

Data Set Catalog # 435

Radiometer
63-024A-02A

"A"

17 tapes

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

TIROS-7

FINAL METEOROLOGICAL RADIATION TAPES

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This data set has been restored. There were originally 689 7-track, 556 BPI tapes written in Binary. There are 16 restored tapes. Several of the original tapes had read errors which are noted on the attached sheets following the cover pages. There were 15 tapes that could not be restored. The tapes were created on a 7094 computer. The DR tapes are on 2480 cartridges and the DS tapes are 9-track, 6250 BPI. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

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DR#	DS#	DD#	FILES	TIME SPAN
DR02613	DS02613	D-01803	1-6	06/19/63 - 06/19/63
		D-01804	7-9	06/20/63 - 06/20/63
		D-01805	10-13	06/21/63 - 06/21/63
		D-01806	14-18	06/22/63 - 06/22/63
		D-01807	19-24	06/23/63 - 06/23/63
		D-01808	25-29	06/24/63 - 06/24/63
		D-01809	30-37	06/25/63 - 06/25/63
		D-05434	38-44	06/26/63 - 06/26/63
		D-01810	45-50	06/27/63 - 06/27/63
		D-01811	51-55	06/28/63 - 06/28/63
		D-01812	56-61	06/29/63 - 06/29/63
		D-01813	62-66	06/30/63 - 06/30/63
		D-01814	67-71	07/01/63 - 07/01/63
		D-01815	72-73	07/02/63 - 07/02/63
		D-01816	74-78	07/03/63 - 07/03/63
		D-01817	79-82	07/04/63 - 07/04/63
		D-01818	83-90	07/05/63 - 07/05/63
		D-01819	91-95	07/06/63 - 07/06/63
		D-01820	96-102	07/07/63 - 07/07/63
		D-01821	103-108	07/08/63 - 07/08/63
		D-01822	109-114	07/09/63 - 07/09/63
		D-01823	115-121	07/10/63 - 07/10/63
		D-05435	122-127	07/11/63 - 07/11/63
		D-05436	128-133	07/12/63 - 07/12/63
		D-05437	134-138	07/13/63 - 07/13/63
		D-05438	139-145	07/14/63 - 07/14/63
		D-05439	146-153	07/15/63 - 07/15/63
		D-05440	154-160	07/16/63 - 07/16/63
		D-01824	161-166	07/17/63 - 07/17/63
		D-01825	167-172	07/18/63 - 07/18/63
		D-01826	173-180	07/19/63 - 07/19/63
		D-01827	181-188	07/20/63 - 07/20/63
		D-01828	189-192	07/21/63 - 07/21/63
		D-01829	193-200	07/22/63 - 07/22/63
		D-01830	201-205	07/23/63 - 07/23/63
		D-01831	206-212	07/23/63 - 07/24/63
		D-01832	213-219	07/24/63 - 07/24/63
		D-01833	220-226	07/25/63 - 07/25/63

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DR#	DS#	D#	FILES	TIME SPAN
DR02619	DS02619	D-05441	1-8	07/26/63 - 07/27/63
		D-01834	9-15	07/27/63 - 07/27/63
		D-05442	16-20	07/28/63 - 07/29/63
		D-01835	21-23	07/29/63 - 07/29/63
		D-01836	24-28	07/30/63 - 07/30/63
		D-01837	29-33	07/31/63 - 07/31/63
		D-01838	34-37	08/01/63 - 08/01/63
		D-01839	38-41	08/02/63 - 08/02/63
		D-01840	42-44	08/03/63 - 08/03/63
		D-01841	45-50	08/04/63 - 08/04/63
		D-01842	51-53	08/05/63 - 08/05/63
		D-01843	54-58	08/06/63 - 08/06/63
		D-01844	59-64	08/07/63 - 08/07/63
		D-01845	65-69	08/08/63 - 08/08/63
		D-01846	70-73	08/09/63 - 08/09/63
		D-01847	74-78	08/10/63 - 08/10/63
		D-01848	79-85	08/11/63 - 08/11/63
		D-01849	86-92	08/12/63 - 08/12/63
		D-01850	93-94	08/13/63 - 08/13/63
		D-01851	95-100	08/14/63 - 08/14/63
		D-01852	101-104	08/15/63 - 08/15/63
		D-01741	105-108	08/16/63 - 08/16/63
		D-01742	109-111	08/17/63 - 08/17/63
		D-05443	112-116	08/18/63 - 08/19/63
		D-01743	117-122	08/19/63 - 08/19/63
		D-01744	123-126	08/20/63 - 08/20/63
		D-01745	127-132	08/21/63 - 08/21/63
		D-01746	133-140	08/22/63 - 08/22/63
		D-01747	141-146	08/23/63 - 08/23/63
		D-01748	147-153	08/24/63 - 08/24/63
		D-01749	154-159	08/25/63 - 08/25/63
		D-01750	160-166	08/26/63 - 08/26/63
		D-01751	167-170	08/27/63 - 08/27/63
		D-01752	171-175	08/28/63 - 08/28/63
		D-01753	176-181	08/29/63 - 08/29/63
		D-01754	182-185	08/30/63 - 08/30/63
		D-05444	186-190	08/31/63 - 08/31/63
		D-01755	191-195	09/01/63 - 09/01/63
		D-01756	196-200	09/02/63 - 09/02/63
		D-01757	201-206	09/03/63 - 09/03/63
		D-01758	207-212	09/04/63 - 09/04/63
		D-01759	213-219	09/05/63 - 09/05/63
		D-01760	220-223	09/06/63 - 09/06/63

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DR#	DS#	D#	FILES	TIME SPAN
DR02697	DS02697	D-01961	1-6	09/07/63 - 09/07/63
		D-01962	7-12	09/08/63 - 09/08/63
		D-01963	13-19	09/09/63 - 09/09/63
		D-01964	19-23	09/10/63 - 09/10/63
		D-01965	24-28	09/11/63 - 09/11/63
		D-01966	29-32	09/12/63 - 09/12/63
		D-01967	33-36	09/13/63 - 09/13/63
		D-05445	37-41	09/14/63 - 09/14/63
		D-01968	42-48	09/15/63 - 09/15/63
		D-01969	49-52	09/16/63 - 09/16/63
		D-01970	53-58	09/17/63 - 09/17/63
		D-01971	59-62	09/18/63 - 09/18/63
		D-01972	63-68	09/19/63 - 09/19/63
		D-01973	69-75	09/20/63 - 09/20/63
		D-01974	76-80	09/21/63 - 09/21/63
		D-01975	81-84	09/22/63 - 09/22/63
		D-05446	85-89	09/23/63 - 09/23/63
		D-01976	90-96	09/24/63 - 09/24/63
		D-01977	97-100	09/25/63 - 09/25/63
		D-05447	101-102	09/26/63 - 09/26/63
		D-01978	103-109	09/27/63 - 09/27/63
		D-01979	110-112	09/28/63 - 09/28/63
		D-01980	113-118	09/29/63 - 09/29/63
		D-01981	119-126	09/30/63 - 09/30/63
		D-01982	127-134	10/01/63 - 10/01/63
		D-05448	135-141	10/01/63 - 10/01/63
		D-01983	142-146	10/03/63 - 10/03/63
		D-01984	147-151	10/04/63 - 10/04/63
		D-01985	152-157	10/05/63 - 10/05/63
		D-01986	158-164	10/05/63 - 10/05/63
		D-01987	165-170	10/07/63 - 10/07/63
		D-01988	171-175	10/07/63 - 10/07/63
		D-01989	176-181	10/08/63 - 10/08/63

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DR#	DS#	D#	FILES	TIME SPAN
DR02787	DS02787	D-01990	1-6	10/09/63 - 11/13/63
		D-01991	7-11	10/10/63 - 10/10/63
		D-01992	12-17	10/11/63 - 10/11/63
		D-01993	18-23	10/12/63 - 10/12/63
		D-05449	24-31	10/14/63 - 10/15/63
		D-01994	32-33	10/14/63 - 10/14/63
		D-01995	34-39	10/15/63 - 10/15/63
		D-01996	40-43	10/16/63 - 10/16/63
		D-01997	44-49	10/17/63 - 10/17/63
		D-01998	50-56	10/18/63 - 10/18/63
		D-01999	57-61	10/19/63 - 10/19/63
		D-02000	62-68	10/20/63 - 10/20/63
		D-02038	69-73	10/22/63 - 10/22/63
		D-02037	74	10/22/63 - 10/22/63
		D-02039	75-81	10/23/63 - 10/23/63
		D-02040	82-86	10/24/63 - 10/24/63
		D-02041	87-93	10/25/63 - 10/25/63
		D-02042	94-100	10/26/63 - 10/26/63
		D-02043	101-107	10/27/63 - 10/27/63
		D-02044	108-114	10/28/63 - 10/28/63
		D-02045	115-121	10/29/63 - 10/29/63
		D-02046	122-128	10/30/63 - 10/30/63
		D-02047	129	11/01/63 - 11/01/63
		D-02048	130	11/02/63 - 11/02/63
		D-05450	131-137	11/02/63 - 11/03/63
		D-02049	138-144	11/03/63 - 11/03/63
		D-02050	145-151	11/04/63 - 11/04/63
		D-02051	152-157	11/06/63 - 11/06/63
		D-02052	158-164	11/07/63 - 11/07/63
		D-02053	165-169	11/08/63 - 11/08/63
		D-02054	170-173	11/09/63 - 11/09/63
		D-02055	174-176	11/10/63 - 11/10/63
		D-02056	177-179	11/11/63 - 11/11/63
		D-02057	180-182	11/12/63 - 11/12/63
		D-02058	183-186	11/13/63 - 11/13/63

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DR#	DS#	DD#	FILES	TIME SPAN
DR02845	DS02845	D-02059	1-5	11/14/63 - 11/14/63
		D-02060	6-9	11/15/63 - 11/15/63
		D-02061	10-13	11/16/63 - 11/16/63
		D-02062	14-16	11/17/63 - 11/17/63
		D-02063	17-20	11/18/63 - 11/18/63
		D-02064	21-28	11/19/63 - 11/19/63
		D-02065	29-32	11/20/63 - 11/20/63
		D-02066	33-39	11/21/63 - 11/21/63
		D-02067	40-46	11/22/63 - 11/22/63
		D-02068	47-53	11/23/63 - 11/23/63
		D-02069	54-57	11/24/63 - 11/24/63
		D-02070	58-59	11/25/63 - 11/25/63
		D-02071	60-66	11/26/63 - 11/26/63
		D-02072	67-68	11/27/63 - 11/27/63
		D-02073	69-70	12/01/63 - 12/01/63
		D-02074	71-74	12/02/63 - 12/02/63
		D-02075	75-78	12/03/63 - 12/03/63
		D-02076	79-82	12/04/63 - 12/04/63
		D-02077	83-86	12/05/63 - 12/05/63
		D-02078	87-90	12/06/63 - 12/06/63
		D-02079	91-93	12/07/63 - 12/07/63
		D-05451	94-97	12/08/63 - 12/08/63
		D-02080	98-100	12/09/63 - 12/09/63
		D-02081	101-105	12/10/63 - 12/10/63
		D-02082	106-111	12/11/63 - 12/11/63
		D-02083	112-116	12/12/63 - 12/12/63
		D-02084	117-122	12/13/63 - 12/13/63
		D-02085	123-125	12/14/63 - 12/14/63
		D-02086	126-129	12/15/63 - 12/15/63
		D-02087	130-135	12/16/63 - 12/16/63
		D-02088	136-139	12/17/63 - 12/17/63
		D-02089	140-143	12/18/63 - 12/18/63
		D-02090	144-148	12/18/63 - 12/18/63
		D-05452	149-154	12/21/63 - 12/22/63
		D-02091	155-158	12/22/63 - 12/22/63
		D-02092	159-161	12/23/63 - 12/23/63
		D-02094	162-166	12/26/63 - 12/26/63
		D-05453	167-169	12/26/63 - 12/26/63
		D-02095	170-174	12/27/63 - 12/27/63
		D-02096	175-179	12/28/63 - 12/28/63

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DR#	DS#	D#	FILES	TIME SPAN
DR02B62	DS02B62	D-02136	1-3	12/29/63 - 12/29/63
		D-02137	4-7	12/30/63 - 12/30/63
		D-02138	8-9	12/31/63 - 12/31/63
		D-02140	10-11	01/02/64 - 01/02/64
		D-02139	12-14	01/02/64 - 01/02/64
		D-02141	15-19	01/03/64 - 01/03/64
		D-02142	20-24	01/05/64 - 01/05/64
		D-02143	25-30	01/06/64 - 01/06/64
		D-02144	31-35	01/07/64 - 01/07/64
		D-02145	36-41	01/08/64 - 01/08/64
		D-02146	42-47	01/09/64 - 01/09/64
		D-02147	48-51	01/10/64 - 01/10/64
		D-05454	52-56	01/10/64 - 01/11/64
		D-02148	57-60	01/12/64 - 01/12/64
		D-02149	61-65	01/13/64 - 01/13/64
		D-02150	66-71	01/14/64 - 01/14/64
		D-02151	72-75	01/15/64 - 01/15/64
		D-02152	76-78	01/15/64 - 01/15/64
		D-02153	79-82	01/17/64 - 01/17/64
		D-02154	83-88	01/18/64 - 01/18/64
		D-02155	89-93	01/19/64 - 01/19/64
		D-02157	94-98	01/20/64 - 01/20/64
		D-02156	99-102	01/20/64 - 01/20/64
		D-02158	103-111	01/22/64 - 01/22/64
		D-02159	112-118	01/23/64 - 01/23/64
		D-02160	119-124	01/23/64 - 01/23/64
		D-02161	125-131	01/24/64 - 01/24/64
		D-05455	132-139	01/25/64 - 01/25/64
		D-05456	140-146	01/26/64 - 01/26/64
		D-02162	147-153	01/27/64 - 01/27/64
		D-02163	154-160	01/28/64 - 01/28/64
		D-02164	161-163	01/29/64 - 01/29/64

DR#	DS#	D#	FILES	TIME SPAN
DR02920	DS02920	D-05457	1-7	01/31/64 - 01/31/64
		D-02165	8-12	02/01/64 - 02/01/64
		D-05458	13-19	02/02/64 - 02/02/64
		D-02169	20-25	02/03/64 - 02/03/64
		D-02170	26-32	02/04/64 - 02/04/64
		D-02171	33-38	02/05/64 - 02/05/64
		D-02172	39-45	02/06/64 - 02/06/64
		D-02173	46-52	02/07/64 - 02/07/64
		D-02174	53-59	02/08/64 - 02/08/64
		D-02175	60-63	02/09/64 - 02/09/64
		D-02176	64-68	02/10/64 - 02/10/64
		D-02177	69-72	02/11/64 - 02/11/64
		D-02178	73-77	02/12/64 - 02/12/64
		D-02179	78-85	02/13/64 - 02/13/64
		D-02180	86-94	02/14/64 - 02/14/64
		D-02181	95-102	02/15/64 - 02/15/64
		D-02182	103-111	02/16/64 - 02/16/64
		D-05459	112-120	02/17/64 - 02/17/64
		D-02183	121-126	02/18/64 - 02/18/64
		D-02184	127-131	02/19/64 - 02/19/64
		D-02185	132-134	02/21/64 - 02/21/64
		D-02186	135-138	02/22/64 - 02/22/64
		D-05460	139-143	02/23/64 - 02/23/64
		D-02187	144-149	02/24/64 - 02/24/64
		D-02188	150-153	02/25/64 - 02/25/64
		D-02189	154-159	02/26/64 - 02/26/64
		D-05461	160-166	02/28/64 - 02/28/64
		D-02192	167-168	02/29/64 - 02/29/64
		D-02193	169-171	03/01/64 - 03/01/64
		D-02194	172-173	03/02/64 - 03/02/64
		D-02197	174-178	03/05/64 - 03/05/64
		D-05462	179-184	03/07/64 - 03/08/64
		D-05463	185-189	03/14/64 - 03/15/64
DR02921	DS02921	D-05464	1-7	03/15/64 - 03/16/64
		D-01731	8-12	03/19/64 - 03/19/64
		D-01732	13-19	03/20/64 - 03/20/64
		D-01733	20-26	03/21/64 - 03/21/64
		D-01734	27-33	03/22/64 - 03/22/64
		D-01735	34-40	03/23/64 - 03/23/64
		D-01736	41-46	03/24/64 - 03/24/64
		D-01737	47-51	03/25/64 - 03/25/64
		D-01738	52-58	03/26/64 - 03/26/64
		D-01739	59-65	03/27/64 - 03/27/64
		D-01740	66-70	03/28/64 - 03/28/64
		D-05465	71-76	03/29/64 - 03/30/64
		D-01741	77-83	03/30/64 - 03/30/64
		D-01742	84-89	03/31/64 - 03/31/64
		D-01743	90-96	04/01/64 - 04/01/64
		D-01744	97-104	04/02/64 - 04/02/64
		D-01745	105-110	04/03/64 - 04/03/64
		D-01746	111-116	04/04/64 - 04/04/64
		D-05466	117-122	04/04/64 - 04/05/64
		D-01747	123-129	04/05/64 - 04/05/64
		D-01748	130-136	04/06/64 - 04/06/64
		D-02363	137-143	04/07/64 - 04/07/64
		D-01749	144-149	04/07/64 - 04/07/64

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DR#	DS#	D#	FILES	TIME SPAN
DR02980	DS02980	D-02364	1-6	04/08/64 - 04/08/64
		D-01750	7-9	04/08/64 - 04/08/64
		D-01751	10-15	04/09/64 - 04/09/64
		D-01752	16-20	04/10/64 - 04/10/64
		D-02365	21-24	04/10/64 - 04/10/64
		D-05467	25-30	04/11/64 - 04/11/64
		D-02366	31-36	04/11/64 - 04/11/64
		D-02367	37-40	04/12/64 - 04/12/64
		D-01753	41-46	04/12/64 - 04/12/64
		D-02368	47-51	04/13/64 - 04/13/64
		D-01754	52-56	04/13/64 - 04/13/64
		D-02369	57-62	04/14/64 - 04/14/64
		D-01755	63-68	04/14/64 - 04/14/64
		D-01756	69-72	04/15/64 - 04/15/64
		D-01757	73-78	04/16/64 - 04/16/64
		D-02371	79-84	04/17/64 - 04/17/64
		D-01758	85-89	04/17/64 - 04/17/64
		D-02372	90-96	04/18/64 - 04/18/64
		D-05468	97-101	04/18/64 - 04/18/64
		D-01759	102-105	04/19/64 - 04/19/64
		D-01760	106-109	04/20/64 - 04/20/64
		D-01761	110-115	04/21/64 - 04/21/64
		D-02373	116-118	04/22/64 - 04/22/64
		D-01762	119-121	04/23/64 - 04/23/64
		D-02374	122-124	04/24/64 - 04/24/64
		D-01763	125-127	04/25/64 - 04/25/64
		D-05469	128-129	04/26/64 - 04/26/64
		D-02375	130-132	04/27/64 - 04/27/64
		D-01764	133-135	04/28/64 - 04/28/64
		D-02376	136-137	04/29/64 - 04/29/64
		D-01765	138-140	04/30/64 - 04/30/64
		D-02377	141-142	05/01/64 - 05/01/64
		D-02378	143-143	05/02/64 - 05/02/64
		D-02379	144-145	05/03/64 - 05/03/64
		D-02380	146-146	05/04/64 - 05/04/64
		D-02381	147-149	05/05/64 - 05/05/64
		D-02382	150-153	05/06/64 - 05/06/64
		D-02383	154-156	05/07/64 - 05/07/64
		D-02384	157-160	05/08/64 - 05/08/64
		D-02385	161-162	05/09/64 - 05/09/64
		D-02386	163-163	05/10/64 - 05/10/64
		D-02387	164-166	05/11/64 - 05/11/64

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DR#	DS#	DD#	FILES	TIME SPAN
DR03041	DS03041	D-05470	1-5	05/13/64 - 05/13/64
		D-02388	6-10	05/14/64 - 05/14/64
		D-05471	11-18	05/15/64 - 05/15/64
		D-02389	19-22	05/15/64 - 05/15/64
		D-02390	23-28	05/17/64 - 05/17/64
		D-05472	29-34	05/18/64 - 05/18/64
		D-02391	35-40	05/19/64 - 05/19/64
		D-02392	41-46	05/20/64 - 05/20/64
		D-02521	47-53	05/21/64 - 05/21/64
		D-02522	54-58	05/22/64 - 05/22/64
		D-02523	59-62	05/23/64 - 05/23/64
		D-02524	63-65	05/24/64 - 05/24/64
		D-02525	66-69	05/25/64 - 05/25/64
		D-02526	70-73	05/27/64 - 05/27/64
		D-02527	74-77	05/28/64 - 05/28/64
		D-02528	78-81	05/29/64 - 05/29/64
		D-02529	82-85	05/30/64 - 05/30/64
		D-02530	86-89	05/31/64 - 05/31/64
		D-02531	90-93	06/01/64 - 06/01/64
		D-02532	94-97	06/02/64 - 06/02/64
		D-02533	98-101	06/03/64 - 06/03/64
		D-05473	102-105	06/04/64 - 06/04/64
		D-02534	106-109	06/04/64 - 06/04/64
		D-02535	110-113	06/06/64 - 06/06/64
		D-02536	114-117	06/07/64 - 06/07/64
		D-02537	118-121	06/08/64 - 06/08/64
		D-02538	122-125	06/09/64 - 06/09/64
		D-02539	126-129	06/10/64 - 06/10/64

DR#	DS#	D#	FILES	TIME SPAN
DR03124	DS03124	D-02540	1-4	06/11/64 - 06/11/64
		D-02541	5-8	06/12/64 - 06/12/64
		D-02543	9-10	06/13/64 - 06/13/64
		D-02542	11-12	06/13/64 - 06/13/64
		D-02544	13-16	06/15/64 - 06/15/64
		D-02545	17-19	06/16/64 - 06/16/64
		D-02546	20-23	06/17/64 - 06/17/64
		D-02547	24-25	06/18/64 - 06/18/64
		D-05474	26-30	06/18/64 - 06/19/64
		D-02548	31-32	06/20/64 - 06/20/64
		D-02549	33-35	06/21/64 - 06/21/64
		D-02562	36	06/24/64 - 06/24/64
		D-02550	37	06/24/64 - 06/24/64
		D-02563	38-39	06/26/64 - 06/26/64
		D-02564	40	06/26/64 - 06/26/64
		D-02565	41-43	06/27/64 - 06/27/64
		D-02566	44-46	06/28/64 - 06/28/64
		D-02567	47-48	06/29/64 - 06/29/64
		D-02568	49-51	06/30/64 - 06/30/64
		D-05475	52-54	07/01/64 - 07/01/64
		D-02569	55-56	07/02/64 - 07/02/64
		D-05476	57-58	07/03/64 - 07/03/64
		D-02570	59-60	07/04/64 - 07/04/64
		D-05477	61-63	07/05/64 - 07/05/64
		D-02571	64-66	07/06/64 - 07/06/64
		D-02572	67-69	07/07/64 - 07/07/64
		D-02573	70-71	07/08/64 - 07/08/64
		D-02574	72-75	07/09/64 - 07/09/64
		D-02575	76-79	07/10/64 - 07/10/64
		D-02576	80-81	07/11/64 - 07/11/64
		D-02577	82-83	07/12/64 - 07/12/64
		D-02578	84-85	07/13/64 - 07/13/64
		D-02579	86-87	07/14/64 - 07/14/64
		D-02580	88-89	07/15/64 - 07/15/64
		D-02581	90-91	07/15/64 - 07/15/64
		D-02582	92-93	07/17/64 - 07/17/64
		D-02583	94-95	07/18/64 - 07/18/64
		D-02584	96-97	07/19/64 - 07/19/64
		D-02585	98-99	07/20/64 - 07/20/64
		D-02586	100-101	07/21/64 - 07/21/64
		D-02587	102-103	07/22/64 - 07/22/64
		D-02588	104-105	07/23/64 - 07/23/64
		D-02589	106	07/24/64 - 07/24/64
		D-02590	107-108	07/25/64 - 07/25/64
		D-02591	109-110	07/26/64 - 07/26/64
		D-02594	111-114	07/28/64 - 07/28/64
		D-02595	115-118	07/29/64 - 07/29/64
		D-02596	119-123	07/30/64 - 07/30/64
		D-05478	124-125	07/31/64 - 07/31/64
		D-02597	126-127	08/01/64 - 08/01/64
		D-02598	128-131	08/02/64 - 08/02/64
		D-02599	132-134	08/03/64 - 08/03/64
		D-02600	135-138	08/04/64 - 08/04/64
		D-02601	139-141	08/05/64 - 08/05/64
		D-02602	142-144	08/06/64 - 08/06/64
		D-02604	145-146	08/07/64 - 08/07/64
		D-02603	147-149	08/07/64 - 08/07/64

DR#	DS#	D#	FILES	TIME SPAN
DR03124 CON'T.	DS03124	D-02605	150-151	08/09/64 - 08/09/64
		D-05479	152-153	08/11/64 - 08/12/64
		D-02607	154-155	08/13/64 - 08/13/64
		D-02608	156-157	08/14/64 - 08/14/64
		D-02609	158-160	08/15/64 - 08/15/64
		D-02610	161-164	08/16/64 - 08/16/64
		D-02612	165-167	08/17/64 - 08/17/64
		D-02611	168-169	08/17/64 - 08/17/64
		D-02613	170-172	08/18/64 - 08/18/64
		D-02614	173-174	08/20/64 - 08/20/64
		D-02615	175-177	08/21/64 - 08/21/64
		D-02616	178-179	08/22/64 - 08/22/64
		D-02617	180-181	08/23/64 - 08/23/64
		D-02618	182-184	08/24/64 - 08/24/64
		D-05480	185-188	08/25/64 - 08/26/64
DR03174	DS03174	D-02619	1-3	08/25/64 - 08/25/64
		D-02620	4-6	08/26/64 - 08/26/64
		D-02621	7-10	08/28/64 - 08/28/64
		D-02623	11-12	08/29/64 - 08/29/64
		D-02622	13-16	08/29/64 - 08/29/64
		D-02625	17-18	08/31/64 - 08/31/64
		D-02624	19-21	08/31/64 - 08/31/64
		D-02626	22-23	09/01/64 - 09/01/64
		D-02627	24-27	09/02/64 - 09/02/64
		D-02628	28-30	09/04/64 - 09/04/64
		D-02629	31-34	09/05/64 - 09/05/64
		D-02630	35-36	09/05/64 - 09/05/64
		D-02631	37-38	09/06/64 - 09/06/64
		D-02632	39-40	09/08/64 - 09/08/64
		D-02633	41-42	09/08/64 - 09/08/64
		D-02634	43-44	09/09/64 - 09/09/64
		D-02635	45-47	09/10/64 - 09/10/64
		D-02637	48-50	09/12/64 - 09/12/64
		D-02638	51-52	09/13/64 - 09/13/64
		D-02640	53-54	09/15/64 - 09/15/64
		D-02641	55-57	09/16/64 - 09/16/64
		D-02642	58-60	09/17/64 - 09/17/64
		D-05481	61-63	09/18/64 - 09/18/64
		D-02643	64-66	09/19/64 - 09/19/64
		D-02644	67-68	09/20/64 - 09/20/64
		D-02645	69-70	09/21/64 - 09/21/64
		D-02646	71	09/26/64 - 09/26/64
		D-02647	72	10/02/64 - 10/02/64
		D-06728	73-74	10/03/64 - 10/03/64
		D-02648	75	10/05/64 - 10/05/64
		D-02649	76-79	10/06/64 - 10/06/64
		D-02650	80-81	10/07/64 - 10/07/64
		D-02651	82-83	10/08/64 - 10/08/64
		D-06712	84-85	10/12/64 - 10/12/64
		D-02666	86	10/13/64 - 10/13/64
		D-06713	87-89	10/14/64 - 10/14/64
		D-02667	90-94	10/15/64 - 10/15/64
		D-02668	95-99	10/16/64 - 10/16/64
		D-06714	100-102	10/17/64 - 10/17/64
		D-02671	103-105	10/20/64 - 10/20/64

DR#	DS#	D#	FILES	TIMESPAN
DR03174 CON'T.	DS03174	D-02672	106-107	10/21/64 - 10/21/64
		D-02673	108	10/22/64 - 10/22/64
		D-02674	109-113	10/23/64 - 10/23/64
		D-02675	114-117	10/24/64 - 10/24/64
		D-02677	118-121	10/26/64 - 10/26/64
		D-02678	122-125	10/27/64 - 10/27/64
		D-02679	126-128	10/28/64 - 10/28/64
		D-02681	129-133	10/30/64 - 10/30/64
		D-02682	134-136	10/31/64 - 10/31/64
DR03289	DS03289	D-02684	1-5	11/02/64 - 11/02/64
		D-02685	6-9	11/04/64 - 11/04/64
		D-02686	10-11	11/05/64 - 11/05/64
		D-02687	12-13	11/06/64 - 11/06/64
		D-02688	14-16	11/07/64 - 11/07/64
		D-02689	17-20	11/08/64 - 11/08/64
		D-02690	21-23	11/09/64 - 11/09/64
		D-02691	24-26	11/10/64 - 11/10/64
		D-02692	27-29	11/11/64 - 11/11/64
		D-02693	30-34	11/12/64 - 11/12/64
		D-02694	35-37	11/13/64 - 11/13/64
		D-02695	38-40	11/14/64 - 11/14/64
		D-02698	41-43	11/15/64 - 11/15/64
		D-02699	44-46	11/16/64 - 11/16/64
		D-02700	47-49	11/17/64 - 11/17/64
		D-02701	50-51	11/19/64 - 11/19/64
		D-02702	52-56	11/20/64 - 11/20/64
		D-02703	57-62	11/21/64 - 11/21/64
		D-02704	63-68	11/22/64 - 11/22/64
		D-02705	69-75	11/23/64 - 11/23/64
		D-02706	76-80	11/23/64 - 11/23/64
		D-02707	81-87	11/25/64 - 11/25/64
		D-02708	88-93	11/26/64 - 11/26/64
		D-06716	94-100	11/26/64 - 11/26/64
		D-02709	101-103	11/27/64 - 11/27/64
		D-02710	104-106	11/28/64 - 11/28/64
		D-02711	107-110	11/29/64 - 11/29/64
		D-02712	111-113	11/30/64 - 11/30/64
		D-02713	114-118	12/01/64 - 12/01/64
		D-02714	119-124	12/02/64 - 12/02/64
		D-02715	125-127	12/03/64 - 12/03/64
		D-02716	128-130	12/04/64 - 12/04/64
		D-02717	131-133	12/05/64 - 12/05/64
		D-02718	134-137	12/06/64 - 12/06/64
		D-02719	138-141	12/07/64 - 12/07/64
		D-02720	142-144	12/08/64 - 12/08/64
		D-02721	145	12/09/64 - 12/09/64
		D-02722	146-147	12/10/64 - 12/10/64
		D-02723	148-149	12/11/64 - 12/11/64
		D-02724	150-151	12/12/64 - 12/12/64
		D-02725	152-153	12/13/64 - 12/13/64
		D-02726	154-156	12/14/64 - 12/14/64
		D-02727	157-158	12/15/64 - 12/15/64
		D-06717	159-164	12/16/64 - 12/16/64
		D-02793	165-171	12/17/64 - 12/17/64
		D-02794	172-173	12/18/64 - 12/18/64
		D-02795	174-176	12/19/64 - 12/19/64
		D-02796	177-180	12/20/64 - 12/20/64
		D-06718	181-185	12/21/64 - 12/21/64

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DR#	DS#	D#	FILES	TIME SPAN
DR03395	DS03395	D-02798	1-5	12/23/64 - 12/23/64
		D-02799	6-9	12/24/64 - 12/24/64
		D-02800	10-11	12/26/64 - 12/26/64
		D-02801	12-15	12/27/64 - 12/27/64
		D-02802	16-17	12/28/64 - 12/28/64
		D-02803	18-20	12/29/64 - 12/29/64
		D-02804	21-23	12/30/64 - 12/30/64
		D-02805	24-26	12/31/64 - 12/31/64
		D-02806	27	01/03/65 - 01/03/65
		D-02807	28	01/03/65 - 01/03/65
		D-06719	29-30	01/04/65 - 01/04/65
		D-02808	31-32	01/07/65 - 01/07/65
		D-02809	33	01/07/65 - 01/07/65
		D-02810	34-37	01/08/65 - 01/08/65
		D-02811	38-40	01/09/65 - 01/09/65
		D-02813	41-42	01/10/65 - 01/10/65
		D-02812	43-44	01/10/65 - 01/10/65
		D-02814	45-49	01/12/65 - 01/12/65
		D-02815	50	01/13/65 - 01/13/65
		D-02816	51-53	01/14/65 - 01/14/65
		D-02817	54-56	01/15/65 - 01/15/65
		D-04729	57-59	01/16/65 - 01/16/65
		D-02818	60-62	01/17/65 - 01/17/65
		D-02819	63-66	01/18/65 - 01/18/65
		D-02820	67-69	01/19/65 - 01/19/65
		D-02821	70-71	01/20/65 - 01/20/65
		D-02826	72	01/21/65 - 01/21/65
		D-02822	73-76	01/25/65 - 01/25/65
		D-02824	77-78	01/25/65 - 01/25/65
		D-02823	79-80	01/25/65 - 01/25/65
		D-02825	81	01/29/65 - 01/29/65
		D-02827	82-87	02/02/65 - 02/02/65
		D-02828	88-92	02/04/65 - 02/04/65
		D-02829	93-97	02/05/65 - 02/05/65
		D-06720	98-101	02/06/65 - 02/06/65
		D-02830	102-108	02/06/65 - 02/06/65
		D-02831	109-113	02/08/65 - 02/08/65
		D-02832	114-118	02/08/65 - 02/08/65
		D-02833	119-121	02/09/65 - 02/09/65
		D-02834	122-124	02/10/65 - 02/10/65
		D-02835	125-128	02/11/65 - 02/11/65
		D-02836	129-131	02/12/65 - 02/12/65
		D-02837	132-137	02/13/65 - 02/13/65
		D-02838	138-141	02/14/65 - 02/14/65
		D-02839	142-145	02/15/65 - 02/15/65
		D-02840	146	02/23/65 - 02/23/65
		D-02841	147-148	02/24/65 - 02/24/65
		D-02842	149	02/25/65 - 02/25/65
		D-02843	150-152	02/26/65 - 02/26/65
		D-02844	153-155	02/27/65 - 02/27/65
		D-02845	156-157	02/28/65 - 02/28/65
		D-02846	158-160	03/01/65 - 03/01/65
		D-02847	161	03/02/65 - 03/02/65
		D-02848	162-164	03/03/65 - 03/03/65
		D-02849	165-167	03/04/65 - 03/04/65
		D-02850	168-170	03/05/65 - 03/05/65

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DR#	DS#	D#	FILES	TIME SPAN
DR03469	DS03469	D-02851	1-4	03/06/65 - 03/06/65
		D-02852	5-10	03/07/65 - 03/07/65
		D-02857	11-14	03/08/65 - 03/08/65
		D-02858	15-18	03/09/65 - 03/09/65
		D-02859	19-21	03/10/65 - 03/10/65
		D-02860	22-26	03/11/65 - 03/11/65
		D-02861	27-30	03/12/65 - 03/12/65
		D-02862	31-35	03/13/65 - 03/13/65
		D-02863	36-38	03/14/65 - 03/14/65
		D-01766	39-42	03/15/65 - 03/15/65
		D-01768	43-48	03/16/65 - 03/16/65
		D-01767	49-53	03/16/65 - 03/16/65
		D-01769	54-58	03/18/65 - 03/18/65
		D-01770	59-63	03/18/65 - 03/18/65
		D-01771	64-68	03/19/65 - 03/19/65
		D-06721	69-71	03/21/65 - 03/21/65
		D-01772	72-75	03/22/65 - 03/22/65
		D-01773	76-80	03/23/65 - 03/23/65
		D-01775	81-82	03/24/65 - 03/24/65
		D-01774	83-89	03/24/65 - 03/24/65
		D-01776	90-94	03/26/65 - 03/26/65
		D-01777	95	03/28/65 - 03/28/65
		D-01778	96	03/30/65 - 03/30/65
		D-02864	97-101	03/31/65 - 03/31/65
		D-01779	102-108	04/01/65 - 04/01/65
		D-01780	109-112	04/03/65 - 04/03/65
		D-01781	113-119	04/04/65 - 04/04/65
		D-01782	120-126	04/05/65 - 04/05/65
		D-01783	127-130	04/06/65 - 04/06/65
		D-01784	131-136	04/07/65 - 04/07/65
		D-01785	137-141	04/08/65 - 04/08/65
		D-02865	142-143	04/09/65 - 04/09/65
		D-02866	144-147	04/10/65 - 04/10/65
		D-01786	148-151	04/11/65 - 04/11/65
		D-01787	152-154	04/12/65 - 04/12/65
		D-01788	155-160	04/13/65 - 04/13/65
		D-06722	161-162	04/14/65 - 04/15/65
		D-02867	163-164	04/14/65 - 04/14/65
		D-06723	165-167	04/16/65 - 04/16/65
		D-06724	168-170	04/18/65 - 04/18/65

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DR#	DS#	D#	FILES	TIME SPAN
DR03470	DS03470	D-01789	1-4	04/18/65 - 04/18/65
		D-01791	5-7	04/20/65 - 04/20/65
		D-01790	8-11	04/20/65 - 04/20/65
		D-01792	12-14	04/21/65 - 04/21/65
		D-01793	15-18	04/23/65 - 04/23/65
		D-02868	19-21	04/23/65 - 04/23/65
		D-02869	22-24	04/24/65 - 04/24/65
		D-02870	25-28	04/25/65 - 04/25/65
		D-02871	29-30	04/26/65 - 04/26/65
		D-02872	31-33	04/27/65 - 04/27/65
		D-02873	34	04/28/65 - 04/28/65
		D-02874	35	04/29/65 - 04/29/65
		D-02875	36-38	04/30/65 - 04/30/65
		D-02876	39-40	05/01/65 - 05/01/65
		D-02878	41-42	05/02/65 - 05/02/65
		D-02877	43-44	05/02/65 - 05/02/65
		D-02879	45-46	05/05/65 - 05/05/65
		D-02880	47-48	05/06/65 - 05/06/65
		D-02881	49-51	05/07/65 - 05/07/65
		D-02882	52-53	05/08/65 - 05/08/65
		D-02883	54	05/09/65 - 05/09/65
		D-02884	55-56	05/10/65 - 05/10/65
		D-02885	57	05/11/65 - 05/11/65
		D-02886	58	05/12/65 - 05/12/65
		D-04699	59	05/13/65 - 05/13/65
		D-04700	60-61	05/14/65 - 05/14/65
		D-06725	62	05/18/65 - 05/18/65
		D-04701	63	05/20/65 - 05/20/65
		D-04702	64	05/23/65 - 05/23/65
		D-04703	65	05/24/65 - 05/24/65
		D-04704	66-67	05/25/65 - 05/25/65
		D-04705	68-72	05/26/65 - 05/26/65
		D-04706	73	05/27/65 - 05/27/65
		D-04707	74	05/28/65 - 05/28/65
		D-04708	75-77	05/29/65 - 05/29/65
		D-04709	78-79	05/30/65 - 05/30/65
		D-04710	80-82	05/31/65 - 05/31/65
		D-04711	83-86	06/01/65 - 06/01/65
		D-06726	87-89	06/02/65 - 06/02/65
		D-04712	90-91	06/03/65 - 06/03/65
		D-04713	92-94	06/03/65 - 06/04/65
		D-04714	95-96	06/04/65 - 06/05/65
		D-04715	97-98	06/06/65 - 06/06/65
		D-04717	99-101	06/07/65 - 06/08/65
		D-04716	102-104	06/07/65 - 06/07/65
		D-04718	105-108	06/08/65 - 06/09/65
		D-06727	109	06/10/65 - 06/10/65
		D-04719	110-111	06/10/65 - 06/10/65
		D-04720	112-115	06/11/65 - 06/12/65
		D-04721	116-118	06/12/65 - 06/13/65
		D-04722	119-120	06/14/65 - 06/14/65
		D-04723	121-123	06/14/65 - 06/15/65
		D-04724	124-125	06/15/65 - 06/16/65
		D-04726	126-129	06/17/65 - 06/18/65
		D-04725	130	06/17/65 - 06/17/65
		D-04727	131-133	06/18/65 - 06/19/65
		D-04728	134	06/19/65 - 06/19/65

TIROS VII

RADIOMETER 'A'
63-024A-02A

This data set consists of 17 binary, 556 BPI, 7-track tapes, created on an IBM 7094 computer. The data on the tapes is orbit ordered with one orbit of data per file. The tapes contain anywhere from one to seven orbits.

Each file contains a header record with the start time and orbit number of that file.

TIROS VII
RADIOMETER 'A'
63-024A-02A

<u>D-NUMBERS</u>	<u>C-NUMBERS</u>	<u>START</u>	<u>STOP</u>
6728	5002	10/03/64	10/03/64
6712	4986	10/12/64	10/12/64
6713	4987	10/14/64	10/14/64
6714	4988	10/17/64	10/17/64
6715	4989	11/02/64	11/03/64
6716	4990	11/26/64	11/26/64
6717	4991	12/16/64	12/16/64
6718	4992	12/21/64	12/21/64
6719	4993	1/04/65	1/05/65
6720	4994	2/06/65	2/06/65
6721	4995	3/21/65	3/21/65
6722	4996	4/14/65	4/15/65
6723	4997	4/16/65	4/16/65
6724	4998	4/18/65	4/18/65
6725	4999	5/18/65	5/18/65
6726	5000	6/02/65	6/02/65
6727	5001	6/10/65	6/10/65

results. If T_k and T_c are within $\pm 7^\circ\text{C}$ of the relationship,

$$T_F = T_c + 10^\circ\text{C}$$

and if the T_c 's, deduced from the component temperature, T_r , are correct, only a negligible error in T_{nn} or $\bar{W}$ is introduced. From F_{sc} and T_c , which are measured independently, the measured value of T_{nn} or $\bar{W}$ can be determined from the calibration curves.

The calibration for each side of each channel is carried out for seven parametric values of T_r ; hence, it is necessary to interpolate between two transfer functions bracketing an actual value of T_r to arrive at the calibration for a given orbital period.

IV. RADIATION DATA PROCESSING

4.1 Information Flow in the Satellite^{6,15}

The radiation experiment instrumentation is independent of the television camera system except for power, command, certain timing signals, and antennas (Figure 60). The output of the five medium resolution radiometer channels is fed into five subcarrier oscillators. These voltage controlled oscillators are of the phase shift type with symmetric amplifiers in the feedback loops, the gains of which are controlled by the balanced input signal. A sixth channel is provided for telemetry of the University of Wisconsin's heat balance data; data from an electron temperature measuring probe; the environmental temperatures; and the instrumentation canister pressure. In channel 6, a mechanical commutator switches resistive sensors in one branch of a phase shift oscillator. These sensors stopped switching after orbit 1276 in TIROS VII and remained set on the electron temperature probe sensor. Thereafter, the radiometer housing temperature (one of the environmental temperatures) was derived from the TV clock No. 2 temperature of the satellite, available upon interrogation. The seventh channel, a tuning fork oscillator, serves as a reference frequency and timing signal. The outputs from each of the seven channels are summed

and the resultant composite signal equalized in a record amplifier which drives the head of a miniature tape recorder. An oscillator provides an alternating current bias to the record head and the signal required for the erase head. For convenience, erase of the magnetic tape occurs immediately before recording. The record spectrum extends from 100 cps to 550 cps. The tape recorder is an endless-loop, two speed design running at 0.4 ips record and 12 ips playback speed. The endless loop records continuously, day and night, except during a playback sequence. A hysteresis synchronous motor generates torque in the record mode through a mylar belt speed reduction. The fourth subharmonic of the tuning fork oscillator, generated by flip flops, drives a cam shaft which activates a bank of microswitches connected to the five-commutated subchannels of the time-sharing sixth channel. Each is sampled for six seconds and the fifth includes a group of seven to be subcommutated.

Playback is initiated upon command by applying power to a direct current motor. A magnetized flywheel generates a frequency proportional to the motor speed. A frequency discriminator feeds the error signal to the stabilized power supply of the motor and closes the servo loop. Playback speed is essentially constant from 0° to 50°C . A low flutter and wow of 2.5% peak-to-peak, measured without frequency limitations, is achieved by using precision bearings and ground-in-place shafts having tolerances of better than 50 parts per million. A command pulse activates the playback motor, the playback amplifier, and the 238 mc FM telemetry transmitter feeding the duplexer and antenna.

The playback time, approximately 200 seconds, is controlled by a switch which operates only during the playback mode. This switch rotates one revolution in 200 seconds, activating a microswitch which returns the system to the record mode and, thus, terminates the playback mode with one complete revolution of the magnetic tape. However, the playback mode experienced a malfunction at low temperatures in TIROS

VII from Orbit 573. Due to an apparent frictional drag on the shaft by the clutch in the mechanical linkage from the record motor to the reduction gears, the switch was rotated during the record mode. Consequently, at the start of the playback mode, the switch was in such a position that less than one complete revolution of the tape was required before the switch activated the return to record mode. This necessitated another command signal to be sent to initiate a second and complete playback of the tape. Some data were lost, since at the termination of the first playback, the record mode erased the data on the tape; thus, only data from the end-of-tape to the beginning of the second playback were recovered. Fortunately, the first playback, although variable in length, was short, resulting in the loss of only a small amount of data from each orbit.

In order to permit comparison of the radiation data with TV pictures, each TV shutter action generates a 1.5 second pulse which is recorded as an amplitude modulation of the channel 7 timing signal.

There are nine solar cells mounted behind narrow slits for north angle determination. These slits have an opening angle of close to 180° in planes through the spin axis. The sun illumination generates pulses as long as illumination parallel to the spin axis is avoided. One of these sensors generates a 0.5 second pulse in addition to the north indicator code so that spin rate information and a measurement of relative sun position is available. Again, this pulse is recorded as an amplitude modulation of channel 7.

Reconstruction of the radiation information vitally depends on its correlation with absolute time. An accurate, but relative, timing signal is provided for by the tuning fork oscillator and a crude one by the sun pulses, except when the satellite is in the earth's umbra. Absolute time is transmitted to the satellite and recorded on the tape as a one-second dropout of channel 7. This pulse is designated as the End-of-Tape (E.O.T.), and its occurrence is known within milliseconds of absolute time.

4.2 Information Flow at the Command and Data Acquisition Station^{6,42}

Upon interrogation, the 238 mc carrier is received by an antenna; the composite signal is recorded on magnetic tape and simultaneously fed to a "Quick Look" demodulator (Figure 61a). At the same time, the envelope of channel 7 and the clipped signal of channel 2 are graphically recorded. The 8-12μ "events" on the graphic record show alternately the earth and sky scan intervals as the satellite spins and progresses along the orbit. The channel 7 envelope shows the three distinctive types of AM pulses impressed on the clock frequency during recording; namely, the sun sensor pulses, the TV camera pulses, and the "end-of-tape" pulse. Auxiliary uses of the radiation data (Figures 61b and 61c) include determination of the spin axis attitude in space and the times when the TV pictures were taken and recorded in the satellite to be read out later over a ground station.

The magnetic tapes are, then, routinely mailed every day to the Aeronomy and Meteorology Division, GSFC, Greenbelt, Maryland.

4.3 Information Flow at the Data Processing Center^{6,43}

At the Data Processing Center of the Aeronomy and Meteorology Division, the master tapes containing the composite radiation signal are demultiplexed, demodulated, and fed into an analog-to-digital converter (Figure 62). The pressure is read separately. The analog-to-digital converter produces a magnetic "Radiation Data Tape" made up of 36 bit words suitable for an IBM 7094 computer. The sampling rate for data acquired between launch and orbit 1072 was the same as it had been on all previous TIROS five-channel radiometer experiments, i.e., one data sample for every 72nd cycle of the 550 c.p.s. channel 7 clock (or one sample every 0.1309 seconds). To increase the resolution of the reduced data, the sampling rate was increased by a factor of two beginning with orbit 1080. For orbit 1080 and all later orbits, therefore, a data sample was digitized

for every 36th clock cycle (or one sample every 0.06545 seconds). The result of this action was merely to double the number of data samples on the FMR tape. An auxiliary form for the repository of the radiation data is the oscillogram, or analog record, produced at this stage of the information flow. The analog record can be used for special "hand" analyses of the data.

4.4 Information Flow at the Data Reduction Center^a

The IBM 7094 computer program requires input from three sources to produce, in binary form, the "Final Meteorological Radiation (FMR) Tapes". One source is the "Radiation Data Tape" containing radiation data and satellite environmental parameters in digital form. Another source is the calibration data for converting digital information to meaningful physical units. The third source is the "Orbital Tape" from the NASA Space Computing Center containing satellite position and attitude data as a function of time. The FMR tape then is the basic repository of data from the medium resolution scanning radiometer. In order to study and utilize the scanning radiometer data, appropriate computer programs must be written to read the FMR tape and provide for printing out data, punching cards, or producing maps. The format of the FMR tape and the make-up of the IBM 7094 computer program which produces it are discussed in detail in sections 4.5 and 4.6.

4.5 Format of the "Final Meteorological Radiation Tape"

TIROS VII radiation data are available on high density, binary tapes prepared on an IBM 7094 computer. The FMR tape is the product of a computer program whose input is the orbital data, digitized radiation data, and TIROS VI radiometer calibration data. The make-up of this program is discussed in section 4.6. The FMR tape contains calibrated radiation measurements, geographical locations associated with the radiation measurements, orbital data, solar ephemeris, and satellite environmental temperatures. The exact format of these data is described

below. The purpose of this section is to emphasize certain features that will aid programmers in utilizing these data.

Each orbit of radiation data is treated as a file which contains a documentation record plus data records that represent approximately one minute intervals of time. The documentation record is the first record of each file and contains 14 data words whose format is described below. Dref is defined as the number of days between zero hour of September 1, 1957, and zero hour of launch date. TIROS VII time counts zero time as zero hour at Greenwich on the day of launch, thus launch time is given in GMT and launch day is zero day, with succeeding days numbered sequentially. However, the satellite life extends beyond 100 days, and for each succeeding period of approximately 100 days the value of dref is redefined by adding approximately 100, while the TIROS VII day is decreased by the same amount.

Each record of data covers approximately one minute of time, and the data are found in the decrement (D) and address (A) of each data word. The record terminates with the end of swath in progress at 60.0 seconds past the minute specified in words 1D, 1A, and 2D. In the case of satellite-earth orientation such that the radiometer continuously scans the earth for more than one rotation of the satellite, the record will terminate with the end of the revolution in progress at 60.0 seconds past the minute specified in words 1D, 1A, and 2D. The End of File gap will be duplicated at the end of the last file on each FMR tape.

For each earth-viewing swath, the radiation measured from channel 1 (14.8-15.5 μ), channel 2 (8.0-12.0 μ), and channel 4 (8.0-30.0 μ) is reported as an equivalent black-body temperature in °K, while the radiation measured from channel 3 (0.2-6.0 μ) and channel 5 (0.55-0.75 μ) is reported as an effective radiant emittance in watts/meter². For each fifth measurement in a swath, the point on earth being "viewed" by the radiometer is defined in terms of latitude and longitude. These computations are based on

the best available estimate of satellite attitude.

In order that the user may distinguish between data from the wall and floor sides of the satellite, the data words containing the measured energy are labeled with a 1 in position 19 when the wall side of the satellite is viewing the earth. The user should realize that if the signal from the satellite becomes noisy, swath sizes, as interpreted by the computer, may become abnormal and the data can be labeled and located incorrectly. In order to flag abnormal data, minus signs are inserted for the following three reasons:

1. A measurement within a swath whose digital response falls below the arbitrarily defined threshold between earth and space. (The end of a swath is arbitrarily defined by three consecutive measurements falling below the threshold.)

2. An entire swath is labeled with minus signs when the observed swath size falls outside of the theoretical swath size $\pm 25\%$. The theoretically computed swath size is based on the best available estimate of satellite attitude, height, and spin rate.

3. The entire swath is labeled with minus signs when it is either the first or last swath

in the closed mode. (In the closed scanning mode the radiometer continuously scans over the earth for more than one spin revolution without viewing the horizon or space.)

Channel 3 and channel 5 on TIROS VII can reach a saturation limit at lower radiation intensities than has been the case with any previous satellite. In order to detect this condition, the data word containing energy measured by channel 3 and channel 5 is labeled with a "one" in position 18 whenever the observed energy intensity exceeds the saturation limit. Saturation limits for the wall and floor sides separately are indicated at the upper right-hand extremities of the calibration curves for channel 3 (Figures 33-39) and channel 5 (Figures 47-53). For example in Figure 33 the effective radiant emittance "saturates" at 344.0 watts/meter² for the floor side and 333.0 watts/meter² for the wall side. If any higher values of radiant emittance should actually be viewed by the radiometer, they would still be reported as the "saturation values" on the FMR tape. However, in practice measurements exceeding the "saturation limits" have only rarely been observed in TIROS VII (except in periods when direct solar interference occurs; see Section VI below).

FORMAT OF FINAL METEOROLOGICAL RADIATION TAPE

Documentation Record

Word No.	Quantity	Units	Scaling	Remarks
1	Ref		B - 35	Number of days between zero hour of Sept. 1, 1957, and zero hour of launch day.
2	Date			Date of Interrogation expressed as a packed word, i.e., February 8, 1964 would be (020864), or (021004). These numbers are shifted to the extreme right side of the data word. Only the last digit of the year is retained for 1964.
3	Day	TIROS VII Day	B - 35	Start time of this file of radiation data.
4	Hour	Z Hour	B - 35	
5	Minute	Z Minute	B - 35	
6	Seconds	Z Seconds	B - 26	
7	Day	TIROS VII Day	B - 35	Time of Interrogation, i.e., end time of this file of radiation data.
8	Hour	Z Hour	B - 35	
9	Minute	Z Minute	B - 35	
10	Seconds	Z Seconds	B - 26	

Word No.	Quantity	Units	Scaling	Remarks
11 -----	Satellite Spin Rate	Deg/Sec	$B = 25$	Satellite spin rate.
12 -----	Frequency	36,72,144	$B = 35$	Data sampling frequency (cycles of a 550 cps tuning fork).
13 -----	Orbit No.		$H = 35$	Orbit No. at time of Interrogation.
14 -----	Station Code		$B = 35$	Code defining ground station ("1" for Wallops Is., Va., "2" for San Nicolas Is., Calif., "3" for Fairbanks, Alaska).

Format of FMR Tape—Nth Record

1D -----	Day		$B = 17$	TIROS VII Day
1A -----	Hour		$B = 35$	Z time in day specified in word 1D
2D -----	Minute		$B = 17$	
2A -----	GHA	Degrees	$B = 29$	Greenwich hour angle and declination of sun at time specified in words 1D, 1A, and 2D. 90° are added to declination to yield positive numbers.
3D -----	Decl.	Degrees	$B = 11$	
3A -----	T_c	Degrees K	$B = 35$	Reference temperature of the medium resolution radiometer.
4D -----	T_x	Degrees K	$B = 17$	Reference temperature of math deck electronics.
4A -----	Height	Kilometers	$B = 35$	Height of satellite at time specified in words 1D, 1A, and 2D.
5D -----	Latitude	Degrees	$B = 11$	Latitude of subsatellite point at time specified in words 1D, 1A, 2D. 90° are added to all latitudes to yield positive numbers.
5A -----	Longitude	Degrees	$B = 29$	Longitude of subsatellite point at time specified in words 1D, 1A, 2D. Longitudes are reported as 0 to 360°, with west being positive.
6D -----	Seconds		$B = 8$	Seconds past time specified in words 1D, 1A, 2D when first earth-viewing response is detected, and every fifth response thereafter.
6A -----	Latitude	Degrees	$B = 29$	Latitude of subsatellite point at time specified in words 1D, 1A, 2D, 6D. 90° are added to all latitudes to yield positive numbers.
7D -----	Longitude	Degrees	$B = 11$	Longitude of subsatellite point at time specified in words 1D, 1A, 2D, 6D. Longitudes are reported as 0 to 360°, with west being positive.
7A -----	Latitude	Degrees	$B = 29$	Latitude of point on earth being "viewed" by radiometer at time specified in words 1D, 1A, 2D, 6D. 90° are added to all latitudes to yield positive numbers.

Word No.	Quantity	Units	Scaling	Remarks
8D	Longitude	Degrees	$B = 11$	Longitude of point on earth being "viewed" by radiometer at time specified in words 1D, 1A, 2D, 6D. Longitudes are reported as 0 to 360°, with west being positive.
8A	Nadir Angle	Degrees	$B = 29$	Nadir angle of optic axis from radiometer to point specified in words 7A, 8D.
9D	Azimuth Angle	Degrees	$B = 11$	Azimuth angle of optic axis from radiometer to point specified in word 7A, 8D. This angle is measured clockwise from north and expressed as a positive number.
9A	Zero			
10D	T_{ms} (ch. 1)	Degrees K	$B = 14$	Measurement by each of the five medium resolution channels at time specified in 1D-1A, 2D, 6D when radiometer is "viewing" point on earth specified in words 7A, 8D.
10A	T_{ms} (ch. 2)	Degrees K	$B = 32$	
11D	W (ch. 3)	Watts/m ²	$B = 14$	
11A	T_{ms} (ch. 4)	Degrees K	$B = 32$	
12D	W (ch. 5)	Watts/m ²	$B = 14$	
12A	Zero			
13D	T_{ms} (ch. 1)	Degrees K	$B = 14$	The data sample immediately following the measurement recorded in words 10D-12A.
13A	T_{ms} (ch. 2)	Degrees K	$B = 32$	
14D	W (ch. 3)	Watts/m ²	$B = 14$	
14A	T_{ms} (ch. 4)	Degrees K	$B = 32$	
15D	W (ch. 5)	Watts/m ²	$B = 14$	
15A	Zero			
16D	T_{ms} (ch. 1)	Degrees K	$B = 14$	The data sample immediately following the measurement recorded in words 13D-15A.
16A	T_{ms} (ch. 2)	Degrees K	$B = 32$	
17D	W (ch. 3)	Watts/m ²	$B = 14$	
17A	T_{ms} (ch. 4)	Degrees K	$B = 32$	
18D	W (ch. 5)	Watts/m ²	$B = 14$	
18A	Zero			
19D	T_{ms} (ch. 1)	Degrees K	$B = 14$	The data sample immediately following the measurement recorded in words 16D-18A.
19A	T_{ms} (ch. 2)	Degrees K	$B = 32$	
20D	W (ch. 3)	Watts/m ²	$B = 14$	
20A	T_{ms} (ch. 4)	Degrees K	$B = 32$	
21D	W (ch. 5)	Watts/m ²	$B = 14$	
21A	Zero			
22D	T_{ms} (ch. 1)	Degrees K	$B = 14$	The data sample immediately following the measurement recorded in words 19D-21A.
22A	T_{ms} (ch. 2)	Degrees K	$B = 32$	
23D	W (ch. 3)	Watts/m ²	$B = 14$	
23A	T_{ms} (ch. 4)	Degrees K	$B = 32$	
24D	W (ch. 5)	Watts/m ²	$B = 14$	
24A	Zero			

The block of data from words 6D to 24A will be repeated, thus defining every fifth measurement in a swath. The address of the third word in the last response of a swath will contain 0101010101010 to signal end of record. A "look ahead" feature is incorporated into TIROS VII data reduc-

tion; if the End of Tape signal occurs within an earth-viewing swath, that entire swath is discarded. Each time the swath terminates, two words (N and N+1) will follow the last "earth-viewing" response with the following format:

Word No.	Quantity	Units	Scaling	Remarks
ND -----	Code -----	1111111111111111	-----	Code indicating end of swath
NA -----	Nadir Angle -----	Degrees -----	$B = 29^\circ$	The minimum nadir angle that occurred in the previously defined swath
(N+1)D -	Latitude -----	Degrees -----	$B = 11$	Latitude of point on earth being "viewed" by radiometer when the minimum nadir angle occurred. 90° are added to all latitudes to yield positive numbers
(N+1)A -	Longitude -----	Degrees -----	$B = 29$	Longitude of point on earth being "viewed" by radiometer when minimum nadir angle occurred. Longitudes are reported as 0 to 360° , with west being positive.

Occasionally dropouts are encountered and the corresponding data records contain no radiation data. This event is relatively rare in TIROS VII data, but in such cases the radiation data record contains only five words (1D to 5A) which document the record with respect to time. In such records, the datum in the address of the third word (Tr) is destroyed by the End of Record code.

A flow diagram to aid in interpreting this format is shown in Figure 63. It is seen that the format is analogous to four "nested loops" (in programming language), i.e., groups of five responses, entire swaths, one-minute records, and files. It is pointed out that a particular swath (and, hence, a particular record and a particular file) can end either on the "anchor data response" or on any of the four following non-geographically located data responses and that Figure 63 merely illustrates one possible combination of ending responses.

4.6 IBM 7094 Computer Flow Diagram

The FMR tapes as described in the previous section is prepared with an IBM 7094 computer program whose input consists of orbital data, digital radiation data, and TIROS VII radiometer calibration data. The flow chart shown in Figure 64 outlines the logical steps in this program and thus gives some insight into the mechanics of preparing these tapes. The flow chart has been greatly

condensed since it is impossible to present a detailed flow chart within the space limitations of this publication.

The first phase of this program sets up the documentation data and then reads the entire file of radiation data to compute the start time from the end-of-tape time and the data sampling frequency. Given the starting and ending times, the program then searches the orbital tape to find orbital data (subsatellite point, height, nadir angle, right ascension, and declination) covering the same time interval. These data are then arranged in tables as a function of time so that interpolation subroutines can be used in the second phase to obtain values of the orbital characteristics for any specified time.

At this point, an optional feature allows the program to accept the attitude data from the orbital tape, or an alternate estimate of the attitude from a second documentation card. If the alternate attitude is accepted, the nadir angles are recomputed.

The second phase of the program reduces the digitized radiation data into useful meteorological data. This begins with a detailed examination of the radiation data to distinguish between earth and space-viewed data. This distinction is based on an arbitrarily defined threshold value applied to channel 2. Both sides are assumed to be viewing space when the measured radiation falls below the

Aug. 10, 1971

To: Data Repository
From: A.D.P. Services
Subject: Tiros "T" tapes

Please release T-0364 to be recertified. This tape has no load point. Also release T-0182 as this one has the first 400 ft of oxide scrapped off. Neither tape is of any use to us any more.

The following "T" numbers have been duped and can also be released now that D & C. numbers have been made with the "T" numbers and the dupes:

T-354, T-355, T-356, T-357, T-358, T-360,
T-361, T-363, T-367, T-369, T-180, T-181,
T-183, and T-184, T-359, T-362, T-368

FILE 0001 SEC 0001 CH 0084	0001	0003000000725	0000000120304	0000030001110	0000000000005	0000000000052	000000021151	0000000000110	0000000000005
	0049	0000000000073	0000000003400	000000101044	0000000000044	0000000015500	0000000000002		
FILE 0001 SEC 0002 CH 7500	0001	0001100000005	000062301621	012601000477	000421001206	017041047645	023626016732	047565015276	050507007553
	0049	0121410000000	0006600004171	000061000670	000061000000	0034700004202	000450003632	000061000000	000415004223
	0097	0000000003620	0000047000000	0003050000244	000210001637	0020540000000	001350004234	000061003712	000407000000
	0145	024076016741	047564015727	050014006447	010321000000	003431004255	000014003655	000047000000	000463500427
	0193	000000003712	000066000000	003504002665	000335003712	0000730000000	003500040266	000107003712	000000000000
	0241	0004650004277	000061003643	000100000000	002434056740	047564016177	047566005215	000465000000	0004651004307
	0289	000134005724	000100000000	003461004037	000013003712	0000176000000	004376004320	000162003750	000106000000
	0347	0005340004277	000107003712	000105000000	003627004266	000162003701	000106000000	0024615015737	04756016433
	0385	000450003714	024070000000	003561004277	000012003724	0001250000000	000347004277	000070003724	000120000000
	0433	0003760004277	000162003701	000113000000	003516004266	000235003701	000141000000	000351600426	000235003712
	0481	000125000000	000064016735	047562016565	047517002451	001175000000	003621004266	000207003701	000125000000
	0529	0003760004277	000125000000	000125000000	0003570004266	000162003655	000113000000	0003627004277	000162003655
	0577	000125000000	0003540004266	00013403620	000120000000	002533016735	047561016733	04749001571	001325000000
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