

I. SUNSPOTS

Sunspot Relative-Numbers and Sunspot Areas

Cooperating Observatories for Sunspot Relative-Numbers :

Altamira(Venezuela), Ankara, Athens(Nat.Obs.), Attikis(Nat.Obs.Greece), Auckland(New-Zealand), Bagdad, Berlin, Beyazit, Boom(Belgium), Boulder (USA), Bruxelles-Uccle(Belgium), Bruxelles-Univ., Bucarest, Buenos-Aires, Campinas(Capric.Obs.Brazil), Campinas, Catania, Chung-Li (Telecom.Taiwan), Cochabamba(Bolivia), Culgaroa(Australia), Dinant (Belgium), Dover(UK), Holloman(USA), Huancayo, Hurbanovo, Helwan, Inzernhagen(West Germ.), Jeddah, Kandilli, Kanzelhöhe, Kawaguchi-Saitama, Kayeme(Venezuela), Kiev, Kislovodsk, Langemark(Belgium), Learmonth(Australia), Locarno, Lunping(Taiwan), Madrid, Manila, Mercedes(Uruguay), Mie-Ken(OAA Japan), Nogales(Orion-Mexico), Nijmegen (Netherland), Oakland(USA), Potsdam, Palehua(Hawai), Prades(France), Puerto-Montt(Chile), Pulligny(France), Pyongyang(Korea), Quezon -City (Philippines), Rambouillet(France), Ramey(Puerto-Rico), Roma, Ronse-Renaix(Belgium), Roquetas-Tortosa, Rudolstadt(East-Germ.), San Miguel, Santiago, Sao de Francisco de Oliveira(Brazil), Sao Quirino(Brazil), Skalnaté-Pleso, Sonneberg(East-Germ.), Suwa-City, Taipei(Obs.), Taipei (Weather-Bureau), Tangsungsari(Indonesia), Tashkent, Tokyo-Mitaka, Tokyo(Nat.Science Museum), Trieste(Italy), Urawa-Saitama, Valencia(Spain), Vivv(Belgium).

The first column gives the definitive international Sunspot-Numbers for whole disk of the sun (R_{\odot}) established by the Sunspot Index Data Centre-Brussels on the basis of the observations of Locarno station as reference, the second that for the central zone (R_{IC}) on the basis of the observations of Athens(Nat.Obs.), Bruxelles-Uccle, Inzenhagen, Kawaguchi-Saitama, Kiev, Kislovodsk, Mie-Ken, Nijmegen, Rambouillet, Roquetas-Tortosa, Skalnaté-Pleso, Suwa-City, Taipei-Obs., Tashkent, Tokyo-Sc.Mus., Urawa-Saitama.

The diameter of the central Zone is half that of the sun's disk.

The sunspot-Areas A_C are determined at Catania, A_R at Roma and A_I are evaluated by the Sunspot Index Data Centre - Brussels on the observations of Athens(Nat.Obs.), Chung-Li, Helwan, Jeddah, Manila, Rambouillet, Roma, Taipei(Obs.) and Taipei(Weath.Bur.) rattached to Catania values by a monthly scaling factor.

The apparent total area of the umbra plus penumbra is uncorrected for foreshortening and expressed in millionths of the solar disk.

JANUARY 1985

1985 JAN.	R _I	R _{IC}	A _C	A _R	A _I
1	0	0	0	-	0
2	0	0	0	-	0
3	0	0	0	-	0
4	0	0	0	-	0
5	0	0	0	-	0
6	0	0	-	-	0
7	0	0	0	-	0
8	11	0	-	-	0
9	14	0	0	-	5
10	0	0	0	0	2
11	0	0	0	0	0
12	13	0	0	0	0
13	16	16	-	-	11
14	26	23	509	350	414
15	25	22	-	-	170
16	26	24	-	-	134
17	29	0	-	414	357
18	26	0	259	-	297
19	27	12	-	-	219
20	55	30	666	-	376
21	59	35	1095	-	635
22	50	14	296	-	505
23	39	11	508	-	439
24	33	14	296	-	348
25	20	10	73	-	244
26	9	0	0	-	0
27	8	0	0	-	0
28	0	0	0	0	0
29	9	0	0	0	0
30	0	0	0	-	0
31	17	12	31	9	14
MEAN	16.5	7.5	156.	86	134

FEBRUARY 1985

1985 FEB.	R _I	R _{IC}	A _C	A _R	A _I
1	18	14	36	-	33
2	22	14	306	-	165
3	25	10	301	-	195
4	22	0	-	-	215
5	20	0	84	-	72
6	16	0	0	-	34
7	7	0	0	0	2
8	16	0	0	-	2
9	24	12	68	-	114
10	19	11	-	-	103
11	13	0	78	89	55
12	10	9	63	76	44
13	11	10	-	-	47
14	13	11	58	-	46
15	11	10	47	-	40
16	10	10	21	-	20
17	12	0	0	-	5
18	10	0	0	-	2
19	19	13	-	102	34
20	27	10	-	70	189
21	27	9	233	408	249
22	25	0	-	235	161
23	16	12	-	223	127
24	11	11	148	-	117
25	11	10	95	175	83
26	11	11	106	-	82
27	10	8	74	-	71
28	9	0	63	134	66
29					
30					
31					
MEAN	15.9	7.0	85	151	85

MARCH 1985

1985 MAR.	R _I	R _{IC}	A _C	A _R	A _I
1	13	0	63	-	68
2	13	0	21	-	42
3	9	0	0	-	13
4	0	0	0	0	0
5	0	0	0	-	0
6	0	0	0	-	0
7	0	0	0	-	0
8	14	0	0	-	0
9	15	0	15	-	22
10	13	17	5	-	7
11	16	0	31	-	10
12	18	0	26	70	30
13	14	0	10	-	30
14	10	0	26	-	9
15	0	0	0	-	0
16	11	0	0	-	0
17	20	0	53	-	36
18	35	21	90	-	105
19	27	19	57	54	46
20	19	21	-	-	20
21	9	0	-	-	8
22	15	0	89	-	44
23	22	0	275	-	335
24	36	0	316	-	375
25	30	0	555	525	373
26	33	21	519	652	359
27	27	26	509	-	316
28	36	34	-	688	311
29	25	23	392	477	297
30	29	35	339	366	242
31	23	0	275	-	270
MEAN	17.2	7.0	131	354	109

APRIL 1985

1985 APR.	R _I	R _{IC}	A _C	A _R	A _I
1	25	0	158	191	322
2	21	0	121	-	183
3	23	0	94	-	205
4	17	16	95	118	113
5	23	16	126	-	117
6	19	14	68	-	88
7	11	10	21	-	26
8	9	0	-	-	0
9	9	11	0	-	17
10	0	0	0	-	0
11	0	0	0	0	0
12	0	0	0	-	0
13	0	0	0	0	0
14	10	0	-	-	0
15	0	0	-	-	0
16	0	0	-	0	0
17	0	0	0	-	0
18	10	0	-	0	45
19	9	0	0	0	12
20	11	0	0	0	0
21	17	0	58	-	123
22	31	0	614	859	822
23	28	0	1421	-	1352
24	30	31	1845	-	1737
25	37	38	1696	-	1705
26	37	41	1527	-	1596
27	31	41	1654	1814	1817
28	27	33	949	-	1331
29	26	0	742	-	992
30	26	0	551	-	948
31					
MEAN	16.2	8.4	470	298	452

MAY 1985

1985 MAY	R _I	R _{IC}	A _C	A _R	A _I
1	19	0	339	-	453
2	15	0	106	0	153
3	14	0	26	-	26
4	18	0	31	13	26
5	16	17	0	-	18
6	14	16	21	-	19
7	32	13	173	9	163
8	44	34	-	-	728
9	56	23	724	-	768
10	49	0	948	-	690
11	49	23	1425	1533	921
12	33	40	1018	-	776
13	32	34	1018	1400	725
14	32	41	742	1146	659
15	32	26	752	779	621
16	31	23	79	722	501
17	38	11	656	700	601
18	41	24	623	704	651
19	40	12	524	-	595
20	37	12	455	-	429
21	36	39	444	-	369
22	34	44	328	-	352
23	32	40	280	397	260
24	25	15	222	-	177
25	19	12	58	-	80
26	13	0	42	-	57
27	12	0	21	3	20
28	12	0	0	0	0
29	10	0	0	-	0
30	8	0	0	0	0
31	8	0	0	0	2
MEAN	27.5	16.1	369	494	350

JUNE 1985

1985 JUN.	R _I	R _{IC}	A _C	A _R	A _I
1	10	0	0	0	0
2	0	0	0	-	0
3	11	0	10	0	8
4	26	0	233	-	358
5	35	0	338	-	299
6	37	0	529	429	594
7	38	0	662	-	658
8	42	23	655	-	519
9	42	36	704	-	591
10	58	50	809	-	585
11	66	54	962	-	747
12	54	28	698	-	639
13	45	22	624	-	540
14	36	15	412	-	563
15	37	14	-	-	461
16	27	11	184	-	279
17	23	11	99	-	112
18	18	11	36	-	104
19	10	11	0	-	0
20	9	10	5	-	5
21	9	0	5	9	12
22	9	0	21	-	12
23	12	11	10	-	14
24	13	13	26	38	49
25	12	13	21	-	34
26	10	10	21	-	13
27	8	10	0	-	0
28	8	0	0	0	0
29	9	0	84	-	110
30	11	0	180	-	165
31					
MEAN	24.2	11.8	253	79	249

JULY 1985

1985 JUL.	R _I	R _{IC}	A _C	A _R	A _I
1	21	0	238	302	201
2	27	0	392	350	347
3	30	15	402	-	422
4	32	14	412	-	413
5	38	14	678	890	472
6	43	46	720	-	574
7	71	58	1393	-	956
8	67	58	1336	2195	1297
9	82	25	1537	2412	1483
10	82	18	1695	2243	1546
11	61	18	1133	-	1398
12	45	0	752	-	985
13	25	0	254	-	455
14	9	0	42	-	48
15	8	0	0	0	0
16	9	0	58	-	63
17	11	0	106	-	151
18	11	0	116	-	118
19	11	0	74	159	86
20	11	9	63	-	72
21	10	9	53	-	42
22	10	9	26	35	32
23	18	9	10	0	34
24	12	0	10	0	14
25	10	9	5	-	7
26	13	13	0	0	2
27	12	8	37	-	169
28	36	0	301	-	240
29	51	7	327	-	346
30	46	12	338	57	364
31	40	25	385	-	371
MEAN	30.7	12.1	416	665	410

AUGUST 1985

1985 AUG.	R _I	R _{IC}	A _C	A _R	A _I
1	35	27	296	391	283
2	25	31	269	270	230
3	27	24	243	-	173
4	27	25	179	-	165
5	20	11	158	239	144
6	14	0	159	-	132
7	12	0	63	-	101
8	12	0	42	-	80
9	17	0	47	29	40
10	12	0	31	35	44
11	12	10	5	-	18
12	12	8	0	0	0
13	0	0	0	0	0
14	0	0	0	-	0
15	0	0	0	-	0
16	14	0	0	-	0
17	12	0	0	-	0
18	11	11	15	-	11
19	12	0	0	0	0
20	10	0	26	-	45
21	9	0	0	0	0
22	0	0	0	0	0
23	0	0	0	-	0
24	0	0	0	0	0
25	0	0	0	-	0
26	8	0	0	0	0
27	8	0	0	0	2
28	10	0	5	0	1
29	9	0	0	0	0
30	8	0	0	0	0
31	9	10	-	0	3
MEAN	11.1	5.1	51	57	47

SEPTEMBER 1985

1985 SEP.	R _I	R _{IC}	A _C	A _R	A _I
1	7	8	0	-	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	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
9	0	0	0	0	0
10	0	0	0	0	0
11	7	0	0	0	0
12	0	0	0	0	0
13	9	0	0	0	2
14	9	0	53	134	37
15	9	0	105	-	46
16	9	0	-	207	54
17	8	8	-	255	40
18	10	10	53	111	41
19	10	11	-	111	43
20	9	8	21	-	16
21	8	8	5	0	5
22	7	0	0	-	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	-	0
26	0	0	0	0	0
27	0	0	0	0	0
28	0	0	0	0	0
29	7	0	0	-	0
30	7	8	0	0	0
31					
MEAN	3.9	2.3	9	36	9

OCTOBER 1985

1985 OCT.	R _I	R _{IC}	A _C	A _R	A _I
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	-	0
5	0	0	0	0	0
6	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	0	0
12	0	0	0	0	0
13	11	0	0	-	0
14	13	11	15	-	11
15	15	12	21	25	72
16	25	10	211	191	319
17	19	0	296	302	549
18	20	0	3818	461	1134
19	31	13	450	668	1019
20	44	25	582	-	1234
21	50	52	720	-	1113
22	72	70	1208	-	1551
23	67	72	1357	-	1779
24	63	61	1144	-	1470
25	55	29	805	-	1256
26	40	0	-	430	1006
27	27	0	445	-	544
28	14	0	-	-	217
29	11	0	0	-	141
30	0	0	-	-	0
31	0	0	0	-	0
MEAN	18.6	11.5	395	130	433

NOVEMBER 1985

1985 NOV.	R _I	R _{IC}	A _C	A _R	A _I
1	0	0	0	-	0
2	0	0	0	-	0
3	0	0	0	-	0
4	0	0	0	0	0
5	16	11	26	-	4
6	19	0	79	-	46
7	19	0	74	-	73
8	18	0	95	-	85
9	25	0	74	-	164
10	15	0	132	-	101
11	17	0	137	197	160
12	19	0	159	111	126
13	30	18	137	-	114
14	44	16	137	-	113
15	48	16	-	-	213
16	39	51	-	-	248
17	43	21	-	-	208
18	37	34	360	-	314
19	30	29	275	-	202
20	28	22	190	-	169
21	18	10	89	-	83
22	12	0	5	-	44
23	10	0	21	-	20
24	0	0	0	-	0
25	0	0	0	-	0
26	0	0	0	0	0
27	0	0	0	-	0
28	0	0	0	0	0
29	0	0	0	0	0
30	0	0	0	0	0
31					
MEAN	16.2	7.6	74	44	83

DECEMBER 1985

1985 DEC.	R _I	R _{IC}	A _C	A _R	A _I
1	0	0	0	-	0
2	16	0	0	0	0
3	13	0	0	0	0
4	0	0	0	-	0
5	18	12	0	-	14
6	26	12	41	-	54
7	15	0	-	0	13
8	12	0	-	-	6
9	16	0	31	0	3
10	15	0	42	-	47
11	18	0	42	-	89
12	19	0	58	83	73
13	18	14	42	-	92
14	30	11	63	-	106
15	47	23	159	-	147
16	66	38	317	267	312
17	63	31	328	395	249
18	52	29	243	-	273
19	40	16	79	-	96
20	24	0	37	6	58
21	17	0	10	-	24
22	11	0	0	-	0
23	0	0	0	0	0
24	0	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
31	0	0	0	-	0
MEAN	17.3	6.0	53	75	53