Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net
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SUNSPOT RESULTS FOR JANUARY 2004

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	2010	3	15	45	6	5	65	315	81	9	29	2.0	2.0	2.0	4357-1
02	1945	3	25	55	8	8	88	506	109	13	57	1.5	2.0	2.0	4358-1
03															
04	2035	3	28	58	7	11	81	586	86	12	50	2.0	3.5	2.0	4359-1
05															
06															
07	2000	4	40	80	8	13	93	692	104	14	52	1.5	2.0	2.0	4360-1
08															
09	1950	2	34	54	6	10	70	612	86	8	32	1.5	2.0	2.5	4361-1
10	2010	2	27	47	5	7	57	486	77	8	32	1.0	2.0	2.0	4362-1
11															
12															
13															
14															
15	1950	5	28	78	6	10	70	424	62	15	53	2.0	2.0	2.5	4363-2
16															
17	1955	3	21	51	6	7	67	794	61	12	48	2.0	2.5	2.5	4364-2
18															
19	2035	4	44	84	9	16	106	1098	96	18	84	1.5	2.0	2.0	4365-2
20															
21	2110	4	37	77	12	21	141	858	114	16	64	1.0	2.0	2.0	4366-2
22															
23															
24															
25	2030	0	0	0	0	0	0	0	0	0	0	2.0	3.0	3.0	4367-2
26															
27															
28															
29															
30															
31															
TOTALS	——	33	299	629	73	108	838	6371	876	125	501	18.0	25.0	24.5	——
NOBS	——	11	11	11	11	11	11	11	11	11	11	11	11	11	——
MNS	——	3.00	27.18	57.18	6.64	9.82	76.18	579.18	79.64	11.36	45.55	1.64	2.27	2.23	——

MEAN WEIGHT = 0.5001 MEAN CONDITION = 2.0455 TRUNCATED WOLF NUMBER = 55.09

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

JANUARY 2004

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	2010	16	1	8	5	2	0	2.0	2.0	2.0	4357-1
02	1945	28	3	17	8	0	0	1.5	2.0	2.0	4358-1
03											
04	2035	31	3	17	11	0	0	2.0	3.5	2.0	4359-1
05											
06											
07	2000	44	4	27	13	0	0	1.5	2.0	2.0	4360-1
08											
09	1950	36	2	24	10	0	0	1.5	2.0	2.5	4361-1
10	2010	29	2	20	7	0	0	1.0	2.0	2.0	4362-1
11											
12											
13											
14											
15	1950	32	4	17	10	0	1	2.0	2.0	2.5	4363-2
16											
17	1955	24	3	14	7	0	0	2.0	2.5	2.5	4364-2
18											
19	2035	48	4	28	16	0	0	1.5	2.0	2.0	4365-2
20											
21	2110	41	4	16	21	0	0	1.0	2.0	2.0	4366-2
22											
23											
24											
25	2030	0	0	0	0	0	0	2.0	3.0	3.0	4367-2
26											
27											
28											
29											
30											
31											
TOTALS	——	329	30	188	108	2	1	18.0	25.0	24.5	——
NOBS	——	11	11	11	11	11	11	11	11	11	——
MNS	——	29.91	2.73	17.09	9.82	0.18	0.09	1.64	2.27	2.23	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JANUARY 2004

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	2010	0	0	0	0	0	0	1	13	0	0	0	0	0	0	1	1	1	1
02	1945	0	0	0	0	0	0	2	6/11	1	8	0	0	0	0	0	0	0	0
03																			
04	2035	0	0	0	0	1	3	1	9	1	16	0	0	0	0	0	0	0	0
05																			
06																			
07	2000	0	0	1	2	0	0	3	2/9/27	0	0	0	0	0	0	0	0	0	0
08																			
09	1950	0	0	0	0	0	0	2	9/25	0	0	0	0	0	0	0	0	0	0
10	2010	0	0	0	0	0	0	2	8/19	0	0	0	0	0	0	0	0	0	0
11																			
12																			
13																			
14																			
15	1950	1	1	0	0	3	2/4/9	0	0	1	12	0	0	0	0	0	0	0	0
16																			
17	1955	0	0	0	0	0	0	2	3/5	0	0	0	0	1	13	0	0	0	0
18																			
19	2035	0	0	0	0	0	0	3	6/10/11	0	0	1	17	0	0	0	0	0	0
20																			
21	2110	0	0	0	0	0	0	3	7/10/14	0	0	0	0	1	6	0	0	0	0
22																			
23																			
24																			
25	2030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26																			
27																			
28																			
29																			
30																			
31																			
TOTALS	———	1	1	1	2	4	18	19	204	3	36	1	17	2	19	1	1	1	1

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
3.0	3.0	12.1	57.6	9.1	3.0	6.1	3.0	3.0	33

NOBS = 11 $\overline{p / g}$ mean = 2.2950 $\overline{f / g}$ mean = 9.6017

$\overline{p} / \overline{g}$ mean = 2.2121 $\overline{f} / \overline{g}$ mean = 9.0606

GROUP COMPLEXITY INDEX (GCI) = 11.2727

Georgi Dobrovolski Solar Observatory

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 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
JUNE	5.20	83.92	100.90	711.4	98.43	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.87	15.55	34.95

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 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
JUNE	5.29	87.55	107.34	794.9	104.28	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.56	16.21	38.27

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SUNSPOT RESULTS FOR FEBRUARY 2004

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															
03															
04															
05															
06															
07															
08															
09															
10															
11															
12	1955	4	19	59	7	7	77	331	77	13	45	1.5	3.0	3.0	4368-3
13	2030	5	19	69	6	11	71	254	72	16	54	1.5	2.0	2.5	4369-3
14	2020	5	14	64	5	7	57	229	69	13	41	2.0	3.0	2.5	4370-3
15															
16	2110	3	3	33	2	1	21	78	21	5	9	1.5	2.0	2.0	4371-3
17															
18															
19															
20															
21	2100	3	13	43	6	5	65	272	51	8	24	1.5	3.0	3.0	4372-3
22															
23															
24															
25															
26															
27															
28															
29															
30	—														
31	—														
TOTALS	——	20	68	268	26	31	291	1164	290	55	173	8.0	13.0	13.0	——
NOBS	——	5	5	5	5	5	5	5	5	5	5	5	5	5	——
MNS	——	4.00	13.60	53.60	5.20	6.20	58.20	232.80	58.00	11.00	34.60	1.60	2.60	2.60	——

MEAN WEIGHT = 0.4491 MEAN CONDITION = 2.2667 TRUNCATED WOLF NUMBER = 44.40

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

FEBRUARY 2004

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											
05											
06											
07											
08											
09											
10											
11											
12	1955	22	3	11	7	1	0	1.5	3.0	3.0	4368-3
13	2030	24	5	8	11	0	0	1.5	2.0	2.5	4369-3
14	2020	17	3	6	6	1	1	2.0	3.0	2.5	4370-3
15											
16	2110	3	0	0	0	2	1	1.5	2.0	2.0	4371-3
17											
18											
19											
20											
21	2100	14	1	6	5	2	0	1.5	3.0	3.0	4372-3
22											
23											
24											
25											
26											
27											
28											
29											
30	—										
31	—										
TOTALS	——	80	12	31	29	6	2	8.0	13.0	13.0	——
NOBS	——	5	5	5	5	5	5	5	5	5	——
MNS	——	16.00	2.40	6.20	5.80	1.20	0.40	1.60	2.60	2.60	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

FEBRUARY 2004

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																			
05																			
06																			
07																			
08																			
09																			
10																			
11																			
12	1955	0	0	0	0	1	3	2	7/8	0	0	0	0	0	0	0	0	1	1
13	2030	0	0	1	2	2	2/4	2	3/8	0	0	0	0	0	0	0	0	0	0
14	2020	1	1	1	2	0	0	2	4/6	0	0	0	0	0	0	0	0	1	1
15																			
16	2110	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1/1
17																			
18																			
19																			
20																			
21	2100	0	0	0	0	0	0	1	11	0	0	0	0	0	0	0	0	2	1/1
22																			
23																			
24																			
25																			
26																			
27																			
28																			
29																			
30	—																		
31	—																		
TOTALS	——	2	2	2	4	3	9	7	47	0	0	0	0	0	0	0	0	6	6

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
10.0	10.0	15.0	35.0	0.0	0.0	0.0	0.0	30.0	20

NOBS = 5 $\overline{p / g}$ mean = 1.3233 $\overline{f / g}$ mean = 3.3367

$\overline{p} / \overline{g}$ mean = 1.3000 $\overline{f} / \overline{g}$ mean = 3.4000

GROUP COMPLEXITY INDEX (GCI) = 4.7000

Georgi Dobrovolski Solar Observatory

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 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
JUNE	5.20	83.92	100.90	711.4	98.43	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.87	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.93	14.95	34.28

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 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
JUNE	5.29	87.55	107.34	794.9	104.28	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.56	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.72	15.58	37.12

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NEW ZEALAND

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SUNSPOT RESULTS FOR MARCH 2004

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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	2015	3	20	50	4	12	52	366	73	10	34	1.5	2.5	2.5	4373-3
02	2040	2	20	40	5	11	61	512	42	7	29	2.0	2.0	1.5	4374-3
03	2035	1	22	32	3	12	42	550	32	5	25	2.0	2.5	2.0	4375-3
04	2035	2	18	38	6	7	67	422	54	9	41	2.5	3.5	3.0	4376-3
05															
06	2040	3	19	49	7	5	75	487	105	13	57	1.5	2.0	2.0	4377-3
07	2045	3	13	43	5	5	55	328	83	12	54	2.0	2.5	2.5	4378-3
08															
09	2025	3	19	49	4	9	49	596	69	10	46	1.0	1.5	2.0	4379-4
10	2050	3	21	51	3	3	33	991	56	7	21	1.5	2.5	2.5	4380-4
11															
12															
13															
14															
15	2025	3	7	37	4	1	41	134	40	9	29	1.0	2.0	2.0	4381-4
16															
17	2030	6	23	83	10	7	107	438	105	17	57	1.5	2.0	2.0	4382-4
18															
19															
20	2100	3	27	57	8	17	97	687	77	12	54	1.5	2.0	2.5	4383-4
21															
22															
23	2155	3	49	79	11	24	134	1483	93	15	77	1.5	2.5	2.5	4384-4
24															
25	2120	7	45	115	14	13	153	1204	171	29	127	1.5	3.0	2.5	4385-4
26															
27															
28	2120	6	25	85	7	15	85	539	94	14	48	2.0	3.0	2.0	4386-4
29	2140	4	25	65	8	14	94	574	81	13	49	2.0	2.5	2.5	4387-4
30															
31															
TOTALS	——	52	353	873	99	155	1145	9311	1175	182	748	25.0	36.0	34.0	——
NOBS	——	15	15	15	15	15	15	15	15	15	15	15	15	15	——
MNS	——	3.47	23.53	58.20	6.60	10.33	76.33	620.73	78.33	12.13	49.87	1.67	2.40	2.27	——

MEAN WEIGHT = 0.4865 MEAN CONDITION = 2.1111 TRUNCATED WOLF NUMBER = 53.00

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

MARCH 2004

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	2015	22	2	7	12	1	0	1.5	2.5	2.5	4373-3
02	2040	21	1	8	11	1	0	2.0	2.0	1.5	4374-3
03	2035	23	1	10	12	0	0	2.0	2.5	2.0	4375-3
04	2035	20	2	11	7	0	0	2.5	3.5	3.0	4376-3
05											
06	2040	22	3	14	5	0	0	1.5	2.0	2.0	4377-3
07	2045	16	3	8	5	0	0	2.0	2.5	2.5	4378-3
08											
09	2025	21	2	10	8	0	1	1.0	1.5	2.0	4379-4
10	2050	22	1	17	2	1	1	1.5	2.5	2.5	4380-4
11											
12											
13											
14											
15	2025	10	3	6	1	0	0	1.0	2.0	2.0	4381-4
16											
17	2030	26	3	14	6	2	1	1.5	2.0	2.0	4382-4
18											
19											
20	2100	29	2	9	17	1	0	1.5	2.0	2.5	4383-4
21											
22											
23	2155	52	3	25	24	0	0	1.5	2.5	2.5	4384-4
24											
25	2120	52	7	32	13	0	0	1.5	3.0	2.5	4385-4
26											
27											
28	2120	27	2	9	12	1	3	2.0	3.0	2.0	4386-4
29	2140	28	3	10	14	1	0	2.0	2.5	2.5	4387-4
30											
31											
TOTALS	——	391	38	190	149	8	6	25.0	36.0	34.0	——
NOBS	——	15	15	15	15	15	15	15	15	15	——
MNS	——	26.07	2.53	12.67	9.93	0.53	0.40	1.67	2.40	2.27	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

MARCH 2004

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	2015	0	0	0	0	1	2	1	17	0	0	0	0	0	0	1	1	0	0
02	2040	0	0	0	0	0	0	0	0	1	19	0	0	0	0	0	0	1	1
03	2035	0	0	0	0	0	0	0	0	1	22	0	0	0	0	0	0	0	0
04	2035	0	0	0	0	0	0	1	4	1	14	0	0	0	0	0	0	0	0
05																			
06	2040	0	0	0	0	0	0	1	9	1	7	0	0	1	3	0	0	0	0
07	2045	0	0	0	0	2	2/3	0	0	0	0	1	8	0	0	0	0	0	0
08																			
09	2025	1	1	0	0	1	2	0	0	0	0	1	16	0	0	0	0	0	0
10	2050	1	1	0	0	0	0	0	0	0	0	0	0	1	19	0	0	1	1
11																			
12																			
13																			
14																			
15	2025	0	0	0	0	1	3	1	2	0	0	0	0	0	0	0	0	1	2
16																			
17	2030	1	1	0	0	0	0	3	2/3/15	0	0	0	0	0	0	0	0	2	1/1
18																			
19																			
20	2100	0	0	0	0	0	0	0	0	2	9/17	0	0	0	0	0	0	1	1
21																			
22																			
23	2155	0	0	0	0	0	0	1	4	1	19	1	26	0	0	0	0	0	0
24																			
25	2120	0	0	0	0	2	2/2	3	3/4/5	1	8	1	21	0	0	0	0	0	0
26																			
27																			
28	2120	3	1/1/1	0	0	0	0	1	5	1	16	0	0	0	0	0	0	1	1
29	2140	0	0	1	2	0	0	1	3	1	19	0	0	0	0	0	0	1	1
30																			
31																			
TOTALS	——	6	6	1	2	7	16	13	76	10	150	4	71	2	22	1	1	8	9

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
11.5	1.9	13.5	25.0	19.2	7.7	3.8	1.9	15.4	52

NOBS = 15 $\overline{p / g}$ mean = 2.0444 $\overline{f / g}$ mean = 8.0008

$\overline{p} / \overline{g}$ mean = 1.9038 $\overline{f} / \overline{g}$ mean = 6.7885

GROUP COMPLEXITY INDEX (GCI) = 8.6923

Georgi Dobrovolski Solar Observatory

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 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
JUNE	5.20	83.92	100.90	711.4	98.43	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.87	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.93	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	699.9	92.61	14.61	33.78

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 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
JUNE	5.29	87.55	107.34	794.9	104.28	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.56	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.72	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.59	14.85	35.37

Georgi Dobrovolski Solar Observatory

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SUNSPOT RESULTS FOR APRIL 2004

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	2105	4	14	54	4	7	47	170	71	10	26	2.0	2.5	2.5	4388-4
03															
04															
05															
06	2115	2	17	37	5	5	55	256	43	7	25	2.0	2.5	2.0	4389-5
07	2145	2	12	32	6	2	62	254	41	6	20	1.0	2.5	2.0	4390-5
08															
09															
10															
11															
12															
13	2150	2	12	32	3	5	35	235	32	6	20	2.0	3.0	3.0	4391-5
14	2120	4	16	56	4	9	49	279	43	8	22	2.0	2.0	2.0	4392-5
15	2230	5	11	61	3	6	36	161	36	10	26	1.5	2.0	1.5	4393-5
16	2235	5	10	60	3	4	34	155	28	10	22	1.5	2.0	1.0	4394-5
17															
18	2215	4	30	70	8	8	88	559	85	14	52	1.5	2.5	2.0	4395-5
19															
20															
21	2145	5	22	72	6	10	70	406	78	13	45	2.0	2.0	2.0	4396-5
22															
23															
24															
25	2140	2	14	34	5	2	52	330	68	7	25	1.5	1.5	1.5	4397-5
26															
27	2150	2	10	30	4	2	42	180	47	8	32	2.0	2.0	2.0	4398-5
28															
29															
30															
31	—														
TOTALS	——	37	168	538	51	60	570	2985	572	99	315	19.0	24.5	21.5	——
NOBS	——	11	11	11	11	11	11	11	11	11	11	11	11	11	——
MNS	——	3.36	15.27	48.91	4.64	5.45	51.82	271.36	52.00	9.00	28.64	1.73	2.23	1.95	——

MEAN WEIGHT = 0.5222 MEAN CONDITION = 1.9697 TRUNCATED WOLF NUMBER = 39.73

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

APRIL 2004

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	2105	16	2	5	7	2	0	2.0	2.5	2.5	4388-4
03											
04											
05											
06	2115	19	2	12	5	0	0	2.0	2.5	2.0	4389-5
07	2145	14	2	10	2	0	0	1.0	2.5	2.0	4390-5
08											
09											
10											
11											
12											
13	2150	13	1	6	5	1	0	2.0	3.0	3.0	4391-5
14	2120	17	1	6	7	1	2	2.0	2.0	2.0	4392-5
15	2230	13	2	4	4	1	2	1.5	2.0	1.5	4393-5
16	2235	13	3	5	3	1	1	1.5	2.0	1.0	4394-5
17											
18	2215	33	3	21	8	1	0	1.5	2.5	2.0	4395-5
19											
20											
21	2145	25	3	12	8	0	2	2.0	2.0	2.0	4396-5
22											
23											
24											
25	2140	16	2	12	2	0	0	1.5	1.5	1.5	4397-5
26											
27	2150	12	2	8	2	0	0	2.0	2.0	2.0	4398-5
28											
29											
30											
31	—										
TOTALS	——	191	23	101	53	7	7	19.0	24.5	21.5	——
NOBS	——	11	11	11	11	11	11	11	11	11	——
MNS	——	17.36	2.09	9.18	4.82	0.64	0.64	1.73	2.23	1.95	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

APRIL 2004

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	2105	0	0	0	0	2	4/8	0	0	0	0	0	0	0	0	0	0	2	1/1
03																			
04																			
05																			
06	2115	0	0	0	0	1	5	1	12	0	0	0	0	0	0	0	0	0	0
07	2145	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	1	2
08																			
09																			
10																			
11																			
12																			
13	2150	0	0	0	0	0	0	1	11	0	0	0	0	0	0	0	0	1	1
14	2120	2	1/1	0	0	0	0	1	13	0	0	0	0	0	0	0	0	1	1
15	2230	2	1/1	1	2	0	0	1	6	0	0	0	0	0	0	0	0	1	1
16	2235	1	1	1	2	1	4	0	0	0	0	0	0	0	0	0	0	2	1/2
17																			
18	2215	0	0	0	0	0	0	3	8/9/12	0	0	0	0	0	0	0	0	1	1
19																			
20																			
21	2145	2	1/1	0	0	2	2/4	0	0	1	14	0	0	0	0	0	0	0	0
22																			
23																			
24																			
25	2140	0	0	0	0	0	0	1	11	0	0	0	0	0	0	1	3	0	0
26																			
27	2150	0	0	0	0	0	0	2	2/8	0	0	0	0	0	0	0	0	0	0
28																			
29																			
30																			
31	—																		
TOTALS	——	7	7	2	4	6	27	11	102	1	14	0	0	0	0	1	3	9	11

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
18.9	5.4	16.2	29.7	2.7	0.0	0.0	2.7	24.3	37

NOBS = 11 $\overline{p / g}$ mean = 1.6273 $\overline{f / g}$ mean = 5.1000

$\overline{p} / \overline{g}$ mean = 1.3784 $\overline{f} / \overline{g}$ mean = 4.5405

GROUP COMPLEXITY INDEX (GCI) = 5.9189

Georgi Dobrovolski Solar Observatory

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 NOVEMBER	7.24	118.58	149.12	1070.6	141.36	22.49	51.12
DECEMBER	6.87	113.99	143.55	1054.5	134.41	21.39	50.07
2003 JANUARY	6.70	111.33	139.67	1025.9	131.02	20.89	49.03
FEBRUARY	6.53	106.90	133.21	945.1	126.49	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	699.9	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.2	88.82	14.13	32.79

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 NOVEMBER	7.29	119.51	150.09	1080.1	140.97	22.64	51.58
DECEMBER	6.88	110.96	137.75	957.8	130.22	21.17	46.90
2003 JANUARY	6.54	103.97	127.63	856.1	121.96	19.99	43.03
FEBRUARY	6.23	98.09	119.76	784.5	115.98	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.7	88.15	14.07	33.20

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR MAY 2004

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															
03															
04															
05	2145	2	15	35	5	5	55	270	62	8	32	1.5	2.0	2.5	4399-6
06	2155	2	4	24	1	3	13	24	13	5	13	1.5	2.0	2.5	4400-6
07															
08															
09															
10															
11															
12															
13															
14															
15	2140	5	30	80	8	9	89	548	81	15	49	2.0	2.5	2.0	4401-6
16	2205	6	31	91	11	10	120	615	111	18	60	2.0	2.5	2.0	4402-6
17	2225	6	30	90	10	10	110	527	96	18	58	1.5	2.0	2.0	4403-6
18	2240	6	27	87	10	10	110	532	88	17	53	1.5	2.5	2.0	4404-6
19															
20	2225	5	19	69	7	10	80	301	74	16	54	1.5	2.0	2.0	4405-6
21															
22															
23	2155	5	37	87	8	19	99	830	73	15	51	1.5	1.5	2.0	4406-6
24															
25	2235	3	34	64	6	15	75	874	52	9	33	2.0	2.0	2.0	4407-6
26	2250	2	28	48	7	12	82	712	42	7	29	1.5	1.5	2.5	4408-6
27															
28															
29															
30															
31															
TOTALS	——	42	255	675	73	103	833	5233	692	128	432	16.5	20.5	21.5	——
NOBS	——	10	10	10	10	10	10	10	10	10	10	10	10	10	——
MNS	——	4.20	25.50	67.50	7.30	10.30	83.30	523.30	69.20	12.80	43.20	1.65	2.05	2.15	——

MEAN WEIGHT = 0.5159 MEAN CONDITION = 1.9500 TRUNCATED WOLF NUMBER = 66.30

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

MAY 2004

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											
05	2145	17	2	10	5	0	0	1.5	2.0	2.5	4399-6
06	2155	6	2	1	3	0	0	1.5	2.0	2.5	4400-6
07											
08											
09											
10											
11											
12											
13											
14											
15	2140	33	3	19	9	2	0	2.0	2.5	2.0	4401-6
16	2205	34	3	18	10	3	0	2.0	2.5	2.0	4402-6
17	2225	35	5	19	10	1	0	1.5	2.0	2.0	4403-6
18	2240	31	4	15	10	2	0	1.5	2.5	2.0	4404-6
19											
20	2225	23	4	8	10	1	0	1.5	2.0	2.0	4405-6
21											
22											
23	2155	40	3	16	19	2	0	1.5	1.5	2.0	4406-6
24											
25	2235	35	1	17	15	2	0	2.0	2.0	2.0	4407-6
26	2250	29	1	15	12	1	0	1.5	1.5	2.5	4408-6
27											
28											
29											
30											
31											
TOTALS	——	283	28	138	103	14	0	16.5	20.5	21.5	——
NOBS	——	10	10	10	10	10	10	10	10	10	——
MNS	——	28.30	2.80	13.80	10.30	1.40	0.00	1.65	2.05	2.15	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

MAY 2004

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																			
05	2145	0	0	0	0	0	0	2	3/12	0	0	0	0	0	0	0	0	0	0
06	2155	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
07																			
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15	2140	0	0	0	0	1	3	2	7/18	0	0	0	0	0	0	0	0	2	1/1
16	2205	0	0	0	0	0	0	3	5/10/13	0	0	0	0	0	0	0	0	3	1/1/1
17	2225	0	0	0	0	2	2/5	2	4/16	0	0	0	0	0	0	0	0	2	1/2
18	2240	0	0	0	0	1	3	2	7/13	0	0	0	0	0	0	0	0	3	1/1/2
19																			
20	2225	0	0	0	0	2	3/3	2	5/7	0	0	0	0	0	0	0	0	1	1
21																			
22																			
23	2155	0	0	0	0	2	3/4	0	0	1	28	0	0	0	0	0	0	2	1/1
24																			
25	2235	0	0	0	0	0	0	0	0	1	32	0	0	0	0	0	0	2	1/1
26	2250	0	0	0	0	0	0	0	0	1	27	0	0	0	0	0	0	1	1
27																			
28																			
29																			
30																			
31																			
TOTALS	———	0	0	1	2	9	28	13	120	3	87	0	0	0	0	0	0	16	18

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	2.4	21.4	31.0	7.1	0.0	0.0	0.0	38.1	42

NOBS = 10 $\overline{p / g}$ mean = 1.8267 $\overline{f / g}$ mean = 6.6700

$\overline{p} / \overline{g}$ mean = 1.7381 $\overline{f} / \overline{g}$ mean = 6.0714

GROUP COMPLEXITY INDEX (GCI) = 7.8095

Georgi Dobrovolski Solar Observatory

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 DECEMBER	6.87	113.99	143.55	1054.5	134.41	21.39	50.07
2003 JANUARY	6.70	111.33	139.67	1025.9	131.02	20.89	49.03
FEBRUARY	6.53	106.90	133.21	945.1	126.49	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	699.9	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.2	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.1	85.40	13.74	32.00

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 DECEMBER	6.88	110.96	137.75	957.8	130.22	21.17	46.90
2003 JANUARY	6.54	103.97	127.63	856.1	121.96	19.99	43.03
FEBRUARY	6.23	98.09	119.76	784.5	115.98	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.7	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.1	82.96	13.34	30.79

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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WEBSITE: www.cv-helios.net/gdso

SUNSPOT RESULTS FOR JUNE 2004

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															
03															
04															
05															
06															
07	2235	4	11	51	4	6	46	144	45	11	35	1.5	1.5	2.5	4409-7
08															
09															
10	2205	3	6	36	2	4	24	69	24	7	17	1.5	2.0	2.0	4410-7
11	2220	2	5	25	3	1	31	109	32	6	20	2.0	2.0	2.0	4411-7
12	2250	2	3	23	2	1	21	53	21	5	13	1.5	1.5	1.5	4412-7
13	2255	4	13	53	4	7	47	253	73	11	37	1.5	1.5	2.0	4413-7
14	2305	5	16	66	8	5	85	509	117	19	93	1.5	2.0	2.0	4414-7
15															
16															
17															
18															
19															
20															
21															
22	2215	5	30	80	9	14	104	867	138	17	69	1.5	2.0	2.5	4415-7
23	2235	4	30	70	7	13	83	856	122	14	62	2.0	3.0	3.0	4416-7
24															
25															
26															
27															
28															
29															
30															
31	—														
TOTALS	——	29	114	404	39	51	441	2860	572	90	346	13.0	15.5	17.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	8	8	8	8	——
MNS	——	3.62	14.25	50.50	4.88	6.38	55.12	357.50	71.50	11.25	43.25	1.62	1.94	2.19	——

MEAN WEIGHT = 0.5348 MEAN CONDITION = 1.9167 TRUNCATED WOLF NUMBER = 40.25

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

JUNE 2004

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											
05											
06											
07	2235	14	3	5	5	0	1	1.5	1.5	2.5	4409-7
08											
09											
10	2205	8	2	1	4	1	0	1.5	2.0	2.0	4410-7
11	2220	6	1	3	1	1	0	2.0	2.0	2.0	4411-7
12	2250	4	1	1	1	1	0	1.5	1.5	1.5	4412-7
13	2255	16	3	5	7	1	0	1.5	1.5	2.0	4413-7
14	2305	19	3	10	4	1	1	1.5	2.0	2.0	4414-7
15											
16											
17											
18											
19											
20											
21											
22	2215	33	3	14	14	2	0	1.5	2.0	2.5	4415-7
23	2235	33	3	17	12	0	1	2.0	3.0	3.0	4416-7
24											
25											
26											
27											
28											
29											
30											
31	—										
TOTALS	——	133	19	56	48	7	3	13.0	15.5	17.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	——
MNS	——	16.62	2.38	7.00	6.00	0.88	0.38	1.62	1.94	2.19	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JUNE 2004

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																			
05																			
06																			
07	2235	1	1	0	0	2	2/2	1	6	0	0	0	0	0	0	0	0	0	0
08																			
09																			
10	2205	0	0	1	2	1	3	0	0	0	0	0	0	0	0	0	0	1	1
11	2220	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	1	1
12	2250	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	1
13	2255	0	0	2	2/2	0	0	0	0	1	8	0	0	0	0	0	0	1	1
14	2305	1	1	0	0	0	0	1	2	0	0	2	4/8	0	0	0	0	1	1
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22	2215	0	0	1	3	0	0	1	7	0	0	1	18	0	0	1	1	1	1
23	2235	1	1	0	0	1	3	1	6	0	0	1	20	0	0	0	0	0	0
24																			
25																			
26																			
27																			
28																			
29																			
30																			
31	—																		
TOTALS	——	3	3	4	9	5	12	5	25	1	8	4	50	0	0	1	1	6	6

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
10.3	13.8	17.2	17.2	3.4	13.8	0.0	3.4	20.7	29

NOBS = 8 $\overline{p / g}$ mean = 1.2896 $\overline{f / g}$ mean = 3.5875

$\overline{p} / \overline{g}$ mean = 1.3448 $\overline{f} / \overline{g}$ mean = 3.9310

GROUP COMPLEXITY INDEX (GCI) = 5.2759

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 JANUARY	6.70	111.33	139.67	1025.9	131.02	20.89	49.03
FEBRUARY	6.53	106.90	133.21	945.1	126.49	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 JANUARY	6.54	103.97	127.63	856.1	121.96	19.99	43.03
FEBRUARY	6.23	98.09	119.76	784.5	115.98	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR JULY 2004

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	2320	2	9	29	4	4	44	122	43	7	25	2.0	2.5	2.5	4417-8
03															
04	0150	2	7	27	1	4	14	52	10	4	10	2.0	2.0	2.5	4418-8
05															
06															
07	2225	1	2	12	0	2	2	8	2	2	4	2.0	2.0	2.0	4419-8
08															
09	2240	3	12	42	4	7	47	205	44	9	29	2.0	2.5	2.5	4420-8
10	2250	4	18	58	7	9	79	303	63	12	38	2.5	2.5	2.0	4421-8
11	2300	4	21	61	7	11	81	333	54	10	30	2.5	2.5	2.0	4422-8
12	2250	7	45	115	10	21	121	692	112	20	68	1.5	2.0	2.0	4423-8
13	2305	7	54	124	14	19	159	1038	154	22	84	1.5	2.0	2.0	4424-8
14															
15															
16															
17	2210	6	52	112	11	17	127	1217	130	23	99	2.0	2.0	2.0	4425-8
18	2225	7	74	144	13	26	156	2075	134	21	87	2.0	2.0	2.5	4426-8
19															
20															
21	2225	4	68	108	12	18	138	2125	120	16	72	2.0	2.5	2.5	4427-8
22															
23	2215	3	69	99	8	18	98	2317	76	11	49	2.0	2.0	2.0	4428-9
24	2210	2	60	80	8	16	96	2104	68	9	45	1.5	2.0	2.0	4429-9
25	2220	3	60	90	10	17	117	2089	95	12	56	1.5	2.0	2.0	4430-9
26															
27															
28															
29															
30	2215	2	12	32	3	6	36	235	32	6	20	1.5	2.0	2.5	4431-9
31	2225	2	8	28	3	4	34	124	33	7	25	2.0	3.0	2.0	4432-9
TOTALS	——	59	571	1161	115	199	1349	15039	1170	191	741	30.5	35.5	35.0	——
NOBS	——	16	16	16	16	16	16	16	16	16	16	16	16	16	——
MNS	——	3.69	35.69	72.56	7.19	12.44	84.31	939.94	73.13	11.94	46.31	1.91	2.22	2.19	——

MEAN WEIGHT = 0.4798 MEAN CONDITION = 2.1042 TRUNCATED WOLF NUMBER = 64.81

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

JULY 2004

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	2320	11	2	5	4	0	0	2.0	2.5	2.5	4417-8
03											
04	0150	8	1	3	3	0	1	2.0	2.0	2.5	4418-8
05											
06											
07	2225	3	1	0	2	0	0	2.0	2.0	2.0	4419-8
08											
09	2240	14	2	4	7	1	0	2.0	2.5	2.5	4420-8
10	2250	21	3	8	9	1	0	2.5	2.5	2.0	4421-8
11	2300	23	2	9	10	1	1	2.5	2.5	2.0	4422-8
12	2250	50	5	24	19	0	2	1.5	2.0	2.0	4423-8
13	2305	59	5	35	17	0	2	1.5	2.0	2.0	4424-8
14											
15											
16											
17	2210	58	6	35	17	0	0	2.0	2.0	2.0	4425-8
18	2225	78	4	47	24	1	2	2.0	2.0	2.5	4426-8
19											
20											
21	2225	71	3	49	18	1	0	2.0	2.5	2.5	4427-8
22											
23	2215	71	2	50	18	1	0	2.0	2.0	2.0	4428-9
24	2210	62	2	44	16	0	0	1.5	2.0	2.0	4429-9
25	2220	62	2	42	17	1	0	1.5	2.0	2.0	4430-9
26											
27											
28											
29											
30	2215	13	1	5	6	1	0	1.5	2.0	2.5	4431-9
31	2225	10	2	4	4	0	0	2.0	3.0	2.0	4432-9
TOTALS	——	614	43	364	191	8	8	30.5	35.5	35.0	——
NOBS	——	16	16	16	16	16	16	16	16	16	——
MNS	——	38.38	2.69	22.75	11.94	0.50	0.50	1.91	2.22	2.19	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JULY 2004

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	2320	0	0	0	0	1	4	1	5	0	0	0	0	0	0	0	0	0	0
03																			
04	0150	1	1	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0
05																			
06																			
07	2225	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08																			
09	2240	0	0	0	0	1	3	1	8	0	0	0	0	0	0	0	0	1	1
10	2250	0	0	0	0	2	2/2	1	13	0	0	0	0	0	0	0	0	1	1
11	2300	1	1	0	0	1	5	1	14	0	0	0	0	0	0	0	0	1	1
12	2250	2	1/1	0	0	2	4/5	3	6/12/16	0	0	0	0	0	0	0	0	0	0
13	2305	2	1/1	0	0	1	6	3	7/8/9	1	22	0	0	0	0	0	0	0	0
14																			
15																			
16																			
17	2210	0	0	1	2	2	2/7	1	6	1	21	1	14	0	0	0	0	0	0
18	2225	2	1/1	1	2	0	0	1	11	1	24	1	34	0	0	0	0	1	1
19																			
20																			
21	2225	0	0	0	0	0	0	2	7/11	0	0	1	49	0	0	0	0	1	1
22																			
23	2215	0	0	0	0	1	6	0	0	0	0	1	62	0	0	0	0	1	1
24	2210	0	0	0	0	1	2	0	0	0	0	1	58	0	0	0	0	0	0
25	2220	0	0	0	0	0	0	1	4	0	0	1	55	0	0	0	0	1	1
26																			
27																			
28																			
29																			
30	2215	0	0	0	0	0	0	1	11	0	0	0	0	0	0	0	0	1	1
31	2225	0	0	0	0	1	2	1	6	0	0	0	0	0	0	0	0	0	0
TOTALS	——	8	8	3	6	14	56	17	154	3	67	6	272	0	0	0	0	8	8

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
13.6	5.1	23.7	28.8	5.1	10.2	0.0	0.0	13.6	59

NOBS = 16 $\overline{p / g}$ mean = 1.9033 $\overline{f / g}$ mean = 9.8207

$\overline{p} / \overline{g}$ mean = 1.9492 $\overline{f} / \overline{g}$ mean = 9.6780

GROUP COMPLEXITY INDEX (GCI) = 11.6271

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 FEBRUARY	6.53	106.90	133.21	945.1	126.49	20.28	46.09
MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 FEBRUARY	6.23	98.09	119.76	784.5	115.98	18.98	40.04
MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12

Georgi Dobrovolski Solar Observatory

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SUNSPOT RESULTS FOR AUGUST 2004

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	2210	2	17	37	7	7	77	397	60	9	41	1.5	2.0	2.0	4433-9
03															
04															
05															
06															
07															
08															
09															
10	2140	4	52	92	11	14	124	1269	75	11	39	1.5	2.0	2.5	4434-9
11															
12	2135	6	69	129	10	12	112	2371	94	16	58	2.0	3.0	3.0	4435-9
13															
14															
15	2310	3	47	77	8	6	86	1639	110	12	56	2.0	3.0	2.5	4436-9
16	2305	4	46	86	10	11	111	1416	115	13	57	2.0	3.0	2.5	4437-9
17															
18	2210	3	23	53	5	16	66	386	79	10	36	1.5	2.0	2.0	4438-0
19	2220	4	20	60	5	11	61	365	79	11	37	1.5	2.0	2.0	4439-0
20	2200	5	32	82	12	11	131	575	138	17	61	1.0	2.0	2.5	4440-0
21															
22															
23	2255	3	16	46	7	5	75	288	102	12	48	1.5	2.0	2.5	4441-0
24	2200	3	16	46	6	7	67	258	77	11	41	1.5	2.0	2.0	4442-0
25	2150	3	10	40	3	6	36	116	61	9	27	2.0	2.5	2.0	4443-0
26	2235	2	8	28	3	3	33	163	32	6	20	2.0	2.5	2.0	4444-0
27	2220	2	5	25	3	1	31	237	30	6	20	2.0	2.0	2.0	4445-0
28	2130	2	3	23	3	0	30	137	36	6	20	2.5	3.0	2.5	4446-0
29	2150	1	1	11	1	0	10	37	10	2	4	1.5	2.0	2.0	4447-0
30	2240	1	3	13	2	1	21	54	28	4	16	2.5	3.0	2.5	4448-0
31															
TOTALS	——	48	368	848	96	111	1071	9708	1126	155	581	28.5	38.0	36.5	——
NOBS	——	16	16	16	16	16	16	16	16	16	16	16	16	16	——
MNS	——	3.00	23.00	53.00	6.00	6.94	66.94	606.75	70.38	9.69	36.31	1.78	2.38	2.28	——

MEAN WEIGHT = 0.4763 MEAN CONDITION = 2.1458 TRUNCATED WOLF NUMBER = 48.75

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

AUGUST 2004

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	2210	19	2	10	7	0	0	1.5	2.0	2.0	4433-9
03											
04											
05											
06											
07											
08											
09											
10	2140	55	3	38	13	0	1	1.5	2.0	2.5	4434-9
11											
12	2135	71	2	54	11	3	1	2.0	3.0	3.0	4435-9
13											
14											
15	2310	49	2	40	6	1	0	2.0	3.0	2.5	4436-9
16	2305	49	3	35	10	0	1	2.0	3.0	2.5	4437-9
17											
18	2210	26	3	7	16	0	0	1.5	2.0	2.0	4438-0
19	2220	22	2	8	10	1	1	1.5	2.0	2.0	4439-0
20	2200	36	4	20	11	1	0	1.0	2.0	2.5	4440-0
21											
22											
23	2255	19	3	11	5	0	0	1.5	2.0	2.5	4441-0
24	2200	19	3	9	7	0	0	1.5	2.0	2.0	4442-0
25	2150	12	2	3	6	1	0	2.0	2.5	2.0	4443-0
26	2235	9	1	4	3	1	0	2.0	2.5	2.0	4444-0
27	2220	6	1	3	1	1	0	2.0	2.0	2.0	4445-0
28	2130	4	1	2	0	1	0	2.5	3.0	2.5	4446-0
29	2150	1	0	0	0	1	0	1.5	2.0	2.0	4447-0
30	2240	4	1	2	1	0	0	2.5	3.0	2.5	4448-0
31											
TOTALS	——	401	33	246	107	11	4	28.5	38.0	36.5	——
NOBS	——	16	16	16	16	16	16	16	16	16	——
MNS	——	25.06	2.06	15.38	6.69	0.69	0.25	1.78	2.38	2.28	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

AUGUST 2004

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	2210	0	0	0	0	0	0	1	4	1	13	0	0	0	0	0	0	0	0
03																			
04																			
05																			
06																			
07																			
08																			
09																			
10	2140	1	1	0	0	1	2	0	0	1	47	0	0	0	0	0	0	1	2
11																			
12	2135	1	1	0	0	1	3	0	0	0	0	1	62	0	0	0	0	3	1/1/1
13																			
14																			
15	2310	0	0	0	0	0	0	1	3	0	0	1	43	0	0	0	0	1	1
16	2305	1	1	1	2	0	0	1	8	0	0	1	35	0	0	0	0	0	0
17																			
18	2210	0	0	1	2	0	0	2	9/12	0	0	0	0	0	0	0	0	0	0
19	2220	1	1	0	0	0	0	2	8/10	0	0	0	0	0	0	0	0	1	1
20	2200	0	0	0	0	1	2	3	9/9/11	0	0	0	0	0	0	0	0	1	1
21																			
22																			
23	2255	0	0	0	0	0	0	3	3/4/9	0	0	0	0	0	0	0	0	0	0
24	2200	0	0	0	0	1	3	2	5/8	0	0	0	0	0	0	0	0	0	0
25	2150	0	0	0	0	2	4/5	0	0	0	0	0	0	0	0	1	1	0	0
26	2235	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0	1	1
27	2220	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	1
28	2130	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	1
29	2150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
30	2240	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0
31																			
TOTALS	——	4	4	2	4	6	19	17	122	2	60	3	140	2	6	1	1	11	12

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
8.3	4.2	12.5	35.4	4.2	6.2	4.2	2.1	22.9	48

NOBS = 16 $\overline{p / g}$ mean = 1.9521 $\overline{f / g}$ mean = 6.5771

$\overline{p} / \overline{g}$ mean = 2.0000 $\overline{f} / \overline{g}$ mean = 7.6667

GROUP COMPLEXITY INDEX (GCI) = 9.6667

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 MARCH	6.16	99.23	122.66	846.7	117.92	19.05	41.83
APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 MARCH	5.92	93.26	113.82	746.3	111.30	18.09	38.13
APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88

Georgi Dobrovolski Solar Observatory

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SUNSPOT RESULTS FOR SEPTEMBER 2004

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															
03															
04	2135	3	10	40	4	4	44	251	69	9	29	1.5	2.0	2.0	4449-0
05	2140	3	7	37	4	3	43	76	75	10	34	1.5	2.5	2.0	4450-0
06	2120	3	17	47	7	7	77	276	103	11	41	1.0	2.0	2.0	4451-0
07															
08															
09															
10															
11															
12															
13	2105	2	25	45	8	9	89	469	41	6	20	1.5	2.5	2.5	4452-0
14	2115	1	28	38	6	11	71	504	31	4	16	1.5	2.0	2.5	4453-1
15															
16	2115	2	28	48	7	17	87	504	89	8	32	1.5	2.0	2.0	4454-1
17															
18															
19	2110	2	21	41	5	10	60	378	80	8	32	1.5	2.5	2.5	4455-1
20															
21															
22															
23															
24															
25	2100	2	2	22	2	0	20	81	50	5	13	1.5	2.0	2.0	4456-1
26															
27															
28	2105	2	2	22	2	0	20	74	20	4	8	2.0	3.0	2.0	4457-1
29															
30															
31	—														
TOTALS	——	20	140	340	45	61	511	2613	558	65	225	13.5	20.5	19.5	——
NOBS	——	9	9	9	9	9	9	9	9	9	9	9	9	9	——
MNS	——	2.22	15.56	37.78	5.00	6.78	56.78	290.33	62.00	7.22	25.00	1.50	2.28	2.17	——

MEAN WEIGHT = 0.5098 MEAN CONDITION = 1.9815 TRUNCATED WOLF NUMBER = 37.78

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

SEPTEMBER 2004

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	2135	12	2	5	4	1	0	1.5	2.0	2.0	4449-0
05	2140	10	3	4	3	0	0	1.5	2.5	2.0	4450-0
06	2120	20	3	10	7	0	0	1.0	2.0	2.0	4451-0
07											
08											
09											
10											
11											
12											
13	2105	26	1	15	9	1	0	1.5	2.5	2.5	4452-0
14	2115	29	1	17	11	0	0	1.5	2.0	2.5	4453-1
15											
16	2115	30	2	11	17	0	0	1.5	2.0	2.0	4454-1
17											
18											
19	2110	23	2	11	10	0	0	1.5	2.5	2.5	4455-1
20											
21											
22											
23											
24											
25	2100	2	0	0	0	2	0	1.5	2.0	2.0	4456-1
26											
27											
28	2105	2	0	0	0	2	0	2.0	3.0	2.0	4457-1
29											
30											
31	—										
TOTALS	——	154	14	73	61	6	0	13.5	20.5	19.5	——
NOBS	——	9	9	9	9	9	9	9	9	9	——
MNS	——	17.11	1.56	8.11	6.78	0.67	0.00	1.50	2.28	2.17	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

SEPTEMBER 2004

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	2135	0	0	0	0	0	0	1	7	0	0	0	0	0	0	1	2	1	1
05	2140	0	0	0	0	2	2/3	1	2	0	0	0	0	0	0	0	0	0	0
06	2120	0	0	0	0	1	3	2	6/8	0	0	0	0	0	0	0	0	0	0
07																			
08																			
09																			
10																			
11																			
12																			
13	2105	0	0	0	0	0	0	1	24	0	0	0	0	0	0	0	0	1	1
14	2115	0	0	0	0	0	0	1	28	0	0	0	0	0	0	0	0	0	0
15																			
16	2115	0	0	0	0	0	0	2	5/23	0	0	0	0	0	0	0	0	0	0
17																			
18																			
19	2110	0	0	0	0	0	0	2	6/15	0	0	0	0	0	0	0	0	0	0
20																			
21																			
22																			
23																			
24																			
25	2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
26																			
27																			
28	2105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1/1
29																			
30																			
31	—																		
TOTALS	——	0	0	0	0	3	8	10	124	0	0	0	0	0	0	2	3	5	5

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	0.0	15.0	50.0	0.0	0.0	0.0	10.0	25.0	20

NOBS = 9 $\overline{p / g}$ mean = 2.5556 $\overline{f / g}$ mean = 8.7037

$\overline{p} / \overline{g}$ mean = 2.2500 $\overline{f} / \overline{g}$ mean = 7.0000

GROUP COMPLEXITY INDEX (GCI) = 9.2500

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 APRIL	5.74	92.23	112.48	790.1	110.09	17.81	38.75
MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48
MARCH	3.56	58.70	70.01	537.4	70.74	11.30	25.59

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 APRIL	5.66	90.19	110.04	745.1	108.03	17.43	37.52
MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88
MARCH	3.61	57.85	69.17	492.8	69.40	11.33	24.29

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR OCTOBER 2004

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	2120	2	5	25	2	2	22	98	19	5	13	2.0	2.0	2.0	4458-1
03															
04															
05	2115	2	4	24	2	2	22	61	22	5	13	1.5	3.0	3.0	4459-1
06															
07															
08															
09															
10															
11															
12															
13															
14															
15															
16	2030	2	13	33	4	5	45	214	42	7	25	1.5	2.5	2.5	4460-2
17															
18	2050	4	21	61	9	8	98	397	97	14	52	1.5	2.0	1.5	4461-2
19															
20	2005	6	34	94	9	13	103	699	90	20	74	1.5	2.5	3.0	4462-2
21	2135	6	26	86	11	6	116	597	142	21	81	2.0	2.5	3.0	4463-2
22															
23															
24															
25															
26	2020	7	54	124	14	16	156	1117	114	24	88	1.5	2.0	2.0	4464-2
27															
28															
29															
30	1955	7	43	113	11	19	129	1095	141	22	82	1.5	3.0	4.0	4465-2
31	2035	6	44	104	14	14	154	1156	152	20	78	1.5	2.5	2.5	4466-2
TOTALS	——	42	244	664	76	85	845	5434	819	138	506	14.5	22.0	23.5	——
NOBS	——	9	9	9	9	9	9	9	9	9	9	9	9	9	——
MNS	——	4.67	27.11	73.78	8.44	9.44	93.89	603.78	91.00	15.33	56.22	1.61	2.44	2.61	——

MEAN WEIGHT = 0.4611 MEAN CONDITION = 2.2222 TRUNCATED WOLF NUMBER = 71.11

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

OCTOBER 2004

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	2120	7	2	3	2	0	0	2.0	2.0	2.0	4458-1
03											
04											
05	2115	5	1	1	2	1	0	1.5	3.0	3.0	4459-1
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16	2030	15	2	8	5	0	0	1.5	2.5	2.5	4460-2
17											
18	2050	24	3	12	8	1	0	1.5	2.0	1.5	4461-2
19											
20	2005	39	5	20	13	1	0	1.5	2.5	3.0	4462-2
21	2135	30	4	18	6	2	0	2.0	2.5	3.0	4463-2
22											
23											
24											
25											
26	2020	61	7	38	16	0	0	1.5	2.0	2.0	4464-2
27											
28											
29											
30	1955	49	6	23	19	1	0	1.5	3.0	4.0	4465-2
31	2035	48	4	28	14	2	0	1.5	2.5	2.5	4466-2
TOTALS	——	278	34	151	85	8	0	14.5	22.0	23.5	——
NOBS	——	9	9	9	9	9	9	9	9	9	——
MNS	——	30.89	3.78	16.78	9.44	0.89	0.00	1.61	2.44	2.61	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

OCTOBER 2004

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	2120	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	2
03																			
04																			
05	2115	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	1
06																			
07																			
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16	2030	0	0	0	0	1	2	1	11	0	0	0	0	0	0	0	0	0	0
17																			
18	2050	0	0	0	0	0	0	3	4/5/11	0	0	0	0	0	0	0	0	1	1
19																			
20	2005	0	0	1	2	1	3	2	3/7	1	18	0	0	0	0	0	0	1	1
21	2135	0	0	0	0	0	0	3	3/4/4	1	13	0	0	0	0	0	0	2	1/1
22																			
23																			
24																			
25																			
26	2020	0	0	0	0	3	2/4/5	2	4/6	1	31	0	0	0	0	0	0	1	2
27																			
28																			
29																			
30	1955	0	0	1	2	2	2/3	1	14	0	0	1	19	0	0	0	0	2	1/2
31	2035	0	0	0	0	2	2/5	1	13	0	0	1	22	0	0	0	0	2	1/1
TOTALS	——	0	0	2	4	11	34	13	89	3	62	2	41	0	0	0	0	11	14

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	4.8	26.2	31.0	7.1	4.8	0.0	0.0	26.2	42

NOBS = 9 $\overline{p / g}$ mean = 1.7209 $\overline{f / g}$ mean = 5.2712

$\overline{p} / \overline{g}$ mean = 1.8095 $\overline{f} / \overline{g}$ mean = 5.8095

GROUP COMPLEXITY INDEX (GCI) = 7.6190

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 MAY	5.42	87.47	105.66	754.5	103.35	16.84	37.04
JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48
MARCH	3.56	58.70	70.01	537.4	70.74	11.30	25.59
APRIL	3.53	57.59	70.08	508.8	70.66	11.20	24.77

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 MAY	5.46	88.68	108.35	769.9	105.78	16.96	37.93
JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88
MARCH	3.61	57.85	69.17	492.8	69.40	11.33	24.29
APRIL	3.58	57.27	68.92	486.3	68.87	11.18	23.97

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR NOVEMBER 2004

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	2015	6	45	105	14	7	147	1406	140	22	92	1.5	2.0	2.0	4467-2
02															
03	1955	4	54	94	9	11	101	1584	126	18	84	1.5	2.0	2.0	4468-2
04	2030	3	42	72	10	9	109	1171	113	12	56	1.5	2.5	2.5	4469-2
05	2000	3	49	79	9	7	97	1188	101	14	68	1.5	2.0	2.5	4470-2
06															
07	2000	3	50	80	11	12	122	1308	120	15	77	1.5	3.0	2.5	4471-2
08															
09															
10															
11															
12															
13															
14															
15															
16															
17															
18	2030	3	6	36	4	1	41	146	42	8	24	2.0	3.0	4.0	4472-3
19															
20															
21															
22															
23															
24	1950	4	8	48	4	2	42	209	38	9	21	2.0	2.5	2.5	4473-3
25															
26															
27															
28															
29	2210	3	8	38	4	1	41	189	72	9	29	2.0	2.5	2.0	4474-3
30															
31	—														
TOTALS	——	29	262	552	65	50	700	7201	752	107	451	13.5	19.5	20.0	——
NOBS	——	8	8	8	8	8	8	8	8	8	8	8	8	8	——
MNS	——	3.62	32.75	69.00	8.12	6.25	87.50	900.12	94.00	13.38	56.38	1.69	2.44	2.50	——

MEAN WEIGHT = 0.4631 MEAN CONDITION = 2.2083 TRUNCATED WOLF NUMBER = 69.00

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

NOVEMBER 2004

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	2015	49	4	36	7	2	0	1.5	2.0	2.0	4467-2
02											
03	1955	58	4	43	11	0	0	1.5	2.0	2.0	4468-2
04	2030	44	2	32	9	1	0	1.5	2.5	2.5	4469-2
05	2000	52	3	42	7	0	0	1.5	2.0	2.5	4470-2
06											
07	2000	53	3	38	12	0	0	1.5	3.0	2.5	4471-2
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18	2030	7	1	3	1	2	0	2.0	3.0	4.0	4472-3
19											
20											
21											
22											
23											
24	1950	10	2	4	2	2	0	2.0	2.5	2.5	4473-3
25											
26											
27											
28											
29	2210	9	1	5	1	2	0	2.0	2.5	2.0	4474-3
30											
31	—										
TOTALS	——	282	20	203	50	9	0	13.5	19.5	20.0	——
NOBS	——	8	8	8	8	8	8	8	8	8	——
MNS	——	35.25	2.50	25.38	6.25	1.12	0.00	1.69	2.44	2.50	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

NOVEMBER 2004

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	2015	0	0	0	0	0	0	3	3/4/5	0	0	1	31	0	0	0	0	2	1/1
02																			
03	1955	0	0	0	0	0	0	3	2/4/14	0	0	1	34	0	0	0	0	0	0
04	2030	0	0	0	0	0	0	1	19	0	0	1	22	0	0	0	0	1	1
05	2000	0	0	0	0	0	0	2	4/28	0	0	1	17	0	0	0	0	0	0
06																			
07	2000	0	0	0	0	0	0	1	9	1	30	1	11	0	0	0	0	0	0
08																			
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18	2030	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	2	1/1
19																			
20																			
21																			
22																			
23																			
24	1950	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	3	1/1/3
25																			
26																			
27																			
28																			
29	2210	0	0	0	0	0	0	1	6	0	0	0	0	0	0	1	1	1	1
30																			
31	—																		
TOTALS	——	0	0	0	0	1	3	12	102	1	30	5	115	0	0	1	1	9	11

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	0.0	3.4	41.4	3.4	17.2	0.0	3.4	31.0	29

NOBS = 8 $\overline{p / g}$ mean = 2.2812 $\overline{f / g}$ mean = 9.3333

$\overline{p} / \overline{g}$ mean = 2.2414 $\overline{f} / \overline{g}$ mean = 9.0345

GROUP COMPLEXITY INDEX (GCI) = 11.2759

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 JUNE	5.20	83.92	100.90	711.4	98.47	16.12	35.52
JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48
MARCH	3.56	58.70	70.01	537.4	70.74	11.30	25.59
APRIL	3.53	57.59	70.08	508.8	70.66	11.20	24.77
MAY	3.57	57.74	71.00	503.5	71.37	11.34	24.58

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 JUNE	5.29	87.55	107.34	794.9	104.33	16.62	38.39
JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88
MARCH	3.61	57.85	69.17	492.8	69.40	11.33	24.29
APRIL	3.58	57.27	68.92	486.3	68.87	11.18	23.97
MAY	3.57	57.45	69.47	497.3	69.37	11.18	24.20

Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR DECEMBER 2004

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															
03															
04															
05	2145	3	3	33	3	0	30	111	30	6	12	1.5	2.5	2.5	4475-4
06															
07	2050	1	1	11	1	0	10	37	10	2	4	2.0	3.5	4.0	4476-4
08	2130	1	1	11	1	0	10	37	10	2	4	2.0	3.0	3.0	4477-4
09															
10															
11															
12															
13															
14															
15															
16	2050	1	2	12	2	0	20	36	25	4	16	1.5	2.5	2.5	4478-4
17															
18															
19															
20															
21	2100	2	15	35	3	8	38	341	34	8	34	1.5	2.5	2.5	4479-4
22															
23	2015	2	14	34	7	4	74	336	57	9	41	1.5	2.5	2.5	4480-4
24															
25															
26	1955	1	1	11	1	0	10	37	10	2	4	1.5	2.0	2.0	4481-4
27	1955	1	1	11	1	0	10	37	10	2	4	1.0	2.0	2.5	4482-4
28															
29															
30															
31															
TOTALS	——	12	38	158	19	12	202	972	186	35	119	12.5	20.5	21.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	8	8	8	8	——
MNS	——	1.50	4.75	19.75	2.38	1.50	25.25	121.50	23.25	4.38	14.88	1.56	2.56	2.69	——

MEAN WEIGHT = 0.4535 MEAN CONDITION = 2.2708 TRUNCATED WOLF NUMBER = 19.75

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

DECEMBER 2004

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											
05	2145	3	0	0	0	3	0	1.5	2.5	2.5	4475-4
06											
07	2050	1	0	0	0	1	0	2.0	3.5	4.0	4476-4
08	2130	1	0	0	0	1	0	2.0	3.0	3.0	4477-4
09											
10											
11											
12											
13											
14											
15											
16	2050	3	1	2	0	0	0	1.5	2.5	2.5	4478-4
17											
18											
19											
20											
21	2100	17	2	7	8	0	0	1.5	2.5	2.5	4479-4
22											
23	2015	16	2	10	4	0	0	1.5	2.5	2.5	4480-4
24											
25											
26	1955	1	0	0	0	1	0	1.5	2.0	2.0	4481-4
27	1955	1	0	0	0	1	0	1.0	2.0	2.5	4482-4
28											
29											
30											
31											
TOTALS	——	43	5	19	12	7	0	12.5	20.5	21.5	——
NOBS	——	8	8	8	8	8	8	8	8	8	——
MNS	——	5.38	0.62	2.38	1.50	0.88	0.00	1.56	2.56	2.69	——

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

DECEMBER 2004

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																			
05	2145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1/1/1
06																			
07	2050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08	2130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
09																			
10																			
11																			
12																			
13																			
14																			
15																			
16	2050	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
17																			
18																			
19																			
20																			
21	2100	0	0	0	0	1	2	0	0	1	13	0	0	0	0	0	0	0	0
22																			
23	2015	0	0	0	0	0	0	1	2	1	12	0	0	0	0	0	0	0	0
24																			
25																			
26	1955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
27	1955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
28																			
29																			
30																			
31																			
TOTALS	——	0	0	0	0	1	2	2	4	2	25	0	0	0	0	0	0	7	7

REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	SIGMAg
0.0	0.0	8.3	16.7	16.7	0.0	0.0	0.0	58.3	12

NOBS = 8 $\overline{p / g}$ mean = 1.5000 $\overline{f / g}$ mean = 2.6875

$\overline{p} / \overline{g}$ mean = 1.5833 $\overline{f} / \overline{g}$ mean = 3.1667

GROUP COMPLEXITY INDEX (GCI) = 4.7500

Georgi Dobrovolski Solar Observatory

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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
2003 JULY	4.95	80.94	98.45	709.6	96.91	15.55	34.95
AUGUST	4.68	77.77	95.55	703.2	94.97	14.95	34.28
SEPTEMBER	4.55	76.06	93.48	700.0	92.65	14.61	33.78
OCTOBER	4.41	73.76	90.28	690.5	88.82	14.13	32.79
NOVEMBER	4.29	71.92	88.12	673.5	85.40	13.74	32.00
DECEMBER	4.19	69.26	84.25	630.5	82.43	13.37	30.28
2004 JANUARY	4.00	65.23	78.05	575.9	77.59	12.71	28.00
FEBRUARY	3.75	61.35	72.76	548.3	72.73	11.90	26.48
MARCH	3.56	58.70	70.01	537.4	70.74	11.30	25.59
APRIL	3.53	57.59	70.08	508.8	70.66	11.20	24.77
MAY	3.57	57.74	71.00	503.5	71.37	11.34	24.58
JUNE	3.47	56.82	70.02	515.1	70.41	11.12	24.53

BARNES-13 METHOD

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
2003 JULY	5.09	85.57	105.39	806.7	102.60	16.21	38.27
AUGUST	4.84	82.11	101.07	786.7	98.76	15.58	37.12
SEPTEMBER	4.60	78.06	95.50	750.9	93.61	14.85	35.37
OCTOBER	4.35	73.60	89.51	704.8	88.15	14.07	33.20
NOVEMBER	4.14	69.20	83.99	644.3	82.96	13.34	30.79
DECEMBER	3.96	65.01	78.56	577.5	78.19	12.69	28.24
2004 JANUARY	3.80	61.44	73.72	524.8	73.91	12.09	26.12
FEBRUARY	3.68	59.12	70.59	500.3	70.85	11.63	24.88
MARCH	3.61	57.85	69.17	492.8	69.40	11.33	24.29
APRIL	3.58	57.27	68.92	486.3	68.87	11.18	23.97
MAY	3.57	57.45	69.47	497.3	69.37	11.18	24.20
JUNE	3.52	57.42	69.76	520.6	69.89	11.11	24.67

ERRATA: BX observed values for March & April 2004 should read 620.73 & 271.36 respectively, hence, the BX smoothed values (above) are corrected.

Georgi Dobrovolski Solar Observatory

OBSERVED ANNUAL MEANS OF SUNSPOT DATA FOR

2004

All observations carried out by HOWARD BARNES .
Telescope : 76 mm refractor (f.l. 910 mm) .
Observed by PROJECTION . Full disc diameter = 145 mm approx .
Q = Quietness [ie. steadiness] refer to Kiepenheuer scale .
S = Sharpness [ie. clarity] refer to Kiepenheuer scale .
T = Transparency where 1 = excellent , 5 = worthless .

g	=	3.36
f	=	22.86
Wolf Number	=	56.43
Truncated Wolf Number	=	52.00
p	=	6.17
s	=	8.15
Pettisindex	=	69.82
Beckindex	=	546.75
Classification Value	=	69.75
Quality Count	=	10.87
Squared Quality Count	=	40.78
Inter-Sol Index	=	25.23
Mean Weight	=	0.4888
Q	=	1.69
S	=	2.31
T	=	2.29
Mean Condition	=	2.0926
Total Number of Observations	=	126