

QUARTERLY BULLETIN ON SOLAR ACTIVITY

Published by the Eidgen. Sternwarte in Zürich

with financial support from UNESCO

I. SUNSPOTS

Sunspot Relative-Numbers and Sunspot-Areas

Co-operating Observatories for Sunspot Relative-Numbers: Arcetri, Arosa, Athens, Beirut, Bucarest, Catania, Helwan, Herstmonceux, Istanbul, Kandilli, Kanzelhöhe, Kiev, Kislovodsk, Locarno, Madrid, Manila, Potsdam, Quezon City, Roma-Monte Mario, San Miguel, Santiago, Seoul, Skalnaté Pleso, Tashkent, Tokyo, Tortosa, Trieste, Uccle, Zürich.

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1968	Jan.	R	R_C	A_C	A_R	A_Z
	1	119	55	1483	--	--
	2	123	38	1251	--	1323
	3	128	8	1632	2435	1493
	4	137	25	2044	2752	--
	5	152	14	2461	3082	--
	6	150	21	2762	--	--
	7	164	79	3323	--	--
	8	182	69	3879	5742	--
	9	200	158	3964	--	--
	10	198	113	3387	4321	--
	11	154	91	3304	--	2774
	12	144	109	2332	--	--
	13	139	51	2014	2606	--
	14	107	47	1294	1842	--
	15	94	0	1187	1546	--
	16	78	8	710	993	--
	17	68	8	471	--	464
	18	60	9	270	--	--
	19	58	8	79	--	169
	20	55	8	74	--	57
	21	55	0	--	--	40
	22	69	37	26	--	41
	23	75	36	10	--	56
	24	93	36	243	--	--
	25	90	44	1414	--	--
	26	87	32	2051	2094	--
	27	88	9	2899	2276	--
	28	140	8	2884	--	2992
	29	175	89	4569	4628	4617
	30	185	105	--	5907	4904
	31	209	125	5151	6662	5428
Mean		121.8	46.5	1971	3349	1874

1968	Feb.	R	R _C	A _C	A _R	A _Z
	1	208	121	6550	7437	5498
	2	211	68	6350	6542	5084
	3	199	88	—	—	—
	4	170	82	3206	4464	3181
	5	137	66	2067	2190	—
	6	114	55	1144	1868	—
	7	86	42	987	1340	1004
	8	97	13	695	1069	—
	9	95	10	752	—	—
	10	92	20	1176	1817	—
	11	89	18	1245	1998	1096
	12	76	8	1420	1995	1404
	13	67	60	1113	1686	1177
	14	69	54	774	—	984
	15	87	39	710	—	974
	16	85	36	572	739	619
	17	94	26	330	663	356
	18	78	16	243	—	208
	19	65	7	127	—	129
	20	72	17	184	—	177
	21	79	25	434	—	—
	22	82	29	1017	—	—
	23	93	39	1568	—	1196
	24	119	38	853	—	1697
	25	161	37	2337	—	2056
	26	150	55	2492	—	2061
	27	126	77	2735	—	—
	28	124	76	2009	—	1840
	29	120	54	1860	2657	1514
	Mean	111.9	44.0	1605	2605	1613

1968	Mar.	R	R _C	A _C	A _R	A _Z
	1	108	32	1377	2035	1191
	2	110	40	1293	—	1090
	3	92	7	747	1167	616
	4	86	21	630	897	523
	5	77	43	—	837	560
	6	67	42	593	798	517
	7	58	47	721	866	664
	8	67	32	—	—	608
	9	65	26	710	774	582
	10	74	26	557	—	559
	11	85	29	552	891	551
	12	87	20	401	920	589
	13	89	12	373	864	602
	14	67	9	752	—	830
	15	59	17	848	1247	998
	16	46	25	976	—	1110
	17	59	58	1086	1399	1333
	18	59	48	1124	1479	1262
	19	53	0	975	1194	976
	20	60	0	869	987	682
	21	70	11	737	1056	813
	22	91	36	668	1425	840
	23	113	61	915	1379	990
	24	132	73	1230	1638	980
	25	143	52	1393	1906	1236
	26	141	66	1426	1824	1122
	27	146	58	1314	1851	1196
	28	138	32	1610	2156	1440
	29	127	56	1782	2356	1662
	30	154	86	2052	2286	2048
	31	134	80	1821	2038	1816
	Mean	92.2	36.9	1018	1395	967

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1968	Apr.	R	R_C	A_C	A_R	A_Z
	1	122	55	1541	—	1610
	2	108	51	1075	1416	1273
	3	98	37	1007	1229	978
	4	96	35	747	968	774
	5	89	27	636	1057	656
	6	85	25	487	757	—
	7	79	30	323	—	367
	8	82	23	405	789	—
	9	94	25	573	1083	588
	10	104	24	530	1496	862
	11	95	0	890	1386	1078
	12	83	25	1515	—	—
	13	60	29	1378	1817	—
	14	96	28	1686	—	1724
	15	110	36	1764	—	1572
	16	114	7	1282	1410	1346
	17	91	24	1080	1361	1099
	18	63	8	879	897	929
	19	53	25	673	835	734
	20	63	35	503	582	456
	21	64	24	265	385	202
	22	68	25	106	154	141
	23	50	17	127	—	83
	24	48	32	110	283	92
	25	64	24	238	389	144
	26	50	0	191	290	162
	27	57	15	138	321	192
	28	82	9	284	—	281
	29	71	23	200	422	271
	30	96	41	455	—	441
Mean		81.2	25.3	703	878	694

1968	May	R	R _C	A _C	A _R	A _Z
	1	126	30	683	1256	796
	2	144	68	1256	2169	1593
	3	143	47	1318	2408	1620
	4	138	54	1579	1958	1497
	5	127	43	1181	—	1428
	6	142	41	799	1757	1328
	7	135	38	895	1707	1013
	8	128	46	949	1656	922
	9	122	46	768	1336	768
	10	117	36	811	—	895
	11	106	22	635	1150	674
	12	82	40	477	—	550
	13	91	48	477	—	434
	14	80	34	576	595	607
	15	95	38	592	788	605
	16	103	16	1001	1018	833
	17	114	7	1569	2129	—
	18	136	33	2496	3138	2180
	19	138	36	2814	3504	2741
	20	140	50	2973	4182	2640
	21	142	71	2920	4229	3437
	22	143	70	3350	4404	—
	23	149	60	2272	3926	3019
	24	165	84	2507	—	2840
	25	146	22	2151	2787	2232
	26	121	21	1684	2187	1637
	27	139	30	1155	2106	1448
	28	133	21	1175	1772	1310
	29	135	40	1065	1649	1152
	30	126	37	1133	—	1141
	31	136	72	1409	2157	1490
	Mean	127.2	42.0	1441	2239	1477

1968	June	R	R _C	A _C	A _R	A _Z
	1	139	63	1574	—	1326
	2	134	62	1229	1509	1170
	3	121	56	938	1570	1172
	4	114	34	1043	1581	986
	5	115	18	911	1570	823
	6	129	14	737	1483	652
	7	138	48	1043	—	874
	8	119	52	694	1286	691
	9	103	58	912	—	1198
	10	99	56	1076	1431	1244
	11	87	38	1908	2243	2172
	12	105	45	2033	—	2198
	13	108	55	1583	2212	—
	14	114	35	2046	2498	2339
	15	107	32	1803	2246	2011
	16	103	10	1712	1949	1826
	17	113	21	1934	2294	1822
	18	121	19	2397	2618	2068
	19	107	75	2692	—	2418
	20	103	71	2663	3519	3051
	21	108	62	3121	3679	3151
	22	94	42	2958	3880	3229
	23	101	0	2968	3499	2984
	24	113	42	2814	2862	3052
	25	111	54	2099	2506	2520
	26	107	57	1601	1983	1593
	27	102	83	1123	1308	1002
	28	111	74	608	1509	1062
	29	94	7	1378	1272	839
	30	88	10	1091	1240	837
	Mean	110.3	43.1	1690	2150	1735

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1968	July	R	R_C	A_C	A_R	A_Z
	1	55	0	445	897	534
	2	37	7	233	484	239
	3	30	0	106	181	94
	4	26	0	106	162	83
	5	28	0	85	213	138
	6	41	7	275	701	642
	7	54	0	784	1534	1238
	8	89	11	1484	1979	1896
	9	91	37	1823	2323	2060
	10	99	28	1992	2404	2491
	11	124	74	1945	2669	2716
	12	152	106	1907	2918	2643
	13	147	91	2177	3027	2707
	14	138	82	2282	2696	2007
	15	123	26	1420	2330	1862
	16	129	48	1314	2151	1685
	17	117	61	1188	1689	1257
	18	96	31	980	1296	1086
	19	102	33	868	1212	966
	20	93	7	896	1338	994
	21	93	19	765	1152	797
	22	86	33	572	987	651
	23	93	66	657	1356	784
	24	101	55	1145	1608	1320
	25	124	68	1507	1858	1687
	26	130	13	1462	2105	1578
	27	127	23	1081	1912	1230
	28	118	27	700	1563	1014
	29	129	61	758	1811	1066
	30	115	72	551	1667	887
	31	93	60	509	—	606
Mean		96.1	37.0	1033	1607	1257

1968	Aug.	R	R _C	A _C	A _R	A _Z
	1	98	73	657	—	550
	2	91	7	646	—	434
	3	92	7	656	1225	—
	4	94	23	789	1219	939
	5	94	19	1134	1270	—
	6	95	33	1169	1327	978
	7	100	68	1320	1626	1216
	8	113	70	1408	1783	—
	9	98	63	1351	1645	1230
	10	90	46	1727	1334	1094
	11	104	33	1642	1388	1132
	12	116	45	1283	—	1374
	13	142	28	1945	2627	1871
	14	165	21	2228	—	2469
	15	172	27	2735	3771	2400
	16	170	10	3465	3570	2862
	17	160	90	3316	3841	—
	18	148	89	2755	—	2925
	19	136	106	3202	3123	2595
	20	122	68	2437	3091	2324
	21	138	66	2490	2798	2191
	22	143	24	2157	2623	1666
	23	126	25	1373	1996	1165
	24	108	29	725	—	810
	25	86	38	508	—	346
	26	77	14	318	434	154
	27	67	15	121	265	96
	28	49	0	84	197	63
	29	64	8	212	—	167
	30	68	33	409	694	434
	31	63	21	578	939	468
	Mean	109.3	38.7	1446	1860	1258

1968	Sep.	R	R _C	A _C	A _R	A _Z
	1	78	35	656	839	627
	2	82	26	842	999	954
	3	119	65	1224	1619	1366
	4	118	64	1812	2304	—
	5	111	61	1574	2072	1601
	6	96	25	1197	1611	1275
	7	90	8	794	1320	1005
	8	106	26	742	1008	728
	9	128	37	551	1070	584
	10	138	59	810	1191	697
	11	145	27	1228	1995	—
	12	150	30	1306	—	858
	13	153	52	1229	—	872
	14	113	69	1024	1544	795
	15	88	53	677	1018	483
	16	84	48	322	—	489
	17	81	33	407	—	460
	18	85	16	360	739	463
	19	88	8	503	983	572
	20	84	17	677	1056	782
	21	90	12	768	1365	—
	22	99	42	1061	1244	1063
	23	118	42	1038	1374	1237
	24	149	64	1219	1739	1178
	25	187	107	1678	2527	1566
	26	184	116	1585	2871	1512
	27	176	140	1998	—	1850
	28	149	70	2083	1889	1524
	29	137	73	1542	1762	1193
	30	91	41	1313	1486	1029
	Mean	117.2	48.9	1074	1505	991

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1968	Oct.	R	R_C	A_C	A_R	A_Z
	1	75	24	848	1043	869
	2	73	11	890	1162	—
	3	108	13	890	1438	844
	4	119	36	1054	1887	1107
	5	118	67	948	1383	824
	6	126	91	722	1264	999
	7	135	105	957	1405	839
	8	112	67	862	—	780
	9	87	21	810	—	810
	10	70	7	619	779	595
	11	95	19	615	706	575
	12	99	44	466	728	456
	13	70	22	641	796	491
	14	76	24	667	770	479
	15	90	12	741	1124	630
	16	88	62	763	—	724
	17	82	47	1081	1327	748
	18	108	57	1272	1322	880
	19	112	38	1548	—	1605
	20	114	9	1436	1776	1866
	21	122	56	1293	2036	2008
	22	134	68	1140	2117	1917
	23	136	68	1950	2181	1887
	24	139	64	1828	2600	1847
	25	138	80	2285	—	2333
	26	133	37	2485	2240	1948
	27	138	44	2289	2388	1844
	28	118	38	2438	2691	2030
	29	114	57	2692	2729	2200
	30	112	74	2290	2578	2009
	31	99	26	1971	2451	1607
Mean		107.7	44.8	1306	1651	1258

1968	Nov.	R	R _C	A _C	A _R	A _Z
	1	89	40	1972	2235	1669
	2	76	42	1845	2126	1534
	3	76	43	—	1576	1151
	4	81	14	499	1260	—
	5	97	20	545	—	792
	6	92	43	397	1238	685
	7	92	26	520	946	605
	8	89	23	1281	—	998
	9	105	0	1453	—	1536
	10	111	34	—	—	1586
	11	106	35	1573	—	—
	12	94	49	1362	586	1422
	13	94	62	1373	1224	1199
	14	85	37	1139	—	—
	15	84	20	974	—	—
	16	84	26	906	—	—
	17	82	19	—	—	—
	18	77	37	869	964	—
	19	80	36	1193	1384	1058
	20	92	46	1118	1514	1332
	21	84	40	975	846	1006
	22	81	15	742	838	827
	23	76	38	689	876	638
	24	67	29	742	611	536
	25	80	66	869	1251	954
	26	89	76	1526	1808	1610
	27	87	57	1929	1662	1685
	28	73	45	1123	1276	1099
	29	73	56	—	971	804
	30	83	21	466	855	556
	Mean	86.0	36.5	1080	1240	1099

1968	Dec.	R	R _C	A _C	A _R	A _Z
	1	104	18	616	955	698
	2	109	11	1610	1693	1331
	3	113	36	1865	—	1700
	4	116	84	1674	2467	2021
	5	118	98	1728	—	2104
	6	117	95	1951	—	2373
	7	116	77	1722	2613	1921
	8	122	29	—	—	—
	9	130	30	2099	—	1736
	10	117	14	1421	—	—
	11	101	17	1511	1457	—
	12	68	0	1102	—	—
	13	75	7	911	1276	905
	14	81	0	1145	—	—
	15	84	0	869	—	920
	16	67	15	827	—	742
	17	77	32	573	—	—
	18	93	40	531	—	420
	19	101	64	425	—	456
	20	102	49	423	—	326
	21	107	28	550	783	—
	22	114	22	1136	1329	—
	23	114	33	—	—	—
	24	125	50	674	—	1618
	25	131	21	1300	1843	—
	26	140	69	1405	—	1770
	27	148	104	1615	1973	1934
	28	139	79	2225	1286	1504
	29	139	69	1552	1871	1516
	30	119	0	1038	—	1315
	31	117	23	942	818	1404
	Mean	109.8	39.2	1222	1566	1367