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Solar - Geophysical Data

NO. 358 JUNE 1974

Part II (Comprehensive Reports)

DATA FOR
DECEMBER 1973
NOVEMBER 1973
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR - GEOPHYSICAL DATA

No. 358

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

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For explanations of the data contained herein see *Descriptive Text* published as supplement to February 1974 *Solar-Geophysical Data* (Number 354).

SOLAR FLARES
Confirmed

DECEMBER 1973

OBSERVATORY	OBSERVED UT DATE DEC	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP50158	01	0743	0759	0744	S10	W48	.755	12628	27.7	16	--N				.55				4 4 4 9
CRON	01	0742E	0802		S09	W48	.753	12628	27.7	20D	-N				.52				
ATHN	01	0743E	0754	0744	S12	W48	.759	12628	27.7	11D	-F	2	V		.33				F
TEHR	01	0743	0758	0745	S09	W48	.753	12628	27.7	15	-N	3	C		.36				F
ABST	01	0743	0800	0744	S08	W48	.751	12628	27.7	17	-N		C	0744	.99	1.50		98	D
159 ATHN	01	1113E	1124	1115	S14	W50	.785	12628	27.7	11D	--F	2	V		.33				DE 2
GRP50160	01	1137	1147	1139	S10	W51	.787	12628	27.7	10	--F				.24				2 2 2 2
CANR	01	1136	1145	1137	S10	W51	.787	12628	27.7	9	-F				.31				
TEHR	01	1138	1148	1140	S09	W50	.775	12628	27.7	10	-F	2	C		.17				F
161 RAHY	01	1229	1252	1240	S14	W48	.764	12628	27.9	23	--F	4	C		.46				DE 2
162 BOUL	01	1714	1732	1717	S10	W51	.787	12628	27.9	18	--F		V	1717		.90			4 2
	01	1734	1747	NO FLARE PATROL															
	01	2013	2048	NO FLARE PATROL															
GRP50163	02	0156	0233	0206	S15	W57	.853	12628	27.8	37	-N				1.55				2 2 2 2
MANI	02	0151	0243	0203	S15	W55	.835	12628	28.0	52	1N	2		0203	2.06	3.56			F
CRON	02	0200	0222	0208	S14	W58	.860	12628	27.7	22	-N				1.03				
	02	0310	0317	NO FLARE PATROL															
164 MANI	02	0356	0406D	0358	S10	W58	.854	12628	27.8	10D	--N	2		0358	.62	1.11			F 2
	02	0619	0629	NO FLARE PATROL															
GRP50165	02	0859	0920	0916	S14	W61	.884	12628	27.8	21	-B				1.32				3 2 2 3
CATA	02	0850E	0920D	0920	S14	W61	.884	12628	27.8	30D	1B			0920	2.02	4.33		(263)	
BUCA	02	0858	1000		S13	W61	.883	12628	27.8	62	-N		C	0902	.55	1.10			D
CANR	02	0908	0914D	0912	S13	W60	.875	12628	27.9	6D	-N			0912	.62	1.20			
GRP50166	02	1221	1236	1227	S13	W64	.906	12628	27.7	15	--F				.73				2 2 2 3
UPIC	02	1221	1241	1229	S12	W67	.925	12628	27.5	20	-F		P	1229	.63				K
CANR	02	1223E	1231	1225	S13	W60	.875	12628	28.0	8D	-F			1225	.83	1.50			
GRP50168	02	1505	1537	1518	S13	W64	.906	12628	27.8	32	1N				1.34				4 4 3 4
RAHY	02	1459	1519	1508	S10	W64	.903	12628	27.8	20	-F	3	C		.37				F
MCMA	02	1500E	1538	1516	S14	W66	.920	12628	27.7	38D	1N		C	1516	1.29	3.00			E
HUAN	02	1507E	1525D		S13	W65	.913	12628	27.8	18D	1N	1	P	1518	1.24	2.71			C
RAHY	02	1508	1529	1519	S14	W65	.914	12628	27.8	21	1N	3	C		1.49				F
BOUL	02	1520	1545	1520	S11	W62	.889	12628	28.0	25	-N		V	1520					4
GRP50169	02	1606	1631	1612	S13	W66	.919	12628	27.7	25	--F				.78				2 2 2 4
HUAN	02	1604	1612D		S13	W66	.919	12628	27.7	8D	-F	1	P	1610	.83				E
MCMA	02	1608	1631	1612	S13	W65	.913	12628	27.8	23	-F		C	1612	.72	1.80			EW
	02	1655	1702	NO FLARE PATROL															
GRP50170	02	1827	1900	1831	S12	W69	.938	12628	27.6	33	-F				.76				3 2 2 3
RAHY	02	1826	1852	1830	S13	W67	.926	12628	27.7	26	-N	3	C		.65				DE
BOUL	02	1828	1840D	1832	S11	W70	.943	12628	27.5	12D	1F		C	1832	.86	2.27			
MCMA	02	1850E	1900D		S13	W66	.919	12628	27.8	10D	-F		P	1852	.26	.70			D
	02	1939	2001	NO FLARE PATROL															
172 HUAN	02	2029	2041	2034	S15	W65	.914	12628	28.0	12	--F	1	C	2034	.26				D 2
GRP50174	03	0204	0216	0207	S15	W71	.950	12628	27.8	12	-B				.64				3 3 3 4
MITK	03	0203	0216	0207	S15	W71	.950	12628	27.8	13	-B		C	0207	.52				DH
MANI	03	0204	0217D	0207	S14	W69	.939	12628	27.9	13D	-N	2		0207	.83	1.74			
VORO	03	0206	0214	0208	S16	W72	.956	12628	27.7	8	-B		C	0208	.56	1.70		74	DJ
175 MITK	03	0236	0250	0239	S15	W71	.950	12628	27.8	14	-B		C	0239	.52				DH 4
GRP50176	03	0339	0348	0341	S14	W70	.944	12628	27.9	9	-N				.59				3 3 3 4
TEHR	03	0338E	0346	0338U	S13	W67	.926	12628	28.1	8D	-N	2	V		.17				DE
MITK	03	0339	0348	0340	S15	W72	.955	12628	27.8	9	-B		C	0340	.52				DH
MANI	03	0340E	0347D	0340U	S14	W70	.944	12628	27.9	7D	-N	1		0340	.62	1.33			FU
TEHR	03	0341E	0348	0342	S13	W67	.926	12628	28.1	7D	-N	2	C		.64				DE
	04	1933	1952	NO FLARE PATROL															

SOLAR FLARES
Confirmed

DECEMBER 1973

OBSERVATORY	OBSERVED UT DATE DEC	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
GRP50185	05	0722	0754	0730	N07	E52	.791	12646	9.2	32	--N				.40				3 3 3 5
MANI	05	0721	0731D	0729	N08	E52	.792	12646	9.2	10D	-N	2		0729	.52	.83			
TEHR	05	0722	0801	0734	N07	E53	.801	12646	9.3	39	-N	2	C		.36				U
ATHN	05	0727E	0746	0728	N06	E51	.779	12646	9.1	19D	-N	3	V		.33				DE
	05	1559	1602	NO FLARE PATROL															
	06	1959	2005	NO FLARE PATROL															
187 BOUL	07	1634E	1645	1637	N06	E82	.990	12651	13.8	11D	--F		C	1637	.21	.74			2
	07	2211	2217	NO FLARE PATROL															
	08	1400	1433	NO FLARE PATROL															
	09	1442	1523	NO FLARE PATROL															
189 RAMY	09	1523E	1552D	1523U	N06	E59	.859	12651	14.1	29D	--F	3	C		.37				F 1
190 BOUL	09	1905	1918	1910	N02	E54	.809	12651	13.8	13	--F		C	1910	.21	.36			3
	10	1546	1626	NO FLARE PATROL															
	10	1709	1801	NO FLARE PATROL															
GRP50193	12	0848	0909	0855	N05	E22	.385	12651	14.0	21	-F				2.15				4 4 4 6
MONT	12	0846E	0917D	0855	N04	E21	.366	12651	13.9	31D	1N		C	0855	2.58				F
BUCA	12	0850	0904		N04	E22	.382	12651	14.0	14	-F		P	0858	1.88	2.00			E
CRON	12	0851E	0908		N07	E22	.394	12651	14.0	17D	-N				1.34				
ABST	12	0855E	0905D	0855	N05	E23	.401	12651	14.1	10D	1F		P	0855	2.79	3.00			E
ABST	12	0855E	0905D	0855	N04	E21	.366	12651	13.9	10D	-F		P	0855	1.17	1.20			D
194 RAMY	14	2019E	2028D	2025U	N05	W12	.230	12651	13.9	9D	--F	1	C		.28				DE 3
GRP50195	14	2135	2145	2139	N04	E89	1.000	12662	21.6	10	-F				.21				2 2 1 3
BOUL	14	2135	2142	2137	N03	E88	.999	12662	21.5	7	-F		C	2137	.21	.83			
PALE	14	2135	2147	2140	N05	E90	1.000	12662	21.6	12	1N	3	C						
196 CANR	15	1130	1210	1134	S12	E80	.985	12669	21.5	40	--F				.31				3
199 RAMY	15	2013	2026	2017	N02	E77	.975	12662	21.6	13	--F	4	C		.28				DE 3
GRP50200	16	0528	0607	0548	S18	E88	.999	12664	22.8	39	1F				.71				2 2 2 3
ABST	16	0528	0557	0548	S18	E88	.999	12664	22.8	29	1N		C	0548	.90			92	D
CRON	16	0528E	0617		S18	E87	.998	12664	22.8	49D	1F				.52				
5 STATIONS REPORTING GROUP 50201. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP50201	16	0744	0805	0751	S18	E87	.998	12664	22.8	21	-N				.51				3 3 2 4
CRON	16	0736E	0858	0752	S18	E87	.998	12664	22.8	82D	1N				.52				
ATHN	16	0747	0806	0750	S17	E88	.999	12664	22.9	19	-N	2	C						DE
TEHR	16	0750	0803	0752	S18	E85	.996	12664	22.7	13	-N	3	V		.50				DE
50201	16	0748	0840	0802	S17	E88	.999	12664	22.9	52	*-F				.75				2 2 2 5
ABST	16	0748	0835	0802	S18	E88	.999	12664	22.9	47	1N		C	0802	1.35			98	DJ
ARCE	16	0800E	0845D		S16	E88	.999	12664	22.9	45D	-F		P	0805	.15				
6 STATIONS REPORTING GROUP 50203. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP50203	16	0926	1011	0945	S18	E85	.996	12664	22.8	45	-N				.71				5 5 3 6
TEHR	16	0920E	1023	0946	S18	E85	.996	12664	22.8	63D	-B	3	V		.41				DE
TEHR	16	0920E	1023	0925	S18	E85	.996	12664	22.8	63D	-N	3	V		.50				DE
ABST	16	0932	1005	0944	S18	E87	.998	12664	22.9	33	1N		C	0944	1.35			98	DK
ARCE	16	0935E	0940D		S16	E86	.997	12664	22.8	5D	-B		P	0940	.37				
CRON	16	0938E	1006	0948	S18	E85	.996	12664	22.8	28D	1N								
ATHN	16	0942E	0953D	0942U	S18	E84	.994	12664	22.7	11D	-N	2	C						DE
50203	16	0935	0951	0938	S14	E74	.962	12664	21.9	16	*-F				.28				2 2 2 7
CANR	16	0933	0950	0937	S14	E73	.958	12664	21.9	17	-F				.31				
TEHR	16	0936	0951	0938	S14	E75	.967	12664	22.0	15	-N	3	V		.25				DE
GRP50204	16	1056	1139	1108	S18	E84	.994	12664	22.8	43	-B				.39				3 2 2 5
CANR	16	1035	1116	1039	S17	E82	.990	12664	22.6	41	-N								
TEHR	16	1056E	1126	1105	S18	E85	.996	12664	22.8	30D	-B	3	V		.41				DE
RAMY	16	1110E	1152	1110U	S17	E82	.990	12664	22.6	42D	-B	2	C		.37				DE
205 RAMY	16	1203	1215	1207	S13	E64	.902	12669	21.3	12	--N	3	C		.14				DE 4
206 RAMY	16	1316	1338	1317	S17	E80	.985	12664	22.6	22	--N	3	C		.19				DE 2
	16	1953	2041	NO FLARE PATROL															

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OBSERVATORY	DATE DEC	OBSERVED UT START	OBSERVED UT END	OBSERVED UT MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION CENTRAL DISTANCE	LOCATION MCMATH PLAGE REGION	LOCATION CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	REMARKS
207 PALE	16	1954	2023	1956	S17	E74	.963	12664	22.4	29	--F	3	C		.45				DE 2
208 PALE	16	1954	2023	2008	S17	E74	.963	12664	22.4	29	--N	3	C		.27				DE 1
	16	2056	2135	NO FLARE PATROL															
GRP50209	16	2145	2204	2148	S19	E77	.976	12664	22.7	19	--F				.36				2 2 2 2
HUAN	16	2144	2202	2148	S18	E78	.979	12664	22.8	18	-F	1	C	2148	.26				D
PALE	16	2145	2206	2147	S19	E75	.968	12664	22.5	21	-N	3	C		.45				DE
	16	2220	2247	NO FLARE PATROL															
GRP50210	16	2354	0010	2358	S17	E77	.975	12664	22.8	16	-N				.62				2 2 2 4
MITK	16	2353	0012	2354	S16	E79	.982	12664	22.9	19	1N		C	2354	.83				D
PALE	16	2355	0007	0001	S18	E75	.968	12664	22.6	12	-N	3	V		.41				F
PALE	16	2355	0007	2356	S18	E75	.968	12664	22.6	12	-F	3	V		.31				F
GRP50211	17	0029	0057	0032	S17	E77	.975	12664	22.8	28	1B				.91				4 3 3 4
MITK	17	0028	0053	0032	S17	E79	.982	12664	22.9	25	1B		C	0032	1.34				D
PALE	17	0029	0102	0033D	S19	E75	.968	12664	22.6	33	-N	2	C		.55				F
VORO	17	0030	0056	0032	S16	E76	.971	12664	22.7	26	1B		C	0032	.84	2.95		126	D
CRON	17	0043E	0057	0045	S19	E77	.976	12664	22.8	14D	-N				.31				
GRP50213	17	0316	0327	0322	S18	E75	.968	12664	22.8	11	-N				.56				3 3 3 4
CRON	17	0315	0326		S19	E76	.972	12664	22.8	11	-N				.41				
VORO	17	0316	0328	0318	S16	E76	.971	12664	22.8	12	1N		C	0318	.74	2.56		76	DJ
PALE	17	0325E	0326D	0325U	S18	E72	.954	12664	22.5	1D	-N	2	V		.52				F
GRP50214	17	0742	0756	0749	S19	E72	.954	12664	22.7	14	--F				.24				2 2 2 2
CRON	17	0742	0753		S19	E74	.964	12664	22.9	11	-F				.31				
ATHN	17	0747E	0759	0749	S18	E70	.944	12664	22.6	12D	-N	3	V		.17				DE
215 ATHN	17	0907E	0915	0910	S18	E68	.932	12664	22.5	8D	--N	4	V		.33				DE 2
216 MEUD	17	1030	1043	1035	S14	E67	.923	12664	22.5	13	-N		C	1035	.52				3
217 ATHN	17	1052E	1118	1052U	S12	E65	.909	12664	22.3	26D	--N	4	V		.33				DE 2
218 ATHN	17	1148E	1155	1149	S18	E66	.920	12664	22.4	7D	--N	4	V		.33				DE 2
GRP50219	17	1303	1313	1305	S18	E67	.926	12664	22.6	10	--F				.45				3 3 3 5
RAMY	17	1303	1315	1305	S16	E67	.925	12664	22.6	12	-F	3	C		.37				DE
MEUD	17	1303	1309	1304	S18	E67	.926	12664	22.6	6	-N		C	1304	.62				E
HUAN	17	1303	1314	1306	S19	E68	.933	12664	22.6	11	-F	1	C	1306	.36				
GRP50220	17	1335	1344	1340	S17	E66	.919	12664	22.5	9	--F				.39				2 2 2 6
MEUD	17	1335	1343	1340	S18	E66	.920	12664	22.5	8	-F		C	1340	.41				D
RAMY	17	1335	1345	1340	S16	E66	.918	12664	22.5	10	-N	4	C		.37				DE
GRP50221	17	1449	1503	1453	S17	E66	.919	12664	22.6	14	--N				.33				3 3 3 3
RAMY	17	1446	1504	1451	S16	E65	.911	12664	22.5	18	-F	3	C		.28				DE
MCMA	17	1448E	1503		S18	E66	.920	12664	22.6	15D	-N		C	1455	.31	.90			D
CANR	17	1452	1502	1455	S16	E66	.918	12664	22.6	10	-N			1455	.41	.80			
GRP50223	17	1624	1635	1627	S17	E65	.912	12664	22.6	11	-N				.50				4 4 4 4
CANR	17	1623	1632	1627	S16	E65	.911	12664	22.6	9	-N			1627	.62	1.20			
RAMY	17	1624E	1635D	1628	S16	E66	.918	12664	22.6	11D	-N	4	V		.66				DE
MCMA	17	1625	1633	1627	S18	E65	.913	12664	22.6	8	-B		C	1627	.41	1.20			E
BOUL	17	1625	1640D	1627	S18	E65	.913	12664	22.6	15D	-F		C	1627	.32	.75			
GRP50224	17	1707	1711	1709	S18	E65	.913	12664	22.6	4	--F				.24				2 2 2 4
MCMA	17	1706	1711	1708	S18	E65	.913	12664	22.6	5	-N		C	1708	.26	.80			D
HUAN	17	1707	1711	1709	S18	E65	.913	12664	22.6	4	-F	1	C	1709	.21				D
225 PALE	17	1802E	1813	1803U	S18	E65	.913	12664	22.6	11D	--F	3	V		.46				F 2
GRP50228	18	1531	1537	1531	S16	E51	.792	12664	22.5	6	--F				.21				2 2 2 3
CANR	18	1530	1539	1531	S14	E52	.798	12664	22.5	9	-F			1532	.21				
HUAN	18	1531	1534	1531	S17	E49	.774	12664	22.3	3	-F	1	C	1531	.21	.33			D
229 RAMY	18	1659E	1714	1700	S17	E49	.774	12664	22.4	15D	--F	4	V		.33				2
230 PALE	18	1745	1749	1748	S17	E48	.763	12664	22.3	4	--F	3	C		.27				F 2
231 PALE	18	1801	1811	1806	S17	E48	.763	12664	22.4	10	--F	3	C		.36				F 2
232 PALE	18	1941	2004	1947	S15	E48	.758	12664	22.4	23	-N	3	C		.91				F 1
	18	2058	2123	NO FLARE PATROL															

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233 PALE	18	2331E	2339	2333U	S16	E45	.728	12664	22.4	8D	--N	1	C		.36				F 2
GRP50234	19	0124	0146	0132	S16	E45	.727	12664	22.4	22	-N				1.17				3 3 2 3
MITK	19	0123	0147	0130	S15	E45	.725	12664	22.4	24	-N		C	0130	1.34	2.00			E
PALE	19	0124	0149	0133U	S15	E46	.736	12664	22.5	25	-N	2	C		.99				U F
CRON	19	0124E	0143		S18	E45	.733	12664	22.4	19D	-N								
GRP50235	19	0756	0818	0800	S17	E43	.708	12664	22.6	22	-N				2.14				4 4 3 4
BUCA	19	0755	0832		S17	E41	.685	12664	22.4	37	1N		C	0807	2.21	3.00			E
TACH	19	0755	0802	0800	S17	E45	.730	12664	22.7	7	1B		P	0800	2.73	3.92		72	F
TEHR	19	0756E	0816	0759	S17	E41	.685	12664	22.4	20D	-N	4	V		1.49				F
CRON	19	0756	0823	0801	S18	E44	.722	12664	22.6	27	-N								
GRP50237	19	1040	1108	1044	S17	E46	.741	12664	22.9	28	1N				3.54				5 5 4 5
MEUD	19	1039	1105		S17	E43	.708	12664	22.7	26	1N		C	1048	1.75	2.40			F
CRON	19	1040	1050D	1044	S18	E48	.765	12664	23.0	10D	1N								
CANR	19	1040	1110	1045	S17	E46	.741	12664	22.9	30	1N			1045	2.06	2.60			
UPIC	19	1041	1051D	1044U	S16	E46	.739	12664	22.9	10D	1B		P	1044	2.10				
WEND	19	1042E	1108		S18	E46	.744	12664	22.9	26D	2N		P		8.25				
238 RAMY	19	1111E	1119		S18	E42	.700	12664	22.6	8D	--F	3	C						DE 4
239 RAMY	19	1242	1315	1251	S18	E41	.689	12664	22.6	33	--F	3	C		1.02				DE 3
241 PALE	19	1934	1959	1943U	S18	E37	.642	12664	22.6	25	--N	3	C		.72				F 2
GRP50242	19	2129	2156	2135	S18	E35	.618	12664	22.5	27	--F				.39				2 2 2 2
BOUL	19	2128	2155	2137	S18	E34	.606	12664	22.4	27	-F		C	2137	.32	.39			
PALE	19	2129	2157	2133U	S17	E35	.613	12664	22.5	28	-F	2	C		.45				F
243 MITK	20	0336	0345	0340	S18	E30	.556	12664	22.4	9	-N		C	0340	1.34	1.60			E 3
244 TEHR	20	0714E	0720	0715U	S19	E24	.489	12664	22.1	6D	--N	3	V		.41				F 3
247 HUAN	20	1211	1318D		S18	E23	.469	12664	22.2	67D	--F	1	P	1318	.46	.53			E 2
248 RAMY	20	1321	1340	1326	S17	E26	.498	12664	22.5	19	--F	4	C		.65				DE 1
249 RAMY	20	1906	1919	1910	N10	E24	.447	12662	22.6	13	--F	3	C		.37				DE 2
250 PALE	20	1947E	1954D	1947	S19	E18	.420	12664	22.2	7D	--N	2	C		.29				DE 3
GRP50251	20	2149	2159	2151	S18	E25	.493	12664	22.8	10	--F				.35				1 1 1 2
PALE	20	2148	2159	2151	S18	E25	.493	12664	22.8	11	-F	2	C		.35				DE
PALE	20	2149E	2159	2151	S18	E26	.506	12664	22.9	10D	-F	2	V		.31				DE
GRP50252	20	2155	2207	2157	S15	E19	.392	12664	22.3	12	--F				.26				2 2 2 3
TEHR	20	2155	2207	2157	S14	E19	.384	12664	22.3	12	-F	3	V		.26				DE
PALE	20	2155	2207	2157	S15	E19	.392	12664	22.3	12	-F	2	C		.26				DE
GRP50253	20	2248	2307	2254	S18	E15	.376	12664	22.1	19	-N				1.14				2 2 2 3
CRON	20	2248	2305	2252	S18	E15	.376	12664	22.1	17	-N				.62				
PALE	20	2249E	2308	2255U	S18	E15	.376	12664	22.1	19D	-N	2	V		1.65				U F
GRP50256	21	0145	0200	0147	S18	E18	.408	12664	22.4	15	--F				1.14				2 2 2 5
MITK	21	0145	0200	0147	S17	E18	.398	12664	22.4	15	-F		C	0147	1.44	1.60			E
CRON	21	0145	0156D		S18	E18	.408	12664	22.4	11D	-N				.83				
GRP50258	21	0408	0449	0423	S19	E15	.387	12664	22.3	41	1N				2.38				2 2 2 5
MITK	21	0408	0450	0422	S19	E14	.377	12664	22.2	42	1N		C	0450	2.48	2.70			E
CRON	21	0416E	0448	0423	S18	E16	.386	12664	22.4	32D	1N				2.27				
GRP50259	21	0453	0510	0457	S12	W07	.216	12661	20.7	17	--N				.71				2 2 2 5
MITK	21	0449	0504	0453	S13	W07	.230	12661	20.7	15	-N		C	0453	.52	.50			D
ABST	21	0457	0515	0501	S11	W07	.202	12661	20.7	18	-N		P	0501	.90	.90			D
262 CANR	21	1255	1300	1255	S16	E09	.290	12664	22.2	5	--N			1255	.62	.60			3
265 PALE	21	2003	2032D	2006	S18	E05	.294	12664	22.2	29D	--N	3	C		.36				F 3
266 PALE	21	2003	2032D	2018	S18	E05	.294	12664	22.2	29D	--N	3	C		.45				F 3
GRP50268	21	2248	2312	2302	S18	E03	.286	12664	22.2	24	--F				.39				2 2 2 3
PALE	21	2248E	2316	2302U	S18	E03	.286	12664	22.2	38D	-N	3	V		.46				F
PALE	21	2248E	2316	2248U	S18	E03	.286	12664	22.2	28D	-F	3	V		.62				F
CRON	21	2303E	2307		S18	E03	.286	12664	22.2	4D	-F				.31				

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GRP50269	22	0022	0027	0023	S19	E02	.298	12664	22.2	5	--N				.42				2 2 2 3
MITK	22	0022	0025	0023	S19	E01	.297	12664	22.1	3	-B		C	0023	.52	.50			D
CRON	22	0022E	0029		S18	E03	.284	12664	22.2	7D	-F				.31				
GRP50270	22	0112	0128	0120	S19	E03	.301	12664	22.3	16	--F				1.65				2 2 2 3
MITK	22	0112	0125	0120	S19	E02	.298	12664	22.2	13	1F		C	0120	2.99	3.10			
CRON	22	0112E	0131		S18	E03	.284	12664	22.3	19D	-F				.31				
GRP50272	22	0300	0328	0306	S19	E03	.301	12664	22.4	28	--N				.88				2 2 2 5
PALE	22	0252E	0324	0314	S18	E02	.282	12664	22.3	32D	-N	2	C		.81				F
PALE	22	0302E	0324	0302U	S18	E02	.282	12664	22.3	22D	-N	2	V		.83				F
MITK	22	0307	0332	0310	S20	E04	.320	12664	22.4	25	-N		C	0310	.93	1.00			E
GRP50274	22	0553	0611	0600	S19	E01	.297	12664	22.3	18	--F				1.37				2 2 2 7
ABST	22	0553	0611	0559	S18	E01	.280	12664	22.3	18	-F		C	0559	1.80	1.90		56	EJ
MITK	22	0553	0610	0601	S19	E01	.297	12664	22.3	17	-N		C	0601	.93	.90			D
276 ABST	22	0825	0850	0829	S18	E04	.287	12664	22.7	25	--F		C	0829	.90	.90		56	D 3
277 ABST	22	0836	0845	0837	S19	W01	.297	12664	22.3	9	--N		C	0837	.45	.50		55	D 4
	22	1705	1714	NO FLARE PATROL															
	22	1923	1930	NO FLARE PATROL															
	22	1931	1935	NO FLARE PATROL															
GRP50278	23	0104	0116	0105	S19	W10	.337	12664	22.3	12	--F				.62				2 2 2 3
MITK	23	0104	0111	0105	S19	W09	.330	12664	22.4	7	-N		C	0105	.52	.60			D
CRON	23	0104E	0120		S18	W11	.332	12664	22.2	16D	-F				.72				
GRP50279	23	0558	0618	0606	S16	W33	.580	12668	20.8	20	-N				.81				4 4 4 6
ABST	23	0556	0625	0610	S16	W33	.580	12668	20.8	29	-N		C	0610	1.07	1.30		56	FJ
MITK	23	0558	0617	0606	S16	W34	.592	12668	20.7	19	-N		C	0606	1.34	1.70			D
CRON	23	0558E	0616	0602	S16	W31	.554	12668	20.9	18D	-N				.62				
TEHR	23	0559	0613	0605	S14	W32	.557	12668	20.8	14	-N	2	C		.19				DE
GRP50281	23	0751	0816	0756	S16	W35	.605	12668	20.7	25	-B				.88				4 4 4 6
ABST	23	0750	0815	0753	S16	W36	.618	12668	20.6	25	-B		C	0753	1.07	1.30		62	EJ
TEHR	23	0752	0812	0755	S14	W35	.597	12668	20.7	20	-N	2	C		.45				DE
CRON	23	0752	0820		S16	W32	.567	12668	20.9	28	-N				.83				
CATA	23	0800E	0805D	0800	S18	W35	.615	12668	20.7	50	-B			0800	1.16	1.46		(204)	
283 RAMY	23	1416	1423O	1423U	S16	W40	.667	12668	20.6	7D	--F	3	C		.31				DE 2
	23	1716	1719	NO FLARE PATROL															
	23	1841	1848	NO FLARE PATROL															
	23	1953	2000	NO FLARE PATROL															
GRP50284	23	2332	2350	2335	S16	W44	.714	12668	20.7	18	--N				.57				2 2 2 3
MANI	23	2332E	2354	2334	S16	W44	.714	12668	20.7	22D	-N	2		2334	.62	.87			F
CRON	23	2333E	2345	2335	S15	W43	.700	12668	20.8	12D	-N				.52				
	24	1308	1330	NO FLARE PATROL															
	24	1410	1412	NO FLARE PATROL															
	24	1417	1420	NO FLARE PATROL															
291 RAMY	24	1518	1537	1523	S16	W53	.809	12668	20.7	19	--F	3	C		.46				DE 2
292 RAMY	24	1823	1838	1825	S15	W36	.613	12664	22.1	15	--F	4	C		.56				DE H 1
293 RAMY	24	2110	2119	2111	S16	W40	.666	12664	21.9	9	--F	3	C		.37				DE H 1
	24	2144	2217	NO FLARE PATROL															
294 BOUL	24	2222	2232	2225	S19	W44	.723	12664	21.6	10	--F		C	2225	.32	.44			2
295 MITK	25	0004	0015	0011	S16	W41	.678	12664	21.9	11	--N		C	0011	.62	.80			D 3
296 MITK	25	0040	0049	0041	S16	W42	.690	12664	21.9	9	--F		C	0041	.72	1.00			DH 3
297 MITK	25	0132	0143	0136	S16	W42	.690	12664	21.9	11	--F		C	0136	1.03	1.40			DH 3
300 ABST	25	0819	0830	0821	S18	W48	.762	12664	21.7	11	-N		C	0821	.90	1.40		61	DH 3

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DECEMBER 1973

OBSERVATORY	OBSERVED UT DATE DEC	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND.	TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
302 ARCE	25	1355E	1410U		S18	W45	.730	12664	22.2	150	--N		C	1400	.31	.40			2
303 RAMY	25	1534	1554	1538	S15	W66	.916	12668	20.7	20	--N	4	C		.23				DE 1
	25	1859	1907	NO FLARE PATROL															
	25	1917	1939	NO FLARE PATROL															
GRP50304	25	2013	2039	2017	S16	W49	.768	12664	22.2	26	1F				1.77				2 2 2 2
RAMY	25	2013	2039D	2016	S16	W48	.757	12664	22.2	26D	1F	3	C		1.86				F
PALE	25	2013	2037D	2018	S15	W50	.777	12664	22.1	24D	1N	3	C		1.68				U F
	25	2039	2051	NO FLARE PATROL															
2 STATIONS REPORTING GROUP 50305. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP50305	25	2104	2129	2110	S17	W51	.791	12664	22.1	25	--F				.52				2 2 2 3
RAMY	25	2104	2130	2105	S17	W50	.780	12664	22.1	26	-F	3	C		.23				DE
PALE	25	2112E	2127	2114	S16	W51	.789	12664	22.1	15D	-N	3	C		.81				DE
305 PALE	25	2112E	2127	2114U	S17	W44	.716	12664	22.6	15D	*-F	3	C		.22				DE 3
306 ABST	26	0719	0730	0720	S17	W56	.838	12664	22.1	11	--F		C	0720	.90	1.60		52	E 4
GRP50307	26	0719	0738	0725	S13	W73	.956	12668	20.8	19	1F				1.53				3 3 3 4
ABST	26	0719	0735	0724	S13	W70	.940	12668	21.1	16	1N		C	0724	1.80			59	D
CRON	26	0722E	0735	0722E	S15	W74	.961	12668	20.8	13D	1F			0722	1.86				
TEHR	26	0730E	0745	0730U	S12	W74	.961	12668	20.8	15D	-F	4	V		.93				F
308 ABST	26	1059	1115	1100	S16	W57	.845	12664	22.2	16	--F		C	1100	.90	1.70		52	E 4
GRP50310	26	1233	1251	1233	N07	W64	.903	12662	21.7	18	--F				.46				2 1 1 4
RAMY	26	1233E	1251D	1233U	N07	W64	.903	12662	21.7	18D	-F	3	C		.46				DE
CANR	26	1236	1240	1237	N08	W51	.787	12662	22.7	4	-F			1237	.52	.75			
GRP50311	26	1350	1400	1350	S14	W90	1.000	12668	19.8	10	--F				.29				2 1 1 2
CATA	26	1350	1400	1350	S14	W90	1.000	12668	19.8	10	-F			1350	.29			(126)	
RAMY	26	1355E	1410	1355U	S13	W80	.984	12668	20.6	15D	-N	3	C		.56				DE
	26	1451	1505	NO FLARE PATROL															
312 RAMY	26	1725	1736	1728	N07	W67	.924	12662	21.7	11	--F	4	C		.28				DE 3
	26	1916	1927	NO FLARE PATROL															
GRP50313	26	2331	2344	2336	S17	W63	.895	12664	22.3	13	--F				.66				3 3 3 3
PALE	26	2331	2342	2333	S17	W62	.888	12664	22.3	11	-F	3	V		.83				DE
CRON	26	2337E	2345		S16	W64	.902	12664	22.2	8D	-F				.62				
MANI	26	2339E	2345D	2339U	S18	W62	.889	12664	22.3	6D	-N	1		2339	.52	1.02			
314 CRON	27	0432E	0445	0435	N07	W73	.958	12662	21.7	13D	--N				.31				2
GRP50315	27	1046	1057	1049	S15	W80	.984	12669	21.4	11	-B				.50				2 2 2 3
MONT	27	1045E	1057D	1048	S15	W80	.984	12669	21.4	12D	-B		C	1048	.72				H
TEHR	27	1046	1049D	1049U	S14	W79	.981	12669	21.5	3D	-N	3	C		.28				DE
316 RAMY	27	1610	1619	1612	S18	W78	.978	12664	21.8	9	--F	3	C		.37				DE 2
317 PALE	27	2011	2021D	2017	S13	W78	.977	12664	22.0	10D	-N	3	V		.85				DE 2
GRP50318	27	2247	2258	2252	S15	W83	.992	12664	21.7	11	-N				.40				2 2 2 2
PALE	27	2241	2256	2252	S14	W83	.992	12664	21.7	15	-N	3	V		.48				DE
PALE	27	2241	2256	2244	S14	W83	.992	12664	21.7	15	-F	3	V		.47				DE
CRON	27	2252	2259		S15	W83	.992	12664	21.7	7	-N				.31				
	28	1620	1623	NO FLARE PATROL															
	28	2213	2245	NO FLARE PATROL															
	29	1839	1849	NO FLARE PATROL															
	29	1851	1855	NO FLARE PATROL															
	29	1900	1907	NO FLARE PATROL															
	29	2111	2112	NO FLARE PATROL															
	29	2113	2132	NO FLARE PATROL															
	29	2233	2248	NO FLARE PATROL															

SOLAR FLARES
Confirmed

DECEMBER 1973

OBSERVATORY	DATE DEC	OBSERVED UT START	OBSERVED UT END	OBSERVED UT MAX. PHASE	LOCATION APPROX. LAT.	LOCATION APPROX. MER. DIST.	LOCATION CENTRAL DISTANCE	LOCATION MCMATH PLAGE REGION	LOCATION CMP DAY	DURATION MIN.	IMPORTANCE	OBS. COND. TYPE	MEASUREMENTS TIME UT	MEASUREMENTS MEAS. AREA Sq. Deg.	MEASUREMENTS CORR. AREA Sq. Deg.	MEASUREMENTS MAX. WIDTH Hα	MEASUREMENTS MAX. INT. %	REMARKS
	29	2252	2335	NO FLARE PATROL														
	30	0722	0811	NO FLARE PATROL														
	30	0815	0819	NO FLARE PATROL														
319 RAMY	30	1219E	1234	1219U	N23	W71	.960	12676	25.2	15D	--F	4 C		.19				DE 2

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
731201	0.00	23.2	731210	0.00	22.5	731222	0.00	23.7
731202	34.40	23.2	731212	24.40	24.0	731223	7.55	23.7
731203	5.43	24.0	731214	0.23	24.0	731224	0.00	23.0
731204	0.00	23.7	731216	9.59	22.1	731225	20.81	23.3
731205	0.00	24.0	731217	8.77	24.0	731226	12.35	23.6
731206	0.00	23.9	731218	4.38	23.6	731227	5.98	24.0
731207	0.00	23.9	731219	97.53	24.0	731228	0.00	23.4
731208	0.00	23.5	731220	16.34	24.0	731229	0.00	22.4
731209	0.00	23.3	731221	29.90	24.0	731230	0.00	23.1
						731231	0.00	18.8

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

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_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked assymetry in Hα 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 Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

SOLAR FLARES
Unconfirmed

DECEMBER 1973

OBSERVATORY	OBSERVED UT DATE DEC	START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	DURATION MIN.	IMPORTANCE	COND.	OBS. TYPE	MEASUREMENTS TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	REMARKS
157 ABST	01	0714	0812	0756	N06	W85	.996	12636	24.9	58	1N		C	0756	.90			87	DK 4
167 MCMA	02	1340E	1425	1349	S15	W64	.908	12628	27.8	45D	-F		C	1349	.62	1.50			E 4
171 RAMY	02	2010E	2020D		S14	W67	.927	12628	27.8	10D	-N	2	V						DE 3
173 MANI	03	0118E	0125	0118U	S12	W70	.943	12628	27.8	7D	-N	1		0118	.83	1.77			4
177 MITK	03	0433	0456	0440	S14	W72	.955	12628	27.8	23	-F		C	0440	.52				DH 4
178 MITK	03	0509	0518	0511	S14	W73	.960	12628	27.7	9	-N		C	0511	.52				DH 3
179 TEHR	03	0621	0628	0623	S13	W67	.926	12628	28.2	7	-N	2	C		.73				DE 5
180 RAMY	03	1753E	1802	1754	S13	W85	.997	12628	27.4	9D	-N	3	C						DE 4
181 MONT	04	0850E	0900D	0852	S14	W87	.999	12628	27.8	10D	-N		C	0852	.41				EK 5
182 ATHN	04	1055E	1108	1056	S13	W90	1.000	12628	27.7	13D	-N	2	C						DE 4
183 CANR	04	1142	1222	1206	S13	W90	1.000	12628	27.7	40	1B			1206	.83	3.20			4
184 RAMY	04	1537	1544		S13	W90	1.000	12628	27.9	7	-N	3	C						DE 3
186 MITK	07	0225	0231	0226	N08	E27	.470	12646	9.1	6	-N		C	0226	.52	.60			DG 6
188 MANI	08	0719E	0722D	0719U	N08	E19	.351	12646	9.7	3D	-F	2		0719	.52	.56			5
191 ATHN	10	0803	0810	0805	N02	E80	.985	12656	16.3	7	-F	2	C		.33				DE 4
192 TEHR	11	0803	0807D	0806U	N03	E80	.985	12658	17.3	4D	-F	2	C		.23				DE 5
197 RAMY	15	1511	1528	1513	N01	W28	.470	12651	13.5	17	-F	4	C		.46				DE 4
198 PALE	15	1829E	1844	1832	S00	W31	.515	12651	13.4	15D	-F	3	V		.21				DE 3
202 TEHR	16	0750	0803	0752	N07	E72	.953	12662	21.7	13	-N	3	V		.50				DE 4
212 PALE	17	0257	0306	0300	S15	E57	.847	12669	21.4	9	-N	2	C		.19				5
222 MCMA	17	1523	1527	1524	S18	E66	.920	12664	22.6	4	-F		C	1524	.21	.60			D 5
GRP50226	17	2355	0007	0001	S18	E75	.968	12665	23.6	12	-N				.41				1 1 1 4
PALE	17	2355	0007	0001	S18	E75	.968	12665	23.6	12	-N	3	V		.41				F
PALE	17	2355	0007	2356	S18	E75	.968	12665	23.6	12	-F	3	V		.31				F
227 CANR	18	1238	1246	1240	S10	E87	.998	12666	25.1	8	-F			1240	.31	1.00			4
236 UPIC	19	1026	1036	1029	S17	E42	.697	12664	22.6	10	-N		P	1029	.85				5
240 BOUL	19	1700	1708	1705	S16	E42	.693	12664	22.9	8	-F		V	1705		.70			4 3
245 CRON	20	0908E	0913		S18	E24	.481	12664	22.2	5D	-F				.31				6
246 CRON	20	0954E	0959		S18	E24	.481	12664	22.2	5D	-F				.31				5
254 PALE	20	2349E	0004	2351	S15	E21	.418	12664	22.6	15D	-F	2	V		.52				DE 4
255 MITK	21	0102	0114	0106	S19	E17	.408	12664	22.3	12	1F		C	0106	2.06	2.20			6
257 MITK	21	0302	0315	0305	S20	E15	.399	12664	22.3	13	-F		C	0305	1.24	1.30			E 6
260 ABST	21	0516	0525	0518	S17	E16	.374	12664	22.4	9	-F		C	0518	.99	1.10		55	D 6
261 ABST	21	0601	0632	0604	S17	E15	.363	12664	22.4	31	1N		C	0604	4.23	4.50		65	FJ 6
263 HUAN	21	1552	1556D		S19	E09	.333	12664	22.3	4D	-F	1	P	1555	.46	.49			5
264 PALE	21	1938E	1952	1939	S18	E08	.311	12664	22.4	14D	-F	3	C		.45				F 4
267 PALE	21	2215E	2234	2217U	S18	E01	.282	12664	22.0	19D	-F	3	V		.46				F 4
271 PALE	22	0229E	0231D	0230U	S18	E02	.282	12664	22.3	2D	-N	2	V		.77				F 5
273 ABST	22	0525	0530	0526	S16	E07	.273	12664	22.8	5	-N		C	0526	1.18	1.20		55	DV 6
275 ABST	22	0632	0649	0635	S18	E01	.280	12664	22.3	17	-F		C	0635	1.80	1.90		54	EJ 5
280 KODA	23	0658E	0725	0658	S12	W30	.521	12669	21.0	27D	-B		V	0658			2.40		EH 4

SOLAR FLARES
Unconfirmed

DECEMBER 1973

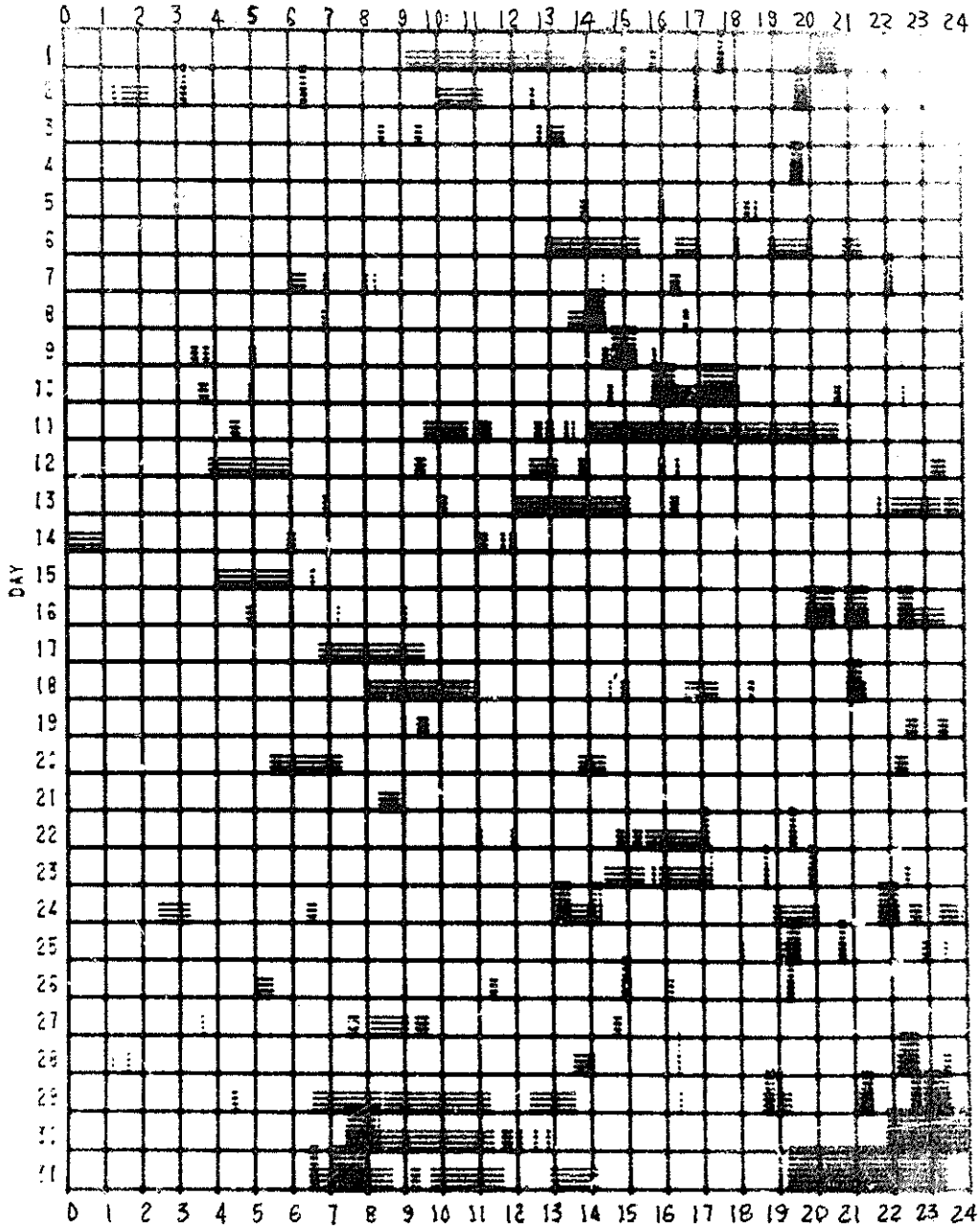
OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS	
	DATE DEC	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %		
282 RAMY	23	1129E	1139	1132	S17	W37	.634	12668	20.7	10D	-F	2	C		.52				DE	6
285 MANI	24	0053	0120	0058	S12	W39	.642	12669	21.1	27	-F	2		0058	.41	.54			F	3
286 MITK	24	0353	0418	0402	S16	W48	.758	12668	20.6	25	-F		C	0402	.83	1.30			D	7
287 KODA	24	0443	0515	0443	S15	W45	.722	12668	20.8	32	-N		V	0443			1.88		D	6
288 ABST	24	0654	0710D	0700	S16	W49	.768	12668	20.6	16D	-N		P	0700	.90	1.40			D	7
289 ABST	24	0738E	0755D	0743	S16	W49	.768	12668	20.6	17D	-N		P	0743	.90	1.40			E	6
290 ABST	24	1045	1059D	1048	S16	W51	.789	12668	20.6	14D	1N		P	1048	1.53	2.50			F	6
298 ABST	25	0633	0640	0635	S16	W44	.713	12664	22.0	7	-F		C	0635	.90	1.30			DJ	4
299 ABST	25	0708	0716	0710	S17	W64	.903	12668	20.5	8	1F		C	0710	1.62	3.60		66	EJ	4
301 ABST	25	1037	1044	1038	S17	W45	.727	12664	22.1	7	-N		C	1038	.90	1.30		69	DVZ	4
309 TEHR	26	1125E	1133	1126U	S16	W54	.818	12664	22.4	8D	-N	3	V		.17				DE	3

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1973

HOUR–UT



Observatories included in total patrol:

Abastumani	Carnarvon	Huancayo	Locarno	Monte Mario	Teheran
Arcetri	Catania	Istanboul	Manila	Palehua	Upice
Athenes	Culgoora	Kharkov	McMath-Hulbert	Ramey	Voroshilov
Boulder	Gran Canaria	Kiev	Meudon	Tachkent	Wendelstein
Bucharest	Herstmonceux	Kodaikanal	Mitaka		

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and time of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1973

DEC. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
1	8800 ATHN	1	0741.9	0744.6	8	9.1	3.0		
	4995 ATHN	1	0742.6	0744.6	7.1	1.8	.9		
	930 BORD	45	0834	0835.3	3	26.0	5.0		
	4995 CANR	3	0934	0936	2.5	14.0	5.0		
	200 GORK	6	0935.6	0935.9	.5	15.0	6.0		
	100 GORK	6	0937.9	0938 U	.4	50.0D			
	536 ONDR	5	1035.5	1035.5	.5	35.0			
	260 ONDR	45	1035.5	1037.5	6	30.0			
	2800 OTTA	26	1508	1508	5	1.4	0.7		
	2800 OTTA	20	1600	1615	30	1.0	0.5		
	2800 OTTA	20	1655	1813	180	2.8	1.4		
	18 MCMA	41	1823	1828	17			1	
2	3750 TYKW	20	0140	0255	160	6.0	3.0		
	2000 TYKW	20	0140	0202.5	180	4.0	2.0		
	9400 TYKW	20	0200	0300	210	6.0	3.0		
	9400 TYKW	20	0448	0454	25	5.0	2.0		
	260 ONDR	45	0917.5	0918	2.5	20.0			
	2830 ARCE	20	1000.5	1034.2	69				RECORD DIST
	2830 ARCE	22	1222.8	1258.7U	53.5				
	930 BORD	45	1448	1451.1	5	12.0	3.0		
	10700 PENN	1	1454.7	1455.6	2.4	5.6	1.5		
	2800 OTTA	27	1457		90	.8	0.7		
	2800 OTTA	24	1457	1500	3	.8	0.4		
	2800 OTTA	24	1500		80	.8			
	2800 OTTA	26	1620	1620	7	.8	0.4		
	2800 OTTA	1	1718	1719.5	7	1.2	0.6		
	2800 OTTA	20	1800	1840	100	2.8	1.5		
	2800 OTTA	23	1953	2015	80	2.8	1.4		
	10700 PENN	40	2006.3		53				
	8800 SGMR	2	2006.4	2006.9	3.2	7.0	2.1		
	4995 BOUL	8	2006	2006.5	1.5	11.0	4.0		
	4995 SGMR	2	2006.3	2006.7	2.7	8.9	2.7		
	2700 PENN	45	2006	2006.9	10.6	12.0	2.1		
	2695 PENT	45	2006.5	2007	5	10.8	2.7		
	2695 SGMR	4	2006.3	2006.9	3.6	10.1	3.0		
	1420 BOUL	45	2006.5	2008	3.5	65.0	20.0		
	1415 SGMR	4	2006.5	2006.6	4.4	221.8	66.5		
	2695 BOUL	45	2007	2007.5	4	12.0	4.0		
	960 PENN	8	2007.8	2007.9	.3	22.4			
3	536 ONDR	45	1146	1146.5	2	40.0			
	260 ONDR	45	1318.5	1318.5	.5	50.0			
	260 ONDR	5	1333.5	1333.5	.5	55.0			
	260 ONDR	45	1411.5	1411.5	1.5	30.0			
	2800 OTTA	27	1415		230	1.4	1.1		
	2800 OTTA	24	1415	1500	45	1.4	0.7		
	2800 OTTA	24	1500		140	1.4			
	2800 OTTA	26	1720	1720	45	1.4	0.7		
4	8800 ATHN	4	0540.4	0541.6	1.8	12.4	4.8		
	4995 ATHN	2	0540.3	0540.5	1.6	7.6	2.3		
	3750 TYKW	1	0540	0540.5	1	3.0	1.0		
	2695 ATHN	2	0540.4	0540.7	1.5	5.2	1.7		
	2695 MANI	1	0540.2	0540.6	1.8	4.3	1.7		
	2000 TYKW	1	0540	0540.5	1	6.0	2.0		
	1415 MANI	2	0540.2	0540.4	2.1	7.8	1.4		
	1415 ATHN	2	0540.3	0540.7	1.6	6.4	1.9		
	1000 TYKW	1	0540	0540.4	1	4.0	1.0		
	606 MANI	2	0540.2	0540.4	.9	7.5	1.4		
	2695 ATHN	1	0850.5	0851.7	5.6	3.5	1.7		
	1415 ATHN	1	0850	0852.4	4.3	3.8	1.3		
	4995 ATHN	1	0851.1	0851.6	6	2.9	1.0		
	2830 ARCE	1	0851.2	0851.9	5.4				
	2695 CANR	3	0851.5	0852.5	1.5	3.0	1.0		
	1420 CRON	45	0851	0852.5	4.5	5.0	1.0		
	4995 ATHN	4	1057.4	1057.8	.9	11.5	4.8		
	2830 ARCE	21	1132.8	1149.8	52				
	4995 ATHN	1	1144.8	1145.2	.6	1.9	.9		
	3000 BERL	4	1144.5	1144.8	1	2.4	0.8		
	2830 ARCE	1	1144.8	1145.3	2.2				
	2695 ATHN	1	1144.8	1145.2	.9	5.1	1.7		
	1500 BERL	4	1144.5	1145	3	6.7	1.9		
	1415 ATHN	1	1144.8	1145.2	3.7	5.2	2.0		
	2695 CANR	8	1145.5	1146	1	6.0	2.0		
	1420 CANR	8	1145	1145.5	2.5	4.0	1.0		
	3000 BERL	22	1204	1206.1	5	2.5	0.6		
	2695 CANR	3	1204.5	1207	3.5	5.0	2.0		
	1500 BERL	4	1204	1206.2	3.2	5.0	1.9		
	2830 ARCE	1	1205.7	1206.7	2				
	2695 ATHN	1	1205.9	1206.7	1.6	5.1	1.7		
	1420 CANR	45	1205	1206.5	2.5	4.0	1.0		
	1415 ATHN	1	1205.8	1206.5	1.7	3.3	1.3		
	2700 PENN	1	1518.4	1519.7	2	2.7	1.1		
	2800 OTTA	2	1519.2	1519.9	1.8	2.8	1.3		
	2695 BOUL	8	1519.5	1520	1.5	6.0	2.0		
	18 MCMA	6	1721	1722	1			1	
	4995 CANR	3	1724	1725.5	2	6.0	2.0		
	2695 CANR	3	1725.5	1726.5	1.5	3.0	1.0		
	2800 OTTA	46	1948.5	1950	3	7.2	3.6		

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	2700	PENN		1948.2	1949.8	4.2	8.3	3.2		
	1420	BOUL	3	1948	1950	3	3.0	1.0		
	2695	BOUL	45	1949	1950.5	3	10.0	4.0		
5	1420	CRON	8	0000		4.5	7.0	2.0		
	2695	CRON	3	0009.5	0011	3	7.0	3.0		
	4995	CRON	3	0010.5	0011.5	1.5	6.0	2.0		
	3750	TYKW	1	0011	0012.3	6	4.0	1.0		
	2000	TYKW	1	0011	0012.3	5	5.0	1.0		
	1000	TYKW	1	0011	0012.5	2	3.0	0.8		
	2830	ARCE	20	0800.1	0938	165				
	3000	BERL	4	0935.5	0936.6	3.5	5.7	0.9		
	1500	BERL	3	0935.3	0935.6	3.7	12.0	1.3		
	2695	CANR	45	0936.5	0938	3	3.0	1.0		
	2695	CANR	45	0936.5	0939	3	3.0	1.0		
	18	MCMA	6	1701	1703	3			1	
6	260	ONDR	5	0900.5	0900.5	.5	15.0			
	260	ONDR	5	0945.5	0945.5	.5	25.0			
7	29	UPIC	45	1147	1147.5	1				
	18	MCMA	6	1318	1320	2			1	
	18	MCMA	6	1416	1417	2			1	
	2700	PENN	41	1557	1557.6	2.4	30.0			
9	2800	OTTA	22	1502	1515	100	1.2	0.6		
	2695	CANR	45	1722.5	1724.5	2	14.0	4.0		
	1420	CANR	45	1723	1724.5	2.5	31.0	7.0		
10	221	ABST	20	0744	0744.2	45	16.0			
	221	ABST	41	1002	1003	2.2	17.0	4.0		
	2830	ARCE	4	1244.9	1245.8	2.6				
	2830	ARCE	29	1247.5		27				
	1420	CANR	8	1545.5	1546	1.5	4.0	1.0		
	2800	OTTA	20	1557	1602	10	1.2	0.6		
	2800	OTTA	24	1613	1620	7	1.2	0.6		
	2800	OTTA	24	1620		340 D	1.2			
	2800	OTTA	22	1625		190	1.6	1.0		
	4995	CANR	3	1734	1734.5	1.5	7.0	3.0		
	2695	CANR	45	1734	1736	2	7.0	2.0		
	1420	CANR	45	1734.5	1736	2	25.0	8.0		
11	2700	PENN	8	1526	1526.3	.4	30.5			
12	1420	CRON	45	0853.5	0855.5	5	2.0	1.0		
	18	MCMA	6	1830	1833	3			1	
13	260	ONDR	5	0931	0931	.5	55.0			
	260	ONDR	5	0935.5	0935.5	.5	25.0			
	1420	CANR	8	1650.5	1651.5	2	5.0	2.0		
14	4995	CANR	3	0852	0853	2	6.0	2.0		
	4995	CANR	3	0946	0947	2.5	6.0	2.0		
	2695	CANR	3	0946.5	0948	2.5	3.0	1.0		
	1420	CANR	1	0946.5	0947.5	1.5	1.0			
	29	UPIC	45	1009.5	1010	3				
	9400	HUAN	20	1643	1706.3	70	10.2	4.5		
	1420	CANR	8	1724.5	1725	1	13.0	4.0		
15	9400	HUAN	20	1507.1	1509.4	7.8	8.3	4.2		
	9400	HUAN	20	1654.9	1656.8	8.6	9.9	4.1		
	2695	CANR	8	1742.5	1743.5	1	19.0	6.0		
	1420	CANR	8	1743.5	1744	1.5	26.0	6.0		
	9400	HUAN	20	1914.1	1914.3	7.4	6.6	4.1		
16	2830	ARCE	21	0738.4	0813.6	88 U				
	2695	CRON	3	0752.5	0754	5	8.0	2.0		
	8800	ATHN	1	0753.5	0754.5	2.2	6.4	2.4		
	4995	CRON	3	0753	0754.5	3.5	13.0	4.0		
	4995	ATHN	3	0753.9	0754.5	1.8	10.6	3.2		
	2830	ARCE	3	0753.8	0754.6	3.5				
	2695	ATHN	1	0753.6	0754.5	2.8	8.8	2.6		
	1420	CRON	3	0753	0754.5	4	3.0	1.0		
	1415	ATHN	1	0753.8	0754.6	2.7	3.5	1.0		
	606	MANI	1	0753	0756	8.5	4.2	1.0		
	9240	ARCE	1	0754	0754.7	2.5				
	8800	MANI	1	0754.1	0754.6	3.3	4.1	1.4		
	4995	MANI	3	0754	0754.6	2.4	10.3	3.2		
	2695	MANI	1	0754.1	0754.6	2.3	5.5	1.6		
	1415	MANI	1	0754	0754.6	3.7	4.0	1.5		
	3100	CRIM	20	0757	0815	30	4.0	1.0		
	9240	ARCE	20	0759.6	0833	70				
	29	UPIC	45	0936	0937	2				
	260	ONDR	45	0957	0957	3	20.0			
	3100	CRIM	24	1055	1111	30	12.0	3.0		
	3100	CRIM	24	1055	1118	30	14.0	4.0		
	29	UPIC	45	1100	1100.5	2				
	9240	ARCE	21	1105.5	1119.5	39 U				
	1500	BERL	40	1106	1117	44	7.8			
	2830	ARCE	40	1107.3	1117.5	16				

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	1420 CANR	40	1107.5	1110	15	4.0	1.0		
	4995 CANR	45	1108.5	1109.5	17.5	18.0	4.0		
	3000 BERL	40	1108.5	1117.3	42 U	3.9			
	2695 CANR	40	1108.5	1116	14	10.0	2.0		
	10500 BERN	3	1109.9	1110.2	2.5	32.0			
	9500 BERL		1109.7E	1109.7		11.0			
	8800 ATHN	3	1109.7	1110.1	3.1	22.0	7.9		
	4995 ATHN	3	1109.7	1110.1	2.8	14.2	4.4		
	2695 ATHN	1	1109.5	1110.2	3.7	3.4	.9		
	1415 ATHN	1	1109.6	1110.2	3.2	4.1	1.4		
	9240 ARCE	3	1110	1110.2	4				
	930 BORD	40	1110	1117.5	12	16.0	4.0		
	808 ONDR	45	1110	1117	13	75.0			
	536 ONDR	45	1110	1114	13	40.0			
	1415 ATHN	1	1114.5	1117.6	7.4	5.4	1.7		
	8800 ATHN	1	1115.7	1119.2	1.1	6.3	1.6		
	4995 ATHN	1	1115.1	1117.6	5.1	5.4	2.0		
	2695 ATHN	1	1115	1116.2	4.7	6.9	3.1		
	260 ONDR	45	1131	1133	4	15.0			
	1420 CANR	3	1140	1141	1.5	1.0			
	1420 BOUL	3	1735.5	1736	2	2.0	1.0		
	9400 HUAN	20	1932.1	1941	13.7	8.3	2.5		
	2800 OTTA	24	1955	2008	13	1.4	0.7		
	2800 OTTA	24	2008		120 D	1.4			
	9400 HUAN	1	2043.3	2043.4	.4	14.9	5.0		
	9400 HUAN	3	2144.6	2145.5	2	29.9	9.6		
	4995 BOUL	8	2144.5	2145.5	1.5	13.0	4.0		
	2695 PENT	1	2145	2146	4	4.0	1.4		
	2695 BOUL	3	2145.5	2146	2.5	6.0	2.0		
17	208 VORO	6	0256	0257	2	43.0	22.0		
	2830 ARCE	1	0830.7	0834	6				
	9240 ARCE	1	0832.3	0834.2	8				
	4995 CANR	3	1139.5	1140.5	3	10.0	3.0		
	9500 BERL	2	1140	1140.4	1	7.6	2.5		
	9240 ARCE	1	1140.8	1141.1	1.5				
	8800 ATHN	1	1140.5	1141.7	1.3	6.3	2.4		
	4995 ATHN	1	1140.4	1140.7	1.7	7.6	2.2		
	3000 BERL	2	1140	1140.5	1	7.5	2.3		
	2830 ARCE	1	1140.4	1140.8	1.5				
	2695 ATHN	1	1140.4	1140.7	1.2	3.5	.9		
	2695 CANR	3	1140.5	1141	2	7.0	2.0		
	1500 BERL	2	1140.3	1140.5	2.2	4.9	1.4		
	1420 CANR	3	1140.5	1141.5	3	2.0	1.0		
	1415 ATHN	1	1140.4	1140.7	1.2	4.1	1.4		
	408 TRST	45	1140.6	1140.7	.5	14.0	2.0		
	260 ONDR	45	1140	1140.5	55	235.0			
	237 TRST	45	1140.5	1140.7	1.1	1400.0	280.0		
	234 POTS	45	1140.5	1140.6	.4	3200.0	200.0		
	2800 OTTA	20	1450	1535	105	1.4	0.7		
	930 BORD	41	1542	1543.8	2	25.0	2.0		
	930 BORD	41	1558	1558.2	1	43.0	2.0		
18	2800 OTTA	24	1438	1503	25	2.0	1.1		
	2800 OTTA	24	1503		440 D	2.0			
19	100 HIRA	45	0654	0655.5	2	650.0	130.0		
	260 ONDR	45	1202.5	1203.5	4	25.0			
	260 ONDR	45	1250.5	1251.5	2	15.0			
	2800 OTTA	32	1512	1524	50	-1.4	-0.7		
	2800 OTTA	20	1655 E	1702	80 D	1.4			
20	2695 BOUL	8	1936	1937	1	95.0	25.0		
	2695 PENT	1	2107	2108	3	1.0	0.5		
	4995 BOUL	3	2249	2249.5	2.5	15.0	4.0		
	2695 BOUL	3	2249.5	2250.5	6	7.0	2.0		
	2695 BOUL	3	2257	2258	2	5.0	2.0		
21	1420 CRON	45	0054	0058.5	6.5	3.0	1.0		
	1420 CRON	45	0054	0059.5	6.5	3.0	1.0		
	1420 CRON	45	0113	0120	9	7.0	2.0		
	1420 CRON	45	0137	0140.5	5	8.0	3.0		
	9400 TYKW	1	0144	0147	10	2.0	1.0		
	3750 TYKW	1	0144	0146.5	7	2.0	1.0		
	2695 CRON	3	0144	0146	4.5	4.0	1.0		
	1420 CRON	45	0144.5	0147	24	58.0	6.0		
	4995 CRON	45	0340.5	0349.5	11.5	3.0	1.0		
	208 VORO	6	0407	0407	1	100.0			
	8800 MANI	20	0413.5	0416.4	17.7	15.9	6.4		
	4995 MANI	20	0414.5	0416.5	19	10.4	5.2		
	4995 CRON	45	0414	0415.5	11.5	5.0	2.0		
	4995 CRON	45	0414	0421	11.5	5.0	2.0		
	2695 CRON	3	0414	0415.5	4.5	8.0	2.0		
	9400 TYKW	45	0416	0422	18	6.0	3.0		
	3750 TYKW	45	0416	0416.5	14	7.0	2.0		
	2695 MANI	1	0416.3	0416.5	1.9	8.6	3.4		
	2000 TYKW	45	0416	0416.5	9	5.0	1.0		
	1415 MANI	20	0416.3	0417	10	2.1	.5		
	208 VORO	6	0419	0419	1	35.0			
	100 HIRA	45	0448.5	0451.3	3.5	110.0	30.0		

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	208	VORO	6	0449	0452	5	38.0			
	930	BORD	1	0810	0810.7	1	9.0	1.0		
	29	UPIC	5	0813	0813.5	1				
	260	ONDR	45	0845.5	0846.5	7	60.0			
	260	ONDR	45	1006.5	1007	.5	20.0			
	260	ONDR	45	1045	1046.5	4	35.0			
	29	UPIC	45	1050	1050.5	2				
	2800	OTTA	20	1547	1555	90	1.6	0.8		
	4995	CANR	3	1648.5	1650.5	3.5	6.0	2.0		
	2695	CANR	3	1648.5	1651	3.5	3.0	1.0		
	1420	CANR	3	1650	1651.5	2.5	2.0	1.0		
	4995	CANR	45	1713	1715	3.5	12.0	5.0		
	2695	CANR	3	1714.5	1715.5	2.5	8.0	3.0		
	1420	CANR	3	1714	1715	2	4.0	1.0		
	2800	OTTA	32	1743	1815	48	-1.3	-0.7		
	2800	OTTA	24	1945	2000	15	1.6	0.8		
	2800	OTTA	24	2000		200 D	1.6			
	2800	OTTA	1	2022	2022.2	1.2	2.0	1.0		
	2695	PENT	20	2050	2108	60	1.5	0.8		
22	408	TRST	41	0909.6	0910.1	1	50.0			
	2830	ARCE	20	1105.2	1110.1	26 U				
	9240	ARCE	20	1109	1110.4	22 U				
	29	UPIC	5	1508	1508.5	1				
	2800	OTTA	20	1535	1642	220	2.6	1.3		
	2695	BOUL	1	1716.5	1717	2.5	3.0	1.0		
23	2695	CRON	3	0100	0103	9.5	4.0	1.0		
	3750	TYKW	1	0103	0103.4	2	2.0	1.0		
	208	VORO	43	0440	0500	20		3.0		
	2695	CRON	3	0749.5	0752	9	4.0	1.0		
	1420	CRON	3	0750	0755	9	2.0			
	260	ONDR	44	0800	1032.5	360	125.0			
	200	GORK	44	0815		37		10.0		
	210	IZMI	41	1050	1052	11	170.0			
	245	SGMR	44	1216 E	1813.4	533 D	105.0			
	2800	OTTA	22	1420	1438	28	1.4	0.9		
	2800	OTTA	20	1451	1500	20	2.0	1.5		
	2800	OTTA	24	1515	1525	10	1.0	0.5		
	2800	OTTA	24	1525		35	1.0			
	2800	OTTA	24	1600	1613	13	1.0	0.5		
	2800	OTTA	24	1613		56	1.0			
	2800	OTTA	24	1709	1717	8	1.4	0.7		
	2800	OTTA	24	1717		280 D	1.4			
	208	VORO	24	2322	2323	3	200.0			
	100	HIRA	45	2331.9	2332.9	3	1000.0D	200.0D		
	4995	MANI	1	2332.6	2333.5	1.5	5.0	2.0		
	606	MANI	1	2332.1	2333.8	2.4	5.2	1.0		
	200	HIRA	45	2332	2332.7	2.5	160.0	50.0		
	2695	MANI	8	2333.4	2333.5	.6	15.5	4.6		
	1415	MANI	1	2333.4	2333.5	.6	9.9	1.7		
24	208	VORO	43	0240	0500	140		35.0		
	200	HIRA	43	0248	0435	332 D	40.0	25.0		
	100	GORK	44	0612 E		318 D		5.0		
	200	GORK	44	0620 E		310 D		50.0		
	221	ABST	45	0700	0902.5	240	18.0			
	210	IZMI	44	0700		300	55.0			
	210	IZMI	6	0709.7	0709.9	.7	1120.0	900.0		
	260	ONDR	44	0800	1031	360	100.0			
	245	SGMR	44	1305 E	1338.4	485 D	232.0			
	234	POTS	45	0814	0814	.1	200.0	50.0		
	237	TRST	42	0902.7	0903	2.6	1000.0			
	234	POTS	45	0903 E	0903.1	2.1D	750.0			
	210	IZMI	8	0903	0903.1	.8	1500.0	900.0		
	234	POTS	45	0934	0934.1	.1	200.0	40.0		
	234	POTS	45	1035.2	1035.4	.2	130.0	25.0		
	234	POTS	45	1319.1	1319.2	.7	120.0	20.0		
	237	TRST	41	1336.9	1337.4	1.3	470.0			
	234	POTS	45	1336.8	1337.4	.8	350.0	35.0		
	234	POTS	45	1347.4	1347.4	.1	250.0	70.0		
	2800	OTTA	24	1417 E	1525	68 D	7.4	3.8		
	2800	OTTA	24	1525		395 D	7.4			
	200	HIRA	44	2150	0033	630 D	70.0	30.0		
	208	VORO	44	2300	0033	240		12.0		
25	100	HIRA	45	0134.4	0134.6	1	750.0	120.0		
	2695	CRON	3	0222.5	0224	3	4.0	1.0		
	100	HIRA	45	0238	0238.4	1	400.0	100.0		
	200	GORK	44	0630		150		5.0		
	260	ONDR	44	0800	0952	380	110.0			
	100	GORK	44	0813.3		197 D		5.0		
	410	SGMR	44	1217 E	1459.2	533 D	33.8			
	245	SGMR	44	1217 E	1354.4	533 D	190.0			
	200	GORK	41	0642.6	0644.1	14	200.0			
	200	GORK		0642.6	0647.1		200.0			
	200	GORK		0642.6	0652		190.0			
	2695	CRON	3	0732.5	0734	4.5	4.0	2.0		
	234	POTS	45	0746.5	0747.5	2 U	300.0	15.0		
	221	ABST	40	0800	0815.8	15.4	19.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1973

DEC. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
	200 GORK	41	0803	0805	18	200.0			
	200 GORK		0803	0808.7		200.0			
	234 POTS	5	0809.6	0809.6	.1E	150.0	50.0		
	4995 CANR	3	0819.5	0821	2.5	10.0	4.0		
	2695 CANR	3	0820.5	0821.5	1.5	5.0	1.0		
	1420 CANR	3	0820.5	0821	1.5	3.0	1.0		
	234 POTS	41	0827.2	0827.3	5.9	100.0	2.0		
	260 ONDR	45	0950	0952	20	110.0			
	234 POTS	45	0950.7	0951	.8U	130.0	25.0		
	29 UPIC	45	1011.5	1012	2				
	23 POTS	5	1011.5	1011.8	.9U	7000.0	2500.0		
	260 ONDR	45	1332	1345	28	85.0			
	234 POTS	45	1350.5	1354.9	17 U	400.0	20.0		
	2800 OTTA	27	1520		210	2.4	2.0		
	2800 OTTA	24	1520	1538	18	2.4	1.2		
	4995 CANR	3	1532.5	1534.5	8.5	7.0	2.0		
	8800 SGMR	2	1533.3	1534.5	2.4	2.9	1.2		
	2695 BOUL	3	1533.5	1535	2.5	4.0	1.0		
	1415 SGMR	1	1533.7	1534.5	2.5	5.2	2.1		
	4995 SGMR	2	1534.2	1534.6	1.2	2.2	1.0		
	2800 OTTA	1	1534	1534.8	1	2.2	1.4		
	2695 CANR	3	1534.5	1535.5	1.5	5.0	2.0		
	2695 SGMR	2	1534.3	1534.7	2.7	2.9	1.2		
	1420 BOUL	3	1534	1534.5	1.5	4.0	1.0		
	1420 CANR	8	1534	1535	1.5	5.0	2.0		
	2800 OTTA	24	1538		154	2.4			
	2800 OTTA	26	1812	1812	38	2.4	1.0		
	2800 OTTA	21	2012	2017	50	1.4	0.7		
	2800 OTTA	2	2015	2015.2	1	1.6	0.8		
	2695 PENT	20	2110	2123	21	1.4	0.8		
26	200 GORK	44	0616 E		314		5.0		
	100 GORK	44	0745		195		5.0		
	260 ONDR	44	0920	1034	230	85.0			
	650 GORK	46	1007.4	1007.6	1.2	52.0			
	650 GORK		1007.4	1008.1		49.0			
	200 GORK		1007.3	1007.8	.8	350.0			
	100 GORK	41	1007.3	1007.8	8.5	20.0D			
	100 GORK		1007.3	1012.6		20.0D			
	536 ONDR	45	1051	1107	19	40.0			
	536 ONDR	45	1234.5	1237	4	40.0			
	208 VORO	41	2334	2335	20	75.0			
27	9750 IRKU	1	0358.1	0358.2	1	11.4	3.8		
	221 ABST	40	0728.2	0747.5	15	24.0			
	200 GORK	6	0743.5	0744.1	1.5	300.0D			
	234 POTS	45	0748.6	0748.7	.2	175.0	35.0		
	9240 ARCE	1	0800.2	0800.9	1.8				
	2830 ARCE	1	0800.3	0800.8	1.8				
	260 ONDR	44	0800	0933	170	120.0			
	200 GORK	41	0851	0852.3	18	300.0D			
	200 GORK		0851	0900.6		300.0D			
	200 GORK		0851	0905.6		300.0D			
	221 ABST	45	0852	0955.5	129	19.0			
	100 GORK	41	0857.6	0857.9	11.7	50.0			
	100 GORK		0857.6	0900.8U		50.0D			
	100 GORK		0857.6	0908.3U		50.0D			
	113 POTS	45	0900.6	0900.7	.4	800.0	200.0		
	29 UPIC	45	0908	0908	3				
	536 ONDR	41	0920	1049	123	160.0			
	113 POTS	45	0929.6	0929.6	.7	250.0	40.0		
	100 GORK	41	0929.6	0929.9U	31.4	50.0D			
	100 GORK		0929.6	0941.7U		50.0D			
	23 POTS	45	0929.7	0930	1.4	7000.0	1700.0		
	29 UPIC	45	0930	0930	1				
	234 POTS	45	0931	0940	53 U	500.0	20.0		
	200 GORK	44	0939		70		20.0		
	260 ONDR	44	1050	1251	200	65.0			
	29 UPIC	45	0941.5	0942	1				
	3000 BERL	1	1048.7	1049.1	1.3	3.3	1.2		
	1500 BERL	4	1048.7	1049.2	1.3	11.0	1.4		
	100 GORK	6	1048.3	1049.3	2.4	50.0			
	29 UPIC	45	1048	1050	3.5				
	23 POTS	5	1049.8	1050.1	1.8	10000.0	3000.0		
	29 UPIC	5	1124	1124.5	.5				
	113 POTS	40	1203.8	1204	3.1	150.0	5.0		
	23 POTS	45	1203.8	1203.9	1.5	5000.0	600.0		
	29 UPIC	45	1204	1204.5	3				
	237 TRST	42	1248.7	1251.1	3.8	250.0			
	234 POTS	45	1303	1303.1	.7	100.0	2.0		
	536 ONDR	45	1339	1342.5	8.5	35.0			
	1420 BOUL	1	1934	1936	3	1.0			
	10700 PENN	1	2015.2	2016.2	5.2	4.2	1.0		
	2700 PENN	1	2015.8	2016.5	6	3.6	2.0		
	2695 BOUL	3	2015.5	2017	4	7.0	2.0		
	1420 BOUL	3	2015	2016	3	4.0	1.0		
	2800 OTTA	1	2016	2016.8	4	2.8	1.4		
	2695 BOUL	45	2256	2258	2.5	19.0	5.0		
	1420 BOUL	3	2257	2259.5	3.5	2.0	1.0		
28	260 ONDR	44	0830	1126	330	40.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1973

DEC. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY $10^{-22} Wm^{-2} Hz^{-1}$ PEAK	MEAN	INT	REMARKS
	1420 CANR	3	0846.5	0848	2.5	2.0			
	9240 ARCE	3	1009.4	1009.6	3				
	29 UPIC	5	1137	1137.5	1				
	1420 CANR	3	1525.5	1527	2	2.0	1.0		
	4995 CANR	3	1623.5	1625	2	8.0	3.0		
	2695 CANR	3	1625	1626.5	2	5.0	1.0		
	1420 CANR	3	1625	1626	2	3.0	1.0		
	2800 OTTA	20	1635	1700	60	1.4	0.7		
29	260 ONDR	45	0956	1006	24	20.0			
	260 ONDR	45	1134	1225.5	63	35.0			
	1420 CANR	3	1551.5	1553	5	2.0	1.0		
30	1420 CANR	45	0843.5	0846	4	2.0			
	2695 CANR	45	0844	0845	4	4.0	1.0		
	2695 CANR	45	0844	0846.5	4	4.0	1.0		
	260 ONDR	45	1122.5	1124	5	15.0			
	245 SGMR	43	1644.5	1659.5	123.5	29.9			
	8800 SGMR	8	1735.4	1735.5	.2	32.4	6.5		
31	2695 CANR	3	1745	1746.5	2.5	3.0	1.0		

Observatories:

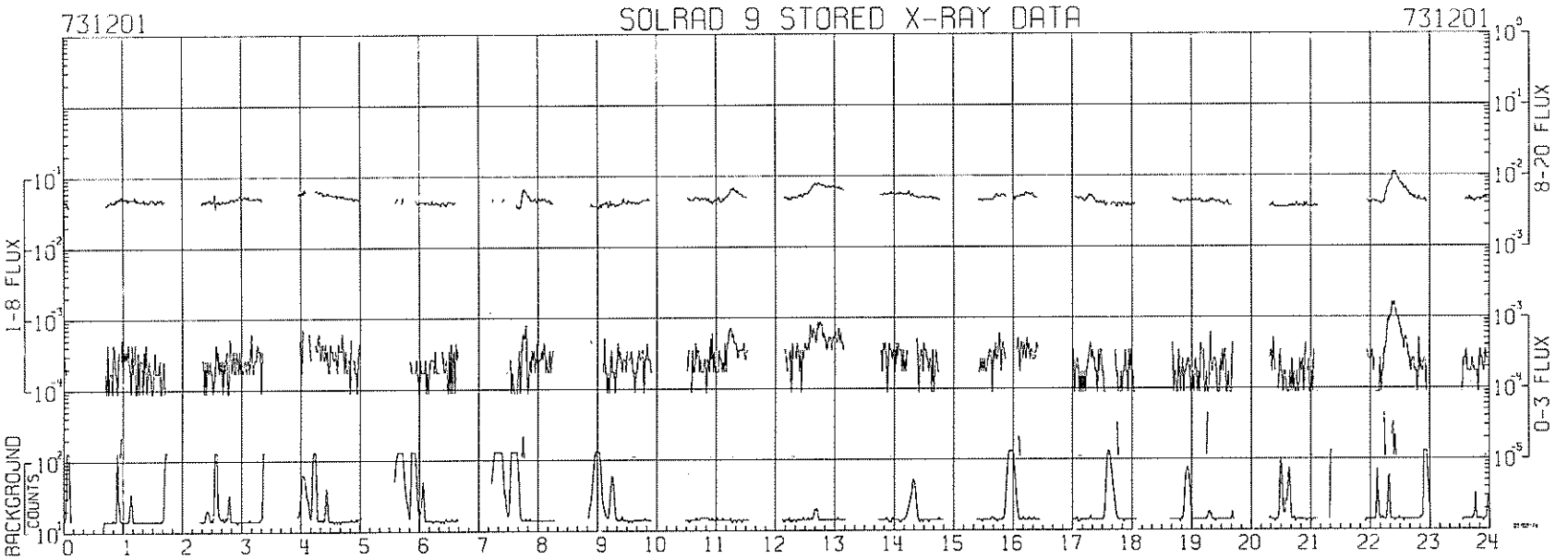
ABST = Abastumani
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CANR = Canary Islands
CRIM = Simferopol
CRON = Carnarvon
DWIN = Dwingeloo
GORK = Gorky
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
IZMI = Moscow IZMIRAN
KIEV = Kiev
KISV = Kislovodsk
MANI = Manila
MCMA = McMath-Hulbert
ONDR = Ondrejov
OTTA = Ottawa ARO
PENN = Penn. State Univ.
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SLOU = Slough
TRST = Trieste
TYKW = Toyokawa
UPIC = Upice
VORO = Voroshilov

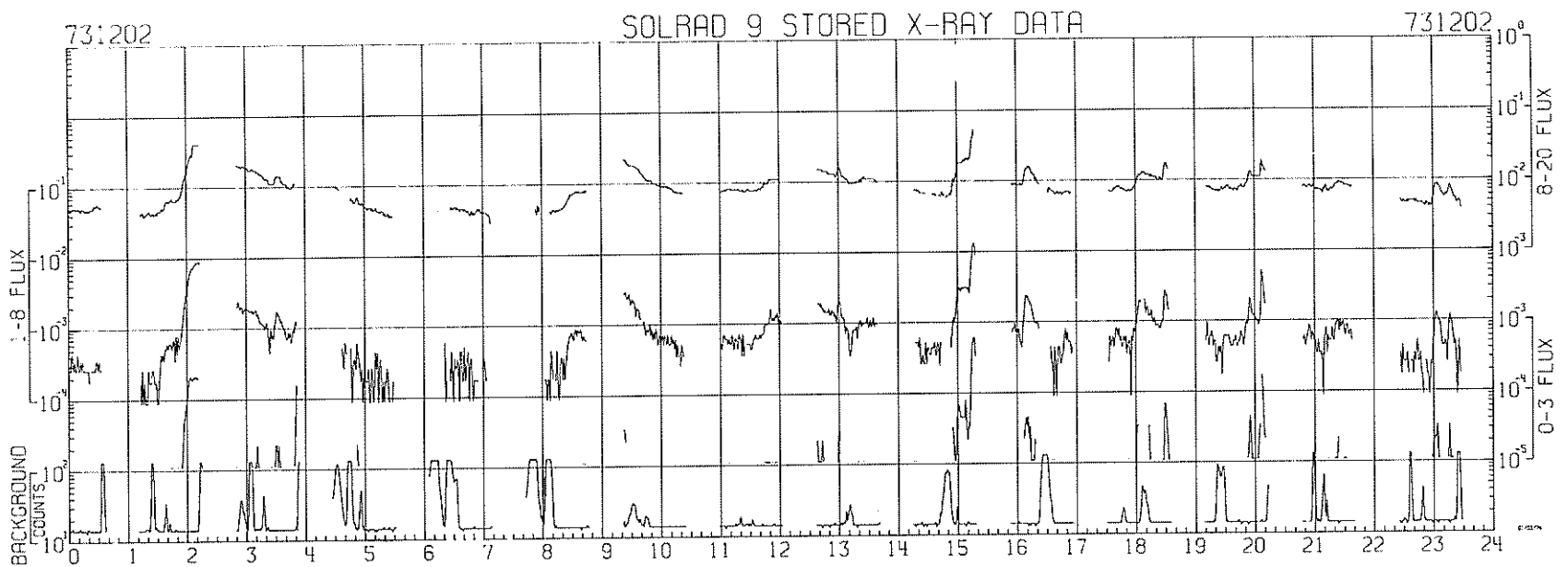
Explanation of Type Code:

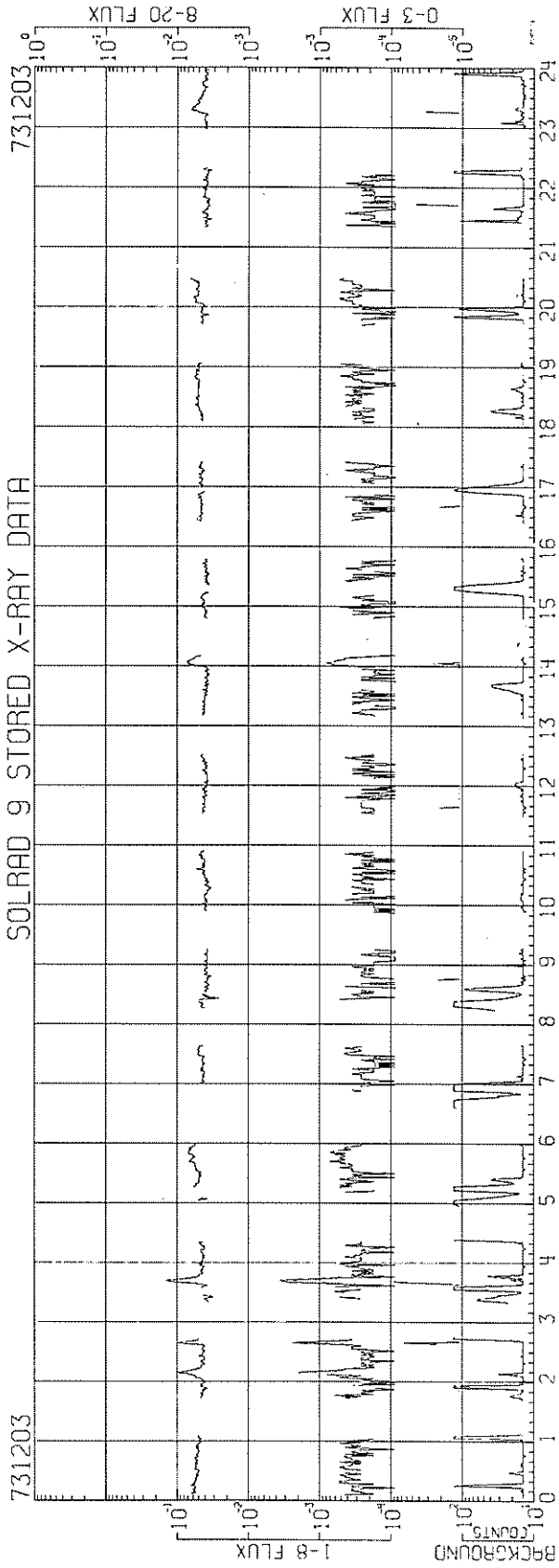
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of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

SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 9 - EXPLORER 37

DECEMBER 1973



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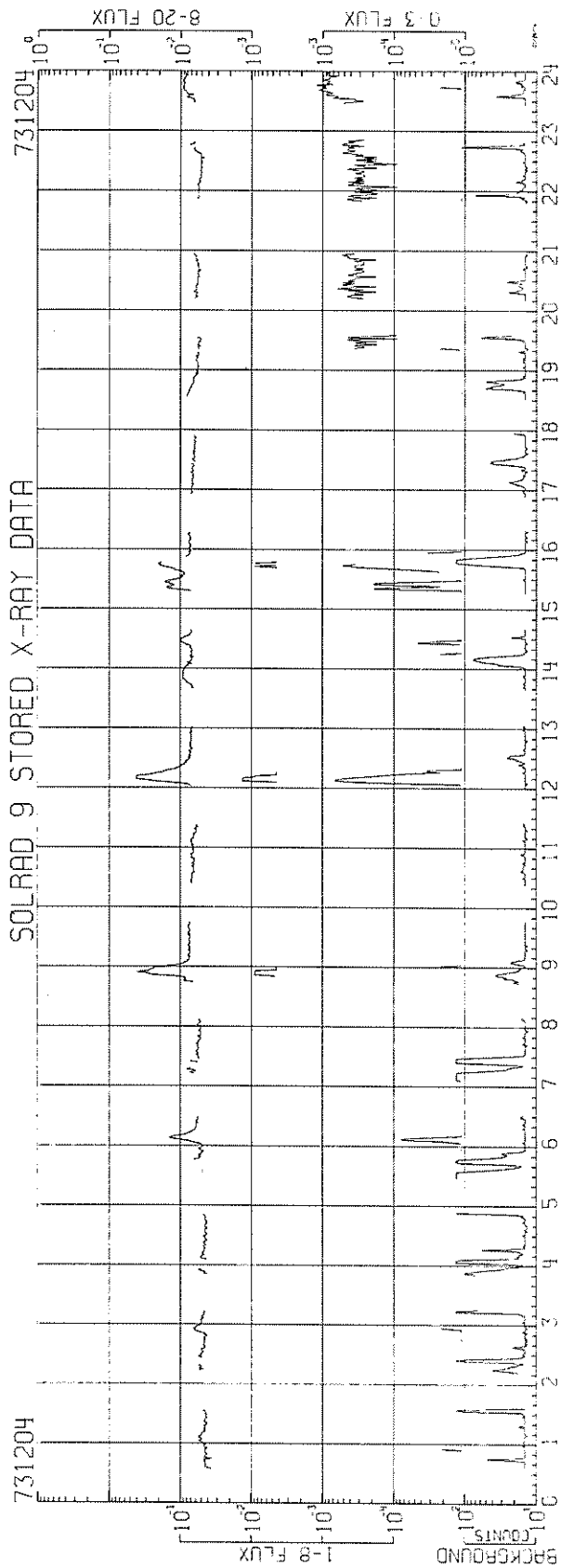
8-20 FLUX
0-3 FLUX
1-8 FLUX
BACKGROUND
COUNTS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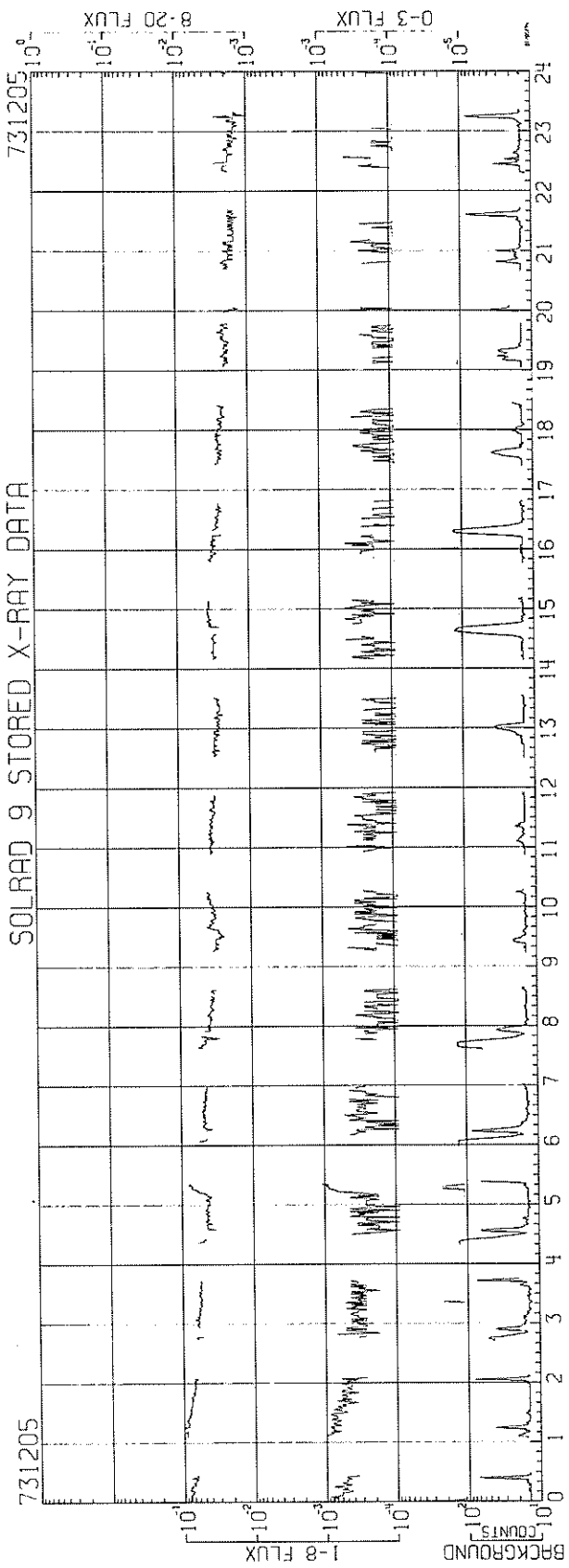
COUNTS

22
Dec 73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1-8 FLUX
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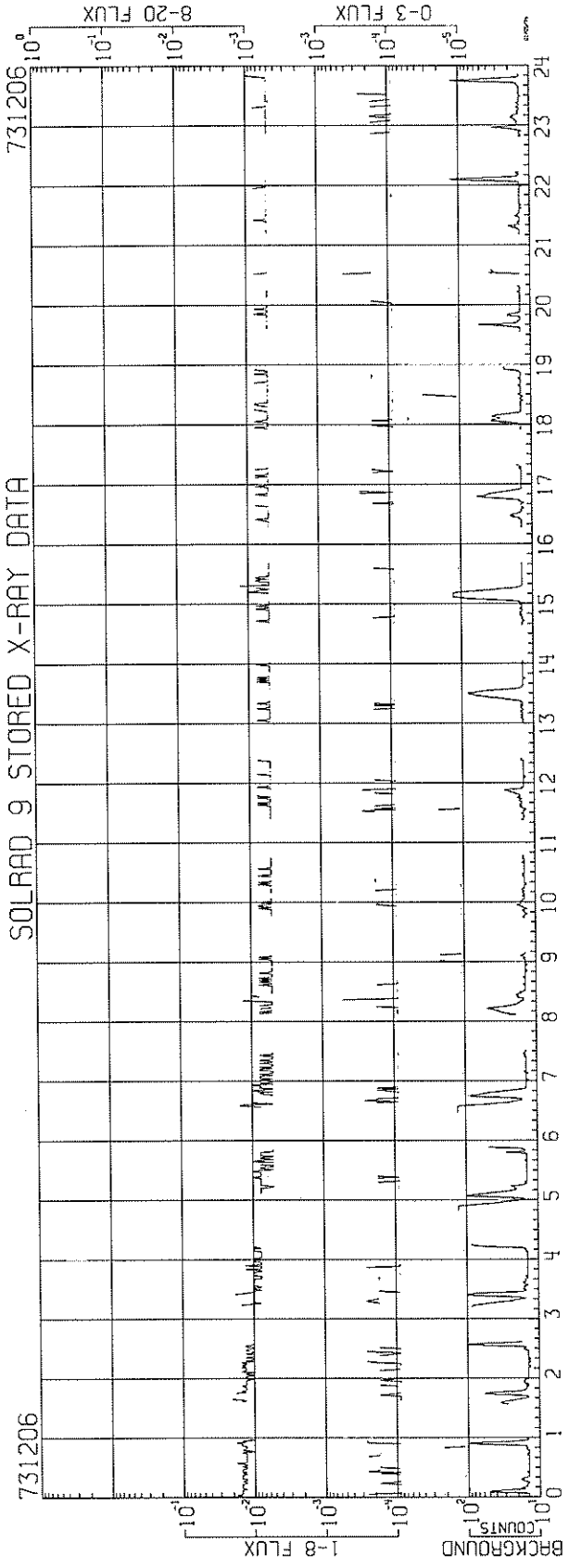
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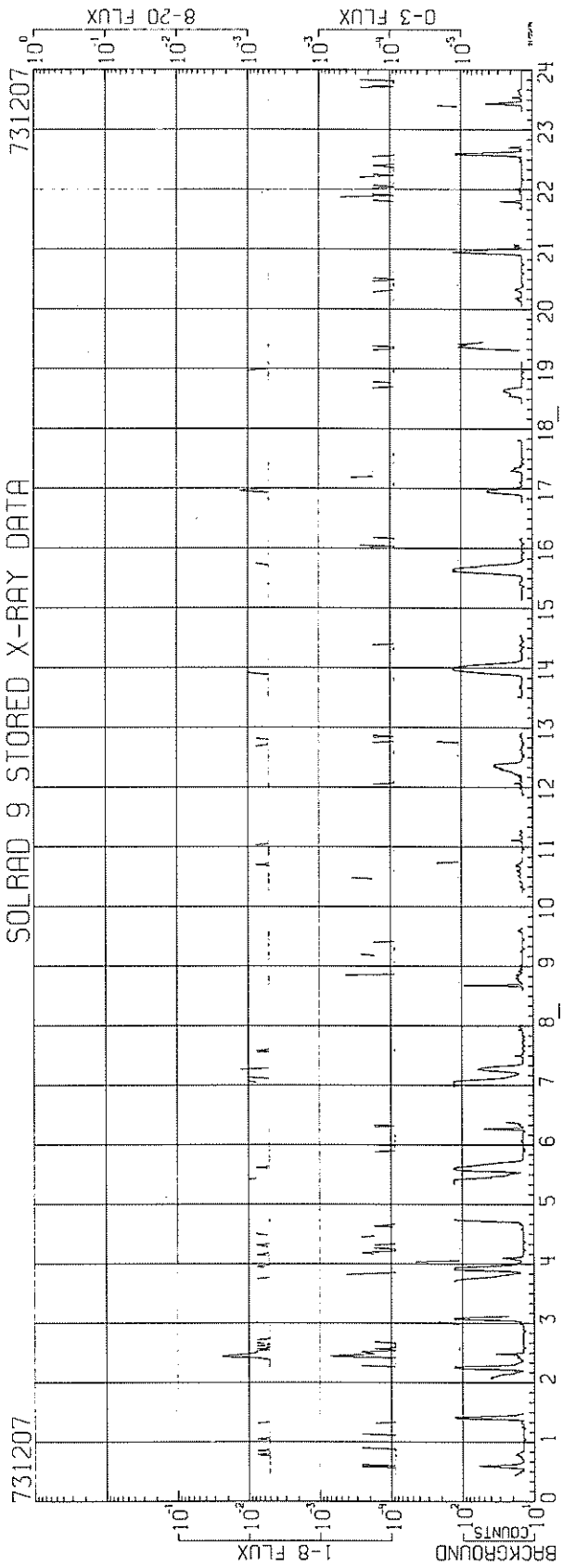
BACKGROUND
COUNTS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1-8 FLUX
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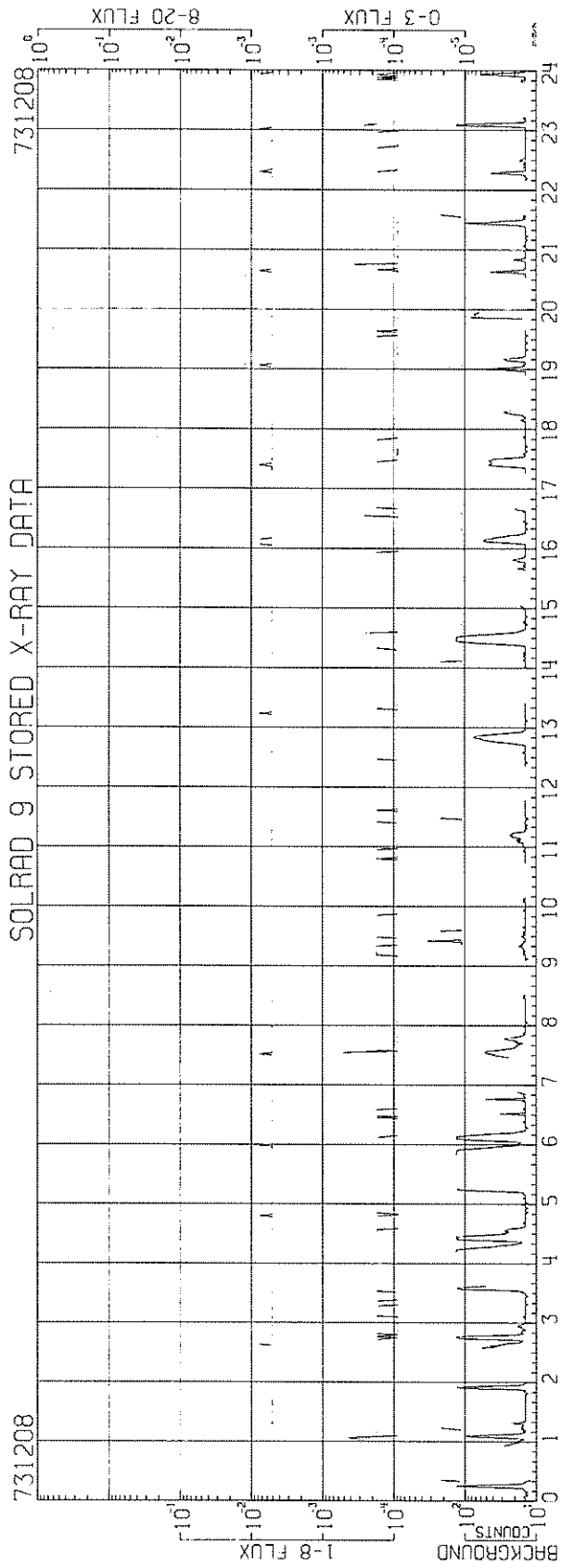
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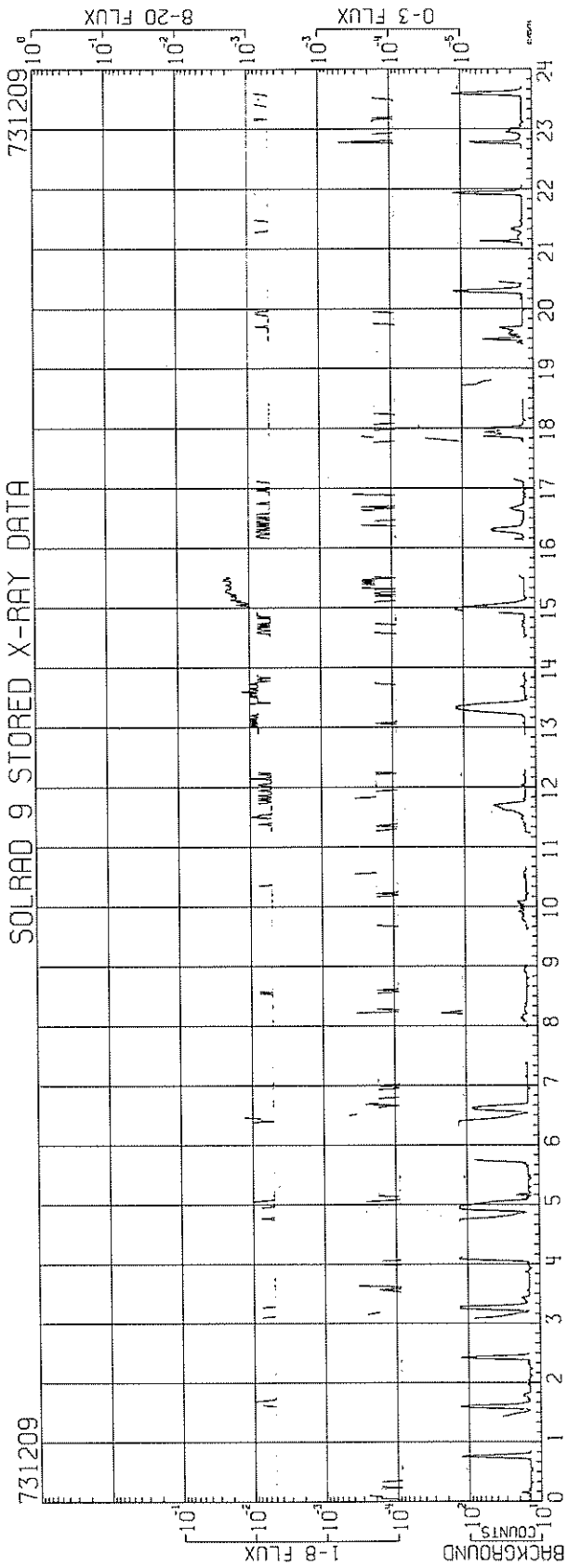
8-20 FLUX
0-3 FLUX
1-8 FLUX
BACKGROUND COUNTS
MSM

24
Dec 73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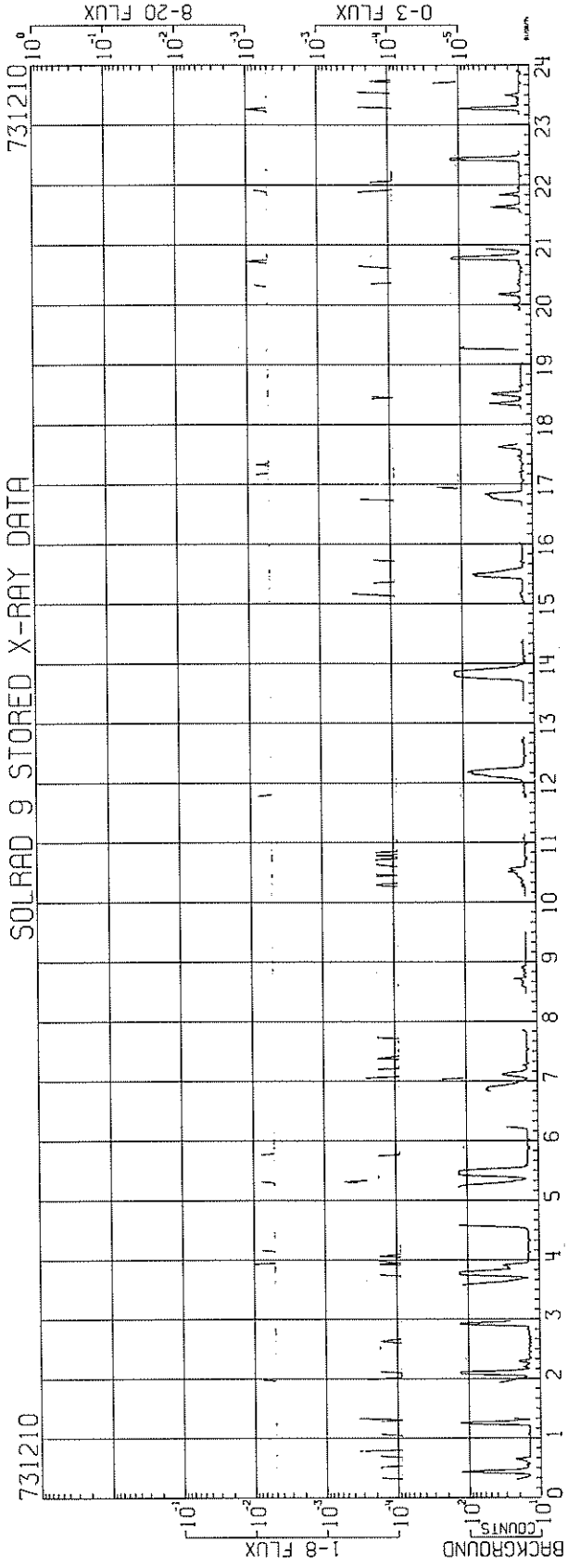
1-8 FLUX
BACKGROUND
COUNTS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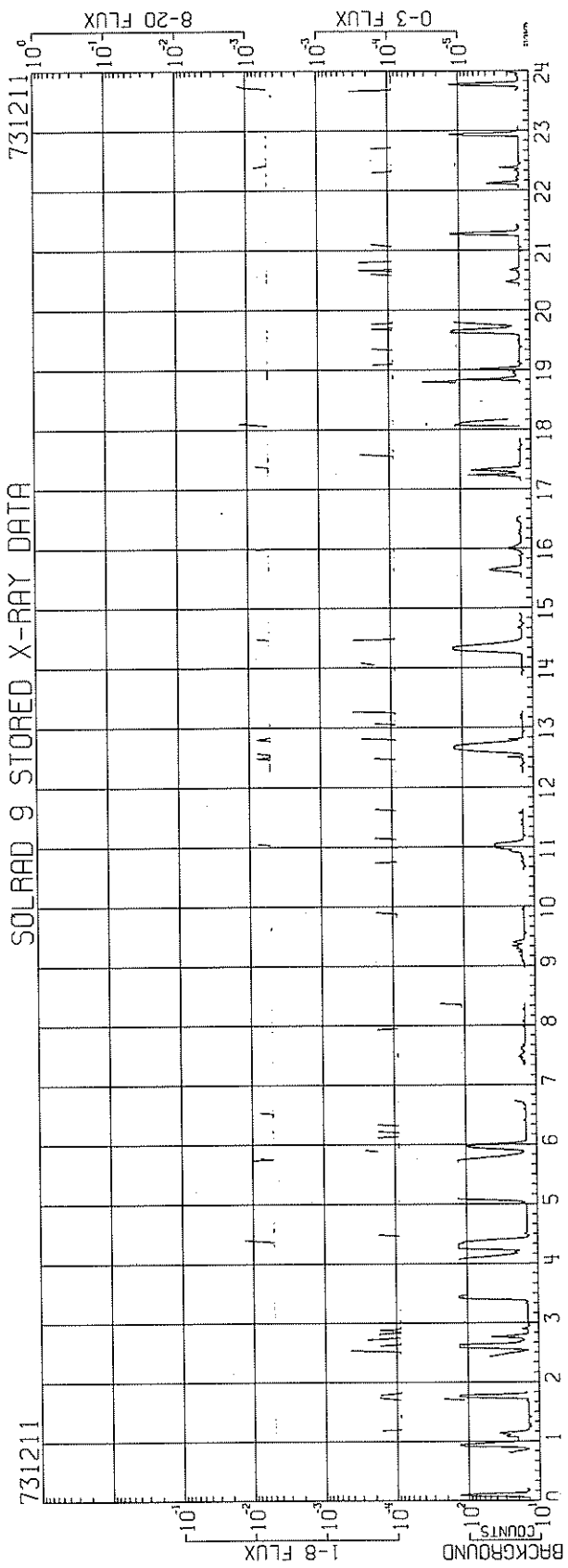
0-3 FLUX
1-8 FLUX
BACKGROUND
COUNTS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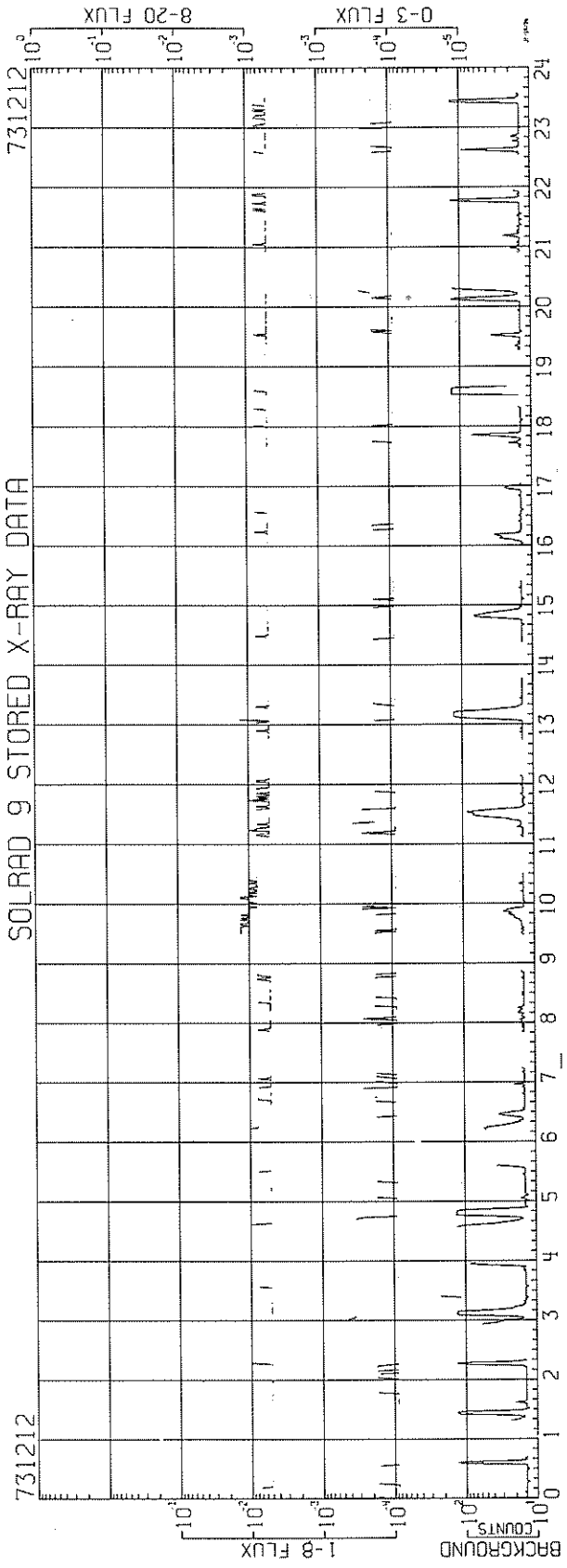
0-3 FLUX
1-8 FLUX
BACKGROUND COUNTS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0-3 FLUX
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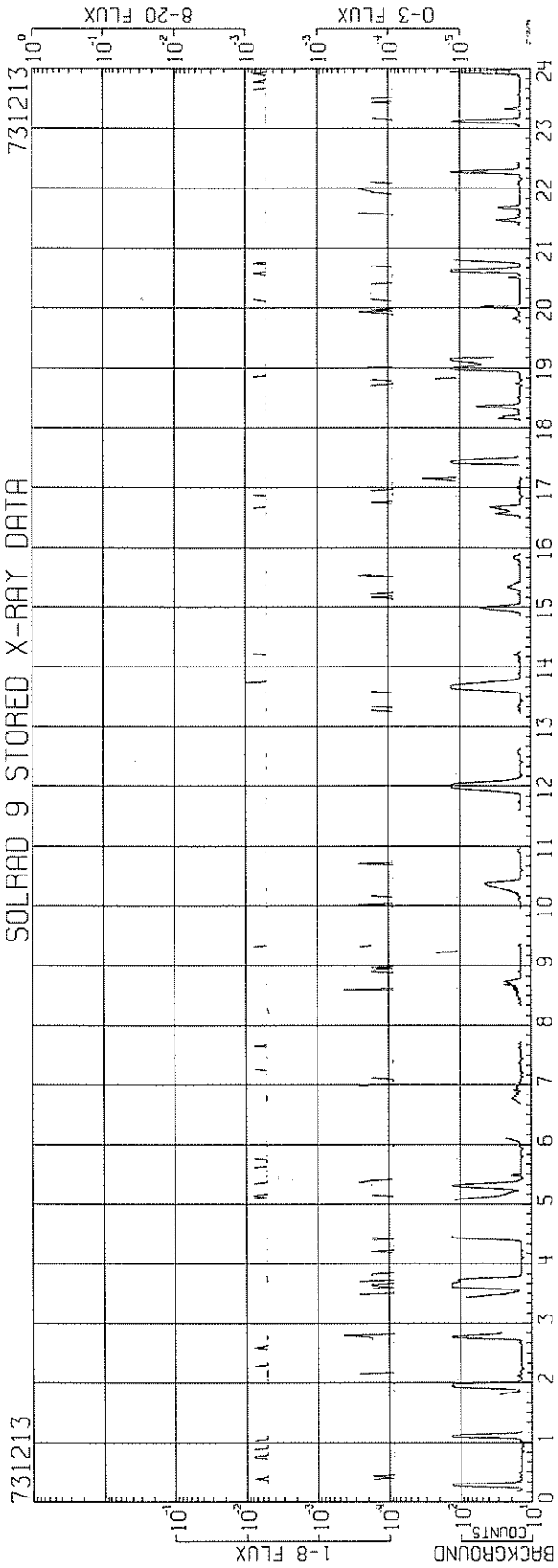
BACKGROUND COUNTS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1-8 FLUX
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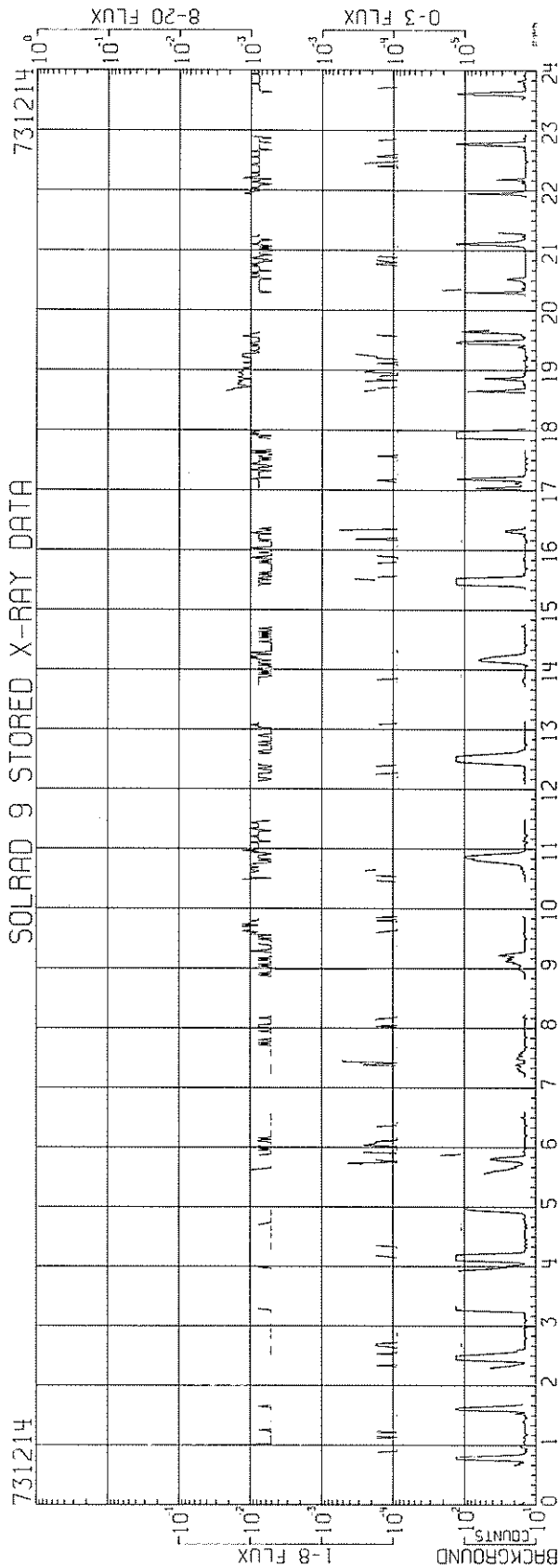
COUNTS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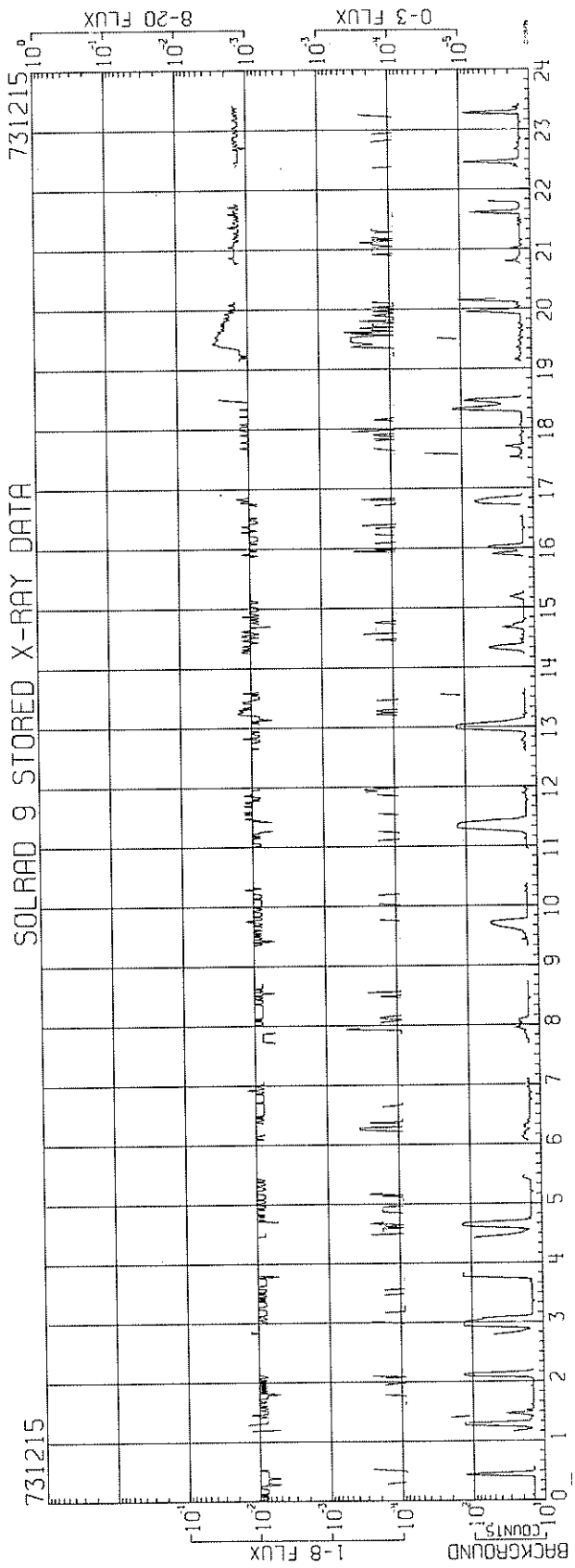
0-3 FLUX
1-8 FLUX
BACKGROUND
COUNTS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8-20 FLUX
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1-8 FLUX
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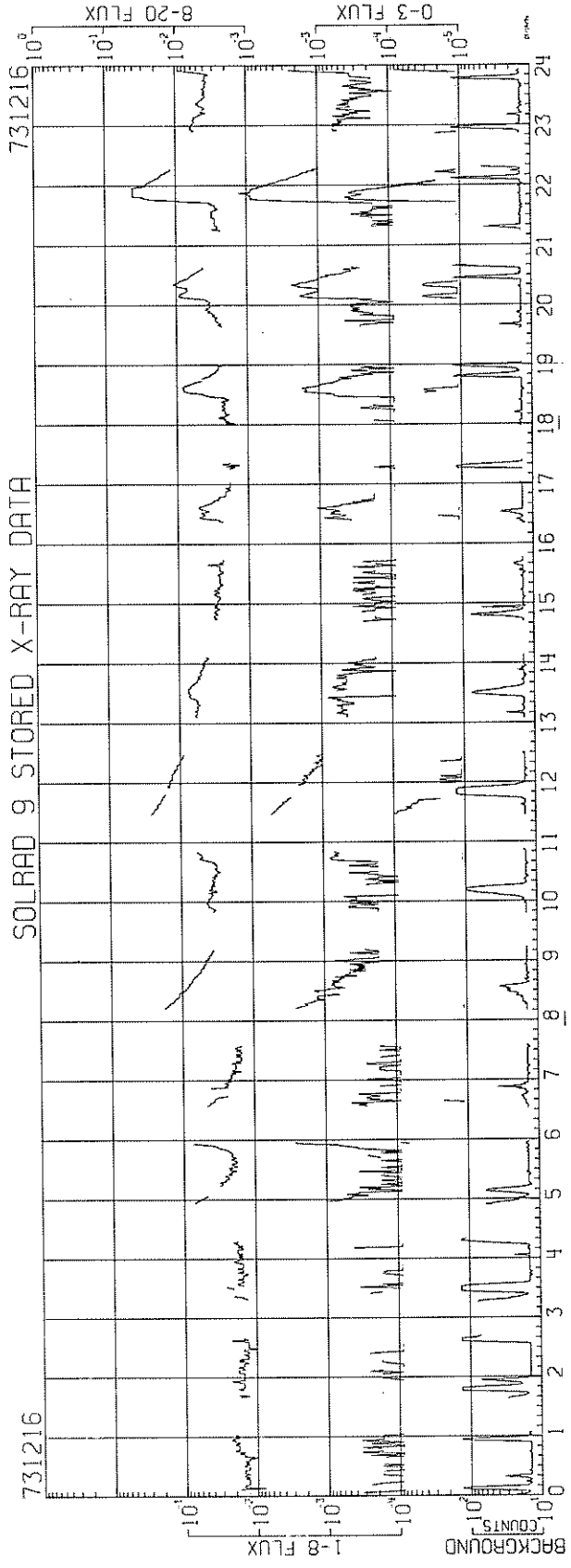
COUNTS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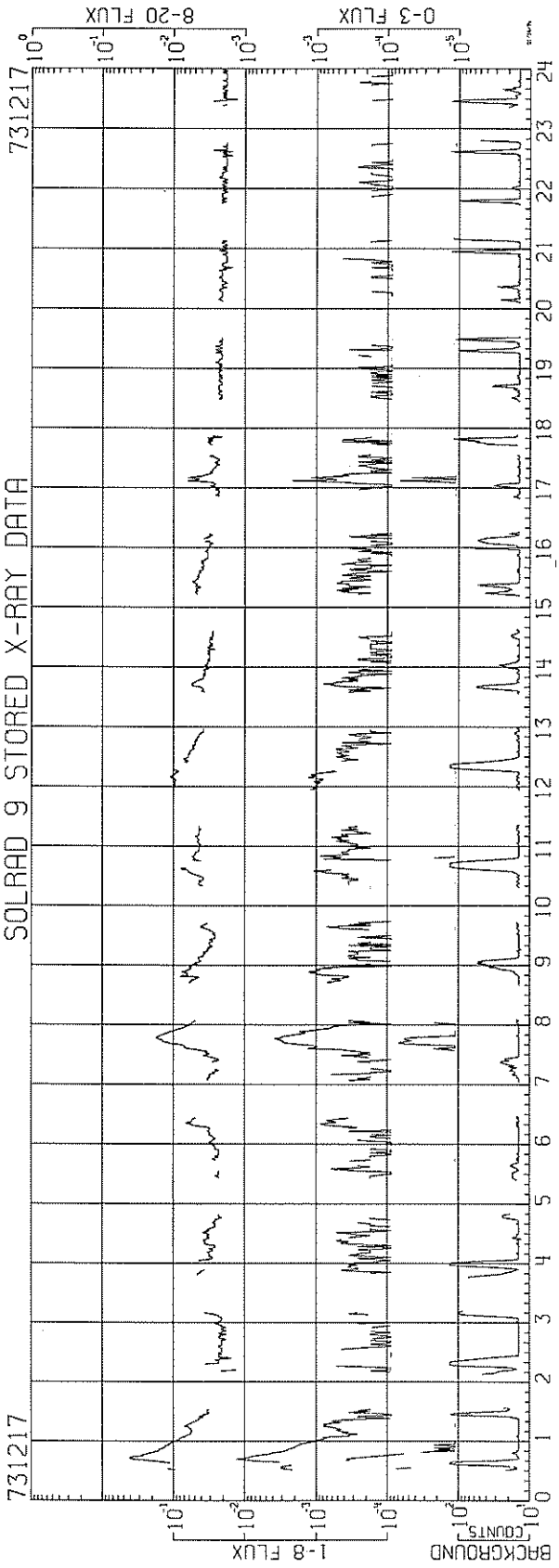
BACKGROUND
COUNTS

28
Dec 73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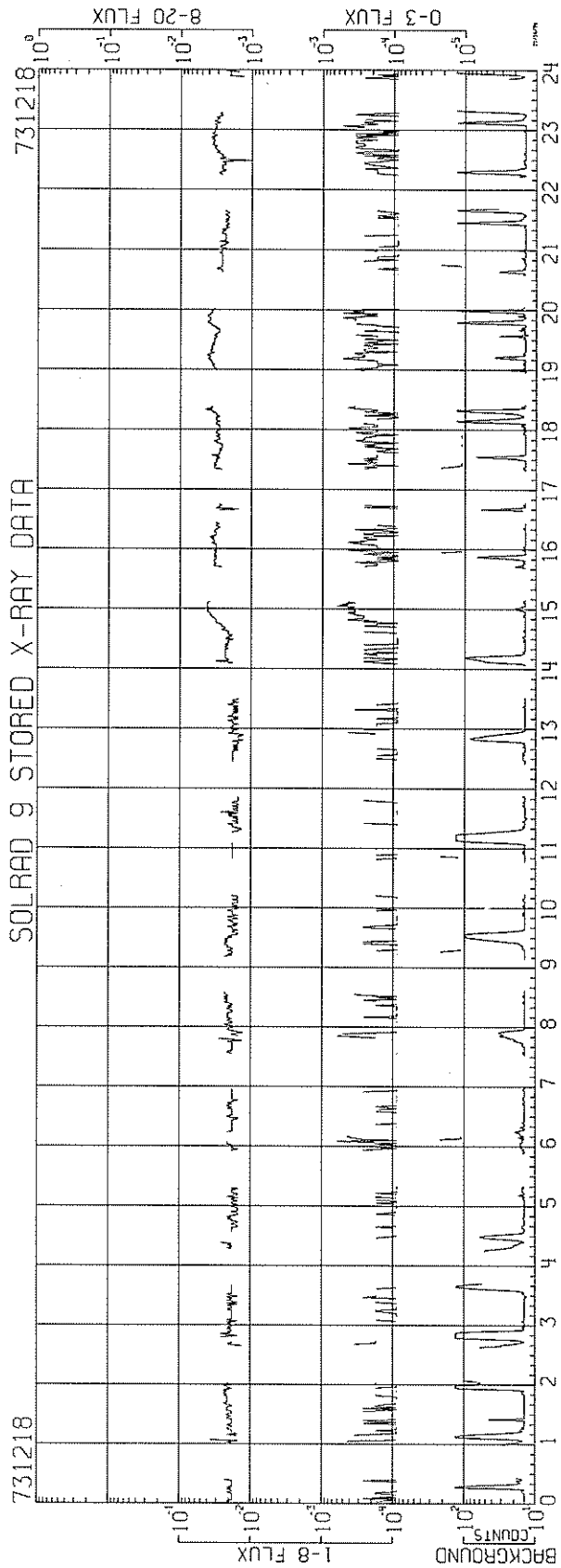
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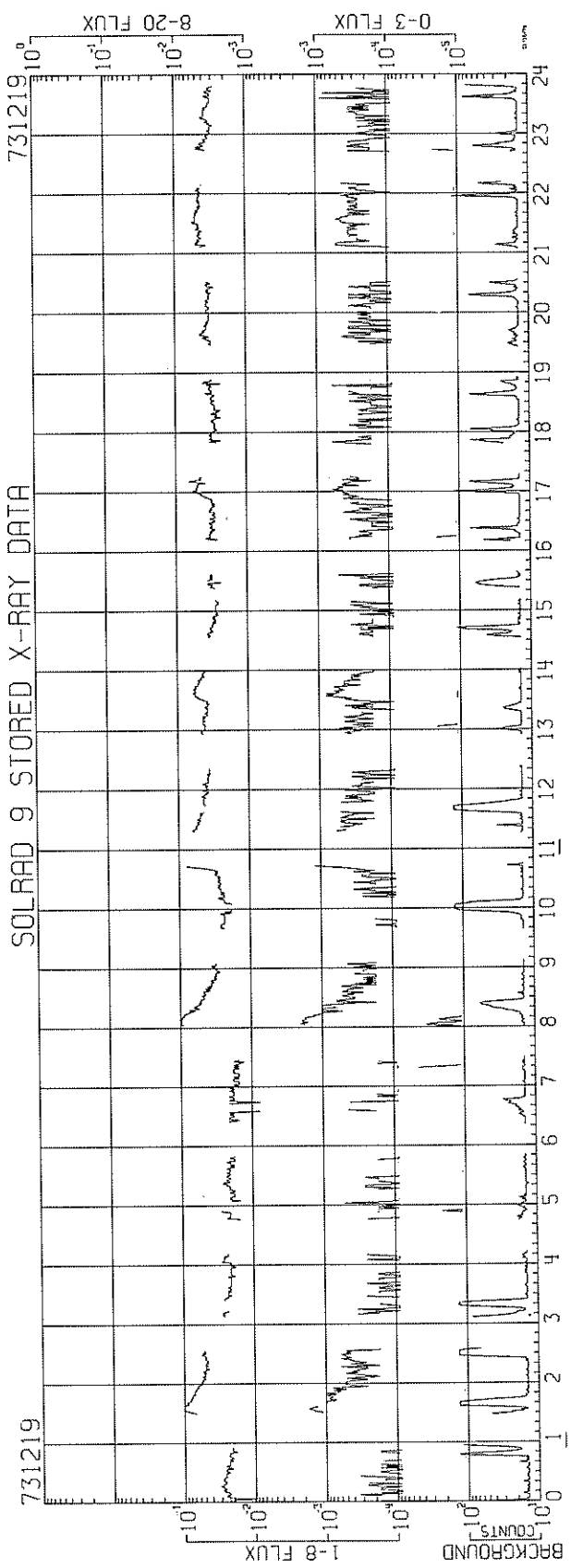
BACKGROUND
COUNTS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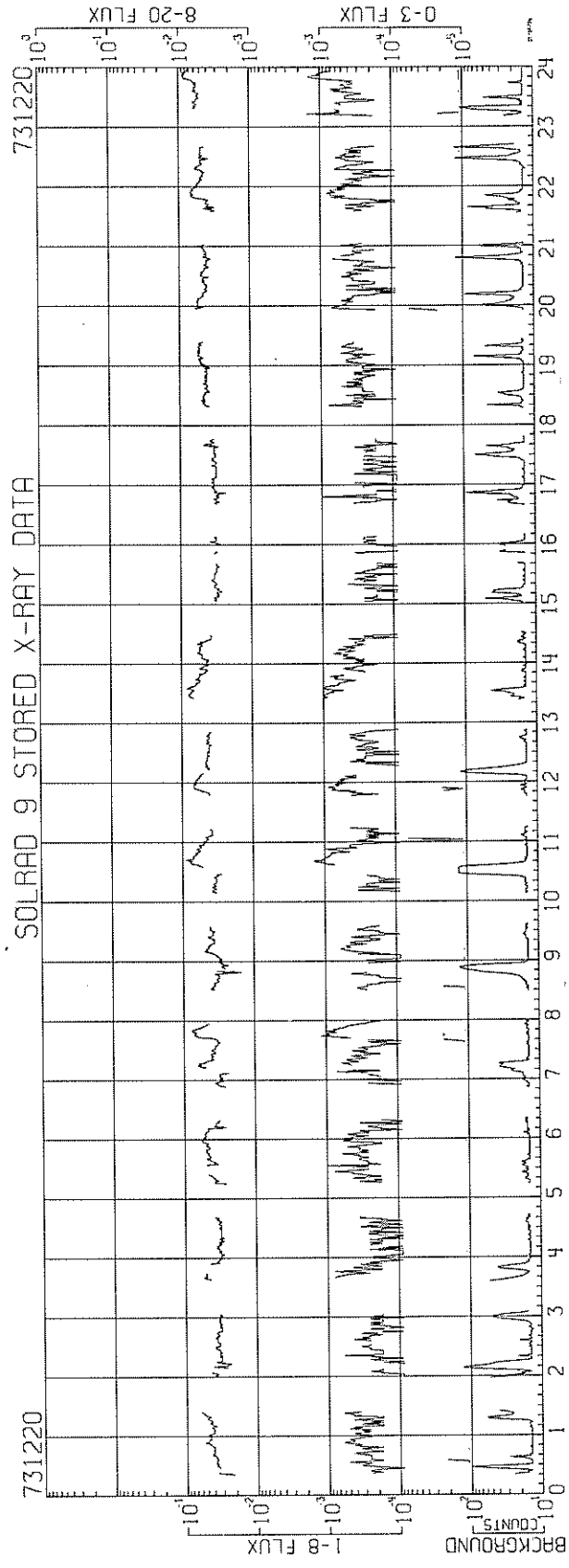
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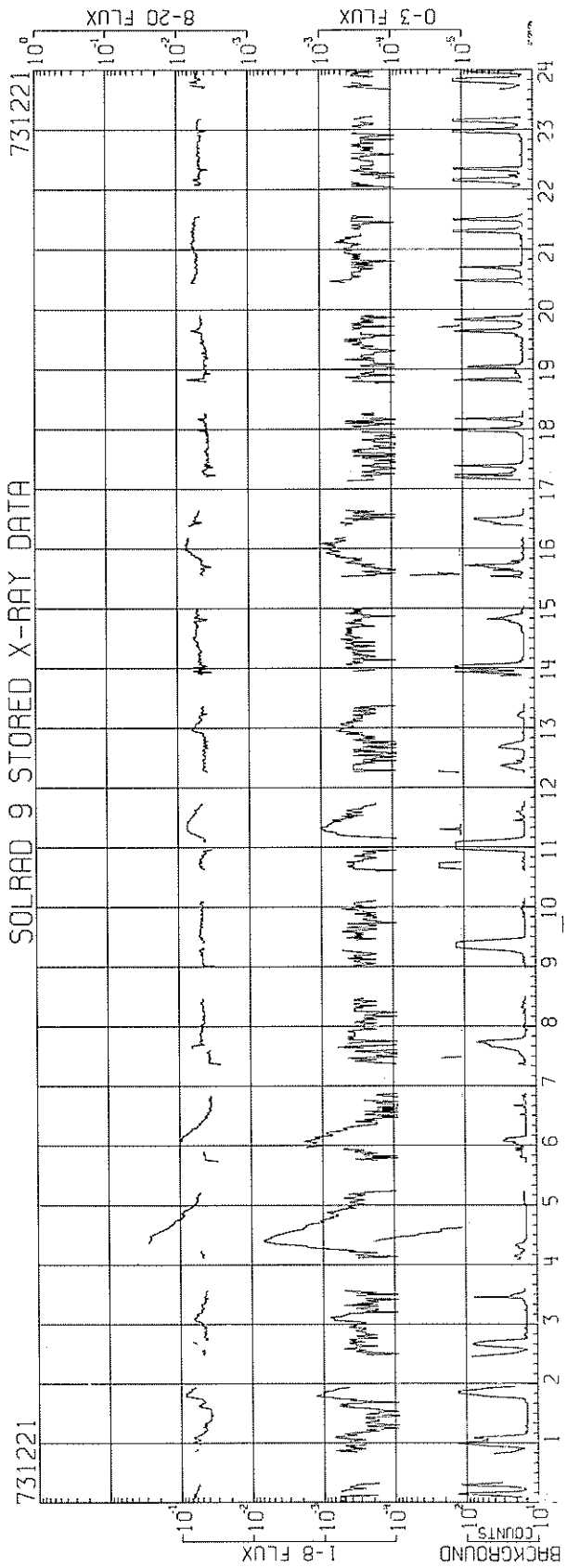
BACKGROUND
COUNTS

30
Dec 73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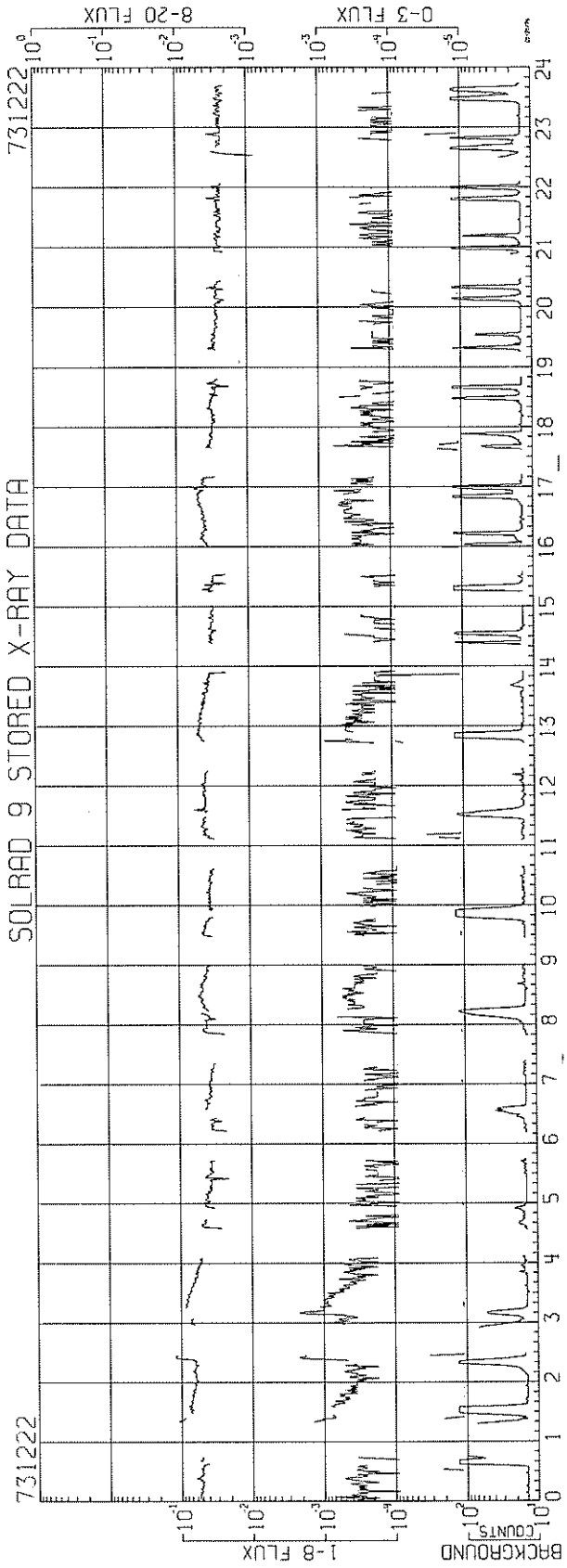
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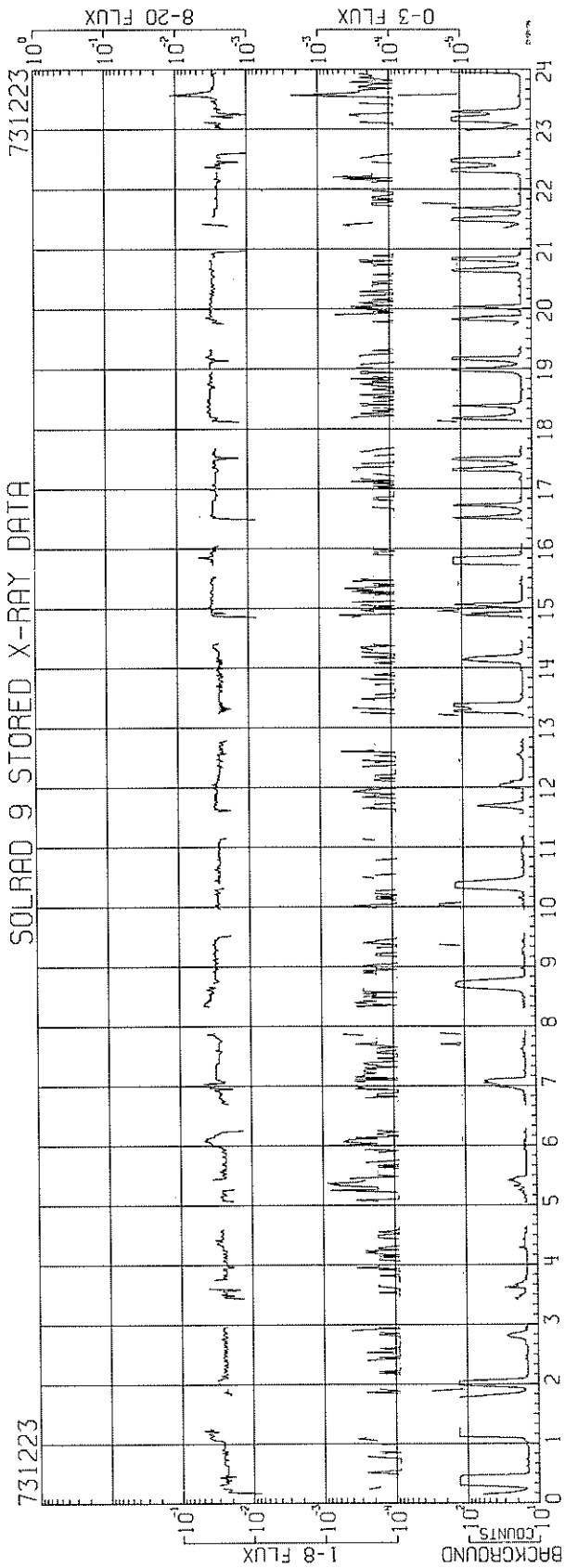
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1-8 FLUX
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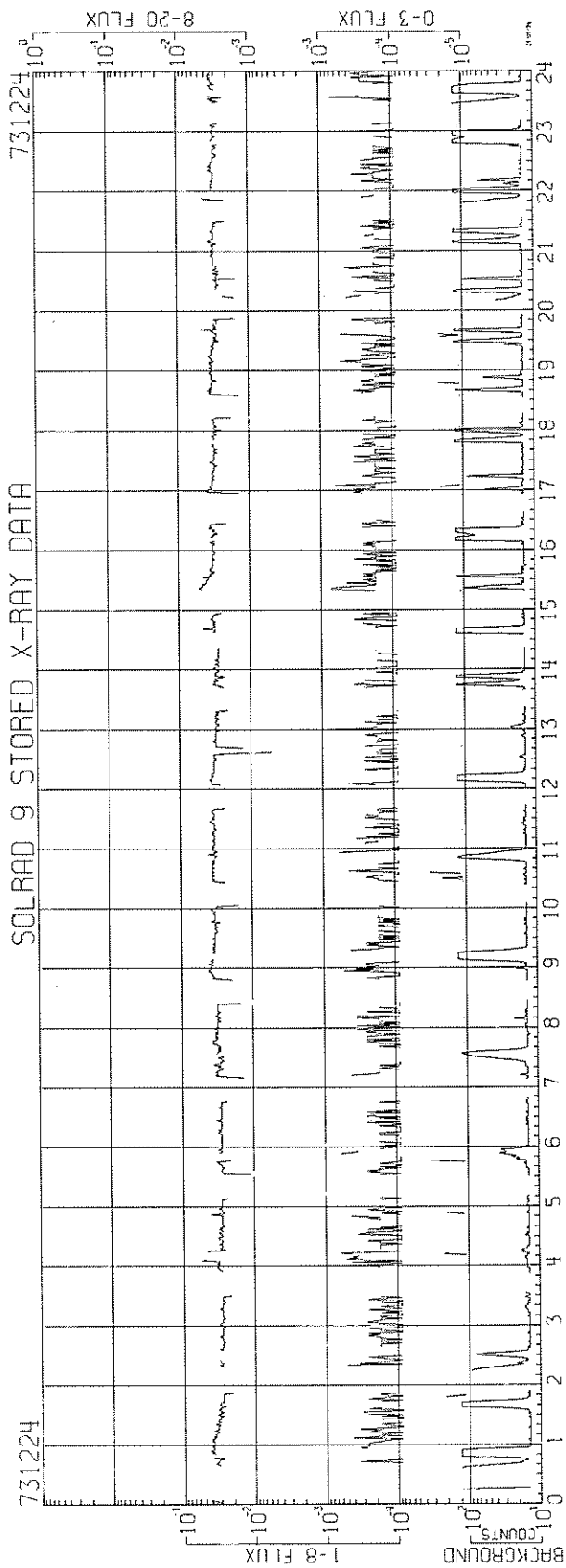
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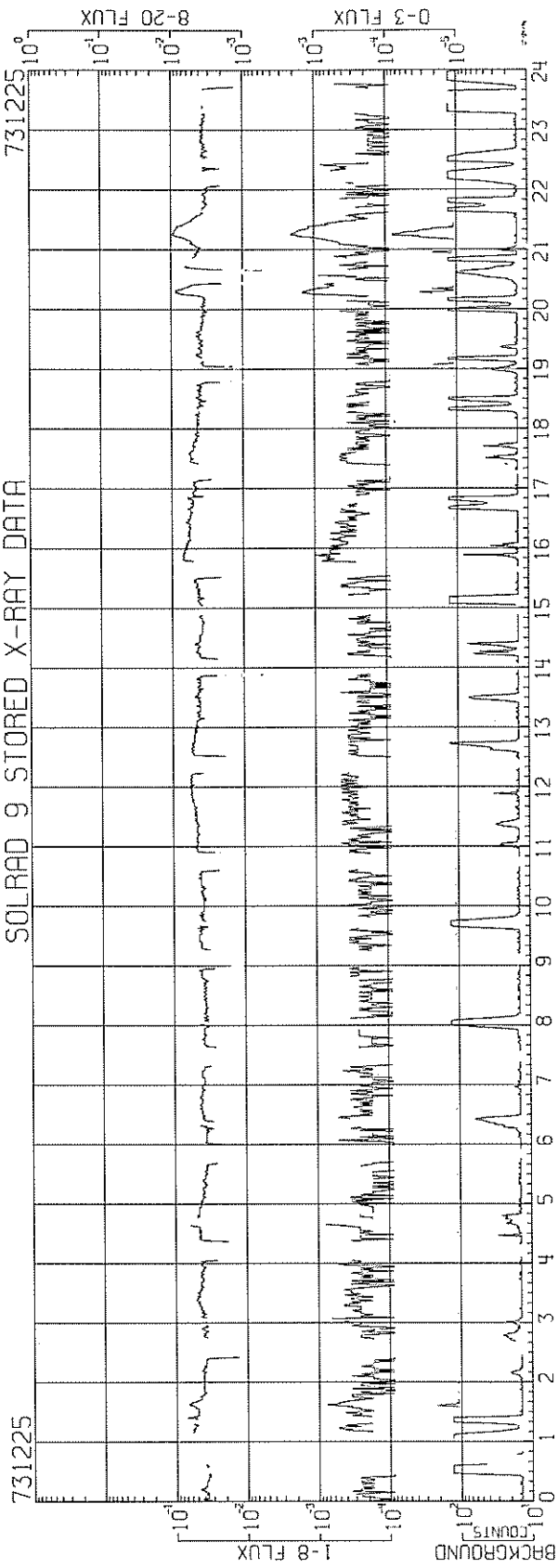
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8-20 FLUX
0-3 FLUX
1-8 FLUX
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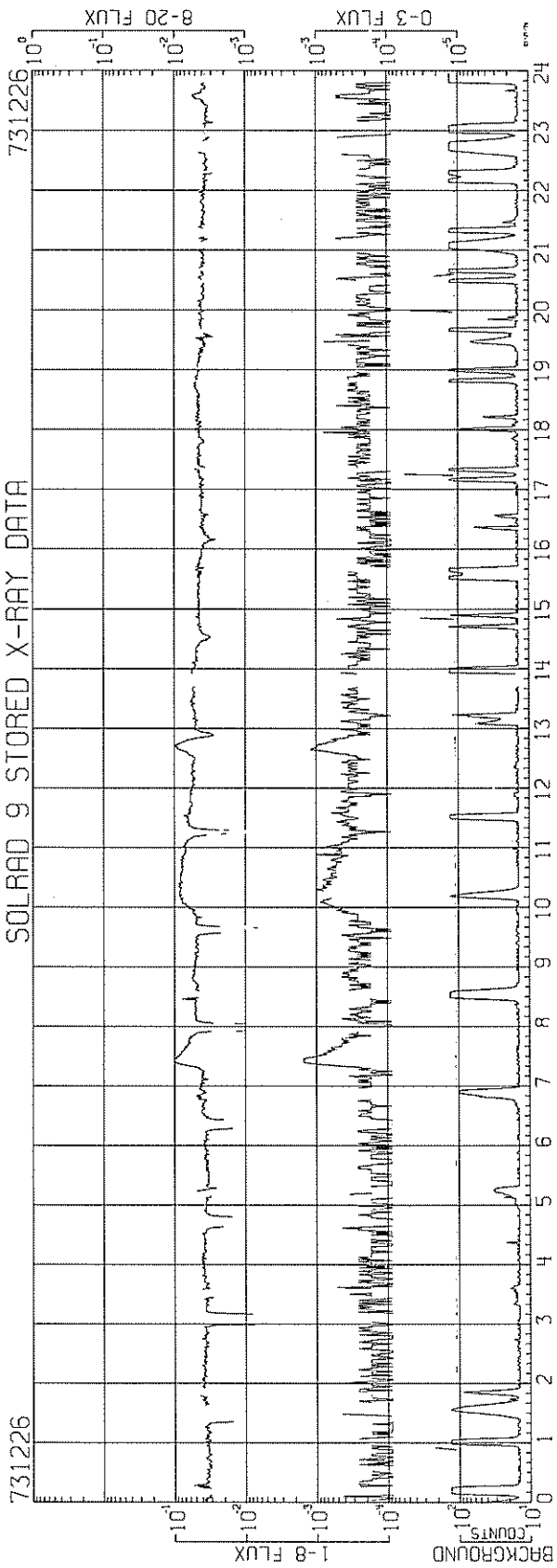
COUNTS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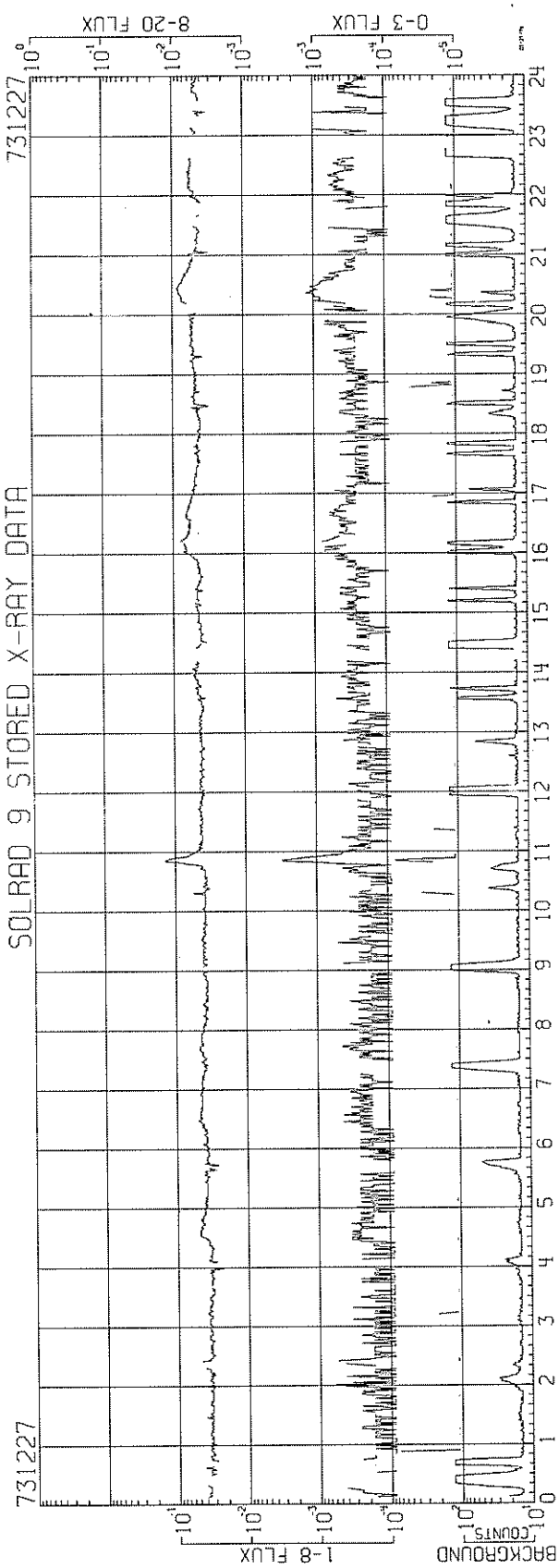
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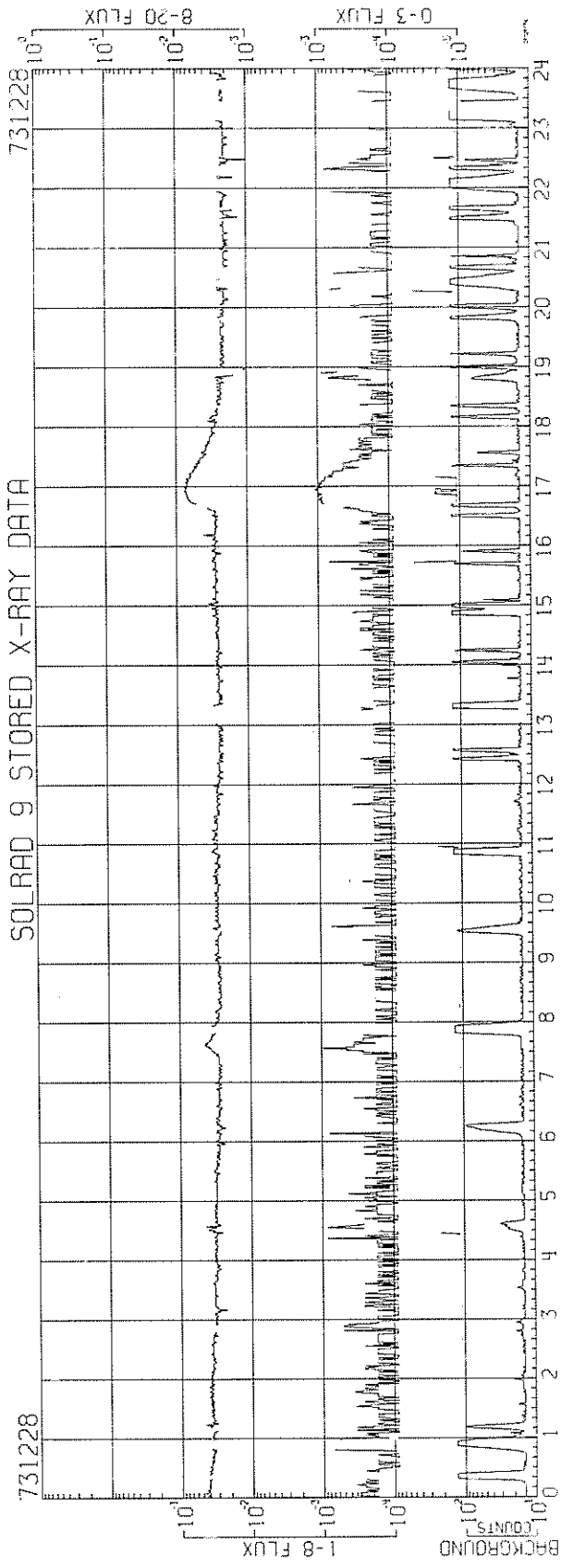
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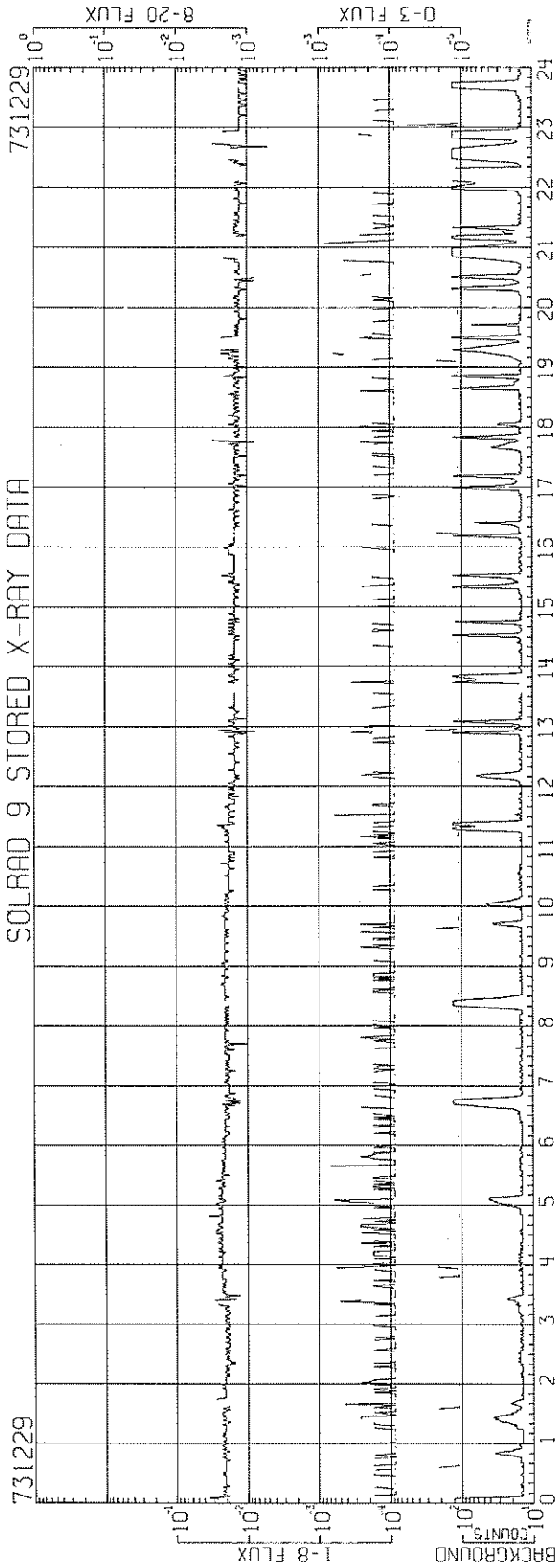
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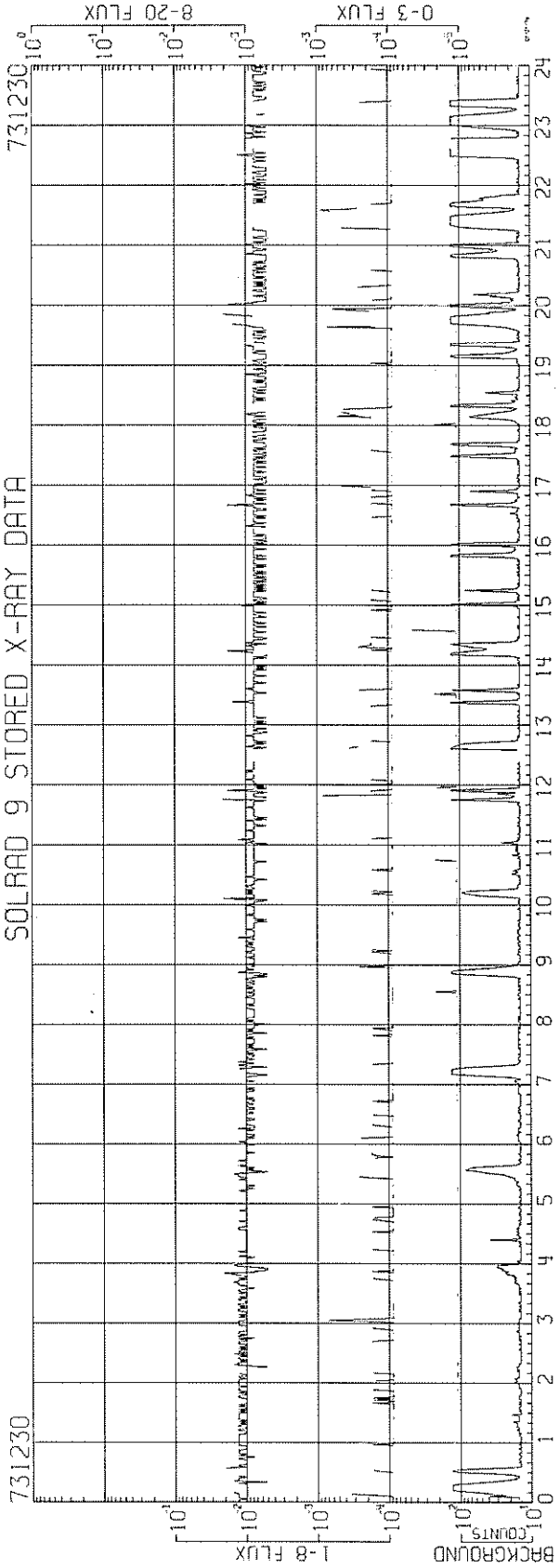
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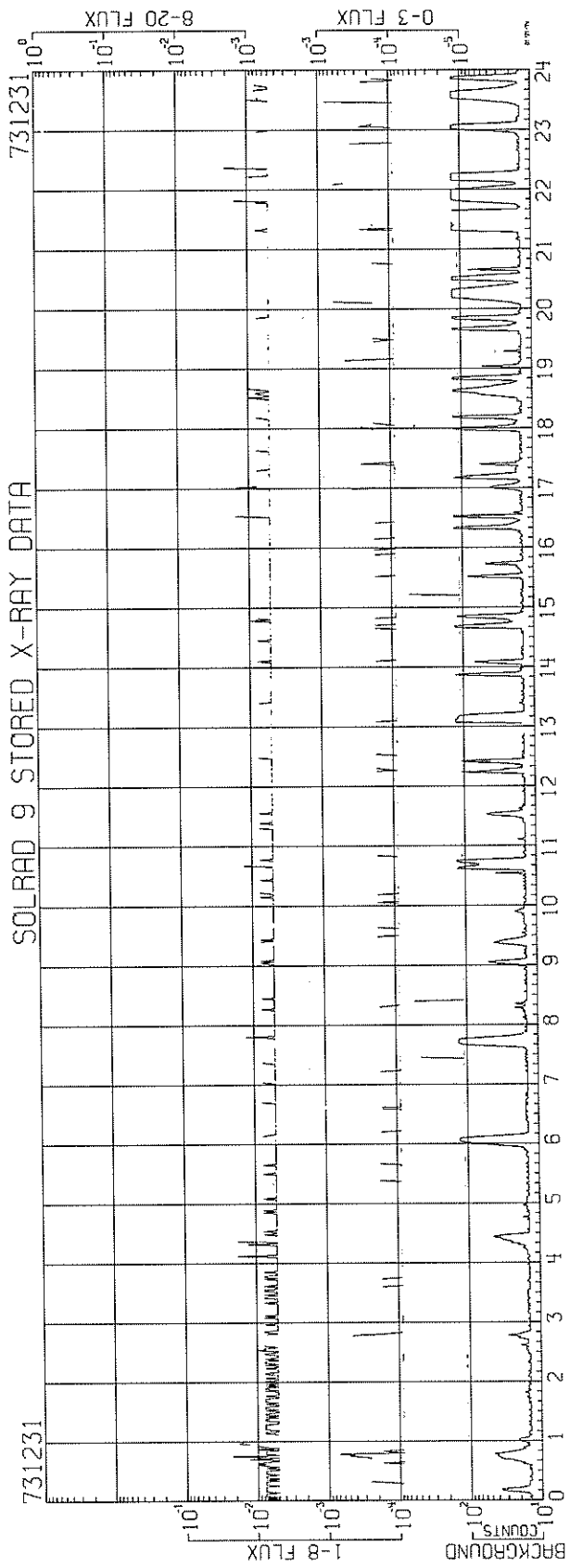
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0-3 FLUX
1-8 FLUX
BACKGROUND
COUNTS

NOVEMBER 1973 DATA

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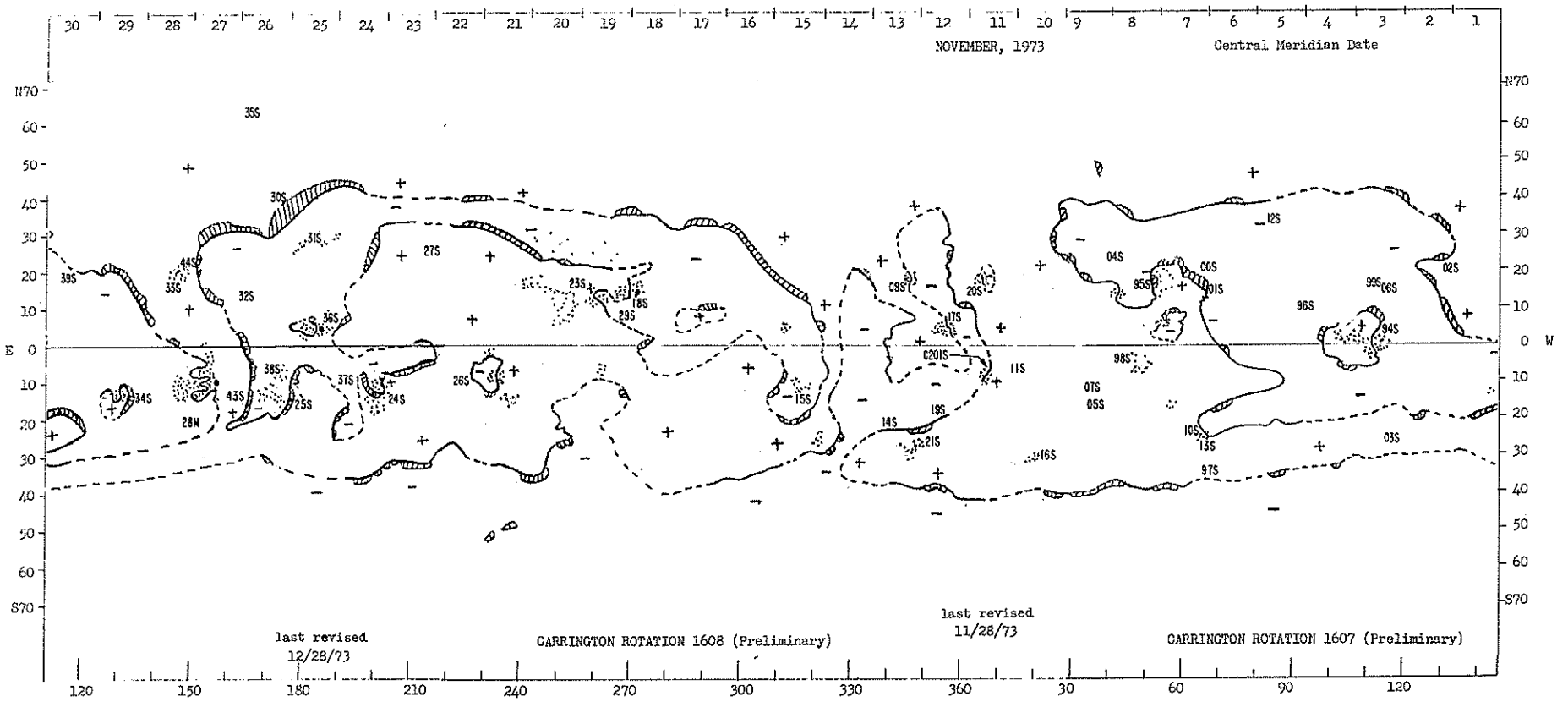
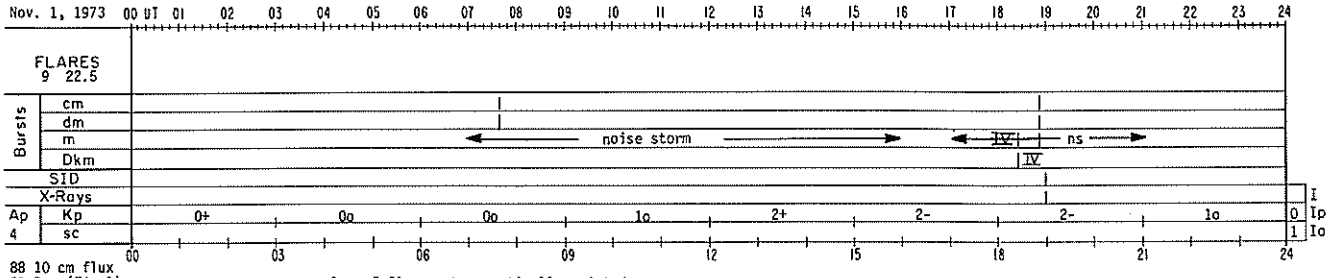
For explanations of the data contained herein see *Descriptive Text* published as supplement to February 1974 *Solar-Geophysical Data* (Number 354).

ABBREVIATED CALENDAR RECORD

NOVEMBER 1973

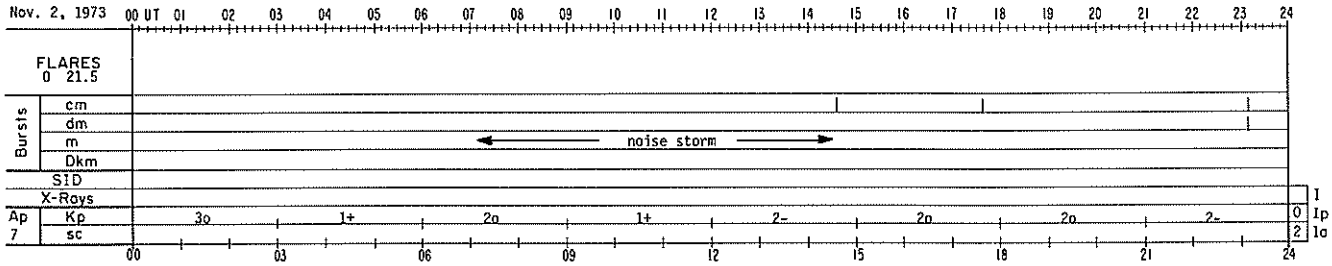


Errata: The longitudes on the synoptic charts have been labeled "Carrington longitude". These longitudes are, in fact, in the heliographic system. This change should also be noted on page 20 of the *Descriptive Text* published February 1974.

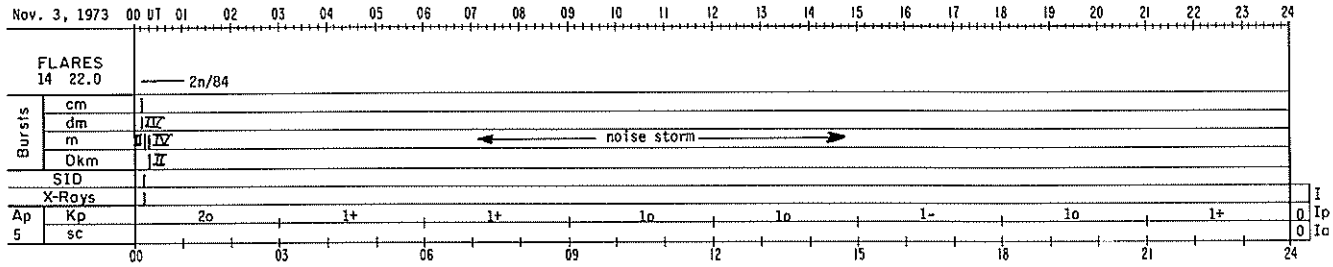


88 10 cm flux
31 Rz (Final)

One of five most magnetically quiet days.

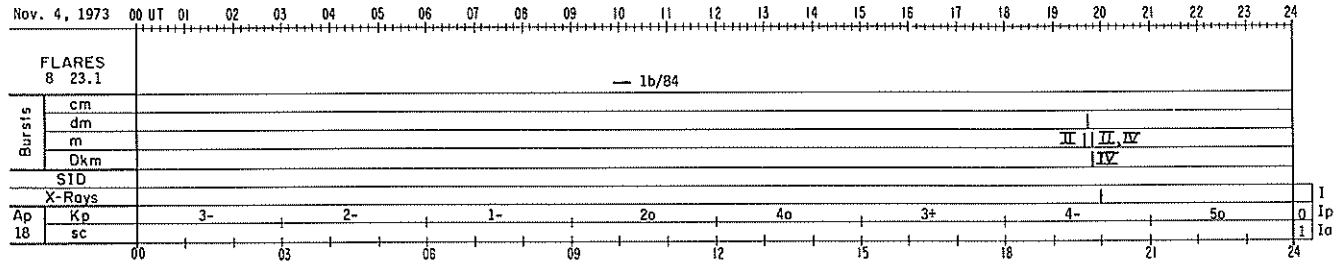


85 10 cm flux
33 Rz
CMP (12602) N19



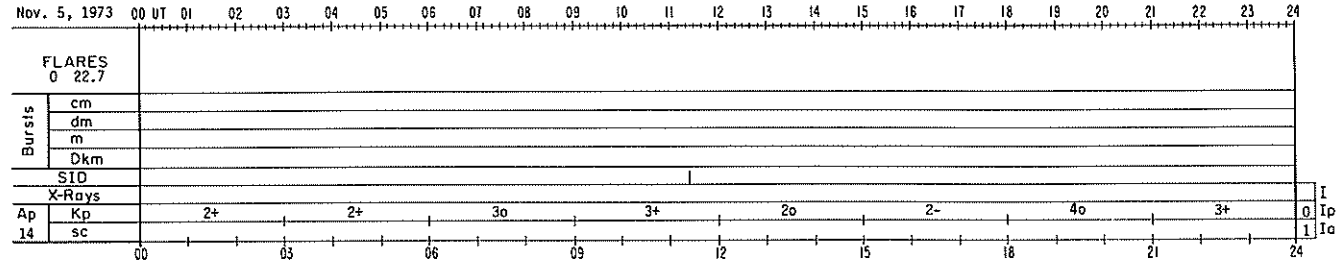
82 10 cm flux
23 Rz
CMP (12603) S16
(12606) N14
(12599) N15
12594 N04 (19284) N02 (Bp 2

One of five most magnetically quiet days; aurora overhead over USSR at ϕ = 59° 2000 and 2100.



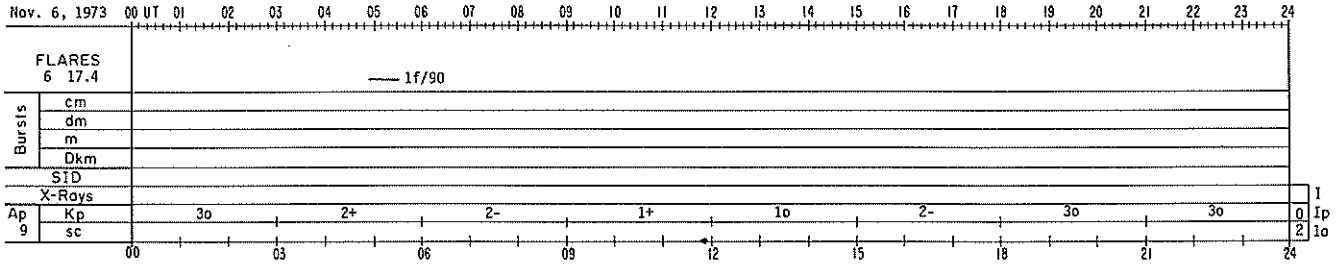
79 10 cm flux
20 Rz

Moderately br. green corona 7 days earlier on NE limb.

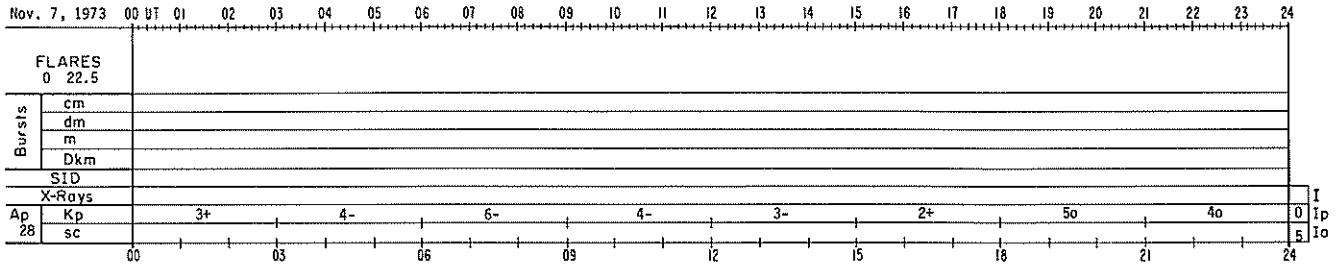


75 10 cm flux
7 Rz
CMP (12596) N10
(12612) N31

Mainly cloud conditions over British Isles, but auroral glow visible over southern Scotland at ϕ = 58° 0040.

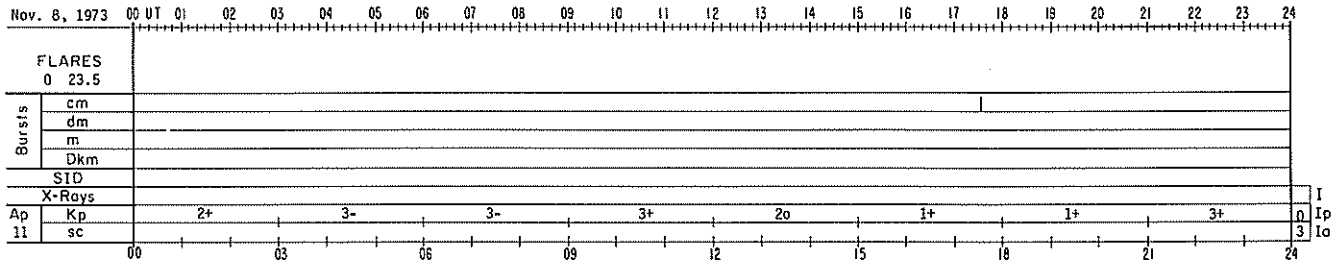


74 10 cm flux
0 Rz

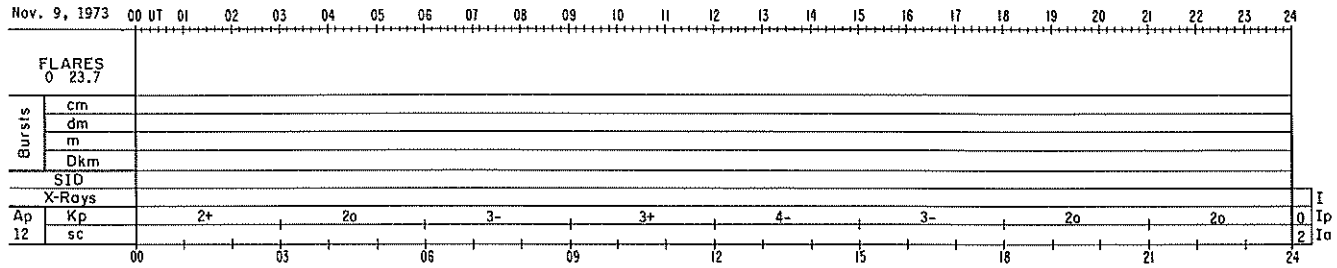


73 10 cm flux
0 Rz
CMP (12597) S36
(12601) N14
(12600) N20
(12613) S30
(12610) S25

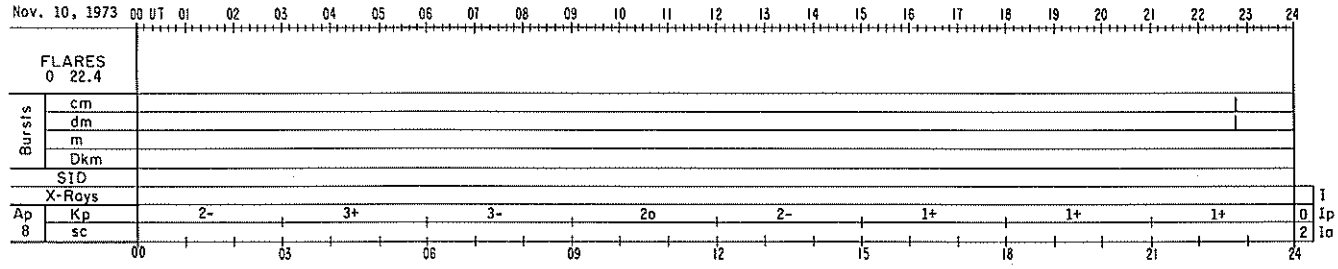
One of five most magnetically disturbed days.



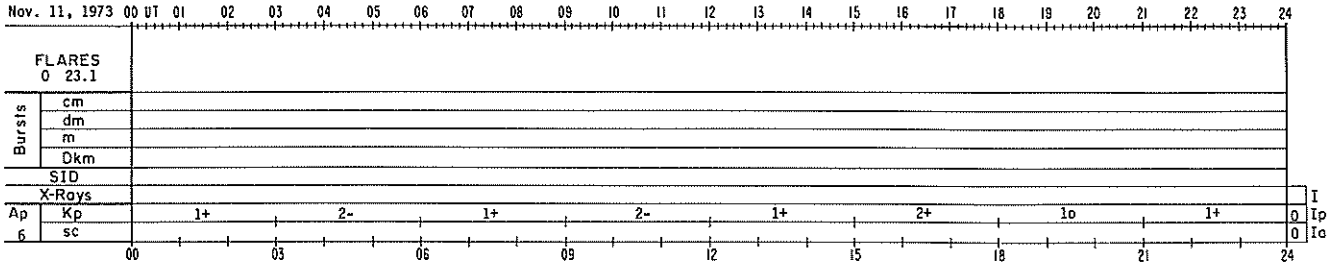
72 10 cm flux
0 Rz
CMP 12595 N15 (2)
12598 S03 (2)



72 10 cm flux
0 Rz
CMP (12604) N23
(12605) S16
(12607) S08

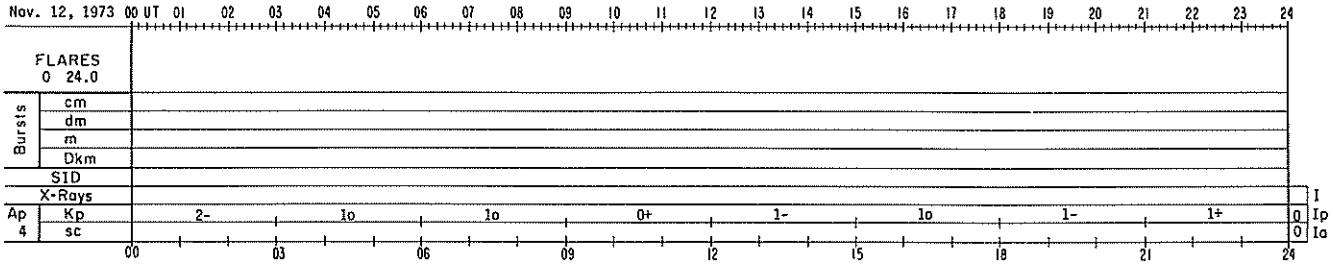


72 10 cm flux
0 Rz
CMP (12616) S30



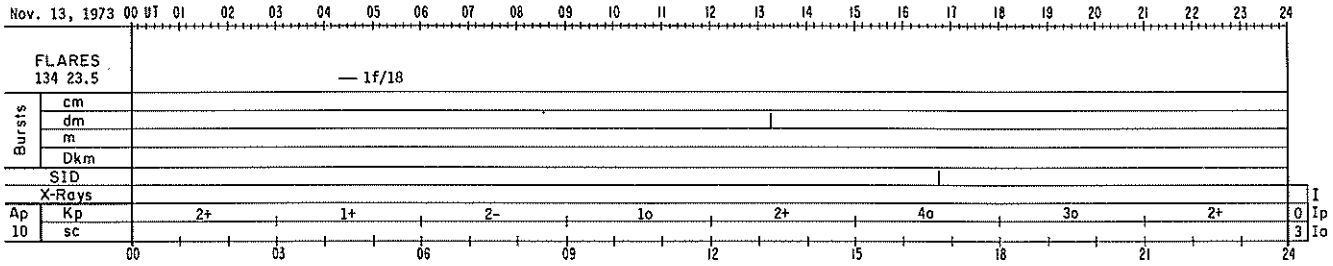
73 10 cm flux
7 Rz
CMP (12611) S07
201 S07 (Catania) 19289 S08 (α)1
(12620) N15

One of ten most magnetically quiet days.



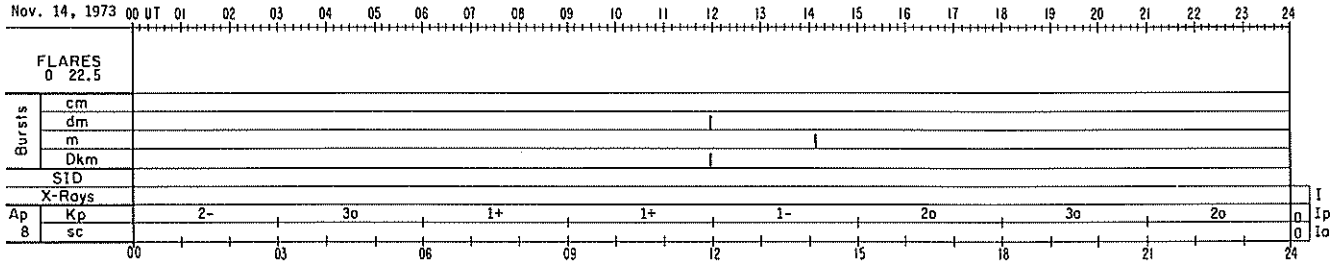
72 10 cm flux
0 Rz
CMP 12617 N04 (19291) S02 α
(12619) S19

One of five most magnetically quiet days; no coronal data 7 days earlier on E. limb at 95°-120°.

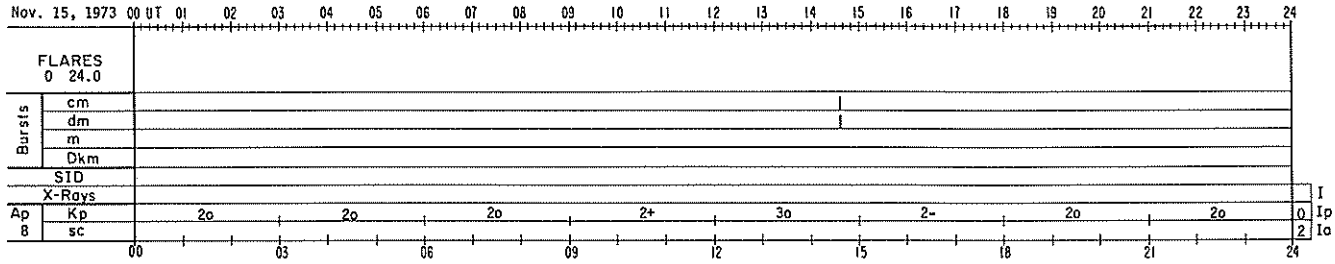


74 10 cm flux
9 Rz
CMP (12621) S27
(12609) N15
(12614) S22

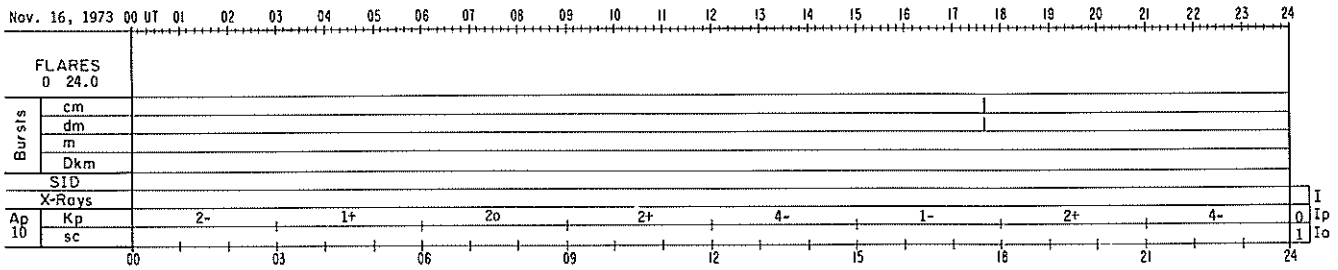
No coronal data 7 days earlier on E. limb at 95°-125°.



75 10 cm flux
11 Rz

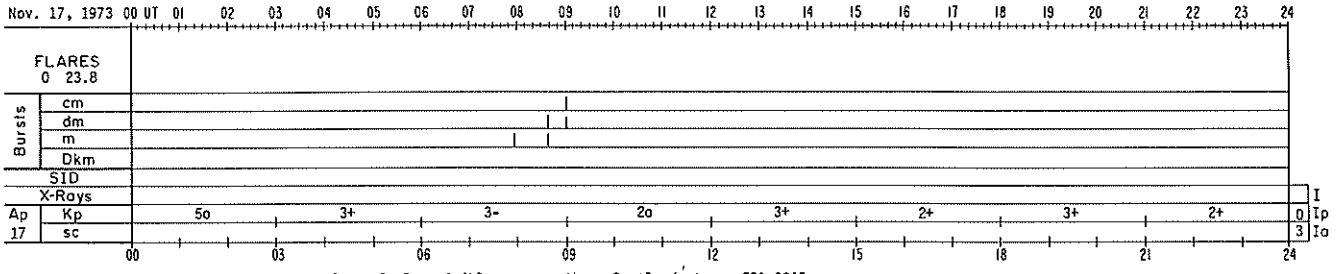


77 10 cm flux
12 Rz
CMP (12615) S13



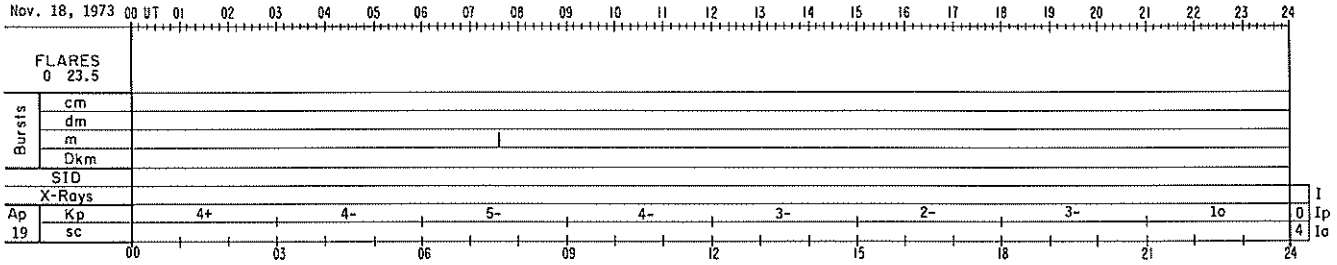
78 10 cm flux
13 Rz

Auroral glow visible over southern Scotland at ϕ = 58° 1800.



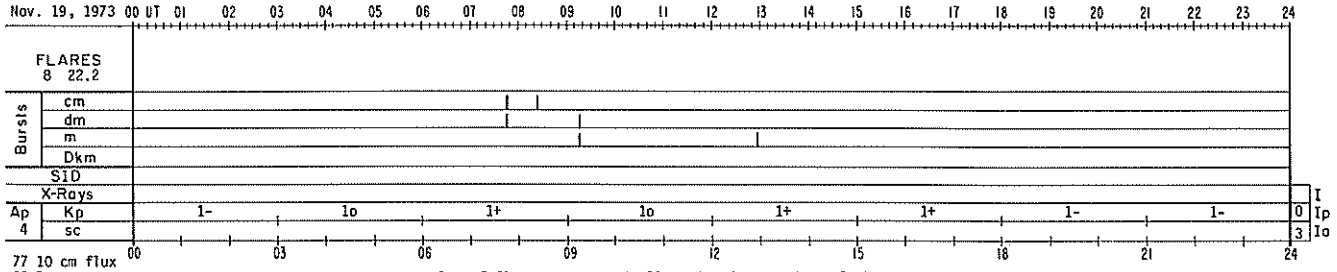
77 10 cm flux
16 Rz

Auroral glow visible over southern Scotland at ϕ = 58° 0045.



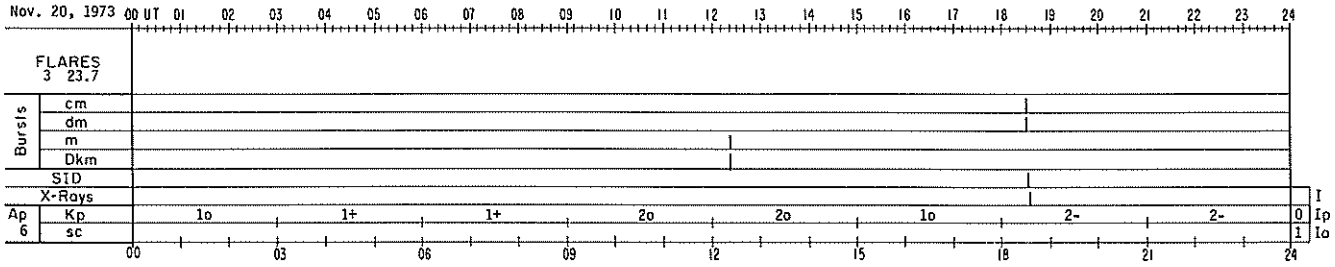
77 10 cm flux
16 Rz

One of five most magnetically disturbed days with moderate activity to 1200;
no coronal data 7 days later on W. limb.



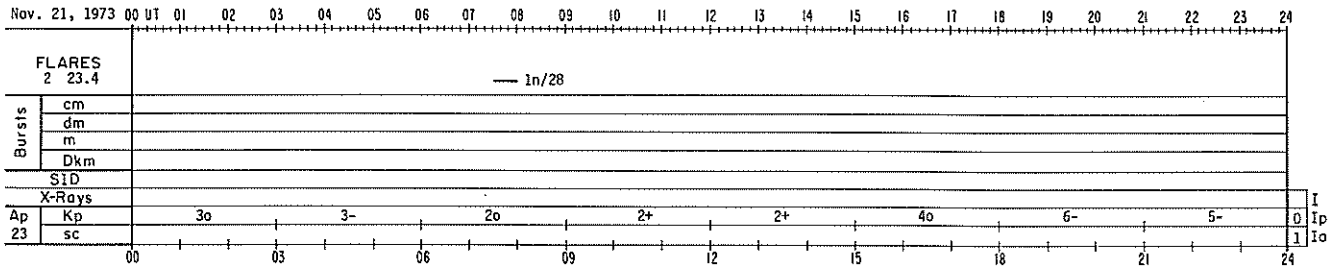
77 10 cm flux
22 Rz
CMP 12618 N14 19290 N13 (αp)3 CMP Nov. 18
(19293) N18 β
19292 N13 (α)2
(12629) N08

One of five most magnetically quiet days; moderately br. green corona 7 days later on NW limb.



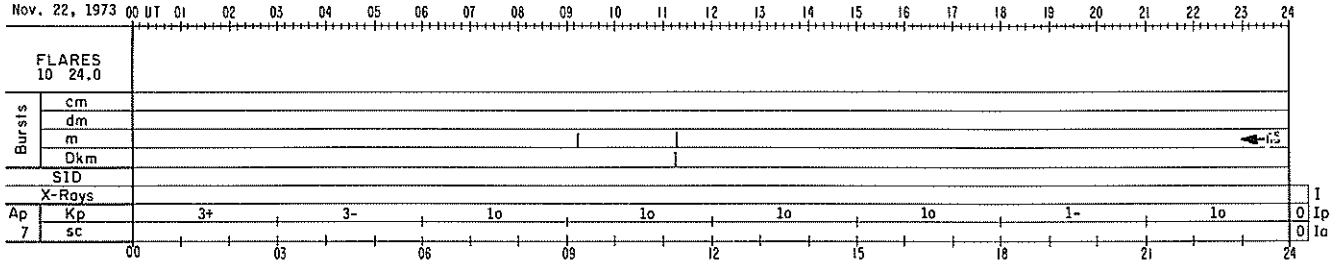
79 10 cm flux
16 Rz
CMP 12623 N14 (5)

One of ten most magnetically quiet days.



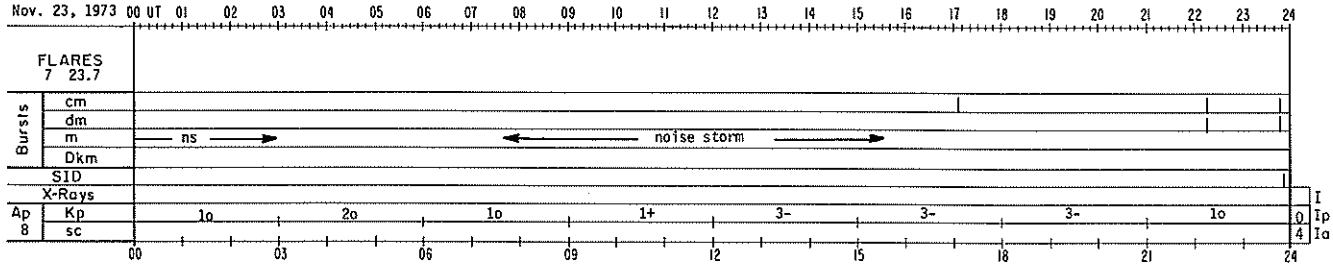
83 10 cm flux
23 Rz

One of five most magnetically disturbed days; auroral rayed arc, with base overhead at ϕ = 64° 1915-1925, visible as glow in southern Scotland until cloud cover at 2200.



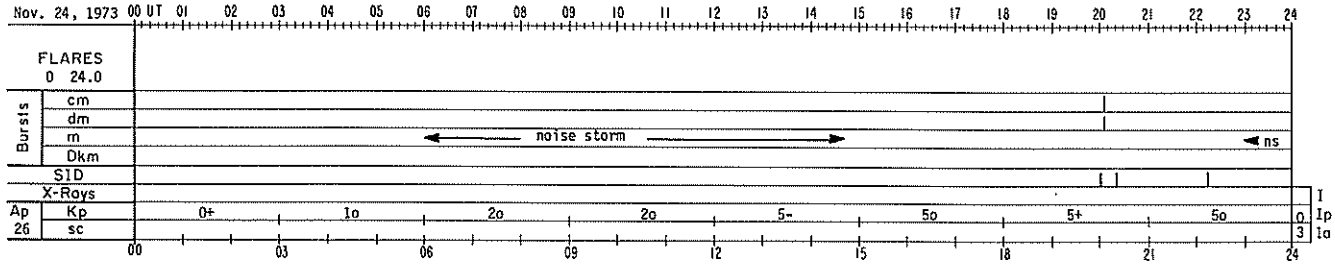
87 10 cm flux
29 Rz
CMP 12626 S09 19295 S09 (βp)3 CMP Nov. 21
(19298) S12 (βp)2 CMP Nov. 21

One of ten most magnetically quiet days.



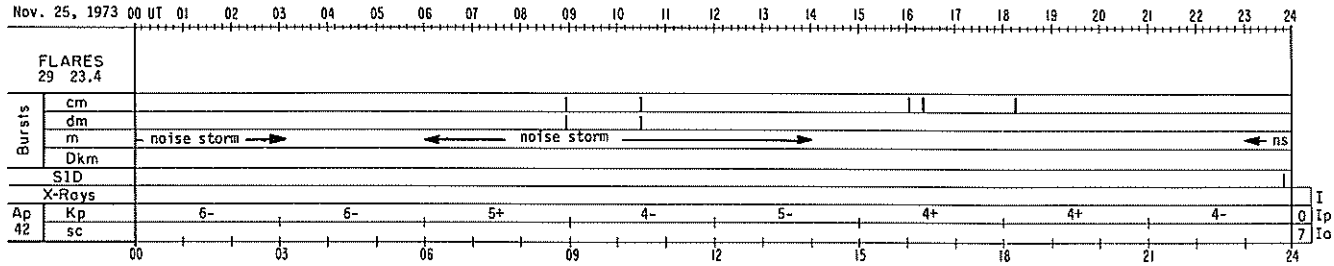
89 10 cm flux
39 Rz
CMP 12627 N25

No coronal data 7 days later on W. limb.



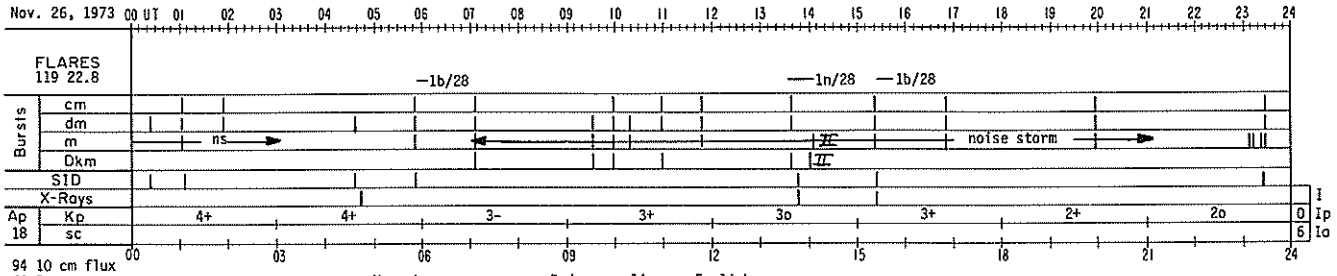
89 10 cm flux
38 Rz
CMP 12624 S13 (6) (19294) S11
19297 S11 αp
(12637) S09

One of five most magnetically disturbed days with moderate storm after 1200; aurora overhead over USSR at ϕ = 59° 1900-2000 and ϕ = 58° 2000 and 2100, auroral display over W. Europe appeared to have two maxima, around 2100 when base of most southernly rayed arc at ϕ = 65° and 2400-0020 when base of rayed band overhead at ϕ = 63°-64° (this may have been due to generally cloudy conditions 2000-2400), overhead position of aurora probably at ϕ = 64° 2000-0100, aurora visible as glow at ϕ = 65° 1730-2050, red coloration noted at ϕ = 38°-59° 1930-2120; moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



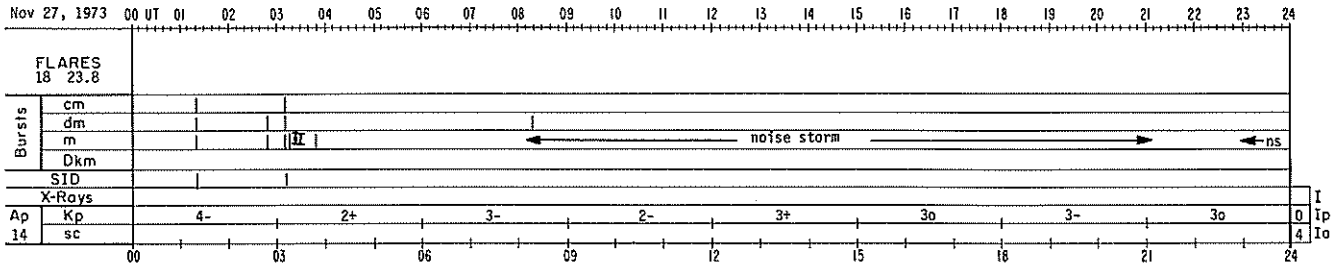
90 10 cm flux
46 Rz
CMP (12636) N06 19299 N08 (β)2
(12631) N28 (4)

One of five most magnetically disturbed days with moderate storm all day; aurora overhead over USSR at ϕ = 59° 2000-2300, auroral display over western Europe with base of most southernly rayed arc overhead at ϕ = 65° 0000-0020, overhead position of aurora probably at ϕ = 64° 0000-0100, aurora visible as glow at ϕ = 56° 0001-0046, display visible as glow over NW Scotland to 0600, auroral glow visible over southern Scotland to ϕ = 58° 1900-2400; br. green corona 7 days earlier on SE limb.



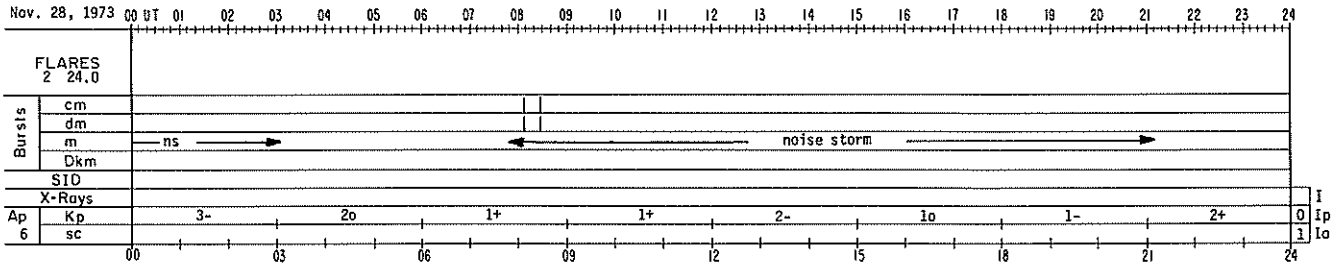
94 10 cm flux
62 Rz
CMP 12625 S14 (4)
(12630) N39
(12638) S08 (19301) S09 α
(12635) N61
12632 N14 (4)

Very br. green corona 7 days earlier on E. limb.



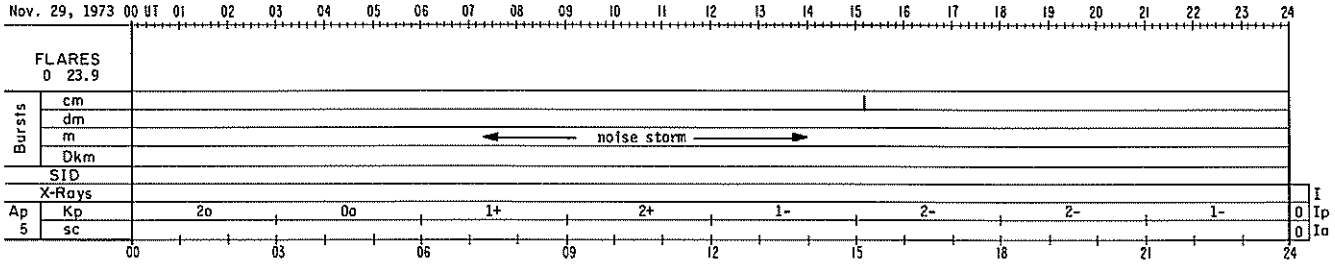
91 10 cm flux
60 Rz
CMP (12643) S15

Very br. green corona 7 days earlier on SE limb and moderately br. green corona 7 days earlier on NE limb and 7 days later on W. limb.



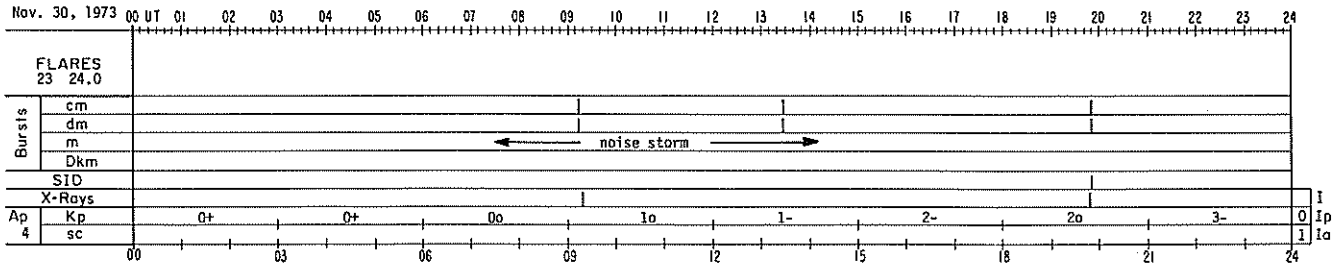
93 10 cm flux
61 Rz
CMP 12628 S10 19296 S11 βp CMP Nov. 27
19300 S15 βf
(12644) N21
12633 N20 (4)

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



98 10 cm flux
64 Rz
CMP 12634 S14

One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



98 10 cm flux
59 Rz
CMP 12639 N20

One of five most magnetically quiet days.

REGIONAL FLARE INDEX

NOVEMBER 1973

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12618	N14	73/11/19.1	73/11/13	73/11/13	133.69	133.69	2
12624	S13	73/11/24.3	73/11/19	73/11/28	12.93	1.29	3
12628	S10	73/11/28.1	73/11/21	73/12/03	246.50	18.96	27

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

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UAG-9 "Data on Cosmic Ray Event of November 18, 1968 and Associated Phenomena", compiled by J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, ESSA, April 1970, 109 pages, price 55 cents.

UAG-10 "Atlas of Ionograms", edited by A. H. Shapley, ESSA Research Laboratories, May 1970, 243 pages, price $1.50.

UAG-11 "Catalogue of Data on Solar-Terrestrial Physics", June 1970. (now obsolete).

UAG-12 "Solar-Geophysical Activity Associated with the Major Geomagnetic Storm of March 8, 1970", Parts 1, 2 and 3, compiled by J. Virginia Lincoln and Dale B. Bucknam, World Data Center A, Upper Atmosphere Geophysics, NOAA, April 1971, 466 pages, price (includes Parts 1-3) $3.00.

UAG-13 "Data on the Solar Proton Event of November 2, 1969 through the Geomagnetic Storm of November 8-10, 1969", compiled by Dale B. Bucknam and J. Virginia Lincoln, World Data Center A, Upper Atmosphere Geophysics, NOAA, May 1971, 76 pages, microfiche only, price 90 cents.

UAG-14 "An Experimental, Comprehensive Flare Index and Its Derivation for 'Major' Flares, 1955-1969", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, July 1971, 25 pages, price 30 cents.

UAG-15 "Catalogue of Data on Solar-Terrestrial Physics", July 1971. (now obsolete).

UAG-16 "Temporal Development of the Geographical Distribution of Auroral Absorption for 30 Substorm Events in each of IQSY (1964-65) and IASY (1969)", by F. T. Berkey, V. M. Driatskiy, K. Henriksen, D. H. Jelly, T. I. Shchuka, A. Theander and J. Yliniemi, September 1971, 131 pages, price 70 cents.

UAG-17 "Ionospheric Drift Velocity Measurements at Jicamarca, Peru (July 1967-March 1970)", by Ben B. Balsley, Aeronomy Laboratory, National Oceanic and Atmospheric Administration, Boulder, Colorado, and Ronald F. Woodman, Jicamarca Radar Observatory, Instituto Geofisico del Perú, Lima, Peru, October 1971, 45 pages, microfiche only, price 45 cents.

UAG-18 "A Study of Polar Cap and Auroral Zone Magnetic Variations", by K. Kawasaki and S. -I. Akasofu, Geophysical Institute, University of Alaska, June 1972, 21 pages, price 20 cents.

UAG-19 "Reevaluation of Solar Flares 1967", by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, and Marta Rovira de Miceli, San Miguel Observatory, Argentina, June 1972, 15 pages, price 15 cents.

UAG-20 "Catalogue of Data on Solar-Terrestrial Physics", October 1972. (now obsolete).

UAG-21 "Preliminary Compilation of Data for Retrospective World Interval July 26 - August 14, 1972", compiled by J. Virginia Lincoln and Hope I. Leighton, World Data Center A for Solar-Terrestrial Physics, November 1972, 128 pages, price 70 cents.

UAG-22 "Auroral Electrojet Magnetic Activity indices (AE) for 1970", by Joe Haskell Allen, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, November 1972, 146 pages, price 75 cents.

UAG-23 "U.R.S.I. Handbook of Ionogram Interpretation and Reduction", Second Edition, November 1972, edited by W. R. Piggott, Radio and Space Research Station, Slough, U.K., and K. Rawer, Arbeitsgruppe für Physikalische Weltraumforschung, Freiburg, G.F.R., November 1972, 324 pages, price $1.75.

UAG-24 "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", Parts 1 and 2, compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, December 1972, 462 pages, price (includes Parts 1 and 2) $2.00.

UAG-25 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 9 September 1968 through 9 December 1971", by James W. Warwick, George A. Dulk and David G. Swann, Department of Astro-Geophysics, University of Colorado, February 1973, 35 pages, price 35 cents.

UAG-26 "Data Compilation for the Magnetospherically Quiet Periods February 19-23 and November 29 - December 3, 1970", compiled by Helen E. Coffey and J. Virginia Lincoln, World Data Center A for Solar-Terrestrial Physics, May 1973, 129 pages, price 70 cents.

UAG-27 "High Speed Streams in the Solar Wind", by D. S. Intriligator, University of Southern California, Department of Physics, Los Angeles, California, 90007, June 1973, 16 pages, price 15 cents.

UAG-28 "Collected Data Reports on August 1972 Solar-Terrestrial Events", Parts 1, 2 and 3, edited by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, July 1973, 932 pages, price (includes Parts 1-3) $4.50.

UAG-29 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1968", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, October 1973, 148 pages, price 75 cents.

UAG-30 "Catalog of Data on Solar-Terrestrial Physics", prepared by Environmental Data Service, NOAA, Boulder, Colorado, October 1973, 317 pages, price $1.75.

UAG-31 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1969", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, February 1974, 142 pages, price 75 cents.

UAG-32 "Synoptic Radio Maps of the Sun at 3.3 mm for the Years 1967-1969", by Earle B. Mayfield and Kennon P. White III, San Fernando Observatory, Space Physics Laboratory and Fred I. Shimabukuro, Electronics Research Laboratory, Laboratory Operations, The Aerospace Corporation, El Segundo, California, 90245, April 1974, 26 pages, price 35 cents.

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The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

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