



# **GEORGI DOBROVOLSKI SOLAR OBSERVATORY**

## **MONTHLY SUNSPOT REPORTS**

# **1998**

### **CONTENTS:**

<b>JANUARY</b>	<b>2-4</b>
<b>FEBRUARY</b>	<b>5-7</b>
<b>MARCH</b>	<b>8-10</b>
<b>APRIL</b>	<b>11-13</b>
<b>MAY</b>	<b>14-16</b>
<b>JUNE</b>	<b>17-19</b>
<b>JULY</b>	<b>20-22</b>
<b>AUGUST</b>	<b>23-25</b>
<b>SEPTEMBER</b>	<b>26-28</b>
<b>OCTOBER</b>	<b>29-31</b>
<b>NOVEMBER</b>	<b>32-34</b>
<b>DECEMBER</b>	<b>35-37</b>
<b>1998 MEANS</b>	<b>38</b>



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

## SUNSPOT RESULTS FOR JANUARY 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	2020	3	15	45	5	5	55	250	61	2.5	2.5	2.5	3375
02	2030	2	10	30	2	4	24	138	25	2.5	2.5	2.5	3376
03	2045	2	9	29	3	4	34	134	33	2.0	2.5	2.5	3377
04	2025	2	3	23	1	2	12	20	12	2.0	2.0	2.5	3378
05	2015	1	1	11	0	1	1	4	1	2.0	2.5	2.5	3379
06	2110	0	0	0	0	0	0	0	0	2.0	2.5	2.5	3380
07	1935	0	0	0	0	0	0	0	0	1.5	2.5	2.5	3381
08													
09	1955	0	0	0	0	0	0	0	0	1.5	2.0	2.5	3382
10	1950	1	4	14	0	4	4	16	3	1.5	2.0	2.5	3383
11													
12	2010	2	24	44	3	18	48	390	34	2.0	2.5	3.0	3384
13	1955	3	16	46	3	7	37	358	34	2.0	2.5	3.0	3385
14	1940	3	21	51	3	10	40	350	33	1.5	2.0	2.5	3386
15													
16													
17													
18													
19	2015	2	3	23	0	3	3	12	3	2.0	2.5	2.5	3387
20													
21													
22													
23													
24													
25													
26	1945	3	23	53	3	16	46	389	38	2.0	3.0	3.0	3388
27													
28	2230	3	17	47	3	11	41	353	36	2.0	3.0	3.0	3389
29													
30													
31	1940	1	4	14	1	2	12	32	9	1.5	2.5	2.5	3390
Σ	—	28	150	430	27	87	357	2446	322	30.5	39.0	42.0	—
NOBS	—	16	16	16	16	16	16	16	16	16	16	16	—
MNS	—	1.75	9.38	26.88	1.69	5.44	22.31	152.88	20.12	1.91	2.44	2.62	—

MEAN WEIGHT = 0.4343

MEAN CONDITION = 2.3229

QUALITY COUNT = 4.56



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR JANUARY 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2020	18	3	10	5	0	0	2.5	2.5	2.5	3375
02	2030	12	2	6	4	0	0	2.5	2.5	2.5	3376
03	2045	11	2	5	4	0	0	2.0	2.5	2.5	3377
04	2025	4	1	1	1	0	1	2.0	2.0	2.5	3378
05	2015	1	0	0	0	0	1	2.0	2.5	2.5	3379
06	2110	0	0	0	0	0	0	2.0	2.5	2.5	3380
07	1935	0	0	0	0	0	0	1.5	2.5	2.5	3381
08											
09	1955	0	0	0	0	0	0	1.5	2.0	2.5	3382
10	1950	5	1	0	4	0	0	1.5	2.0	2.5	3383
11											
12	2010	26	2	6	18	0	0	2.0	2.5	3.0	3384
13	1955	17	1	9	5	0	2	2.0	2.5	3.0	3385
14	1940	22	1	11	8	0	2	1.5	2.0	2.5	3386
15											
16											
17											
18											
19	2015	4	1	0	2	0	1	2.0	2.5	2.5	3387
20											
21											
22											
23											
24											
25											
26	1945	26	3	7	16	0	0	2.0	3.0	3.0	3388
27											
28	2230	19	2	5	11	1	0	2.0	3.0	3.0	3389
29											
30											
31	1940	5	1	2	2	0	0	1.5	2.5	2.5	3390
$\Sigma$	—	170	20	62	80	1	7	30.5	39.0	42.0	—
NOBS	—	16	16	16	16	16	16	16	16	16	—
MNS	—	10.62	1.25	3.88	5.00	0.06	0.44	1.91	2.44	2.62	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR

# JANUARY 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	2020	0 : 0	0 : 0	1 : 2	2 : 6/7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
02	2020	0 : 0	1 : 3	0 : 0	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
03	2045	0 : 0	1 : 2	0 : 0	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
04	2025	1 : 1	0 : 0	1 : 2	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
05	2015	1 : 1	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
06	2110	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
07	1935	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
08										
09	1955	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
10	1950	0 : 0	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
11										
12	2010	0 : 0	1 : 3	0 : 0	1 : 21	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
13	1955	2 : 1/1	0 : 0	0 : 0	0 : 0	1 : 14	0 : 0	0 : 0	0 : 0	0 : 0
14	1940	2 : 1/1	0 : 0	0 : 0	1 : 19	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
15										
16										
17										
18										
19	2015	1 : 1	1 : 2	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
20										
21										
22										
23										
24										
25										
26	1945	0 : 0	1 : 4	1 : 6	0 : 0	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0
27										
28	2230	0 : 0	1 : 4	0 : 0	0 : 0	1 : 12	0 : 0	0 : 0	0 : 0	1 : 1
29										
30										
31	1940	0 : 0	0 : 0	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
<b>TOTALS</b>	—	7 : 7	7 : 22	4 : 14	6 : 67	3 : 39	0 : 0	0 : 0	0 : 0	1 : 1

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
25.0	25.0	14.3	21.4	10.7	0.0	0.0	0.0	3.6	28

NOBS = 16

$\overline{p/g}$  mean = 0.8590

$\overline{f/g}$  mean = 4.9359

$\overline{p/g}$  mean = 0.9643

$\overline{f/g}$  mean = 5.3571

GROUP COMPLEXITY INDEX (GCI) = 6.3214



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

## SUNSPOT RESULTS FOR FEBRUARY 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	1935	2	3	23	1	1	11	78	8	1.5	2.5	3.0	3391
02	2000	1	1	11	1	0	10	37	7	2.0	2.5	2.5	3392
03	1950	3	8	38	1	6	16	56	11	1.5	2.5	2.5	3393
04													
05	2005	3	6	36	1	5	15	36	14	1.5	2.0	2.0	3394
06	2030	2	5	25	1	4	14	53	13	1.0	2.0	2.5	3395
07	2005	2	4	24	1	3	13	49	13	2.0	2.5	2.5	3396
08	2145	2	4	24	1	3	13	24	13	1.5	2.5	2.5	3397
09													
10													
11	1955	3	8	38	2	6	26	85	24	1.5	2.0	2.5	3398
12													
13	2025	3	21	51	5	13	63	495	68	2.0	3.0	3.5	3399
14	1950	3	33	63	5	22	72	550	68	1.5	2.0	2.0	3400
15													
16	2040	3	22	52	5	12	62	348	68	2.0	3.0	3.5	3401
17													
18													
19	2020	2	13	33	2	5	25	220	53	2.0	2.5	3.0	3402
20													
21	1945	1	3	13	1	1	11	24	38	1.5	2.0	2.5	3403
22													
23													
24	2000	5	31	81	6	15	75	450	56	1.5	1.5	2.5	3404
25	2150	3	28	58	7	10	80	490	54	2.0	2.5	3.0	3405
26													
27	2000	4	18	58	2	15	35	184	28	2.0	2.5	2.5	3406
28													
<b>Σ</b>	—	42	208	628	42	121	541	3179	536	27.0	37.5	42.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	16	16	—
MNS	—	2.62	13.00	39.25	2.62	7.56	33.81	198.69	33.50	1.69	2.34	2.66	—

MEAN WEIGHT = 0.4578

MEAN CONDITION = 2.2292

QUALITY COUNT = 6.25



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR FEBRUARY 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	1935	4	1	2	0	0	1	1.5	2.5	3.0	3391
02	2000	1	0	0	0	1	0	2.0	2.5	2.5	3392
03	1950	9	1	2	4	0	2	1.5	2.5	2.5	3393
04											
05	2005	8	2	1	4	0	1	1.5	2.0	2.0	3394
06	2030	6	1	0	4	1	0	1.0	2.0	2.5	3395
07	2005	5	1	0	3	1	0	2.0	2.5	2.5	3396
08	2145	6	2	1	3	0	0	1.5	2.5	2.5	3397
09											
10											
11	1955	10	2	1	6	1	0	1.5	2.0	2.5	3398
12											
13	2025	23	2	7	13	1	0	2.0	3.0	3.5	3399
14	1950	35	2	11	21	0	1	1.5	2.0	2.0	3400
15											
16	2040	25	3	10	12	0	0	2.0	3.0	3.5	3401
17											
18											
19	2020	14	1	8	4	0	1	2.0	2.5	3.0	3402
20											
21	1945	4	1	2	1	0	0	1.5	2.0	2.5	3403
22											
23											
24	2000	34	3	16	13	0	2	1.5	1.5	2.5	3404
25	2150	30	2	18	9	0	1	2.0	2.5	3.0	3405
26											
27	2000	21	3	3	14	0	1	2.0	2.5	2.5	3406
28											
$\Sigma$	—	235	27	82	111	5	10	27.0	37.5	42.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	—
MNS	—	14.69	1.69	5.12	6.94	0.31	0.62	1.69	2.34	2.66	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR

# FEBRUARY 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	1935	1 : 1	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 2
02	2000	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
03	1950	2 : 1/1	0 : 0	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
04										
05	2005	1 : 1	1 : 2	1 : 3	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
06	2030	0 : 0	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
07	2005	0 : 0	1 : 3	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
08	2145	0 : 0	1 : 2	1 : 2	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
09										
10										
11	1955	0 : 0	1 : 2	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
12										
13	2025	0 : 0	1 : 2	0 : 0	0 : 0	1 : 18	0 : 0	0 : 0	0 : 0	1 : 1
14	1950	1 : 1	0 : 0	1 : 3	1 : 29	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
15										
16	2040	0 : 0	1 : 2	1 : 2	1 : 18	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
17										
18										
19	2020	1 : 1	0 : 0	0 : 0	1 : 12	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
20										
21	1945	0 : 0	0 : 0	1 : 3	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
22										
23										
24	2000	2 : 1/1	0 : 0	2 : 3/5	1 : 21	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
25	2150	1 : 1	0 : 0	0 : 0	2 : 8/19	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
26										
27	2000	1 : 1	2 : 2/7	0 : 0	1 : 8	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
28										
TOTALS	—	10 : 10	9 : 26	9 : 32	7 : 115	1 : 18	0 : 0	0 : 0	0 : 0	6 : 7

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
23.8	21.4	21.4	16.7	2.4	0.0	0.0	0.0	14.3	42

NOBS = 16

$\overline{p/g}$  mean = 0.9604

$\overline{f/g}$  mean = 4.4500

$\overline{p/g}$  mean = 1.0000

$\overline{f/g}$  mean = 4.9524

GROUP COMPLEXITY INDEX (GCI) = 5.9524



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

## SUNSPOT RESULTS FOR MARCH 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	2005	5	24	74	8	14	94	324	67	1.5	2.5	2.5	3407
02													
03	1955	2	17	37	4	8	48	286	60	1.5	2.0	2.0	3408
04	2050	2	16	36	3	9	39	268	54	2.0	2.5	2.5	3409
05													
06													
07	2040	3	12	42	3	8	38	221	33	2.0	3.0	3.0	3410
08	1955	4	12	52	2	10	30	109	26	2.0	2.5	2.5	3411
09													
10													
11	2015	6	34	94	5	21	71	499	59	1.0	2.0	2.5	3412
12													
13													
14	2235	5	44	94	11	19	129	769	90	2.0	3.0	3.5	3413
15													
16	2120	4	49	89	9	17	107	1085	74	1.5	2.0	2.5	3414
17													
18	2010	4	50	90	8	15	95	1202	72	2.0	2.5	2.5	3415
19	2135	4	36	76	7	15	85	751	74	1.5	2.0	2.5	3416
20	2220	6	35	95	6	17	77	658	92	2.0	2.0	2.5	3417
21													
22	2045	5	32	82	12	12	132	653	141	2.0	2.5	3.0	3418
23	2045	3	36	66	10	14	114	802	115	2.0	2.0	2.5	3419
24	2030	3	29	59	8	10	90	850	89	1.0	2.5	2.5	3420
25													
26													
27													
28													
29	2015	3	17	47	3	13	43	172	68	1.5	2.5	2.5	3421
30	2035	3	24	54	5	11	61	418	78	1.0	2.5	2.5	3422
31	2210	2	36	56	8	16	96	802	90	1.5	2.5	2.5	3423
Σ	—	64	503	1143	112	229	1349	9869	1282	28.0	40.5	44.0	—
NOBS	—	17	17	17	17	17	17	17	17	17	17	17	—
MNS	—	3.76	29.59	67.24	6.59	13.47	79.35	580.53	75.41	1.65	2.38	2.59	—

MEAN WEIGHT = 0.4595

MEAN CONDITION = 2.2059

QUALITY COUNT = 11.06





# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR MARCH 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2005	29	5	10	14	0	0	1.5	2.5	2.5	3407
02											
03	1955	19	2	9	8	0	0	1.5	2.0	2.0	3408
04	2050	18	2	7	9	0	0	2.0	2.5	2.5	3409
05											
06											
07	2040	13	1	3	7	1	1	2.0	3.0	3.0	3410
08	1955	14	2	1	9	1	1	2.0	2.5	2.5	3411
09											
10											
11	2015	38	4	12	20	1	1	1.0	2.0	2.5	3412
12											
13											
14	2235	47	3	24	18	1	1	2.0	3.0	3.5	3413
15											
16	2120	52	3	32	16	0	1	1.5	2.0	2.5	3414
17											
18	2010	53	3	35	14	0	1	2.0	2.5	2.5	3415
19	2135	39	3	20	15	1	0	1.5	2.0	2.5	3416
20	2220	38	3	17	15	1	2	2.0	2.0	2.5	3417
21											
22	2045	36	4	20	11	0	1	2.0	2.5	3.0	3418
23	2045	39	3	22	14	0	0	2.0	2.0	2.5	3419
24	2030	31	2	19	9	0	1	1.0	2.5	2.5	3420
25											
26											
27											
28											
29	2015	19	2	4	12	0	1	1.5	2.5	2.5	3421
30	2035	26	2	13	10	0	1	1.0	2.5	2.5	3422
31	2210	38	2	20	16	0	0	1.5	2.5	2.5	3423
$\Sigma$	—	549	46	268	217	6	12	28.0	40.5	44.0	—
NOBS	—	17	17	17	17	17	17	17	17	17	—
MNS	—	32.29	2.71	15.76	12.76	0.35	0.71	1.65	2.38	2.59	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR

# MARCH 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	2005	0 : 0	1 : 2	3 : 2/3/3	1 : 14	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
02										
03	1955	0 : 0	0 : 0	1 : 2	1 : 15	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
04	2050	0 : 0	0 : 0	1 : 2	1 : 14	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
05										
06										
07	2040	1 : 1	0 : 0	0 : 0	1 : 10	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
08	1955	1 : 1	1 : 3	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
09										
10										
11	2015	1 : 1	2 : 3/4	1 : 2	1 : 23	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
12										
13										
14	2235	1 : 1	1 : 2	0 : 0	2 : 14/26	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
15										
16	2120	1 : 1	0 : 0	2 : 3/4	0 : 0	1 : 41	0 : 0	0 : 0	0 : 0	0 : 0
17										
18	2010	1 : 1	0 : 0	1 : 3	0 : 0	1 : 44	0 : 0	0 : 0	0 : 0	1 : 2
19	2135	0 : 0	1 : 2	1 : 7	0 : 0	1 : 26	0 : 0	0 : 0	0 : 0	1 : 1
20	2220	2 : 1/1	0 : 0	2 : 3/8	0 : 0	1 : 21	0 : 0	0 : 0	0 : 0	1 : 1
21										
22	2045	1 : 1	0 : 0	0 : 0	3 : 4/5/9	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0
23	2045	0 : 0	0 : 0	0 : 0	2 : 5/9	1 : 22	0 : 0	0 : 0	0 : 0	0 : 0
24	2030	1 : 1	0 : 0	0 : 0	1 : 9	0 : 0	1 : 19	0 : 0	0 : 0	0 : 0
25										
26										
27										
28										
29	2015	1 : 1	0 : 0	1 : 12	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
30	2035	1 : 1	0 : 0	0 : 0	2 : 7/16	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
31	2210	0 : 0	0 : 0	0 : 0	1 : 14	1 : 22	0 : 0	0 : 0	0 : 0	0 : 0
<b>TOTALS</b>	—	12 : 12	6 : 16	14 : 61	17 : 198	7 : 189	1 : 19	0 : 0	0 : 0	7 : 8

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
18.8	9.4	21.9	26.6	10.9	1.6	0.0	0.0	10.9	64

NOBS = 17

$\overline{p/g}$  mean = 1.8647

$\overline{f/g}$  mean = 8.3578

$\overline{p/g}$  mean = 1.7500

$\overline{f/g}$  mean = 7.8594

GROUP COMPLEXITY INDEX (GCI) = 9.6094



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR APRIL 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01													
02	2150	3	25	55	8	12	92	569	55	1.5	2.0	2.5	3424
03													
04	2115	4	25	65	4	19	59	332	72	2.0	2.5	2.5	3425
05	2055	5	27	77	7	16	86	400	99	1.5	2.0	2.5	3426
06													
07													
08													
09													
10													
11	2240	6	24	84	7	15	85	320	112	2.0	2.5	2.5	3427
12	2050	5	17	67	4	11	51	152	48	1.5	2.5	2.5	3428
13	2135	6	21	81	4	14	54	221	47	1.5	2.0	2.0	3429
14													
15													
16													
17	2215	2	7	27	1	6	16	48	14	2.0	2.5	3.0	3430
18													
19													
20													
21													
22													
23													
24													
25	2025	1	4	14	1	3	13	32	42	1.5	2.0	2.5	3431
26													
27	2200	1	5	15	1	3	13	40	39	2.0	2.5	3.0	3432
28	2040	2	12	32	2	8	28	92	40	1.5	2.0	2.0	3433
29	2150	1	6	16	1	4	14	48	39	1.5	2.5	3.0	3434
30													
31													
<b>Σ</b>	—	36	173	533	40	111	511	2254	607	18.5	25.0	28.0	—
NOBS	—	11	11	11	11	11	11	11	11	11	11	11	—
MNS	—	3.27	15.73	48.45	3.64	10.09	46.45	204.91	55.18	1.68	2.27	2.55	—

MEAN WEIGHT = 0.4671

MEAN CONDITION = 2.1667

QUALITY COUNT = 9.00



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# APRIL 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01											
02	2150	27	2	13	11	0	1	1.5	2.0	2.5	3424
03											
04	2115	27	2	5	18	1	1	2.0	2.5	2.5	3425
05	2055	31	4	11	15	0	1	1.5	2.0	2.5	3426
06											
07											
08											
09											
10											
11	2240	30	6	9	15	0	0	2.0	2.5	2.5	3427
12	2050	22	5	6	11	0	0	1.5	2.5	2.5	3428
13	2135	25	4	6	13	1	1	1.5	2.0	2.0	3429
14											
15											
16											
17	2215	9	2	1	6	0	0	2.0	2.5	3.0	3430
18											
19											
20											
21											
22											
23											
24											
25	2025	5	1	1	3	0	0	1.5	2.0	2.5	3431
26											
27	2200	6	1	2	3	0	0	2.0	2.5	3.0	3432
28	2040	13	1	4	7	0	1	1.5	2.0	2.0	3433
29	2150	7	1	2	4	0	0	1.5	2.5	3.0	3434
30											
31											
Σ	—	202	29	60	106	2	5	18.5	25.0	28.0	—
NOBS	—	11	11	11	11	11	11	11	11	11	—
MNS	—	18.36	2.64	5.45	9.64	0.18	0.45	1.68	2.27	2.55	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR

# APRIL 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01										
02	2150	1 : 1	0 : 0	0 : 0	1 : 5	1 : 19	0 : 0	0 : 0	0 : 0	0 : 0
03										
04	2115	1 : 1	0 : 0	1 : 13	1 : 10	0 : 0	0 : 0	0 : 0	1 : 1	0 : 0
05	2055	1 : 1	1 : 3	1 : 3	2 : 3/17	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
06										
07										
08										
09										
10										
11	2240	0 : 0	3 : 2/2/4	0 : 0	3 : 3/6/7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
12	2050	0 : 0	2 : 2/4	2 : 3/4	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
13	2135	1 : 1	2 : 2/6	1 : 5	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
14										
15										
16										
17	2215	0 : 0	1 : 2	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
18										
19										
20										
21										
22										
23										
24										
25	2025	0 : 0	0 : 0	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
26										
27	2200	0 : 0	0 : 0	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
28	2040	1 : 1	0 : 0	1 : 11	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
29	2150	0 : 0	0 : 0	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
30										
31										
TOTALS	—	5 : 5	9 : 27	10 : 59	9 : 61	1 : 19	0 : 0	0 : 0	1 : 1	1 : 1

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
13.9	25.0	27.8	25.0	2.8	0.0	0.0	2.8	2.8	36

NOBS = 11

$\overline{p/g}$  mean = 1.1091

$\overline{f/g}$  mean = 5.0348

$\overline{p/g}$  mean = 1.1111

$\overline{f/g}$  mean = 4.8056

GROUP COMPLEXITY INDEX (GCI) = 5.9167



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR MAY 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	2150	2	37	57	4	22	62	436	67	2.0	2.0	2.5	3435
02	2055	3	42	72	6	21	81	585	80	1.5	2.0	2.5	3436
03	2105	3	40	70	6	18	78	639	104	2.0	2.5	3.0	3437
04	2050	4	50	90	8	29	109	1060	107	1.5	2.0	2.5	3438
05	2100	4	58	98	8	23	103	1288	106	1.5	2.0	2.5	3439
06													
07	2125	5	36	86	9	16	106	773	107	1.0	2.5	2.5	3440
08													
09													
10	2140	3	12	42	6	4	64	254	51	2.0	2.0	2.5	3441
11	2045	3	18	48	6	8	68	303	80	2.0	2.0	2.5	3442
12													
13													
14	2045	3	47	77	8	27	107	857	66	2.0	2.0	2.5	3443
15													
16	2055	3	56	86	7	27	97	921	63	1.5	2.0	2.5	3444
17	2225	3	35	65	8	16	96	791	89	2.5	3.0	3.0	3445
18	2050	3	23	53	5	13	63	314	55	2.5	3.0	2.5	3446
19													
20													
21													
22													
23	2045	3	14	44	3	6	36	224	24	2.0	2.5	2.5	3447
24													
25	2110	3	20	50	5	5	55	306	40	1.5	2.0	2.5	3448
26													
27	2105	3	13	43	3	4	34	170	41	1.5	2.0	2.0	3449
28	2150	3	9	39	3	2	32	128	43	1.5	2.0	2.0	3450
29													
30													
31	2230	3	15	45	3	10	40	172	36	2.0	2.0	2.5	3451
<b>Σ</b>	—	54	525	1065	98	251	1231	9221	1159	30.5	37.5	42.5	—
NOBS	—	17	17	17	17	17	17	17	17	17	17	17	—
MNS	—	3.18	30.88	62.65	5.76	14.76	72.41	542.41	68.18	1.79	2.21	2.50	—

MEAN WEIGHT = 0.4679

MEAN CONDITION = 2.1667

QUALITY COUNT = 9.88



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# MAY 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbræ within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2150	39	2	15	22	0	0	2.0	2.0	2.5	3435
02	2055	44	2	20	21	1	0	1.5	2.0	2.5	3436
03	2105	42	2	21	18	1	0	2.0	2.5	3.0	3437
04	2050	53	3	20	29	1	0	1.5	2.0	2.5	3438
05	2100	60	2	34	22	1	1	1.5	2.0	2.5	3439
06											
07	2125	40	4	19	16	1	0	1.0	2.5	2.5	3440
08											
09											
10	2140	13	1	6	4	2	0	2.0	2.0	2.5	3441
11	2045	20	2	9	8	1	0	2.0	2.0	2.5	3442
12											
13											
14	2045	50	3	20	27	0	0	2.0	2.0	2.5	3443
15											
16	2055	59	3	29	27	0	0	1.5	2.0	2.5	3444
17	2225	38	3	19	16	0	0	2.5	3.0	3.0	3445
18	2050	26	3	10	13	0	0	2.5	3.0	2.5	3446
19											
20											
21											
22											
23	2045	15	1	8	4	0	2	2.0	2.5	2.5	3447
24											
25	2110	22	2	15	4	0	1	1.5	2.0	2.5	3448
26											
27	2105	15	2	9	3	0	1	1.5	2.0	2.0	3449
28	2150	11	2	7	1	0	1	1.5	2.0	2.0	3450
29											
30											
31	2230	18	3	5	10	0	0	2.0	2.0	2.5	3451
Σ	—	565	40	266	245	8	6	30.5	37.5	42.5	—
NOBS	—	17	17	17	17	17	17	17	17	17	—
MNS	—	33.24	2.35	15.65	14.41	0.47	0.35	1.79	2.21	2.50	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR MAY 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	2150	0 : 0	0 : 0	1 : 23	1 : 14	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
02	2055	0 : 0	0 : 0	1 : 19	1 : 22	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
03	2105	0 : 0	0 : 0	1 : 10	1 : 29	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
04	2050	0 : 0	1 : 2	1 : 8	0 : 0	1 : 39	0 : 0	0 : 0	0 : 0	1 : 1
05	2100	1 : 1	0 : 0	1 : 9	0 : 0	1 : 47	0 : 0	0 : 0	0 : 0	1 : 1
06										
07	2125	0 : 0	1 : 2	1 : 2	1 : 9	1 : 22	0 : 0	0 : 0	0 : 0	1 : 1
08										
09										
10	2140	0 : 0	0 : 0	0 : 0	1 : 10	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
11	2045	0 : 0	0 : 0	1 : 4	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
12										
13										
14	2045	0 : 0	0 : 0	1 : 15	1 : 9	1 : 23	0 : 0	0 : 0	0 : 0	0 : 0
15										
16	2055	0 : 0	0 : 0	1 : 22	1 : 15	1 : 19	0 : 0	0 : 0	0 : 0	0 : 0
17	2225	0 : 0	0 : 0	0 : 0	1 : 12	2 : 8/15	0 : 0	0 : 0	0 : 0	0 : 0
18	2050	0 : 0	0 : 0	2 : 3/7	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
19										
20										
21										
22										
23	2045	2 : 1/1	0 : 0	0 : 0	1 : 12	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
24										
25	2110	1 : 1	0 : 0	1 : 4	1 : 15	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
26										
27	2105	1 : 1	0 : 0	1 : 5	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
28	2150	1 : 1	0 : 0	1 : 2	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
29										
30										
31	2230	0 : 0	1 : 2	1 : 7	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
TOTALS	—	6 : 6	3 : 6	15 : 140	15 : 192	7 : 173	0 : 0	0 : 0	0 : 0	8 : 8

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
11.1	5.6	27.8	27.8	13.0	0.0	0.0	0.0	14.8	54

NOBS = 17

$\overline{p/g}$  mean = 1.8118

$\overline{f/g}$  mean = 9.8451

$\overline{p/g}$  mean = 1.8148

$\overline{f/g}$  mean = 9.7222

GROUP COMPLEXITY INDEX (GCI) = 11.5370





# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR JUNE 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01													
02	2210	3	19	49	5	6	56	368	90	2.0	2.5	2.5	3452
03	2130	4	24	64	6	13	73	382	94	1.5	2.0	2.5	3453
04													
05													
06													
07													
08													
09													
10													
11													
12													
13													
14													
15	2120	5	12	62	3	8	38	133	62	2.5	2.5	2.5	3454
16													
17													
18	2135	4	11	51	3	8	38	113	65	2.0	2.0	2.0	3455
19	2155	5	21	71	2	18	38	169	55	2.0	2.5	2.5	3456
20	2200	3	24	54	5	13	63	372	81	2.0	2.5	3.0	3457
21													
22													
23	2140	4	9	49	3	4	34	93	31	1.5	2.0	2.0	3458
24													
25													
26	2215	6	23	83	6	15	75	417	71	2.0	2.5	2.5	3459
27													
28	2155	8	32	112	9	16	106	475	89	1.5	2.0	2.0	3460
29													
30													
31													
<b>Σ</b>	—	42	175	595	42	101	521	2522	638	17.0	20.5	21.5	—
NOBS	—	9	9	9	9	9	9	9	9	9	9	9	—
MNS	—	4.67	19.44	66.11	4.67	11.22	57.89	280.22	70.89	1.89	2.28	2.39	—

MEAN WEIGHT = 0.4641

MEAN CONDITION = 2.1852

QUALITY COUNT = 12.33



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# JUNE 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01											
02	2210	21	2	12	6	1	0	2.0	2.5	2.5	3452
03	2130	28	4	11	13	0	0	1.5	2.0	2.5	3453
04											
05											
06											
07											
08											
09											
10											
11											
12											
13											
14											
15	2120	14	2	2	7	2	1	2.5	2.5	2.5	3454
16											
17											
18	2135	13	2	2	7	1	1	2.0	2.0	2.0	3455
19	2155	24	3	2	17	1	1	2.0	2.5	2.5	3456
20	2200	27	3	11	13	0	0	2.0	2.5	3.0	3457
21											
22											
23	2140	12	3	4	4	1	0	1.5	2.0	2.0	3458
24											
25											
26	2215	25	2	5	14	3	1	2.0	2.5	2.5	3459
27											
28	2155	39	7	15	16	1	0	1.5	2.0	2.0	3460
29											
30											
31											
Σ	—	203	28	64	97	10	4	17.0	20.5	21.5	—
NOBS	—	9	9	9	9	9	9	9	9	9	—
MNS	—	22.56	3.11	7.11	10.78	1.11	0.44	1.89	2.28	2.39	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR JUNE 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01										
02	2210	0 : 0	0 : 0	0 : 0	2 : 5/13	0 : 0	0 : 0	0 : 0	1 : 1	0 : 0
03	2130	0 : 0	0 : 0	2 : 2/3	2 : 3/16	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
04										
05										
06										
07										
08										
09										
10										
11										
12										
13										
14										
15	2120	1 : 1	1 : 6	1 : 3	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1	1 : 1
16										
17										
18	2135	1 : 1	0 : 0	2 : 4/5	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
19	2155	1 : 1	2 : 2/4	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
20	2200	0 : 0	0 : 0	2 : 2/4	1 : 18	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
21										
22										
23	2140	0 : 0	1 : 2	2 : 2/4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
24										
25										
26	2215	1 : 1	0 : 0	1 : 4	1 : 15	0 : 0	0 : 0	0 : 0	0 : 0	3:1/1/1
27										
28	2155	0 : 0	1 : 2	4 : 2/3/3/5	1 : 14	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/2
29										
30										
31										
TOTALS	—	4 : 4	5 : 16	15 : 59	7 : 84	0 : 0	0 : 0	0 : 0	2 : 2	9 : 10
REGIONAL PERCENTAGES										
A	B	C	D	E	F	G	H	J	Σg	
9.5	11.9	35.7	16.7	0.0	0.0	0.0	4.8	21.4	42	
NOBS = 9		$\overline{p/g}$ mean = 1.0509			$\overline{f/g}$ mean = 4.4185					
		$\overline{p/g}$ mean = 1.0000			$\overline{f/g}$ mean = 4.1667					
GROUP COMPLEXITY INDEX (GCI) = 5.1667										



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR JULY 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01													
02	2140	8	18	98	9	5	95	365	117	2.0	2.5	2.0	3461
03	2215	8	40	120	10	22	122	609	143	1.5	2.0	2.0	3462
04													
05	2215	7	25	95	5	13	63	293	82	1.5	2.0	2.0	3463
06	2150	6	12	72	2	8	28	112	54	1.5	2.0	2.5	3464
07													
08													
09													
10													
11	2115	5	12	62	4	8	48	179	43	2.5	2.5	3.0	3465
12													
13													
14	2220	3	16	46	2	12	32	124	22	2.0	2.0	2.0	3466
15													
16													
17	2140	3	15	45	4	8	48	200	43	2.0	2.5	3.0	3467
18													
19													
20													
21													
22													
23													
24													
25													
26													
27	2045	6	28	88	6	13	73	439	120	2.0	2.0	2.0	3468
28	2220	6	32	92	6	20	80	379	119	1.0	1.5	2.0	3469
29													
30													
31													
<b>Σ</b>	—	52	198	718	48	109	589	2700	743	16.0	19.0	20.5	—
NOBS	—	9	9	9	9	9	9	9	9	9	9	9	—
MNS	—	5.78	22.00	79.78	5.33	12.11	65.44	300.00	82.56	1.78	2.11	2.28	—

MEAN WEIGHT = 0.4993

MEAN CONDITION = 2.0556

QUALITY COUNT = 14.44



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# JULY 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01											
02	2140	24	6	11	5	2	0	2.0	2.5	2.0	3461
03	2215	46	6	16	22	2	0	1.5	2.0	2.0	3462
04											
05	2215	29	4	11	11	1	2	1.5	2.0	2.0	3463
06	2150	14	2	3	5	1	3	1.5	2.0	2.5	3464
07											
08											
09											
10											
11	2115	13	1	1	7	3	1	2.5	2.5	3.0	3465
12											
13											
14	2220	18	2	4	11	0	1	2.0	2.0	2.0	3466
15											
16											
17	2140	18	3	7	8	0	0	2.0	2.5	3.0	3467
18											
19											
20											
21											
22											
23											
24											
25											
26											
27	2045	32	4	14	12	1	1	2.0	2.0	2.0	3468
28	2220	36	4	11	19	1	1	1.0	1.5	2.0	3469
29											
30											
31											
Σ	—	230	32	78	100	11	9	16.0	19.0	20.5	—
NOBS	—	9	9	9	9	9	9	9	9	9	—
MNS	—	25.56	3.56	8.67	11.11	1.22	1.00	1.78	2.11	2.28	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR JULY 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01										
02	2140	0 : 0	0 : 0	3 : 2/3/3	1 : 4	0 : 0	0 : 0	0 : 0	1 : 1	3:1/2/2
03	2215	0 : 0	1 : 4	3 : 2/2/6	2 : 9/15	0 : 0	0 : 0	0 : 0	1 : 1	1 : 1
04										
05	2215	2 : 1/1	0 : 0	3 : 5/7/8	0 : 0	0 : 0	0 : 0	0 : 0	1 : 2	1 : 1
06	2150	3 : 1/1/1	1 : 2	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1	0 : 0
07										
08										
09										
10										
11	2115	1 : 1	0 : 0	1 : 8	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	3:1/1/1
12										
13										
14	2220	1 : 1	0 : 0	2 : 3/12	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
15										
16										
17	2140	0 : 0	0 : 0	2 : 3/4	1 : 8	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
18										
19										
20										
21										
22										
23										
24										
25										
26										
27	2045	1 : 1	2 : 2/3	0 : 0	2 : 9/12	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
28	2220	1 : 1	1 : 2	2 : 7/8	1 : 13	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
29										
30										
31										
TOTALS	—	9 : 9	5 : 13	17 : 89	7 : 70	0 : 0	0 : 0	0 : 0	4 : 5	10 : 12
REGIONAL PERCENTAGES										
A	B	C	D	E	F	G	H	J	Σg	
17.3	9.6	32.7	13.5	0.0	0.0	0.0	7.7	19.2	52	
NOBS = 9		$\overline{p/g}$ mean = 0.9136			$\overline{f/g}$ mean = 3.9505					
		$\overline{p/g}$ mean = 0.9231			$\overline{f/g}$ mean = 3.8077					
GROUP COMPLEXITY INDEX (GCI) = 4.7308										



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR AUGUST 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01													
02	2125	8	20	100	4	15	55	160	112	1.5	2.0	2.5	3470
03	2110	6	24	84	5	15	65	302	62	2.5	2.5	2.5	3471
04	2130	4	29	69	6	17	77	496	54	2.0	2.5	2.5	3472
05	2120	5	38	88	9	12	102	855	106	2.0	2.5	3.0	3473
06													
07	2115	7	42	112	11	14	124	1157	98	2.0	3.0	3.0	3474
08													
09													
10													
11	2050	7	63	133	14	32	172	1432	161	1.5	2.5	2.5	3475
12	2140	7	46	116	12	27	147	824	154	1.5	2.5	2.5	3476
13	2100	6	36	96	9	14	104	528	134	1.5	2.0	2.0	3477
14													
15	2305	4	27	67	7	10	80	540	113	2.5	3.0	3.5	3478
16													
17													
18													
19	2055	8	23	103	9	9	99	344	122	2.0	2.0	2.5	3479
20	2050	7	26	96	9	9	99	441	116	2.5	2.5	2.5	3480
21	2205	6	28	88	9	8	98	508	118	1.5	2.0	2.0	3481
22													
23													
24													
25													
26													
27	2205	6	31	91	10	12	112	535	78	2.0	2.5	2.5	3482
28	2130	6	39	99	9	19	109	573	94	2.0	2.0	2.5	3483
29													
30	2040	6	72	132	13	21	151	1599	156	2.0	2.0	2.0	3484
31	2030	5	63	113	12	18	138	1440	147	1.5	2.0	2.5	3485
Σ	—	98	607	1587	148	252	1732	11734	1825	30.5	37.5	40.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	16	16	—
MNS	—	6.12	37.94	99.19	9.25	15.75	108.25	733.38	114.06	1.91	2.34	2.53	—

MEAN WEIGHT = 0.4502

MEAN CONDITION = 2.2604

QUALITY COUNT = 17.62



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR AUGUST 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01											
02	2125	25	5	4	13	1	2	1.5	2.0	2.5	3470
03	2110	28	4	7	15	2	0	2.5	2.5	2.5	3471
04	2130	33	4	12	17	0	0	2.0	2.5	2.5	3472
05	2120	41	3	25	11	1	1	2.0	2.5	3.0	3473
06											
07	2115	47	5	27	13	1	1	2.0	3.0	3.0	3474
08											
09											
10											
11	2050	68	5	31	30	0	2	1.5	2.5	2.5	3475
12	2140	53	7	19	27	0	0	1.5	2.5	2.5	3476
13	2100	41	5	22	13	0	1	1.5	2.0	2.0	3477
14											
15	2305	30	3	16	10	1	0	2.5	3.0	3.5	3478
16											
17											
18											
19	2055	29	6	12	9	2	0	2.0	2.0	2.5	3479
20	2050	31	5	16	8	1	1	2.5	2.5	2.5	3480
21	2205	31	3	18	7	2	1	1.5	2.0	2.0	3481
22											
23											
24											
25											
26											
27	2205	33	2	18	9	1	3	2.0	2.5	2.5	3482
28	2130	42	3	18	18	2	1	2.0	2.0	2.5	3483
29											
30	2040	76	4	51	19	0	2	2.0	2.0	2.0	3484
31	2030	67	4	45	17	0	1	1.5	2.0	2.5	3485
Σ	—	675	68	341	236	14	16	30.5	37.5	40.5	—
NOBS	—	16	16	16	16	16	16	16	16	16	—
MNS	—	42.19	4.25	21.31	14.75	0.88	1.00	1.91	2.34	2.53	—





# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR AUGUST 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01										
02	2125	2 : 1/1	2 : 3/4	3 : 2/3/5	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1	0 : 0
03	2110	0 : 0	3 : 2/4/6	0 : 0	1 : 10	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
04	2130	0 : 0	1 : 2	2 : 3/8	0 : 0	1 : 16	0 : 0	0 : 0	0 : 0	0 : 0
05	2120	1 : 1	0 : 0	1 : 3	1 : 6	1 : 27	0 : 0	0 : 0	1 : 1	0 : 0
06										
07	2115	1 : 1	2 : 2/2	2 : 3/4	0 : 0	0 : 0	1 : 29	0 : 0	0 : 0	1 : 1
08										
09										
10										
11	2050	2 : 1/1	0 : 0	2 : 10/12	1 : 11	0 : 0	1 : 25	1 : 3	0 : 0	0 : 0
12	2140	0 : 0	2 : 2/3	3 : 4/9/12	0 : 0	0 : 0	1 : 14	1 : 2	0 : 0	0 : 0
13	2100	1 : 1	1 : 2	2 : 11/14	0 : 0	0 : 0	1 : 6	1 : 2	0 : 0	0 : 0
14										
15	2305	0 : 0	0 : 0	0 : 0	2 : 8/13	1 : 5	0 : 0	0 : 0	0 : 0	1 : 1
16										
17										
18										
19	2055	0 : 0	1 : 2	3 : 2/3/3	2 : 3/8	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
20	2050	1 : 1	0 : 0	2 : 3/4	2 : 5/10	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/2
21	2205	1 : 1	0 : 0	1 : 2	2 : 7/16	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
22										
23										
24										
25										
26										
27	2205	3 : 1/1/1	0 : 0	0 : 0	2 : 9/18	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
28	2130	1 : 1	1 : 5	1 : 9	1 : 22	0 : 0	0 : 0	0 : 0	1 : 1	1 : 1
29										
30	2040	2 : 1/1	0 : 0	1 : 4	1 : 13	2 : 21/32	0 : 0	0 : 0	0 : 0	0 : 0
31	2030	1 : 1	0 : 0	1 : 3	1 : 9	2 : 21/29	0 : 0	0 : 0	0 : 0	0 : 0
TOTALS	—	16 : 16	13 : 39	24 : 136	16 : 168	7 : 151	4 : 74	3 : 7	3 : 3	12 : 13

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
16.3	13.3	24.8	16.3	7.1	4.1	3.1	3.1	12.2	98

NOBS = 16

$\overline{p/g}$  mean = 1.5508

$\overline{f/g}$  mean = 6.4496

$\overline{p/g}$  mean = 1.5102

$\overline{f/g}$  mean = 6.1939

GROUP COMPLEXITY INDEX (GCI) = 7.7041



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR SEPTEMBER 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01													
02	2030	4	46	86	6	11	71	1400	88	1.0	2.0	2.5	3486
03	2030	7	44	114	7	12	82	1410	101	1.5	2.0	2.0	3487
04	2140	5	46	96	6	10	70	1086	79	1.5	2.0	2.0	3488
05													
06	2210	7	52	122	7	23	93	1013	109	1.5	2.0	2.0	3489
07	2105	8	60	140	12	23	143	1399	146	1.5	2.0	2.5	3490
08	2155	7	58	128	13	28	158	1176	140	2.0	2.5	2.5	3491
09	2150	8	44	124	11	23	133	693	116	1.5	2.0	2.0	3492
10	2105	6	35	95	10	12	112	539	92	1.5	2.5	2.5	3493
11	2100	5	34	84	10	13	113	601	93	2.0	2.5	2.5	3494
12	2050	7	34	104	14	11	151	572	141	1.5	2.5	2.5	3495
13	2045	7	36	106	10	19	119	589	113	1.0	2.0	2.0	3496
14													
15													
16	2055	6	11	71	4	5	45	180	46	2.0	2.5	2.5	3497
17													
18	2125	7	20	90	6	11	71	221	96	1.5	2.5	2.5	3498
19													
20													
21	2100	7	55	125	8	38	118	908	81	2.0	2.0	2.5	3499
22													
23													
24													
25													
26													
27													
28													
29													
30	2115	2	5	25	0	5	5	20	4	1.5	2.5	2.5	3500
31													
<b>Σ</b>	—	93	580	1510	124	244	1484	11807	1445	23.5	33.5	35.0	—
NOBS	—	15	15	15	15	15	15	15	15	15	15	15	—
MNS	—	6.20	38.67	100.67	8.27	16.27	98.93	787.13	96.33	1.57	2.23	2.33	—

MEAN WEIGHT = 0.4947

MEAN CONDITION = 2.0444

QUALITY COUNT = 18.13



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# SEPTEMBER 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01											
02	2030	50	4	35	11	0	0	1.0	2.0	2.5	3486
03	2030	47	3	30	10	2	2	1.5	2.0	2.0	3487
04	2140	48	2	35	8	1	2	1.5	2.0	2.0	3488
05											
06	2210	57	5	28	22	1	1	1.5	2.0	2.0	3489
07	2105	66	6	36	22	1	1	1.5	2.0	2.5	3490
08	2155	64	6	30	27	0	1	2.0	2.5	2.5	3491
09	2150	50	6	20	22	1	1	1.5	2.0	2.0	3492
10	2105	40	5	22	12	1	0	1.5	2.5	2.5	3493
11	2100	38	4	20	13	1	0	2.0	2.5	2.5	3494
12	2050	41	7	23	11	0	0	1.5	2.5	2.5	3495
13	2045	42	6	16	19	1	0	1.0	2.0	2.0	3496
14											
15											
16	2055	13	2	4	3	2	2	2.0	2.5	2.5	3497
17											
18	2125	24	4	8	9	1	2	1.5	2.5	2.5	3498
19											
20											
21	2100	60	5	16	37	1	1	2.0	2.0	2.5	3499
22											
23											
24											
25											
26											
27											
28											
29											
30	2115	6	1	0	4	0	1	1.5	2.5	2.5	3500
31											
Σ	—	646	66	323	230	13	14	23.5	33.5	35.0	—
NOBS	—	15	15	15	15	15	15	15	15	15	—
MNS	—	43.07	4.40	21.53	15.33	0.87	0.93	1.57	2.23	2.33	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR SEPTEMBER 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01										
02	2030	1 : 2	0 : 0	1 : 3	1 : 6	0 : 0	1 : 35	0 : 0	0 : 0	0 : 0
03	2030	2 : 1/1	0 : 0	2 : 2/2	0 : 0	0 : 0	1 : 36	0 : 0	0 : 0	2 : 1/1
04	2140	2 : 1/1	0 : 0	1 : 2	0 : 0	1 : 41	0 : 0	0 : 0	0 : 0	1 : 1
05										
06	2210	1 : 1	1 : 2	2 : 3/8	1 : 7	1 : 30	0 : 0	0 : 0	0 : 0	1 : 1
07	2105	1 : 1	1 : 2	2 : 2/7	2 : 11/12	0 : 0	1 : 24	0 : 0	0 : 0	1 : 1
08	2155	1 : 1	0 : 0	3 : 2/7/7	2 : 8/16	0 : 0	1 : 17	0 : 0	0 : 0	0 : 0
09	2150	1 : 1	1 : 3	2 : 4/5	2 : 12/14	1 : 4	0 : 0	0 : 0	0 : 0	1 : 1
10	2105	0 : 0	0 : 0	3 : 2/4/5	2 : 8/15	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
11	2100	0 : 0	0 : 0	1 : 3	3 : 6/11/13	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
12	2050	0 : 0	0 : 0	2 : 2/2	5 : 3/3/4/4/16	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
13	2045	0 : 0	1 : 2	2 : 2/3	3 : 3/4/21	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
14										
15										
16	2055	2 : 1/1	1 : 2	0 : 0	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
17										
18	2125	2 : 1/1	0 : 0	3 : 2/4/7	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
19										
20										
21	2100	1 : 1	1 : 4	3 : 2/6/14	0 : 0	1 : 27	0 : 0	0 : 0	0 : 0	1 : 1
22										
23										
24										
25										
26										
27										
28										
29										
30	2115	1 : 1	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
31										
TOTALS	—	15 : 16	7 : 19	27 : 112	23 : 206	4 : 102	4 : 112	0 : 0	0 : 0	13 : 13
REGIONAL PERCENTAGES										
A	B	C	D	E	F	G	H	J	Σg	
16.1	7.5	29.0	24.7	4.3	4.3	0.0	0.0	14.0	93	
NOBS = 15		$\overline{p/g}$ mean = 1.2796			$\overline{f/g}$ mean = 6.2254					
		$\overline{p/g}$ mean = 1.3333			$\overline{f/g}$ mean = 6.2366					
GROUP COMPLEXITY INDEX (GCI) = 7.5699										



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR **OCTOBER 1998**

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	2100	2	2	22	1	1	11	41	11	2.5	2.5	2.5	3501
02													
03													
04	2020	1	9	19	2	4	24	162	22	2.0	2.5	2.5	3502
05													
06	2020	4	24	64	4	12	52	348	28	2.0	2.5	3.0	3503
07	2125	5	35	85	7	21	91	328	52	1.5	2.5	2.5	3504
08													
09													
10													
11													
12													
13	2010	5	21	71	6	11	71	341	58	1.5	2.0	2.5	3505
14													
15													
16	2000	6	40	100	8	22	102	627	92	1.5	2.0	2.5	3506
17	2110	6	42	102	12	17	137	675	102	2.0	2.5	2.5	3507
18													
19													
20													
21	2000	4	28	68	7	11	81	476	67	2.0	2.5	2.5	3508
22													
23	2000	3	17	47	3	12	42	239	40	2.5	2.5	2.5	3509
24	1940	5	10	60	3	6	36	153	37	2.0	2.5	2.5	3510
25	1950	2	5	25	1	4	14	36	13	1.5	2.0	2.5	3511
26													
27													
28													
29	2020	6	11	71	2	8	28	93	58	1.5	1.5	2.0	3512
30													
31	2205	3	9	39	3	4	34	101	54	2.5	2.5	2.5	3513
<b>Σ</b>	—	52	253	773	59	133	723	3620	634	25	30	32.5	—
NOBS	—	13	13	13	13	13	13	13	13	13	13	13	—
MNS	—	4.00	19.46	59.46	4.54	10.23	55.62	278.46	48.77	1.92	2.31	2.50	—

MEAN WEIGHT = 0.4520

MEAN CONDITION = 2.2436

QUALITY COUNT = 10.38



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# OCTOBER 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2100	2	0	0	0	1	1	2.5	2.5	2.5	3501
02											
03											
04	2020	10	1	5	4	0	0	2.0	2.5	2.5	3502
05											
06	2020	27	3	12	11	0	1	2.0	2.5	3.0	3503
07	2125	39	4	14	20	0	1	1.5	2.5	2.5	3504
08											
09											
10											
11											
12											
13	2010	25	4	9	11	1	0	1.5	2.0	2.5	3505
14											
15											
16	2000	44	4	17	21	1	1	1.5	2.0	2.5	3506
17	2110	47	5	24	17	1	0	2.0	2.5	2.5	3507
18											
19											
20											
21	2000	30	2	17	9	0	2	2.0	2.5	2.5	3508
22											
23	2000	20	3	5	12	0	0	2.5	2.5	2.5	3509
24	1940	12	2	4	3	0	3	2.0	2.5	2.5	3510
25	1950	6	1	1	3	0	1	1.5	2.0	2.5	3511
26											
27											
28											
29	2020	14	3	2	6	1	2	1.5	1.5	2.0	3512
30											
31	2205	11	2	4	4	1	0	2.5	2.5	2.5	3513
Σ	—	287	34	114	121	6	12	25	30	32.5	—
NOBS	—	13	13	13	13	13	13	13	13	13	—
MNS	—	22.08	2.62	8.77	9.31	0.46	0.92	1.92	2.31	2.50	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR OCTOBER 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	2100	1 : 1	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
02										
03										
04	2020	0 : 0	0 : 0	0 : 0	1 : 9	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
05										
06	2020	1 : 1	2 : 2/3	0 : 0	1 : 18	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
07	2125	1 : 1	1 : 2	2 : 5/21	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
08										
09										
10										
11										
12										
13	2010	0 : 0	2 : 2/2	0 : 0	2 : 7/9	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
14										
15										
16	2000	1 : 1	0 : 0	1 : 8	3 : 6/8/16	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
17	2110	0 : 0	0 : 0	2 : 3/7	3 : 8/9/14	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
18										
19										
20										
21	2000	2 : 1/1	0 : 0	0 : 0	2 : 11/15	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
22										
23	2000	0 : 0	1 : 4	1 : 6	0 : 0	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0
24	1940	3 : 1/1/1	0 : 0	1 : 2	0 : 0	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0
25	1950	1 : 1	0 : 0	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
26										
27										
28										
29	2020	2 : 1/1	2 : 2/2	1 : 4	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
30										
31	2205	0 : 0	0 : 0	2 : 2/6	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
TOTALS	—	12 : 12	8 : 19	11 : 68	13 : 136	2 : 12	0 : 0	0 : 0	0 : 0	6 : 6

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
23.1	15.4	21.2	25.0	3.8	0.0	0.0	0.0	11.5	52

NOBS = 13

$\overline{p/g}$  mean = 1.1244

$\overline{f/g}$  mean = 4.8359

$\overline{p/g}$  mean = 1.1346

$\overline{f/g}$  mean = 4.8654

GROUP COMPLEXITY INDEX (GCI) = 6.0000



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR NOVEMBER 1998

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	1945	3	8	38	2	5	25	52	55	1.0	2.0	2.0	3514
02													
03													
04													
05	1940	7	44	114	8	26	106	751	70	1.5	2.0	2.0	3515
06													
07													
08	2030	6	34	94	7	15	85	519	77	1.5	2.0	2.0	3516
09	1945	5	35	85	8	12	92	770	123	2.0	2.0	2.0	3517
10	2030	5	16	66	7	5	75	256	144	2.5	2.5	2.5	3518
11	1950	6	23	83	4	11	51	168	68	2.0	2.5	2.5	3519
12													
13	2030	7	29	99	8	14	94	532	118	2.5	2.5	2.5	3520
14	1930	6	30	90	8	14	94	503	113	2.5	2.5	3.0	3521
15	2100	7	24	94	6	14	74	348	87	1.5	2.0	2.5	3522
16													
17													
18													
19	1910	3	14	44	2	8	28	154	50	1.0	2.0	2.5	3523
20													
21													
22													
23	2055	5	14	64	4	8	48	130	52	2.0	2.5	3.0	3524
24	2120	5	22	72	7	12	82	256	75	2.0	3.0	3.0	3525
25	2005	6	34	94	12	13	133	602	135	2.0	2.5	2.5	3526
26													
27													
28													
29													
30													
31													
<b>Σ</b>	—	71	327	1037	83	157	987	5041	1167	24.0	30.0	32.0	—
NOBS	—	13	13	13	13	13	13	13	13	13	13	13	—
MNS	—	5.46	25.15	79.77	6.38	12.08	75.92	387.77	89.77	1.85	2.31	2.46	—

MEAN WEIGHT = 0.4649

MEAN CONDITION = 2.2051

QUALITY COUNT = 14.38





# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# NOVEMBER 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbrae within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	UT	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	1945	10	2	3	4	0	1	1.0	2.0	2.0	3514
02											
03											
04											
05	1940	49	5	17	25	1	1	1.5	2.0	2.0	3515
06											
07											
08	2030	36	2	18	12	1	3	1.5	2.0	2.0	3516
09	1945	38	3	21	12	2	0	2.0	2.0	2.0	3517
10	2030	21	5	11	5	0	0	2.5	2.5	2.5	3518
11	1950	28	5	12	10	0	1	2.0	2.5	2.5	3519
12											
13	2030	32	3	13	12	2	2	2.5	2.5	2.5	3520
14	1930	34	4	15	13	1	1	2.5	2.5	3.0	3521
15	2100	26	2	8	11	2	3	1.5	2.0	2.5	3522
16											
17											
18											
19	1910	16	2	6	7	0	1	1.0	2.0	2.5	3523
20											
21											
22											
23	2055	18	4	6	7	0	1	2.0	2.5	3.0	3524
24	2120	27	5	10	12	0	0	2.0	3.0	3.0	3525
25	2005	39	5	20	13	1	0	2.0	2.5	2.5	3526
26											
27											
28											
29											
30											
31											
Σ	—	374	47	160	143	10	14	24	30	32	—
NOBS	—	13	13	13	13	13	13	13	13	13	—
MNS	—	28.77	3.62	12.31	11.00	0.77	1.08	1.85	2.31	2.46	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR NOVEMBER 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	1945	1 : 1	1 : 2	1 : 5	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
02										
03										
04										
05	1940	1 : 1	2 : 2/4	0 : 0	2 : 6/28	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/2
06										
07										
08	2030	3 : 1/1/1	0 : 0	1 : 7	1 : 23	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
09	1945	0 : 0	0 : 0	2 : 3/5	0 : 0	1 : 25	0 : 0	0 : 0	1 : 1	1 : 1
10	2030	0 : 0	0 : 0	3 : 2/4/5	1 : 2	0 : 0	0 : 0	0 : 0	1 : 3	0 : 0
11	1950	1 : 1	1 : 3	4 : 3/3/6/7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
12										
13	2030	2 : 1/1	0 : 0	0 : 0	3 : 7/8/10	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
14	1930	1 : 1	1 : 3	0 : 0	3 : 6/7/12	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
15	2100	3 : 1/1/1	0 : 0	1 : 8	1 : 11	0 : 0	0 : 0	0 : 0	0 : 0	2 : 1/1
16										
17										
18										
19	1910	1 : 1	1 : 6	0 : 0	1 : 7	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
20										
21										
22										
23	2055	1 : 1	1 : 2	2 : 3/5	1 : 3	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
24	2120	0 : 0	0 : 0	4 : 2/3/4/5	1 : 8	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
25	2005	0 : 0	0 : 0	3 : 3/4/5	1 : 8	1 : 13	0 : 0	0 : 0	0 : 0	1 : 1
26										
27										
28										
29										
30										
31										
TOTALS	—	14 : 14	7 : 22	21 : 92	15 : 146	2 : 38	0 : 0	0 : 0	2 : 4	10 : 11
REGIONAL PERCENTAGES										
A	B	C	D	E	F	G	H	J	Σg	
19.7	9.9	29.6	21.1	2.8	0.0	0.0	2.8	14.1	71	
		NOBS = 13	$\overline{p/g}$ mean = 1.1418	$\overline{f/g}$ mean = 4.5198						
			$\overline{p/g}$ mean = 1.1690	$\overline{f/g}$ mean = 4.6056						
GROUP COMPLEXITY INDEX (GCI) = 5.7746										



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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

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

## SUNSPOT RESULTS FOR **DECEMBER 1998**

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 .

Q = Quietness [ ie. steadiness ] refer to Kiepenheuer scale .

S = Sharpness [ ie. clarity ] refer to Kiepenheuer scale .

T = Transparency where 1 = excellent , 5 = worthless .

WN = Wolf Number ; SN = Pettisindex ; BX = Beckindex ; CV = Classification Value .

DATE	UT	g	f	WN	p	s	SN	BX	CV	Q	S	T	Ref.
01	2015	6	44	104	14	27	167	1186	104	2.0	3.0	3.0	3527
02													
03	2020	8	31	111	8	19	99	733	143	2.5	3.0	3.0	3528
04													
05	2015	7	23	93	7	9	79	416	76	1.0	2.5	2.5	3529
06	1950	6	30	90	9	14	104	708	89	1.5	2.5	3.0	3530
07													
08	2000	7	52	122	16	20	180	960	153	2.0	2.5	2.5	3531
09													
10													
11													
12													
13	2050	5	34	84	9	17	107	664	84	1.5	2.5	2.5	3532
14													
15	2010	5	29	79	7	13	83	646	66	1.5	2.5	2.5	3533
16													
17													
18	2050	4	30	70	9	12	102	460	89	2.0	3.0	3.5	3534
19													
20													
21	2125	2	17	37	4	11	51	376	51	1.5	2.5	2.5	3535
22	2200	2	10	30	4	6	46	160	39	2.0	2.0	2.5	3536
23	2000	5	14	64	5	9	59	185	60	1.5	2.5	3.0	3537
24													
25	2010	6	33	93	9	16	106	526	98	1.5	2.0	2.0	3538
26													
27													
28	2205	4	58	98	12	27	147	1293	77	2.0	2.0	2.0	3539
29	2025	4	72	112	14	21	161	1659	107	1.5	2.0	2.0	3540
30	2145	4	55	95	9	14	104	1227	97	2.0	2.5	3.0	3541
31													
<b>Σ</b>	—	75	532	1282	136	235	1595	11199	1333	26.0	37.0	39.5	—
NOBS	—	15	15	15	15	15	15	15	15	15	15	15	—
MNS	—	5.00	35.47	85.47	9.07	15.67	106.33	746.60	88.87	1.73	2.47	2.63	—

MEAN WEIGHT = 0.4469

MEAN CONDITION = 2.2778

QUALITY COUNT = 15.67



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR DECEMBER 1998

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 .

IS = Inter-Sol Index .

gr = number of multi-spot groups .

grfp = number of umbræ within penumbrae within the groups (gr) .

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

efp = number of single penumbral spots :

ef = number of single non-penumbral spots .

DATE	0 : 0	IS	gr	grfp	grf	efp	ef	Q	S	T	Ref.
01	2015	49	5	17	26	0	1	2.0	3.0	3.0	3527
02											
03	2020	36	5	11	17	1	2	2.5	3.0	3.0	3528
04											
05	2015	28	5	14	7	0	2	1.0	2.5	2.5	3529
06	1950	35	5	15	14	1	0	1.5	2.5	3.0	3530
07											
08	2000	58	6	31	20	1	0	2.0	2.5	2.5	3531
09											
10											
11											
12											
13	2050	38	4	16	17	1	0	1.5	2.5	2.5	3532
14											
15	2010	31	2	15	11	1	2	1.5	2.5	2.5	3533
16											
17											
18	2050	34	4	18	12	0	0	2.0	3.0	3.5	3534
19											
20											
21	2125	19	2	6	11	0	0	1.5	2.5	2.5	3535
22	2200	12	2	4	6	0	0	2.0	2.0	2.5	3536
23	2000	17	3	4	8	1	1	1.5	2.5	3.0	3537
24											
25	2010	37	4	17	14	0	2	1.5	2.0	2.0	3538
26											
27											
28	2205	61	3	31	26	0	1	2.0	2.0	2.0	3539
29	2025	75	3	50	21	1	0	1.5	2.0	2.0	3540
30	2145	58	3	41	13	0	1	2.0	2.5	3.0	3541
31											
Σ	—	588	56	290	223	7	12	26.0	37.0	39.5	—
NOBS	—	15	15	15	15	15	15	15	15	15	—
MNS	—	39.20	3.73	19.33	14.87	0.47	0.80	1.73	2.47	2.63	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR DECEMBER 1998

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 g : f	B g : f	C g : f	D g : f	E g : f	F g : f	G g : f	H g : f	J g : f
01	2015	1 : 1	0 : 0	2 : 2/4	2 : 3/8	0 : 0	1 : 26	0 : 0	0 : 0	0 : 0
02										
03	2020	2 : 1/1	0 : 0	2 : 3/4	1 : 7	0 : 0	1 : 12	0 : 0	0 : 0	2 : 1/2
04										
05	2015	2 : 1/1	1 : 2	2 : 2/5	1 : 8	0 : 0	0 : 0	1 : 4	0 : 0	0 : 0
06	1950	0 : 0	0 : 0	2 : 2/8	1 : 10	0 : 0	0 : 0	1 : 6	0 : 0	2 : 1/3
07										
08	2000	0 : 0	0 : 0	1 : 3	4 : 6/7/8/22	1 : 5	0 : 0	0 : 0	0 : 0	1 : 1
09										
10										
11										
12										
13	2050	0 : 0	1 : 3	1 : 3	1 : 12	1 : 15	0 : 0	0 : 0	0 : 0	1 : 1
14										
15	2010	2 : 1/1	0 : 0	0 : 0	1 : 7	1 : 19	0 : 0	0 : 0	0 : 0	1 : 1
16										
17										
18	2050	0 : 0	0 : 0	2 : 4/4	2 : 9/13	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
19										
20										
21	2125	0 : 0	0 : 0	0 : 0	1 : 7	1 : 10	0 : 0	0 : 0	0 : 0	0 : 0
22	2200	0 : 0	0 : 0	1 : 2	1 : 8	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
23	2000	1 : 1	1 : 3	1 : 3	1 : 6	0 : 0	0 : 0	0 : 0	0 : 0	1 : 1
24										
25	2010	2 : 1/1	0 : 0	1 : 4	3 : 6/10/11	0 : 0	0 : 0	0 : 0	0 : 0	0 : 0
26										
27										
28	2205	1 : 1	0 : 0	1 : 8	0 : 0	2 : 14/35	0 : 0	0 : 0	0 : 0	0 : 0
29	2025	0 : 0	0 : 0	1 : 9		2 : 16/46	0 : 0	0 : 0	0 : 0	1 : 1
30	2145	1 : 1	0 : 0	1 : 5	1 : 6	1 : 43	0 : 0	0 : 0	0 : 0	0 : 0
31										
TOTALS	—	12 : 12	3 : 8	18 : 75	20 : 174	9 : 203	2 : 38	2 : 10	0 : 0	9 : 12

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
16.0	4.0	24.0	26.7	12.0	2.7	2.7	0.0	12.0	75

NOBS = 15

$\overline{p/g}$  mean = 1.9213

$\overline{f/g}$  mean = 7.6715

$\overline{p/\overline{g}}$  mean = 1.8133

$\overline{f/\overline{g}}$  mean = 7.0933

GROUP COMPLEXITY INDEX (GCI) = 8.9067



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## OBSERVED ANNUAL MEANS OF SUNSPOT DATA FOR

# 1998

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	=	4.23
f	=	25.34
Wolf Number	=	67.67
Truncated Wolf Number	=	53.32
p	=	5.75
s	=	12.16
Pettisindex	=	69.58
Beckindex	=	452.65
Classification Value	=	70.01
Quality Count	=	11.86
Inter-Sol Index	=	28.29
Mean Weight	=	0.4617
Q	=	1.78
S	=	2.32
T	=	2.52
Mean Condition	=	2.2036
Total Number of Observations	=	167