GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

E-MAIL: gdso@earthling.net
WEBSITE: www.cv-helios.net/gdso

SUNSPOT RESULTS FOR JULY 2002

All observations carried out by HOWARD BARNES .
Telescope : 76 mm refractor (f . l . 910 mm) k considered as 1 .
Observed by PROJECTION . Full disc diameter = 145 mm approx .
WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value ;
QC = Quality Count ; QC² = Squared Quality Count .
Q = Quietness [ie. steadiness] refer to Kiepenheuer scale .
S = Sharpness [ie. clarity] refer to Kiepenheuer scale .
T = Transparency where 1 = excellent , 5 = worthless .

DATE	UT	g	f	WN	p	s	SN	BX	CV	QC	QC²	Q	S	T	Ref.
01	2130	5	24	74	10	9	109	398	123	16	58	2.0	2.5	3.0	4113
02	2050	4	29	69	10	9	109	502	119	15	57	2.0	3.0	3.0	4114
03															
04	2240	7	43	113	18	17	197	885	168	26	102	1.5	2.5	3.0	4115
05	2120	8	36	116	14	14	154	653	130	25	89	2.0	3.0	3.0	4116
06															
07															
08															
09	2125	7	22	92	8	8	88	465	124	19	63	1.5	2.5	2.5	4117
10															
11															
12	2205	3	34	64	9	10	100	1169	54	11	49	2.0	2.5	3.5	4118
13	2055	3	45	75	13	15	145	1565	78	11	49	2.0	2.5	2.5	4119
14	2125	7	70	140	16	27	187	2181	83	17	59	1.5	2.0	2.5	4120
15	2110	9	68	158	14	23	163	2086	95	20	70	1.5	1.5	2.0	4121
16															
17	2125	6	105	165	19	30	220	3444	123	16	68	1.5	2.0	2.0	4122
18	2120	6	102	162	20	36	236	3143	186	20	88	1.0	2.0	2.0	4123
19															
20															
21															
22															
23	2100	11	98	208	22	23	243	2967	247	40	172	1.0	1.5	1.5	4124
24	2140	10	104	204	28	37	317	2942	232	35	143	1.5	2.5	2.5	4125
25	2130	10	134	234	33	39	369	3702	273	40	180	2.5	2.5	3.0	4126
26															
27															
28	2045	10	165	265	36	57	417	4772	325	41	183	2.0	2.0	2.0	4127
29	2110	11	174	284	35	49	399	5693	257	41	185	2.0	2.0	2.5	4128
30	2110	10	124	224	26	41	301	4176	243	34	156	2.5	2.5	2.0	4129
31	2100	10	110	210	23	30	260	3518	199	34	148	2.0	2.5	2.5	4130
Σ	——	137	1487	2857	354	474	4014	44261	3059	461	1919	32.0	41.5	45.0	——
NOBS	——	18	18	18	18	18	18	18	18	18	18	18	18	18	——
MNS	——	7.61	82.61	158.72	19.67	26.33	223.00	2458.94	169.94	25.61	106.61	1.78	2.31	2.50	——

MEAN WEIGHT = 0.4719 MEAN CONDITION = 2.1944 TRUNCATED WOLF NUMBER = 141.67

GEORGI DOBROVOLSKI SOLAR OBSERVATORY

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

JULY 2002

All observations carried out by HOWARD BARNES .
Telescope : 76 mm refractor (f . l . 910 mm) .
Observed by PROJECTION . Full disc diameter = 145 mm approx .
IS = Inter-Sol Index .
gr = number of multi-spot groups .
grfp = number of umbræ within penumbræ within the groups (gr) .
grf = number of non-penumbral spots within the groups (gr) .
efp = number of single penumbral spots .
ef = number of single non-penumbral spots .
Q = Quietness [ie. steadiness] refer to Kiepenheuer scale .
S = Sharpness [ie. clarity] refer to Kiepenheuer scale .
T = Transparency where 1 = excellent , 5 = worthless .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2130	28	4	15	8	0	1	2.0	2.5	3.0	4113
02	2050	33	4	20	9	0	0	2.0	3.0	3.0	4114
03											
04	2240	49	6	25	17	1	0	1.5	2.5	3.0	4115
05	2120	42	6	21	13	1	1	2.0	3.0	3.0	4116
06											
07											
08											
09	2125	26	4	13	6	1	2	1.5	2.5	2.5	4117
10											
11											
12	2205	36	2	23	10	1	0	2.0	2.5	3.5	4118
13	2055	47	2	29	15	1	0	2.0	2.5	2.5	4119
14	2125	74	4	42	25	1	2	1.5	2.0	2.5	4120
15	2110	72	4	45	18	0	5	1.5	1.5	2.0	4121
16											
17	2125	108	3	75	27	0	3	1.5	2.0	2.0	4122
18	2120	105	3	65	34	1	2	1.0	2.0	2.0	4123
19											
20											
21											
22											
23	2100	107	9	74	22	1	1	1.0	1.5	1.5	4124
24	2140	112	8	65	37	2	0	1.5	2.5	2.5	4125
25	2130	143	9	95	38	0	1	2.5	2.5	3.0	4126
26											
27											
28	2045	173	8	106	57	2	0	2.0	2.0	2.0	4127
29	2110	183	9	124	48	1	1	2.0	2.0	2.5	4128
30	2110	129	5	80	39	3	2	2.5	2.5	2.0	4129
31	2100	117	7	78	29	2	1	2.0	2.5	2.5	4130
Σ	——	1584	97	995	452	18	22	32.0	41.5	45.0	——
NOBS	——	18	18	18	18	18	18	18	18	18	——
MNS	——	88.00	5.39	55.28	25.11	1.00	1.22	1.78	2.31	2.50	——

GEORGI DOBROVOLSKI SOLAR OBSERVATORY

SUNSPOT CENSUS BY CLASSIFICATION FOR

JULY 2002

All observations carried out by HOWARD BARNES .
Telescope : 76 mm refractor (f . l . 910 mm) .
Observed by PROJECTION . Full disc diameter = 145 mm approx .
IF 2 OR MORE REGIONS ARE OF THE SAME CLASSIFICATION , THEN SUNSPOT COUNTS ARE SEPARATED BY SOLIDI (/) .

DATE	UT	A		B		C		D		E		F		G		H		J	
		g	f	g	f	g	f	g	f	g	f	g	f	g	f	g	f	g	f
01	2130	1	1	0	0	1	2	3	3/9/9	0	0	0	0	0	0	0	0	0	0
02	2050	0	0	0	0	1	2	3	4/11/12	0	0	0	0	0	0	0	0	0	0
03																			
04	2240	0	0	0	0	1	2	4	5/6/6/7	1	16	0	0	0	0	0	0	1	1
05	2120	1	1	0	0	3	2/2/3	2	8/9	1	10	0	0	0	0	0	0	1	1
06																			
07																			
08																			
09	2125	2	1/1	0	0	0	0	3	3/6/7	0	0	0	0	0	0	1	3	1	1
10																			
11																			
12	2205	0	0	0	0	1	2	0	0	0	0	1	31	0	0	0	0	1	1
13	2055	0	0	0	0	1	2	0	0	0	0	1	42	0	0	0	0	1	1
14	2125	2	1/1	2	3/3	1	3	0	0	0	0	1	58	0	0	0	0	1	1
15	2110	5	1/1/1/1/1	1	2	1	3	1	3	0	0	1	55	0	0	0	0	0	0
16																			
17	2125	3	1/1/1	0	0	0	0	0	0	1	22	1	78	0	0	0	0	1	2
18	2120	2	1/1	0	0	0	0	1	11	1	25	1	63	0	0	1	1	0	0
19																			
20																			
21																			
22																			
23	2100	1	1	1	2	2	2/2	3	3/5/8	1	6	2	27/41	0	0	0	0	1	1
24	2140	0	0	0	0	3	3/4/7	2	11/12	0	0	2	28/35	0	0	0	0	3	1/1/2
25	2130	1	1	0	0	2	3/4	4	2/5/11/17	1	24	2	21/46	0	0	0	0	0	0
26																			
27																			
28	2045	0	0	0	0	1	2	4	2/9/13/23	1	25	2	42/47	0	0	1	1	1	1
29	2110	1	1	0	0	3	2/4/5	1	2	1	18	3	39/48/52	0	0	0	0	2	1/2
30	2110	2	1/1	0	0	1	3	0	0	1	13	3	30/35/38	0	0	0	0	3	1/1/1
31	2100	1	1	1	5	3	2/3/4	0	0	0	0	3	29/30/34	0	0	0	0	2	1/1
TOTALS	——	22	22	5	15	25	73	31	242	9	159	23	949	0	0	3	5	19	22

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
16.1	3.6	18.2	22.6	6.6	16.8	0.0	2.2	13.9	137

NOBS = 18 $\overline{p / g}$ mean = 2.6345 $\overline{f / g}$ mean = 10.7029

$\overline{p} / \overline{g}$ mean = 2.5839 $\overline{f} / \overline{g}$ mean = 10.8540

GROUP COMPLEXITY INDEX (GCI) = 13.4380

GEORGI DOBROVOLSKI SOLAR OBSERVATORY

SMOOTHED RESULTS OF OBSERVED VALUES FOR THE LAST 12 MONTHS (OBTAINABLE)

USING THE WALDMEIER & BARNES-13 METHODS.

DATA BELOW ARE PRELIMINARY. FINAL VALUES WILL BE PUBLISHED IN THE GDSO ANNUAL REPORTS.

WALDMEIER METHOD

MONTH	g(S^W)	WN(S^W)	SN(S^W)	BX(S^W)	CV(S^W)	QC(S^W)	IS(S^W)
2001 FEBRUARY	7.78	125.52	148.96	1055.4	138.47	24.10	53.21
MARCH	7.95	128.81	155.32	1100.1	144.66	24.81	54.96
APRIL	8.28	134.01	162.38	1149.5	152.74	25.88	57.06
MAY	8.43	136.39	164.70	1186.5	156.86	26.32	58.00
JUNE	8.61	139.64	169.78	1235.4	161.27	26.92	59.59
JULY	8.80	142.89	175.64	1277.1	165.76	27.58	61.10
AUGUST	8.94	145.63	180.81	1319.6	169.94	28.18	62.47
SEPTEMBER	9.05	146.85	183.01	1317.4	171.83	28.54	62.71
OCTOBER	9.12	147.40	184.28	1298.2	172.46	28.78	62.72
NOVEMBER	9.34	151.25	189.72	1335.1	177.55	29.61	64.49
DECEMBER	9.39	151.90	190.62	1344.3	180.28	29.78	64.61
2002 JANUARY	9.32	152.68	193.33	1406.6	182.22	29.68	66.03

BARNES-13 METHOD

MONTH	g(S^{B13})	WN(S^{B13})	SN(S^{B13})	BX(S^{B13})	CV(S^{B13})	QC(S^{B13})	IS(S^{B13})
2001 FEBRUARY	7.73	125.05	148.49	1068.2	138.43	24.05	53.23
MARCH	7.90	127.24	152.53	1092.6	142.11	24.56	53.83
APRIL	8.15	130.80	157.98	1125.0	147.42	25.31	54.99
MAY	8.38	134.26	162.98	1158.1	152.64	26.01	56.30
JUNE	8.61	138.25	168.82	1199.3	158.70	26.79	58.13
JULY	8.84	142.43	175.08	1247.7	165.30	27.57	60.26
AUGUST	9.06	147.06	182.12	1309.5	172.55	28.43	62.82
SEPTEMBER	9.25	150.77	187.66	1355.9	178.21	29.16	64.86
OCTOBER	9.33	152.58	190.50	1376.9	180.94	29.57	65.89
NOVEMBER	9.42	154.21	193.31	1399.4	183.08	29.96	66.78
DECEMBER	9.45	154.58	194.69	1404.9	183.77	30.15	66.82
2002 JANUARY	9.42	154.17	195.39	1412.4	183.21	30.13	66.66