Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR OCTOBER 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	QC²	Q	S	T	Ref.
01															
02	2045	4	41	81	7	18	88	694	62	12	42	2.0	2.0	2.5	4161
03	2035	4	40	80	10	13	113	700	86	15	57	1.5	2.5	2.5	4162
04	2035	6	52	112	12	18	138	953	154	19	65	2.0	2.5	2.5	4163
05	2005	7	49	119	17	12	182	913	178	22	78	2.0	2.5	2.5	4164
06	2010	6	45	105	12	17	137	775	140	18	62	2.5	2.5	2.5	4165
07	2030	6	52	112	12	23	143	875	156	20	70	2.5	2.5	2.0	4166
08	2025	11	49	159	15	22	172	857	185	31	99	1.5	2.0	2.0	4167
09	2020	10	34	134	12	15	135	530	149	24	68	2.0	2.5	2.5	4168
10	2125	11	62	172	18	29	209	1023	191	32	102	2.5	2.5	2.0	4169
11															
12	2010	10	63	163	17	21	191	1123	225	29	99	2.5	2.5	2.5	4170
13															
14	2020	10	58	158	15	26	176	1005	176	29	89	1.5	2.5	2.5	4171
15															
16	2015	11	63	173	17	32	202	1289	156	31	103	2.0	2.0	2.5	4172
17															
18	2030	9	74	164	20	27	227	1466	187	32	128	2.0	2.5	2.5	4173
19	2050	9	82	172	21	25	235	2696	203	31	129	1.5	2.5	2.5	4174
20															
21	2120	6	48	108	12	16	136	1296	144	20	80	2.0	3.0	3.0	4175
22															
23	2020	5	52	102	12	21	141	1619	138	16	66	2.0	2.5	2.5	4176
24															
25	1935	8	42	122	10	23	123	1243	124	22	78	1.5	2.0	2.0	4177
26															
27															
28															
29															
30	2020	13	47	177	13	20	150	911	153	31	93	1.5	2.0	2.0	4178
31															
Σ	——	146	953	2413	252	378	2898	19968	2807	434	1508	35.0	43.0	43.0	——
NOBS	——	18	18	18	18	18	18	18	18	18	18	18	18	18	——
MNS	——	8.11	52.94	134.06	14.00	21.00	161.00	1109.33	155.94	24.11	83.78	1.94	2.39	2.39	——

MEAN WEIGHT = 0.4511 MEAN CONDITION = 2.2407 TRUNCATED WOLF NUMBER = 116.11

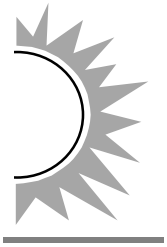
**** Stated times approximate Co-ordinated Universal Time / Temps Universel Coordonné (UTC).***

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

OCTOBER 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											
02	2045	44	3	23	17	0	1	2.0	2.0	2.5	4161
03	2035	44	4	27	13	0	0	1.5	2.5	2.5	4162
04	2035	56	4	32	18	2	0	2.0	2.5	2.5	4163
05	2005	53	4	35	11	2	1	2.0	2.5	2.5	4164
06	2010	49	4	27	16	1	1	2.5	2.5	2.5	4165
07	2030	57	5	28	23	1	0	2.5	2.5	2.0	4166
08	2025	56	7	24	21	3	1	1.5	2.0	2.0	4167
09	2020	38	4	15	13	4	2	2.0	2.5	2.5	4168
10	2125	70	8	30	29	3	0	2.5	2.5	2.0	4169
11											
12	2010	70	7	41	19	1	2	2.5	2.5	2.5	4170
13											
14	2020	67	9	31	26	1	0	1.5	2.5	2.5	4171
15											
16	2015	69	6	27	31	4	1	2.0	2.0	2.5	4172
17											
18	2030	83	9	47	27	0	0	2.0	2.5	2.5	4173
19	2050	88	6	56	23	1	2	1.5	2.5	2.5	4174
20											
21	2120	53	5	32	15	0	1	2.0	3.0	3.0	4175
22											
23	2020	55	3	30	20	1	1	2.0	2.5	2.5	4176
24											
25	1935	46	4	16	22	3	1	1.5	2.0	2.0	4177
26											
27											
28											
29											
30	2020	54	7	24	17	3	3	1.5	2.0	2.0	4178
31											
Σ	——	1052	99	545	361	30	17	35.0	43.0	43.0	——
NOBS	——	18	18	18	18	18	18	18	18	18	——
MNS	——	58.44	5.50	30.28	20.06	1.67	0.94	1.94	2.39	2.39	——



Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

OCTOBER 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																			
02	2045	1	1	0	0	1	3	2	16/21	0	0	0	0	0	0	0	0	0	0
03	2035	0	0	0	0	1	2	3	7/14/17	0	0	0	0	0	0	0	0	0	0
04	2035	0	0	1	2	0	0	3	8/18/22	0	0	0	0	0	0	1	1	1	1
05	2005	1	1	0	0	0	0	4	3/5/15/23	0	0	0	0	0	0	1	1	1	1
06	2010	1	1	0	0	1	4	3	7/11/21	0	0	0	0	0	0	0	0	1	1
07	2030	0	0	0	0	2	3/5	3	6/10/27	0	0	0	0	0	0	0	0	1	1
08	2025	1	1	1	2	2	2/2	4	4/5/8/22	0	0	0	0	0	0	0	0	3	1/1/1
09	2020	2	1/1	0	0	2	4/9	2	6/9	0	0	0	0	0	0	0	0	4	1/1/1/1
10	2125	0	0	2	2/3	2	2/6	4	5/12/12/17	0	0	0	0	0	0	0	0	3	1/1/1
11																			
12	2010	2	1/1	0	0	1	4	5	4/6/7/18/19	0	0	0	0	0	0	0	0	2	1/2
13																			
14	2020	0	0	1	2	4	2/3/3/4	2	8/31	0	0	0	0	0	0	1	2	2	1/2
15																			
16	2015	1	1	1	3	1	4	3	5/10/11	1	25	0	0	0	0	0	0	4	1/1/1/1
17																			
18	2030	0	0	2	2/3	3	2/3/7	2	13/15	1	18	1	11	0	0	0	0	0	0
19	2050	2	1/1	0	0	1	3	2	4/11	1	14	1	25	1	22	1	1	0	0
20																			
21	2120	1	1	0	0	3	2/5/6	1	2	0	0	1	32	0	0	0	0	0	0
22																			
23	2020	1	1	0	0	1	6	1	3	0	0	1	41	0	0	0	0	1	1
24																			
25	1935	1	1	1	2	1	5	1	2	0	0	1	29	0	0	0	0	3	1/1/1
26																			
27																			
28																			
29																			
30	2020	3	1/1/1	2	2/3	1	3	2	4/11	1	16	0	0	0	0	0	0	4	1/1/1/2
31																			
TOTALS	——	17	17	11	26	27	104	47	535	4	73	5	138	1	22	4	5	30	33

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
11.6	7.5	18.5	32.2	2.7	3.4	0.7	2.7	20.5	146

NOBS = 18 $\overline{p / g}$ mean = 1.8239 $\overline{f / g}$ mean = 7.1111

$\overline{p} / \overline{g}$ mean = 1.7260 $\overline{f} / \overline{g}$ mean = 6.5274

GROUP COMPLEXITY INDEX (GCI) = 8.2534

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 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
APRIL	9.15	153.37	196.02	1476.5	181.17	29.24	68.37

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 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
APRIL	9.19	152.11	195.10	1438.7	179.61	29.42	66.73