

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.cv-helios.net/gdso

SUNSPOT RESULTS FOR NOVEMBER 2002

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 .

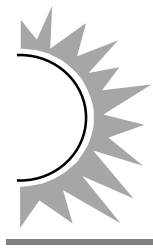
DATE	UT*	g	f	WN	p	s	SN	BX	CV	QC	QC ²	Q	S	T	Ref.
01	2110	11	51	161	20	21	221	1012	231	33	109	2.5	2.5	2.5	4179
02	2000	13	56	186	15	34	184	1037	219	36	120	2.0	2.0	2.0	4180
03															
04															
05															
06	2000	10	94	194	21	40	250	2478	238	32	120	2.0	2.0	2.0	4181
07															
08															
09															
10															
11	2100	6	64	124	20	29	229	2049	124	23	105	2.0	2.5	2.5	4182
12	2020	7	67	137	20	26	226	1957	127	24	100	2.5	3.0	2.5	4183
13															
14															
15															
16	1955	7	89	159	16	30	190	2853	267	29	139	1.5	1.5	2.0	4184
17	2030	5	61	111	18	21	201	2116	270	26	142	2.0	3.0	2.5	4185
18	1940	6	50	110	18	18	198	1573	183	26	126	2.0	2.5	2.5	4186
19	2145	5	40	90	10	22	122	1182	161	22	104	2.0	3.0	2.5	4187
20	2010	7	41	111	13	18	148	1097	190	27	115	2.5	3.0	3.5	4188
21															
22	2010	6	36	96	10	17	117	1123	145	20	84	1.5	2.5	2.5	4189
23															
24	2000	5	20	70	9	7	97	758	143	17	69	2.0	2.5	2.0	4190
25	2015	7	19	89	6	10	70	599	121	18	62	2.0	2.0	2.0	4191
26															
27															
28															
29	1945	6	18	78	7	7	77	351	81	17	59	2.0	2.5	2.5	4192
30	2035	5	22	72	9	10	100	458	103	18	70	2.0	3.0	3.0	4193
31	—														
Σ	—	106	728	1788	212	310	2430	20643	2603	368	1524	30.5	37.5	36.5	—
NOBS	—	15	15	15	15	15	15	15	15	15	15	15	15	15	—
MNS	—	7.07	48.53	119.20	14.13	20.67	162.00	1376.20	173.53	24.53	101.60	2.03	2.50	2.43	—

MEAN WEIGHT = 0.4395

MEAN CONDITION = 2.3222

TRUNCATED WOLF NUMBER = 106.80

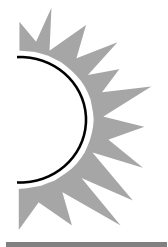
* Stated times approximate Co-ordinated Universal Time / Temps Universel Coordonné (UTC).



**SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR
NOVEMBER 2002**

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	2110	58	7	26	21	4	0	2.5	2.5	2.5	4179
02	2000	64	8	19	32	3	2	2.0	2.0	2.0	4180
03											
04											
05											
06	2000	100	6	51	39	3	1	2.0	2.0	2.0	4181
07											
08											
09											
10											
11	2100	69	5	34	29	1	0	2.0	2.5	2.5	4182
12	2020	72	5	40	25	1	1	2.5	3.0	2.5	4183
13											
14											
15											
16	1955	95	6	58	30	1	0	1.5	1.5	2.0	4184
17	2030	65	4	39	21	1	0	2.0	3.0	2.5	4185
18	1940	55	5	31	18	1	0	2.0	2.5	2.5	4186
19	2145	44	4	17	22	1	0	2.0	3.0	2.5	4187
20	2010	47	6	22	18	1	0	2.5	3.0	3.5	4188
21											
22	2010	39	3	17	16	2	1	1.5	2.5	2.5	4189
23											
24	2000	22	2	10	7	3	0	2.0	2.5	2.0	4190
25	2015	21	2	5	9	4	1	2.0	2.0	2.0	4191
26											
27											
28											
29	1945	22	4	10	6	1	1	2.0	2.5	2.5	4192
30	2035	26	4	11	10	1	0	2.0	3.0	3.0	4193
31	—										
Σ	—	799	71	390	303	28	7	30.5	37.5	36.5	—
NOBS	—	15	15	15	15	15	15	15	15	15	—
MNS	—	53.27	4.73	26.00	20.20	1.87	0.47	2.03	2.50	2.43	—



**SUNSPOT CENSUS BY CLASSIFICATION FOR
NOVEMBER 2002**

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	2110	0	0	0	0	1	2	5	3/6/9/11/14	0	0	0	0	0	0	0	0	5	1/1/1/1/2
02	2000	2	1/1	3	2/2/3	0	0	4	2/5/8/16	1	13	0	0	0	0	1	1	2	1/1
03																			
04																			
05																			
06	2000	1	1	0	0	2	3/8	3	6/9/17	0	0	1	47	0	0	1	1	2	1/1
07																			
08																			
09																			
10																			
11	2100	0	0	1	2	1	3	1	6	0	0	2	12/40	0	0	0	0	1	1
12	2020	1	1	0	0	2	3/4	1	9	1	6	1	43	0	0	0	0	1	1
13																			
14																			
15																			
16	1955	0	0	2	2/2	0	0	0	0	2	9/12	2	18/45	0	0	1	1	0	0
17	2030	0	0	0	0	0	0	0	0	1	8	3	9/11/32	0	0	1	1	0	0
18	1940	0	0	1	2	0	0	1	4	1	9	2	16/18	0	0	1	1	0	0
19	2145	0	0	0	0	1	4	0	0	2	6/8	1	21	0	0	1	1	0	0
20	2010	0	0	0	0	2	2/3	2	2/6	1	8	1	19	0	0	0	0	1	1
21																			
22	2010	1	1	0	0	1	3	0	0	1	6	1	24	0	0	1	1	1	1
23																			
24	2000	0	0	0	0	0	0	0	0	0	0	1	15	1	2	1	1	2	1/1
25	2015	1	1	1	2	0	0	0	0	0	0	1	12	0	0	1	1	3	1/1/1
26																			
27																			
28																			
29	1945	1	1	1	2	1	2	1	2	1	10	0	0	0	0	0	0	1	1
30	2035	0	0	0	0	1	2	2	4/6	1	9	0	0	0	0	0	0	1	1
31	—																		
TOTALS	—	7	7	9	19	12	39	20	145	12	104	16	382	1	2	9	9	20	21

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
6.6	8.5	11.3	18.9	11.3	15.1	0.9	8.5	18.9	106

NOBS = 15

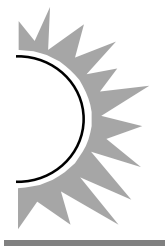
$\overline{p/g}$ mean = 2.0864

$\overline{f/g}$ mean = 7.0534

$\overline{p/g}$ mean = 2.0000

$\overline{f/g}$ mean = 6.8679

GROUP COMPLEXITY INDEX (GCI) = 8.8679



**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 JUNE	8.61	139.64	169.78	1235.4	161.27	26.92	59.59
JULY	8.80	142.89	175.64	1277.1	165.76	27.58	61.10
AUGUST	8.94	145.63	180.81	1319.6	169.94	28.18	62.47
SEPTEMBER	9.05	146.85	183.01	1317.4	171.83	28.54	62.71
OCTOBER	9.12	147.40	184.28	1298.2	172.46	28.78	62.72
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

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 JUNE	8.61	138.25	168.82	1199.3	158.70	26.79	58.13
JULY	8.84	142.43	175.08	1247.7	165.30	27.57	60.26
AUGUST	9.06	147.06	182.12	1309.5	172.55	28.43	62.82
SEPTEMBER	9.25	150.77	187.66	1355.9	178.21	29.16	64.86
OCTOBER	9.33	152.58	190.50	1376.9	180.94	29.57	65.89
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