

30 Years
of
Solar
Observing

1973
-
2003

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR APRIL 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	2025	8	58	138	16	21	181	1098	139	25	87	1.0	2.0	2.0	4235
02	2115	7	66	136	20	28	228	1306	198	26	102	1.0	1.5	2.0	4236
03															
04															
05															
06	2135	6	16	76	8	5	85	354	143	18	58	2.0	2.0	2.5	4237
07	2035	5	12	62	4	5	45	229	98	12	32	2.0	2.0	2.0	4238
08	2115	4	9	49	4	4	44	173	100	11	31	2.0	2.0	2.5	4239
09	2040	5	15	65	5	10	60	175	92	13	39	1.5	2.0	2.0	4240
10	2050	4	14	54	2	9	29	92	53	9	23	1.5	2.0	2.0	4241
11	2025	2	12	32	3	5	35	166	61	7	25	1.0	2.0	1.5	4242
12	2040	4	17	57	5	10	60	208	81	12	38	1.0	2.0	2.0	4243
13	2055	4	17	57	5	7	57	176	80	13	43	2.0	2.5	2.5	4244
14															
15															
16	2030	2	4	24	1	2	12	28	9	4	10	2.0	2.0	2.0	4245
17	2045	3	11	41	2	8	28	97	13	7	17	2.0	2.5	2.5	4246
18															
19															
20															
21	2045	6	30	90	9	14	104	529	104	15	47	1.5	2.0	2.0	4247
22	2120	6	41	101	8	19	99	851	110	18	68	1.5	2.0	2.0	4248
23															
24	2125	7	55	125	19	25	215	1142	197	27	109	2.0	2.5	2.5	4249
25	2115	8	55	135	15	19	169	1072	146	24	86	2.0	2.0	1.5	4250
26															
27	2040	9	53	143	18	18	198	950	185	30	108	2.0	2.5	2.5	4251
28	2140	8	64	144	20	17	217	1171	209	30	116	1.5	2.5	3.0	4252
29															
30															
31	—														
?	—	98	549	1529	164	226	1866	9817	2018	301	1039	29.5	38.0	39.0	—
NOBS	—	18	18	18	18	18	18	18	18	18	18	18	18	18	—
MNS	—	5.44	30.50	84.94	9.11	12.56	103.67	545.39	112.11	16.72	57.72	1.64	2.11	2.17	—

MEAN WEIGHT = 0.5181

MEAN CONDITION = 1.9722

TRUNCATED WOLF NUMBER = 74.50

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

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SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR APRIL 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 umbrae within penumbrae within the groups (gr) .

grf = number of non-penumbra spots within the groups (gr) .

efp = number of single penumbral spots .

ef = number of single non-penumbra 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	2025	65	7	36	21	1	0	1.0	2.0	2.0	4235
02	2115	72	6	37	28	1	0	1.0	1.5	2.0	4236
03											
04											
05											
06	2135	20	4	9	5	2	0	2.0	2.0	2.5	4237
07	2035	15	3	6	4	1	1	2.0	2.0	2.0	4238
08	2115	12	3	4	4	1	0	2.0	2.0	2.5	4239
09	2040	18	3	4	9	1	1	1.5	2.0	2.0	4240
10	2050	17	3	5	8	0	1	1.5	2.0	2.0	4241
11	2025	14	2	7	5	0	0	1.0	2.0	1.5	4242
12	2040	21	4	7	10	0	0	1.0	2.0	2.0	4243
13	2055	21	4	10	7	0	0	2.0	2.5	2.5	4244
14											
15											
16	2030	5	1	2	1	0	1	2.0	2.0	2.0	4245
17	2045	13	2	2	8	1	0	2.0	2.5	2.5	4246
18											
19											
20											
21	2045	34	4	16	12	0	2	1.5	2.0	2.0	4247
22	2120	45	4	22	17	0	2	1.5	2.0	2.0	4248
23											
24	2125	61	6	29	25	1	0	2.0	2.5	2.5	4249
25	2115	61	6	35	18	1	1	2.0	2.0	1.5	4250
26											
27	2040	60	7	33	18	2	0	2.0	2.5	2.5	4251
28	2140	71	7	46	17	1	0	1.5	2.5	3.0	4252
29											
30											
31	—										
?	—	625	76	310	217	13	9	29.5	38.0	39.0	—
NOBS	—	18	18	18	18	18	18	18	18	18	—
MNS	—	34.72	4.22	17.22	12.06	0.72	0.50	1.64	2.11	2.17	—

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SUNSPOT CENSUS BY CLASSIFICATION FOR

APRIL 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	2025	0	0	1	2	2	4/11	2	3/10	1	25	0	0	0	0	0	0	2	1/2
02	2115	0	0	0	0	1	2	4	3/12/12/19	1	17	0	0	0	0	0	0	1	1
03																			
04																			
05																			
06	2135	0	0	0	0	1	5	2	2/4	0	0	0	0	0	0	1	3	2	1/1
07	2035	1	1	0	0	2	3/4	0	0	0	0	0	0	0	0	1	3	1	1
08	2115	0	0	0	0	2	2/4	0	0	0	0	0	0	0	0	1	2	1	1
09	2040	1	1	0	0	2	2/8	1	3	0	0	0	0	0	0	0	0	1	1
10	2050	1	1	1	2	2	5/6	0	0	0	0	0	0	0	0	0	0	0	0
11	2025	0	0	0	0	1	5	1	7	0	0	0	0	0	0	0	0	0	0
12	2040	0	0	1	2	2	3/4	1	8	0	0	0	0	0	0	0	0	0	0
13	2055	0	0	0	0	3	2/5/6	1	4	0	0	0	0	0	0	0	0	0	0
14																			
15																			
16	2030	1	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0
17	2045	0	0	1	5	1	5	0	0	0	0	0	0	0	0	0	0	1	1
18																			
19																			
20																			
21	2045	2	1/1	0	0	1	4	2	8/13	0	0	0	0	0	0	0	0	1	3
22	2120	2	1/1	0	0	1	2	2	3/11	1	23	0	0	0	0	0	0	0	0
23																			
24	2125	0	0	0	0	0	0	5	3/4/4/10/14	1	19	0	0	0	0	0	0	1	1
25	2115	1	1	2	2/3	0	0	3	5/6/16	1	21	0	0	0	0	0	0	1	1
26																			
27	2040	0	0	1	3	0	0	6	4/5/6/8/12/13	0	0	0	0	0	0	0	0	2	1/1
28	2140	0	0	0	0	0	0	7	2/5/6/9/10/12/19	0	0	0	0	0	0	0	0	1	1
29																			
30																			
31	—																		
TOTALS	—	9	9	7	19	22	95	37	295	5	105	0	0	0	0	3	8	15	18

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	?g
9.2	7.1	22.4	37.8	5.1	0.0	0.0	3.1	15.3	98

NOBS = 18

$\overline{p/g}$ mean = 1.4767

$\overline{f/g}$ mean = 5.0620

$\overline{p/g}$ mean = 1.6735

$\overline{f/g}$ mean = 5.6020

GROUP COMPLEXITY INDEX (GCI) = 7.2755

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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	$g(S^w)$	$WN(S^w)$	$SN(S^w)$	$BX(S^w)$	$CV(S^w)$	$QC(S^w)$	$IS(S^w)$
2001 NOVEMBER	9.34	151.25	189.72	1335.1	177.55	29.61	64.49
DECEMBER	9.39	151.90	190.62	1344.3	180.28	29.78	64.61
2002 JANUARY	9.32	152.68	193.33	1406.6	182.22	29.68	66.03
FEBRUARY	9.35	156.18	199.58	1508.3	186.49	30.04	69.31
MARCH	9.28	155.62	198.73	1505.9	185.22	29.81	69.44
APRIL	9.15	153.37	196.02	1476.5	181.17	29.24	68.37
MAY	9.03	151.55	195.32	1467.9	179.03	28.89	67.66
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

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2001 NOVEMBER	9.42	154.21	193.31	1399.4	183.08	29.96	66.78
DECEMBER	9.45	154.58	194.69	1404.9	183.77	30.15	66.82
2002 JANUARY	9.42	154.17	195.39	1412.4	183.21	30.13	66.66
FEBRUARY	9.36	153.64	195.76	1426.3	182.20	30.00	66.73
MARCH	9.26	152.50	194.87	1426.0	180.44	29.69	66.49
APRIL	9.19	152.11	195.10	1438.7	179.61	29.42	66.73
MAY	9.10	151.78	195.65	1462.1	179.48	29.12	67.22
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