



# Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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## SUNSPOT RESULTS FOR NOVEMBER 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	2015	6	45	105	14	7	147	1406	140	22	92	1.5	2.0	2.0	4467-2
02															
03	1955	4	54	94	9	11	101	1584	126	18	84	1.5	2.0	2.0	4468-2
04	2030	3	42	72	10	9	109	1171	113	12	56	1.5	2.5	2.5	4469-2
05	2000	3	49	79	9	7	97	1188	101	14	68	1.5	2.0	2.5	4470-2
06															
07	2000	3	50	80	11	12	122	1308	120	15	77	1.5	3.0	2.5	4471-2
08															
09															
10															
11															
12															
13															
14															
15															
16															
17															
18	2030	3	6	36	4	1	41	146	42	8	24	2.0	3.0	4.0	4472-3
19															
20															
21															
22															
23															
24	1950	4	8	48	4	2	42	209	38	9	21	2.0	2.5	2.5	4473-3
25															
26															
27															
28															
29	2210	3	8	38	4	1	41	189	72	9	29	2.0	2.5	2.0	4474-3
30															
31	—														
TOTALS	—	29	262	552	65	50	700	7201	752	107	451	13.5	19.5	20.0	—
NOBS	—	8	8	8	8	8	8	8	8	8	8	8	8	8	—
MNS	—	3.62	32.75	69.00	8.12	6.25	87.50	900.12	94.00	13.38	56.38	1.69	2.44	2.50	—

MEAN WEIGHT = 0.4631

MEAN CONDITION = 2.2083

TRUNCATED WOLF NUMBER = 69.00

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

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## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR NOVEMBER 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	2015	49	4	36	7	2	0	1.5	2.0	2.0	4467-2
02											
03	1955	58	4	43	11	0	0	1.5	2.0	2.0	4468-2
04	2030	44	2	32	9	1	0	1.5	2.5	2.5	4469-2
05	2000	52	3	42	7	0	0	1.5	2.0	2.5	4470-2
06											
07	2000	53	3	38	12	0	0	1.5	3.0	2.5	4471-2
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18	2030	7	1	3	1	2	0	2.0	3.0	4.0	4472-3
19											
20											
21											
22											
23											
24	1950	10	2	4	2	2	0	2.0	2.5	2.5	4473-3
25											
26											
27											
28											
29	2210	9	1	5	1	2	0	2.0	2.5	2.0	4474-3
30											
31	—										
TOTALS	—	282	20	203	50	9	0	13.5	19.5	20.0	—
NOBS	—	8	8	8	8	8	8	8	8	8	—
MNS	—	35.25	2.50	25.38	6.25	1.12	0.00	1.69	2.44	2.50	—

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## SUNSPOT CENSUS BY CLASSIFICATION FOR NOVEMBER 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	2015	0	0	0	0	0	0	3	3/4/5	0	0	1	31	0	0	0	0	2	1/1
02																			
03	1955	0	0	0	0	0	0	3	2/4/14	0	0	1	34	0	0	0	0	0	0
04	2030	0	0	0	0	0	0	1	19	0	0	1	22	0	0	0	0	1	1
05	2000	0	0	0	0	0	0	2	4/28	0	0	1	17	0	0	0	0	0	0
06																			
07	2000	0	0	0	0	0	0	1	9	1	30	1	11	0	0	0	0	0	0
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18	2030	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	2	1/1
19																			
20																			
21																			
22																			
23																			
24	1950	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	3	1/1/3
25																			
26																			
27																			
28																			
29	2210	0	0	0	0	0	0	1	6	0	0	0	0	0	0	1	1	1	1
30																			
31	—																		
<b>TOTALS</b>	—	0	0	0	0	1	3	12	102	1	30	5	115	0	0	1	1	9	11
<b>REGIONAL PERCENTAGES</b>																			
A	B	C	D	E	F	G	H	J	SIGMAg										
0.0	0.0	3.4	41.4	3.4	17.2	0.0	3.4	31.0	29										
NOBS = 8		$\overline{p/g}$ mean = 2.2812				$\overline{f/g}$ mean = 9.3333													
		$\overline{p/g}$ mean = 2.2414				$\overline{f/g}$ mean = 9.0345													
GROUP COMPLEXITY INDEX (GCI) = 11.2759																			

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## 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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 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	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48
MARCH	3.56	58.70	70.01	537.4	70.74	11.30	25.59
APRIL	3.53	57.59	70.08	508.8	70.66	11.20	24.77
MAY	3.57	57.74	71.00	503.5	71.37	11.34	24.58

### BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 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	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88
MARCH	3.61	57.85	69.17	492.8	69.40	11.33	24.29
APRIL	3.58	57.27	68.92	486.3	68.87	11.18	23.97
MAY	3.57	57.45	69.47	497.3	69.37	11.18	24.20