



Georgi Dobrovolski Solar Observatory

Monthly Sunspot Reports

2005

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Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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WEBSITE: www.cv-helios.net/gdso

SUNSPOT RESULTS FOR JANUARY 2005

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 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | | | | | | | | | | | | | | | |
| 10 | 0240 | 2 | 5 | 25 | 4 | 1 | 41 | 90 | 53 | 8 | 32 | 1.5 | 2.0 | 2.0 | 4483-5 |
| 11 | | | | | | | | | | | | | | | |
| 12 | 1945 | 3 | 25 | 55 | 3 | 7 | 37 | 200 | 29 | 9 | 27 | 2.0 | 3.0 | 3.0 | 4484-5 |
| 13 | 2105 | 3 | 48 | 78 | 5 | 13 | 63 | 784 | 86 | 11 | 41 | 2.0 | 2.5 | 2.5 | 4485-5 |
| 14 | 2205 | 3 | 39 | 69 | 3 | 10 | 40 | 652 | 65 | 11 | 43 | 2.0 | 2.5 | 2.5 | 4486-5 |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | 1945 | 5 | 40 | 90 | 9 | 9 | 99 | 952 | 85 | 13 | 43 | 1.5 | 2.0 | 2.0 | 4487-5 |
| 19 | | | | | | | | | | | | | | | |
| 20 | 2120 | 4 | 20 | 60 | 7 | 6 | 76 | 393 | 87 | 13 | 47 | 1.5 | 2.5 | 2.0 | 4488-5 |
| 21 | 2025 | 4 | 20 | 60 | 7 | 5 | 75 | 507 | 104 | 14 | 52 | 2.0 | 2.5 | 2.0 | 4489-5 |
| 22 | | | | | | | | | | | | | | | |
| 23 | 1930 | 2 | 5 | 25 | 2 | 3 | 23 | 40 | 23 | 6 | 18 | 1.0 | 2.0 | 2.0 | 4490-5 |
| 24 | | | | | | | | | | | | | | | |
| 25 | 1935 | 2 | 13 | 33 | 4 | 3 | 43 | 253 | 41 | 6 | 20 | 1.0 | 2.0 | 2.5 | 4491-5 |
| 26 | 1950 | 2 | 12 | 32 | 3 | 5 | 35 | 235 | 32 | 6 | 20 | 2.5 | 2.5 | 2.5 | 4492-5 |
| 27 | | | | | | | | | | | | | | | |
| 28 | 2125 | 2 | 6 | 26 | 3 | 2 | 32 | 127 | 32 | 6 | 20 | 3.0 | 3.0 | 2.5 | 4493-5 |
| 29 | | | | | | | | | | | | | | | |
| 30 | 1955 | 2 | 9 | 29 | 2 | 6 | 26 | 148 | 23 | 5 | 17 | 1.5 | 2.0 | 2.0 | 4494-6 |
| 31 | 1955 | 2 | 8 | 28 | 5 | 2 | 52 | 144 | 53 | 8 | 32 | 2.0 | 2.0 | 1.5 | 4495-6 |
| TOTALS | — | 36 | 250 | 610 | 57 | 72 | 642 | 4525 | 713 | 116 | 412 | 23.5 | 30.5 | 29.0 | — |
| NOBS | — | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | — |
| MNS | — | 2.77 | 19.23 | 46.92 | 4.38 | 5.54 | 49.38 | 348.08 | 54.85 | 8.92 | 31.69 | 1.81 | 2.35 | 2.23 | — |

MEAN WEIGHT = 0.4826

MEAN CONDITION = 2.1282

TRUNCATED WOLF NUMBER = 45.23

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR JANUARY 2005

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 | 0240 | 7 | 2 | 4 | 1 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4483-5 |
| 11 | | | | | | | | | | | |
| 12 | 1945 | 28 | 3 | 18 | 7 | 0 | 0 | 2.0 | 3.0 | 3.0 | 4484-5 |
| 13 | 2105 | 51 | 3 | 35 | 13 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4485-5 |
| 14 | 2205 | 42 | 3 | 29 | 10 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4486-5 |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | 1945 | 42 | 2 | 29 | 8 | 2 | 1 | 1.5 | 2.0 | 2.0 | 4487-5 |
| 19 | | | | | | | | | | | |
| 20 | 2120 | 23 | 3 | 13 | 6 | 1 | 0 | 1.5 | 2.5 | 2.0 | 4488-5 |
| 21 | 2025 | 23 | 3 | 14 | 5 | 1 | 0 | 2.0 | 2.5 | 2.0 | 4489-5 |
| 22 | | | | | | | | | | | |
| 23 | 1930 | 7 | 2 | 2 | 3 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4490-5 |
| 24 | | | | | | | | | | | |
| 25 | 1935 | 14 | 1 | 9 | 3 | 1 | 0 | 1.0 | 2.0 | 2.5 | 4491-5 |
| 26 | 1950 | 13 | 1 | 6 | 5 | 1 | 0 | 2.5 | 2.5 | 2.5 | 4492-5 |
| 27 | | | | | | | | | | | |
| 28 | 2125 | 7 | 1 | 3 | 2 | 1 | 0 | 3.0 | 3.0 | 2.5 | 4493-5 |
| 29 | | | | | | | | | | | |
| 30 | 1955 | 10 | 1 | 3 | 5 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4494-6 |
| 31 | 1955 | 10 | 2 | 6 | 2 | 0 | 0 | 2.0 | 2.0 | 1.5 | 4495-6 |
| TOTALS | — | 277 | 27 | 171 | 70 | 7 | 2 | 23.5 | 30.5 | 29.0 | — |
| NOBS | — | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | — |
| MNS | — | 21.31 | 2.08 | 13.15 | 5.38 | 0.54 | 0.15 | 1.81 | 2.35 | 2.23 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JANUARY 2005

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 | 2040 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2/3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | 1945 | 0 | 0 | 0 | 0 | 3 | 2/7/16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 2105 | 0 | 0 | 0 | 0 | 1 | 8 | 2 | 14/26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 2205 | 0 | 0 | 0 | 0 | 2 | 6/13 | 0 | 0 | 1 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | 1945 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | 2120 | 0 | 0 | 0 | 0 | 2 | 3/4 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 21 | 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3/12 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 1 |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | 1930 | 0 | 0 | 0 | 0 | 2 | 2/3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | 1935 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 26 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | 2125 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 29 | | | | | | | | | | | | | | | | | | | |
| 30 | 1955 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | 1955 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3/5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | — | 2 | 2 | 0 | 0 | 11 | 67 | 12 | 104 | 3 | 66 | 0 | 0 | 1 | 4 | 0 | 0 | 7 | 7 |

REGIONAL PERCENTAGES

| A | B | C | D | E | F | G | H | J | SIGMAg |
|-----|-----|------|------|-----|-----|-----|-----|------|--------|
| 5.6 | 0.0 | 30.6 | 33.3 | 8.3 | 0.0 | 2.8 | 0.0 | 19.4 | 36 |

NOBS = 13

$\overline{p/g}$ mean = 1.5744

$\overline{f/g}$ mean = 6.4872

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

$\overline{f/g}$ mean = 6.9444

GROUP COMPLEXITY INDEX (GCI) = 8.5278

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 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |

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 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |

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



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NEW ZEALAND

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SUNSPOT RESULTS FOR FEBRUARY 2005

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 | | | | | | | | | | | | | | | |
| 03 | 2000 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 1.5 | 2.0 | 1.5 | 4496-6 |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | 2215 | 4 | 7 | 47 | 3 | 3 | 33 | 117 | 60 | 9 | 23 | 2.0 | 2.5 | 2.0 | 4497-6 |
| 10 | | | | | | | | | | | | | | | |
| 11 | 1945 | 6 | 13 | 73 | 5 | 5 | 55 | 313 | 110 | 15 | 41 | 1.0 | 2.0 | 2.5 | 4498-6 |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | 2000 | 3 | 27 | 57 | 5 | 16 | 66 | 524 | 87 | 10 | 36 | 1.5 | 2.0 | 2.0 | 4499-6 |
| 17 | 2115 | 4 | 19 | 59 | 6 | 11 | 71 | 399 | 97 | 12 | 40 | 1.5 | 2.0 | 2.5 | 4500-6 |
| 18 | | | | | | | | | | | | | | | |
| 19 | 2015 | 3 | 8 | 38 | 3 | 3 | 33 | 149 | 57 | 7 | 21 | 1.5 | 2.0 | 2.0 | 4501-6 |
| 20 | 2020 | 2 | 6 | 26 | 3 | 1 | 31 | 146 | 53 | 6 | 20 | 1.0 | 2.0 | 2.0 | 4502-6 |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | 2200 | 1 | 5 | 15 | 2 | 2 | 22 | 90 | 22 | 4 | 16 | 2.0 | 2.5 | 2.5 | 4503-6 |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | 2020 | 1 | 1 | 11 | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4504-7 |
| 27 | | | | | | | | | | | | | | | |
| 28 | 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4505-7 |
| 29 | — | | | | | | | | | | | | | | |
| 30 | — | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | |
| TOTALS | — | 25 | 87 | 337 | 28 | 42 | 322 | 1779 | 497 | 66 | 202 | 15.0 | 21.5 | 21.0 | — |
| NOBS | — | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | — |
| MNS | — | 2.50 | 8.70 | 33.70 | 2.80 | 4.20 | 32.20 | 177.90 | 49.70 | 6.60 | 20.20 | 1.50 | 2.15 | 2.10 | — |

MEAN WEIGHT = 0.5272

MEAN CONDITION = 1.9167

TRUNCATED WOLF NUMBER = 28.00

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR FEBRUARY 2005

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

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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 | 2000 | 1 | 0 | 0 | 0 | 1 | 0 | 1.5 | 2.0 | 1.5 | 4496-6 |
| 04 | | | | | | | | | | | |
| 05 | | | | | | | | | | | |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | | | | | | | | | | | |
| 09 | 2215 | 8 | 1 | 2 | 2 | 2 | 1 | 2.0 | 2.5 | 2.0 | 4497-6 |
| 10 | | | | | | | | | | | |
| 11 | 1945 | 18 | 5 | 7 | 5 | 1 | 0 | 1.0 | 2.0 | 2.5 | 4498-6 |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | 2000 | 30 | 3 | 11 | 16 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4499-6 |
| 17 | 2115 | 22 | 3 | 7 | 11 | 1 | 0 | 1.5 | 2.0 | 2.5 | 4500-6 |
| 18 | | | | | | | | | | | |
| 19 | 2015 | 9 | 1 | 4 | 2 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4501-6 |
| 20 | 2020 | 8 | 2 | 5 | 1 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4502-6 |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | 2200 | 6 | 1 | 3 | 2 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4503-6 |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | 2020 | 1 | 0 | 0 | 0 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4504-7 |
| 27 | | | | | | | | | | | |
| 28 | 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4505-7 |
| 29 | — | | | | | | | | | | |
| 30 | — | | | | | | | | | | |
| 31 | — | | | | | | | | | | |
| TOTALS | — | 103 | 16 | 39 | 39 | 6 | 3 | 15.0 | 21.5 | 21.0 | — |
| NOBS | — | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | — |
| MNS | — | 10.30 | 1.60 | 3.90 | 3.90 | 0.60 | 0.30 | 1.50 | 2.15 | 2.10 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR FEBRUARY 2005

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 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 04 | | | | | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | | | | | |
| 09 | 2215 | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | 1945 | 0 | 0 | 2 | 2/2 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 1/2 |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4/21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 17 | 2115 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3/13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/2 |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | 2015 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 20 | 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | 2200 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | 2020 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | — | | | | | | | | | | | | | | | | | | |
| 30 | — | | | | | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 3 | 3 | 2 | 4 | 1 | 4 | 8 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 9 | 13 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | SIGMAg | | | | | | | | | | |
| 12.0 | 8.0 | 4.0 | 32.0 | 0.0 | 0.0 | 0.0 | 8.0 | 36.0 | 25 | | | | | | | | | | |
| NOBS = 10 | | $\overline{p/g}$ mean = 1.1389 | | | | $\overline{f/g}$ mean = 3.3704 | | | | | | | | | | | | | |
| | | $\overline{p/g}$ mean = 1.1200 | | | | $\overline{f/g}$ mean = 3.4800 | | | | | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 4.6000 | | | | | | | | | | | | | | | | | | | |

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 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |

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 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.cv-helios.net/gdso

SUNSPOT RESULTS FOR MARCH 2005

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 | 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4506-7 |
| 02 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | 2035 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 1.5 | 2.0 | 2.0 | 4507-7 |
| 05 | 2025 | 1 | 4 | 14 | 1 | 1 | 11 | 32 | 8 | 3 | 9 | 2.0 | 2.5 | 2.5 | 4508-7 |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2015 | 2 | 15 | 35 | 6 | 5 | 65 | 270 | 53 | 8 | 32 | 1.5 | 2.0 | 2.0 | 4509-7 |
| 09 | 2035 | 3 | 23 | 53 | 5 | 12 | 62 | 441 | 81 | 11 | 43 | 1.0 | 1.5 | 2.0 | 4510-7 |
| 10 | | | | | | | | | | | | | | | |
| 11 | 2030 | 3 | 21 | 51 | 6 | 9 | 69 | 512 | 81 | 11 | 43 | 2.0 | 2.0 | 2.0 | 4511-7 |
| 12 | 2100 | 3 | 20 | 50 | 6 | 9 | 69 | 531 | 82 | 10 | 38 | 1.5 | 2.5 | 2.5 | 4512-7 |
| 13 | | | | | | | | | | | | | | | |
| 14 | 2110 | 3 | 18 | 48 | 6 | 3 | 63 | 474 | 94 | 12 | 50 | 2.0 | 2.5 | 2.0 | 4513-7 |
| 15 | 2050 | 2 | 25 | 45 | 4 | 15 | 55 | 591 | 73 | 8 | 34 | 1.5 | 2.0 | 2.0 | 4514-7 |
| 16 | 2045 | 2 | 12 | 32 | 4 | 4 | 44 | 232 | 95 | 8 | 34 | 2.0 | 2.5 | 2.5 | 4515-7 |
| 17 | | | | | | | | | | | | | | | |
| 18 | 2040 | 2 | 12 | 32 | 4 | 5 | 45 | 186 | 100 | 7 | 25 | 2.0 | 2.5 | 2.0 | 4516-7 |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | 2150 | 3 | 15 | 45 | 5 | 6 | 56 | 266 | 79 | 10 | 34 | 2.0 | 2.5 | 3.0 | 4517-7 |
| 22 | 2050 | 2 | 16 | 36 | 4 | 7 | 47 | 288 | 44 | 8 | 32 | 1.5 | 2.0 | 2.5 | 4518-7 |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | 2120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.5 | 4519-8 |
| 30 | 2055 | 1 | 1 | 11 | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 2.0 | 2.0 | 2.5 | 4520-8 |
| 31 | 2145 | 1 | 1 | 11 | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4521-8 |
| TOTALS | — | 29 | 184 | 474 | 52 | 78 | 598 | 3868 | 802 | 100 | 380 | 26.5 | 35 | 36 | — |
| NOBS | — | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | — |
| MNS | — | 1.81 | 11.50 | 29.62 | 3.25 | 4.88 | 37.38 | 241.75 | 50.12 | 6.25 | 23.75 | 1.66 | 2.19 | 2.25 | — |

MEAN WEIGHT = 0.4998

MEAN CONDITION = 2.0312

TRUNCATED WOLF NUMBER = 28.25

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR MARCH 2005

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 | 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4506-7 |
| 02 | | | | | | | | | | | |
| 03 | | | | | | | | | | | |
| 04 | 2035 | 1 | 0 | 0 | 0 | 1 | 0 | 1.5 | 2.0 | 2.0 | 4507-7 |
| 05 | 2025 | 5 | 1 | 3 | 1 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4508-7 |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | 2015 | 17 | 2 | 10 | 5 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4509-7 |
| 09 | 2035 | 25 | 2 | 10 | 12 | 1 | 0 | 1.0 | 1.5 | 2.0 | 4510-7 |
| 10 | | | | | | | | | | | |
| 11 | 2030 | 24 | 3 | 12 | 9 | 0 | 0 | 2.0 | 2.0 | 2.0 | 4511-7 |
| 12 | 2100 | 21 | 1 | 9 | 9 | 2 | 0 | 1.5 | 2.5 | 2.5 | 4512-7 |
| 13 | | | | | | | | | | | |
| 14 | 2110 | 21 | 3 | 15 | 3 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4513-7 |
| 15 | 2050 | 27 | 2 | 10 | 15 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4514-7 |
| 16 | 2045 | 14 | 2 | 8 | 4 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4515-7 |
| 17 | | | | | | | | | | | |
| 18 | 2040 | 14 | 2 | 7 | 5 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4516-7 |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | 2150 | 17 | 2 | 8 | 6 | 1 | 0 | 2.0 | 2.5 | 3.0 | 4517-7 |
| 22 | 2050 | 18 | 2 | 9 | 7 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4518-7 |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | 2120 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.5 | 4519-8 |
| 30 | 2055 | 1 | 0 | 0 | 0 | 0 | 1 | 2.0 | 2.0 | 2.5 | 4520-8 |
| 31 | 2145 | 1 | 0 | 0 | 0 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4521-8 |
| TOTALS | — | 206 | 22 | 101 | 76 | 5 | 2 | 26.5 | 35 | 36 | — |
| NOBS | — | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | — |
| MNS | — | 12.88 | 1.38 | 6.31 | 4.75 | 0.31 | 0.12 | 1.66 | 2.19 | 2.25 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR MARCH 2005

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 | 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 | | | | | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | | | | | |
| 04 | 2035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 05 | 2025 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6/9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09 | 2035 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 1 | 13 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | 2030 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 16 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 12 | 2100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | 2110 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 14 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| 15 | 2050 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 2045 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | 2040 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | 2150 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 22 | 2050 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7/9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | 2120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 2055 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | 2145 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | — | 2 | 2 | 0 | 0 | 7 | 28 | 7 | 53 | 6 | 92 | 0 | 0 | 0 | 0 | 5 | 7 | 2 | 2 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | SIGMAg | | | | | | | | | | |
| 6.9 | 0.0 | 24.1 | 24.1 | 20.7 | 0.0 | 0.0 | 17.2 | 6.9 | 29 | | | | | | | | | | |
| NOBS = 16 | | | | $\overline{p/g}$ mean = 1.5952 | | | | | | $\overline{f/g}$ mean = 5.6667 | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 1.7931 | | | | | | $\overline{f/g}$ mean = 6.3448 | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 8.1379 | | | | | | | | | | | | | | | | | | | |

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 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 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |

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 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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SUNSPOT RESULTS FOR APRIL 2005

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 | 2100 | 2 | 3 | 23 | 1 | 2 | 12 | 45 | 12 | 4 | 8 | 2.0 | 2.0 | 2.0 | 4522-8 |
| 02 | 2120 | 3 | 10 | 40 | 4 | 3 | 43 | 218 | 42 | 8 | 24 | 2.0 | 2.0 | 2.0 | 4523-8 |
| 03 | 2105 | 3 | 17 | 47 | 5 | 10 | 60 | 344 | 51 | 8 | 24 | 1.5 | 2.0 | 1.5 | 4524-8 |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | 2105 | 3 | 8 | 38 | 4 | 4 | 44 | 143 | 55 | 9 | 29 | 1.5 | 2.5 | 2.5 | 4525-8 |
| 07 | 2150 | 3 | 7 | 37 | 3 | 3 | 33 | 85 | 30 | 8 | 22 | 1.0 | 2.0 | 2.5 | 4526-8 |
| 08 | | | | | | | | | | | | | | | |
| 09 | 2140 | 3 | 13 | 43 | 4 | 7 | 47 | 223 | 50 | 9 | 29 | 1.5 | 2.0 | 2.5 | 4527-8 |
| 10 | 2140 | 2 | 7 | 27 | 3 | 4 | 34 | 145 | 38 | 6 | 20 | 2.5 | 2.5 | 2.0 | 4528-8 |
| 11 | | | | | | | | | | | | | | | |
| 12 | 2135 | 2 | 8 | 28 | 3 | 4 | 34 | 190 | 32 | 7 | 25 | 2.0 | 2.0 | 1.5 | 4529-8 |
| 13 | 2125 | 3 | 11 | 41 | 4 | 5 | 45 | 203 | 45 | 9 | 35 | 1.5 | 2.0 | 2.5 | 4530-8 |
| 14 | 2140 | 4 | 13 | 53 | 5 | 5 | 55 | 221 | 64 | 14 | 54 | 1.0 | 2.0 | 2.0 | 4531-8 |
| 15 | 2145 | 3 | 10 | 40 | 4 | 5 | 45 | 130 | 45 | 10 | 34 | 1.5 | 2.5 | 2.5 | 4532-8 |
| 16 | | | | | | | | | | | | | | | |
| 17 | 2135 | 3 | 10 | 40 | 2 | 7 | 27 | 76 | 22 | 7 | 19 | 1.5 | 2.0 | 2.0 | 4533-8 |
| 18 | 2140 | 3 | 9 | 39 | 2 | 6 | 26 | 64 | 23 | 8 | 22 | 1.5 | 1.5 | 2.0 | 4534-8 |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | 2215 | 2 | 2 | 22 | 1 | 1 | 11 | 41 | 11 | 3 | 5 | 2.0 | 2.0 | 2.5 | 4535-9 |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | 2155 | 2 | 3 | 23 | 1 | 2 | 12 | 52 | 42 | 5 | 13 | 2.0 | 2.0 | 2.5 | 4536-9 |
| 25 | | | | | | | | | | | | | | | |
| 26 | 2155 | 2 | 8 | 28 | 1 | 3 | 13 | 60 | 40 | 4 | 10 | 1.5 | 2.0 | 2.0 | 4537-9 |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | 2145 | 3 | 29 | 59 | 3 | 7 | 37 | 669 | 70 | 10 | 42 | 2.0 | 2.0 | 2.0 | 4538-9 |
| 30 | | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | |
| TOTALS | — | 46 | 168 | 628 | 50 | 78 | 578 | 2909 | 672 | 129 | 415 | 28.5 | 35.0 | 36.5 | — |
| NOBS | — | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | — |
| MNS | — | 2.71 | 9.88 | 36.94 | 2.94 | 4.59 | 34.00 | 171.12 | 39.53 | 7.59 | 24.41 | 1.68 | 2.06 | 2.15 | — |

MEAN WEIGHT = 0.5151

MEAN CONDITION = 1.9608

TRUNCATED WOLF NUMBER = 30.88

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR APRIL 2005

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 | 2100 | 4 | 1 | 0 | 2 | 1 | 0 | 2.0 | 2.0 | 2.0 | 4522-8 |
| 02 | 2120 | 11 | 1 | 5 | 3 | 2 | 0 | 2.0 | 2.0 | 2.0 | 4523-8 |
| 03 | 2105 | 18 | 1 | 5 | 10 | 2 | 0 | 1.5 | 2.0 | 1.5 | 4524-8 |
| 04 | | | | | | | | | | | |
| 05 | | | | | | | | | | | |
| 06 | 2105 | 10 | 2 | 3 | 4 | 1 | 0 | 1.5 | 2.5 | 2.5 | 4525-8 |
| 07 | 2150 | 9 | 2 | 3 | 3 | 1 | 0 | 1.0 | 2.0 | 2.5 | 4526-8 |
| 08 | | | | | | | | | | | |
| 09 | 2140 | 15 | 2 | 5 | 7 | 1 | 0 | 1.5 | 2.0 | 2.5 | 4527-8 |
| 10 | 2140 | 8 | 1 | 2 | 4 | 1 | 0 | 2.5 | 2.5 | 2.0 | 4528-8 |
| 11 | | | | | | | | | | | |
| 12 | 2135 | 10 | 2 | 4 | 4 | 0 | 0 | 2.0 | 2.0 | 1.5 | 4529-8 |
| 13 | 2125 | 13 | 2 | 6 | 4 | 0 | 1 | 1.5 | 2.0 | 2.5 | 4530-8 |
| 14 | 2140 | 17 | 4 | 8 | 5 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4531-8 |
| 15 | 2145 | 13 | 3 | 5 | 5 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4532-8 |
| 16 | | | | | | | | | | | |
| 17 | 2135 | 12 | 2 | 3 | 6 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4533-8 |
| 18 | 2140 | 12 | 3 | 3 | 6 | 0 | 0 | 1.5 | 1.5 | 2.0 | 4534-8 |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | 2215 | 2 | 0 | 0 | 0 | 1 | 1 | 2.0 | 2.0 | 2.5 | 4535-9 |
| 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | 2155 | 4 | 1 | 0 | 2 | 1 | 0 | 2.0 | 2.0 | 2.5 | 4536-9 |
| 25 | | | | | | | | | | | |
| 26 | 2155 | 9 | 1 | 5 | 2 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4537-9 |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | 2145 | 31 | 2 | 22 | 6 | 0 | 1 | 2.0 | 2.0 | 2.0 | 4538-9 |
| 30 | | | | | | | | | | | |
| 31 | — | | | | | | | | | | |
| TOTALS | — | 198 | 30 | 79 | 73 | 11 | 5 | 28.5 | 35.0 | 36.5 | — |
| NOBS | — | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | — |
| MNS | — | 11.65 | 1.76 | 4.65 | 4.29 | 0.65 | 0.29 | 1.68 | 2.06 | 2.15 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

APRIL 2005

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 | 2100 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 02 | 2120 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 03 | 2105 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 | |
| 04 | | | | | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | 2105 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 07 | 2150 | 0 | 0 | 0 | 0 | 2 | 2/4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 08 | | | | | | | | | | | | | | | | | | | |
| 09 | 2140 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 10 | 2140 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | 2135 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| 13 | 2125 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 2140 | 0 | 0 | 1 | 2 | 1 | 2 | 1 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 2145 | 0 | 0 | 0 | 0 | 2 | 2/3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | 2135 | 1 | 1 | 0 | 0 | 2 | 3/6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 2140 | 0 | 0 | 1 | 2 | 2 | 3/4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | 2215 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | 2155 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | 2155 | 1 | 1 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | 2145 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | | | | | | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 5 | 5 | 4 | 8 | 14 | 49 | 8 | 57 | 3 | 35 | 0 | 0 | 1 | 3 | 1 | 1 | 10 | 10 |

REGIONAL PERCENTAGES

| A | B | C | D | E | F | G | H | J | SIGMAg |
|------|-----|------|------|-----|-----|-----|-----|------|--------|
| 10.9 | 8.7 | 30.4 | 17.4 | 6.5 | 0.0 | 2.2 | 2.2 | 21.7 | 46 |

NOBS = 17

$\overline{p/g}$ mean = 1.0539

$\overline{f/g}$ mean = 3.5343

$\overline{p/g}$ mean = 1.0870

$\overline{f/g}$ mean = 3.6522

GROUP COMPLEXITY INDEX (GCI) = 4.7391

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 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 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |

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 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: <http://gdso.cv-helios.net> 

SUNSPOT RESULTS FOR MAY 2005

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 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | 2205 | 2 | 32 | 52 | 5 | 10 | 60 | 511 | 71 | 8 | 34 | 2.0 | 2.5 | 2.0 | 4539-9 |
| 05 | 2210 | 2 | 34 | 54 | 9 | 10 | 100 | 773 | 87 | 9 | 41 | 2.0 | 2.5 | 2.0 | 4540-9 |
| 06 | 2210 | 2 | 19 | 39 | 9 | 5 | 95 | 433 | 87 | 9 | 41 | 1.5 | 2.5 | 2.5 | 4541-9 |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2145 | 3 | 34 | 64 | 10 | 17 | 117 | 1126 | 81 | 12 | 62 | 2.0 | 2.0 | 2.0 | 4542-9 |
| 09 | | | | | | | | | | | | | | | |
| 10 | 2235 | 3 | 53 | 83 | 14 | 19 | 159 | 1568 | 123 | 15 | 77 | 1.5 | 2.0 | 2.0 | 4543-9 |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | 2155 | 2 | 4 | 24 | 3 | 1 | 31 | 91 | 38 | 6 | 20 | 2.5 | 2.5 | 2.5 | 4544-0 |
| 23 | | | | | | | | | | | | | | | |
| 24 | 2215 | 2 | 15 | 35 | 5 | 7 | 57 | 210 | 40 | 7 | 25 | 1.5 | 2.0 | 2.5 | 4545-0 |
| 25 | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | |
| TOTALS | — | 16 | 191 | 351 | 55 | 69 | 619 | 4712 | 527 | 66 | 300 | 13.0 | 16.0 | 15.5 | — |
| NOBS | — | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | — |
| MNS | — | 2.29 | 27.29 | 50.14 | 7.86 | 9.86 | 88.43 | 673.14 | 75.29 | 9.43 | 42.86 | 1.86 | 2.29 | 2.21 | — |

MEAN WEIGHT = 0.4757

MEAN CONDITION = 2.1190

TRUNCATED WOLF NUMBER = 48.57

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR MAY 2005

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 | 2205 | 34 | 2 | 22 | 10 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4539-9 |
| 05 | 2210 | 36 | 2 | 24 | 10 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4540-9 |
| 06 | 2210 | 21 | 2 | 14 | 5 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4541-9 |
| 07 | | | | | | | | | | | |
| 08 | 2145 | 36 | 2 | 17 | 16 | 0 | 1 | 2.0 | 2.0 | 2.0 | 4542-9 |
| 09 | | | | | | | | | | | |
| 10 | 2235 | 56 | 3 | 34 | 19 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4543-9 |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | 2155 | 5 | 1 | 2 | 1 | 1 | 0 | 2.5 | 2.5 | 2.5 | 4544-0 |
| 23 | | | | | | | | | | | |
| 24 | 2215 | 17 | 2 | 8 | 7 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4545-0 |
| 25 | | | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | | | | | | | | |
| 30 | | | | | | | | | | | |
| 31 | | | | | | | | | | | |
| TOTALS | — | 205 | 14 | 121 | 68 | 1 | 1 | 13.0 | 16.0 | 15.5 | — |
| NOBS | — | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | — |
| MNS | — | 29.29 | 2.00 | 17.29 | 9.71 | 0.14 | 0.14 | 1.86 | 2.29 | 2.21 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

MAY 2005

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 | 2205 | 0 | 0 | 0 | 0 | 1 | 17 | 0 | 0 | 1 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05 | 2210 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06 | 2210 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | 2145 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 27 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09 | | | | | | | | | | | | | | | | | | | |
| 10 | 2235 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 14 | 1 | 8 | 1 | 31 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | 2155 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | 2215 | 0 | 0 | 0 | 0 | 1 | 6 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 1 | 1 | 0 | 0 | 2 | 23 | 5 | 43 | 5 | 65 | 2 | 58 | 0 | 0 | 0 | 0 | 1 | 1 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | SIGMAg | | | | | | | | | | |
| 6.2 | 0.0 | 12.5 | 31.2 | 31.2 | 12.5 | 0.0 | 0.0 | 6.2 | 16 | | | | | | | | | | |
| | | NOBS = 7 | | $\overline{p/g}$ mean = 3.3571 | | | | | | $\overline{f/g}$ mean = 11.5714 | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 3.4375 | | | | | | $\overline{f/g}$ mean = 11.9375 | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 15.3750 | | | | | | | | | | | | | | | | | | | |

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 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 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |

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 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: <http://gdso.cv-helios.net> 

SUNSPOT RESULTS FOR JUNE 2005

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 | 2325 | 5 | 20 | 70 | 8 | 5 | 85 | 345 | 84 | 14 | 46 | 1.0 | 2.0 | 2.0 | 4546-0 |
| 02 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | 2305 | 5 | 29 | 79 | 12 | 11 | 131 | 492 | 171 | 19 | 73 | 1.0 | 2.0 | 2.5 | 4547-0 |
| 06 | 2255 | 5 | 33 | 83 | 10 | 13 | 113 | 564 | 157 | 19 | 73 | 2.0 | 2.5 | 2.0 | 4548-0 |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2250 | 4 | 38 | 78 | 9 | 11 | 101 | 803 | 149 | 17 | 73 | 1.5 | 2.5 | 2.5 | 4549-0 |
| 09 | 2255 | 5 | 45 | 95 | 13 | 11 | 141 | 944 | 145 | 17 | 67 | 1.0 | 2.5 | 2.5 | 4550-0 |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | 2305 | 2 | 18 | 38 | 4 | 6 | 46 | 415 | 45 | 9 | 41 | 1.0 | 2.0 | 2.0 | 4551-1 |
| 20 | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | 2255 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 2.0 | 2.0 | 4552-1 |
| 26 | 2310 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4553-1 |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | 2300 | 5 | 16 | 66 | 7 | 6 | 76 | 259 | 76 | 15 | 49 | 2.0 | 2.0 | 3.0 | 4554-1 |
| 30 | 2240 | 5 | 36 | 86 | 11 | 12 | 122 | 568 | 93 | 18 | 66 | 1.5 | 2.0 | 2.0 | 4555-1 |
| 31 | — | | | | | | | | | | | | | | |
| TOTALS | — | 36 | 235 | 595 | 74 | 75 | 815 | 4390 | 920 | 128 | 488 | 14.5 | 21.5 | 22.5 | — |
| NOBS | — | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | — |
| MNS | — | 3.60 | 23.50 | 59.50 | 7.40 | 7.50 | 81.50 | 439.00 | 92.00 | 12.80 | 48.80 | 1.45 | 2.15 | 2.25 | — |

MEAN WEIGHT = 0.5188

MEAN CONDITION = 1.9500

TRUNCATED WOLF NUMBER = 56.10

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR JUNE 2005

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 | 2325 | 23 | 3 | 14 | 4 | 1 | 1 | 1.0 | 2.0 | 2.0 | 4546-0 |
| 02 | | | | | | | | | | | |
| 03 | | | | | | | | | | | |
| 04 | | | | | | | | | | | |
| 05 | 2305 | 34 | 5 | 18 | 11 | 0 | 0 | 1.0 | 2.0 | 2.5 | 4547-0 |
| 06 | 2255 | 38 | 5 | 20 | 13 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4548-0 |
| 07 | | | | | | | | | | | |
| 08 | 2250 | 42 | 4 | 27 | 11 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4549-0 |
| 09 | 2255 | 49 | 4 | 34 | 10 | 0 | 1 | 1.0 | 2.5 | 2.5 | 4550-0 |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | 2305 | 20 | 2 | 12 | 6 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4551-1 |
| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | 2255 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 2.0 | 2.0 | 4552-1 |
| 26 | 2310 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4553-1 |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | 2300 | 20 | 4 | 9 | 6 | 1 | 0 | 2.0 | 2.0 | 3.0 | 4554-1 |
| 30 | 2240 | 41 | 5 | 24 | 12 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4555-1 |
| 31 | — | | | | | | | | | | |
| TOTALS | — | 267 | 32 | 158 | 73 | 2 | 2 | 14.5 | 21.5 | 22.5 | — |
| NOBS | — | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | — |
| MNS | — | 26.70 | 3.20 | 15.80 | 7.30 | 0.20 | 0.20 | 1.45 | 2.15 | 2.25 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JUNE 2005

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 | 2325 | 1 | 1 | 0 | 0 | 1 | 2 | 2 | 4/12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 02 | | | | | | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | | | | | | |
| 05 | 2305 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 3/6/11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06 | 2255 | 0 | 0 | 0 | 0 | 1 | 3 | 4 | 4/6/9/11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07 | | | | | | | | | | | | | | | | | | | | |
| 08 | 2250 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5/7/9 | 1 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09 | 2255 | 1 | 1 | 0 | 0 | 1 | 2 | 2 | 3/15 | 1 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | | |
| 19 | 2305 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | | |
| 25 | 2255 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 2310 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | | |
| 29 | 2300 | 0 | 0 | 1 | 2 | 1 | 2 | 2 | 5/6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 30 | 2240 | 0 | 0 | 0 | 0 | 2 | 4/4 | 3 | 5/9/14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | — | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 2 | 2 | 1 | 2 | 7 | 20 | 21 | 155 | 3 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | | |
| 5.6 | 2.8 | 19.4 | 58.3 | 8.3 | 0.0 | 0.0 | 0.0 | 5.6 | 36 | | | | | | | | | | | |
| | | NOBS = 10 | | $\overline{p/g}$ mean = 2.0562 | | | | $\overline{f/g}$ mean = 6.7875 | | | | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 2.0556 | | | | $\overline{f/g}$ mean = 6.5278 | | | | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 8.5833 | | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^w)$ | $WN(S^w)$ | $SN(S^w)$ | $BX(S^w)$ | $CV(S^w)$ | $QC(S^w)$ | $IS(S^w)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: <http://gdso.cv-helios.net>

SUNSPOT RESULTS FOR JULY 2005

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 | 2325 | 9 | 46 | 136 | 16 | 17 | 177 | 786 | 159 | 30 | 106 | 2.5 | 2.0 | 2.0 | 4556-1 |
| 02 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2220 | 5 | 36 | 86 | 13 | 13 | 143 | 742 | 93 | 16 | 62 | 1.5 | 2.5 | 2.5 | 4557-1 |
| 09 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | 2235 | 4 | 9 | 49 | 7 | 1 | 71 | 277 | 107 | 14 | 52 | 2.0 | 3.0 | 3.5 | 4558-2 |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | 2220 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4559-2 |
| 20 | 2225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4560-2 |
| 21 | 2250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 2.0 | 2.0 | 4561-2 |
| 22 | | | | | | | | | | | | | | | |
| 23 | 2240 | 2 | 9 | 29 | 2 | 5 | 25 | 134 | 24 | 6 | 20 | 1.0 | 2.0 | 2.5 | 4562-2 |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | 2220 | 3 | 14 | 44 | 9 | 2 | 92 | 252 | 81 | 12 | 48 | 2.0 | 2.5 | 2.5 | 4563-2 |
| 29 | 2215 | 3 | 20 | 50 | 8 | 8 | 88 | 330 | 71 | 11 | 41 | 1.0 | 2.0 | 2.0 | 4564-2 |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | |
| TOTALS | — | 26 | 134 | 394 | 55 | 46 | 596 | 2521 | 535 | 89 | 329 | 15.0 | 20.0 | 22.0 | — |
| NOBS | — | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | — |
| MNS | — | 2.89 | 14.89 | 43.78 | 6.11 | 5.11 | 66.22 | 280.11 | 59.44 | 9.89 | 36.56 | 1.67 | 2.22 | 2.44 | — |

MEAN WEIGHT = 0.4833

MEAN CONDITION = 2.1111

TRUNCATED WOLF NUMBER = 41.22

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR JULY 2005

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 | 2325 | 53 | 7 | 27 | 17 | 2 | 0 | 2.5 | 2.0 | 2.0 | 4556-1 |
| 02 | | | | | | | | | | | |
| 03 | | | | | | | | | | | |
| 04 | | | | | | | | | | | |
| 05 | | | | | | | | | | | |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | 2220 | 40 | 4 | 23 | 12 | 0 | 1 | 1.5 | 2.5 | 2.5 | 4557-1 |
| 09 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | 2235 | 12 | 3 | 7 | 1 | 1 | 0 | 2.0 | 3.0 | 3.5 | 4558-2 |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | 2220 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4559-2 |
| 20 | 2225 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.5 | 4560-2 |
| 21 | 2250 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 2.0 | 2.0 | 4561-2 |
| 22 | | | | | | | | | | | |
| 23 | 2240 | 11 | 2 | 4 | 5 | 0 | 0 | 1.0 | 2.0 | 2.5 | 4562-2 |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 | 2220 | 17 | 3 | 12 | 2 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4563-2 |
| 29 | 2215 | 23 | 3 | 12 | 8 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4564-2 |
| 30 | | | | | | | | | | | |
| 31 | | | | | | | | | | | |
| TOTALS | — | 156 | 22 | 85 | 45 | 3 | 1 | 15.0 | 20.0 | 22.0 | — |
| NOBS | — | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | — |
| MNS | — | 17.33 | 2.44 | 9.44 | 5.00 | 0.33 | 0.11 | 1.67 | 2.22 | 2.44 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

JULY 2005

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 | 2325 | 0 | 0 | 0 | 0 | 2 | 2/6 | 5 | 2/3/5/11/15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 02 | | | | | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | 2220 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 7/16 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 09 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | 2235 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2/3 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 1 |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | 2220 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 2225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 2250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | 2240 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | 2220 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3/5/6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 2215 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 5/12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 1 | 1 | 1 | 2 | 3 | 11 | 15 | 102 | 1 | 10 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 5 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | |
| 3.8 | 3.8 | 11.5 | 57.7 | 3.8 | 0.0 | 3.8 | 0.0 | 15.4 | 26 | | | | | | | | | | |
| NOBS = 9 | | $\overline{p/g}$ mean = 2.1324 | | | | $\overline{f/g}$ mean = 5.0657 | | | | | | | | | | | | | |
| | | $\overline{p/g}$ mean = 2.1154 | | | | $\overline{f/g}$ mean = 5.1538 | | | | | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 7.2692 | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|---------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: <http://gdso.cv-helios.net>

SUNSPOT RESULTS FOR AUGUST 2005

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 | 2210 | 4 | 30 | 70 | 10 | 12 | 112 | 529 | 120 | 13 | 45 | 1.5 | 2.0 | 1.5 | 4565-2 |
| 03 | 2215 | 4 | 25 | 65 | 10 | 10 | 110 | 455 | 97 | 11 | 37 | 1.5 | 2.0 | 2.0 | 4566-2 |
| 04 | 2240 | 3 | 25 | 55 | 6 | 15 | 75 | 389 | 53 | 9 | 29 | 1.0 | 2.0 | 2.0 | 4567-2 |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2200 | 4 | 16 | 56 | 6 | 7 | 67 | 237 | 66 | 13 | 45 | 2.0 | 2.5 | 2.5 | 4568-3 |
| 09 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | 2305 | 2 | 17 | 37 | 5 | 7 | 57 | 292 | 32 | 5 | 17 | 2.0 | 3.0 | 3.0 | 4569-3 |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | 2305 | 2 | 7 | 27 | 2 | 4 | 24 | 112 | 23 | 5 | 17 | 2.0 | 2.5 | 2.5 | 4570-3 |
| 17 | 2155 | 2 | 3 | 23 | 1 | 2 | 12 | 20 | 12 | 4 | 10 | 2.0 | 2.0 | 2.0 | 4571-3 |
| 18 | 2205 | 3 | 16 | 46 | 5 | 6 | 56 | 244 | 44 | 8 | 26 | 1.5 | 2.0 | 2.0 | 4572-3 |
| 19 | 2150 | 5 | 18 | 68 | 6 | 6 | 66 | 353 | 50 | 10 | 26 | 1.5 | 2.0 | 2.0 | 4573-3 |
| 20 | | | | | | | | | | | | | | | |
| 21 | 2210 | 3 | 26 | 56 | 5 | 6 | 56 | 487 | 54 | 10 | 36 | 1.5 | 2.0 | 2.5 | 4574-3 |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | 2145 | 3 | 17 | 47 | 6 | 8 | 68 | 510 | 62 | 11 | 41 | 2.0 | 2.5 | 2.0 | 4575-3 |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | 2125 | 4 | 11 | 51 | 4 | 4 | 44 | 241 | 40 | 9 | 25 | 1.5 | 2.0 | 2.0 | 4576-3 |
| 29 | 2130 | 4 | 15 | 55 | 5 | 7 | 57 | 294 | 52 | 11 | 37 | 1.0 | 2.0 | 2.0 | 4577-3 |
| 30 | 2150 | 3 | 12 | 42 | 3 | 8 | 38 | 116 | 39 | 9 | 29 | 1.5 | 2.5 | 2.5 | 4578-3 |
| 31 | | | | | | | | | | | | | | | |
| TOTALS | — | 46 | 238 | 698 | 74 | 102 | 842 | 4279 | 744 | 128 | 420 | 22.5 | 31.0 | 30.5 | — |
| NOBS | — | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | — |
| MNS | — | 3.29 | 17.00 | 49.86 | 5.29 | 7.29 | 60.14 | 305.64 | 53.14 | 9.14 | 30.00 | 1.61 | 2.21 | 2.18 | — |

MEAN WEIGHT = 0.5098

MEAN CONDITION = 2.0000

TRUNCATED WOLF NUMBER = 41.71

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR AUGUST 2005

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 | 33 | 3 | 17 | 12 | 1 | 0 | 1.5 | 2.0 | 1.5 | 4565-2 |
| 03 | 2215 | 27 | 2 | 14 | 9 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4566-2 |
| 04 | 2240 | 27 | 2 | 9 | 15 | 1 | 0 | 1.0 | 2.0 | 2.0 | 4567-2 |
| 05 | | | | | | | | | | | |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | 2200 | 19 | 3 | 8 | 7 | 1 | 0 | 2.0 | 2.5 | 2.5 | 4568-3 |
| 09 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | 2305 | 18 | 1 | 10 | 6 | 0 | 1 | 2.0 | 3.0 | 3.0 | 4569-3 |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | 2305 | 8 | 1 | 3 | 3 | 0 | 1 | 2.0 | 2.5 | 2.5 | 4570-3 |
| 17 | 2155 | 4 | 1 | 1 | 1 | 0 | 1 | 2.0 | 2.0 | 2.0 | 4571-3 |
| 18 | 2205 | 18 | 2 | 10 | 5 | 0 | 1 | 1.5 | 2.0 | 2.0 | 4572-3 |
| 19 | 2150 | 20 | 2 | 11 | 4 | 1 | 2 | 1.5 | 2.0 | 2.0 | 4573-3 |
| 20 | | | | | | | | | | | |
| 21 | 2210 | 28 | 2 | 19 | 6 | 1 | 0 | 1.5 | 2.0 | 2.5 | 4574-3 |
| 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | 2145 | 20 | 3 | 9 | 8 | 0 | 0 | 2.0 | 2.5 | 2.0 | 4575-3 |
| 26 | | | | | | | | | | | |
| 27 | | | | | | | | | | | |
| 28 | 2125 | 13 | 2 | 6 | 3 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4576-3 |
| 29 | 2130 | 18 | 3 | 8 | 6 | 0 | 1 | 1.0 | 2.0 | 2.0 | 4577-3 |
| 30 | 2150 | 15 | 3 | 4 | 8 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4578-3 |
| 31 | | | | | | | | | | | |
| TOTALS | — | 268 | 30 | 129 | 93 | 7 | 9 | 22.5 | 31.0 | 30.5 | — |
| NOBS | — | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | — |
| MNS | — | 19.14 | 2.14 | 9.21 | 6.64 | 0.50 | 0.64 | 1.61 | 2.21 | 2.18 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR AUGUST 2005

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 | 1 | 3 | 2 | 7/19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 03 | 2215 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 11/12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 04 | 2240 | 0 | 0 | 0 | 0 | 1 | 8 | 1 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | 2200 | 0 | 0 | 0 | 0 | 1 | 7 | 2 | 2/6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 09 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | 2305 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | 2305 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 2155 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 2205 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 2150 | 2 | 1/1 | 0 | 0 | 0 | 0 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/2 |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | 2210 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 10/15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | 2145 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 8 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | 2125 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/2 |
| 29 | 2130 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 5/7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 30 | 2150 | 0 | 0 | 1 | 5 | 1 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 9 | 9 | 1 | 5 | 7 | 28 | 18 | 176 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 10 | 13 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | |
| 19.6 | 2.2 | 15.2 | 39.1 | 0.0 | 0.0 | 2.2 | 0.0 | 21.7 | 46 | | | | | | | | | | |
| NOBS = 14 | | | | $\overline{p/g}$ mean = 1.5917 | | | | | | $\overline{f/g}$ mean = 5.2393 | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 1.6087 | | | | | | $\overline{f/g}$ mean = 5.1739 | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 6.7826 | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |
| FEBRUARY | 2.81 | 46.03 | 59.67 | 391.9 | 62.75 | 9.27 | 20.02 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |
| FEBRUARY | 2.67 | 43.30 | 54.11 | 362.6 | 58.93 | 8.70 | 18.55 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.freewebs.com/gdso

NEW ALTERNATIVE SITE

SUNSPOT RESULTS FOR SEPTEMBER 2005

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 | 2155 | 1 | 2 | 12 | 1 | 1 | 11 | 16 | 11 | 3 | 9 | 1.5 | 3.0 | 3.0 | 4579-3 |
| 02 | 2150 | 1 | 2 | 12 | 1 | 1 | 11 | 16 | 11 | 3 | 9 | 2.0 | 2.5 | 2.5 | 4580-3 |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | 2035 | 1 | 46 | 56 | 9 | 13 | 103 | 1150 | 56 | 5 | 25 | 1.0 | 2.0 | 2.5 | 4581-4 |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | 2225 | 2 | 9 | 29 | 4 | 4 | 44 | 244 | 96 | 8 | 34 | 1.5 | 2.5 | 2.5 | 4582-4 |
| 20 | 2135 | 1 | 6 | 16 | 3 | 2 | 32 | 150 | 32 | 5 | 25 | 1.5 | 2.5 | 2.0 | 4583-4 |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | 2135 | 2 | 7 | 27 | 1 | 5 | 15 | 52 | 40 | 4 | 10 | 1.5 | 2.5 | 2.5 | 4584-4 |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | 2210 | 2 | 3 | 23 | 2 | 0 | 20 | 125 | 47 | 5 | 13 | 1.5 | 3.0 | 3.0 | 4585-4 |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | 2045 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 2.0 | 2.0 | 2.0 | 4586-4 |
| 30 | | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | |
| TOTALS | — | 11 | 76 | 186 | 22 | 26 | 246 | 1790 | 303 | 35 | 129 | 12.5 | 20.0 | 20.0 | — |
| NOBS | — | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | — |
| MNS | — | 1.38 | 9.50 | 23.25 | 2.75 | 3.25 | 30.75 | 223.75 | 37.88 | 4.38 | 16.12 | 1.56 | 2.50 | 2.50 | — |

MEAN WEIGHT = 0.4621

MEAN CONDITION = 2.1875

TRUNCATED WOLF NUMBER = 21.88

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR SEPTEMBER 2005

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 | 2155 | 3 | 1 | 1 | 1 | 0 | 0 | 1.5 | 3.0 | 3.0 | 4579-3 |
| 02 | 2150 | 3 | 1 | 1 | 1 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4580-3 |
| 03 | | | | | | | | | | | |
| 04 | | | | | | | | | | | |
| 05 | | | | | | | | | | | |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | | | | | | | | | | | |
| 09 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | 2035 | 47 | 1 | 33 | 13 | 0 | 0 | 1.0 | 2.0 | 2.5 | 4581-4 |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | 2225 | 10 | 1 | 4 | 4 | 1 | 0 | 1.5 | 2.5 | 2.5 | 4582-4 |
| 20 | 2135 | 7 | 1 | 4 | 2 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4583-4 |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | 2135 | 8 | 1 | 2 | 4 | 0 | 1 | 1.5 | 2.5 | 2.5 | 4584-4 |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | 2210 | 4 | 1 | 2 | 0 | 1 | 0 | 1.5 | 3.0 | 3.0 | 4585-4 |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | 2045 | 1 | 0 | 0 | 0 | 1 | 0 | 2.0 | 2.0 | 2.0 | 4586-4 |
| 30 | | | | | | | | | | | |
| 31 | — | | | | | | | | | | |
| TOTALS | — | 83 | 7 | 47 | 25 | 3 | 1 | 12.5 | 20.0 | 20.0 | — |
| NOBS | — | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | — |
| MNS | — | 10.38 | 0.88 | 5.88 | 3.12 | 0.38 | 0.12 | 1.56 | 2.50 | 2.50 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR SEPTEMBER 2005

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 | 2155 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 | 2150 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03 | | | | | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | | | | | |
| 09 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | 2035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | 2225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 20 | 2135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | 2135 | 1 | 1 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | 2210 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 30 | | | | | | | | | | | | | | | | | | | |
| 31 | — | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 1 | 1 | 0 | 0 | 3 | 10 | 0 | 0 | 3 | 60 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 2 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | |
| 9.1 | 0.0 | 27.3 | 0.0 | 27.3 | 0.0 | 0.0 | 18.2 | 18.2 | 11 | | | | | | | | | | |
| NOBS = 8 | | | | $\overline{p/g}$ mean = 2.3125 | | | | | | $\overline{f/g}$ mean = 8.3125 | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 2.0000 | | | | | | $\overline{f/g}$ mean = 6.9091 | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 8.9091 | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |
| FEBRUARY | 2.81 | 46.03 | 59.67 | 391.9 | 62.75 | 9.27 | 20.02 |
| MARCH | 2.79 | 45.29 | 58.30 | 376.6 | 61.02 | 9.13 | 19.49 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |
| FEBRUARY | 2.67 | 43.30 | 54.11 | 362.6 | 58.93 | 8.70 | 18.55 |
| MARCH | 2.64 | 42.71 | 53.98 | 349.1 | 58.26 | 8.62 | 18.23 |



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SUNSPOT RESULTS FOR OCTOBER 2005

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 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | 2000 | 1 | 11 | 21 | 2 | 7 | 27 | 198 | 22 | 4 | 16 | 1.5 | 2.5 | 2.5 | 4587-5 |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | 2205 | 1 | 2 | 12 | 0 | 2 | 2 | 8 | 2 | 2 | 4 | 2.0 | 3.5 | 3.0 | 4588-5 |
| 10 | | | | | | | | | | | | | | | |
| 11 | 2030 | 1 | 1 | 11 | 0 | 1 | 1 | 4 | 1 | 1 | 1 | 1.0 | 2.5 | 2.5 | 4589-5 |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | 2035 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 1.5 | 2.5 | 2.5 | 4590-5 |
| 17 | 2030 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 1.5 | 3.0 | 2.5 | 4591-5 |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4592-5 |
| 24 | 2125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 3.0 | 3.0 | 4593-5 |
| 25 | 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4594-5 |
| 26 | 2040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4595-5 |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | 1955 | 1 | 3 | 13 | 2 | 1 | 21 | 54 | 28 | 4 | 16 | 1.5 | 2.5 | 2.5 | 4596-6 |
| 31 | 1940 | 1 | 5 | 15 | 3 | 2 | 32 | 125 | 35 | 5 | 25 | 1.5 | 2.5 | 2.0 | 4597-6 |
| TOTALS | — | 7 | 24 | 94 | 9 | 13 | 103 | 463 | 108 | 20 | 70 | 16.0 | 28.0 | 26.5 | — |
| NOBS | — | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | — |
| MNS | — | 0.64 | 2.18 | 8.55 | 0.82 | 1.18 | 9.36 | 42.09 | 9.82 | 1.82 | 6.36 | 1.45 | 2.55 | 2.41 | — |

MEAN WEIGHT = 0.4806

MEAN CONDITION = 2.1364

TRUNCATED WOLF NUMBER = 6.45

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR OCTOBER 2005

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 | 2000 | 12 | 1 | 4 | 7 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4587-5 |
| 07 | | | | | | | | | | | |
| 08 | | | | | | | | | | | |
| 09 | 2205 | 3 | 1 | 0 | 2 | 0 | 0 | 2.0 | 3.5 | 3.0 | 4588-5 |
| 10 | | | | | | | | | | | |
| 11 | 2030 | 1 | 0 | 0 | 0 | 0 | 1 | 1.0 | 2.5 | 2.5 | 4589-5 |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | 2035 | 1 | 0 | 0 | 0 | 1 | 0 | 1.5 | 2.5 | 2.5 | 4590-5 |
| 17 | 2030 | 1 | 0 | 0 | 0 | 1 | 0 | 1.5 | 3.0 | 2.5 | 4591-5 |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4592-5 |
| 24 | 2125 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 3.0 | 3.0 | 4593-5 |
| 25 | 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.0 | 2.0 | 4594-5 |
| 26 | 2040 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.0 | 2.0 | 4595-5 |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | | | | | | | | |
| 30 | 1955 | 4 | 1 | 2 | 1 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4596-6 |
| 31 | 1940 | 6 | 1 | 3 | 2 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4597-6 |
| TOTALS | — | 28 | 4 | 9 | 12 | 2 | 1 | 16.0 | 28.0 | 26.5 | — |
| NOBS | — | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | — |
| MNS | — | 2.55 | 0.36 | 0.82 | 1.09 | 0.18 | 0.09 | 1.45 | 2.55 | 2.41 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR OCTOBER 2005

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 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | | | | | |
| 09 | 2205 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | 2030 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | 2035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 17 | 2030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 2125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 2040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | | | | | |
| 30 | 1955 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | 1940 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | — | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 14 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | |
| 14.3 | 14.3 | 0.0 | 28.6 | 14.3 | 0.0 | 0.0 | 0.0 | 28.6 | 7 | | | | | | | | | | |
| NOBS = 11 | | | | $\overline{p/g}$ mean = 1.2857 | | | | | | $\overline{f/g}$ mean = 3.4286 | | | | | | | | | |
| | | | | $\overline{p/g}$ mean = 1.2857 | | | | | | $\overline{f/g}$ mean = 3.4286 | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 4.7143 | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 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 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |
| FEBRUARY | 2.81 | 46.03 | 59.67 | 391.9 | 62.75 | 9.27 | 20.02 |
| MARCH | 2.79 | 45.29 | 58.30 | 376.6 | 61.02 | 9.13 | 19.49 |
| APRIL | 2.58 | 41.97 | 53.70 | 350.4 | 56.63 | 8.44 | 18.03 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 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 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |
| FEBRUARY | 2.67 | 43.30 | 54.11 | 362.6 | 58.93 | 8.70 | 18.55 |
| MARCH | 2.64 | 42.71 | 53.98 | 349.1 | 58.26 | 8.62 | 18.23 |
| APRIL | 2.58 | 41.72 | 53.68 | 337.8 | 57.16 | 8.43 | 17.88 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.freewebs.com/gdso

NEW ALTERNATIVE SITE

SUNSPOT RESULTS FOR NOVEMBER 2005

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 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4598-6 |
| 09 | 2150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4599-6 |
| 10 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 3.0 | 2.5 | 4600-6 |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | 2015 | 1 | 9 | 19 | 2 | 2 | 22 | 225 | 47 | 5 | 25 | 2.0 | 2.5 | 2.5 | 4601-6 |
| 14 | 2015 | 1 | 21 | 31 | 4 | 5 | 45 | 756 | 57 | 6 | 36 | 1.5 | 2.5 | 2.5 | 4602-6 |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | 1955 | 1 | 25 | 35 | 7 | 11 | 81 | 900 | 57 | 6 | 36 | 1.5 | 2.5 | 2.0 | 4603-6 |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | 2145 | 2 | 17 | 37 | 6 | 6 | 66 | 540 | 76 | 10 | 52 | 2.0 | 3.5 | 3.0 | 4604-6 |
| 22 | 2005 | 2 | 12 | 32 | 6 | 4 | 64 | 500 | 74 | 9 | 41 | 1.5 | 2.5 | 2.0 | 4605-6 |
| 23 | | | | | | | | | | | | | | | |
| 24 | 1930 | 3 | 12 | 42 | 5 | 6 | 56 | 186 | 92 | 11 | 41 | 1.5 | 2.5 | 2.5 | 4606-6 |
| 25 | | | | | | | | | | | | | | | |
| 26 | 1930 | 1 | 4 | 14 | 1 | 3 | 13 | 32 | 12 | 3 | 9 | 3.0 | 3.5 | 2.0 | 4607-7 |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | 1955 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 2.0 | 2.5 | 2.5 | 4608-7 |
| 30 | 2020 | 3 | 14 | 44 | 6 | 4 | 64 | 251 | 52 | 9 | 29 | 2.0 | 2.5 | 3.0 | 4609-7 |
| 31 | — | | | | | | | | | | | | | | |
| TOTALS | — | 15 | 115 | 265 | 38 | 41 | 421 | 3427 | 477 | 61 | 273 | 22.0 | 32.5 | 29.0 | — |
| NOBS | — | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | — |
| MNS | — | 1.25 | 9.58 | 22.08 | 3.17 | 3.42 | 35.08 | 285.58 | 39.75 | 5.08 | 22.75 | 1.83 | 2.71 | 2.42 | — |

MEAN WEIGHT = 0.4373

MEAN CONDITION = 2.3194

TRUNCATED WOLF NUMBER = 22.08

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR NOVEMBER 2005

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 | 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4598-6 |
| 09 | 2150 | 0 | 0 | 0 | 0 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4599-6 |
| 10 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 3.0 | 2.5 | 4600-6 |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | 2015 | 10 | 1 | 7 | 2 | 0 | 0 | 2.0 | 2.5 | 2.5 | 4601-6 |
| 14 | 2015 | 22 | 1 | 16 | 5 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4602-6 |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | 1955 | 26 | 1 | 14 | 11 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4603-6 |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | 2145 | 19 | 2 | 11 | 6 | 0 | 0 | 2.0 | 3.5 | 3.0 | 4604-6 |
| 22 | 2005 | 14 | 2 | 8 | 4 | 0 | 0 | 1.5 | 2.5 | 2.0 | 4605-6 |
| 23 | | | | | | | | | | | |
| 24 | 1930 | 15 | 3 | 6 | 6 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4606-6 |
| 25 | | | | | | | | | | | |
| 26 | 1930 | 5 | 1 | 1 | 3 | 0 | 0 | 3.0 | 3.5 | 2.0 | 4607-7 |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | 1955 | 1 | 0 | 0 | 0 | 1 | 0 | 2.0 | 2.5 | 2.5 | 4608-7 |
| 30 | 2020 | 16 | 2 | 9 | 4 | 1 | 0 | 2.0 | 2.5 | 3.0 | 4609-7 |
| 31 | — | | | | | | | | | | |
| TOTALS | — | 128 | 13 | 72 | 41 | 2 | 0 | 22.0 | 32.5 | 29.0 | — |
| NOBS | — | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | — |
| MNS | — | 10.67 | 1.08 | 6.00 | 3.42 | 0.17 | 0.00 | 1.83 | 2.71 | 2.42 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR NOVEMBER 2005

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 | 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 09 | 2150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 10 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 11 | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | |
| 13 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 14 | 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 15 | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | | |
| 17 | 1955 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18 | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | |
| 21 | 2145 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 22 | 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | |
| 23 | | | | | | | | | | | | | | | | | | | | |
| 24 | 1930 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 4/5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 25 | | | | | | | | | | | | | | | | | | | | |
| 26 | 1930 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 27 | | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | | |
| 29 | 1955 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 30 | 2020 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 31 | — | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 0 | 0 | 0 | 0 | 3 | 9 | 4 | 24 | 2 | 13 | 3 | 59 | 1 | 8 | 0 | 0 | 2 | 2 | |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | | |
| 0.0 | 0.0 | 20.0 | 26.7 | 13.3 | 20.0 | 6.7 | 0.0 | 13.3 | 15 | | | | | | | | | | | |
| NOBS = 12 | | $\overline{p/g}$ mean = 2.7407 | | | | $\overline{f/g}$ mean = 9.2407 | | | | | | | | | | | | | | |
| | | $\overline{p/g}$ mean = 2.5333 | | | | $\overline{f/g}$ mean = 7.6667 | | | | | | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 10.2000 | | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 JUNE | 3.47 | 56.82 | 70.02 | 515.1 | 70.41 | 11.12 | 24.53 |
| JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |
| FEBRUARY | 2.81 | 46.03 | 59.67 | 391.9 | 62.75 | 9.27 | 20.02 |
| MARCH | 2.79 | 45.29 | 58.30 | 376.6 | 61.02 | 9.13 | 19.49 |
| APRIL | 2.58 | 41.97 | 53.70 | 350.4 | 56.63 | 8.44 | 18.03 |
| MAY | 2.32 | 37.30 | 47.99 | 301.4 | 50.99 | 7.54 | 15.82 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 JUNE | 3.52 | 57.42 | 69.76 | 520.6 | 69.89 | 11.11 | 24.67 |
| JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |
| FEBRUARY | 2.67 | 43.30 | 54.11 | 362.6 | 58.93 | 8.70 | 18.55 |
| MARCH | 2.64 | 42.71 | 53.98 | 349.1 | 58.26 | 8.62 | 18.23 |
| APRIL | 2.58 | 41.72 | 53.68 | 337.8 | 57.16 | 8.43 | 17.88 |
| MAY | 2.50 | 40.44 | 53.26 | 323.2 | 55.88 | 8.20 | 17.39 |



Georgi Dobrovolski Solar Observatory

NEW ZEALAND

E-MAIL: gdso@earthling.net

WEBSITE: www.freewebs.com/gdso

NEW ALTERNATIVE SITE

SUNSPOT RESULTS FOR **DECEMBER 2005**

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 | | | | | | | | | | | | | | | |
| 03 | | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | | |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 11 | 2115 | 3 | 9 | 39 | 5 | 3 | 53 | 249 | 52 | 9 | 33 | 1.5 | 2.5 | 3.0 | 4610-7 |
| 12 | 2030 | 4 | 13 | 53 | 5 | 6 | 56 | 328 | 53 | 10 | 34 | 1.5 | 2.5 | 2.0 | 4611-7 |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | 1940 | 3 | 6 | 36 | 2 | 4 | 24 | 73 | 23 | 6 | 14 | 1.5 | 2.0 | 2.0 | 4612-7 |
| 18 | 2110 | 3 | 14 | 44 | 5 | 5 | 55 | 290 | 51 | 8 | 24 | 1.5 | 3.0 | 3.5 | 4613-7 |
| 19 | 1955 | 3 | 17 | 47 | 6 | 7 | 67 | 305 | 52 | 9 | 29 | 2.0 | 3.0 | 2.5 | 4614-7 |
| 20 | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | 1915 | 6 | 12 | 72 | 6 | 5 | 65 | 229 | 65 | 14 | 38 | 1.5 | 2.5 | 2.5 | 4615-8 |
| 27 | 2000 | 5 | 9 | 59 | 6 | 3 | 63 | 189 | 70 | 13 | 37 | 2.0 | 3.0 | 3.0 | 4616-8 |
| 28 | 1920 | 5 | 8 | 58 | 4 | 4 | 44 | 118 | 38 | 11 | 27 | 1.5 | 2.0 | 2.0 | 4617-8 |
| 29 | 1915 | 5 | 12 | 62 | 6 | 4 | 64 | 204 | 59 | 14 | 42 | 1.5 | 2.0 | 2.5 | 4618-8 |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | |
| TOTALS | — | 37 | 100 | 470 | 45 | 41 | 491 | 1985 | 463 | 94 | 278 | 14.5 | 22.5 | 23.0 | — |
| NOBS | — | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | — |
| MNS | — | 4.11 | 11.11 | 52.22 | 5.00 | 4.56 | 54.56 | 220.56 | 51.44 | 10.44 | 30.89 | 1.61 | 2.50 | 2.56 | — |

MEAN WEIGHT = 0.4590

MEAN CONDITION = 2.2222

TRUNCATED WOLF NUMBER = 47.33

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

Georgi Dobrovolski Solar Observatory

SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR DECEMBER 2005

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 | 2115 | 10 | 1 | 4 | 3 | 2 | 0 | 1.5 | 2.5 | 3.0 | 4610-7 |
| 12 | 2030 | 14 | 1 | 5 | 5 | 2 | 1 | 1.5 | 2.5 | 2.0 | 4611-7 |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | 1940 | 7 | 1 | 1 | 3 | 1 | 1 | 1.5 | 2.0 | 2.0 | 4612-7 |
| 18 | 2110 | 15 | 1 | 7 | 5 | 2 | 0 | 1.5 | 3.0 | 3.5 | 4613-7 |
| 19 | 1955 | 19 | 2 | 9 | 7 | 1 | 0 | 2.0 | 3.0 | 2.5 | 4614-7 |
| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | 1915 | 14 | 2 | 4 | 4 | 3 | 1 | 1.5 | 2.5 | 2.5 | 4615-8 |
| 27 | 2000 | 11 | 2 | 3 | 3 | 3 | 0 | 2.0 | 3.0 | 3.0 | 4616-8 |
| 28 | 1920 | 10 | 2 | 2 | 3 | 2 | 1 | 1.5 | 2.0 | 2.0 | 4617-8 |
| 29 | 1915 | 15 | 3 | 6 | 4 | 2 | 0 | 1.5 | 2.0 | 2.5 | 4618-8 |
| 30 | | | | | | | | | | | |
| 31 | | | | | | | | | | | |
| TOTALS | — | 115 | 15 | 41 | 37 | 18 | 4 | 14.5 | 22.5 | 23.0 | — |
| NOBS | — | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | — |
| MNS | — | 12.78 | 1.67 | 4.56 | 4.11 | 2.00 | 0.44 | 1.61 | 2.50 | 2.56 | — |

Georgi Dobrovolski Solar Observatory

SUNSPOT CENSUS BY CLASSIFICATION FOR

DECEMBER 2005

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 | 2115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 12 | 2030 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | 1940 | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 18 | 2110 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 19 | 1955 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | 1915 | 1 | 1 | 0 | 0 | 1 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1/1/1 |
| 27 | 2000 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1/1/1 |
| 28 | 1920 | 1 | 1 | 0 | 0 | 2 | 2/3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 29 | 1915 | 0 | 0 | 0 | 0 | 2 | 2/3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/1 |
| 30 | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | |
| TOTALS | — | 4 | 4 | 0 | 0 | 8 | 22 | 5 | 39 | 2 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 18 |
| REGIONAL PERCENTAGES | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | J | Σg | | | | | | | | | | |
| 10.8 | 0.0 | 21.6 | 13.5 | 5.4 | 0.0 | 0.0 | 0.0 | 48.6 | 37 | | | | | | | | | | |
| NOBS = 9 | | $\overline{p/g}$ mean = 1.2722 | | | | $\overline{f/g}$ mean = 2.9315 | | | | | | | | | | | | | |
| | | $\overline{p/g}$ mean = 1.2162 | | | | $\overline{f/g}$ mean = 2.7027 | | | | | | | | | | | | | |
| GROUP COMPLEXITY INDEX (GCI) = 3.9189 | | | | | | | | | | | | | | | | | | | |

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 GDSO ANNUAL REPORTS.

WALDMEIER METHOD

| MONTH | $g(S^w)$ | $WN(S^w)$ | $SN(S^w)$ | $BX(S^w)$ | $CV(S^w)$ | $QC(S^w)$ | $IS(S^w)$ |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2004 JULY | 3.35 | 54.72 | 66.85 | 494.3 | 67.50 | 10.69 | 23.50 |
| AUGUST | 3.28 | 53.46 | 64.65 | 482.4 | 66.12 | 10.40 | 22.91 |
| SEPTEMBER | 3.15 | 51.44 | 61.95 | 464.3 | 64.60 | 9.98 | 22.12 |
| OCTOBER | 3.05 | 49.75 | 59.58 | 444.3 | 62.91 | 9.67 | 21.33 |
| NOVEMBER | 2.95 | 48.53 | 59.05 | 446.4 | 62.64 | 9.47 | 21.14 |
| DECEMBER | 2.87 | 48.18 | 60.36 | 456.1 | 63.75 | 9.40 | 21.60 |
| 2005 JANUARY | 2.83 | 47.36 | 60.71 | 432.0 | 64.03 | 9.38 | 21.14 |
| FEBRUARY | 2.81 | 46.03 | 59.67 | 391.9 | 62.75 | 9.27 | 20.02 |
| MARCH | 2.79 | 45.29 | 58.30 | 376.6 | 61.02 | 9.13 | 19.49 |
| APRIL | 2.58 | 41.97 | 53.70 | 350.4 | 56.63 | 8.44 | 18.03 |
| MAY | 2.32 | 37.30 | 47.99 | 301.4 | 50.99 | 7.54 | 15.82 |
| JUNE | 2.33 | 36.69 | 47.03 | 279.9 | 49.91 | 7.44 | 15.11 |

BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 2004 JULY | 3.43 | 56.59 | 69.09 | 529.8 | 69.48 | 10.90 | 24.68 |
| AUGUST | 3.33 | 55.33 | 67.92 | 526.0 | 68.88 | 10.65 | 24.38 |
| SEPTEMBER | 3.21 | 53.53 | 65.96 | 508.9 | 67.87 | 10.34 | 23.68 |
| OCTOBER | 3.10 | 51.52 | 63.32 | 486.0 | 66.22 | 10.02 | 22.72 |
| NOVEMBER | 2.95 | 48.95 | 60.06 | 459.0 | 63.78 | 9.58 | 21.54 |
| DECEMBER | 2.80 | 46.43 | 57.15 | 426.5 | 61.36 | 9.13 | 20.38 |
| 2005 JANUARY | 2.72 | 44.53 | 55.15 | 390.9 | 59.85 | 8.85 | 19.33 |
| FEBRUARY | 2.67 | 43.30 | 54.11 | 362.6 | 58.93 | 8.70 | 18.55 |
| MARCH | 2.64 | 42.71 | 53.98 | 349.1 | 58.26 | 8.62 | 18.23 |
| APRIL | 2.58 | 41.72 | 53.68 | 337.8 | 57.16 | 8.43 | 17.88 |
| MAY | 2.50 | 40.44 | 53.26 | 323.2 | 55.88 | 8.20 | 17.39 |
| JUNE | 2.48 | 39.88 | 53.22 | 312.6 | 55.11 | 8.12 | 17.01 |

Georgi Dobrovolski Solar Observatory

OBSERVED ANNUAL MEANS OF SUNSPOT DATA FOR

2005

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 .

| | | |
|-------------------------------------|---|--------|
| <i>g</i> | = | 2.43 |
| <i>f</i> | = | 13.25 |
| <i>Wolf Number</i> | = | 37.51 |
| <i>Truncated Wolf Number</i> | = | 34.10 |
| <i>p</i> | = | 4.11 |
| <i>s</i> | = | 5.02 |
| <i>Pettisindex</i> | = | 46.12 |
| <i>Beckindex</i> | = | 269.47 |
| <i>Classification Value</i> | = | 49.71 |
| <i>Quality Count</i> | = | 7.59 |
| <i>Squared Quality Count</i> | = | 27.18 |
| <i>Inter-Sol Index</i> | = | 14.96 |
| <i>Mean Weight</i> | = | 0.4902 |
| <i>Q</i> | = | 1.64 |
| <i>S</i> | = | 2.31 |
| <i>T</i> | = | 2.29 |
| <i>Mean Condition</i> | = | 2.0797 |
| <i>Total Number of Observations</i> | = | 136 |