

# Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: [gdso@earthling.net](mailto:gdso@earthling.net)

WEBSITE: [www.cv-helios.net/gdso](http://www.cv-helios.net/gdso)

## SUNSPOT RESULTS FOR SEPTEMBER 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 ; 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 .

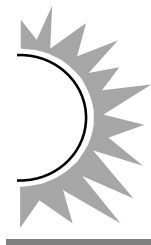
DATE	UT*	g	f	WN	p	s	SN	BX	CV	QC	QC <sup>2</sup>	Q	S	T	Ref.
01	2055	11	87	197	27	26	296	2377	263	39	153	2.0	2.5	2.5	4149
02															
03	2045	11	90	200	30	39	339	2207	219	37	139	2.0	3.0	3.0	4150
04															
05															
06	2035	9	83	173	19	40	230	2008	150	29	117	1.5	2.0	2.5	4151
07															
08															
09															
10	2135	9	113	203	25	41	291	2970	197	30	124	2.0	2.0	2.5	4152
11	2125	7	117	187	23	50	280	3222	195	27	117	2.0	3.0	3.0	4153
12															
13	2015	7	72	142	15	30	180	1936	155	23	99	2.0	3.0	2.5	4154
14															
15															
16															
17															
18															
19															
20	2010	13	63	193	20	29	229	1210	247	40	138	2.0	2.0	2.5	4155
21	2115	10	71	171	19	23	213	1462	196	30	102	2.0	2.5	2.5	4156
22															
23	2055	12	78	198	21	31	241	1667	232	36	126	2.0	2.5	3.0	4157
24															
25	2010	11	61	171	19	20	210	1202	188	32	112	1.5	1.5	2.0	4158
26	2045	8	44	124	15	12	162	916	139	26	104	2.0	2.5	2.5	4159
27															
28															
29	2105	7	38	108	10	17	117	776	62	17	53	2.0	2.0	2.0	4160
30															
31	—														
<b>Σ</b>	—	115	917	2067	243	358	2788	21953	2243	366	1384	23.0	28.5	30.5	—
NOBS	—	12	12	12	12	12	12	12	12	12	12	12	12	12	—
MNS	—	9.58	76.42	172.25	20.25	29.83	232.33	1829.42	186.92	30.50	115.33	1.92	2.38	2.54	—

MEAN WEIGHT = 0.4466

MEAN CONDITION = 2.2778

TRUNCATED WOLF NUMBER = 151.25

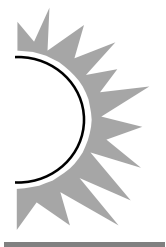
\* Stated times approximate Co-ordinated Universal Time / Temps Universel Coordonné (UTC).



SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR  
**SEPTEMBER 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 umbrae within penumbrae 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	2055	95	8	58	26	3	0	2.0	2.5	2.5	4149
02											
03	2045	99	9	49	39	2	0	2.0	3.0	3.0	4150
04											
05											
06	2035	89	6	42	38	1	2	1.5	2.0	2.5	4151
07											
08											
09											
10	2135	120	7	72	39	0	2	2.0	2.0	2.5	4152
11	2125	123	6	66	50	1	0	2.0	3.0	3.0	4153
12											
13	2015	77	5	42	28	0	2	2.0	3.0	2.5	4154
14											
15											
16											
17											
18											
19											
20	2010	73	10	32	28	2	1	2.0	2.0	2.5	4155
21	2115	77	6	45	22	3	1	2.0	2.5	2.5	4156
22											
23	2055	87	9	45	30	2	1	2.0	2.5	3.0	4157
24											
25	2010	67	6	38	18	3	2	1.5	1.5	2.0	4158
26	2045	49	5	31	10	1	2	2.0	2.5	2.5	4159
27											
28											
29	2105	42	4	20	15	1	2	2.0	2.0	2.0	4160
30											
31	—										
Σ	—	998	81	540	343	19	15	23.0	28.5	30.5	—
NOBS	—	12	12	12	12	12	12	12	12	12	—
MNS	—	83.17	6.75	45.00	28.58	1.58	1.25	1.92	2.38	2.54	—



SUNSPOT CENSUS BY CLASSIFICATION FOR  
**SEPTEMBER 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	2055	0	0	0	0	1	2	6	3/5/6/7/9/9	0	0	1	43	0	0	0	0	3	1/1/1
02																			
03	2045	0	0	0	0	3	2/4/6	4	3/9/13/14	0	0	1	34	0	0	0	0	3	1/1/3
04																			
05																			
06	2035	2	1/1	0	0	2	2/8	2	7/18	1	17	1	28	0	0	0	0	1	1
07																			
08																			
09																			
10	2135	2	1/1	1	2	1	2	3	7/9/14	1	34	1	43	0	0	0	0	0	0
11	2125	0	0	1	3	0	0	3	7/10/15	1	29	1	52	0	0	0	0	1	1
12																			
13	2015	2	1/1	1	2	0	0	2	6/16	1	12	1	34	0	0	0	0	0	0
14																			
15																			
16																			
17																			
18																			
19																			
20	2010	1	1	2	2/2	3	2/2/2	4	3/4/6/14	1	23	0	0	0	0	1	1	1	1
21	2115	1	1	0	0	3	2/3/4	2	3/23	1	32	0	0	0	0	1	1	2	1/1
22																			
23	2055	1	1	1	4	2	2/3	2	9/16	2	17/20	0	0	0	0	1	2	3	1/1/2
24																			
25	2010	2	1/1	0	0	1	3	4	4/7/9/18	1	15	0	0	0	0	0	0	3	1/1/1
26	2045	2	1/1	0	0	0	0	3	4/5/13	2	8/11	0	0	0	0	0	0	1	1
27																			
28																			
29	2105	2	1/1	1	2	2	3/3	0	0	1	27	0	0	0	0	0	0	1	1
30																			
31	—																		
TOTALS	—	15	15	7	17	18	55	35	325	12	245	6	234	0	0	3	4	19	22

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
13.0	6.1	15.7	30.4	10.4	5.2	0.0	2.6	16.5	115

NOBS = 12

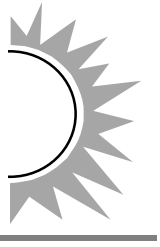
$\bar{p}/\bar{g}$  mean = 2.1432

$\bar{f}/\bar{g}$  mean = 8.3157

$\bar{p}/\bar{g}$  mean = 2.1130

$\bar{f}/\bar{g}$  mean = 7.9739

GROUP COMPLEXITY INDEX (GCI) = 10.0870



**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 APRIL	8.28	134.01	162.38	1149.5	152.74	25.88	57.06
MAY	8.43	136.39	164.70	1186.5	156.86	26.32	58.00
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

**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 APRIL	8.15	130.80	157.98	1125.0	147.42	25.31	54.99
MAY	8.38	134.26	162.98	1158.1	152.64	26.01	56.30
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