



GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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SUNSPOT RESULTS FOR APRIL 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 .

Q = Quietness [ie. steadiness] refer to Kiepenheuer scale .

S = Sharpness [ie. clarity] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value ;

QC = Quality Count ; QC² = Squared Quality Count .

DATE	UT	g	f	WN	p	s	SN	BX	CV	QC	QC ²	Q	S	T	Ref.
01	2050	9	102	192	19	50	240	2486	219	30	124	1.5	2.0	1.5	4075
02	2140	10	83	183	22	36	256	1971	212	32	130	2.0	2.5	2.5	4076
03	2150	9	79	169	19	29	219	2160	212	34	148	2.0	2.0	2.5	4077
04															
05															
06	2025	12	74	194	22	28	248	2188	261	37	149	2.0	2.0	2.0	4078
07															
08															
09	2100	11	78	188	25	31	281	1630	256	41	169	1.5	2.0	2.0	4079
10	2115	11	76	186	27	28	298	1565	279	41	171	2.0	2.5	2.5	4080
11	2115	13	96	226	27	42	312	2171	270	49	209	1.5	2.0	2.0	4081
12															
13															
14															
15	2105	10	73	173	21	31	241	1641	218	34	130	2.0	2.0	2.0	4082
16	2110	10	53	153	13	21	151	1152	166	28	98	1.5	2.0	2.5	4083
17	2055	7	56	126	12	22	142	1240	131	22	82	1.5	1.5	2.0	4084
18															
19															
20	2100	8	46	126	13	24	154	749	117	25	89	1.0	1.5	2.0	4085
21															
22															
23															
24															
25															
26															
27															
28	2040	5	30	80	7	14	84	462	77	17	61	3.0	3.0	3.0	4086
29	2050	9	27	117	10	14	114	325	106	23	69	1.5	1.5	2.0	4087
30	2055	10	27	127	10	13	113	339	108	26	74	2.0	2.5	2.5	4088
31	—														
Σ	—	134	900	2240	247	383	2853	20079	2632	439	1703	25.0	29.0	31.0	—
NOBS	—	14	14	14	14	14	14	14	14	14	14	14	14	14	—
MNS	—	9.57	64.29	160.00	17.64	27.36	203.79	1434.21	188.00	31.36	121.64	1.79	2.07	2.21	—

MEAN WEIGHT = 0.5099

MEAN CONDITION = 2.0238

TRUNCATED WOLF NUMBER = 140.07



GEORGI DOBROVOLSKI SOLAR OBSERVATORY

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR APRIL 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 .

Q = Quietness [ie. steadiness] refer to Kiepenheuer scale .

S = Sharpness [ie. clarity] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbræ within penumbrae 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 .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2050	110	8	52	49	0	1	1.5	2.0	1.5	4075
02	2140	91	8	47	34	0	2	2.0	2.5	2.5	4076
03	2150	87	8	49	29	1	0	2.0	2.0	2.5	4077
04											
05											
06	2025	81	7	44	25	2	3	2.0	2.0	2.0	4078
07											
08											
09	2100	87	9	45	31	2	0	1.5	2.0	2.0	4079
10	2115	85	9	47	27	1	1	2.0	2.5	2.5	4080
11	2115	107	11	53	41	1	1	1.5	2.0	2.0	4081
12											
13											
14											
15	2105	81	8	40	31	2	0	2.0	2.0	2.0	4082
16	2110	58	5	29	19	3	2	1.5	2.0	2.5	4083
17	2055	61	5	33	21	1	1	1.5	1.5	2.0	4084
18											
19											
20	2100	53	7	22	23	0	1	1.0	1.5	2.0	4085
21											
22											
23											
24											
25											
26											
27											
28	2040	35	5	16	14	0	0	3.0	3.0	3.0	4086
29	2050	33	6	12	12	1	2	1.5	1.5	2.0	4087
30	2055	33	6	11	12	3	1	2.0	2.5	2.5	4088
31	—										
Σ	—	1002	102	500	368	17	15	25.0	29.0	31.0	—
NOBS	—	14	14	14	14	14	14	14	14	14	—
MNS	—	71.57	7.29	35.71	26.29	1.21	1.07	1.79	2.07	2.21	—



GEORGI DOBROVOLSKI SOLAR OBSERVATORY

SUNSPOT CENSUS BY CLASSIFICATION FOR APRIL 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	2050	1	1	3	2/2/2	1	7	1	12	2	21/29	1	26	0	0	0	0	0	0
02	2140	2	1/1	1	3	2	3/4	1	13	2	14/25	1	17	0	0	0	0	1	2
03	2150	0	0	1	3	3	2/3/4	1	12	1	11	2	19/24	0	0	0	0	1	1
04																			
05																			
06	2025	3	1/1/1	0	0	2	2/6	2	7/8	0	0	2	15/23	1	8	0	0	2	1/1
07																			
08																			
09	2100	0	0	1	5	1	5	3	3/7/12	4	3/5/15/21	0	0	0	0	0	0	2	1/1
10	2115	1	1	0	0	1	2	6	3/4/6/6/12/17	1	20	1	4	0	0	0	0	1	1
11	2115	1	1	0	0	3	3/5/6	5	4/5/10/11/13	1	8	2	5/24	0	0	0	0	1	1
12																			
13																			
14																			
15	2105	0	0	0	0	3	2/3/7	1	4	3	9/21/23	0	0	0	0	0	0	3	1/1/2
16	2110	2	1/1	0	0	2	4/5	1	2	2	18/19	0	0	0	0	0	0	3	1/1/1
17	2055	1	1	0	0	0	0	3	3/9/13	1	27	0	0	0	0	0	0	2	1/2
18																			
19																			
20	2100	1	1	1	2	3	3/3/4	2	11/13	1	9	0	0	0	0	0	0	0	0
21																			
22																			
23																			
24																			
25																			
26																			
27																			
28	2040	0	0	1	2	1	5	3	5/6/12	0	0	0	0	0	0	0	0	0	0
29	2050	2	1/1	1	3	3	2/4/5	2	3/7	0	0	0	0	0	0	0	0	1	1
30	2055	1	1	0	0	5	3/3/3/4/6	1	4	0	0	0	0	0	0	0	0	3	1/1/1
31	—																		
TOTALS	—	15	15	9	24	30	118	32	257	18	298	9	157	1	8	0	0	20	23

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
11.2	6.7	22.4	23.9	13.4	6.7	0.7	0.0	14.9	134

NOBS = 14 $\bar{p/g}$ mean = 1.8079 $\bar{f/g}$ mean = 6.7152
 $\bar{p/g}$ mean = 1.8433 $\bar{f/g}$ mean = 6.7164

GROUP COMPLEXITY INDEX (GCI) = 8.5597



**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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2000 NOVEMBER	8.24	138.20	162.24	1314.1	149.88	25.83	61.64
DECEMBER	8.21	136.50	162.20	1276.9	148.25	25.71	60.22
2001 JANUARY	8.05	131.46	155.91	1154.6	143.18	25.02	56.64
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

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2000 NOVEMBER	7.94	132.78	155.82	1213.8	144.21	24.92	59.09
DECEMBER	7.82	129.35	152.48	1154.3	141.35	24.48	56.77
2001 JANUARY	7.75	126.55	149.53	1095.9	139.05	24.16	54.60
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