



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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## SUNSPOT RESULTS FOR MARCH 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 ; QC<sup>2</sup> = Squared Quality Count .

DATE	UT	g	f	WN	p	s	SN	BX	CV	QC	QC <sup>2</sup>	Q	S	T	Ref.
01															
02	2025	8	39	119	12	18	138	858	90	21	77	2.0	2.5	2.5	4062
03															
04															
05	2030	11	47	157	12	28	148	1226	138	27	107	1.5	1.5	2.0	4063
06															
07															
08															
09															
10															
11															
12															
13															
14															
15															
16	2040	6	58	118	14	22	162	1636	163	24	106	2.0	2.5	2.5	4064
17	2100	6	49	109	12	19	139	1021	133	24	100	2.0	2.5	2.5	4065
18	2030	6	51	111	11	23	133	1033	104	22	88	2.0	2.5	2.5	4066
19	2055	8	40	120	10	20	120	869	99	24	84	2.5	2.5	2.5	4067
20	2100	9	35	125	12	9	129	870	130	28	98	2.0	3.0	3.0	4068
21	2100	9	36	126	14	11	151	787	160	28	102	2.0	2.5	2.5	4069
22	2055	9	44	134	15	21	171	938	173	31	125	2.0	2.0	2.5	4070
23	2050	10	48	148	16	22	182	789	154	30	104	2.0	2.0	2.5	4071
24															
25	2125	7	52	122	20	20	220	1044	159	26	102	1.5	2.0	2.5	4072
26	2130	8	53	133	17	17	187	1092	153	27	99	2.0	3.0	3.5	4073
27															
28	2030	7	55	125	19	22	212	1157	193	27	111	1.5	1.5	2.0	4074
29															
30															
31															
Σ	—	104	607	1647	184	252	2092	13320	1849	339	1303	25.0	30.0	33.0	—
NOBS	—	13	13	13	13	13	13	13	13	13	13	13	13	13	—
MNS	—	8.00	46.69	126.69	14.15	19.38	160.92	1024.62	142.23	26.08	100.23	1.92	2.31	2.54	—

MEAN WEIGHT = 0.4534

MEAN CONDITION = 2.2564

TRUNCATED WOLF NUMBER = 110.08



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR MARCH 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											
02	2025	44	5	21	15	0	3	2.0	2.5	2.5	4062
03											
04											
05	2030	52	5	19	22	0	6	1.5	1.5	2.0	4063
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16	2040	64	6	36	22	0	0	2.0	2.5	2.5	4064
17	2100	55	6	30	19	0	0	2.0	2.5	2.5	4065
18	2030	56	5	27	23	1	0	2.0	2.5	2.5	4066
19	2055	46	6	19	19	1	1	2.5	2.5	2.5	4067
20	2100	42	7	24	9	2	0	2.0	3.0	3.0	4068
21	2100	42	6	23	10	2	1	2.0	2.5	2.5	4069
22	2055	51	7	22	20	1	1	2.0	2.0	2.5	4070
23	2050	56	8	25	21	1	1	2.0	2.0	2.5	4071
24											
25	2125	58	6	31	20	1	0	1.5	2.0	2.5	4072
26	2130	61	8	36	17	0	0	2.0	3.0	3.5	4073
27											
28	2030	61	6	32	22	1	0	1.5	1.5	2.0	4074
29											
30											
31											
Σ	—	688	81	345	239	10	13	25.0	30.0	33.0	—
NOBS	—	13	13	13	13	13	13	13	13	13	—
MNS	—	52.92	6.23	26.54	18.38	0.77	1.00	1.92	2.31	2.54	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR MARCH 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																			
02	2025	3	1/1/1	1	2	2	3/5	1	9	0	0	1	17	0	0	0	0	0	0
03																			
04																			
05	2030	6	6x1	1	2	1	3	1	7	0	0	2	13/16	0	0	0	0	0	0
06																			
07																			
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16	2040	0	0	0	0	1	2	2	4/12	1	10	1	28	0	0	0	0	1	2
17	2100	0	0	0	0	2	2/3	2	6/11	2	13/14	0	0	0	0	0	0	0	0
18	2030	0	0	0	0	2	3/7	1	12	2	13/15	0	0	0	0	0	0	1	1
19	2055	1	1	1	3	2	2/7	1	8	1	12	0	0	1	6	0	0	1	1
20	2100	0	0	1	2	1	2	2	2/9	1	12	0	0	1	4	0	0	3	1/1/2
21	2100	1	1	0	0	0	0	4	3/3/4/10	1	11	0	0	0	0	0	0	3	1/1/2
22	2055	1	1	1	2	1	2	2	4/7	3	6/8/13	0	0	0	0	0	0	1	1
23	2050	1	1	1	2	2	7/9	3	5/5/6	1	10	0	0	0	0	0	0	2	1/2
24																			
25	2125	0	0	0	0	1	3	4	2/9/9/11	1	17	0	0	0	0	0	0	1	1
26	2130	0	0	0	0	2	2/3	3	4/11/13	1	16	0	0	0	0	0	0	2	2/2
27																			
28	2030	0	0	0	0	1	2	3	7/9/12	2	7/17	0	0	0	0	0	0	1	1
29																			
30																			
31																			
TOTALS	—	13	13	6	13	18	67	29	214	16	194	4	74	2	10	0	0	16	22

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
12.5	5.8	17.3	27.9	15.4	3.8	1.9	0.0	15.4	104

NOBS = 13

$\bar{p}/\bar{g}$  mean = 1.8354

$\bar{f}/\bar{g}$  mean = 6.1515

$\bar{p}/\bar{g}$  mean = 1.7692

$\bar{f}/\bar{g}$  mean = 5.8365

GROUP COMPLEXITY INDEX (GCI) = 7.6058



**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 OCTOBER	8.39	142.73	165.93	1381.5	153.81	26.46	64.80
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

**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 OCTOBER	8.16	138.10	161.29	1299.4	148.64	25.68	62.37
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