



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR **DECEMBER 2006**

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? = 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 .

Stated times (UT) approximate Co-ordinated Universal Time / Temps Universel Coordonne (UTC).

DATE	UT	g	f	WN	p	s	SN	BX	CV	QC	QC?	Q	S	T	Ref.
01	2030	2	14	34	4	6	46	252	50	8	32	2.0	3.5	2.5	4742-0
02															
03															
04															
05	1940	3	14	44	5	5	55	375	69	9	29	1.5	2.0	2.0	4743-0
06	2040	3	12	42	5	2	52	235	81	10	36	2.0	3.0	3.0	4744-0
07															
08															
09	1910	1	7	17	1	1	11	56	38	3	9	2.0	2.5	2.0	4745-0
10	1940	2	15	35	1	9	19	112	41	5	13	1.5	2.0	2.0	4746-0
11															
12															
13															
14	1910	1	11	21	1	0	10	484	37	3	9	1.5	2.5	3.0	4747-1
15															
16															
17															
18															
19															
20															
21	1955	0	0	0	0	0	0	0	0	0	0	2.0	2.5	2.0	4748-1
22	1950	0	0	0	0	0	0	0	0	0	0	1.5	2.5	2.5	4749-1
23															
24															
25															
26															
27	2025	1	1	11	0	1	1	4	1	1	1	1.5	2.0	2.0	4750-1
28															
29															
30															
31	1935	2	5	25	2	1	21	98	15	5	13	1.0	2.0	2.0	4751-1
TOTALS	—	15	79	229	19	25	215	1616	332	44	142	16.5	24.5	23.0	—
NOBS	—	10	10	10	10	10	10	10	10	10	10	10	10	10	—
MNS	—	1.50	7.90	22.90	1.90	2.50	21.50	161.60	33.20	4.40	14.20	1.65	2.45	2.30	—

MEAN WEIGHT = 0.4800

MEAN CONDITION = 2.1333

TRUNCATED WOLF NUMBER = 20.60

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SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR DECEMBER 2006

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 umbr? within penumbr? 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	2030	16	2	8	6	0	0	2.0	3.5	2.5	4742-0
02											
03											
04											
05	1940	16	2	8	5	1	0	1.5	2.0	2.0	4743-0
06	2040	14	2	9	2	1	0	2.0	3.0	3.0	4744-0
07											
08											
09	1910	8	1	6	1	0	0	2.0	2.5	2.0	4745-0
10	1940	17	2	6	9	0	0	1.5	2.0	2.0	4746-0
11											
12											
13											
14	1910	12	1	11	0	0	0	1.5	2.5	3.0	4747-1
15											
16											
17											
18											
19											
20											
21	1955	0	0	0	0	0	0	2.0	2.5	2.0	4748-1
22	1950	0	0	0	0	0	0	1.5	2.5	2.5	4749-1
23											
24											
25											
26											
27	2025	1	0	0	0	0	1	1.5	2.0	2.0	4750-1
28											
29											
30											
31	1935	7	2	4	1	0	0	1.0	2.0	2.0	4751-1
TOTALS	—	91	12	52	24	2	1	16.5	24.5	23.0	—
NOBS	—	10	10	10	10	10	10	10	10	10	—
MNS	—	9.10	1.20	5.20	2.40	0.20	0.10	1.65	2.45	2.30	—

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SUNSPOT CENSUS BY CLASSIFICATION FOR

DECEMBER 2006

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	2030	0	0	0	0	0	0	2	4/10	0	0	0	0	0	0	0	0	0	0
02																			
03																			
04																			
05	1940	0	0	0	0	0	0	1	9	0	0	0	0	0	0	1	4	1	1
06	2040	0	0	0	0	0	0	2	2/9	0	0	0	0	0	0	0	0	1	1
07																			
08																			
09	1910	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0
10	1940	0	0	1	2	1	13	0	0	0	0	0	0	0	0	0	0	0	0
11																			
12																			
13																			
14	1910	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0
15																			
16																			
17																			
18																			
19																			
20																			
21	1955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23																			
24																			
25																			
26																			
27	2025	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28																			
29																			
30																			
31	1935	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	2
TOTALS	—	1	1	1	2	3	23	5	34	0	0	0	0	0	0	2	15	3	4
REGIONAL PERCENTAGES																			
A	B	C	D	E	F	G	H	J	Σg										
6.7	6.7	20.0	33.3	0.0	0.0	0.0	13.3	20.0	15										
NOBS = 10				$\overline{p/g}$ mean = 1.1042						$\overline{f/g}$ mean = 5.5833									
				$\overline{p/g}$ mean = 2.1667						$\overline{f/g}$ mean = 5.2667									
GROUP COMPLEXITY INDEX (GCI) = 6.5333																			

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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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

MONTH	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2005 JULY	2.37	36.83	47.22	274.0	49.81	7.48	14.78
AUGUST	2.22	34.42	44.96	256.9	46.61	7.03	13.74
SEPTEMBER	2.11	32.64	42.97	243.8	43.20	6.65	13.02
OCTOBER	2.08	32.20	42.68	242.2	42.17	6.52	12.81
NOVEMBER	2.06	31.17	40.20	221.1	40.18	6.31	11.88
DECEMBER	1.93	28.14	34.77	182.9	34.93	5.71	10.00
2006 JANUARY	1.75	25.12	30.36	161.9	30.74	5.06	8.69
FEBRUARY	1.58	22.75	27.18	153.1	28.70	4.62	7.88
MARCH	1.48	21.18	25.31	145.5	27.42	4.40	7.27
APRIL	1.50	21.21	25.00	139.5	27.07	4.43	7.06
MAY	1.56	21.92	25.55	140.9	27.90	4.57	7.20
JUNE	1.48	21.01	24.39	138.9	27.71	4.38	7.13

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2005 JULY	2.44	38.85	52.00	298.9	53.16	7.92	16.25
AUGUST	2.32	36.39	48.69	276.3	49.17	7.42	14.92
SEPTEMBER	2.15	33.32	44.22	249.2	44.31	6.78	13.33
OCTOBER	2.01	30.56	40.00	223.5	40.02	6.22	11.80
NOVEMBER	1.93	28.43	36.02	197.0	36.23	5.78	10.37
DECEMBER	1.83	26.24	31.96	170.5	32.19	5.31	8.97
2006 JANUARY	1.70	24.02	28.49	151.3	28.81	4.83	7.91
FEBRUARY	1.59	22.37	26.11	140.4	26.87	4.51	7.29
MARCH	1.55	21.71	25.18	137.1	26.35	4.42	7.10
APRIL	1.53	21.56	24.84	135.8	26.44	4.41	7.08
MAY	1.49	21.08	24.29	134.5	26.52	4.36	7.01
JUNE	1.41	20.24	23.57	135.4	26.76	4.24	6.98

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OBSERVED ANNUAL MEANS OF SUNSPOT DATA FOR

2006

All observations carried out by HOWARD BARNES .

Telescope : 76 mm refractor (f.l. 910 mm) .

Observed by PROJECTION . Full disc diameter = 145 mm approx .

<i>g</i>	=	1.32
<i>f</i>	=	6.31
<i>Wolf Number</i>	=	19.54
<i>Truncated Wolf Number</i>	=	17.53
<i>p</i>	=	2.10
<i>s</i>	=	2.39
<i>Pettisindex</i>	=	23.37
<i>Beckindex</i>	=	142.18
<i>Classification Value</i>	=	27.39
<i>Quality Count</i>	=	4.10
<i>Squared Quality Count</i>	=	15.05
<i>Inter-Sol Index</i>	=	7.17
<i>Mean Weight</i>	=	0.4732
<i>Q</i>	=	1.67
<i>S</i>	=	2.43
<i>T</i>	=	2.38
<i>Mean Condition</i>	=	2.1617
<i>Total Number of Observations</i>	=	133