

SEPTEMBER 2009 NUMBER 781 - Part II

Solar-Geophysical Data comprehensive reports



Data for March 2009

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

SEPTEMBER 2009 NUMBER 781 - Part II

Solar-Geophysical Data comprehensive reports

Data for March 2009

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 781

(Issued in Two Parts)

Editor: Edward H. Erwin

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

CONTENTS

PART I (PROMPT REPORTS)		Page
DETAILED INDEX FOR 2009	.....	2
DATA FOR AUGUST 2009	.....	3- 32
DATA FOR JULY 2009	.....	33- 99

PART II (COMPREHENSIVE REPORTS)		Page
DETAILED INDEX FOR 2009	.....	2
DATA FOR MARCH 2009	.....	3- 22

DETAILED INDEX OF OBSERVATIONS PUBLISHED IN SOLAR-GEOPHYSICAL DATA

CODE	KIND OF OBSERVATION	JAN 09	FEB	MAR	APR	MAY	JUN	JUL	AUG
A. SOLAR AND INTERPLANETARY									
A.1	Sunspot Drawings	775A 38	776A 40	777A 40	778A 40	779A 40	780A 40	781A 40	
A.2aa	International Sunspot Numbers	774A 24	775A 20	776A 24	777A 23	778A 24	779A 23	780A 24	781A 24
A.2c	American Sunspot Numbers	774A 24	775A 20	776A 24	777A 23	778A 24	779A 23	780A 24	781A 24
A.3a	Mt. Wilson Magnetograms	775A 38	776A 40	777A 40	778A 40	779A 40	780A 40	781A 40	
A.3b	Sunspot Mag Class and Regions	775A 75	776A 73	777A 77	778A 75	779A 77	780A 75	781A 77	
A.3c	Kitt Peak Magnetograms	775A 38	776A 40	777A 40	778A 40	779A 40	780A 40	781A 40	
A.3d	Mean Solar Mag Field (Stanford)	774A 30	775A 28	776A 30	777A 29	778A 30	779A 29	780A 30	781A 30
A.3e	Stanford Magnetograms	775A 38	776A 40	777A 40	778A 40	779A 40	780A 40	781A 40	
A.4	H-alpha Filtergrams	775A 38	776A 40	777A 40	778A 40	779A 40	780A 40	781A 40	
A.5d	PhotometricCa FaculaeSanFernando	Jan 92-Dec 96-631B 22; 1997-1998 663B 66							
A.6c	Stanford Solar Mag Field Map	775A 32	776A 34	777A 34	778A 34	779A 34	780A 34	781A 34	
A.6d	Kitt Peak Mag Field Synoptic Map	775A 37	776A 39	777A 39	778A 39	779A 39	780A 39	781A 39	
A.6f	Active Prominences and Filaments	779B 17	780B 16	781B 16					
A.6g	Sac Peak Coronal Line Maps	775A 35	776A 37	777A 37	778A 37	779A 37	780A 37	781A 37	
A.6h	Photometric WL SanFernando	Jul-Dec 96 630B 32; 1997-1998 663B 51							
A.7h	Coronal Line Emission (Sac Peak)	775A 36	776A 38	777A 38	778A 40	779A 40	780A 40	781A 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)	779B 22	780B 21	781B 21					
A.8aa	2800 MHz- Solar Flux (Penticton)	774A 24	775A 20	776A 24	777A 23	778A 24	779A 23	780A 24	781A 24
A.8ac	2800 MHz Adj Solar Flux (Pent.)	774A 24	775A 20	776A 24	777A 23	778A 24	779A 23	780A 24	781A 24
A.8g	Adjusted Daily Solar Flux SGMR	774A 24	775A 20	776A 24	777A 23	778A 24	779A 23	780A 24	781A 24
A.10g	Nancay Radioheliolo 150.9&327MHz	775A 80	776A 78	777A 83	778A 80	779A 83	780A 82	781A 83	
A.10h	Nobeyama Radioheliogr 17 GHz	775A 69	776A 68	777A 71	778A 70	779A 71	780A 70	781A 71	
A.11g	Solar X-ray GOES (graphs)	779B 10	780B 10	781B 10					
A.11g	Solar X-ray GOES (event table)	774A 28	775A 26	776A 28	777A 27	778A 28	779A 27	780A 28	781A 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	779B 18	780B 17	781B 17					
A.12g	Solar Particles (GOES)	774A 4	775A 4	776A 4	777A 4	778A 4	779A 4	780A 4	781A 4
A.12i	Solar Energetic Particles (ACE)	779B 21	780B 20	781B 20					
A.13g	Solar Plasma (ACE)	779B 20	780B 19	781B 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	779B 19	780B 18	781B 18					
C. SOLAR FLARE-ASSOCIATED EVENT									
C.1a	H-alpha Flares	774A 27	775A 25	776A 27	777A 26	778A 27	779A 26	780A 27	781A 27
C.1ba	H-alpha Flare Groups	779B 4	780B 4	781B 4					
C.1d	Flare Patrol Observations	779B 7	780B 7	781B 7					
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	779B 9	780B 9	781B 16					
C.3	Radio Bursts Fixed Freq Selected	774A 29	775A 27	776A 29	777A 28	778A 29	779A 28	780A 29	781A 29
C.4	Radio Bursts Spectral	775A 77	776A 75	777A 79	778A 77	779A 79	780A 78	781A 79	
C.6	Sudden Ionospheric Disturbances	775A 76	776A 74	777A 78	778A 76	779A 80	780A 77	781A 78	
D. GEOMAGNETIC EVENTS									
D.1a	Geomagnetic Indices	775A 85	776A 83	777A 90	778A 87	779A 90	780A 89	781A 91	
D.1ba	27-day Chart of Kp Indices	775A 87	776A 85	777A 92	778A 89	779A 92	780A 91	781A 93	
D.1cb	Monthly Mean aa Indices	775A 89	776A 86	777A 93	778A 90	779A 93	780A 92	781A 94	
D.1d	Principal Magnetic Storms	775A 95	776A 90	777A 97	778A 94	779A 97	780A 96	781A 98	
D.1f	Sudden Commencements	775A 96	776A 91	777A 98	778A 95	779A 98	780A 97	781A 99	
D.1g	Equatorial Indices Dst	775A 93	776A 88	777A 95	778A 92	779A 95	780A 94	781A 96	
D.1l	Polar Cap (PC) Index	775A 94	776A 89	777A 96	778A 93	779A 96	780A 95	781A 97	
F. COSMIC RAYS									
F.1b	Cosmic Ray Neutron Cts (Climax)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1h	Cosmic Ray Neutron Cts (Thule)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1l	Cosmic Ray Neutron Cts (Kiel)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1n	Cosmic Ray Neutron Cts (Beijing)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1m	Cosmic Ray Neutron (Haleakala)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1o	Cosmic Ray Neutron (Moscow)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
F.1p	Cosmic Ray Neutron Cts (Calgary)	775A 82	776A 80	777A 85	778A 82	779A 85	780A 84	781A 86	
H. MISCELLANEOUS									
H.60	ISES Alert Periods	774A 20	775A 18	776A 20	777A 19	778A 20	779A 19	780A 20	781A 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

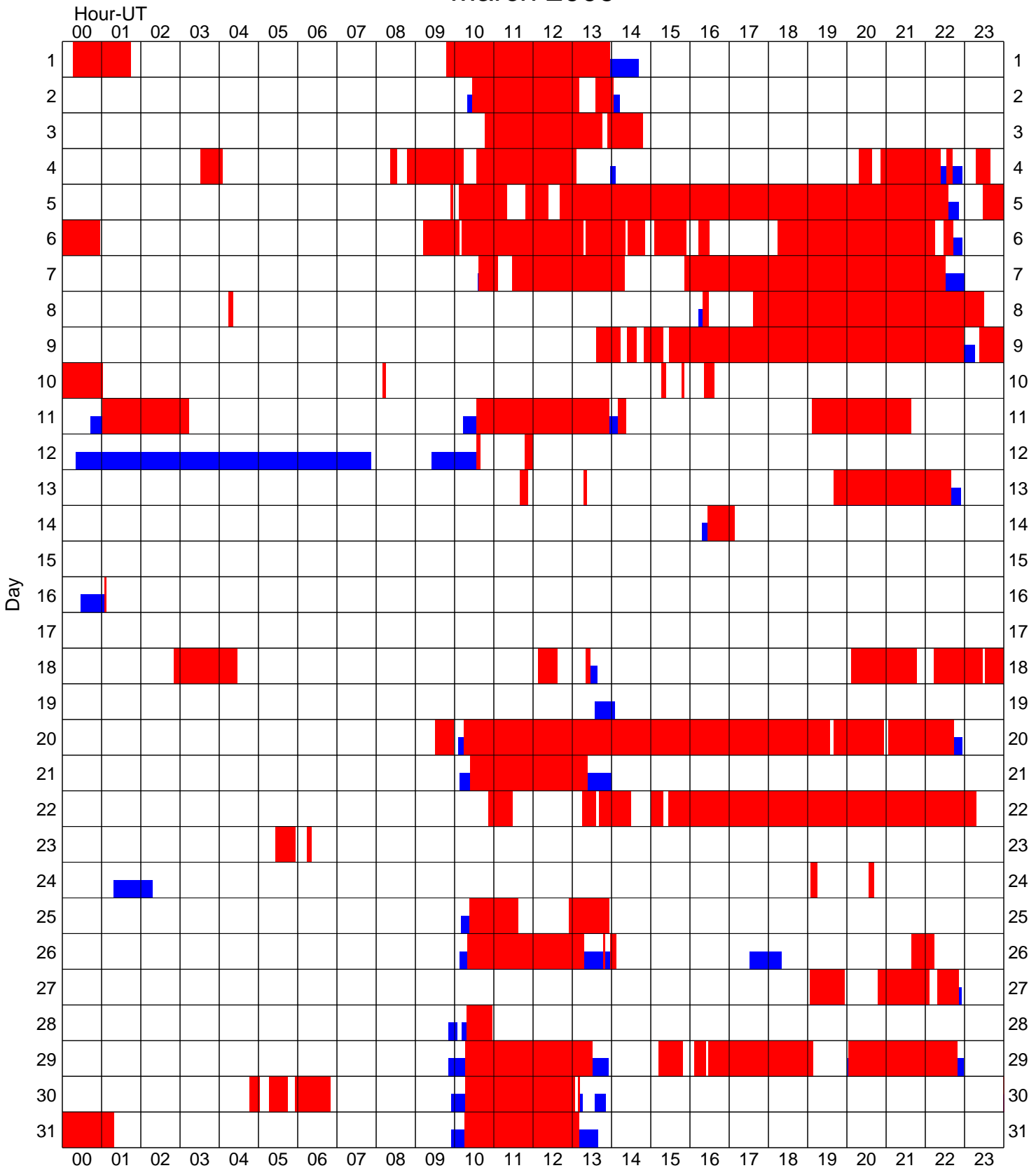
Number 781 Part II

DATA FOR MARCH 2009

	Page
SOLAR FLARES	
H-alpha Solar Flare Groups	4- 5
Intervals of No Flare Patrol Observation	6
Number of Solar Flares January 1965-present	7
SOLAR RADIO BURSTS AT FIXED FREQUENCIES	8
SOLAR X-RAY RADIATION FROM GOES SATELLITE	
Graphs	9- 14
Preliminary Event List -- See Solar X-ray Flare List in Mar 09 prompt Reports	
Preliminary Daily Average Background	15
ACTIVE PROMINENCES AND FILAMENTS	16
SOLAR ULTRAVIOLET DAILY DATA FROM NOAA SATELLITE	
NOAA Mg II Daily Index Version 9.1	17
INTERPLANETARY ENVIRONMENT HOURLY AVERAGE PLOTS	
FROM ADVANCED COMPOSITION EXPLORER (ACE) SATELLITE	
Interplanetary Magnetic Field -- MAG	18
Solar Wind Plasma -- SWEPAM	19
Solar Energetic Particles -- EPAM/SIS (Ions, Electrons, and Carbon)	20
SOLAR CORONAL MASS EJECTIONS from SOHO/LASCO SATELLITE	
Table of Events	21- 22

Intervals of No Flare Patrol Observation for Preceding Solar Flare Table

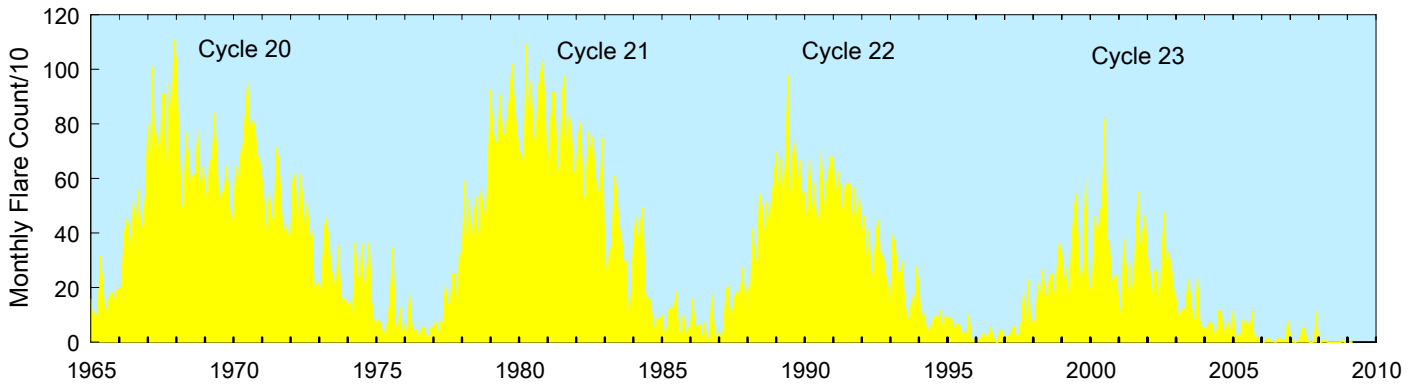
March 2009



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

Stations participating: Holloman, Learmonth, SanVito

Monthly Counts of Grouped Solar Flares Jan 1965 - Mar 2009



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
2009	0	0	0										0

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

Mar 09

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

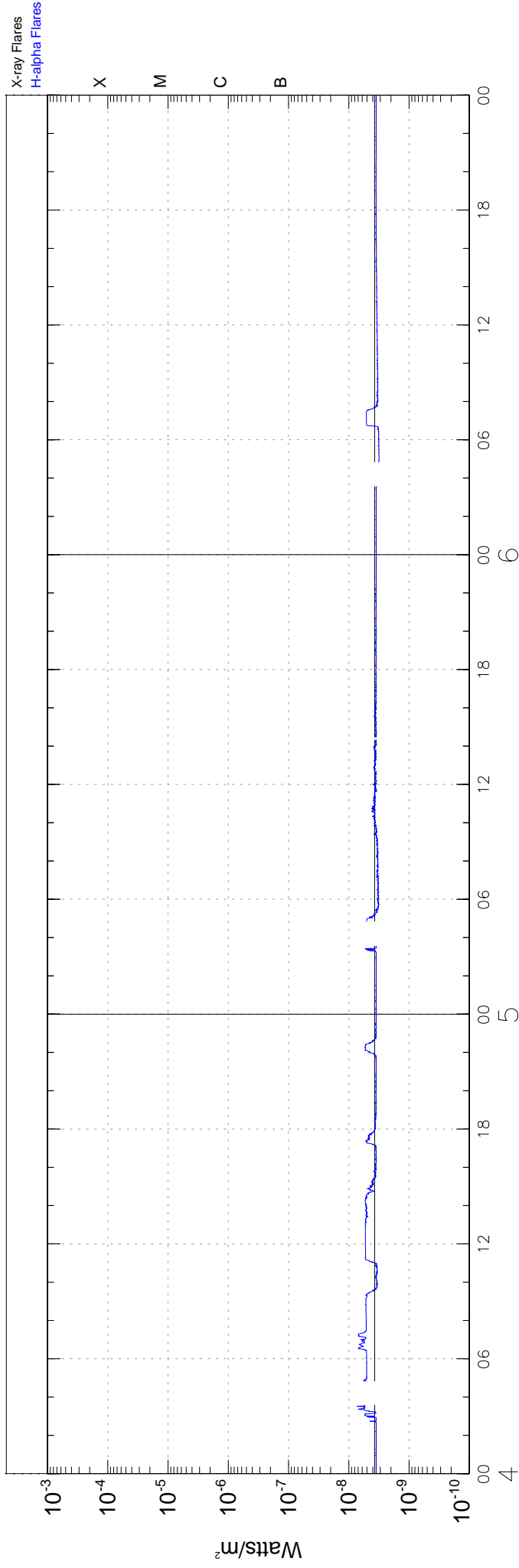
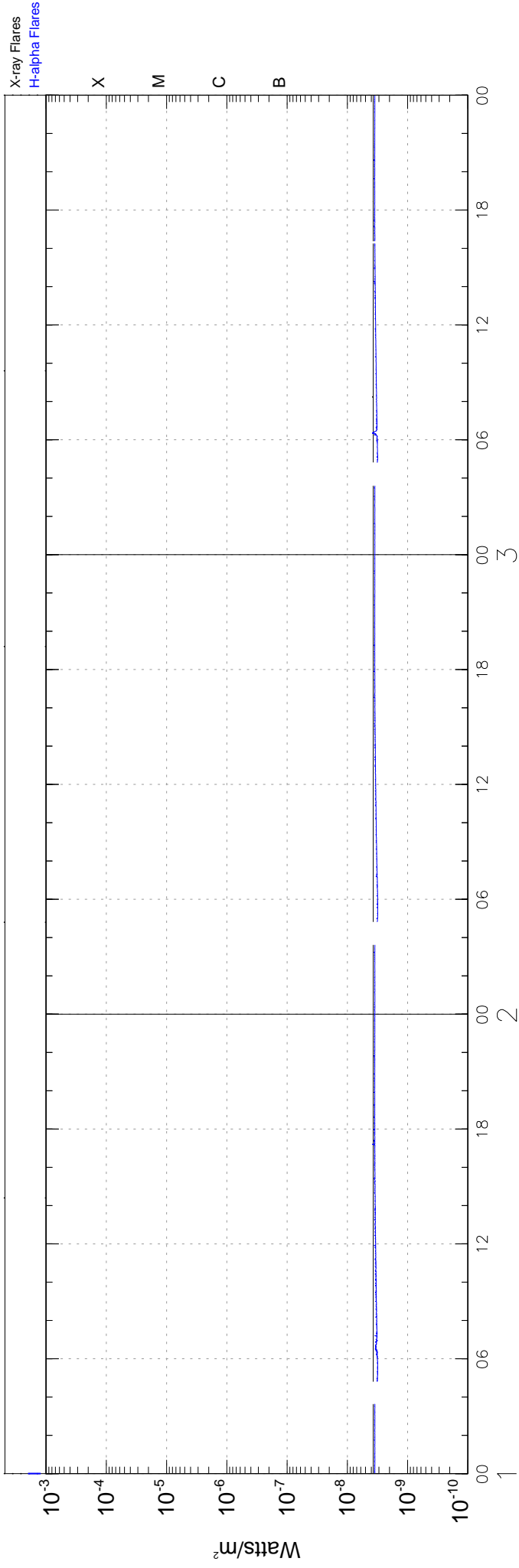
Outstanding Occurrences

MARCH 2009

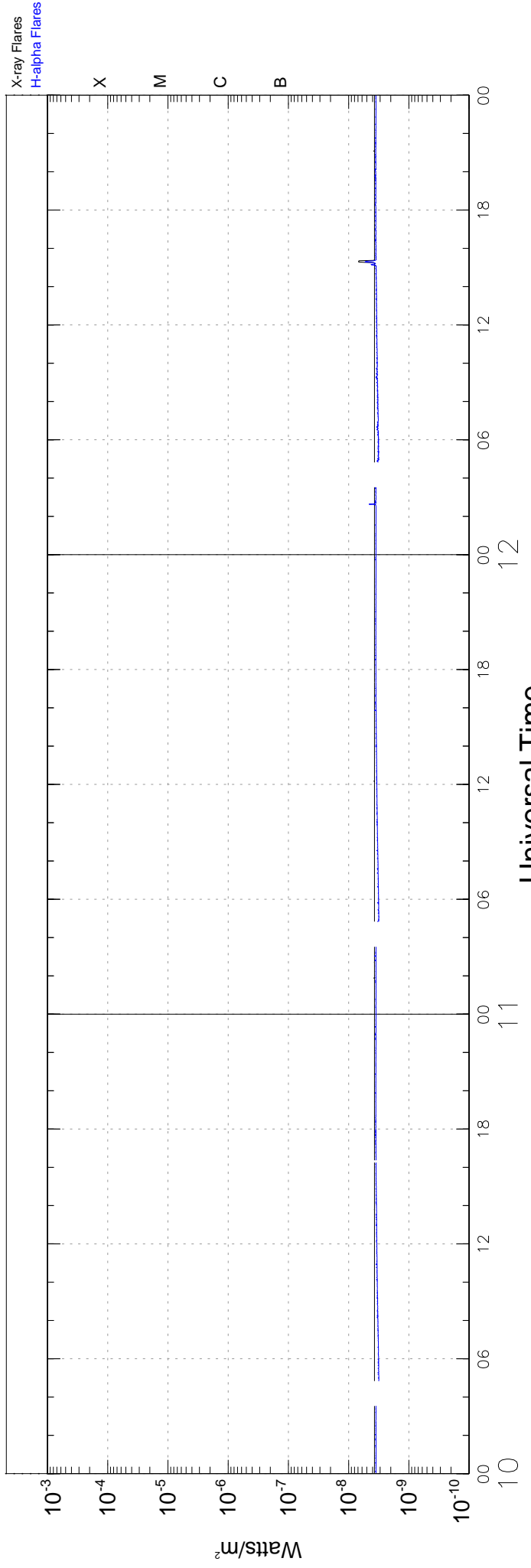
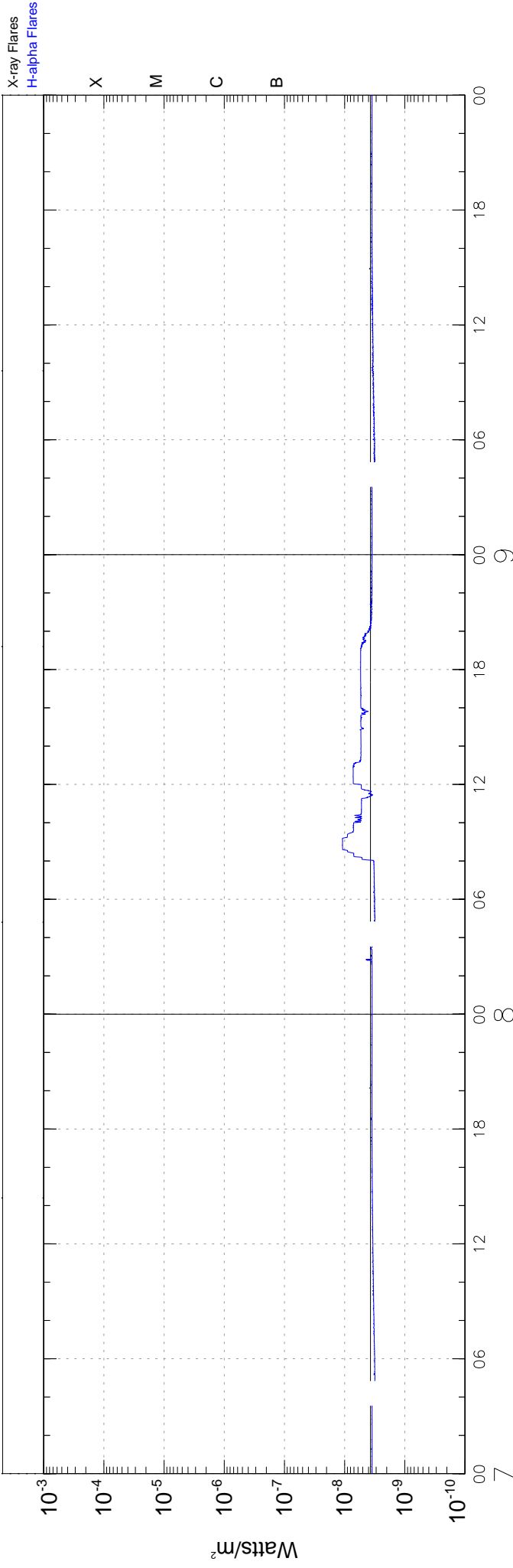
Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density		Int	Remarks
							Peak (10 -22 W/m ² Hz)	Mean		

No Reports

GOES-10 Solar X-Rays (1-Minute Averages) March 2009

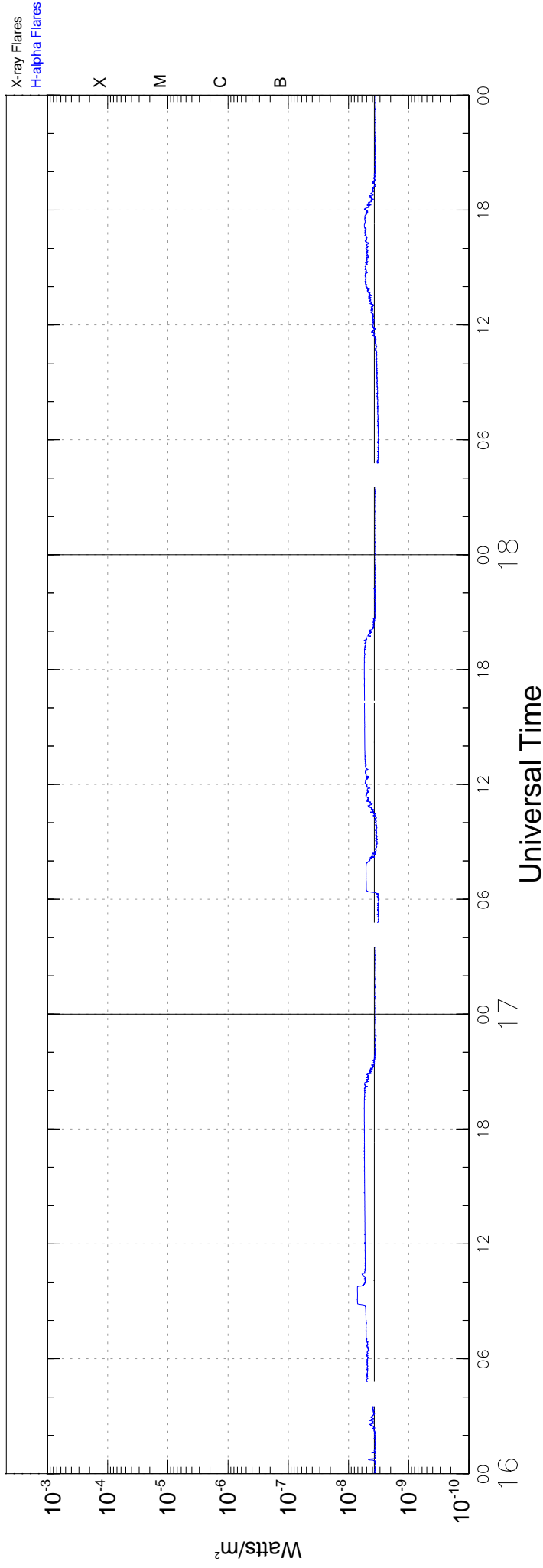
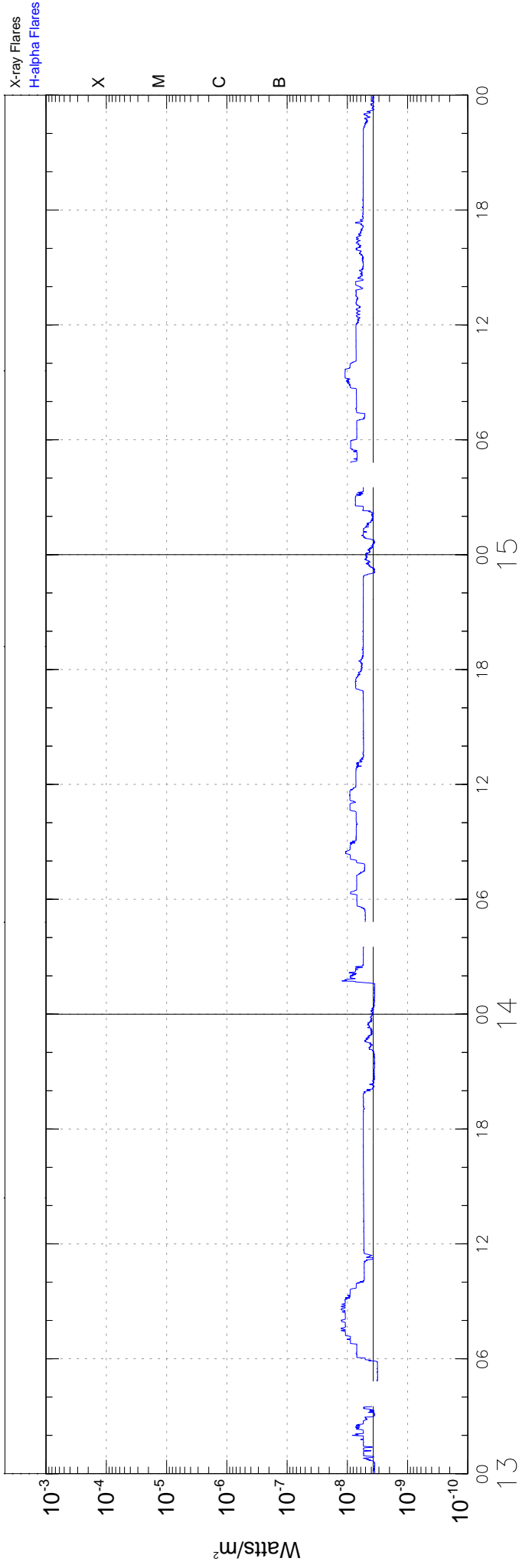


GOES-10 Solar X-Rays (1-Minute Averages) March 2009

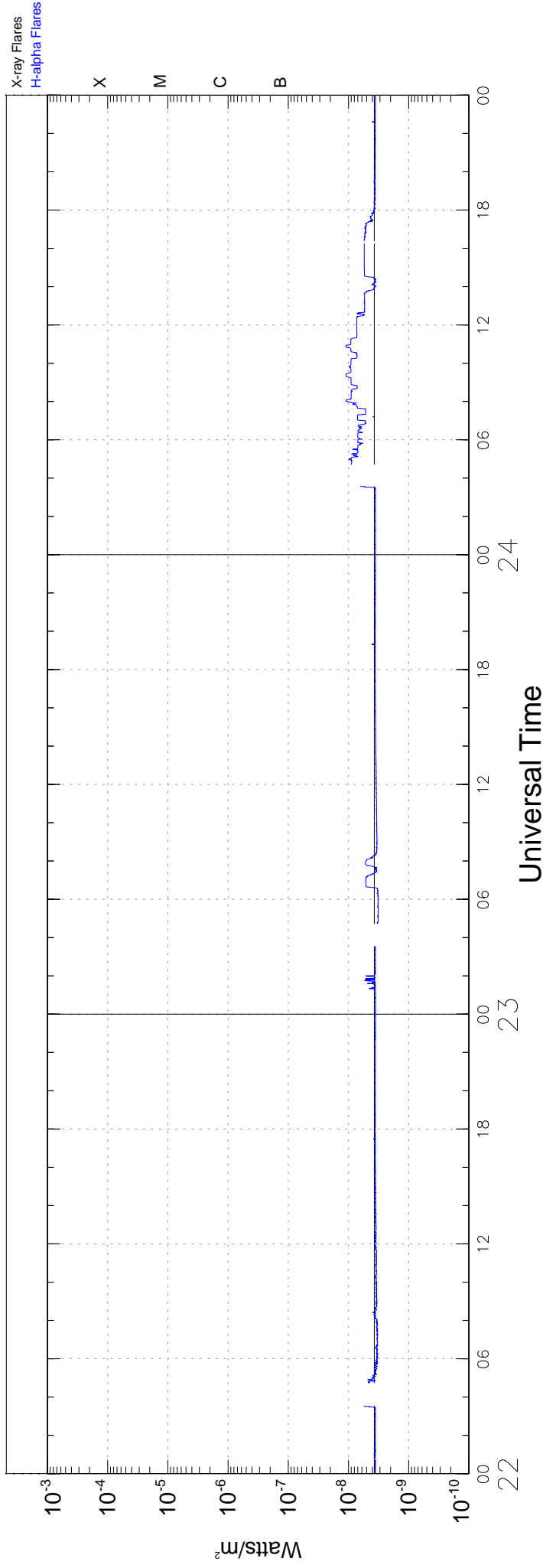
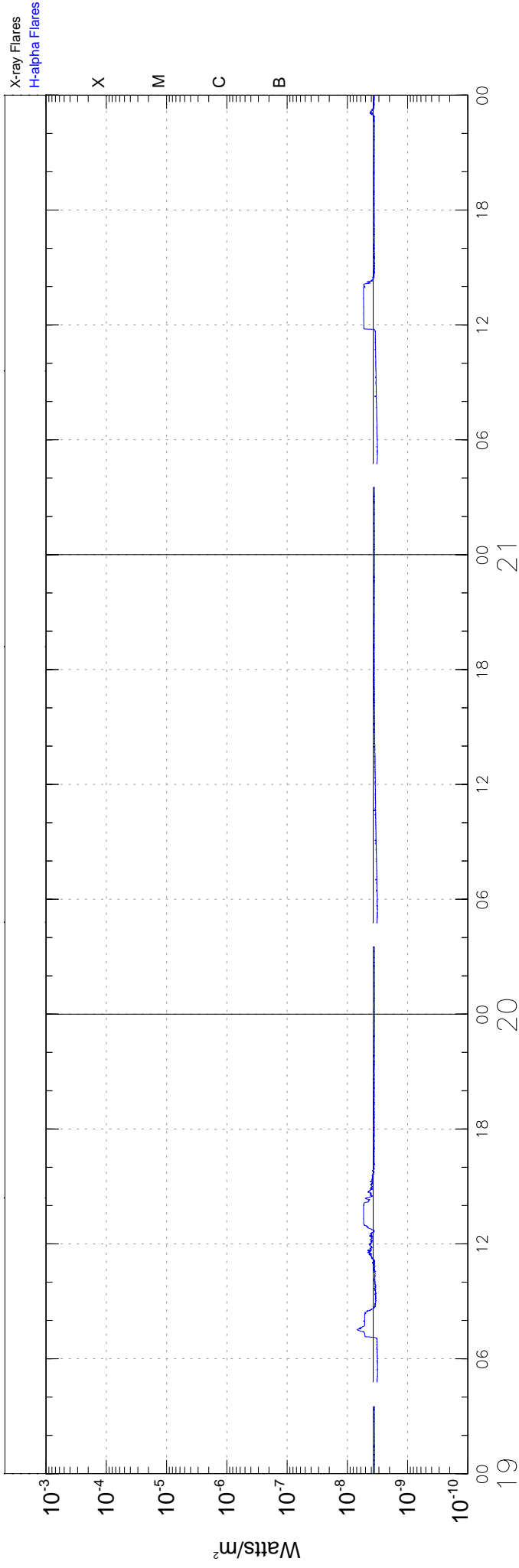


GOES-10 Solar X-Rays (1-Minute Averages)

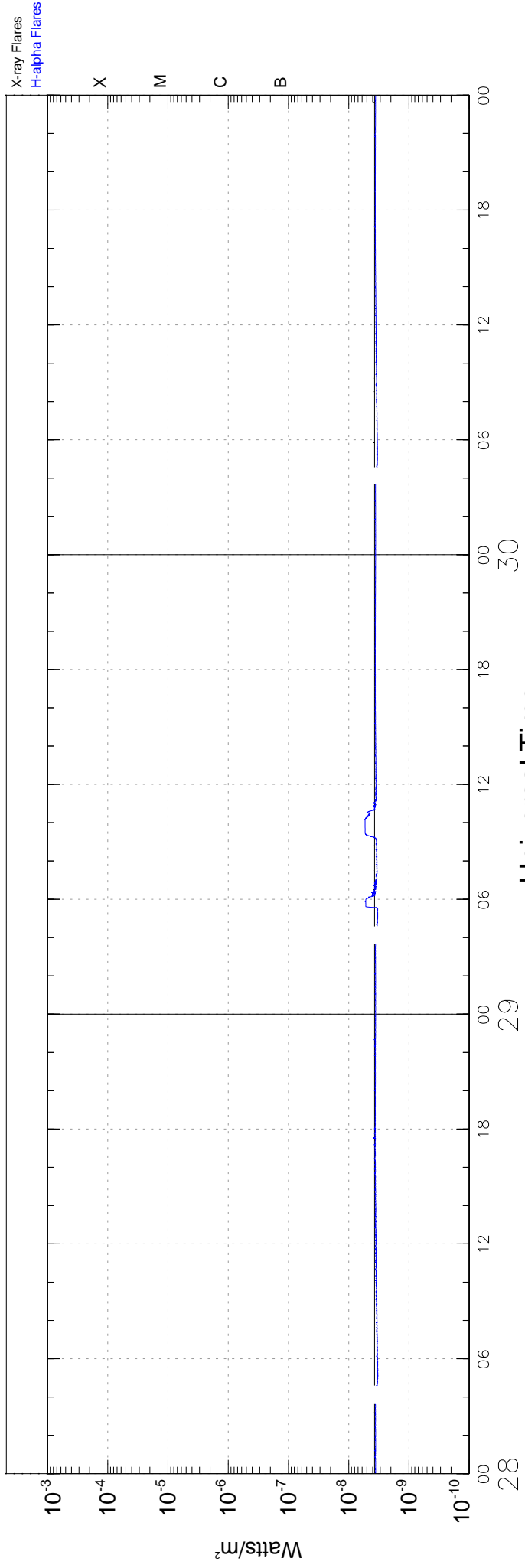
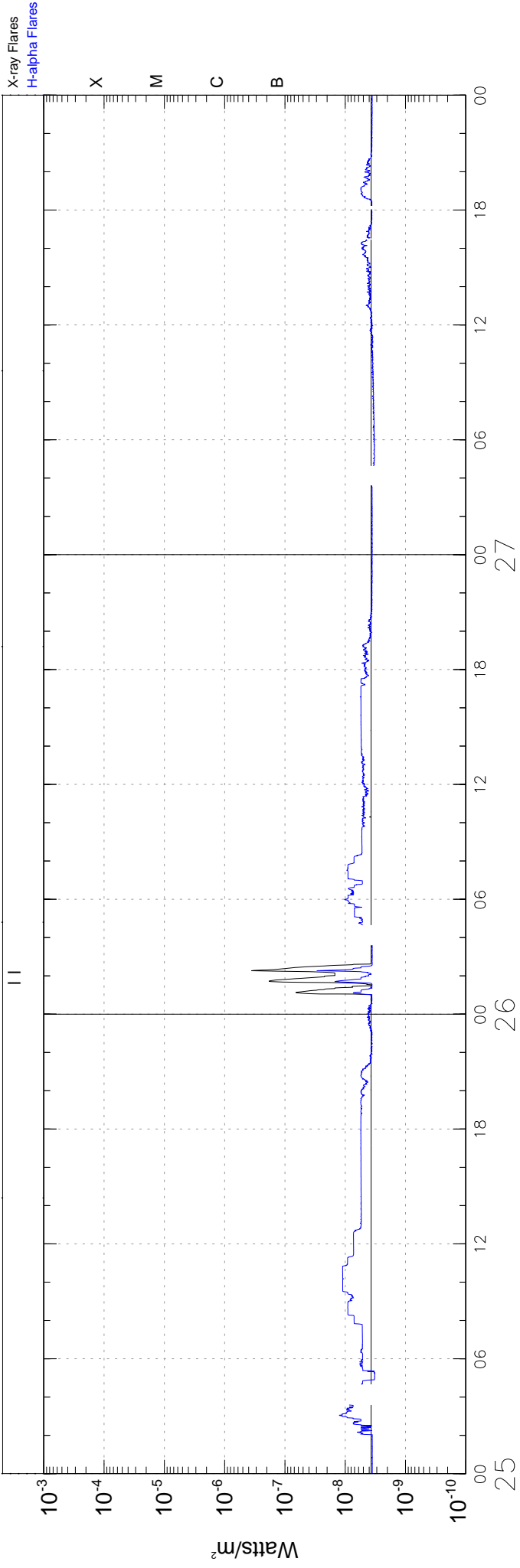
March 2009



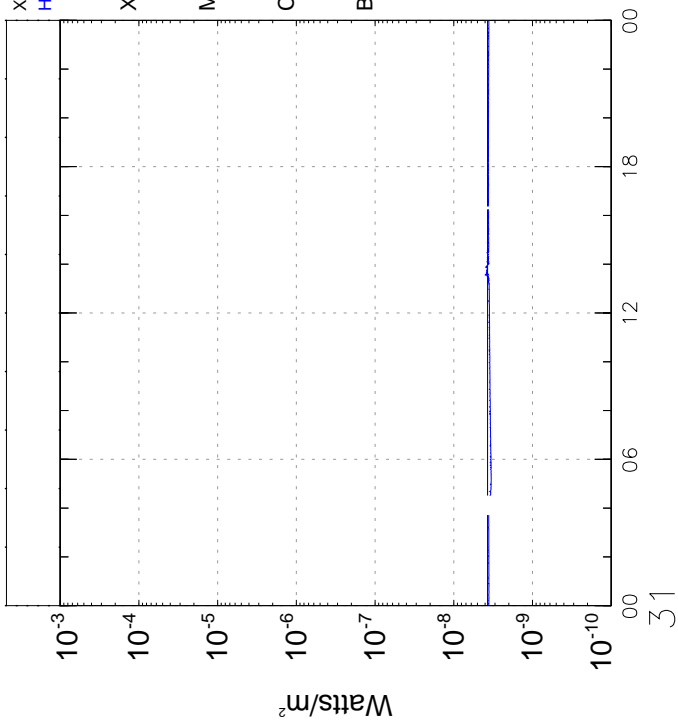
GOES-10 Solar X-Rays (1-Minute Averages) March 2009



GOES-10 Solar X-Rays (1-Minute Averages) March 2009



X-ray Flares
H-alpha Flares



MARCH 2009

Day	Event Type	Start (UT)	End (UT)	Lat	CMD	CMP		Imp	Extent	Blue	Red	Obs Type	Sta	NOAA/	Remarks
						Shift (.1 A)	Shift (.1 A)			Reg#	USAF				
04	DSF	1422U	0827U	S38	E17	03	6.0		06	0	0	E	SVTO		

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

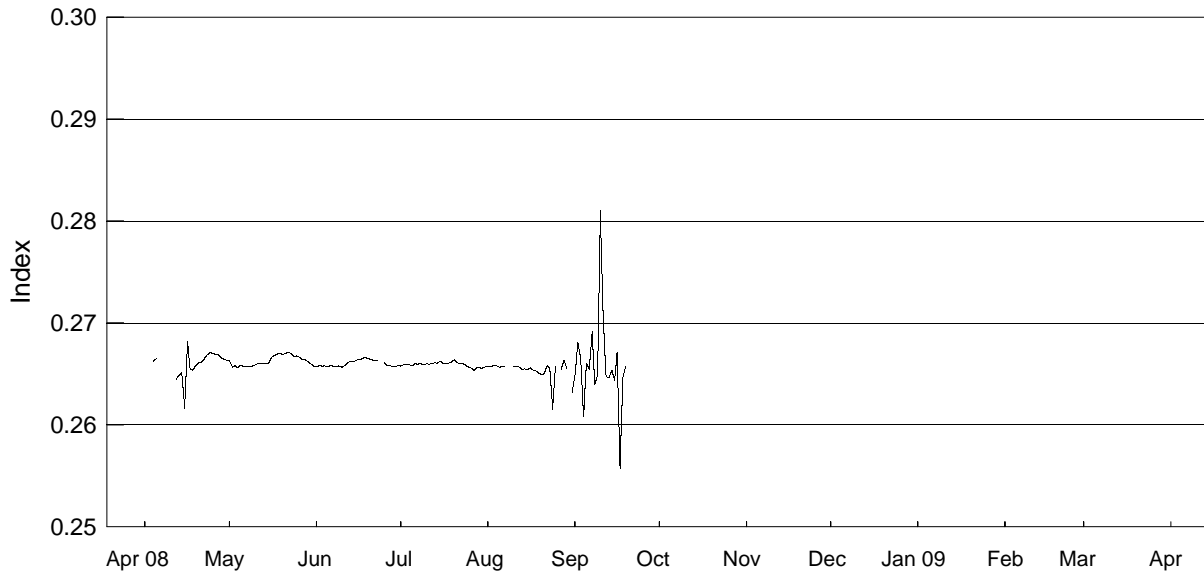
- | | | |
|-------------------|------------------|--------------------------|
| ABST = Abastumani | HOLL = Holloman | RAMY = Ramey |
| ATHN = Athens | KHAR = Kharkov | SVTO = San Vito |
| BUCA = Bucharest | LEAR = Learmonth | VORO = Voroshilov |
| CATA = Catania | PALE = Palehua | VALA = Valasske Mezirici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

Apr 2008 - Mar 2009

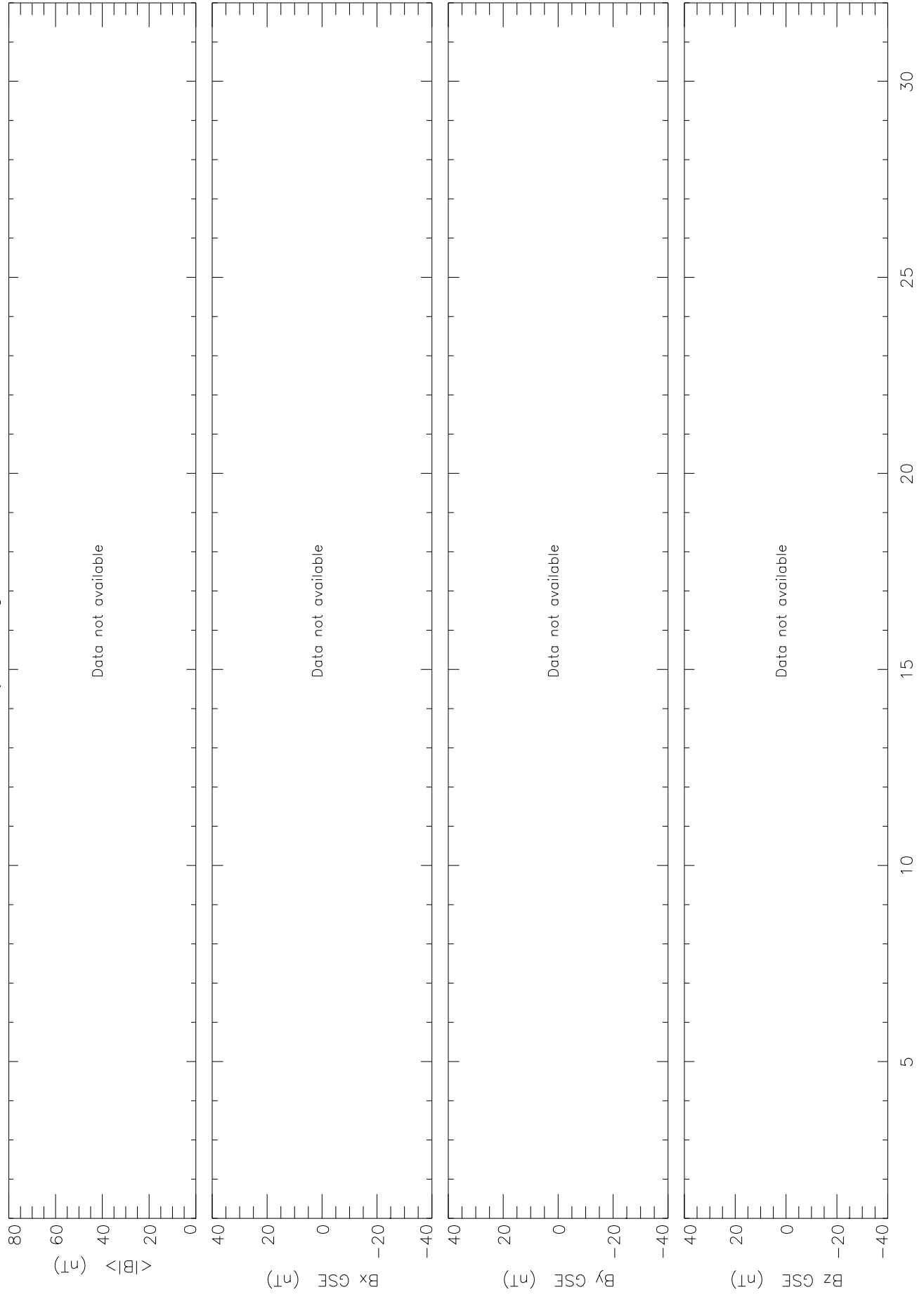
Version 9.1



Day	Apr 08	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 09	Feb	Mar
1	---	0.2663	0.2657	0.2658	0.2657	0.2650	---	---	---	---	---	---
2	---	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	---	0.2657	0.2659	0.2661	0.2657	0.2655	---	---	---	---	---	---
7	---	0.2657	0.2658	0.2659	0.2657	0.2692	---	---	---	---	---	---
8	---	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	---	0.2660	0.2658	0.2660	0.2657	0.2704	---	---	---	---	---	---
12	0.2644	0.2660	0.2661	0.2660	0.2657	0.2648	---	---	---	---	---	---
13	0.2649	0.2660	0.2663	0.2661	0.2654	0.2646	---	---	---	---	---	---
14	0.2651	0.2660	0.2662	0.2661	0.2655	0.2654	---	---	---	---	---	---
15	0.2617	0.2661	0.2663	0.2663	0.2654	0.2644	---	---	---	---	---	---
16	0.2682	0.2667	0.2665	0.2660	0.2656	0.2671	---	---	---	---	---	---
17	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	0.2660	0.2663	0.2660	0.2659	0.2651	0.2654						

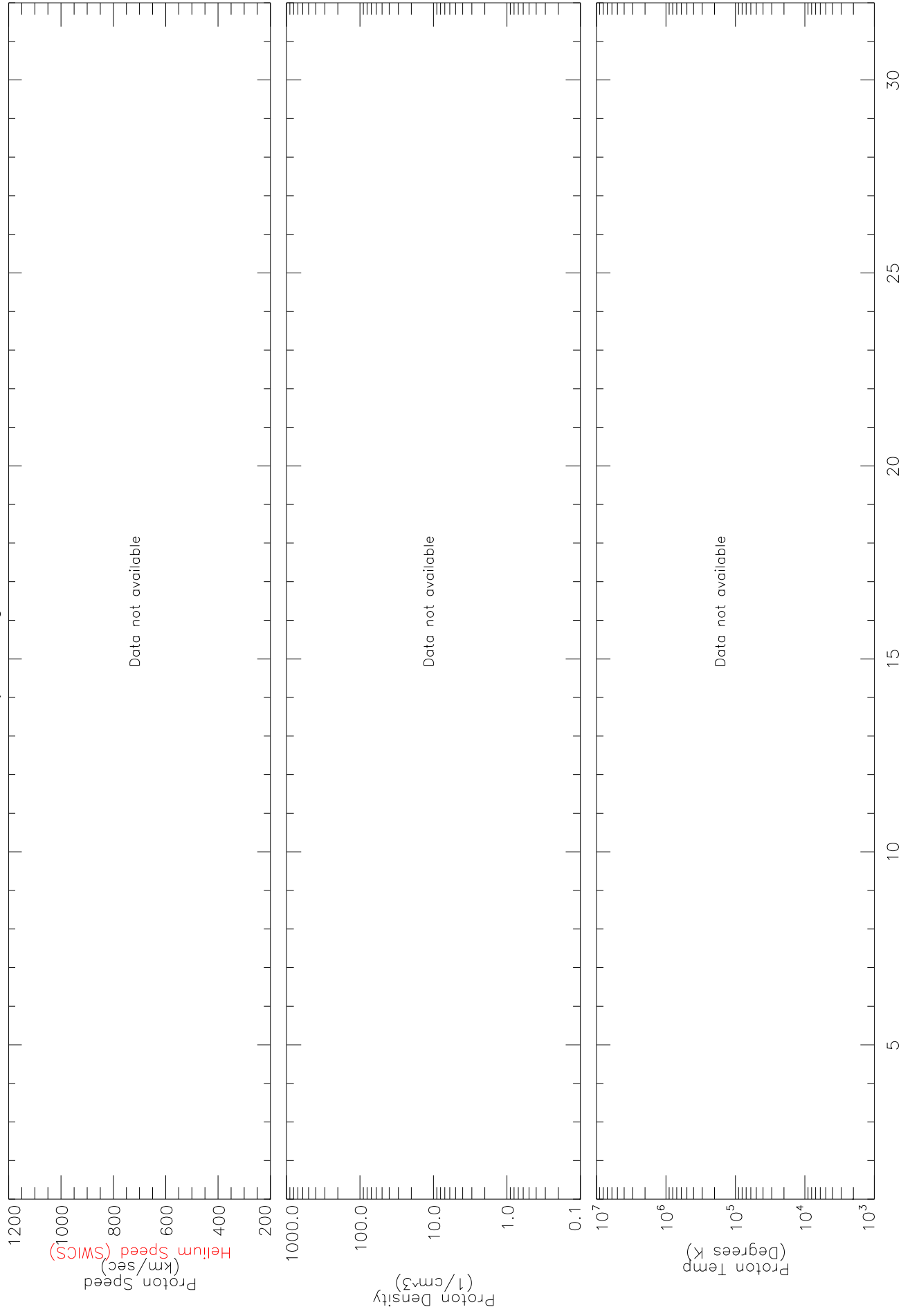
Data at: <http://www.swpc.noaa.gov/ftpmenu/sbuw.html>

ACE LEVEL2 DATA Interplanetary Magnetic Field
Hourly Averages for MARCH 2009, from MAG

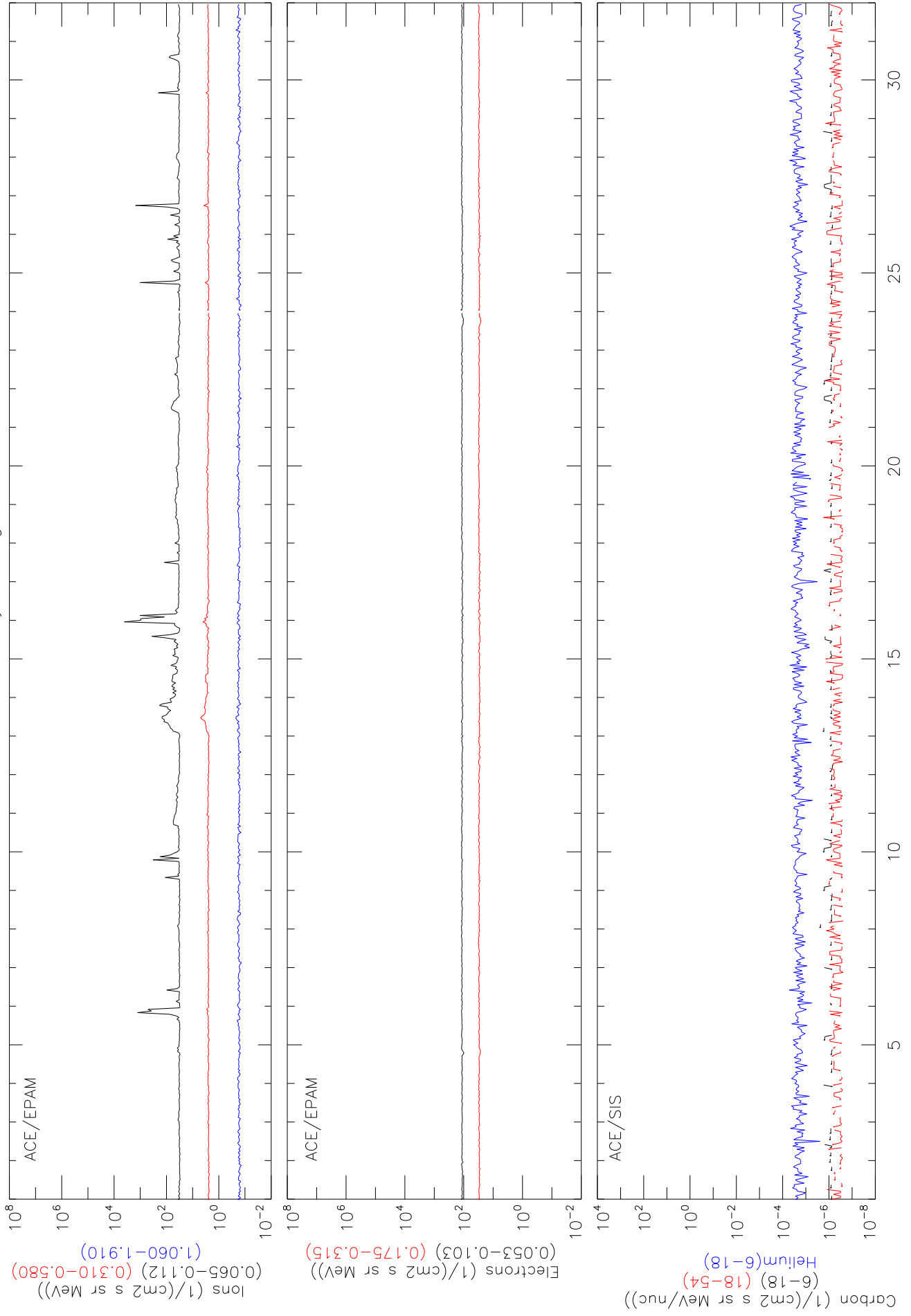


DAYS OF MARCH 2009

ACE LEVEL2 DATA Solar Wind Plasma Hourly Averages for MARCH 2009, from SWEPAM



Solar Energetic Particles ACE LEVEL2 DATA Hourly Averages for MARCH 2009



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
MARCH 2009

First C2 Appearance		Central Width			Linear Fit			Measurement		Remarks
Date	Time UT	Position Angle degree	Angular Width degree	Speed km/s	Initial km/s	Final km/s	20R km/s	Accel m/s ²	Position Angle degree	
2009/03/01	03:30:09	112	26	827	369	1330	3224	446.1*	115	Poor Event; 3 pts; Only C2
2009/03/01	16:06:26	279	10	279	229	336	345	2.9*	279	Poor Event
2009/03/01	16:54:25	325	12	293	303	282	96	-3.5*	322	Poor Event; Only C2
2009/03/01	20:59:10	325	7	256	236	277	486	7.7*	318	Poor Event; Only C2
2009/03/02	00:30:03	326	9	151	90	210	614	15.5*	320	Very Poor Event; Only C2
2009/03/02	06:30:03	109	6	228	186	272	283	2.0*	112	Very Poor Event
2009/03/02	23:06:03	61	30	367	333	401	454	4.2*	70	Poor Event
2009/03/03	21:54:03	333	8	273	343	210	0	-22.8*	332	Poor Event; Only C2
2009/03/04	05:30:04	269	50	158	104	215	337	4.4*	265	Poor Event
2009/03/05	04:30:25	6	5	335	201	482	1758	131.4*	8	Poor Event; 3 pts; Only C2
2009/03/05	05:30:03	210	12	447	459	436	223	-6.7*	215	Very Poor Event; Only C2
2009/03/05	12:54:03	266	56	121	119	122	139	0.2*	267	Poor Event; Only C2
2009/03/05	23:30:03	262	69	149	0	311	279	3.4*	262	
2009/03/07	00:06:03	82	19	242	249	234	229	-0.4*	88	Poor Event
2009/03/09	05:30:03	79	11	313	197	424	971	38.0*	78	Very Poor Event; Only C2
2009/03/10	02:54:03	148	22	78	55	100	177	1.2*	133	Very Poor Event; Only C2
2009/03/10	05:54:03	305	11	429	579	278	0	-53.4*	298	Only C2
2009/03/10	12:54:03	289	12	441	211	651	1538	96.4*	289	Very Poor Event; Only C2
2009/03/11	02:54:03	108	10	252	189	313	720	20.3*	105	Poor Event; Only C2
2009/03/11	08:30:04	292	11	248	158	336	775	24.0*	289	Very Poor Event; Only C2
2009/03/12	02:06:05	76	34	139	142	135	77	-0.6*	72	Very Poor Event; Only C2
2009/03/12	21:05:49	24	10	352	83	608	1727	123.5*	29	Very Poor Event; Only C2
2009/03/13	05:30:03	4	6	393	81	738	2675	304.0*	5	Very Poor; 3 pts; Only C2
2009/03/14	10:34:01	33	7	659	161	1211	3540	541.4*	41	Very Poor; 3 pts; Only C2
2009/03/14	11:54:03	7	8	356	130	600	1751	130.6*	11	Very Poor; 3 pts; Only C2
2009/03/14	13:54:03	8	8	451	248	641	1587	105.1*	10	Very Poor Event; Only C2
2009/03/14	23:30:03	296	14	390	452	331	0	-24.6*	292	Poor Event; Only C2
2009/03/15	20:30:03	342	6	263	113	413	1196	59.5*	338	Very Poor Event; Only C2
2009/03/16	05:06:03	251	25	252	190	319	412	5.5*	254	
2009/03/16	06:06:25	98	68	179	21	334	344	4.9*	101	
2009/03/16	07:54:03	6	9	413	137	660	1781	136.7*	11	Very Poor Event; Only C2
2009/03/17	04:06:03	105	11	299	249	349	415	4.6*	102	Poor Event
2009/03/17	07:06:03	103	6	209	171	249	361	4.2*	106	Very Poor Event
2009/03/17	09:54:03	74	11	238	184	297	321	3.2*	80	Very Poor Event
2009/03/17	17:06:04	74	43	76	13	204	231	2.2*	78	Poor Event
2009/03/18	12:30:03	247	19	247	176	319	779	24.7*	252	Very Poor Event; Only C2
2009/03/19	05:30:03	278	19	154	160	149	0	-1.5*	274	Very Poor Event; Only C2
2009/03/19	12:30:03	65	7	112	111	113	119	0.1*	70	Very Poor Event
2009/03/20	18:30:05	281	15	319	153	482	1250	64.7*	283	Very 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
MARCH 2009

First C2 Appearance		Central Width			Linear Fit			----2nd order speed----- 20R	Accel m/s ²	Measurement		Remarks
Date	Time UT	Position Angle degree	Angular Width degree	Speed km/s	Initial km/s	Final km/s	Position Angle degree					
2009/03/21	00:54:03	236	7	181	160	201	285	2.6*	236	Very Poor Event		
2009/03/21	16:06:04	103	15	175	122	231	310	4.0*	97	Very Poor Event		
2009/03/21	22:06:04	95	16	140	158	122	0	-2.0*	96	Very Poor Event		
2009/03/23	11:06:05	96	23	47	36	59	112	0.5*	94	Very Poor Event		
2009/03/23	20:30:03	266	16	260	328	189	0	-25.9*	268	Very Poor Event; Only C2		
2009/03/24	08:54:03	104	41	71	94	48	0	-1.9*	103	Very Poor Event		
2009/03/24	23:30:03	108	43	232	237	225	219	-0.4*	99	Poor Event		
2009/03/25	08:30:03	122	35	232	231	234	245	0.3*	117	Very Poor Event; Only C2		
2009/03/25	14:54:03	117	18	346	260	433	498	7.7*	119	Very Poor Event		
2009/03/26	15:54:03	184	85	109	51	169	252	2.5*	183			
2009/03/27	13:54:03	340	6	345	291	402	821	24.5*	335	Very Poor Event; Only C2		
2009/03/28	12:54:03	129	8	167	110	226	700	19.7*	130	Very Poor Event; Only C2		
2009/03/29	09:54:26	0	9	314	289	340	549	9.0*	355	Very Poor Event; Only C2		
2009/03/29	14:30:03	52	4	255	212	299	809	25.3*	53	Very Poor Event; Only C2		
2009/03/29	17:54:03	67	7	424	551	300	0	-68.1*	70	Very Poor Event; Only C2		
2009/03/29	21:30:08	326	8	414	54	811	2883	351.3*	319	Very Poor; 3 pts; Only C2		
2009/03/30	10:30:21	267	27	192	164	223	505	9.6*	274	Very Poor Event; Only C2		
2009/03/30	12:54:03	41	7	380	398	360	0	-10.7*	42	Very Poor; 3 ps; Only C2		
2009/03/30	18:06:03	46	7	363	447	279	0	-25.1*	48	Poor Event; Only C2		
2009/03/31	10:06:03	319	11	158	131	185	461	8.1*	307	Very Poor Event; Only C2		
2009/03/31	12:30:03	284	24	190	154	226	593	13.6*	287	Very Poor Event; Only C2		
2009/03/31	15:08:02	69	49	121	94	148	286	3.0*	65	Very Poor Event; Only C2		

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