



# H $\alpha$ SOLAR FLARES

APRIL 1977

OBSERVATORY	OBSERVED UT				LOCATION				DURATION MIN	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS		
	DATE 1977 APR	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH FLARE REGION			CNR DAY	COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk		CORR AREA Sq. Deg.	
					LAT.	NER. DIST.												
GRP63853	13	1130+1	1133+2	1146	S21	E66	.910	14726	18.4	16	-F							
HTPR	13	1130	1135	1150	S22	E67	.917	14726	18.5	20	-F	C	1135	40	1.0			
MONT	13	1131	1133	1141	S21	E66	.910	14726	18.4	10	-F	C	1133	40				
GRP63854	13	1216+9	1220 1239+1	1251	S21	E66	.910	14726	18.5	35	-N			50			E	
HTPR	13	1216	1220	1256	S22	E66	.911	14726	18.5	40	-F	C	1220	30	.7		E	
MONT	13	1227	1240	1251	S21	E66	.910	14726	18.5	24	-N	C	1240	60			E	
MCMA	13	1237	1239	1250	S21	E66	.910	14726	18.5	13	-N	C	1239	40	1.0		E	
855 MCMA	13	1317	1320	1328	S19	E63	.888	14726	18.3	11	-N	C	1320	30	.7		OH Y5	
GRP63856	13	1339+4	1346+1	1358	S21	E62	.882	14726	18.2	19	-N			40	.9		EH	
MONT	13	1339	1346	14000	S21	E65	.903	14726	18.4	210	-N	C	1346	60			E	
HTPR	13	1342	1347	1356	S21	E61	.874	14726	18.1	14	-F	C	1347	20	.4		E	
MCMA	13	1343	1347	1358	S20	E60	.865	14726	18.1	15	-N	C	1347	40	1.0		EH	
GRP63857	13	1449+2	1452+2	1505	S21	E60	.866	14726	18.1	16	-F			25	.5			
HTPR	13	1449	1454	1512	S22	E60	.867	14726	18.1	23	-F	C	1454	20	.4		D	
MCMA	13	1451	1452	1457	S21	E60	.866	14726	18.1	6	-F	C	1452	30	.6		E	
858 HTPR	13	1513	1514	1520	S21	E62	.882	14726	18.3	7	-F	C	1514	10	.2		D Y5	
GRP63859	13	1535+0	1538+0	1544	S21	E63	.889	14726	18.4	9	-F			30	.7			
HTPR	13	1535	1538	1545	S21	E64	.896	14726	18.4	10	-N	C	1538	30	.7		E	
MCMA	13	1535	1538	1542	S21	E62	.882	14726	18.3	7	-F	C	1538	30	.7		D	
860 MCMA	13	1550	1552	16040	S21	E62	.882	14726	18.3	140	-N	C	1552	40	.9		EH Y5	
GRP63861	13	1612		16150	S21	E61	.874	14726	18.2	3	-F			50	1.1		E	
HTPR	13	1612		16140	S21	E63	.889	14726	18.4	20	-F	C	1614	30	.7		E	
MCMA	13	1613E		16150	S22	E59	.858	14726	18.1	20	-N	P	1613	70	1.5		E	
GRP63862	13	1715	1728+1	1815	S20	E61	.873	14726	18.3	60	-N						Z	
MCMA	13	1715	1728	1815	S21	E61	.874	14726	18.3	60	-B	C	1728	50	1.1		E	
RAHY	13	1727E	1729	17360	S20	E62	.881	14726	18.4	90	-F	2 C		128			Z F	
	13	1926	1950		NO FLARE PATROL													
	13	2038	2046		NO FLARE PATROL													
	13	2104	2130		NO FLARE PATROL													
GRP63863	13	2130+0	2132+0	2255	S20	E58	.848	14726	18.2	85	1N			130	2.5		E	
PALE	13	2130	2132	0000	S21	E59	.858	14726	18.3	50	1N	3 V		132			DEDE	
PALE	13	2130	2132	21440	S21	E59	.858	14726	18.3	140	1N	3 C		132			DEDE	
VORO	13	2205	2208	2244	S19	E57	.838	14726	18.2	39	1B	C	2226	206	4.1		E	
PALE	13	2218E	2220U	22550	S21	E59	.858	14726	18.4	370	-F	3 C		41			DE	
GRP63864	13	2332+2	2339+5	2359	S21	E57	.840	14726	18.3	27	1N						EKU	
VORO	13	2332	2341	0002	S19	E57	.838	14726	18.3	30	1B	C	2338	251	5.0		EK	
CULG	13	2333	2339	2358	S23	E57	.843	14726	18.3	25	-N	C	2339	100	1.8			
PALE	13	2334	2344	2359	S21	E58	.849	14726	18.3	25	2F	3 C		379			UDE	
PALE	13	2334	2344	23490	S21	E58	.849	14726	18.3	150	2F	3 V		379			UDE	
	14	0600	0609		NO FLARE PATROL													
865 UPIC	14	0650E		0655U	S22	E53	.806	14726	18.3	50	-F	P	0650	41			B Y5	
866 MCMA	14	1254	1255	1304	S20	E48	.752	14726	18.1	10	-F	C	1255	20	.3		D Y5	
GRP63867	14	1611+6	1617 1623+1	1646	S21	E50	.774	14726	18.4	35	-N			70	1.1		EL	
MCMA	14	1611	1623	1650	S21	E47	.743	14726	18.2	39	-N	C	1623	50	.7		EL	
HTPR	14	1617	1617	1621	S20	E55	.821	14726	18.8	4	-F	C	1617	20	.3			
HTPR	14	1618	1624	1642	S21	E50	.774	14726	18.4	24	-N	C	1624	100	1.3		E	
868 MCMA	14	1831	1834	1858	S21	E46	.732	14726	18.2	27	-N	C	1834	70	1.1		E Y5	
869 MCMA	14	2020	2030	2040	S21	E45	.721	14726	18.2	20	-F	C	2030	50	.7		E Y5	
870 MCMA	14	2105	2108	2135	S21	E45	.721	14726	18.3	30	-B	C	2108	80	1.2		E Y5	
GRP63871	14	2211	2214+1	2228	S22	E45	.724	14726	18.3	17	-F			50	.7		F	
CULG	14	2211	2215	2230	S23	E44	.716	14726	18.2	19	-F	C	2215	40	.6		F	
MANI	14	2214E	2214U	2225	S21	E46	.732	14726	18.4	110	-N	V	2214	70	1.0		F	



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OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN	IMPOR- TANCE	OBS COND TYPE	MEASUREMENTS			REMARKS	
	DATE 1977 APR	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MC MATH FLARE REGION	CUP DAY				TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
					LAT.	MER. DIST.											
GRP63888 MANI CULG PALE	17	2210+2	2213+1	2227	S22	E08	.313	14726	18.5	17	-N			90	1.0	F	
	17	2210E	2213	2227	S20	E07	.276	14726	18.4	17D	-N	V	2213	100	1.6	F	
	17	2211	2213	2239	S24	E10	.356	14726	18.7	24	-N	C	2213	80	.9		
	17	2212	2214	2220	S21	E07	.292	14726	18.5	8	-F	3	C		79		
	18	1609	1610	NO FLARE PATROL													
	18	1625	1635	NO FLARE PATROL													
	18	1645	1727	NO FLARE PATROL													
	18	1738	1758	NO FLARE PATROL													
889 MCHA	18	1801E		1814D	S22	E01	.286	14726	18.8	130	-F	C	1803	40	.4	E Y5	
	18	1953	1955	NO FLARE PATROL													
	18	2112	2159	NO FLARE PATROL													
GRP63890 HTPR BUCA MITK CATA ATHN	19	0722+3	0739	0757	S21	W09	.308	14726	18.6	35	1N			230	2.5	E	
			0747+0														
	19	0722		0729D	S21	W09	.308	14726	18.6	7D	-F	C	0726	20	.2	E	
	19	0725		0801	S22	W09	.323	14726	18.6	36	1N	C	0742	322	3.5	E	
	19	0735	0739	0753	S22	W08	.316	14726	18.7	18	-N	C	0739	140	1.5	E	
	19	0740E	0747	0815D	S21	W09	.308	14726	18.6	35D	18	2	V	0747	281	3.0	
	19	0740E	0747	0750	S20	W15	.354	14726	18.2	10D	-N			18D			
891 LVOV	19	1456	1511	1524D	S20	W17	.377	14726	18.3	28D	1N	C	1511	350	3.9	E Y5	
	19	1524	1558	NO FLARE PATROL													
GRP63892 MCHA RAMY	19	1604E	1626	1630D	S21	W18	.398	14726	18.3	26	-F						
	19	1604E		1629D	S22	W18	.409	14726	18.3	25D	-N			1608	100	1.1	L EL FDE
	19	1623E	1626U	1630D	S20	W18	.388	14726	18.3	7D	-F	3	C		95		
	19	1630	1646	NO FLARE PATROL													
	19	1919	2110	NO FLARE PATROL													
GRP63893 MITK VORO	20	0046E		0156	S21	W22	.447	14726	18.4	7D	-N					EJ	
	20	0046E		0200D	S23	W22	.465	14726	18.4	74D	-F	C	0055	4	.5		
	20	0113		0151	S20	W22	.439	14726	18.4	38	1N	C	0120	197	2.2	EJ	
894 MITK	20	0610	0613	0627	S21	W21	.435	14726	18.7	17	-N	C	0613	60	.7	E Y5	
GRP63895 MCHA RAMY HTPR	20	1634+3	1641+2	1705D	S22	W31	.564	14726	18.4	31	-N			60	.7	HL	
	20	1634E	1641	1705D	S22	W30	.552	14726	18.4	31D	-B			60	.7	EFHL	
	20	1637	1643	1650D	S22	W31	.564	14726	18.4	13D	-N	3	C	1641	190		FDE
	20	1637	1643	1657D	S21	W33	.583	14726	18.2	20D	-F			1643	50	.5	E
	20	1730	1740	NO FLARE PATROL													
	20	1755	1801	NO FLARE PATROL													
	20	1815	1837	NO FLARE PATROL													
	20	1841	1935	NO FLARE PATROL													
	20	2052	2105	NO FLARE PATROL													
		20	2052	2105	NO FLARE PATROL												
GRP63896 MONT ZURI HTPR HTPR HTPR	21	0826+2	0835+0	0844	S20	W40	.664	14726	18.4	18	-N			110	1.5	E	
	21	0826	0835	0900	S19	W40	.661	14726	18.4	34	-N	C	0835	150		E	
	21	0827	0835	0843	S21	W39	.656	14726	18.4	16	-N	C	0835	110	1.6		
	21	0828	0830	0842	S22	W39	.660	14726	18.4	14	-F	C	0830	10	.1		
	21	0831	0835	0840	S19	W42	.685	14726	18.2	9	-F	C	0835	10	.1		
	21	0831	0835	0844	S23	W40	.676	14726	18.4	13	-F	C	0835	10	.1		
	21	0831	0835	0844	S23	W40	.676	14726	18.4	13	-F	C	0835	10	.1		
GRP63897 MONT HTPR RAMY	21	1344+9	1349+2	1402	S22	W32	.577	14726	19.2	18	-N						
			1400														
	21	1344	1349	1402	S21	W34	.596	14726	19.0	18	-N	C	1349	80		D	
	21	1348	1351	1400	S20	W32	.566	14726	19.2	12	-N	C	1351	20	.2		
	21	1356	1400	1402D	S24	W31	.578	14726	19.3	6D	-N	3	C		48		FDE
898 HTPR	21	1424	1426	1427	S18	W44	.705	14726	18.3	3	-F	C	1426	10	.1	Y5	
899 MONT	21	1443	1448	1451	S21	W34	.596	14726	19.1	8	-F	C	1448	20		D Y5	
900 HTPR	21	1511	1515	1524	S20	W33	.579	14726	19.2	13	-F	C	1515	20	.2	Y5	
GRP63901 HTPR LOCA HTPR RAMY	21	1527+5	1530	1550	S18	W44	.705	14726	18.3	23	-N			70	1.0	H	
			1536+6														
	21	1527	1530	1536	S20	W45	.722	14726	18.3	9	-F	C	1530	10	.1		
	21	1532	1536	1549	S18	W43	.694	14726	18.4	17	1N	V	1536	163	2.3	H	
	21	1534	1539	1550	S18	W45	.717	14726	18.3	16	-N	C	1539	70	.7		
	21	1537E	1542	1549D	S18	W45	.717	14726	18.3	12D	-N	3	C		51		DE H



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APRIL 1977

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE 1977 APR	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCNATH PLAGE REGION	CMP. DAY			COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
					LAT.	MER. DIST.											
916 MONT	30	0944	0957	1004	N34	E90	1.001	14749	7.2	20	-F	C	0957	40		D Y5	
917 MONT	30	1009	1012	1019	N34	E90	1.001	14749	7.2	10	-F	C	1012	20		Y5	
918 MONT	30	1113	1117	1124	S23	E27	.531	14742	2.5	11	-F	C	1117	40		Y5	

"Remarks":

- A = Eruptive prominence whose base is less than 90° from central meridian.
- B = Probably the end of a more important flare.
- C = Invisible 10 minutes before.
- D = Brilliant point.
- E = Two or more brilliant points.
- F = Several eruptive centers.
- G = No visible spots in the neighborhood.
- H = Flare accompanied by a high speed dark filament.
- I = Active region very extended.
- J = Distinct variations of plage intensity before or after the flare.
- K = Several intensity maxima.
- L = Existing filaments show signs of sudden activity.
- M = White-light flare.

- N = Continuous spectrum shows effects of polarization.
- O = Observations have been made in the calcium II lines H and K.
- P = Flare shows helium D<sub>3</sub> in emission.
- Q = Flare shows the Balmer continuum in emission.
- R = Marked asymmetry in H $\alpha$  line suggests ejection of high velocity material.
- S = Brightness follows disappearance of filament (same position).
- T = Region active all day.
- U = Two bright branches, parallel (|) or converging (Y).
- V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
- W = Great increase in area after time of maximum intensity.
- X = Unusually wide H $\alpha$  line.
- Y = System of loop-type prominences.
- Z = Major sunspot umbra covered by flare.

APRIL 1977			DAILY FLARE INDICES					
			Includes all Flares					
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
770401	0.00	20.4	770411	1.69	23.9	770421	28.18	24.0
770402	0.00	24.0	770412	14.36	22.3	770422	14.07	23.9
770403	1.95	21.8	770413	27.77	22.4	770423	1.07	23.0
770404	0.00	24.0	770414	13.41	23.9	770424	0.00	23.0
770405	3.83	23.5	770415	33.33	22.6	770425	0.00	20.6
770406	.85	23.4	770416	112.84	24.0	770426	1.73	22.9
770407	3.61	21.4	770417	49.86	22.5	770427	0.00	21.6
770408	0.00	21.6	770418	5.55	22.0	770428	0.00	20.7
770409	0.00	22.9	770419	62.01	21.3	770429	0.00	23.5
770410	0.00	23.0	770420	12.46	22.3	770430	5.07	24.0

When no Flare Index is given, it is 0 for that day.