Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR DECEMBER 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 ; 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															
02															
03															
04															
05	2145	3	3	33	3	0	30	111	30	6	12	1.5	2.5	2.5	4475-4
06															
07	2050	1	1	11	1	0	10	37	10	2	4	2.0	3.5	4.0	4476-4
08	2130	1	1	11	1	0	10	37	10	2	4	2.0	3.0	3.0	4477-4
09															
10															
11															
12															
13															
14															
15															
16	2050	1	2	12	2	0	20	36	25	4	16	1.5	2.5	2.5	4478-4
17															
18															
19															
20															
21	2100	2	15	35	3	8	38	341	34	8	34	1.5	2.5	2.5	4479-4
22															
23	2015	2	14	34	7	4	74	336	57	9	41	1.5	2.5	2.5	4480-4
24															
25															
26	1955	1	1	11	1	0	10	37	10	2	4	1.5	2.0	2.0	4481-4
27	1955	1	1	11	1	0	10	37	10	2	4	1.0	2.0	2.5	4482-4
28															
29															
30															
31															
TOTALS	——	12	38	158	19	12	202	972	186	35	119	12.5	20.5	21.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	8	8	8	8	——
MNS	——	1.50	4.75	19.75	2.38	1.50	25.25	121.50	23.25	4.38	14.88	1.56	2.56	2.69	——

MEAN WEIGHT = 0.4535 MEAN CONDITION = 2.2708 TRUNCATED WOLF NUMBER = 19.75

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

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SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

DECEMBER 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	3	0	0	0	3	0	1.5	2.5	2.5	4475-4
06											
07	2050	1	0	0	0	1	0	2.0	3.5	4.0	4476-4
08	2130	1	0	0	0	1	0	2.0	3.0	3.0	4477-4
09											
10											
11											
12											
13											
14											
15											
16	2050	3	1	2	0	0	0	1.5	2.5	2.5	4478-4
17											
18											
19											
20											
21	2100	17	2	7	8	0	0	1.5	2.5	2.5	4479-4
22											
23	2015	16	2	10	4	0	0	1.5	2.5	2.5	4480-4
24											
25											
26	1955	1	0	0	0	1	0	1.5	2.0	2.0	4481-4
27	1955	1	0	0	0	1	0	1.0	2.0	2.5	4482-4
28											
29											
30											
31											
TOTALS	——	43	5	19	12	7	0	12.5	20.5	21.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	——
MNS	——	5.38	0.62	2.38	1.50	0.88	0.00	1.56	2.56	2.69	——

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SUNSPOT CENSUS BY CLASSIFICATION FOR

DECEMBER 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	0	0	0	0	0	0	0	0	0	0	3	1/1/1
06																			
07	2050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08	2130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16	2050	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
17																			
18																			
19																			
20																			
21	2100	0	0	0	0	1	2	0	0	1	13	0	0	0	0	0	0	0	0
22																			
23	2015	0	0	0	0	0	0	1	2	1	12	0	0	0	0	0	0	0	0
24																			
25																			
26	1955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
27	1955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
28																			
29																			
30																			
31																			
TOTALS	——	0	0	0	0	1	2	2	4	2	25	0	0	0	0	0	0	7	7

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	0.0	8.3	16.7	16.7	0.0	0.0	0.0	58.3	12

NOBS = 8 $\overline{p / g}$ mean = 1.5000 $\overline{f / g}$ mean = 2.6875

$\overline{p} / \overline{g}$ mean = 1.5833 $\overline{f} / \overline{g}$ mean = 3.1667

GROUP COMPLEXITY INDEX (GCI) = 4.7500

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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 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
JUNE	3.47	56.82	70.02	515.1	70.41	11.12	24.53

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 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
JUNE	3.52	57.42	69.76	520.6	69.89	11.11	24.67

ERRATA: BX observed values for March & April 2004 should read 620.73 & 271.36 respectively, hence, the BX smoothed values (above) are corrected.

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OBSERVED ANNUAL MEANS OF SUNSPOT DATA FOR

2004

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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 .

g	=	3.36
f	=	22.86
Wolf Number	=	56.43
Truncated Wolf Number	=	52.00
p	=	6.17
s	=	8.15
Pettisindex	=	69.82
Beckindex	=	546.75
Classification Value	=	69.75
Quality Count	=	10.87
Squared Quality Count	=	40.78
Inter-Sol Index	=	25.23
Mean Weight	=	0.4888
Q	=	1.69
S	=	2.31
T	=	2.29
Mean Condition	=	2.0926
Total Number of Observations	=	126