



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

NEW ZEALAND

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## SUNSPOT RESULTS FOR JANUARY 2001

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	1955	8	43	123	13	17	147	918	153	1.5	2.5	2.0	3857
03	2005	8	42	122	9	18	108	815	131	1.5	2.0	2.0	3858
04	2000	10	46	146	13	17	147	994	145	1.5	2.0	2.0	3859
05	2010	11	52	162	14	20	160	1053	198	1.5	2.0	2.0	3860
06	1955	12	66	186	18	21	201	1183	247	2.0	2.5	2.5	3861
07	2025	12	47	167	17	20	190	937	235	1.5	2.5	3.0	3862
08	2015	10	46	146	13	22	152	757	167	2.0	3.0	2.5	3863
09													
10													
11													
12	2035	7	63	133	18	20	200	1845	123	2.0	3.0	3.0	3864
13													
14													
15	2045	8	75	155	13	32	162	2091	125	1.5	2.5	2.5	3865
16	2115	5	40	90	10	17	117	1163	96	1.5	2.0	2.5	3866
17													
18	1955	6	20	80	9	7	97	403	84	2.0	2.5	2.5	3867
19													
20													
21													
22	2035	7	54	124	16	25	185	1152	149	2.5	2.5	2.5	3868
23	2010	10	62	162	16	36	196	1065	148	1.5	2.5	2.5	3869
24													
25													
26													
27	1955	9	63	153	14	24	164	1174	174	1.5	2.0	2.5	3870
28	2005	8	51	131	12	21	141	1082	132	1.5	2.5	2.5	3871
29	2010	5	44	94	11	21	131	876	86	1.5	3.0	3.0	3872
30													
31	2020	8	36	116	11	16	126	739	123	2.0	2.0	2.0	3873
Σ	—	144	850	2290	227	354	2624	18247	2516	29.0	41.0	41.5	—
NOBS	—	17	17	17	17	17	17	17	17	17	17	17	—
MNS	—	8.47	50.00	134.71	13.35	20.82	154.35	1073.35	148.00	1.71	2.41	2.44	—

MEAN CONDITION = 2.1863    TRUNCATED WOLF NUMBER = 120.18    QUALITY COUNT = 26.06    SQUARED QUALITY COUNT = 93.24



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR JANUARY 2001

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											
02	1955	48	5	23	17	3	0	1.5	2.5	2.0	3857
03	2005	47	5	23	16	1	2	1.5	2.0	2.0	3858
04	2000	53	7	27	16	2	1	1.5	2.0	2.0	3859
05	2010	58	6	29	18	3	2	1.5	2.0	2.0	3860
06	1955	76	10	43	21	2	0	2.0	2.5	2.5	3861
07	2025	57	10	26	19	1	1	1.5	2.5	3.0	3862
08	2015	54	8	23	21	1	1	2.0	3.0	2.5	3863
09											
10											
11											
12	2035	69	6	42	20	1	0	2.0	3.0	3.0	3864
13											
14											
15	2045	80	5	42	30	1	2	1.5	2.5	2.5	3865
16	2115	43	3	22	16	1	1	1.5	2.0	2.5	3866
17											
18	1955	22	2	10	6	3	1	2.0	2.5	2.5	3867
19											
20											
21											
22	2035	60	6	29	24	0	1	2.5	2.5	2.5	3868
23	2010	69	7	25	34	1	2	1.5	2.5	2.5	3869
24											
25											
26											
27	1955	71	8	39	23	0	1	1.5	2.0	2.5	3870
28	2005	57	6	30	19	0	2	1.5	2.5	2.5	3871
29	2010	49	5	23	21	0	0	1.5	3.0	3.0	3872
30											
31	2020	42	6	19	15	1	1	2.0	2.0	2.0	3873
Σ	—	955	105	475	336	21	18	29.0	41.0	41.5	—
NOBS	—	17	17	17	17	17	17	17	17	17	—
MNS	—	56.18	6.18	27.94	19.76	1.24	1.06	1.71	2.41	2.44	—



# GEORGI DOBROVOLSKI SOLAR OBSERVATORY

## SUNSPOT CENSUS BY CLASSIFICATION FOR JANUARY 2001

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	1955	0	0	0	0	2	2/4	2	6/7	1	21	0	0	0	0	0	0	3	1/1/1
03	2005	2	1/1	0	0	3	2/4/4	1	5	1	24	0	0	0	0	0	0	1	1
04	2000	1	1	0	0	3	2/3/5	1	7	1	21	0	0	0	0	0	0	4	1/1/2/3
05	2010	2	1/1	0	0	2	2/7	2	5/13	1	18	0	0	0	0	1	2	3	1/1/1
06	1955	0	0	1	2	3	2/3/7	5	3/5/6/9/12	1	15	0	0	0	0	0	0	2	1/1
07	2025	1	1	0	0	3	4/4/4	5	2/3/6/7/8	0	0	0	0	1	4	1	3	1	1
08	2015	1	1	0	0	4	2/4/4/8	3	4/6/12	0	0	0	0	0	0	1	4	1	1
09																			
10																			
11																			
12	2035	0	0	0	0	2	2/3	1	11	1	8	1	36	0	0	0	0	2	1/2
13																			
14																			
15	2045	2	1/1	1	2	2	2/3	1	19	0	0	1	46	0	0	0	0	1	1
16	2115	1	1	0	0	1	3	1	9	0	0	1	26	0	0	0	0	1	1
17																			
18	1955	1	1	0	0	0	0	2	5/11	0	0	0	0	0	0	0	0	3	1/1/1
19																			
20																			
21																			
22	2035	1	1	0	0	1	3	3	3/7/8	2	10/22	0	0	0	0	0	0	0	0
23	2010	2	1/1	0	0	3	2/5/7	3	3/11/17	1	14	0	0	0	0	0	0	1	1
24																			
25																			
26																			
27	1955	1	1	1	2	2	3/7	4	3/4/6/11	1	26	0	0	0	0	0	0	0	0
28	2005	2	1/1	0	0	3	2/2/3	1	8	1	32	0	0	0	0	0	0	1	2
29	2010	0	0	1	3	2	3/4	1	6	1	28	0	0	0	0	0	0	0	0
30																			
31	2020	1	1	0	0	2	2/2	2	5/7	2	7/11	0	0	0	0	0	0	1	1
TOTALS	—	18	18	4	9	38	135	38	280	14	257	3	108	1	4	3	9	25	30

### REGIONAL PERCENTAGES

A	B	C	D	E	F	G	H	J	Σg
12.5	2.8	26.4	26.4	9.7	2.1	0.7	2.1	17.4	144

NOBS = 17       $\bar{p}/\bar{g}$  mean = 1.6325       $\bar{f}/\bar{g}$  mean = 6.1333  
 $\bar{p}/\bar{g}$  mean = 1.5764       $\bar{f}/\bar{g}$  mean = 5.9028

GROUP COMPLEXITY INDEX (GCI) = 7.4792



**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	$g(S^W)$	$WN(S^W)$	$SN(S^W)$	$BX(S^W)$	$CV(S^W)$	$QC(S^W)$	$IS(S^W)$
1999 AUGUST	6.64	109.48	121.94	975.9	123.68	20.42	47.65
SEPTEMBER	6.99	115.90	129.49	1041.7	132.31	21.70	50.86
OCTOBER	7.42	124.67	139.44	1154.3	143.68	23.32	55.65
NOVEMBER	7.72	131.11	146.09	1251.5	149.83	24.33	59.32
DECEMBER	7.81	133.42	148.92	1300.7	151.72	24.69	60.78
2000 JANUARY	7.96	137.71	155.60	1401.8	155.56	25.37	63.72
FEBRUARY	8.30	143.82	163.09	1471.6	160.19	26.42	66.58
MARCH	8.54	147.85	167.88	1509.9	163.94	27.14	68.45
APRIL	8.57	149.39	170.40	1536.9	164.86	27.34	69.76
MAY	8.56	147.98	168.20	1480.2	163.14	27.22	68.48
JUNE	8.61	147.41	167.16	1426.8	162.43	27.23	67.47
JULY	8.72	149.15	170.05	1428.6	164.50	27.62	68.21

**'BARNES 13' METHOD**

MONTH	$g(S^{B13})$	$WN(S^{B13})$	$SN(S^{B13})$	$BX(S^{B13})$	$CV(S^{B13})$	$QC(S^{B13})$	$IS(S^{B13})$
1999 AUGUST	6.76	112.23	126.03	1024.5	126.96	20.90	49.25
SEPTEMBER	6.89	115.04	129.59	1073.2	130.63	21.43	50.90
OCTOBER	7.10	119.71	135.18	1147.0	136.87	22.28	53.66
NOVEMBER	7.30	124.39	140.23	1219.1	142.31	23.08	56.46
DECEMBER	7.51	128.40	144.02	1265.1	146.76	23.80	58.61
2000 JANUARY	7.84	134.68	150.78	1334.7	153.59	24.94	61.82
FEBRUARY	8.32	143.47	160.74	1430.8	162.77	26.51	66.17
MARCH	8.74	151.55	170.20	1528.6	170.71	27.91	70.35
APRIL	8.98	156.55	176.40	1596.0	174.14	28.70	73.08
MAY	9.10	158.32	179.10	1610.4	174.12	28.98	73.78
JUNE	9.13	158.60	180.80	1607.8	172.97	29.04	73.73
JULY	9.06	157.01	180.52	1583.1	170.08	28.77	72.84