalized Solar Irradiance (CH 1-10C) and Zonally Averaged Insolation (1 month average, CH 2,3,4,5,10C)
7	F136761	3	1/Month	Net Radiation from WFOV Observations (CH10C, 12, 13 monthly) and Zonal Averages
8	F136762	2	1/Month	Net Radiation from NFOV Observations (CH 10C, 15-22, Meridional Variations, monthly)
9	F136763	4	1/Month	Terrestrial Flux from WFOV Observations (CH 12, 13, Zonal Averages, Monthly)
10	F136764	2	1/Month	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Monthly), Ascending Portion of Orbit
11	F136764	2	1/Month	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Monthly), Descending Portion of Orbit

TABLE VI-1. ERB Film Products for ZMT
(Continued)

<u>PARM</u>	<u>FILM SPEC NO.</u>	<u>TYPE FORMAT</u>	<u>FREQUENCY</u>	<u>DESCRIPTION OF PARAMETERS</u>
12	F136764	2	1/Month	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Monthly), Ascending plus Descending Portion of Orbit
13	F136765	4	1/Month	Earth Albedo from WFOV Observations (CH 5, 10C, 13, 14, Zonal Averages, Monthly)
14	F136766	2	1/Month	Earth Albedo from NFOV Observations (CH 10C, 15-18, Meridional Variations, Monthly)
15	F136767	5	1/Month	Monthly Status and Calibration Summary
16	F136768	3	1/Month	Net Radiation from NFOV Observations (CH 10C, 15-22, Zonal Averages, Monthly)
17	F136769	3	1/Month	Earth Albedo from NFOV Observations (CH 10C, 15-18, Zonal Averages, Monthly)
18	F136770	4	1/Month	Terrestrial Flux from NFOV Observations (CH 19-22, Zonal Averages, Monthly)
19	F136860	1	1/3 Months	Mean Normalized Solar Irradiance (CH 1-10C) and Zonally Averaged Insolation (CH 2, 3, 4, 5, 10C)
20	F136861	3	1/3 Months	Net Radiation from WFOV Observations (CH 10C, 12, 13, Zonally Averaged, Seasonal)
21	F136862	2	1/3 Months	Net Radiation from NFOV Observations (CH 10C, 15-22, Meridional Variations, Seasonal)
22	F136863	4	1/3 Months	Terrestrial Flux from WFOV Observations (CH 12, 13, Zonal Averages, Seasonal)
23	F136864	2	1/3 Months	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Seasonal), Ascending Portion of Orbit
24	F136864	2	1/3 Months	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Seasonal), Descending Portion of Orbit

TABLE VI-1. ERB Film Products for ZMT
(Continued)

<u>PARM</u>	<u>FILM SPEC NO.</u>	<u>TYPE FORMAT</u>	<u>FREQUENCY</u>	<u>DESCRIPTION OF PARAMETERS</u>
25	F136864	2	1/3 Months	Terrestrial Flux from NFOV Observations (CH 19-22, Meridional Variations, Seasonal), Ascending and Descending Portion of Orbit
26	F136865	4	1/3 Months	Earth Albedo from WFOV Observations (CH 5, 10C, 13, 14, Zonal Averages, Seasonal)
27	F136866	2	1/3 Months	Earth Albedo from NFOV Observations (CH 10C, 15-18, Meridional Variations, Seasonal)
28	F136868	3	1/3 Months	Net Radiation from NFOV Observations (CH 10C, 15-22, Zonal Averages, Seasonal)
29	F136869	3	1/3 Months	Earth Albedo from NFOV Observations (CH 10C, 15-18, Zonal Averages, Seasonal)
30	F136870	4	1/3 Months	Terrestrial Flux from NFOV Observations (CH 19-22, Zonal Averages, Seasonal)



1752, 36-BIT WORDS
1971, 32-BIT WORDS

2628, 24-BIT WORDS
7884, 8-BIT WORDS

FIGURE VI-1.

ERB ZMT Physical Record Format

4. LOGICAL RECORD NO. (16 BITS) - A cumulative count of the logical records in a file. A negative number indicates the last valid logical record in the file.
5. TABLE INDEX (8 BITS) - This word will increment for each logical record by 1 until it equals the value in Item 6 (a complete data listing).
6. RECORDS PER TABLE (8 BITS) - This word defines the number of logical records needed to complete one listing. This word will be 3 for specification numbers F136764 and F136864 (See Table VI-I) and will equal 1 for all others.
7. FRAME NO. (32 BITS) - Identifies a complete data product. All records with the same frame number are used to generate one frame of microfilm output. This number is assigned by SASC/ERB and is used by IPD for film accounting.
8. FILM SPECIFICATION NO. (32 BITS) - Film specifications defines the output format for the data frames (See Table VI-1).
9. ALGORITHM I.D. (16 BITS) - Identification of algorithm used to generate this table.
10. GENERATION DATE (16 BITS) - Tables generation date in the SASC/ERB processing facility (Julian day number).
11. START ORBIT NO. (32 BITS) - The orbit number at the beginning of the data period.
12. STOP ORBIT NO. (32 BITS) - The orbit number at the end of the data period.
13. START YEAR (16 BITS) - The calendar year for the beginning of the data period.
14. END YEAR (16 BITS) - The calendar year for the end of the data period.
15. START DAY (16 BITS) - The Julian day for the beginning of the data period.
16. END DAY (16 BITS) - The Julian day for the end of the data period.

VI-A. FORMAT TYPE 1.

The type of format as shown in Figure VI-2 is used for the tables of mean normalized solar irradiance and zonally averaged insolarations (see Table VI-1). Items 1 thru 16 are described in Section VI. The remaining words descriptions are as follows (See Tables VI-2A & B):

17. MINIMUM EARTH-SUN DISTANCE (16 BITS) - The minimum Earth-Sun distance in Astronomical units $\times 10^4$.
18. MAXIMUM EARTH-SUN DISTANCE (16 BITS) - The maximum Earth-Sun distance in Astronomical units $\times 10^4$.
19. INTEGER VALUES OF MEAN IRRADIANCE (10, 32 BIT WORDS)
Each 32-bit words is in the integer value of mean irradiance (W/M^2) for Channels 1 to 10C. Data arrangement within this block is as shown below:

TABLE VI-2A

CHANNEL	SPECTRAL BAND (MICROMETERS)	WORD
1	0.2 - 3.8	1
2	0.2 - 3.8	2
3	0.2 - 50+	3
4	.526 - 2.8	4
5	.698 - 2.8	5
6	.395 - .508	6
7	.344 - .460	7
8	.300 - .408	8
9	.275 - .360	9
10C	0.2 - 50+	10

Words 1 thru 5 are written to tape using a multiplier of 10 and words 6 thru 10 are written using a multiplier of 100 for integer values of mean irradiance.

FORMAT TYPE 1

	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	1	
WORDS																	BITS	
1	PHYSICAL RECORD NO. (12 BITS)						SPARES (4 BITS)			FILE CONT.	RECORD ID (6 BITS)				SPARES (8 BITS)			
2	LOGICAL RECORD NO. (16 BITS)									TABLE INDEX (8 BITS)			REC. PER TABLE (8 BITS)					
3	FRAME NUMBER																(32 BITS)	
4	FILM SPECIFICATION NUMBER																(32 BITS)	
5	ALGORITHM ID (16 BITS)								GENERATION DATE				(16 BITS)					
6	START ORBIT NUMBER																(32 BITS)	
7	END ORBIT NUMBER																(32 BITS)	
8	START YEAR (16 BITS)								END YEAR				(16 BITS)					
9	START DAY (16 BITS)								END DAY				(16 BITS)					
10	MINIMUM EARTH-SUN DISTANCE (16 BITS)								MAXIMUM EARTH-SUN DISTANCE				(16 BITS)				320	
20	INTEGER VALUES OF MEAN IRRADIANCE FOR CHANNELS 1 THRU 10																(320 BITS)	640
30	FLOATING POINT VALUES OF MEAN IRRADIANCE FOR CHANNELS 1 THRU 10																(320 BITS)	960
40	INTEGER VALUES OF STANDARD DEVIATION FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	1,280
50	FLOATING POINT VALUES OF STANDARD DEVIATION FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	1,600
60	INTEGER VALUES OF RANGE (MAXIMUM-MINIMUM) FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	1,920
70	FLOATING POINT VALUES OF RANGE (MAXIMUM-MINIMUM) FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	2,240
80	INTEGER VALUES OF THE DELTA MEAN FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	2,560
90	FLOATING POINT VALUES OF THE DELTA MEAN FOR CHANNELS 1 THRU 10 (IRRADIANCE)																(320 BITS)	2,880
290	20x10 MATRIX OF 32-BIT INTEGER VALUES OF ZONALLY AVERAGED INSOLATION (200, 32-BIT WORDS)																(6400 BITS)	9,280
490	20x10 MATRIX OF 32-BIT FLOATING POINT VALUE OF ZONALLY AVERAGED INSOLATION (200, 32-BIT WORDS)																(6400 BITS)	15,680
657	5344 SPARE BITS ZEROED																	21,024

657, 32-BIT WORDS
584, 36-BIT WORDS

876, 24-BIT WORDS
2628, 8-BIT BYTES

FIGURE VI-2. Mean Normalized Solar Irradiance and Zonally Average Insolation Logical Record Format

20. FLOATING POINT VALUES OF MEAN IRRADIANCE (10, 32-BIT WORDS) - Identical to Item 10 only given in IBM 360 point notation.
21. INTEGER VALUES OF STANDARD DEVIATION (10, 32-BIT WORDS) - Integer values of standard deviation of irradiance for Channels 1 thru 10. These words are written to tape using a multiplier of 100, and arranged as shown in Table V1-2A.
22. FLOATING POINT VALUES OF STANDARD DEVIATION (10, 32-BIT WORDS) - Identical to Item 21 only given in IBM 360 floating point notation.
23. INTEGER VALUES OF MAX. MIN. RANGE (10, 32-BIT WORDS) - Integer values that represent the change in mean from the previous averaging period for Channels 1 thru 10. Each integer word is written to tape using a multiplier of 100, and is arranged as shown in Table V1-2A.
24. FLOATING POINT VALUES OF MAX.-MIN. RANGE (10, 32-BIT WORDS) - Identical to Item 23 only floating point notation.
25. INTEGER VALUES OF THE DELTA MEAN (10, 32-BIT WORDS) - Integer values that represent the change in mean from the previous averaging period for Channels 1 thru 10. Each integer word is written to tape using a multiplier of 100, and is arranged as shown in Item 19.
26. FLOATING POINT VALUES OF THE DELTA MEAN (10, 32-BIT WORDS) - Identical to Item 25 only floating point notation.
27. INTEGER VALUES OF ZONALLY AVERAGED INSOLATION (200, 32-BIT WORDS) - Integer values of zonally averaged insolation for Channels 2 thru 5 and 10 in W/M^2 over a 180 degrees latitude belt. Channels 2 thru 5 are written to tape using a multiplier of 10, and Channel 10 is written using a multiplier of 100. Data is in a 20 X 10 MATRIX format and arranged as described in Item 29.
28. FLOATING POINT VALUES OF ZONALLY AVERAGES INSOLATION (200, 32-BIT WORDS) - Identical to Item 27 only floating point notation and arranged as described in Item 29.
29. 20 X 10 MATRIX ARRANGEMENT FOR ZONALLY AVERAGED INSOLATION DATA - Each 32-bit word within a block is in ascending word order number beginning with 1 and ending with 200, and is arranged as follows (See Table V1-2B):

TABLE VI-2B.

Channel Number/Hemisphere

LATITUDE BELT (Degrees)	<u>NORTHERN</u>					<u>SOUTHERN</u>				
	2	3	4	5	10	2	3	4	5	10
85.5-90.0	1	2	3	4	5	6	7	8	9	10
81.5-85.5	11	12	13	14	15	16	17	18	19	20
76.5-81.0	21	22	23	24	25	26	27	28	29	30
72.0-76.5	31	32	33	34	35	36	37	38	39	40
67.5-72.0	41	42	43	44	45	46	47	48	49	50
63.0-67.5	51	52	53	54	55	56	57	58	59	60
58.5-63.0	61	62	63	64	65	66	67	68	68	70
54.0-58.5	71	72	73	74	75	76	77	78	79	80
49.5-54.0	81	82	83	84	85	86	87	88	89	90
45.0-49.5	91	92	93	94	95	96	97	98	99	100
40.5-45.0	101	102	103	104	105	106	107	108	109	110
36.0-40.5	111	112	113	114	115	116	117	118	119	120
31.5-36.0	121	122	123	124	125	126	127	128	129	130
27.0-31.5	131	132	133	134	135	136	137	138	139	140
22.5-27.0	141	142	143	144	145	146	147	148	149	150
18.0-22.5	151	152	153	154	155	156	157	158	159	160
13.5-18.0	161	162	163	164	165	166	167	168	169	170
9.0-13.5	171	172	173	174	175	176	177	178	179	180
4.5- 9.0	181	182	183	184	185	186	187	188	189	190
0.0- 4.5	191	192	193	194	195	196	197	198	199	200

VI-B. FORMAT TYPE 2.

The Type 2 format, as shown in Figure VI-3, is used for all longitudinal averages (See Table VI-1). For listings of terrestrial flux from Channels 19 thru 22 three logical records are needed for a complete listing. The Table index word will indicate which of the three parts is contained in a particular logical record. For listings of Net Radiation for Channels 10C and 15 thru 22 and listings of Earth Albedo for Channels 10C and 15 thru 18 only one logical record is used per listing (See Table VI-3).

Items 1 thru 16 are described in Section VI. The remaining word descriptions are as follows:

FORMAT TYPE 2

	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	1	
WORDS 1	PHYSICAL RECORD NO. (12 BITS)				SPARES (4 BITS)				FILE CONT.	RECORD ID (6 BITS)				SPARES (8 BITS)				BITS
2	LOGICAL RECORD NUMBER (16 BITS)								TABLE INDEX (8 BITS)				REC. PER TABLE (8 BITS)					
3	FRAME NUMBER (32 BITS)																	
4	FILM SPECIFICATION NUMBER (32 BITS)																	
5	ALGORITHM ID (16 BITS)								GENERATION DATE (16 BITS)									
6	START ORBIT NUMBER (32 BITS)																	
7	END ORBIT NUMBER (32 BITS)																	
8	START YEAR (16 BITS)								END YEAR (16 BITS)									
9	START DAY (16 BITS)								END DAY (16 BITS)								288	
49	(40, 32-BIT WORDS) INTEGER VALUES OF LONGITUDINAL AVERAGES FOR LATITUDE BELT FROM 13.5°N TO 18°N (1280 BITS)																1,568	
89	(40, 32-BIT WORDS) FLOATING POINT VALUES OF LONGITUDINAL AVERAGES - 13.5°N LAT TO 18°N LAT (1280 BITS)																2,848	
129	(40, 32-BIT WORDS) INTEGER VALUES OF LONGITUDINAL AVERAGES - 13.5°N LAT TO 9°N LAT (1280 BITS)																4,128	
169	(40, 32-BIT WORDS) FLOATING POINT VALUES OF LONGITUDINAL AVERAGES - 13.5°N LAT TO 9°N LAT (1280 BITS)																5,408	
209	(40, 32-BIT WORDS) INTEGER VALUES OF LONGITUDINAL AVERAGES - 4.5°N LAT TO 9°N LAT (1280 BITS)																6,688	
249	(40, 32-BIT WORDS) FLOATING POINT VALUES OF LONGITUDINAL AVERAGES - 4.5°N LAT TO 9°N LAT (1280 BITS)																7,968	
289	(40, 32-BIT WORDS) INTEGER VALUES OF LONGITUDINAL AVERAGES - 0°N LAT TO 4.5°N LAT (1280 BITS)																9,248	
329	(40, 32-BIT WORDS) FLOATING POINT VALUES OF LONGITUDINAL AVERAGES - 0°N LAT TO 4.5°N LAT (1280 BITS)																10,528	
649	REPEAT ABOVE WORDS 10 TO 329 FOR 0° TO 4.5°S, 4.5°S TO 9°S, 9°S TO 13.5°S, and 13.5°S TO 18°S IN THAT ORDER. 8 GROUPS OF 1280 BITS = 10,240 BITS																20,768	
657	256 SPARE BITS ZEROED																21,024	

657, 32-BIT WORDS
584, 36-BIT WORDS

876, 24-BIT WORDS
2628, 8-BIT BYTES

FIGURE VI-3. Longitudinal Averages Logical Record Forman

17. INTEGER VALUES FROM 13.5°N to 18°N LATITUDE (40, 32-BIT WORDS) - Integer values of longitudinal averages from 18 degrees to 13.5 degrees N latitude over 40 longitudinal zones. All negative numbers will be 2's complements. The longitudinal zones and corresponding word numbers within this block are shown below:

TABLE VI-3

LONGITUDE ZONE	WORD NO.	LONGITUDE ZONE	WORD NO.
00-09E	1	180-171W	21
09-18E	2	171-162W	22
18-27E	3	162-153W	23
27-36E	4	153-144W	24
36-45E	5	144-135W	25
45-54E	6	135-126W	26
54-63E	7	126-117W	27
63-72E	8	117-108W	28
73-81E	9	108-99W	29
81-90E	10	99-90W	30
99-99E	11	90-81W	31
99-108E	12	81-72W	32
108-117E	13	72-63W	33
117-126E	14	63-54W	34
126-135E	15	54-45W	35
135-144E	16	45-36W	36
144-153E	17	36-37W	37
153-162E	18	27-18W	38
162-171E	19	18-09W	39
171-180	20	09-00	40

18. FLOATING POINT VALUES FROM 13.5°N to 18°N LATITUDE (40, 32-BIT WORDS) - Identical to Item 17 only given in IBM 360 floating point notation.
19. INTEGER VALUES FROM 13.5°N to 9°N LATITUDE (40, 32-BIT WORDS) - Integer values of longitudinal averages from 13.5°N to 9° latitude over 40 longitudinal zones. All negative numbers will be 2's complement. The longitudinal zones and corresponding word numbers within this block are shown in Table VI-3.

20. FLOATING POINT VALUES FROM 13.5⁰N TO 9⁰N LATITUDE (40, 32-BIT WORDS) - Identical to Item 19, only given in IBM 360 floating point notation.
21. INTEGER VALUES FROM 4.5⁰N TO 9⁰N LATITUDE (40, 32-BIT WORDS) - Integer values of longitudinal averages from 4.5 degrees N to 9 degrees N latitude over 40 longitudinal zones. All negative numbers will be 2's complement. The longitudinal zones and corresponding word numbers within this block are as shown in Table VI-3.
22. FLOATING POINT VALUES FROM 4.5⁰N TO 9⁰N LATITUDE (40, 32-BIT WORDS) - Identical to Item 21, only given in IBM 360 floating point notation.
23. INTEGER VALUES FROM 4.5⁰N TO 0⁰N LATITUDE (40, 32-BIT WORDS) - Integer values of longitudinal averages from 4.5 degrees N to 0 degree N latitude over 40 longitudinal zones. All negative numbers will be 2's complement. The longitudinal zones and corresponding word numbers within this block are as shown in Table VI-3.
24. FLOATING POINT VALUES FROM 4.5⁰N TO 0⁰N LATITUDE (40, 32-BIT WORDS) - Identical to Item 23, only given in IBM 360 floating point notation.
25. Repeat Items 24 thru 18 in that order for Southern latitudes (10, 240 BITS).
26. SPARES (256 BITS) - These spare bits will be zero filled.

VI-C. FORMAT TYPE 3

The Type 3 format, as shown in Figure VI-4, is used for latitudinal averages of Net Radiation, Channels 10C and 15-22 or Channels 12 and 13; and Earth Albedo, Channels 10C and 15-18 (see Table VI-1). Items 1 thru 16 are described in Section VI. The remaining word descriptions are as follows (see Table VI-4):

17. INTEGER VALUES FOR 1st COLUMN OF LATITUDINAL AVERAGES (40, 32 BIT WORDS) - Integer values of latitudinal averages of either Earth albedo expressed in percent, or Net Radiation in W/m^2 . The data words order is ascending from 1 to 40 and corresponds to the latitude belt as shown below:

FORMAT TYPE 3

	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	1	
WORDS 1	PHYSICAL RECORD NO. (12 BITS)				SPARES (4 BITS)				FILE CONT.	RECORD ID (6 BITS)				SPARES (8 BITS)				BITS 32
2	LOGICAL RECORD NUMBER (16 BITS)								TABLE INDEX (8 BITS)				REC. PER TABLE (8 BITS)				64	
3	FRAME NUMBER (32 BITS)																96	
4	FILM SPECIFICATION NUMBER (32 BITS)																128	
5	ALGORITHM ID (16 BITS)								GENERATION DATE (16 BITS)								160	
6	START ORBIT NUMBER (32 BITS)																192	
7	END ORBIT NUMBER (32 BITS)																224	
8	START YEAR (16 BITS)								END YEAR (16 BITS)								256	
9	START DAY (16 BITS)								END DAY (16 BITS)								288	
49	(40, 32-BIT WORDS) INTEGER VALUES FOR LATITUDINAL AVERAGES - LATITUDE BELT = 90°N TO 90°S (RANGE = 4.5°) (1280 BITS)																1,568	
89	(40, 32-BIT WORDS) FLOATING POINT VALUES FOR LATITUDINAL AVERAGES - LATITUDE BELT = 90°N TO 90°S (RANGE = 4.5°) (1280 BITS)																2,848	
657	18176 SPARE BITS ZEROED																21,024	

657, 32-BIT WORDS
584, 36-BIT WORDS

876, 24-BIT WORDS
2628, 8-BIT BYTES

FIGURE VI-4. Net Radiation or Albedo from NFOV Observations Logical Record Format

TABLE VI-4

NORTHERN LATITUDE BELTS (DEG).	WORD NO.	SOUTHERN LATITUDE BELT	WORD NO.
85.5-90.0N	1		21
81.0-85.5N	2		22
76.5-81.0N	3	SAME AS	23
72.0-67.5N	4	NORTHERN BELTS	24
67.5-72.0N	5	AND IN	25
62.0-67.5N	6	SAME ORDER	26
58.5-63.0N	7		27
54.0-58.5N	8		28
49.5-54.0N	9		29
45.0-49.5N	10		30
40.5-45.0N	11		31
36.0-40.5N	12		32
31.5-36.0N	13		33
27.0-31.5N	14		34
22.5-27.0N	15		35
18.0-22.5N	16		36
13.5-18.0N	17		37
9.0-13.5N	18		38
4.5-9.0N	19		39
0.0-4.5N	20		40

18. FLOATING POINT VALUES FOR LATITUDINAL AVERAGES (40, 32-BIT WORDS - Identical to Item 17 only in IBM 360 floating point notation.

19. SPARE (18176 BITS) - These spare bits will be zeroed.

VI-D. FORMAT TYPE 4

The Type 4 format, as shown in Figure VI-5, is used for latitudinal averages of Earth albedo, Channels 5, 10C, 13, and 14; or terrestrial flux, Channels 19-22 or 12 and 13. (See Table VI-1). All negative numbers will be 2's complement. Items 1 thru 16 are described in Section VI. The remaining word descriptions are as follows (See Table VI-5):

17. INTEGER VALUES OF 0 .2-4. 0 M ALBEDO (5) OR FLUX IN ASCENDING NODE IN W/m^2 (40, 32-BIT WORDS) - Integer values for latitudinal averages of net radiation over 40 increments of latitude. The data arrangement within the block and the associated latitude belt is described in Item 17 of section VI-C.

18. FLOATING POINT VALUES OF 0.2-4.0 M ALBEDO (%) OR FLUX IN ASCENDING NODE IN W/m^2 (40, 32-BIT WORDS) - Identical to Item 17 only given in IBM 360 floating point.

19. INTEGER VALUES FOR 0.7-3.0 0 M ALBEDO FLUX IN DESCENDING PORTION OF NODE IN W/m^2 .

20. FLOATING POINT VALUES FOR 0.7-3.0 M ALBEDO FLUX IN DESCENDING NODE IN W/m^2 . Same as Item 18 description.

21. INTEGER VALUES FOR 0.2-0.7 M ALBEDO (%) OR FLUX IN ASCENDING NODE PLUS FLUX PLUS DESCENDING NODE IN W/m^2 . Same as Item 17.

22. FLOATING POINT VALUES FOR 0.2-0.7 M ALBEDO OR FLUX IN ASCENDING NODE PLUS FLUX PLUS DESCENDING NODE IN W/m^2 . Same as Item 18 description.

23. SPARES (13056 BITS) - These spare bits will be zeroed.

FORMAT TYPE 4

WORDS	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	1	BITS
1	PHYSICAL RECORD NO. (12 BITS)				SPARES (4 BITS)				FILE CONT.	RECORD ID (6 BITS)				SPARES (8 BITS)				
2	LOGICAL RECORD NUMBER (16 BITS)								TABLE INDEX (8 BITS)				REC. PER TABLE (8 BITS)					
3	FRAME NUMBER (32 BITS)																	
4	FILM SPECIFICATION NUMBER (32 BITS)																	
5	ALGORITHM ID (16 BITS)								GENERATION DATE (16 BITS)									
6	START ORBIT NUMBER (32 BITS)																	
7	END ORBIT NUMBER (32 BITS)																	
8	START YEAR (16 BITS)								END YEAR (16 BITS)									
9	START DAY (16 BITS)								END DAY (16 BITS)								288	
49	(40, 32-BIT WORDS) INTEGER VALUES FOR 0.2-4.0 μ M ALBEDO (%) OR DAYTIME FLUX IN W/m^2 (1280 BITS)																1,568	
89	(40, 32-BIT WORDS) FLOATING POINT VALUES FOR 0.2-4.0 μ M ALBEDO OR DAYTIME FLUX IN W/m^2 (1280 BITS)																2,848	
129	(40, 32-BIT WORDS) INTEGER WORDS FOR 0.7 TO 3.0 μ M ALBEDO OR NIGHTTIME FLUX IN W/m^2 (1280 BITS)																4,128	
169	(40, 32-BIT WORDS) FLOATING POINT VALUES FOR 0.7 TO 3.0 μ M ALBEDO DATA OR NIGHTTIME FLUX IN W/m^2 (1280 BITS)																5,408	
209	(40, 32-BIT WORDS) INTEGER WORDS FOR 0.2 TO 0.7 μ M ALBEDO DATA OR DAY PLUS NIGHT FLUX IN W/m^2 (1280 BITS)																6,688	
249	(40, 32-BIT WORDS) FLOATING POINT VALUES FOR 0.2 TO 0.7 μ M ALBEDO DATA OR DAY PLUS NIGHT FLUX IN W/m^2 (1280 BITS)																7,968	
657	13,056 SPARE BITS ZEROED																21,024	

657, 32-BIT WORDS
584, 36-BIT WORDS

876, 24-BIT WORDS
2628, 8-BIT BYTES

FIGURE VI-5. Terrestrial Flux (NFOV & WFOV) and Earth Albedo from WFOV Observations Logical Record Format

TABLE VI-5

N. LATITUDE BELTS (Degree)				S. LATITUDE BELTS (Degree)			
WORD	WORD	WORD	WORD	WORD	WORD	WORD	WORD
85.5-90.0	1	81	161	85.5-90.0	21	101	181
.
00.0-04.5	20	100	180	04.5-00.0	40	120	201

VI-E. FORMAT TYPE 5

Figure VI-6 shows the format of the logical record used to display the Monthly status and Calibration Summary Data shown on Film Specification No. F136767. All negative numbers will use 2's complement. Items 1 thru 16 are described in Section VI, the remaining word descriptions are as follows (See Table VI-6, A-H):

17. INTEGER VALUES OF NUMBER OF ORBITS, FIRST AND LAST ORBITS FOR EACH OF 10 DIFFERENT INSTRUMENT STATUS MODES (30, 32-BIT WORDS) - The words are arranged as follows:

FORMAT TYPE 5

WORDS	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	1	BITS
1	PHYSICAL RECORD NO. (12 BITS)		SPARES (4 BITS)				FILE CONT.	RECORD ID (6 BITS)			SPARES (8 BITS)							
2	LOGICAL RECORD NO. (16 BITS)						TABLE INDEX (8 BITS)			REC. PER TABLE (8 BITS)								
3	FRAME NUMBER (32 BITS)																	
4	FILM SPECIFICATION NUMBER (32 BITS)																	
5	ALGORITHM ID (16 BITS)				GENERATION DATE (16 BITS)													
6	START ORBIT NUMBER (32 BITS)																	
7	END ORBIT NUMBER (32 BITS)																	
8	START YEAR (16 BITS)				END YEAR (16 BITS)													
9	START DAY (16 BITS)				END DAY (16 BITS)													
39	30, 32-BIT INTEGER VALUES, NUMBER OF ORBITS, FIRST AND LAST ORBIT FOR EACH OF TEN DIFFERENT INSTRUMENT STATUS MODES (960 BITS)																	
69	30, 32-BIT FLOATING POINT VALUES OF NUMBER OF ORBITS, FIRST AND LAST ORBIT IN TEN DIFFERENT INSTRUMENT STATUS MODES (960 BITS)																	
82	13, 32-BIT INTEGER VALUES OF CHANNELS 11, 12, 12-11 IRRADIANCES, NUMBER OF SAMPLES, CHANNEL 11 MIN, MEAN, MAX, STD DEV; CHANNEL 12 MIN, MEAN, MAX, STD DEV; AND CHANNELS 12-11 MIN, MEAN, MAX, STD DEV (416 BITS)																	
95	FLOATING POINT VALUES OF CHANNELS 11, 12, and 12-11 IRRADIANCES (13 VALUES X 32 BITS = 416 BITS) (416 BITS)																	
104	9, 32-BIT INTEGER VALUES OF SHUTTER TEMPERATURES (288 BITS)																	
113	9, 32-BIT FLOATING POINT VALUES OF SHUTTER TEMPERATURES (288 BITS)																	
144	31, 32-BIT INTEGER VALUES FOR THE NUMBER OF ORBITS OF ERB ON EACH DAY OF MONTH (31-DAY MONTH) (992 BITS)																	
175	31, 32-BIT FLOATING POINT VALUES FOR THE NUMBER OF ORBITS OF ERB ON EACH DAY OF A 31-DAY MONTH (992 BITS)																	
208	33, 32-BIT INTEGER VALUES FOR LONGWAVE SCANNING CHANNELS CALIBRATION SUMMARY. NUMBER OF CALIBRATIONS FOLLOWED BY THE MIN, MEAN, MAX, AND STD DEV OF INTERCEPT, THEN SLOPE OF EACH OF CHANNELS 19-22 (1056 BITS)																	
241	SAME AS ABOVE EXCEPT 33, 32-BIT FLOATING POINT LONGWAVE CALIBRATION DATA VALUES (1056 BITS)																	
258	17, 32-BIT INTEGER VALUES FOR SHORTWAVE CHECK (544 BITS)																	
275	17, 32-BIT FLOATING POINT VALUES FOR SHORTWAVE CHECK (544 BITS)																	
318	43, 32-BIT INTEGER VALUES FOR ELECTRONIC CALIBRATION MEAN GAIN RATIOS (1376 BITS)																	
361	43, 32-BIT FLOATING POINT VALUES FOR ELECTRONIC CALIBRATION MEAN GAIN RATIOS (1376 BITS)																	
418	57, 32-BIT INTEGER VALUES FOR GO/NO GO NET COUNT RATIOS (1824 BITS)																	
475	57, 32-BIT FLOATING POINT VALUES FOR GO/NO GO NET COUNT RATIOS (1824 BITS)																	
657	5824 SPARE BITS ZEROED OUT																	

657, 32-BIT WORDS
584, 36-BIT WORDS

876, 24-BIT WORDS
2628, 8-BIT WORDS

FIGURE VI-6. MONTHLY STATUS AND CALIBRATION REPORT

TABLE VI-6A

<u>MODE</u>	<u>INST. STATUS</u> <u>(REF. CHS. OPEN)</u>	<u># OF ORBITS</u> <u>WORD #</u>	<u>FIRST ORBIT</u> <u>WORD #</u>	<u>LAST ORBIT</u> <u>WORD #</u>
1	.	1	11	21
2	.	2	12	22
3	.	3	13	23
4	.	4	14	24
5	.	5	15	25
6	.	6	16	26
7	.	7	17	27
8	.	8	18	28
9	.	9	19	29
10	(GAMMA STEP)	10	20	30

18. FLOATING VALUES FOR ALL INSTRUMENT STATUS (30, 32-BIT WORDS) - These words are in IBM 360 notation and will be output as per the arrangement described in Item 17.
19. INTEGER VALUES FOR CHANNELS 11, 12, AND 12-11 IRRADIANCES (13, 32-BIT WORDS) - These data will be arranged as follows:

TABLE VI-6B

WORD NUMBER	WORD NUMBER
1 Number of Samples	8 CH 12 Maximum
2 CH 11 Minimum	9 CH 12 Standard Deviation
3 CH 11 Mean	10 CH 11-12 Minimum
4 CH 11 Maximum	11 CH 11-12 Mean
5 CH 11 Standard Deviation	12 CH 11-12 Maximum
6 CH 12 Minimum	13 CH 11-12 Standard Deviation
7 CH 12 Mean	

20. FLOATING POINT VALUES FOR ITEMS IN PARAGRAPH 19 ABOVE (13, 32-BIT WORDS ARRANGED IDENTICALLY TO THOSE IN ITEM 19).
21. 9, 32-BIT INTEGER VALUES FOR SHUTTER TEMPERATURES - The data will be arranged as follows:

TABLE VI-6C

WORD NUMBER	WORD NUMBER
1 Number of Samples	6 CH 12 Minimum
2 CH 11 Minimum	7 CH 12 Mean
3 CH 11 Mean	8 CH 12 Maximum
4 CH 11 Maximum	9 CH 12 Standard Deviation
5 CH 11 Standard Deviation	

2. 9, 32-BIT FLOATING VALUES ARRANGED AS DESCRIBED IN ITEM 21 ABOVE.

23. 31, 32-BIT INTEGER VALUES FOR THE NUMBER OF ORBITS OF ERB "ON" EACH DAY, ARRANGED AS FOLLOWS: The data values will be output in ascending day of the month number order (i.e., Day 1 to Day 31 = WORD 1 to WORD 31).

TABLE V1-6D

DAY	ORBITS
1	Word 1
2	2
.	.
.	.
.	.
31	31

24. 31, 32-BIT FLOATING POINT VALUES OUTPUT AS DESCRIBED IN ITEM 23 ABOVE.
25. 33, 32-BIT INTEGER VALUES FOR LONGWAVE SCANNING CHANNELS CALIBRATION SUMMARY - The output will be ordered as follows:

TABLE V1-6E

WORD NUMBER	
1	= Number of Calibrations
2-5	= Minimum, Mean, Maximum, and Standard Deviation of Channel 19 Interception
6-9	= Minimum, Mean, Maximum, and Standard Deviation of Channel 19 Slope
10-17	= Repeat of Words 2-9, except for Channel 20
18-25	= Repeat of Words 2-9, except for Channel 21
26-33	= Repeat of Words 2-9, except for Channel 22

26. 33, 32-BIT FLOATING POINT VALUES FOR ALL THE VALUES DESCRIBED IN ITEM 25 ABOVE AND IN SAME ORDER.
27. 17, 32-BIT INTEGER VALUES FOR SHORTWAVE CHECK COUNT RATIOS. These data values will be arranged as follows:

TABLE VI-6F

WORD NUMBER

- 1 = Number of Shortwave Checks
 - 2-5 = Minimum, Mean, Maximum, and Standard Deviation of Channel 15
 - 6-9 = Minimum, Mean, Maximum, and Standard Deviation of Channel 16
 - 10-13 = Minimum, Mean, Maximum, and Standard Deviation of Channel 17
 - 14-17 = Minimum, Mean, Maximum, and Standard Deviation of Channel 18
-

28. 17, 32 FLOATING-POINT VALUES OF THE ITEM 27 DATA ARRANGED IDENTICALLY.

29. 43, 32-BIT INTEGER VALUES FOR ELECTRONIC CALIBRATION MEAN GAIN RATIOS. They will be arranged as follows:

TABLE VI-6G

WORD NUMBER

- 1 = No. of Electronic Calibrations
 - 2-4 = Steps 1-2, Steps 2-3 and Steps 3-4 for Channel 1
 - 5-7 = Steps 1-2, Steps 2-3 and Steps 3-4 for Channel 14
 - : · :
 - : · :
 - : · :
 - 41-43 = Steps 1-2, Steps 2-3 and Steps 3-4 for Channel 14
-

30. Same as Item 29 above except output in IBM 360 Floating Point Notation.

31. 57, 32-BIT INTEGER VALUES FOR GO/NO GO NET COUNT RATIOS - They will be arranged as follows:

WORD 1 = Number of Tests, followed by the Minimum, Mean, Maximum, and Standard Deviation of each of 14 channels in ascending numerical order.

- 32. 57, 32-BIT FLOATING POINT VALUES FOR EACH OF THE ITEMS DESCRIBED AND ARRANGED AS IN ITEM 31 ABOVE.
- 33. SPARES (5824 BITS) Zero filled. Used to fill out the record to the Standard record size for all ERB records.

TABLE VI-6H

NUMBER OF TESTS = WORD 1

MINIMUM		MEAN	MAXIMUM	STD. DEVIATION
1	WORD 2	3	4	5
2	6	7	8	9
3	10	11	12	12
4	14	15	16	17
5	18	19	20	21
6	22	23	24	25
7	26	27	28	29
8	30	31	32	33
9	34	35	36	37
10	38	39	40	41
11	42	43	44	45
12	46	47	48	49
13	50	51	52	53
14	54	55	56	57