

544

AEROS 1 and 2
EUV SPECTRA DATA

72-100A-04A

74-055A-04A

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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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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
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01				
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02				
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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

AEROS 1 & 2

EUV SPECTRA DATA, TAPE

72-100A-04A **SOUV-00022**

74-055A-04A

This data set has been restored. There was originally 1 9-track, 1600 BPI tape written in BIN. There is 1 restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The tape was created on an UNIVAC 1100 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
DR03647	DS03647	D47969	1	12/23/72 - 08/05/73 (AEROS 1) 07/21/74 - 07/03/75 (AEROS 2)

REQ. AGENT

DEW

RAND NO.

V0146

ACQ. AGENT

RNH

AEROS A AND B
EUV/SPECTRA DATA
72-100A-04A
74-055A-04A

This data set catalog consists of 1 tape. The tape was created on a UNIVAC 1100 computer. The tapes are 1600 BPI, binary, 9 track, with one file of data. The D and C numbers are as follows:

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>	
D-47969	C-22438	12/23/72 - 08/05/73	(AEROS A)
		07/21/74 - 07/03/75	(AEROS B)

* AEROS B data starts at record 23.

Description of magnetic tape "AEROS-EUV"

This tape summarizes the observations of the EUV-spectrometer flown in 1972 ... 75 on satellites AEROS-A and -B. These were the first instruments of this kind which had an on-board calibration device. A description of the instrument was given by the experimenter G. SCHMIDTKE et al. in J. Geophys. 40 (1974), 577 (see also the report of the AEROS-team: Ergebnisse des AEROS-Satellitenprogramms, Heidelberg 1980, which can be found at WDC).

Using the calibrations the recorded spectra were quantitatively evaluated in 42 spectral ranges (see annexed example table for 19. Jan. 1973). These had been chosen by G. SCHMIDTKE (in agreement with H. HINTERHUGGER) so as to be adapted to the needs of aeronomy. Note that for ranges marked 'unaufgelöst' not the total energy flux in that specific range is given but only that obtained after subtraction of the individually marked emission lines in the same range. (E.g. for range 80.0 - 63.0 the three emissions marked before, i.e. O V, I cont., C III, must be added in order to get the total emission in that range while for 46.0 - 37.0 no specific emission is marked such that the indication gives directly the total emission.)

Since for some applications, in particular indexing (see SCHMIDTKE Geophys. Res. Lett. 3, (1976), 573) intensities in broader spectral ranges are of some interest, after the 42 indications we give yet the total intensity in 8 subranges, then in 2 and finally in the whole range of the instrument from 105 to 16 nm. Thus the total number of wavelength ranges noted per observation is $42 + 8 + 2 + 1 = 53$; for each of these we give the energy flux from the full disk in $\mu\text{W m}^{-2}$ and also the photon flux in $\text{m}^{-2}\text{s}^{-1}$. So we have a total of 106 measured values per observation (of which, of course, all but 42 are redundant). Note that lack of suitable observation is either marked by a negative integer or (most often) by zero intensity. (Correctly measured intensities must always be greater than zero.)

The number of spectra per day was variable between one and twelve according to the conditions of the satellite. One important difference between the two AEROS missions should be held in mind: while data from 1974 and 75 can all be considered as being uninfluenced by absorption in the terrestrial atmosphere (because they were corrected, where needed) this is not so for the 1973 data for which the effectively measured intensities (i.e. including loss by absorption) are given. The solar zenith angle at the satellite and the altitude of this latter are, however, given and corrections are left for the user to make. Anyway, only a small part of the data (where the height was less than 250 km) might be influenced by absorption.

Daily average spectra have been published as reports of the former 'Fraunhofer-Institut für physikalische Weltraumforschung' at Freiburg (F.R.G.):

for AEROS-A (Dec. 1972 - Aug. 1973): IPW-WB3 (1978)

for AEROS-B (July 1974 - Sept. 1975): IPW-WB11 (1980).

Copies of these exist at the WDC's.

Different from these daily average data all usable individual measurements of full spectra are given on the tape. (Only during the last months of the second mission one channel of the instrument had failed so that all spectra cover only half of the total range).

The tape has the following format:

1/2 inch, 9 tracks (so that per character there are 8 valid bits plus one for (odd) parity);

16cc E.p.i. ;

double words of 9 Bytes each (i.e. 4 and half Bytes (36 bits) for one word).

A block length of 232c words is used throughout; all blocks have identical structure (see 'coding' below). The whole data set is given in chronological order (both missions) in one file ended with two EOF marks at the very end.

Each block has 20 'lines' of equal structure, each of which contains 116 words with 36 valid bits each. Each line gives one individual spectrum.

Coding (in lines of 116 words each) is as follows:

Word no.	dec.digit	contents	dec.digit
1	7..3	11111 for mission A 22220 for mission B	2..0 measurement no 3..0
2	4..0	100 x solar zenith angle $\chi / {}^{\circ}$	
3	1..0	10 x kp (magn. activity)	
4	2..0	Zürich sunspot number	
5	2..0	COVINGTON's solar (10.7 cm) noise index	
6	5..0	date (5,4 day; 3,2 month; 1,0 year)	
7	5..0	Univ. time (5,4 hour; 3,2 min; 1,0 s)	
8	4..0	modif. Julian date (MJD1, unit d)	
9	5..0	Julian microday (MJD2, unit 10^{-6} d)	
10..51		energy flux / $\mu \text{W m}^{-2}$ in 42 wavelength ranges	
52..59		" " in 8 subranges	
60,61		" " in 2 subranges	
62		" " total	
63..104		photon flux / $10^{-10} \text{ m}^{-2} \text{s}^{-1}$ in 42 wavelength ranges	
105..112		" " in 8 subranges	
113...114		" " in 2 subranges	
115		" " total	
116	5..0	av. height of satellite / m	

Missing values: negative number (for words 1...9 and 116)
zero (for intensity values: 10...115)

SOLARIC EMISSIONS INDEX 10.01.1978, 0.11 =
 3.43 Uhr UZ. Covington-Index F_{10.7} = 95.

Wellenlänge bzw. Bereich	Identifikation	Energie- fluß μW m ⁻²	Photonen- fluß 10 ¹² m ⁻² s ⁻¹
103.8+103.2	O VI	86	45
102.57	H Ly-2	77	40
99.10	N III	14	7
97.70	C III	106	52
97.25	H Ly-3	16	8
94.97	H Ly-4	9	4
94.45	S VI	3	1
102.7-91.1	unaufgelöst	45	22
91.1-89.0	H cont	92	42
89.0-86.0	H cont	81	36
83.42	O II, III	14	6
86.0-83.0	H cont	45	19
83.0-80.0	H cont	23	10
91.1-80.0	unaufgelöst	10	4
79.02+78.77	O IV	14	5
77.04	Ne VIII	7	3
80.0-77.0	H cont	16	6
76.04	O V	6	2
77.0-74.0	H cont	10	4
70.34	O III	8	3
80.0-63.0	unaufgelöst	25	9
62.97	O V	60	19
62.53	Mg X	15	5
60.98	Mg X	31	9
58.43	He I	55	16
55.44	O IV	26	7
52.11	Si XII	12	3
50.4-47.0	HeI cont	47	12
49.93	Si XII	15	4
46.52	Ne VII	10	2
63.0-46.0	unaufgelöst	37	10
46.0-37.0	unaufgelöst	33	7
36.81	Mg IX	44	8
36.07	Fe XVI	18	3
33.54	Fe XVI	40	7
30.38	He II	572	87
28.41	Fe XV	63	9
37.0-28.0	unaufgelöst	221	36
28.0-23.1	unaufgelöst	359	46
23.1-20.5	unaufgelöst	190	21
20.5-17.6	unaufgelöst	761	73
17.6-15.5	unaufgelöst	142	12
102.7-91.1	integral	270	134
91.1-80.0	integral	265	117
80.0-63.0	integral	86	32
63.0-46.0	integral	308	87
46.0-37.0	integral	33	7
37.0-28.0	integral	958	150
28.0-20.5	integral	549	67
20.5-15.5	integral	903	85
103 - 46	integral	929	370
.. 11	.. 1.2 - 1	.. ..	.. ..

DS03647

-EXC TP DUMP ES

12/23/72 - 7/3/85

DUMP CF TAPE CN1114

INPUT TAPE CN1114 CN FT
DATA INPUT 09 NF=1 FL=1=1=1

FILE	2 RECORD	3 LENGTH	1 13921 BYTES	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	

(	2448)	611111734662	0110235747351	0111117477	0000000987613	0000000801224	000000011252	000000001241	0000000000565
(	2496)	6111116173	0000000983641	0111117156	0000000986740	0000000111226	000000003221	000000001513	000000000565
(	2544)	000000000745	000000000355	0000000001044	00000000000306	0000000000506	000000000361	000000001457	0000000003230
(	2592)	61111161633	0110235701511	011111700375	0000000001261	0000000000472	0000000002166	0000000006566	0000000000335
(	2640)	61111161751	0110235701220	01111170314	0000000001427	00000000011160	00000000016642	00000000012035	0000000006074
(	2688)	6111116743	0110235703171	011111712726	0000000001604	00000000027573	00000000023765	0000000005441	0000000020117
(	2736)	0000000001220	00000000031354	00000000012044	00000000014532	0000000005360	00000000107152	00000000162732	000000002616017
(	2784)	6111116135	01102357014513	011111700045	0000000000045	0000000000045	000000001137750	00000000063206	00000000121322
(	2832)	6111116323563	01102357022270	011111701344	000000000127224	0000000001275456	00000000033115	00000000017155	0000000005103
(	2880)	6111117255	000000000242563	000000000215712	0000000001631237	00000000116272	00000000050647	00000000021333	0000000030017
(	2928)	6111116014141	01102357033647	01111170012134	00000000021230	00000000015436	00000000055365	00000000152522	0000000031655
(	2976)	6111116113	0110235701740	0111117005633	00000000026462	0000000001231355	00000000035002	00000000022303	00000000106567
(	3024)	611111675236	011023570113561	01111170036200	000000000197124	00000000017671	000000000140601	00000000066757	000000001033344
(	3072)	0000000434512	00000002151463	000000000322656	000000000740320	000000000722430	000000000226377	000000001073440	00000000075230
(	3120)	61111163120556	000000011470056	0000000002604341	0000000001662580	00000000019724464	00000000012617234	00000000007477	0000000007064
(	3168)	61111161246	011023570113252	0111117000281	00000000010665	00000000010175	00000000003677	00000000007394	00000000006202
(	3216)	0000000001041	0000000003254	0111117001532	0000000000601	0000000000751	00000000000361	00000000001063	0000000000310
(	3264)	61111160070521	01102357000366	00000000000507	00000000000304	000000000000641	0000000000001524	00000000003075	0000000001272
(	3312)	6111116146	0110235702144	0111117000566	000000000003035	000000000001742	00000000001226	0000000001317	0000000000431
(	3360)	611111600701150	01102357016647	0111117001305	000000000006107	000000000006743	00000000003101	00000000012726	0000000001604
(	3408)	00000000027730	00000000024356	00000000005543	000000000020171	00000000001220	00000000000634	00000000012044	00000000014532
(	3456)	611111600754306	011023570107346	011111700016354	0000000002623132	000000000005136	000000000014560	00000000000027	00000000000055
(	3504)	611111600701036	011023570023675	0111117000174015	0000000001121323	000000000174317	000000000232265	000000000216460	00000000033111
(	3552)	611111600703351	011023570034374	011111700017671	00000000005252	0000000001222433	0000000000251701	000000000223205	00000000032326
(	3600)	61111160121777	00000000052537	0000000000022060	00000000031042	00000000014427	000000000034756	00000000012462	00000000021721
(	3648)	611111600705777	011023570057221	000000000155374	00000000002563	000000000007016	000000000155334	00000000006204	00000000026462
(	3696)	611111600701355	00000000035305	00000000022645	00000000017460	0000000001677240	000000000117537	00000000036607	00000000107604
(	3744)	00000001716666	0000000134002	0000000000573578	000000000767727	000000000400380	000000000027472	000000000302444	000000000761324
(	3792)	61111160746252	0000000001234372	0000000001197626	000000000077240	000000000134637	0000000001400227	0000000002332136	0000000001727576
(	3840)	611111600722704	011023570012462572	011111700017030	000000000007275	0000000000001265	000000000011476	0000000000001313	000000000000605
(	3888)	61111160070262	011023570000417	011111700007552	000000000006374	000000000001570	0000000000003373	0000000000001601	000000000000617
(	3936)	00000000007776	00000000000371	0000000000001112	0000000000000320	0000000000000535	0000000000000400	0000000000001550	0000000000003362
(	3984)	611111600006557	00000000001561	000000000003161	000000000001317	000000000000460	000000000002144	000000000000572	000000000000342
(	4032)	61111160071756	011023570012246	01111170001365	000000000001426	0000000000001155	000000000016727	0000000000001242	000000000000157
(	4080)	00000000006371	000000000027171	000000000012034	00000000001477	000000000001621	0000000000025251	000000000005726	000000000020466
(	4128)	611111600701246	011023570031550	00000000011310	00000000013533	000000000006072	0000000000106467	000000000164561	000000000216373
(	4176)	611111600701537	011023570014527	01111170001024	00000000010555	000000000000136	000000000023675	0000000000365274	000000000121323
(	4224)	61111160070173424	011023570032265	011111700016460	00000000003101	000000000003351	000000000034374	000000000017671	00000000005252
(	4272)	0000000122433	000000000251701	0000000000223205	000000000032326	0000000000121777	0000000000052537	000000000022060	00000000031042
(	4320)	6111116007014427	0110235700034756	000000000012462	000000000021721	000000000000177	0000000000057221	000000000155374	00000000032652
(	4368)	6111116007016016	011023570015614	0111117000162330	0000000000026462	00000000000131755	000000000005358	000000000022645	000000000107460
(	4416)	61111160070177240	0110235700117537	011111700015625	00000000000176704	000000000017666	000000000000134002	0000000000573663	0000000000767727
(	4464)	611111600410300	000000000207472	0000000000302444	0000000000761324	00000000000046252	00000000000234372	0000000001110611	000000000077240
(	4512)	611111600714743	0110235700000227	011111700012316	00000000000005773	000000000012463571			

(13776) 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000
(13824) 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000
(13872) 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000 000000000000

FILE	INPUT	DATA RECORDS	MAX.	READ ERROR SUMMARY	INPUT RETRIES			
RECS.	INPUT	SIZE	PERM	ZERO R	SHORT	UNDEF.	#RECS.	TOTAL#
1	50	53	17461	0	0	0	0	0

100 CUMF STOPPED AFTER FILE 1

OF PERMANENT READ-ERR CPS: 0

START TIME 17/01/92 10:02:48

STOP TIME 17/01/92 10:13:45