



# Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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## SUNSPOT RESULTS FOR AUGUST 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	2210	2	17	37	7	7	77	397	60	9	41	1.5	2.0	2.0	4433-9
03															
04															
05															
06															
07															
08															
09															
10	2140	4	52	92	11	14	124	1269	75	11	39	1.5	2.0	2.5	4434-9
11															
12	2135	6	69	129	10	12	112	2371	94	16	58	2.0	3.0	3.0	4435-9
13															
14															
15	2310	3	47	77	8	6	86	1639	110	12	56	2.0	3.0	2.5	4436-9
16	2305	4	46	86	10	11	111	1416	115	13	57	2.0	3.0	2.5	4437-9
17															
18	2210	3	23	53	5	16	66	386	79	10	36	1.5	2.0	2.0	4438-0
19	2220	4	20	60	5	11	61	365	79	11	37	1.5	2.0	2.0	4439-0
20	2200	5	32	82	12	11	131	575	138	17	61	1.0	2.0	2.5	4440-0
21															
22															
23	2255	3	16	46	7	5	75	288	102	12	48	1.5	2.0	2.5	4441-0
24	2200	3	16	46	6	7	67	258	77	11	41	1.5	2.0	2.0	4442-0
25	2150	3	10	40	3	6	36	116	61	9	27	2.0	2.5	2.0	4443-0
26	2235	2	8	28	3	3	33	163	32	6	20	2.0	2.5	2.0	4444-0
27	2220	2	5	25	3	1	31	237	30	6	20	2.0	2.0	2.0	4445-0
28	2130	2	3	23	3	0	30	137	36	6	20	2.5	3.0	2.5	4446-0
29	2150	1	1	11	1	0	10	37	10	2	4	1.5	2.0	2.0	4447-0
30	2240	1	3	13	2	1	21	54	28	4	16	2.5	3.0	2.5	4448-0
31															
TOTALS	—	48	368	848	96	111	1071	9708	1126	155	581	28.5	38.0	36.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	16	16	16	16	—
MNS	—	3.00	23.00	53.00	6.00	6.94	66.94	606.75	70.38	9.69	36.31	1.78	2.38	2.28	—

MEAN WEIGHT = 0.4763

MEAN CONDITION = 2.1458

TRUNCATED WOLF NUMBER = 48.75

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

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## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR AUGUST 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	2210	19	2	10	7	0	0	1.5	2.0	2.0	4433-9
03											
04											
05											
06											
07											
08											
09											
10	2140	55	3	38	13	0	1	1.5	2.0	2.5	4434-9
11											
12	2135	71	2	54	11	3	1	2.0	3.0	3.0	4435-9
13											
14											
15	2310	49	2	40	6	1	0	2.0	3.0	2.5	4436-9
16	2305	49	3	35	10	0	1	2.0	3.0	2.5	4437-9
17											
18	2210	26	3	7	16	0	0	1.5	2.0	2.0	4438-0
19	2220	22	2	8	10	1	1	1.5	2.0	2.0	4439-0
20	2200	36	4	20	11	1	0	1.0	2.0	2.5	4440-0
21											
22											
23	2255	19	3	11	5	0	0	1.5	2.0	2.5	4441-0
24	2200	19	3	9	7	0	0	1.5	2.0	2.0	4442-0
25	2150	12	2	3	6	1	0	2.0	2.5	2.0	4443-0
26	2235	9	1	4	3	1	0	2.0	2.5	2.0	4444-0
27	2220	6	1	3	1	1	0	2.0	2.0	2.0	4445-0
28	2130	4	1	2	0	1	0	2.5	3.0	2.5	4446-0
29	2150	1	0	0	0	1	0	1.5	2.0	2.0	4447-0
30	2240	4	1	2	1	0	0	2.5	3.0	2.5	4448-0
31											
TOTALS	—	401	33	246	107	11	4	28.5	38.0	36.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	—
MNS	—	25.06	2.06	15.38	6.69	0.69	0.25	1.78	2.38	2.28	—

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## SUNSPOT CENSUS BY CLASSIFICATION FOR

# AUGUST 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	2210	0	0	0	0	0	0	1	4	1	13	0	0	0	0	0	0	0	0
03																			
04																			
05																			
06																			
07																			
08																			
09																			
10	2140	1	1	0	0	1	2	0	0	1	47	0	0	0	0	0	0	1	2
11																			
12	2135	1	1	0	0	1	3	0	0	0	0	1	62	0	0	0	0	3	1/1/1
13																			
14																			
15	2310	0	0	0	0	0	0	1	3	0	0	1	43	0	0	0	0	1	1
16	2305	1	1	1	2	0	0	1	8	0	0	1	35	0	0	0	0	0	0
17																			
18	2210	0	0	1	2	0	0	2	9/12	0	0	0	0	0	0	0	0	0	0
19	2220	1	1	0	0	0	0	2	8/10	0	0	0	0	0	0	0	0	1	1
20	2200	0	0	0	0	1	2	3	9/9/11	0	0	0	0	0	0	0	0	1	1
21																			
22																			
23	2255	0	0	0	0	0	0	3	3/4/9	0	0	0	0	0	0	0	0	0	0
24	2200	0	0	0	0	1	3	2	5/8	0	0	0	0	0	0	0	0	0	0
25	2150	0	0	0	0	2	4/5	0	0	0	0	0	0	0	0	1	1	0	0
26	2235	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0	1	1
27	2220	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	1
28	2130	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	1
29	2150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
30	2240	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0
31																			
TOTALS	—	4	4	2	4	6	19	17	122	2	60	3	140	2	6	1	1	11	12
REGIONAL PERCENTAGES																			
A	B	C	D	E	F	G	H	J	SIGMAg										
8.3	4.2	12.5	35.4	4.2	6.2	4.2	2.1	22.9	48										
				NOBS = 16				$\overline{p/g}$ mean = 1.9521				$\overline{f/g}$ mean = 6.5771							
								$\overline{p/g}$ mean = 2.0000				$\overline{f/g}$ mean = 7.6667							
GROUP COMPLEXITY INDEX (GCI) = 9.6667																			

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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 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	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

### 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 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	704.8	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