

Sunspot Relative Numbers and Sunspot Areas

1996

Cooperating Observatories to the International Sunspot Number :

Athens Nat. Obs. (Greece); Athens by ussps 32404 (Greece); Attikis Nat. Obs. (Greece); Auckland (New-Zealand); Australian Obs. (Australia); Bedizzole (Italy); Berlin (Germany); Beyazit (Turkey); Boom (Belgium); Bruxelles-Uccle (Belgium); Bucharest (Rumania); Budapest (Hungary), Camaguey (Cuba); Caracas (Venezuela); Catania (Italy); Ciney (Belgium); Cochabamba (2 stat. Bolivia); Cottbus (Germany); Culgoora (Australia); Dimitrograd (Bulgaria); Dinant (Belgium); Dover (U.K.); Eilenburg (Germany); Etalle (Belgium); Grimbergen (Belgium); Hancharia (Italy); Helwan (Egypt); Holloman by ussps 21305 (U.S.A.); Hurbanovo (Slovakia); Hvezdaren (2 stat. Slovakia); Invercargill (2 stat. New-Zealand); Izernhagen (Germany); Iseo (Italy); Jambol (Bulgaria); Jordanston (North Ireland); Jeddah (Saudi Arabia); Kandilli (Turkey); Kanzelohe (Austria); Kajali (Bulgaria); Kawaguchi-Saitama (Japan); Kislovodsk (Russia); Kladno (Czech Republic); Langemark (Belgium); Larissa Obs.(Greece); Learmonth by ussps 81202 (Australia); Locarno (Switzerland); Lormont (France); Lunping (Taiwan); Marcq en Baroeul (France); Milano (Italy); Mons (Belgium); Mosta (Malta); Murmansk (Russia); Naxxar (Malta); Nijmegen (The Netherlands); Mie-Ken (Japan); Ondrejov (Czech Republic); Palehua by ussps 26204 (Hawaii); Potsdam (Germany); Prague (Czech Republic); Pulligny (France); Pyong Yang (North Korea); Quezon-City (Philippines); Ramey by ussps 17201 (Puerto-Rico); Rokicany (2 stat. Czech Republic); Roma (Italy); Ronse-Renaix (Belgium); Roquetes-Tortosa (Spain); Rudolstadt (Germany); Sao Francisco (Brazil); San Miguel (Argentina); Santander (Spain); Santiago (Chile); Sezimovo (Czech Republic); Skalnate (Slovakia); Sliven (Bulgaria); Smolian (Bulgaria); Sobota (Slovakia); Suwa City (Japan); Taipei Obs.(Taiwan); Taipei Weather Bureau (Taiwan); Teneriffe (Spain); Tilburg (The Netherlands); Tokyo-Mitaka (Japan); Urawa-Saitama(Japan); Valencia (2 stat. Spain); Varna (Bulgaria); Vedrin (Belgium), Wittelsheim (France).

The first column gives the definitive International Sunspot Numbers for the whole disk of the sun (R_1) established by the Sunspot Index Data Center Brussels on the basis of Locarno as reference station, the second gives the same quantity for the central zone (R_{1C}) on the basis of the observations of Athens (Nat.Obs.); Athens 32404; Uccle; Catania by ussps 31405; Grimbergen; Holloman; Hvezdaren; Izernhagen; Kawaguchi-Saitama, Kislovodsk; Learmonth; Mie-Ken; Mons; Nijmegen; Palea Penteli; Palehua; Ramey; Ronse-Renaix; Roquetes-Tortosa; Smolian; Sobota; Suwa-city; Taipei Obs.; Tilburg; Urawa-Saitama.

The diameter of the central zone is half that of the solar disk.

The Sunspot areas A_C are from Catania, A_R from Roma and A_I , are mean quantities calculated by the Sunspot Index Data Center on the basis of observations of Athens (Nat. Obs.), Roma, Helwan, Jeddah, Palea Penteli, Taipei Obs. and Taipei Weather Bureau and rattached to Catania by a monthly scaling factor. The apparent total area of the umbra plus penumbra is uncorrected for foreshortening and expressed in millonths of the solar disk.

I - 2 (1996)

JANUARY 1996

1996 JAN.	Ri	Ric	Ac	Ar	Ai
1	0	14	0	-	0
2	12	8	10	0	1
3	19	18	90	-	49
4	30	25	275	-	317
5	48	32	603	-	404
6	47	23	-	-	418
7	41	17	529	-	360
8	35	10	200	-	193
9	19	10	74	-	41
10	11	0	-	0	3
11	0	0	-	-	0
12	0	0	-	0	0
13	0	0	-	0	0
14	0	0	-	-	0
15	0	0	-	0	0
16	0	0	-	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	-	0	0
21	9	10	-	-	0
22	0	0	0	0	0
23	0	0	0	-	0
24	11	0	-	-	5
25	9	0	5	3	4
26	9	0	-	-	9
27	9	8	5	6	8
28	10	8	10	-	7
29	9	9	0	-	5
30	16	8	0	-	0
31	11	0	-	-	0
MEAN	11.5	6.5	100.1	0.7	58.8

FEBRUARY 1996

1996 FEB.	Ri	Ric	Ac	Ar	Ai
1	9	0	-	0	25
2	9	0	-	-	4
3	7	0	0	-	0
4	0	0	-	-	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	-	-	0
12	0	0	-	0	0
13	0	0	0	-	0
14	0	0	0	0	0
15	7	9	5	-	3
16	0	0	-	0	0
17	0	0	0	0	0
18	0	0	0	-	0
19	0	0	0	-	0
20	8	0	42	15	21
21	10	0	-	-	2
22	8	0	0	0	0
23	8	15	-	0	2
24	17	24	100	-	74
25	13	13	116	-	72
26	8	0	-	-	0
27	7	0	-	0	3
28	8	0	-	0	0
29	9	11	26	6	10
MEAN	4.4	2.5	16.1	1.2	7.4

I - 3 (1996)

MARCH 1996

1996 MAR.	Ri	Ric	Ac	Ar	Ai
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	-	-	0
4	9	0	-	0	0
5	0	0	-	0	0
6	14	9	25	0	4
7	9	0	0	-	0
8	0	0	-	-	0
9	0	0	0	0	0
10	0	0	-	-	0
11	16	13	-	-	13
12	16	14	169	-	135
13	16	15	238	-	200
14	13	13	-	-	119
15	12	11	-	-	107
16	10	10	106	-	66
17	9	0	42	-	43
18	9	0	10	-	15
19	8	0	5	-	5
20	0	0	0	0	0
21	12	14	0	0	0
22	16	12	159	-	121
23	16	14	217	-	187
24	14	13	233	-	191
25	13	0	265	-	184
26	23	11	216	-	177
27	21	11	232	-	165
28	18	0	169	-	125
29	10	0	52	-	45
30	0	0	0	0	0
31	0	0	0	-	0
MEAN	9.2	5.2	93.0	0.0	61.4

APRIL 1996

1996 APR.	Ri	Ric	Ac	Ar	Ai
1	0	0	0	0	0
2	10	0	0	-	10
3	11	0	0	-	7
4	8	0	0	-	2
5	0	0	0	-	0
6	0	0	0	0	0
7	0	0	0	-	0
8	0	0	0	-	0
9	0	0	0	-	0
10	0	0	0	0	0
11	0	0	0	0	0
12	9	0	15	0	4
13	8	0	15	0	5
14	0	0	0	-	0
15	0	0	0	0	0
16	0	0	-	0	0
17	10	11	-	-	11
18	19	0	-	-	22
19	11	0	-	-	18
20	18	0	-	-	34
21	12	0	-	-	144
22	12	0	-	-	72
23	8	0	-	-	18
24	8	0	-	-	0
25	0	0	-	-	0
26	0	0	-	-	0
27	0	0	-	-	0
28	0	0	-	-	0
29	0	0	-	-	0
30	0	0	-	-	0
MEAN	4.8	0.4	2.0	0.0	11.6

I - 4 (1996)

MAY 1996

1996 MAY	Ri	Ric	Ac	Ar	Ai
1	0	0	-	-	0
2	0	0	-	0	0
3	0	0	-	0	0
4	0	0	-	0	0
5	0	0	-	-	0
6	11	15	-	0	0
7	12	13	-	95	69
8	13	0	-	238	162
9	12	0	-	-	51
10	14	18	-	436	331
11	18	22	-	-	244
12	16	7	-	-	200
13	15	23	-	-	153
14	14	7	-	127	135
15	11	24	-	95	98
16	9	0	-	42	33
17	8	0	-	51	28
18	8	0	-	0	0
19	0	0	-	-	0
20	8	0	-	0	0
21	0	0	-	0	0
22	0	0	-	0	0
23	0	0	-	0	0
24	0	0	-	0	0
25	0	0	-	0	0
26	0	0	-	-	0
27	0	0	-	0	0
28	0	0	-	0	0
29	0	0	-	0	0
30	0	0	-	0	0
31	0	0	-	0	0
MEAN	5.5	4.2	-	47.1	48.5

JUNE 1996

1996 JUN.	Ri	Ric	Ac	Ar	Ai
1	8	0	-	3	1
2	8	0	-	-	0
3	8	8	-	0	0
4	9	0	-	-	11
5	11	12	-	54	38
6	23	15	-	185	108
7	20	21	-	309	240
8	20	21	-	411	336
9	25	12	-	-	168
10	12	0	-	146	124
11	9	0	-	67	54
12	9	0	-	-	17
13	0	0	-	0	0
14	0	0	-	0	0
15	0	0	-	0	0
16	0	0	-	-	0
17	0	0	-	0	0
18	10	0	-	0	0
19	17	0	-	-	5
20	8	8	-	147	108
21	8	0	-	220	147
22	8	0	-	203	209
23	17	9	-	-	149
24	18	9	-	281	202
25	17	9	-	238	176
26	18	9	-	243	228
27	18	19	-	303	217
28	18	10	-	251	178
29	17	9	-	-	120
30	17	10	-	-	129
MEAN	11.8	6.0	-	145.8	98.8

I - 5 (1996)

JULY 1996

1996 JULY	Ri	Ric	Ac	Ar	Ai
1	8	0	-	-	20
2	10	9	-	-	8
3	9	9	-	-	0
4	0	0	-	0	0
5	8	9	-	0	0
6	0	0	-	0	0
7	14	13	-	-	10
8	26	28	-	636	413
9	27	25	-	1645	1167
10	26	0	-	1397	1017
11	20	0	-	776	734
12	13	0	-	299	267
13	9	0	-	0	0
14	0	0	-	-	0
15	0	0	-	0	0
16	0	0	-	-	0
17	0	0	-	0	0
18	0	0	-	0	0
19	0	0	-	0	0
20	0	0	-	0	0
21	0	0	-	-	0
22	0	0	-	0	0
23	0	0	-	0	0
24	0	0	-	0	0
25	0	0	-	-	0
26	8	9	-	0	5
27	9	0	-	-	34
28	12	0	-	-	101
29	15	0	-	894	558
30	19	0	-	1104	846
31	21	17	-	1534	1114
MEAN	8.2	3.8	-	394.5	203.0

AUGUST 1996

1996 AUG.	Ri	Ric	Ac	Ar	Ai
1	19	20	-	1206	993
2	23	23	-	1266	865
3	23	24	-	993	901
4	21	20	-	-	307
5	16	0	-	630	463
6	10	0	-	493	410
7	17	0	-	236	196
8	11	9	-	-	48
9	14	14	-	0	2
10	15	15	-	124	110
11	21	19	-	-	141
12	17	0	-	287	176
13	12	0	-	108	73
14	21	0	-	66	44
15	19	10	-	-	27
16	10	10	-	60	46
17	11	11	-	45	32
18	9	9	-	-	0
19	11	11	-	0	0
20	10	9	-	10	7
21	10	8	-	-	5
22	9	0	-	-	5
23	10	0	-	38	36
24	16	0	-	-	288
25	10	0	-	-	119
26	13	0	-	229	183
27	13	0	-	255	184
28	11	10	-	-	58
29	11	10	-	233	172
30	14	11	-	-	67
31	19	9	-	191	157
MEAN	14.4	8.1	-	323.5	197.3

I - 6 (1996)

SEPTEMBER 1996

1996 SEP.	Ri	Ric	Ac	Ar	Ai
1	13	12	-	-	49
2	9	0	-	31	58
3	7	0	-	6	5
4	0	0	-	-	0
5	0	0	-	0	0
6	0	0	-	0	0
7	12	0	-	-	5
8	0	0	-	-	5
9	0	0	-	0	0
10	0	0	-	0	0
11	0	0	-	0	0
12	8	0	-	-	0
13	0	0	-	0	0
14	0	0	-	0	0
15	0	0	-	-	0
16	0	0	-	0	0
17	0	0	-	0	0
18	0	0	-	0	0
19	0	0	-	-	0
20	0	0	-	0	0
21	0	0	-	-	0
22	0	0	-	-	0
23	0	0	-	0	0
24	0	0	-	0	0
25	0	0	-	0	0
26	0	0	-	0	0
27	0	0	-	0	0
28	0	0	-	0	0
29	0	0	-	-	0
30	0	0	-	0	0
MEAN	1.6	0.4	-	1.9	4.1

OCTOBER 1996

1996 OCT.	Ri	Ric	Ac	Ar	Ai
1	0	0	-	0	0
2	0	0	-	-	0
3	0	0	-	0	0
4	0	0	-	-	0
5	0	0	-	-	0
6	0	0	-	-	0
7	0	0	-	-	0
8	0	0	-	0	0
9	0	0	-	-	0
10	0	0	-	0	0
11	0	0	-	-	0
12	0	0	-	0	0
13	0	0	-	-	0
14	0	0	-	0	0
15	0	0	-	-	0
16	0	0	-	0	0
17	0	0	-	0	0
18	0	0	-	-	0
19	0	0	-	0	0
20	0	0	-	-	0
21	0	0	-	0	0
22	0	0	-	0	0
23	0	0	-	0	0
24	0	0	-	0	0
25	9	0	-	0	0
26	10	10	-	0	0
27	9	0	-	-	4
28	0	0	-	0	0
29	0	0	-	-	0
30	0	0	-	0	0
31	0	0	-	-	0
MEAN	0.9	0.3	-	0.0	0.1

I - 7 (1996)

NOVEMBER 1996

1996 NOV.	Ri	Ric	Ac	Ar	Ai
1	0	0	-	-	0
2	0	0	-	0	0
3	0	0	-	-	0
4	0	0	-	0	0
5	0	0	-	-	0
6	0	0	-	0	0
7	0	0	-	-	0
8	0	0	-	0	0
9	8	0	-	0	0
10	12	0	-	-	7
11	14	12	-	0	1
12	11	11	-	-	13
13	11	0	-	45	36
14	0	0	-	0	6
15	20	12	-	41	36
16	40	24	-	-	10
17	18	9	-	-	10
18	9	10	-	45	54
19	10	12	-	-	9
20	9	10	-	-	14
21	18	11	-	0	7
22	24	16	-	-	93
23	44	24	-	1356	1265
24	45	27	-	-	1011
25	57	44	-	-	1509
26	52	31	-	-	1747
27	45	37	-	2933	2134
28	34	30	-	2737	1954
29	31	0	-	0	371
30	25	0	-	-	786
MEAN	17.9	10.7	-	477.1	369.1

DECEMBER 1996

1996 DEC.	Ri	Ric	Ac	Ar	Ai
1	23	9	-	-	308
2	12	0	-	0	0
3	0	0	-	0	0
4	0	0	-	0	0
5	0	0	-	-	0
6	0	0	-	0	0
7	0	0	-	0	0
8	13	0	-	-	0
9	17	14	-	-	61
10	16	16	-	-	46
11	28	0	-	0	36
12	29	0	-	-	30
13	32	0	-	-	36
14	27	0	-	-	415
15	29	12	-	-	307
16	24	12	-	271	280
17	28	12	-	0	90
18	32	27	-	-	184
19	23	23	-	-	15
20	15	0	-	-	82
21	21	10	-	-	100
22	21	0	-	-	61
23	11	0	-	-	46
24	12	10	-	-	0
25	0	0	-	-	0
26	0	0	-	-	0
27	0	0	-	0	0
28	0	0	-	0	0
29	0	0	-	-	0
30	0	0	-	0	0
31	0	0	-	0	0
MEAN	13.3	4.7	-	22.6	67.6