JUNE 2009 NUMBER 778 - Part II

Solar-Geophysical Data comprehensive reports

Data for December 2008
Explanation of Data Reports Issued as Number 515 (Supplement) July 1987

NGDC On-Line Addresses:
World-Wide Web **http://www.ngdc.noaa.gov**
Anonymous FTP: **ftp.ngdc.noaa.gov**

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE / NATIONAL GEOPHYSICAL DATA CENTER / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
Gary Locke, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Dr. Jane Lubchenco, Under Secretary/Administrator

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Mary E. Kicza, Assistant Administrator

JUNE 2009 NUMBER 778 - Part II

Solar-Geophysical Data comprehensive reports

Data for December 2008

International Standard Serial Number: 0038-0911
Library of Congress Catalog Number: 79-640375 //r81

NATIONAL GEOPHYSICAL DATA CENTER
Christopher G. Fox, Director
Boulder, Colorado

SOLAR-GEOPHYSICAL DATA

Number 778

(Issued in Two Parts)

Editor: Edward H. Erwin

Division Chief: William F. Denig
Solar-Terrestrial Physics Division

CONTENTS

PART I (PROMPT REPORTS) Page

PART II (COMPREHENSIVE REPORTS) Page

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	OCT	NOV	DEC	Jan 09	FEB	Mar	APR	May
A.	**SOLAR AND INTERPLANETARY**								
A.1	Sunspot Drawings	772A 40	773A 42	774A 40	775A 38	776A 40	777A 40	778A 40	
A.2aa	International Sunspot Numbers	771A 24	772A 23	773A 24	774A 24	775A 20	776A 24	777A 23	778A 24
A.2c	American Sunspot Numbers	771A 24	772A 23	773A 24	774A 24	775A 20	776A 24	777A 23	778A 24
A.3a	Mt. Wilson Magnetograms	772A 40	773A 42	774A 40	775A 38	776A 40	777A 40	778A 40	
A.3b	Sunspot Mag Class and Regions	772A 77	773A 77	774A 77	775A 75	776A 73	777A 77	778A 75	
A.3c	Kitt Peak Magnetograms	772A 40	773A 42	774A 40	775A 38	776A 40	777A 40	778A 40	
A.3d	Mean Solar Mag Field (Stanford)	771A 31	772A 30	773A 30	774A 30	775A 28	776A 30	777A 29	778A 30
A.3e	Stanford Magnetograms	772A 40	773A 42	774A 40	775A 38	776A 40	777A 40	778A 40	
A.4	H-alpha Filtergrams	772A 40	773A 42	774A 40	775A 38	776A 40	777A 40	778A 40	
A.5d	PhotometricCa FaculaeSanFernando	Jan 92-Dec 96-631B 22; 1997-1998 663B 66							
A.6c	Stanford Solar Mag Field Map	772A 34	773A 36	774A 34	775A 32	776A 34	777A 34	778A 34	
A.6d	Kitt Peak Mag Field Synoptic Map	772A 39	773A 41	774A 39	775A 37	776A 39	777A 39	778A 39	
A.6f	Active Prominences and Filaments	776B 16	777B 15	778B 16					
A.6g	Sac Peak Coronal Line Maps	772A 36	773A 39	774A 37	775A 35	776A 37	777A 37	778A 37	
A.6h	Photometric WL SanFernando	Jul-Dec 96 630B 32; 1997-1998 663B 51							
A.7h	Coronal Line Emission (Sac Peak)	772A 38	773A 40	774A 38	775A 36	776A 38	777A 38	778A 40	
A.7j	Coronal Hole Daily Maps (NSO/KP)								
A.7k	Coronal Index (Slovak Academy)	1939-1996 - 644B 28							
A.7m	Coronal Mass Ejections (CSPSW)	776B 21	776B 20	778B 21					
A.8aa	2800 MHz- Solar Flux (Penticton)	771A 24	772A 23	773A 24	774A 24	775A 20	776A 24	777A 23	778A 24
A.8ac	2800 MHz Adj Solar Flux (Pent.)	771A 24	772A 23	773A 24	774A 24	775A 20	776A 24	777A 23	778A 24
A.8g	Adjusted Daily Solar Flux SGMR	771A 24	772A 23	773A 24	774A 24	775A 20	776A 24	777A 23	778A 24
A.10g	Nancay Radiohelio 150.9&327MHz	772A 83	773A 84	774A 83	775A 80	776A 78	777A 83	778A 80	
A.10h	Nobeyama Radioheliogr 17 GHz	772A 71	773A 72	774A 71	775A 69	776A 68	777A 71	778A 70	
A.11g	Solar X-ray GOES (graphs)	776B 9	777B 9	778B 9					
A.11g	Solar X-ray GOES (event table)	771A 28	772A 27	773A 28	774A 28	775A 26	776A 28	777A 27	778A 28
A.11k	Solar UV NOAA-9	May 86-Dec 88 in 566B 84							
A.11l	Solar UV NIMBUS7	Nov 78-Oct84 in 542B 82							
A.11m	Solar UV SOLSTICE (UARS)	Oct 91-Sep 94 in 607B 46							
A.11o	Solar UV SUSIM (UARS)	Oct 91-Jan 97 in 629B 30							
A.11p	Solar UV Mg II Daily Index	776B 17	777B 16	778B 17					
A.12g	Solar Particles (GOES)	771A 4	772A 4	773A 4	774A 4	775A 4	776A 4	777A 4	778A 4
A.12i	Solar Energetic Particles (ACE)	776B 20	777B 19	778B 20					
A.13g	Solar Plasma (ACE)	776B 19	777B 18	778B 19					
A.16c	ERBS	NOAA-9 & Oct 84-Jun 00 in 671B 36							
A.16d	UARS Solar Irradiance	Oct 91-May 2001 684B 26 - Complete Mission							
A.16e	VIRGO/SOHO Solar Irradiance	Jan 96-Sep 00 in 678B 46							
A.17c	Inferred Interplanetary Mag Field	1984-1988 data in 542A168; 1989-Jan94 in 611A118							
A.17d	ACE Interplanetary Mag Field	776B 18	777B 17	778B 18					
C.	**SOLAR FLARE-ASSOCIATED EVENT**								
C.1a	H-alpha Flares	771A 27	772A 26	773A 27	774A 27	775A 25	776A 27	777A 26	778A 27
C.1ba	H-alpha Flare Groups	776B 4	777B 4	778B 4					
C.1d	Flare Patrol Observations	776B 6	777B 6	778B 6					
C.1h	H-alpha Flare Index (ImpxDur)	Jan 76-Dec 85 in 639B 26; Jan 86-Oct 96 in 635B 24; Jan 96-Dec 98 in 665B 63							
C.3	Radio Bursts Fixed Frequency	776B 8	776B 8	778B 8					
C.3	Radio Bursts Fixed Freq Selected	771A 29	772A 28	773A 29	774A 29	775A 27	776A 29	777A 28	778A 29
C.4	Radio Bursts Spectral	772A 79	773A 80	774A 79	775A 77	776A 75	777A 79	778A 77	
C.6	Sudden Ionospheric Disturbances	772A 78	773A 79	774A 78	775A 76	776A 74	777A 78	778A 76	
D.	**GEOMAGNETIC EVENTS**								
D.1a	Geomagnetic Indices	772A 90	773A 92	774A 88	775A 85	776A 83	777A 90	778A 87	
D.1ba	27-day Chart of Kp Indices	772A 91	773A 94	774A 90	775A 87	776A 85	777A 92	778A 89	
D.1cb	Monthly Mean aa Indices	772A 93	773A 95	774A 91	775A 89	776A 86	777A 93	778A 90	
D.1d	Principal Magnetic Storms	772A 97	773A 99	774A 95	775A 95	776A 90	777A 97	778A 94	
D.1f	Sudden Commencements	772A 98	773A100	774A 96	775A 96	776A 91	777A 98	778A 95	
D.1g	Equatorial Indices Dst	772A 95	773A 97	774A 93	775A 93	776A 88	777A 95	778A 92	
D.1l	Polar Cap (PC) Index	772A 96	773A 98	774A 94	775A 94	776A 89	777A 96	778A 93	
F.	**COSMIC RAYS**								
F.1b	Cosmic Ray Neutron Cts (Climax)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1h	Cosmic Ray Neutron Cts (Thule)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1l	Cosmic Ray Neutron Cts (Kiel)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1n	Cosmic Ray Neutron Cts (Beijing)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1m	Cosmic Ray Neutron (Haleakala)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1o	Cosmic Ray Neutron (Moscow)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
F.1p	Cosmic Ray Neutron Cts (Calgary)	772A 85	773A 87	774A 85	775A 82	776A 80	777A 85	778A 82	
H.	**MISCELLANEOUS**								
H.60	ISES Alert Periods	771A 20	772A 19	773A 20	774A 20	775A 18	776A 20	777A 19	778A 20

The entry "748A 48" under Oct, for example, means the sunspot drawings for Oct appear in SOLAR-GEOPHYSICAL DATA No 748, Part I, and that they begin on page 48, "A" denotes Part I and "B", Part II. Blanks indicate data not yet received and dashes mark unavailable data.

CONTENTS

Comprehensive Reports Number 778 Part II

DATA FOR **DECEMBER 2008**

Hà S O L A R F L A R E S
DECEMBER 2008

Grp #	Sta	Start Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
		01	0105		0213	No Flare Patrol													
		01	0343		0425	No Flare Patrol													
		01	1108		1402	No Flare Patrol													
		01	1500		1505	No Flare Patrol													
		01	2228		2233	No Flare Patrol													
		01	2336		2400	No Flare Patrol													
		02	0000		0108	No Flare Patrol													
		02	1441		1534	No Flare Patrol													
		02	2201		2239	No Flare Patrol													
		02	2312		2400	No Flare Patrol													
		03	0000		0500	No Flare Patrol													
		03	0504		0517	No Flare Patrol													
		03	1045		1046	No Flare Patrol													
		03	1048		1049	No Flare Patrol													
		03	1053		1105	No Flare Patrol													
		03	1124		1150	No Flare Patrol													
		03	1157		1201	No Flare Patrol													
		03	1344		1357	No Flare Patrol													
		03	1400		1403	No Flare Patrol													
		03	1524		1534	No Flare Patrol													
		04	1345		1357	No Flare Patrol													
		04	1434		1449	No Flare Patrol													
		04	1632		1658	No Flare Patrol													
		04	1720		1735	No Flare Patrol													
		04	1837		1846	No Flare Patrol													
		04	1853		2141	No Flare Patrol													
		05	1046		1057	No Flare Patrol													
		06	1047		1120	No Flare Patrol													
		06	1147		1406	No Flare Patrol													
		06	1429		1528	No Flare Patrol													
		07	1857		1905	No Flare Patrol													
		07	1932		2115	No Flare Patrol													
		08	0137		0217	No Flare Patrol													
		08	1447		2128	No Flare Patrol													
		09	1449		2010	No Flare Patrol													
		10	0647		0811	No Flare Patrol													
		10	1050		1410	No Flare Patrol													
		10	2013		2025	No Flare Patrol													
		10	2348		2400	No Flare Patrol													
		11	0000		0149	No Flare Patrol													
		11	1050		1410	No Flare Patrol													
		11	1502		1752	No Flare Patrol													
		12	1051		1510	No Flare Patrol													
		12	1832		1909	No Flare Patrol													
		12	2054		2147	No Flare Patrol													
		13	1051		1100	No Flare Patrol													
		13	1326		1418	No Flare Patrol													
		13	1448		1538	No Flare Patrol													
		14	1055		1519	No Flare Patrol													
		14	1636		1711	No Flare Patrol													
		15	0046		0834	No Flare Patrol													
		15	0906		1530	No Flare Patrol													
		15	1551		1659	No Flare Patrol													
		15	2252		2305	No Flare Patrol													
		15	2309		2400	No Flare Patrol													
		16	0000		0753	No Flare Patrol													
		16	0823		1414	No Flare Patrol													
		16	1956		2014	No Flare Patrol													
		16	2138		2203	No Flare Patrol													
		16	2215		2254	No Flare Patrol													
		16	2258		2400	No Flare Patrol													
		17	0000		0006	No Flare Patrol													
		17	1054		2208	No Flare Patrol													
		18	1054		1104	No Flare Patrol													
		18	1116		2049	No Flare Patrol													
		19	1056		1106	No Flare Patrol													
		19	1111		1118	No Flare Patrol													
		19	1433		1450	No Flare Patrol													
		19	1838		1857	No Flare Patrol													
		19	1929		2012	No Flare Patrol													

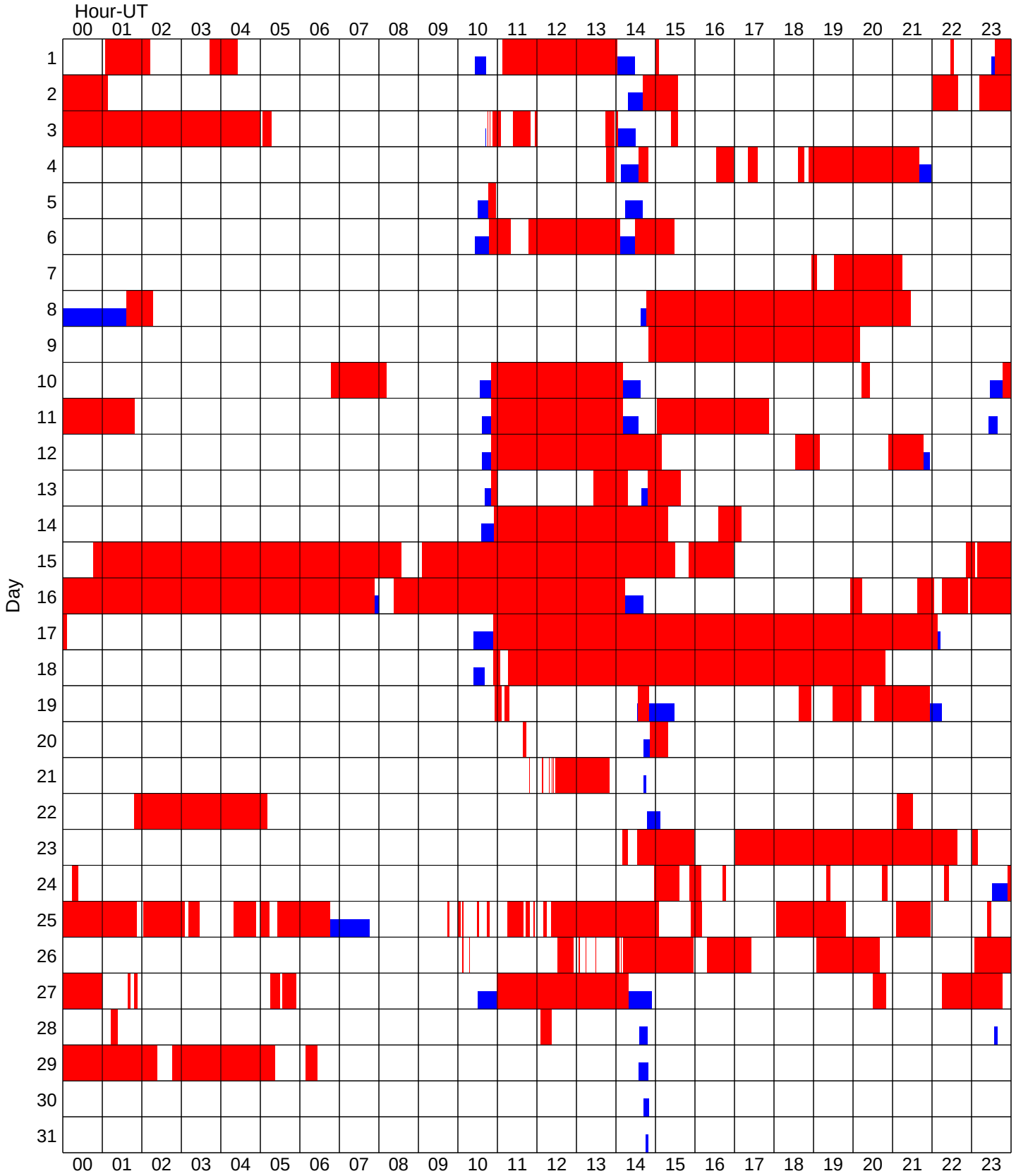
Hà S O L A R F L A R E S
DECEMBER 2008

Grp #	Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	NOAA/ USAF Region	CMP Mo	CMP Day	Dur (Min)	Imp Opt	Imp Xray	Obs See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10-6 Disk)	Area Measurement Corr (Sq Deg)	Remarks
		19	2033		2157	No Flare Patrol													
		20	1139		1144	No Flare Patrol													
		20	1452		1519	No Flare Patrol													
		21	1148		1149	No Flare Patrol													
		21	1208		1210	No Flare Patrol													
		21	1218		1219	No Flare Patrol													
		21	1222		1223	No Flare Patrol													
		21	1225		1226	No Flare Patrol													
		21	1228		1350	No Flare Patrol													
		22	0148		0510	No Flare Patrol													
		22	2107		2131	No Flare Patrol													
		23	1410		1418	No Flare Patrol													
		23	1433		1559	No Flare Patrol													
		23	1701		2238	No Flare Patrol													
		23	2301		2309	No Flare Patrol													
		24	0014		0023	No Flare Patrol													
		24	1458		1536	No Flare Patrol													
		24	1551		1609	No Flare Patrol													
		24	1642		1647	No Flare Patrol													
		24	1920		1926	No Flare Patrol													
		24	2044		2052	No Flare Patrol													
		24	2219		2226	No Flare Patrol													
		24	2355		2400	No Flare Patrol													
		25	0000		0152	No Flare Patrol													
		25	0202		0305	No Flare Patrol													
		25	0311		0328	No Flare Patrol													
		25	0419		0453	No Flare Patrol													
		25	0500		0513	No Flare Patrol													
		25	0526		0646	No Flare Patrol													
		25	0944		0947	No Flare Patrol													
		25	1000		1004	No Flare Patrol													
		25	1007		1009	No Flare Patrol													
		25	1029		1032	No Flare Patrol													
		25	1044		1048	No Flare Patrol													
		25	1115		1139	No Flare Patrol													
		25	1143		1149	No Flare Patrol													
		25	1155		1157	No Flare Patrol													
		25	1210		1215	No Flare Patrol													
		25	1222		1505	No Flare Patrol													
		25	1554		1611	No Flare Patrol													
		25	1803		1949	No Flare Patrol													
		25	2106		2158	No Flare Patrol													
		25	2324		2330	No Flare Patrol													
		26	1006		1008	No Flare Patrol													
		26	1017		1018	No Flare Patrol													
		26	1231		1255	No Flare Patrol													
		26	1303		1305	No Flare Patrol													
		26	1314		1315	No Flare Patrol													
		26	1329		1330	No Flare Patrol													
		26	1359		1405	No Flare Patrol													
		26	1408		1409	No Flare Patrol													
		26	1411		1558	No Flare Patrol													
		26	1618		1725	No Flare Patrol													
		26	1905		2041	No Flare Patrol													
		26	2305		2400	No Flare Patrol													
		27	0000		0059	No Flare Patrol													
		27	0139		0143	No Flare Patrol													
		27	0148		0153	No Flare Patrol													
		27	0515		0529	No Flare Patrol													
		27	0533		0554	No Flare Patrol													
		27	1059		1419	No Flare Patrol													
		27	2030		2050	No Flare Patrol													
		27	2215		2347	No Flare Patrol													
		28	0113		0123	No Flare Patrol													
		28	1205		1222	No Flare Patrol													
		29	0000		0223	No Flare Patrol													
		29	0246		0522	No Flare Patrol													
		29	0609		0627	No Flare Patrol													

Intervals of No Flare Patrol Observation

for Preceding Solar Flare Table

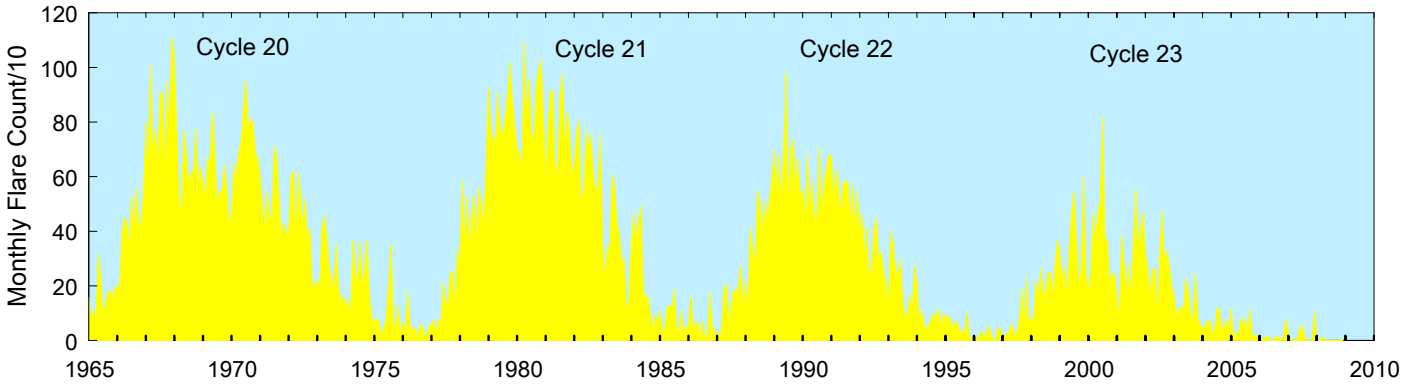
December 2008



Times of no flare patrol of any kind.
Times of no cinematographic flare patrol.

Stations participating: Holloman, Learmonth, SanVito, Kanzelhoehe, Kharkov..

Monthly Counts of Grouped Solar Flares
Jan 1965 - Dec 2008



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1965	158	85	110	74	315	231	99	127	173	184	150	193	1899
1966	194	205	390	449	429	323	528	391	558	432	417	543	4859
1967	796	589	1009	694	771	629	907	911	573	946	775	1109	9709
1968	1037	773	519	460	768	697	573	611	616	772	556	640	8022
1969	581	504	669	655	839	694	489	551	540	643	566	422	7153
1970	466	646	578	688	722	836	954	780	811	797	687	667	8632
1971	598	505	387	546	461	430	713	673	518	375	431	394	6031
1972	384	599	621	361	614	541	404	515	371	408	175	210	5203
1973	221	171	410	453	388	270	232	182	353	201	136	163	3180
1974	127	148	79	364	255	204	360	187	270	366	153	81	2594
1975	68	82	69	19	42	85	196	346	68	38	127	25	1165
1976	69	18	180	60	38	48	6	47	57	23	13	55	614
1977	54	77	18	76	64	210	140	140	250	252	107	336	1724
1978	274	588	338	526	330	460	533	346	554	499	418	648	5514
1979	926	781	731	731	907	772	750	821	901	1018	888	786	10012
1980	703	689	621	1092	811	956	763	720	924	988	1027	838	10132
1981	578	782	914	915	658	592	893	982	680	836	773	615	9218
1982	631	766	803	490	553	769	696	753	615	544	564	748	7932
1983	332	220	337	346	609	561	427	389	289	298	88	152	4048
1984	353	461	366	440	492	185	151	161	95	36	92	69	2901
1985	104	29	38	119	129	116	185	53	25	108	19	50	975
1986	51	158	54	56	68	3	71	12	14	174	56	13	730
1987	36	7	52	192	205	61	132	185	172	198	273	114	1627
1988	217	109	413	328	274	551	502	375	513	429	518	587	4816
1989	695	544	672	488	691	977	474	699	733	547	665	526	7711
1990	550	424	684	442	580	445	454	703	449	574	623	682	6610
1991	672	503	625	570	458	574	582	581	425	565	396	544	6495
1992	380	462	287	412	214	271	413	447	287	325	248	206	3952
1993	123	392	357	262	237	296	154	92	82	167	104	275	2541
1994	217	67	111	60	40	56	81	101	72	117	45	99	1066
1995	82	95	77	42	69	66	29	37	23	99	14	6	639
1996	14	3	15	34	21	16	54	31	3	0	44	45	280
1997	8	22	18	43	59	18	26	75	188	31	228	74	790
1998	78	76	216	161	264	177	164	248	249	155	268	367	2423
1999	330	212	271	145	330	466	544	368	192	264	598	243	3963
2000	175	248	462	362	473	505	818	364	372	208	241	246	4474
2001	147	77	383	284	164	282	137	376	549	325	405	468	3597
2002	318	261	155	263	259	91	318	474	280	329	279	196	3223
2003	164	87	112	122	117	226	181	94	73	245	78	53	1552
2004	49	47	71	72	32	33	118	112	30	54	76	34	728
2005	114	10	28	11	82	56	81	35	114	4	20	16	571
2006	4	0	11	16	4	2	1	17	11	3	12	78	159
2007	29	2	1	2	9	47	53	9	0	0	2	107	261
2008	2	0	12	4	0	0	0	0	0	0	6	0	24

The term 'grouped' means observations of the same event by different sites were lumped together and counted as one.

S O L A R R A D I O E M I S S I O N
Outstanding Occurrences

DECEMBER 2008

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density Peak (10 -22 W/m 2 Hz)	Flux Density Mean (10 -22 W/m 2 Hz)	Int	Remarks
11	410	SVTO	8 S	0923.0	0924.0	1.0	220.0			QL=4 ST=2 TYP=3
	410	LEAR	8 S	0924.0	0924.0	U	100.0			QL=4 ST=2 TYP=3

Reports are received routinely from the following observatories:

CUBA = Havana	LEAR = Learmonth	SGMR = Sagamore Hill
GORK = Gorky	PEKG = Peking	SVTO = San Vito
HIRA = Hiraiso	PALE = Palehua	TORN = Torun
IZMI = IZMIRAN	PENT = Penticton	UPIC = Upice

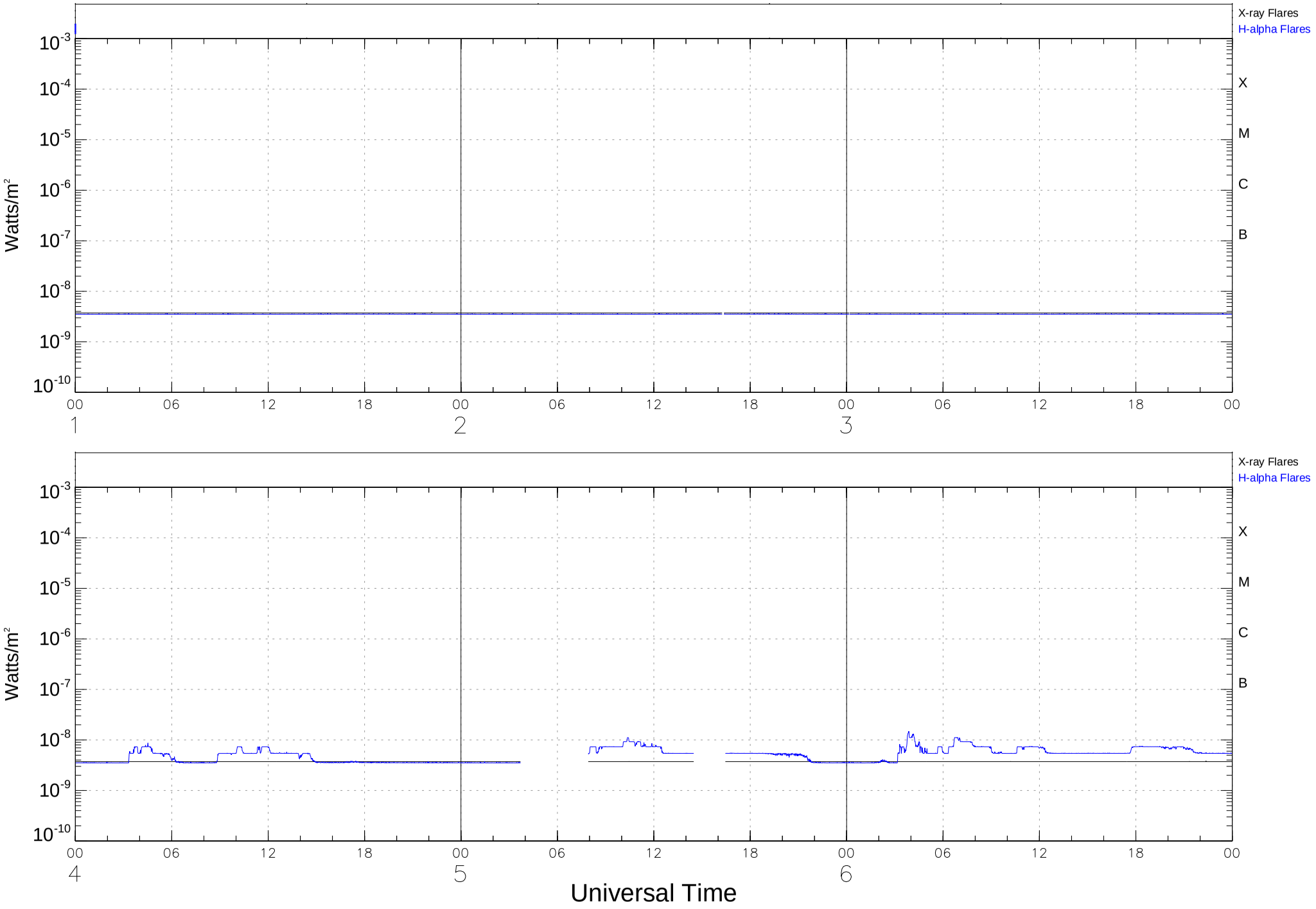
Explanation of Type Code:

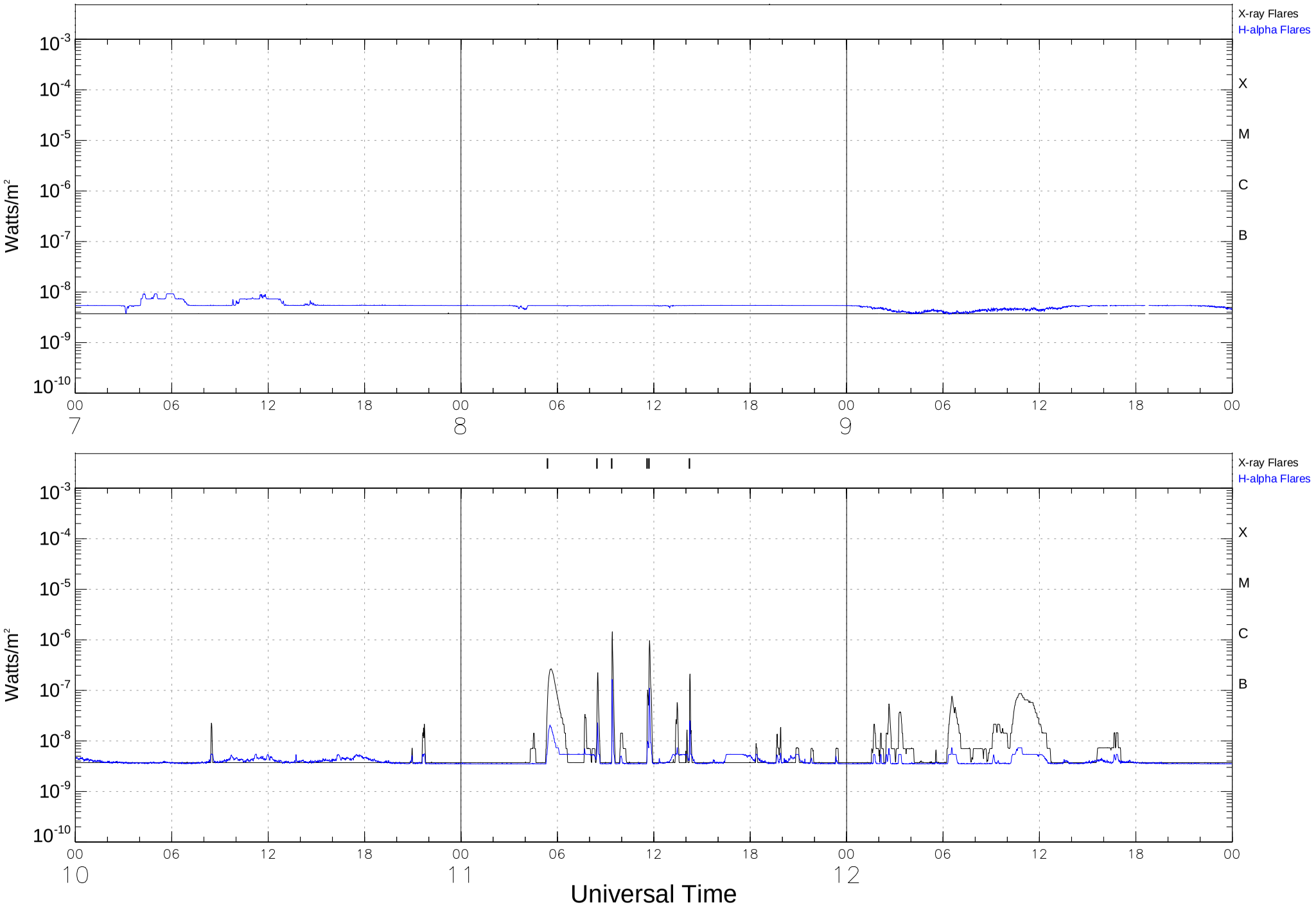
1 Simple 1	7 Minor +	24 Rise	30 Post Burst Increase A	43 Onset of Noise Storm
2 Simple 1F	8 Spike	25 Rise A	31 Post Burst Decrease	44 Noise Storm in Progress
3 Simple 2	20 Simple 3	26 Fall	33 Absorption	45 Complex
4 Simple 2F	21 Simple 3A	27 Rise and Fall	40 Fluctuation	46 Complex F
5 Simple	22 Simple 3F	28 Precusor	41 Group of Bursts	47 Great Burst
6 Minor	23 Simple 3AF	29 Post Burst Increase	42 Series of Bursts	48 Major

1A Simple 1A	4A Simple 2AF	24PF Post Rise F	27F Rise and Fall F
3A Simple 2A	4O Rise Only	16A Fall A	27AF Rise and Fall AF
21A Simple 3A GRF	4OF Rise Only F	26O Fall Only	31A Post Burst Decrease A
2A Simple 1AF	4P Post Rise	26F Fall F	32A Absorption A

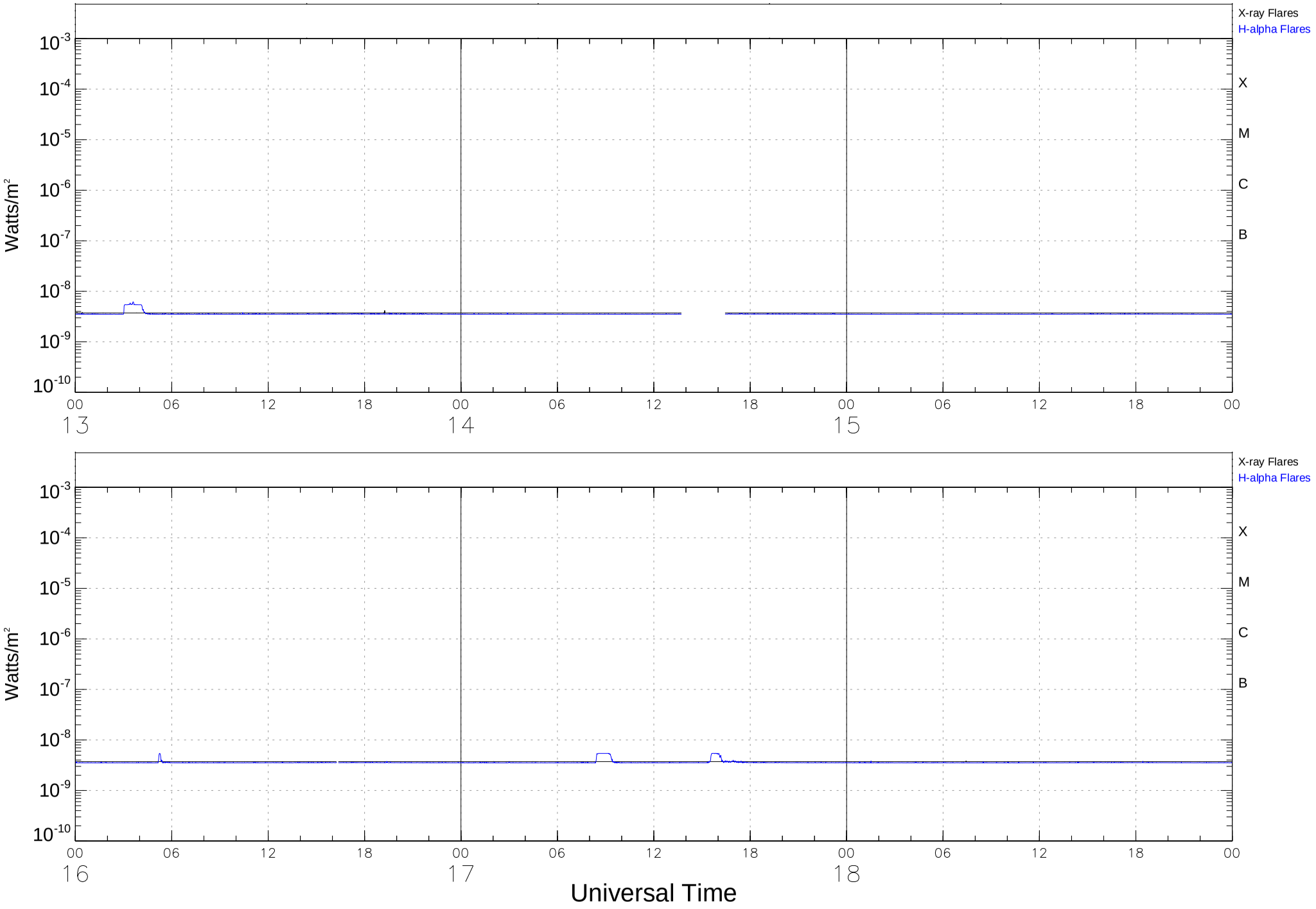
RSTN Site Information: Beginning in April 1986, the RSTN sites LEAR, PALE, SGMR, and SVTO fixed frequency solar radio data are periodically adjusted to several world standard stations. These world standard stations include: Kislovodsk, USSR 15,500 MHz; Penticton, Canada 2800 MHz; and Hiraiso, Japan 500 and 200 MHz.

GOES-10 Solar X-Rays (1-Minute Averages)
December 2008

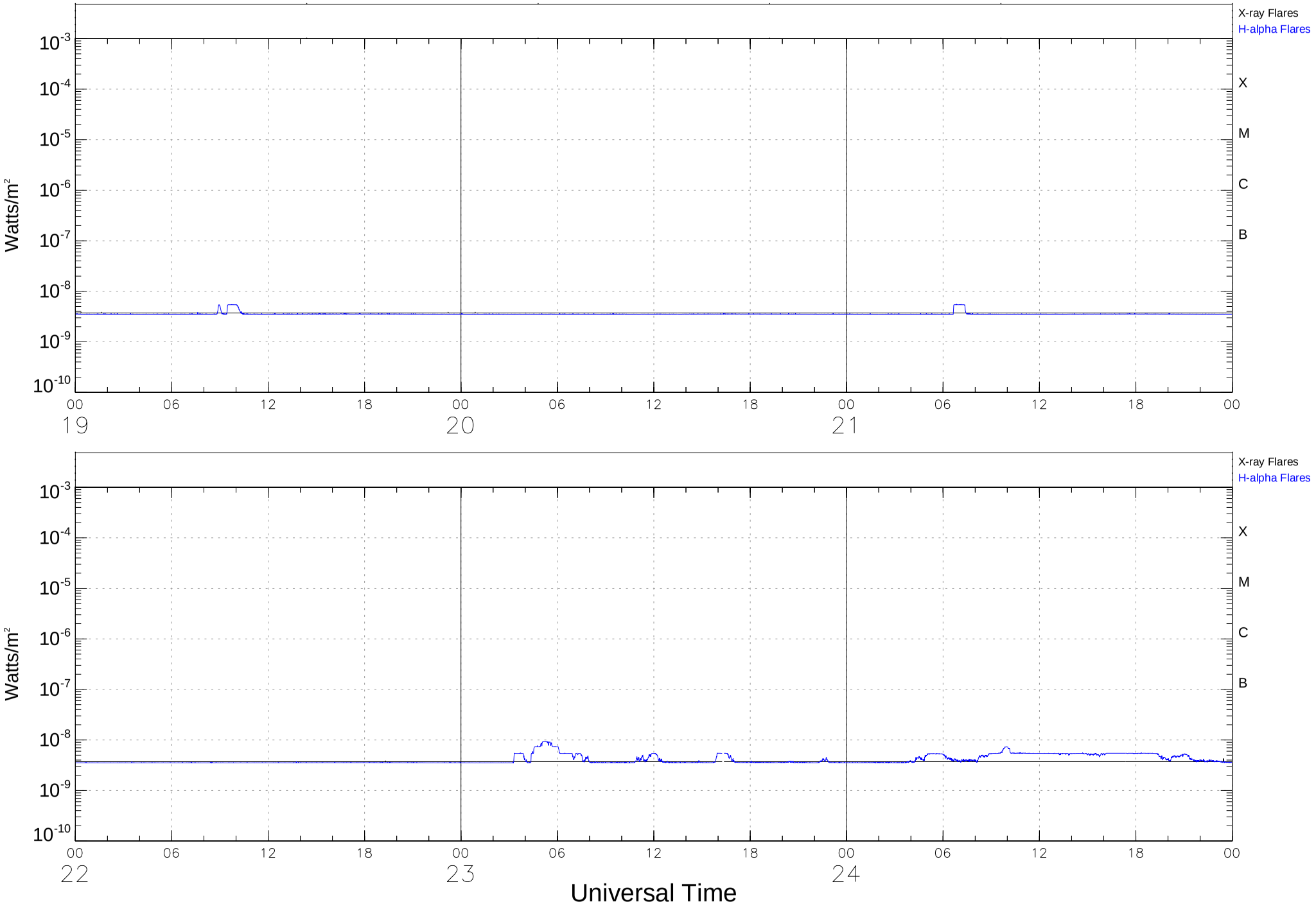



GOES-10 Solar X-Rays (1-Minute Averages)
December 2008
X-ray Flares
H-alpha Flares
Watts/m²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
10⁻⁷
10⁻⁸
10⁻⁹
10⁻¹⁰
X
M
C
B
00
06
12
18
7
8
9
10
11
12
Universal Time

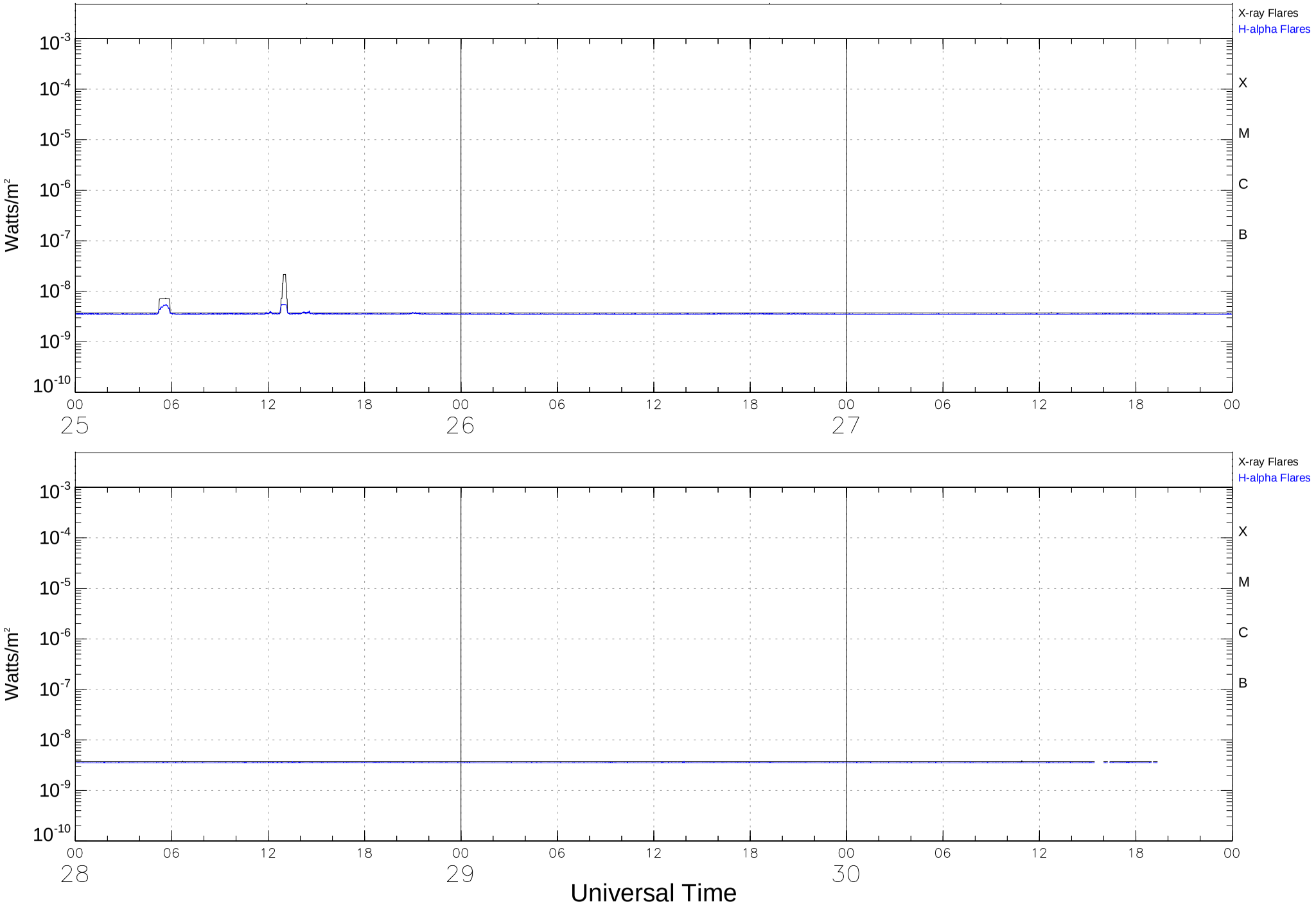
GOES-10 Solar X-Rays (1-Minute Averages)
December 2008

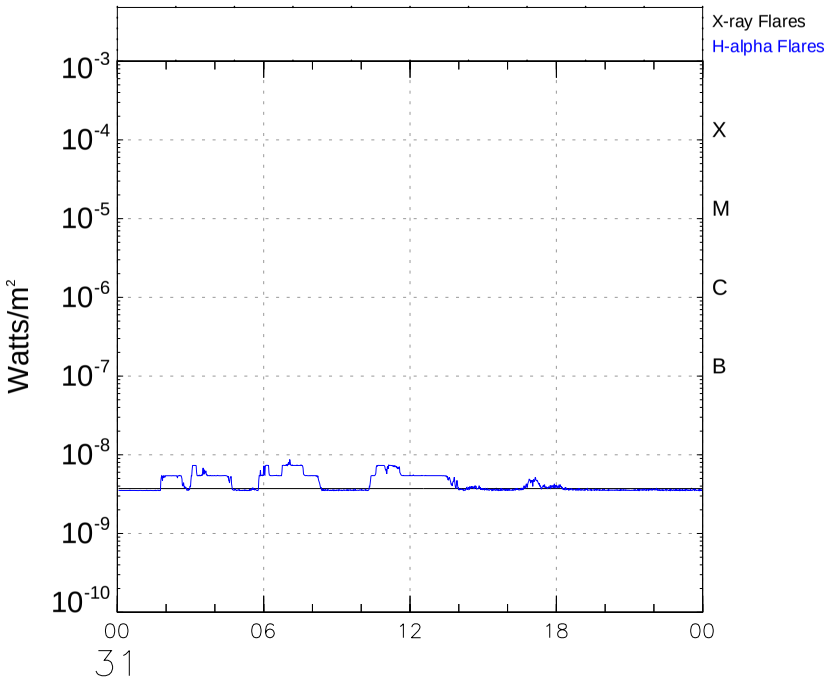


GOES-10 Solar X-Rays (1-Minute Averages)
December 2008



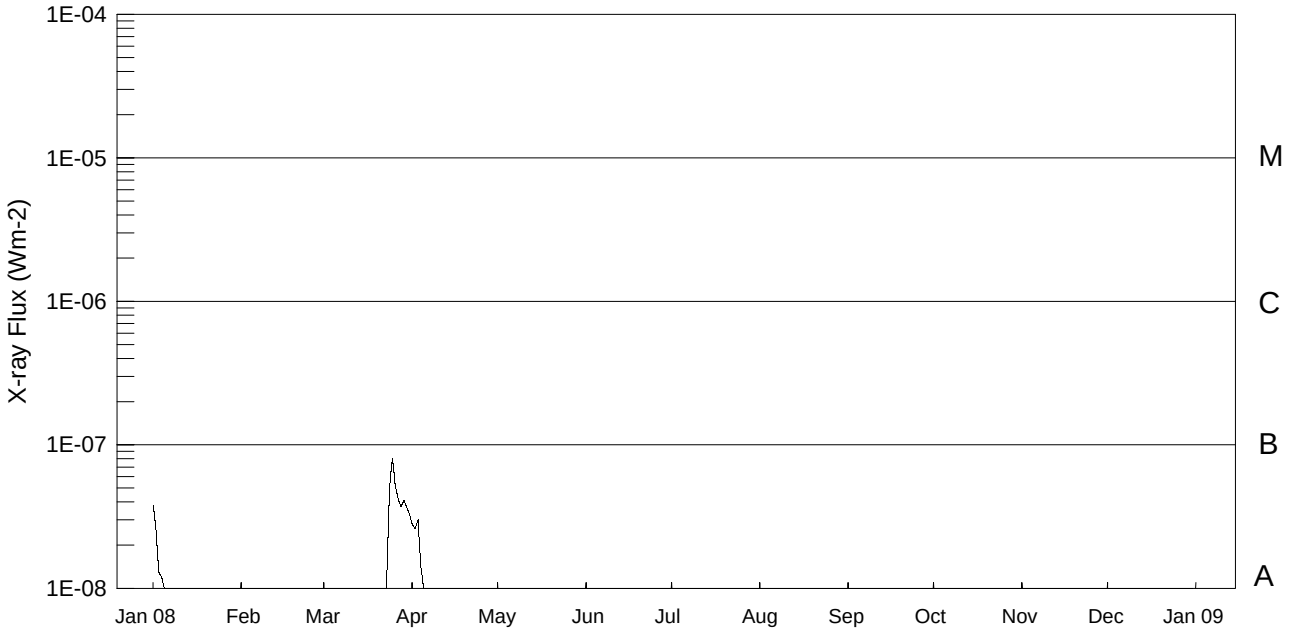
GOES-10 Solar X-Rays (1-Minute Averages)
December 2008




X-ray Flares
H-alpha Flares
Watts/m²
10-3
10-4
10-5
10-6
10-7
10-8
10-9
10-10
X
M
C
B
00
06
12
18
00
31

Preliminary GOES Satellite Daily X-Ray Background
Jan 2008 - Dec 2008

15 Dec 08



Day	Jan 08	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	A3.8	<A1.0	<A1.0	A2.8	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
2	A2.7	<A1.0	<A1.0	A2.6	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
3	A1.3	<A1.0	<A1.0	A3.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
4	A1.2	<A1.0	<A1.0	A1.4	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
5	A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
6	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
7	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
8	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
9	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
10	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
11	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
12	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
13	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
14	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
15	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
16	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
17	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
18	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
19	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
20	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
21	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
22	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
23	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
24	<A1.0	<A1.0	A5.1	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
25	<A1.0	<A1.0	A8.1	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
26	<A1.0	<A1.0	A5.2	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
27	<A1.0	<A1.0	A4.2	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
28	<A1.0	<A1.0	A3.7	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
29	<A1.0	<A1.0	A4.1	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
30	<A1.0		A3.7	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0	<A1.0
31	<A1.0		A3.3		<A1.0		<A1.0	<A1.0		<A1.0		<A1.0

Levels below B1.0 are unreliable.

ACTIVE PROMINENCES AND FILAMENTS

DECEMBER 2008

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP Mo Day	Imp	Extent	Blue Shift (.1 A)	Red Shift (.1 A)	Obs Type	Sta	NOAA/ USAF Reg#	Remarks

No Reports

ADF = Active Dark Filament
AFS = Arch Filament System
APR = Active Prominence
ASR = Active Surge Region
BSD = Bright Surge on Disk
BSL = Bright Surge on Limb
CAP = CAP Prominence (Tandberg-Hanssen)
CRN = Coronal Rain
DSD = Dark Surge on Disk
DSF = Disappearing Solar Filament
EPL = Eruptive Prominence on Limb
LPS = Loops
MDP = Mound Prominence
SDF/DSF = Sudden Disappearing Filament
SPY = Spray
SSB = Solar Sector Boundary

For SOLAR SECTOR BOUNDARY REPORTS, the latitude field contains the Carrington longitude of the point where a neutral line crosses the solar equator. The comments field may contain the Carrington longitude and central meridian distance of two more intersection points.

The EXTENT field for limb events is the radial extent above the limb in hundredths of solar radius. For disk events this field contains the heliographic extent in whole degrees.

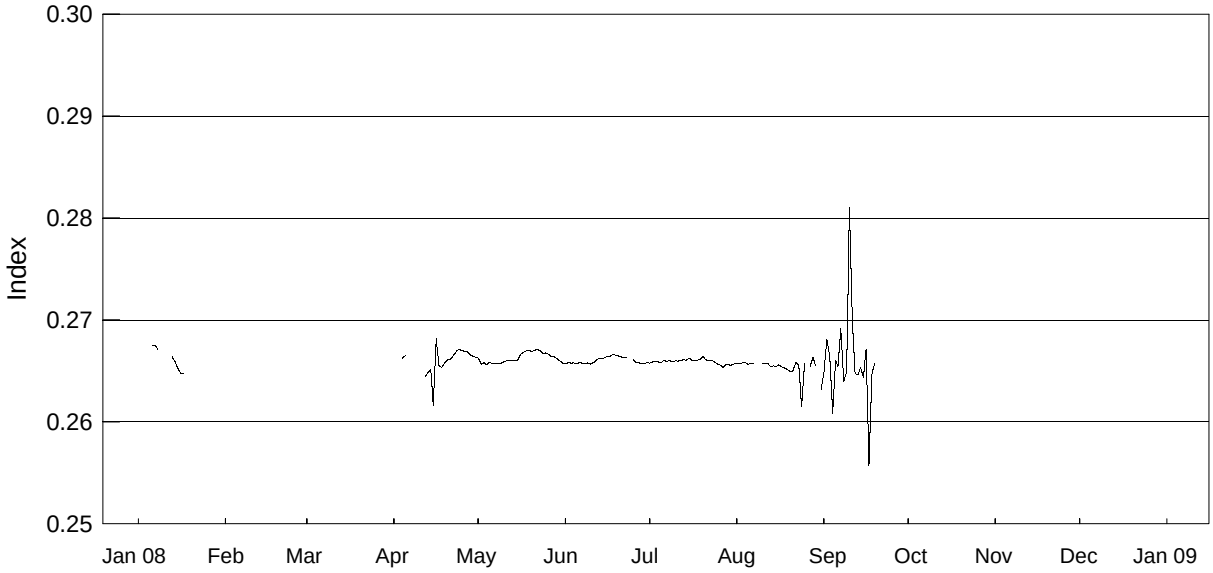
The remark "Bright Emission 1/3" indicates that bright emission was observed 1/3 of time.
The remark "Normal Emission 1/3" indicates that normal emission was observed 1/3 of time.

Observation Type: C= Cinematographic, E= Electronic, P= Photographic, V= Visual.

ABST = Abastumani
ATHN = Athens
BUCA = Bucharest
CATA = Catania
HOLL = Holloman
KHAR = Kharkov
LEAR = Learmonth
PALE = Palehua
RAMY = Ramey
SVTO = San Vito
VORO = Voroshilov
VALA = Valasske Mezirici
WROC = Wroclaw

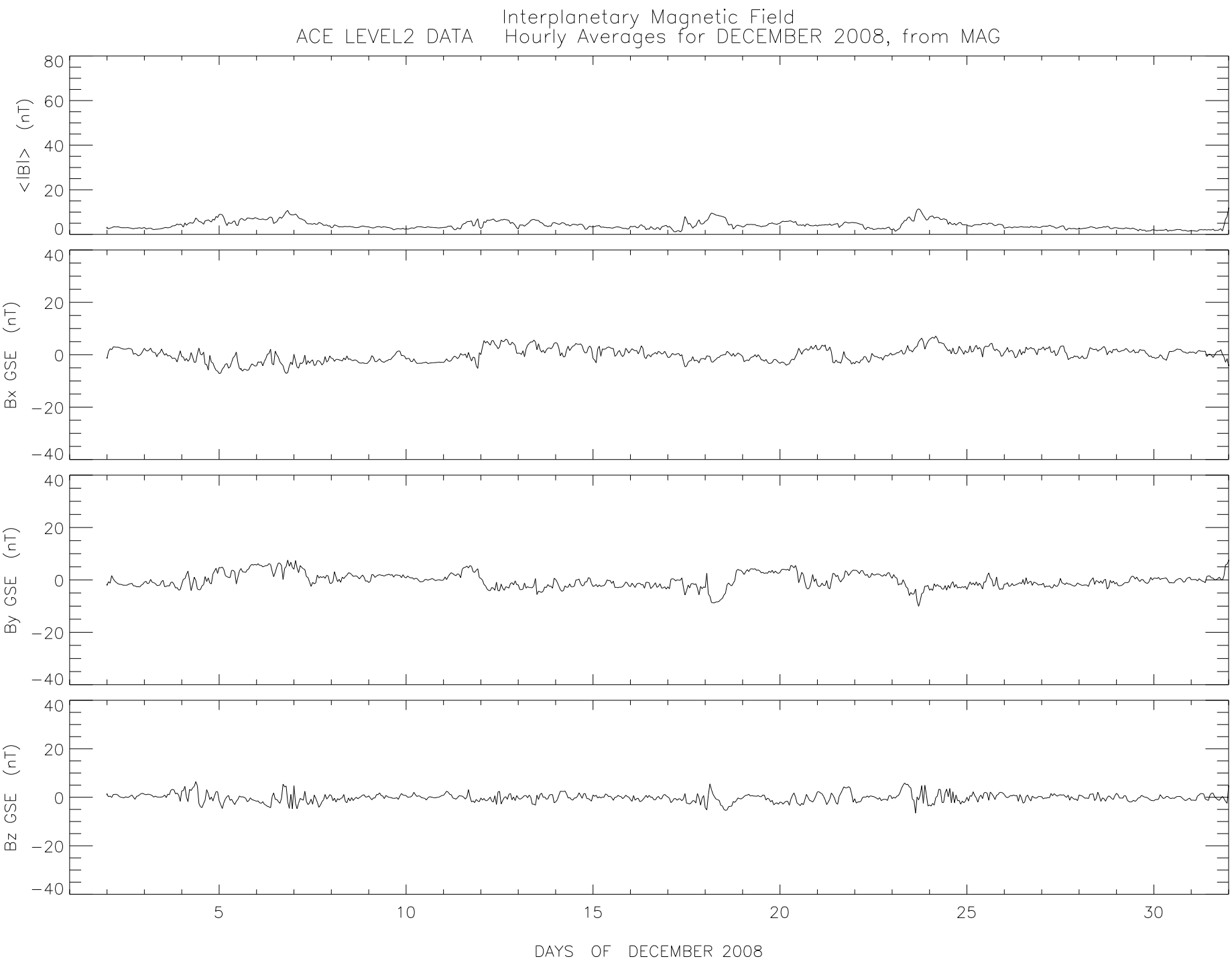
NOTE: The U.S. Air Force solar observing sites (HOLL, LEAR, RAMY, AND SVTO) have changed operational requirements and will only report the following: BSL, EPL, LPS, SPY, and DSF's.

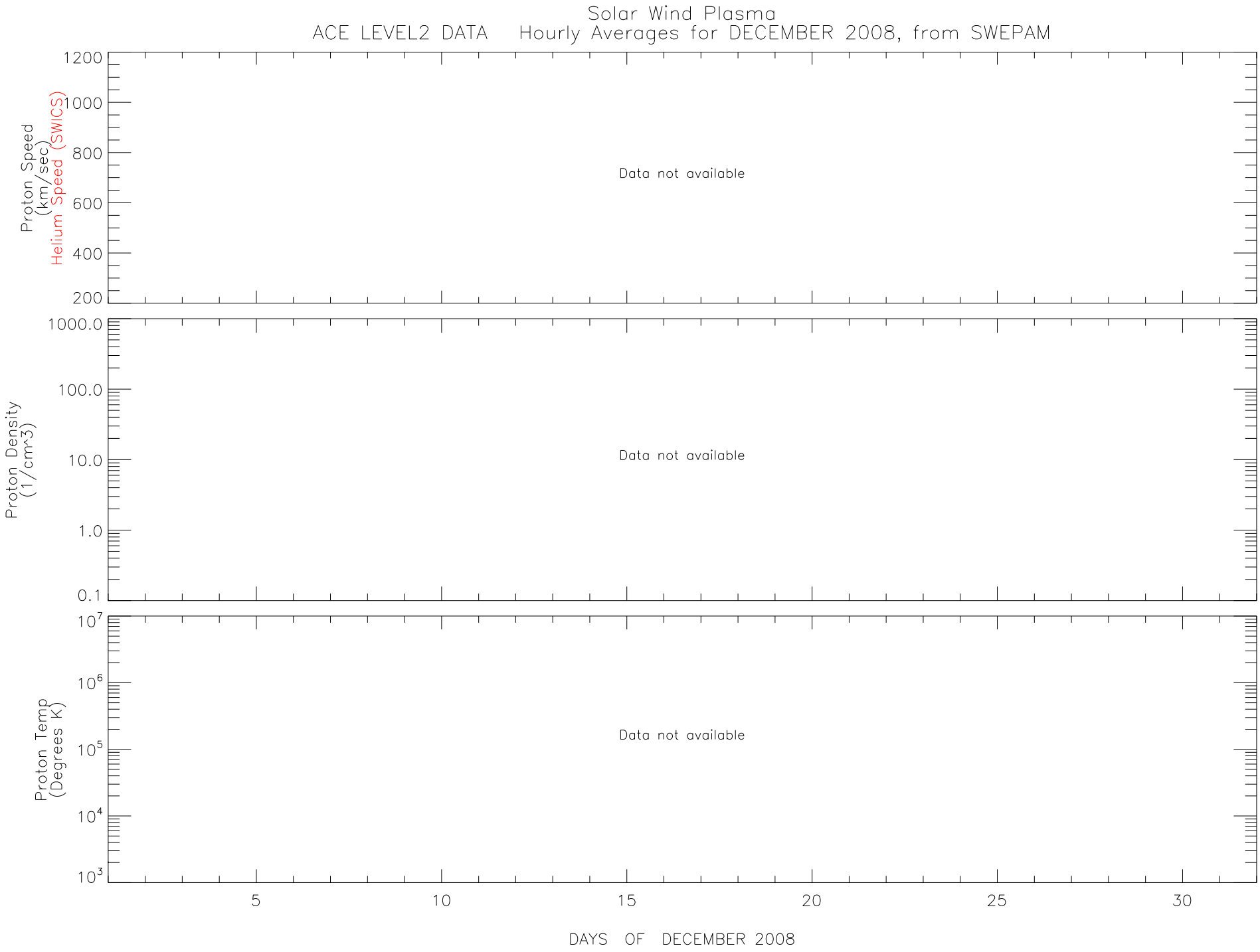
NOAA Solar Ultraviolet (UV) MgII Core-to-Wing Index
Jan 2008 - Dec 2008
Version 9.1

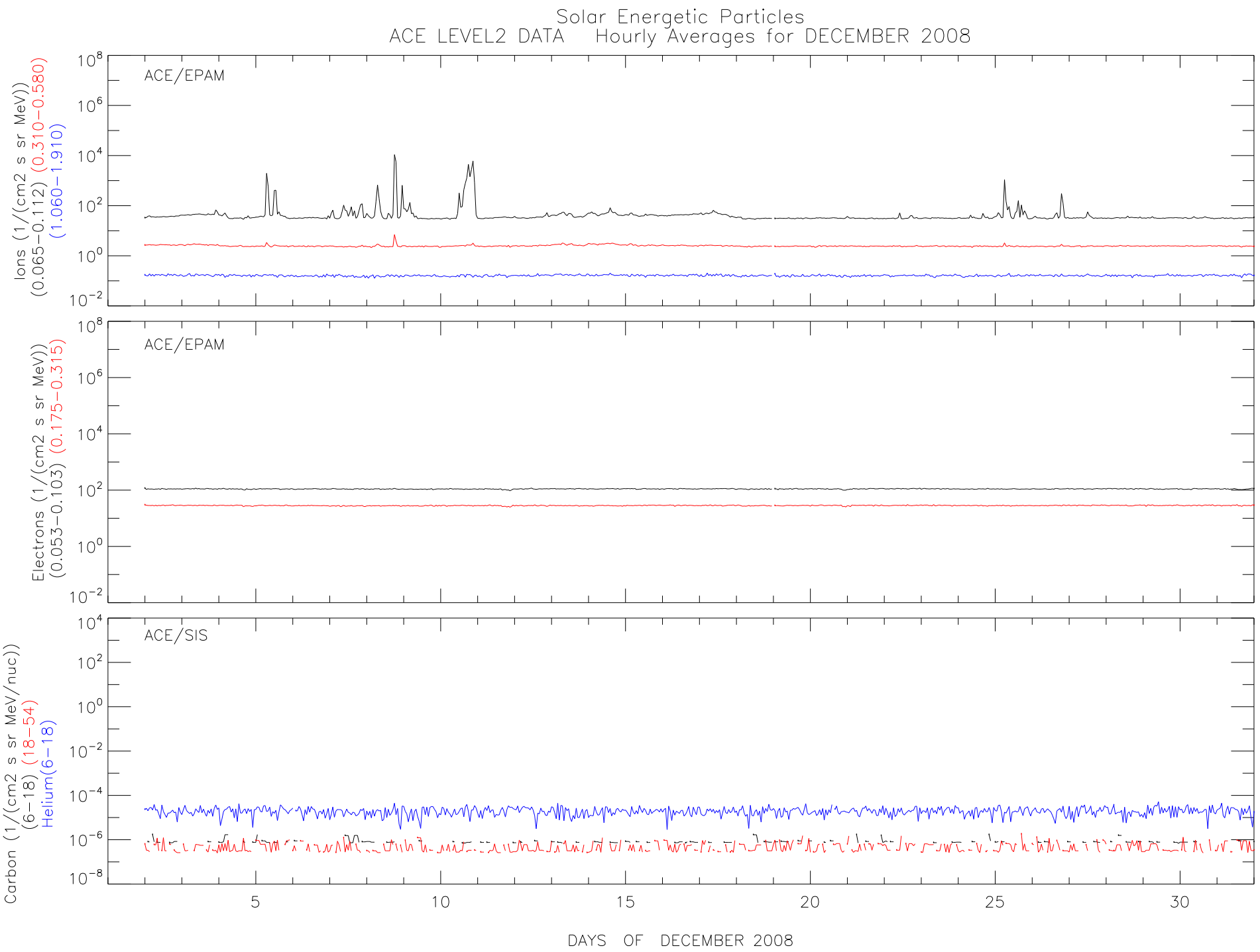


Day	Jan 08	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	---	---	---	---	0.2663	0.2657	0.2658	0.2657	0.2650	---	---	---
2	0.2658	---	---	---	0.2657	0.2658	0.2659	0.2657	0.2681	---	---	---
3	---	---	---	---	0.2658	0.2658	0.2660	0.2658	0.2664	---	---	---
4	---	---	---	0.2663	0.2656	0.2658	0.2659	0.2658	0.2608	---	---	---
5	---	---	---	0.2665	0.2659	0.2657	0.2658	0.2657	0.2661	---	---	---
6	0.2675	---	---	---	0.2657	0.2659	0.2661	0.2657	0.2655	---	---	---
7	0.2675	---	---	---	0.2657	0.2658	0.2659	0.2657	0.2692	---	---	---
8	0.2671	---	---	---	0.2657	0.2658	0.2660	---	0.2640	---	---	---
9	---	---	---	---	0.2658	0.2658	0.2659	---	0.2649	---	---	---
10	---	---	---	---	0.2659	0.2657	0.2660	0.2658	0.2810	---	---	---
11	0.2527	---	---	---	0.2660	0.2658	0.2660	0.2657	0.2704	---	---	---
12	---	---	---	0.2644	0.2660	0.2661	0.2660	0.2657	0.2648	---	---	---
13	0.2664	---	---	0.2649	0.2660	0.2663	0.2661	0.2654	0.2646	---	---	---
14	0.2659	---	---	0.2651	0.2660	0.2662	0.2661	0.2655	0.2654	---	---	---
15	0.2653	---	---	0.2617	0.2661	0.2663	0.2663	0.2654	0.2644	---	---	---
16	0.2648	---	---	0.2682	0.2667	0.2665	0.2660	0.2656	0.2671	---	---	---
17	0.2647	---	---	0.2655	0.2668	0.2665	0.2660	0.2654	0.2557	---	---	---
18	---	---	---	0.2654	0.2670	0.2667	0.2660	0.2653	0.2647	---	---	---
19	---	---	---	0.2658	0.2670	0.2665	0.2662	0.2651	0.2658	---	---	---
20	---	---	---	0.2661	0.2669	0.2665	0.2664	0.2649	---	---	---	---
21	---	---	---	0.2662	0.2670	0.2664	0.2661	0.2650	---	---	---	---
22	---	---	---	0.2665	0.2672	0.2664	0.2660	0.2659	0.2637	---	---	---
23	---	---	---	0.2669	0.2670	0.2664	0.2660	0.2656	---	---	---	---
24	---	---	---	0.2671	0.2667	---	0.2659	0.2615	---	---	---	---
25	---	---	---	0.2670	0.2668	0.2661	0.2657	0.2657	0.2561	---	---	---
26	---	---	---	0.2669	0.2666	0.2659	0.2656	---	---	---	---	---
27	---	---	---	0.2669	0.2664	0.2659	0.2654	0.2654	---	---	---	---
28	---	---	---	0.2666	0.2664	0.2657	0.2656	0.2664	---	---	---	---
29	---	---	---	0.2664	0.2662	0.2657	0.2656	0.2655	---	---	---	---
30	---		---	0.2664	0.2662	0.2658	0.2656	---	---	---	---	---
31	---		---		0.2660		0.2656	0.2632		---		---
Mean	0.2661	---	---	0.2660	0.2663	0.2660	0.2659	0.2651	0.2654			

Data at: http://www.swpc.noaa.gov/ftpmenu/sbuv.html


Interplanetary Magnetic Field
ACE LEVEL2 DATA Hourly Averages for DECEMBER 2008, from MAG
<|B|> (nT)
Bx GSE (nT)
By GSE (nT)
Bz GSE (nT)
80
60
40
20
0
40
20
0
−20
−40
5
10
15
20
25
30
DAYS OF DECEMBER 2008


Solar Wind Plasma
ACE LEVEL2 DATA Hourly Averages for DECEMBER 2008, from SWEPAM
Proton Speed (km/sec)
Helium Speed (SWICS)
1200
1000
800
600
400
200
Data not available
Proton Density (1/cm^3)
1000.0
100.0
10.0
1.0
0.1
Data not available
Proton Temp (Degrees K)
10^7
10^6
10^5
10^4
10^3
Data not available
5
10
15
20
25
30
DAYS OF DECEMBER 2008


Solar Energetic Particles
ACE LEVEL2 DATA Hourly Averages for DECEMBER 2008
ACE/EPAM
Ions (1/(cm2 s sr MeV))
(0.065–0.112) (0.310–0.580)
(1.060–1.910)
ACE/EPAM
Electrons (1/(cm2 s sr MeV))
(0.053–0.103) (0.175–0.315)
ACE/SIS
Carbon (1/(cm2 s sr MeV/nuc))
(6–18) (18–54)
Helium(6–18)
DAYS OF DECEMBER 2008

SOLAR CORONAL MASS EJECTIONS (CMEs)
FROM SOHO/LASCO

http://cdaw.gsfc.nasa.gov/

Center for Solar Physics and Space Weather (CSPSW) – The Catholic University of America/NRL/NASA

DECEMBER 2008

First C2 Appearance		Central Position	Width Angular	Linear Fit	----2nd order speed-----			Accel	Measurement Position	Remarks
Date	Time UT	Angle degree	Width degree	Speed km/s	Initial km/s	Final km/s	20R km/s	m/s^2	Angle degree	
2008/12/01	17:30:04	264	18	816	575	1081	2425	234.5*	266	Very Poor; 3 pts; Only C2
2008/12/01	23:30:04	76	65	146	109	182	238	1.9*	89	Very Poor Event
2008/12/02	18:30:06	291	29	207	177	239	292	2.2*	295	Poor Event
2008/12/02	20:30:04	7	5	280	248	312	683	17.6*	10	Very Poor; 3 pts; Only C2
2008/12/03	04:30:04	162	6	269	358	182	0	-35.0*	158	Very Poor Event; Only C2
2008/12/03	08:30:05	353	6	392	244	555	1888	143.9*	352	Very Poor; 3 pts; Only C2
2008/12/03	12:54:05	54	6	492	261	739	1651	110.1*	60	Poor Event; Only C2
2008/12/03	20:30:04	16	6	544	339	766	2160	187.0*	20	Very Poor; 3 pts; Only C2
2008/12/04	04:30:04	351	6	297	289	305	440	4.5*	351	Very Poor Event; Only C2
2008/12/04	15:54:04	351	7	293	287	299	380	2.6*	350	Very Poor Event; Only C2
2008/12/04	22:30:04	109	10	229	199	260	304	2.4*	108	Very Poor Event
2008/12/05	10:06:04	18	7	283	387	181	0	-41.7*	24	Poor Event; Only C2
2008/12/05	16:31:44	243	9	310	390	231	0	-31.1*	250	Poor Event; Only C2
2008/12/06	07:31:39	258	22	235	161	306	701	19.6*	266	Very Poor Event; Only C2
2008/12/06	12:30:04	15	7	236	276	198	0	-21.1*	17	Very Poor; 3 pts; Only C2
2008/12/06	12:30:04	292	20	412	460	362	244	-6.3*	289	Poor Event
2008/12/06	18:54:04	295	9	243	223	264	299	1.8*	288	Poor Event
2008/12/06	18:54:04	251	19	156	106	203	346	4.5*	253	Very Poor Event
2008/12/06	22:06:04	85	59	217	75	362	333	4.3*	86	
2008/12/07	02:06:05	287	23	233	214	252	325	2.5*	284	
2008/12/07	09:54:27	152	10	187	99	283	1050	45.5*	145	Very Poor; 3 pts; Only C2
2008/12/07	15:30:04	288	6	240	158	334	407	6.3*	290	Very Poor Event
2008/12/07	16:06:04	91	23	191	140	248	351	4.3*	90	Poor Event
2008/12/08	15:30:04	286	47	146	44	256	286	3.3	284	
2008/12/09	18:30:04	241	7	252	159	343	937	35.9*	247	Very Poor Event; Only C2
2008/12/10	04:30:04	254	17	333	262	406	568	10.5*	251	Very Poor Event
2008/12/11	06:06:04	263	43	185	206	163	0	-4.9*	261	Poor Event; Only C2
2008/12/11	09:30:04	157	7	349	417	283	0	-26.9*	150	Poor Event; Only C2
2008/12/11	11:30:04	98	38	118	133	105	0	-3.0*	102	Very Poor Event; Only C2
2008/12/11	16:30:04	258	40	137	0	319	334	4.9*	263	Poor Event
2008/12/11	18:54:04	76	9	373	215	522	1285	67.5*	79	Poor Event; Only C2
2008/12/12	08:54:04	297	184	203	90	322	432	7.4*	317	Poor Event; Partial Halo
2008/12/12	09:30:04	154	8	281	230	333	868	29.4*	149	Very Poor Event; Only C2
2008/12/13	01:31:43	188	5	188	276	109	0	-19.4*	191	Very Poor Event; Only C2
2008/12/13	07:31:40	189	5	196	101	296	1141	55.8*	191	Very Poor; 3 pts; Only C2
2008/12/13	15:54:04	259	26	318	349	285	233	-2.8*	263	
2008/12/14	09:30:04	254	19	281	320	240	0	-6.5*	257	Poor Event
2008/12/14	12:54:04	13	5	275	173	386	1205	58.9*	18	Very Poor; 3 pts; Only C2
2008/12/15	11:30:04	73	13	342	244	440	1024	40.4*	77	Very Poor Event; Only C2
2008/12/15	19:31:36	106	71	148	0	351	309	4.0*	102	
2008/12/16	12:54:04	262	10	198	176	221	243	1.2*	260	Very Poor Event
2008/12/16	13:31:38	201	8	680	918	446	0	-136.4*	205	Poor Event; Only C2

SOLAR CORONAL MASS EJECTIONS (CMEs)
FROM SOHO/LASCO

http://cdaw.gsfc.nasa.gov/

Center for Solar Physics and Space Weather (CSPSW) – The Catholic University of America/NRL/NASA

DECEMBER 2008

First C2 Appearance		Central Position	Width Angular	Linear Fit	----2nd order speed-----			Measurement Accel	Measurement Position	Remarks
Date	Time UT	Angle degree	Width degree	Speed km/s	Initial km/s	Final km/s	20R km/s	m/s^2	Angle degree	
2008/12/17	00:31:39	352	6	412	76	780	2805	340.9*	349	Very Poor; 3 pts; Only C2
2008/12/18	05:30:05	154	6	369	542	195	0	-96.3*	150	Very Poor Event; Only C2
2008/12/18	06:54:05	58	7	171	36	316	1383	77.7*	58	Very Poor; 3 pts; Only C2
2008/12/18	08:30:04	119	23	231	154	307	360	4.6*	107	Poor Event
2008/12/18	18:30:04	344	5	231	221	240	373	3.8*	349	Very Poor Event; Only C2
2008/12/18	21:30:07	52	25	304	312	296	254	-1.4*	55	Very Poor Event
2008/12/19	01:31:40	53	44	178	176	181	189	0.2*	51	Very Poor Event
2008/12/20	06:54:04	7	8	308	178	441	1211	60.9*	9	Very Poor; 3 pts; Only C2
2008/12/20	20:30:04	253	24	196	254	135	0	-5.6*	256	Poor Event
2008/12/20	20:30:04	61	25	205	190	219	296	2.3*	74	Very Poor Event
2008/12/22	05:30:04	101	9	432	529	341	0	-50.9*	99	Very Poor; 3 pts; Only C2
2008/12/23	18:06:06	8	11	213	207	220	311	2.2*	14	Very Poor Event; Only C2
2008/12/24	06:30:27	289	16	179	219	140	0	-7.0*	287	Very Poor Event
2008/12/24	12:54:04	133	7	346	194	510	1477	87.7*	132	Very Poor; 3 pts; Only C2
2008/12/25	04:30:04	256	16	220	166	271	562	11.9*	259	Very Poor Event; Only C2
2008/12/27	05:30:04	48	114	468	349	604	562	8.0	62	
2008/12/28	00:30:04	77	9	173	109	238	308	3.7*	83	Poor Event
2008/12/28	01:54:06	9	6	286	449	138	0	-144.4*	12	Very Poor; 3 pts; Only C2
2008/12/28	08:30:05	70	13	211	176	247	313	2.9*	76	Very Poor Event
2008/12/28	12:54:04	60	28	203	97	312	394	6.0*	65	Poor Event
2008/12/28	20:30:04	254	10	231	133	337	365	4.9*	263	Poor Event
2008/12/29	17:54:04	269	42	320	330	309	286	-1.1*	274	
2008/12/29	23:06:04	6	7	399	520	278	0	-83.9*	10	Very Poor; 3 pts; Only C2
2008/12/30	01:31:39	53	13	88	79	98	138	0.5*	53	Very Poor Event
2008/12/30	18:30:04	150	8	361	244	476	1051	44.2*	145	Very Poor Event; Only C2
2008/12/30	21:30:08	152	12	324	377	271	0	-29.5*	144	Very Poor Event; Only C2
2008/12/31	07:06:04	29	7	415	410	419	476	2.4*	36	Very Poor Event; Only C2
2008/12/31	14:30:04	287	15	269	243	295	550	10.4*	285	Very Poor Event; Only C2

*** Acceleration is uncertain due to either poor height measurement or a small number of height-time measurements.**