

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR NOVEMBER 2003

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	QC ²	Q	S	T	Ref.
01															
02															
03															
04	2045	2	5	25	2	3	23	76	29	5	17	2.5	3.0	3.0	4335-9
05	2020	1	2	12	1	1	11	16	11	3	9	1.5	2.5	2.5	4336-9
06	2025	1	1	11	1	0	10	37	10	2	4	1.5	2.5	2.5	4337-9
07	1950	0	0	0	0	0	0	0	0	0	0	2.0	3.0	3.5	4338-9
08	1920	3	11	41	4	4	44	170	46	10	36	1.5	2.0	2.0	4339-9
09	1925	3	16	46	8	3	83	288	81	12	48	1.5	2.0	2.5	4340-9
10															
11															
12															
13	1925	2	5	25	3	0	30	109	53	6	20	2.0	2.0	2.5	4341-9
14															
15	1935	3	16	46	6	4	64	307	93	10	36	2.0	2.5	2.5	4342-9
16															
17	1910	2	16	36	3	6	36	260	33	6	20	2.5	2.5	2.5	4343-9
18	2000	4	24	64	7	7	77	453	107	14	58	1.5	2.0	2.0	4344-9
19	2100	4	37	77	10	6	106	1024	156	19	97	2.5	3.0	2.5	4345-0
20															
21															
22															
23															
24															
25															
26															
27															
28	1935	9	57	147	17	15	185	1146	172	29	103	2.0	2.5	2.5	4346-0
29															
30	1955	9	42	132	11	24	134	696	143	26	86	1.5	2.0	2.5	4347-0
31	—														
TOTALS	—	43	232	662	73	73	803	4582	934	142	534	24.5	31.5	33.0	—
NOBS	—	13	13	13	13	13	13	13	13	13	13	13	13	13	—
MNS	—	3.31	17.85	50.92	5.62	5.62	61.77	352.46	71.85	10.92	41.08	1.88	2.42	2.54	—

MEAN WEIGHT = 0.4472

MEAN CONDITION = 2.2821

TRUNCATED WOLF NUMBER = 45.54

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

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SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR NOVEMBER 2003

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	2045	6	1	2	2	0	1	2.5	3.0	3.0	4335-9
05	2020	3	1	1	1	0	0	1.5	2.5	2.5	4336-9
06	2025	1	0	0	0	1	0	1.5	2.5	2.5	4337-9
07	1950	0	0	0	0	0	0	2.0	3.0	3.5	4338-9
08	1920	14	3	7	4	0	0	1.5	2.0	2.0	4339-9
09	1925	19	3	13	3	0	0	1.5	2.0	2.5	4340-9
10											
11											
12											
13	1925	6	1	4	0	1	0	2.0	2.0	2.5	4341-9
14											
15	1935	18	2	11	4	1	0	2.0	2.5	2.5	4342-9
16											
17	1910	18	2	10	6	0	0	2.5	2.5	2.5	4343-9
18	2000	27	3	17	6	0	1	1.5	2.0	2.0	4344-9
19	2100	41	4	31	6	0	0	2.5	3.0	2.5	4345-0
20											
21											
22											
23											
24											
25											
26											
27											
28	1935	64	7	40	15	2	0	2.0	2.5	2.5	4346-0
29											
30	1955	48	6	16	23	2	1	1.5	2.0	2.5	4347-0
31	—										
TOTALS	—	265	33	152	70	7	3	24.5	31.5	33.0	—
NOBS	—	13	13	13	13	13	13	13	13	13	—
MNS	—	20.38	2.54	11.69	5.38	0.54	0.23	1.88	2.42	2.54	—

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SUNSPOT CENSUS BY CLASSIFICATION FOR NOVEMBER 2003

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	2045	1	1	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0
05	2020	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
06	2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07	1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08	1920	0	0	1	2	0	0	2	4/5	0	0	0	0	0	0	0	0	0	0
09	1925	0	0	0	0	0	0	3	3/6/7	0	0	0	0	0	0	0	0	0	0
10																			
11																			
12																			
13	1925	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	1	1
14																			
15	1935	0	0	0	0	0	0	2	3/12	0	0	0	0	0	0	0	0	1	1
16																			
17	1910	0	0	1	2	0	0	1	14	0	0	0	0	0	0	0	0	0	0
18	2000	1	1	0	0	0	0	2	3/15	1	5	0	0	0	0	0	0	0	0
19	2100	0	0	0	0	1	2	1	14	0	0	2	10/11	0	0	0	0	0	0
20																			
21																			
22																			
23																			
24																			
25																			
26																			
27																			
28	1935	0	0	0	0	2	3/5	3	4/11/14	1	15	0	0	0	0	0	0	3	1/1/3
29																			
30	1955	1	1	1	3	1	17	3	4/5/6	0	0	0	0	1	4	0	0	2	1/1
31	—																		
TOTALS	—	3	3	3	7	5	29	19	138	2	20	2	21	1	4	0	0	8	10
REGIONAL PERCENTAGES																			
A	B	C	D	E	F	G	H	J	SIGMAg										
7.0	7.0	11.6	44.2	4.7	4.7	2.3	0.0	18.6	43										
NOBS = 13		$\overline{p/g}$ mean = 1.6134				$\overline{f/g}$ mean = 4.7153													
		$\overline{p/g}$ mean = 1.6977				$\overline{f/g}$ mean = 5.3953													
GROUP COMPLEXITY INDEX (GCI) = 7.0930																			

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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	$g(S^w)$	$WN(S^w)$	$SN(S^w)$	$BX(S^w)$	$CV(S^w)$	$QC(S^w)$	$IS(S^w)$
2002 JUNE	8.78	146.77	189.58	1420.1	173.86	28.11	65.19
JULY	8.49	141.03	180.68	1341.4	165.59	27.02	62.07
AUGUST	8.26	135.98	172.48	1261.2	158.58	25.99	59.16
SEPTEMBER	7.97	130.68	165.10	1197.0	153.84	24.94	56.49
OCTOBER	7.67	125.50	158.44	1141.3	149.33	23.91	54.09
NOVEMBER	7.24	118.58	149.12	1070.6	141.32	22.49	51.12
DECEMBER	6.87	113.99	143.55	1054.5	134.37	21.39	50.07
2003 JANUARY	6.70	111.33	139.67	1025.9	130.98	20.89	49.03
FEBRUARY	6.53	106.90	133.21	945.1	126.45	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.87	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.05	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.31	16.84	37.04

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 JUNE	8.90	149.77	193.63	1473.0	177.57	28.48	67.06
JULY	8.65	146.84	189.67	1462.8	173.66	27.66	66.36
AUGUST	8.43	143.01	183.85	1415.2	168.42	26.78	64.62
SEPTEMBER	8.13	137.03	175.09	1329.4	161.27	25.65	61.34
OCTOBER	7.75	128.96	163.61	1214.9	152.05	24.25	56.83
NOVEMBER	7.29	119.51	150.09	1080.1	140.95	22.64	51.58
DECEMBER	6.88	110.96	137.75	957.8	130.18	21.17	46.90
2003 JANUARY	6.54	103.97	127.63	856.1	121.91	19.99	43.03
FEBRUARY	6.23	98.09	119.76	784.5	115.93	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.23	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	107.96	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.72	16.96	37.93