



# Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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## SUNSPOT RESULTS FOR MAY 2004

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 ; QC<sup>2</sup> = 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	QC <sup>2</sup>	Q	S	T	Ref.
01															
02															
03															
04															
05	2145	2	15	35	5	5	55	270	62	8	32	1.5	2.0	2.5	4399-6
06	2155	2	4	24	1	3	13	24	13	5	13	1.5	2.0	2.5	4400-6
07															
08															
09															
10															
11															
12															
13															
14															
15	2140	5	30	80	8	9	89	548	81	15	49	2.0	2.5	2.0	4401-6
16	2205	6	31	91	11	10	120	615	111	18	60	2.0	2.5	2.0	4402-6
17	2225	6	30	90	10	10	110	527	96	18	58	1.5	2.0	2.0	4403-6
18	2240	6	27	87	10	10	110	532	88	17	53	1.5	2.5	2.0	4404-6
19															
20	2225	5	19	69	7	10	80	301	74	16	54	1.5	2.0	2.0	4405-6
21															
22															
23	2155	5	37	87	8	19	99	830	73	15	51	1.5	1.5	2.0	4406-6
24															
25	2235	3	34	64	6	15	75	874	52	9	33	2.0	2.0	2.0	4407-6
26	2250	2	28	48	7	12	82	712	42	7	29	1.5	1.5	2.5	4408-6
27															
28															
29															
30															
31															
TOTALS	—	42	255	675	73	103	833	5233	692	128	432	16.5	20.5	21.5	—
NOBS	—	10	10	10	10	10	10	10	10	10	10	10	10	10	—
MNS	—	4.20	25.50	67.50	7.30	10.30	83.30	523.30	69.20	12.80	43.20	1.65	2.05	2.15	—

MEAN WEIGHT = 0.5159

MEAN CONDITION = 1.9500

TRUNCATED WOLF NUMBER = 66.30

\* Stated times approximate Co-ordinated Universal Time / Temps Universel Coordonné (UTC).

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## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR MAY 2004

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											
02											
03											
04											
05	2145	17	2	10	5	0	0	1.5	2.0	2.5	4399-6
06	2155	6	2	1	3	0	0	1.5	2.0	2.5	4400-6
07											
08											
09											
10											
11											
12											
13											
14											
15	2140	33	3	19	9	2	0	2.0	2.5	2.0	4401-6
16	2205	34	3	18	10	3	0	2.0	2.5	2.0	4402-6
17	2225	35	5	19	10	1	0	1.5	2.0	2.0	4403-6
18	2240	31	4	15	10	2	0	1.5	2.5	2.0	4404-6
19											
20	2225	23	4	8	10	1	0	1.5	2.0	2.0	4405-6
21											
22											
23	2155	40	3	16	19	2	0	1.5	1.5	2.0	4406-6
24											
25	2235	35	1	17	15	2	0	2.0	2.0	2.0	4407-6
26	2250	29	1	15	12	1	0	1.5	1.5	2.5	4408-6
27											
28											
29											
30											
31											
TOTALS	—	283	28	138	103	14	0	16.5	20.5	21.5	—
NOBS	—	10	10	10	10	10	10	10	10	10	—
MNS	—	28.30	2.80	13.80	10.30	1.40	0.00	1.65	2.05	2.15	—

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## SUNSPOT CENSUS BY CLASSIFICATION FOR

### MAY 2004

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																			
03																			
04																			
05	2145	0	0	0	0	0	0	2	3/12	0	0	0	0	0	0	0	0	0	0
06	2155	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
07																			
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15	2140	0	0	0	0	1	3	2	7/18	0	0	0	0	0	0	0	0	2	1/1
16	2205	0	0	0	0	0	0	3	5/10/13	0	0	0	0	0	0	0	0	3	1/1/1
17	2225	0	0	0	0	2	2/5	2	4/16	0	0	0	0	0	0	0	0	2	1/2
18	2240	0	0	0	0	1	3	2	7/13	0	0	0	0	0	0	0	0	3	1/1/2
19																			
20	2225	0	0	0	0	2	3/3	2	5/7	0	0	0	0	0	0	0	0	1	1
21																			
22																			
23	2155	0	0	0	0	2	3/4	0	0	1	28	0	0	0	0	0	0	2	1/1
24																			
25	2235	0	0	0	0	0	0	0	0	1	32	0	0	0	0	0	0	2	1/1
26	2250	0	0	0	0	0	0	0	0	1	27	0	0	0	0	0	0	1	1
27																			
28																			
29																			
30																			
31																			
TOTALS	—	0	0	1	2	9	28	13	120	3	87	0	0	0	0	0	0	16	18

#### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	2.4	21.4	31.0	7.1	0.0	0.0	0.0	38.1	42

NOBS = 10

$\overline{p/g}$  mean = 1.8267

$\overline{f/g}$  mean = 6.6700

$\overline{p/g}$  mean = 1.7381

$\overline{f/g}$  mean = 6.0714

GROUP COMPLEXITY INDEX (GCI) = 7.8095

# 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	$g(S^w)$	$WN(S^w)$	$SN(S^w)$	$BX(S^w)$	$CV(S^w)$	$QC(S^w)$	$IS(S^w)$
2002 DECEMBER	6.87	113.99	143.55	1054.5	134.41	21.39	50.07
2003 JANUARY	6.70	111.33	139.67	1025.9	131.02	20.89	49.03
FEBRUARY	6.53	106.90	133.21	945.1	126.49	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	699.9	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.2	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.1	85.40	13.74	32.00

### BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2002 DECEMBER	6.88	110.96	137.75	957.8	130.22	21.17	46.90
2003 JANUARY	6.54	103.97	127.63	856.1	121.96	19.99	43.03
FEBRUARY	6.23	98.09	119.76	784.5	115.98	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.7	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.1	82.96	13.34	30.79