

#53

OV1-2 MERGED EPHEMERIS AND
ELECTRON SPECTROMETER

65-078A-02C

0.4-26

0.4-26

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

Electron, Proton Fluxes, Tape

65-078A-02C

This data set has been restored. There were originally 3 7-track, 800 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The tapes were created on a 7094 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR03682	DS03682	DD00134	1	10/05/65 - 11/01/65
		DD00135	2	11/01/65 - 12/01/65
		DD00136	3	12/01/65 - 12/01/65

65-078A-02C
OV1-2
MERGED EPHEMERIS & ELECTRON SPECTROMETER

This data set consists of 3 BINARY, 7-track, 800BPI tapes. These tapes were created by merging 79 Electron Spectrometer (65-078A-02A) and 6 Ephemeris* (65-078A-00D) tapes. The 3 output tapes contain one file each with 32 word logical records and 30 logical records per physical record. These tapes were generated on the IBM 7094 Computer.

The Electron Spectrometer tapes are 556 BPI, 7-track, BCD with a record length of 132 characters.

The time spans for the 3 merged tapes are:

<u>D#</u>	<u>C#</u>	<u>TIME</u> <u>SPAN</u>
D-00134	C-03426	10/05/65 - 11/01/65
D-00135	C-03427	11/01/65 - 12/01/65
D-00136	C-03428	12/01/65 - 12/01/65

* See Data Set Catalog #104 for description of these tapes.

SOFTWARE SUBTASK DEFINITION

DATE: 1/2/70	REFERENCE NUMBERS:	GROUP: 02
SUBTASK NUMBER: 30-1	PREPARED BY: M. Redgrave	APPROVED BY:
SUBTASK NAME: QV 1 and 2 Merge Channel 15 and 16		
ASSIGNED PERSONNEL: J. Chase		

SUMMARY/REMARKS:

Develop a program to merge channel 15, channel 16, and Ephemeris data.

Channels 15 and 16 are now separate because of the telemetry transmission methods used by the satellite. Merging the two channels will essentially double the number of data points for each detector for each two-second data transmission cycle. Therefore, it is more meaningful to have all data points in the same period in the same logical record. Also, considerable tape storage is conserved by merging this data. Seventy^{nine}-eight data tapes and six ephemeris tapes will be compacted to about four tapes.

MILESTONES AND SCHEDULES

NO.	DESCRIPTION	EST. COMPLETION DATES	
		PROPOSED DATE	REVISION DATE
1	Analysis, Coding, and Testing of Program	4/15/70	
2	Documentation and Implementation	4/17/70	

RESOURCE ESTIMATES:

MAN-MONTHS: PROGRAMMER: 0.5 OTHER TECHNICAL STAFF: SUPPORT STAFF:

COMPUTER TIME (HRS.): 7094 4 360/75: OTHER (SPECIFY):

SPECIAL MATERIALS, SUPPLIES, ETC. (SPECIFY QUANTITY AND COST):
(USE BACK-SIDE OF FORM IF REQUIRED)

TEMPORARY

OV1-2 CHANNEL 15 AND CHANNEL 16

DATA TAPES

The OV1-2 Channel 15 and Channel 16 data tapes are 7 track, 556 bpi, BCD tapes written by Fortran IV on an IBM 7094 Computer. The record length is 132 characters.

Channel 15

The first two records of each orbit contain identification information including the orbit number, year, channel number, month and day. The third record contains labels for the following data (see enclosed listing). This record is repeated approximately every 44 records such that when listed by an IBM 1401 or equivalent computer on standard 11 X 15 inch computer paper the labels appear at the top of the page. The time is given as ³⁶⁵XXX.YY.ZZ.MM.M where the X's represent the day of the year, the Y's the hours, and Z's the minutes after the hour and the M's the seconds and tenths of seconds.

The Channel 15 data includes:

Abbreviation	Description
✓ ES-3	Electron spectrometer Channel 3
ES-6	Electron spectrometer Channel 6
✓ DELE 1	E1 output ($\Delta E1$)
✓ DELE 2	E2 output ($\Delta E2$)
PS-9	Proton spectrometer Channel 9 <i>proton went</i>
PS 1 thru PS-4	Proton spectrometer Channel 1 -
	→ Channel 4
DOS 1 thru DOS 3	Proton Dosimetry 1-3
ES-9	<i>electron spectrometer ch 9 (electron went) ie electron count (≈ 560 kev) ES9-3</i>

OV1-2 CHANNEL 15 AND CHANNEL 16

DATA TAPES

(continued)

Channel 16

The Channel 16 tapes are written in the same format as the Channel 15 tapes.

The Channel 16 data includes:

Abbreviation	Description
ES-1, ES-2	Electron spectrometer Channel 1, Channel 2
ES-4, ES-5	Electron spectrometer Channel 4, Channel 5
ES-7, ES-8	Electron spectrometer Channel 7, Channel 8
PS-5 thru PS-8	Proton spectrometer Channel 5 - ^{L-1, L-2} Channel 8 ^{L-3, L-4}
ES-9	Electron spectrometer Channel 9 ^{L-1, L-2, L-3}
XRAY	XRAY output
DELE 1	E1 output
DELE 2	E2 output
PS-9	Proton spectrometer Channel 9
DOS-1 - DOS-3	Proton dosimeter 1-3

FINAL MERGED SVI-2 DESCRIPTION

1. If the ephemeris time interval is greater than 15 seconds or negative, that record is omitted and the ephemeris tape is read until a valid interval is found.
2. If the data record time does not correspond to a given ephemeris time interval, then zeros are moved to the output record for ephemeris data.
3. A test is made to see if data time falls within 10 seconds of any end point of a valid ephemeris interval. If it does, then extrapolation is used with ephemeris data points corresponding to end points. If the first data time is less than the first ephemeris time by more than 10 seconds, zeros are moved to that field, otherwise extrapolation is used to compute the ephemeris values. After an end of file on the ephemeris tape, all data within 10 seconds of the last ephemeris time is computed with extrapolation. All records greater than 10 seconds from the last ephemeris record have zeros for ephemeris data.
4. The last output record is zero filled if it is a short record.

Maury Materazzi - May 5, 1970

LINEAR INTERPOLATION ROUTINE FOR ØVI-2

Short Description: The INTER routine will find the y_i values for a given sequence of y_i ; $i=1, \dots, 12$. The input y values are contained in two arrays A and B; the output values are stored in C, the input data time is TIME.

Lagrange's formula for the linear equation is used since we want to find many y values for one given $\bar{v}$ value.

The equation is:

$$y = \left(\frac{\bar{v} - \bar{v}_i}{\bar{v}_0 - \bar{v}_i} \right) y_0 - \left(\frac{\bar{v} - \bar{v}_0}{\bar{v}_0 - \bar{v}_i} \right) y_i$$

Margaret M. Cook - May 5, 1970

65-117-02
 FORMAT FOR THE FINAL OV1-2 MERGED
 EPHEMERIS AND DATA TAPES

<u>WORD #</u>	<u>DESCRIPTION</u>	
1	DAY	
2	HOUR	
3	MINUTE	
4	ES9-1	
5	ES9-2	"
6	ES9-3	"
7	ES9-4	"
8	ES1	1
9	ES2	" "
10	ES3	" " 3
11	ES4	" " 4
12	ES5	" " 5
13	DELE1-1	PROTON COUNT RATE
14	DELE1-2	"
15	DELE1-3	"
16	DELE1-4	"
17	DELE2-1	" RATE
18	DELE2-2	"
19	DELE2-3	"
20	DELE2-4	"
21	LATITUDE	
22	LONGITUDE	
23	ALTITUDE	
24	B	
25	B _r	1
26	B _φ	
27	B _ω	"

<u>WORD #</u>	<u>DESCRIPTION</u>
28	L
29	θ_b
30	Λ
31	$X = \sqrt{1 - B_0/E}$
32	R

Each logical record of the merged tapes contains 32 words.
 There are 30 logical records per physical record. The three
 final merged tapes are 800 BPI.

Maury Materazzi - May 5, 1970

TAPES

D-00134, 00135, 00136

C- 03426, 03427, 03428

MADE FROM MERGING D-01932 → 01937 EPHEMERIS TAPES
 & D-01853 → 01931 ELECTRON SPECT. TAPES

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1000-1000

1853 1937

L5078A02A

10/10/10

	JC10	CH15	Output		
1	"	"	"	1	0, 1, 5
2	"	"	"	2	5, 6, 7
3	"	"	"	3	7, 8, 17
4	"	"	"	4	17, 19, 21
5	"	"	"	5	21, 28, 30
6	"	"	"	6	30, 32, 42
7	"	"	"	7	42, 44, 73
8	"	"	"	8	73, 75, 76
9	"	"	"	9	76, 88, 89, 99, 100
10	"	"	"	10	100, 111, 112, 118
11	"	"	"	11	118, 150
12	"	"	"	12	150, 163, 165
13	"	"	"	13	165, 173, 175
14	"	"	"	14	175, 185, 196
15	"	"	"	15	196, 266, 267
16	"	"	"	16	267, 278
17	"	"	"	17	278, 279, 312
18	"	"	"	18	312, 323
19	"	"	"	19	323, 334
20	"	"	"	20	334, 358
21	"	"	"	21	392
22	"	"	"	22	392, 404
23	"	"	"	23	404, 415, 417
24	"	"	"	24	417, 439
25	"	"	"	25	439, 472, 484
26	"	"	"	26	484, 485
27	"	"	"	27	485, 506, 507
28	"	"	"	28	507, 532, 553
29	"	"	"	29	553, 569
30	"	"	"	30	569, 575
31	"	"	"	31	575, 577
32	"	"	"	32	577, 598, 600
33	"	"	"	33	600, 633
34	"	"	"	34	633, 635
35	"	"	"	35	635, 644, 646
36	"	"	"	36	646, 656, 658
37	"	"	"	37	658, 266
38	"	"	"	38	266, 32
39	"	"	"	39	73, 75, 88, 89
40	"	"	"	40	89, 99, 111, 266
41	"	"	"	41	266, 323, 334
42	"	"	"	42	334, 358, 506
43	"	"	"	43	506, 633, 635, 646,
					658, 575
44	"	"	"	44	575

OV1-2 Tapes

National Space Science Data Center

No.	Name		Orbit	
45	JC10	CH16	Output 1	0, 1, 5, 6
46	"	"	" 2	6, 7, 8
47	"	"	" 3	8, 17, 19, 21
48	"	"	" 4	21, 28, 30
49	"	"	" 5	30, 32, 42, 44
50	"	"	" 6	44, 73, 75, 76
51	"	"	" 7	76, 88, 89, 99, 100
52	"	"	" 8	100, 111, 112, 118
53	"	"	" 9	118, 150, 163
54	"	"	" 10	163, 165, 173
55	"	"	" 11	173, 175, 185
56	"	"	" 12	185, 196, 266, 267
57	"	"	" 13	267, 278
58	"	"	" 14	278, 279, 312
59	"	"	" 15	312, 323, 334
60	"	"	" 16	334, 358
61	"	"	" 17	392
62	"	"	" 18	392, 404, 415
63	"	"	" 19	415, 417, 439
64	"	"	" 20	439, 472
65	"	"	" 21	484, 485, 506
66	"	"	" 22	506, 507, 532
67	"	"	" 23	532, 553, 569
68	"	"	" 24	569, 575
69	"	"	" 25	575, 577, 598
70	"	"	" 26	598, 600
71	"	"	" 27	600, 633, 635
72	"	"	" 28	635, 644
73	"	"	" 29	658, 266, 32
74	"	"	" 30	646, 656, 658
75	"	"	" 31	32
76	"	"	" 32	73, 75, 76, 88, 89, 99
77	"	"	" 33	99, 111, 266, 323
78	"	"	" 34	323, 334, 358, 506
79	"	"	" 35	506, 635, 646, 658, 575
80	Ephemeris Tapes		6	
81	"	"	4B	
82	"	"	5	
83	"	"	4A	
84	"	"	7	
85	"	"	3	

DAY 278

10/5/65

11/1/65

DUMP OF 1st AND LAST 10 KLOC.

C-03426

FILE 0001 REC 0001 CH 5760	20444000000	2056437113051	2207141200001	2016024365601	2107140000001	2116060000000	2176422470000
0001 211426000000	20444000000	2056437113051	2207141200001	2016024365601	2107140000001	2116060000000	2176422470000
0049 216422540000	216457600000	214527600000	2154273000000	2214162400000	201602436560	2216006100000	2214224700000
0097 201602436560	201602436560	211760000000	2115510000000	205661577645	210536530155	213533153266	176654106511
0145 176413633447	573560536134	176512657220	201541236622	210401340257	205515412117	200520664352	215737761235
0193 211426000000	204440000000	205544332350	2215707500000	201602436560	212472436560	212423400000	217611600000
0241 216544200000	216553000000	214525000000	213505000000	220634400000	201602436560	221576640000	221661460000
0289 201602436560	201602436560	21247216374	201541050111	205660752534	210536332175	213533721320	217665331521
0385 211426000000	204440000000	205644753412	221414600000	201602436560	210744000000	212506000000	220600300000
0433 217545640000	216563700000	215714500000	221445270000	221744300000	201602436560	222466430000	221675240000
0481 201602436560	201602436560	211503000000	212550400000	205660125423	210536113017	213534467353	176652614531
0529 176411660005	573555670615	176512555551	201540103567	20551035676	205513263340	200517220436	215740151752
0577 211426000000	204440000000	205645412172	221517120000	201602436560	212417000000	211713000000	217613240000
0625 216541100000	216422300000	214727200000	214450200000	221645700000	201602436560	222423310000	221612420000
0673 201602436560	201602436560	211531000000	211656000000	205657404054	210536336455	213535140467	176652156306
0721 176411021654	5735554546164	176512522341	201540514461	210400714544	205512333560	200516467333	215740232214
0769 211426000000	204440000000	205545033234	221754140000	201602436560	212607000000	211774000000	220454620000
0817 217424440000	216721500000	215561600000	215627400000	221576640000	201602436560	222565030000	222464460000
0865 201602436560	204431727024	212463400000	211456000000	205656612141	210535537423	213535655045	176651457012
0913 176410103047	573553316373	176512463726	201540333007	210400561574	205511310715	200515662024	215740317860
0961 211426000000	204440000000	205645454275	222423310000	201602436560	210416000000	211756000000	2217636040000
1009 217404740000	213505000000	215755100000	213505000000	222515770000	201602436560	213505000000	222567000000
1057 201602436560	201602436560	207744000000	211710000000	205656106216	210535365003	213536312024	176651035214
1105 176407266332	573552225445	176512431604	201540171520	210400443617	205510401723	200515144215	215740375607
1153 211426000000	204440000000	205647075340	222606500000	201602436560	212447000000	212400400000	217764000000
1201 217554040000	216724600000	222472350000	214630600000	222423310000	201602436560	223414434000	222576640000
1249 201602436560	201602436560	212402400000	211642000000	205655402272	210535212363	213536747004	176650413416
1297 176406451614	5735551134520	176512377461	201540030231	2104003256643	205507472730	200514426406	215740453333
1345 211426000000	204440000000	205647516402	222610450000	201602436560	212462400000	212446400000	2205574045000
1393 217624540000	216733000000	216552400000	215757500000	222624230000	201602436560	222707050000	223445744000
1441 201602436560	201602436560	212403400000	212542400000	205654676351	210530563744	213537103765	176647718121
1489 176405635077	573550043572	176512345337	201537666743	210400207667	205506563736	200513710577	215740531851
1537 211426000000	204440000000	2056550137445	222521700000	201602436560	212453400000	212427400000	220514020000
1585 217644240000	217545640000	216441540000	215666100000	222730520000	201602436560	223643730000	223427230000
1633 201602436560	573546673534	176512310640	201537521327	210400062747	205505616474	200513142755	215740614351
1681 176404757265	204440000000	205650560507	223443010000	201602436560	211675000000	211526000000	220640320000
1729 211426000000	204440000000	205650560507	223443010000	201602436560	211675000000	211526000000	220640320000
1777 220436560000	217727700000	217745070000	216501700000	222630150000	201602436560	223605740000	223635370000
1825 201602436560	201602436560	211640000000	211543000000	205657303667	210534447732	213540640627	176646575754
1873 17640377257	573545374354	176512247211	201537343437	20777640236	205504554512	200512315111	215740711142
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<u>WORD #</u>	<u>DESCRIPTION</u>
28	L
29	σ_b
30	λ
31	$X = \sqrt{1 - B_o/B}$
32	R

Each logical record of the merged tapes contains 32 words. There are 30 logical records per physical record. The three final merged tapes are 800 BPI.

Maury Materazzi - May 5, 1970