



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.cv-helios.net/gdso

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	QC ²	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	309	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	2964	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	269.45	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).

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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	—

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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	8/12	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									
				$\overline{p/g}$ mean = 1.3784						$\overline{f/g}$ mean = 4.5405									
GROUP COMPLEXITY INDEX (GCI) = 5.9189																			

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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

ERRATA: CV observed value for April 2003 should read 112.61,
hence, the CV smoothed values (above) are corrected.