# Georgi Dobrovolski Solar Observatory

NEW ZEALAND

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## SUNSPOT RESULTS FOR JANUARY 2007

*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 ; QC? = 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 .*

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

| DATE | UT | g | f | WN | p | s | SN | BX | CV | QC | QC? | Q | S | T | Ref. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 2025 | 3 | 8 | 38 | 4 | 0 | 40 | 201 | 36 | 8 | 24 | 2.0 | 2.5 | 2.5 | 4752-1 |
| 02 | 2000 | 3 | 8 | 38 | 4 | 1 | 41 | 189 | 96 | 9 | 29 | 2.0 | 2.5 | 2.0 | 4753-1 |
| 03 | 1955 | 3 | 6 | 36 | 4 | 0 | 40 | 153 | 93 | 9 | 29 | 1.5 | 2.5 | 2.5 | 4754-1 |
| 04 | 1950 | 3 | 6 | 36 | 4 | 1 | 41 | 153 | 96 | 9 | 29 | 2.0 | 2.5 | 3.0 | 4755-1 |
| 05 | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | |
| 09 | 2125 | 3 | 9 | 39 | 4 | 3 | 43 | 168 | 103 | 10 | 34 | 1.0 | 2.0 | 2.0 | 4756-2 |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | 1955 | 1 | 3 | 13 | 1 | 2 | 12 | 24 | 12 | 3 | 9 | 2.0 | 3.0 | 3.0 | 4757-2 |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | 1920 | 1 | 7 | 17 | 3 | 1 | 31 | 126 | 31 | 4 | 16 | 1.5 | 2.5 | 2.5 | 4758-2 |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | 2045 | 1 | 1 | 11 | 1 | 0 | 10 | 37 | 10 | 2 | 4 | 2.0 | 2.5 | 2.0 | 4759-2 |
| 28 | | | | | | | | | | | | | | | |
| 29 | 1930 | 2 | 12 | 32 | 3 | 7 | 37 | 235 | 32 | 6 | 20 | 2.0 | 2.5 | 2.5 | 4760-2 |
| 30 | 1945 | 2 | 7 | 27 | 3 | 2 | 32 | 145 | 32 | 6 | 20 | 1.5 | 2.5 | 2.5 | 4761-2 |
| 31 | 1940 | 2 | 10 | 30 | 4 | 4 | 44 | 199 | 41 | 6 | 20 | 1.5 | 2.5 | 2.5 | 4762-2 |
| TOTALS | —— | 24 | 77 | 317 | 35 | 21 | 371 | 1630 | 582 | 72 | 234 | 19.0 | 27.5 | 27.0 | —— |
| NOBS | —— | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | —— |
| MNS | —— | 2.18 | 7.00 | 28.82 | 3.18 | 1.91 | 33.73 | 148.18 | 52.91 | 6.55 | 21.27 | 1.73 | 2.50 | 2.45 | —— |

MEAN WEIGHT = 0.4547 MEAN CONDITION = 2.2273 TRUNCATED WOLF NUMBER = 28.82

# Georgi Dobrovolski Solar Observatory

## SUNSPOT DISTRIBUTION & INTER-SOL INDICES FOR

# JANUARY 2007

*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 umbr? within penumbr? 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 | 2025 | 10 | 2 | 7 | 0 | 1 | 0 | 2.0 | 2.5 | 2.5 | 4752-1 |
| 02 | 2000 | 9 | 1 | 5 | 1 | 2 | 0 | 2.0 | 2.5 | 2.0 | 4753-1 |
| 03 | 1955 | 7 | 1 | 4 | 0 | 2 | 0 | 1.5 | 2.5 | 2.5 | 4754-1 |
| 04 | 1950 | 7 | 1 | 3 | 1 | 2 | 0 | 2.0 | 2.5 | 3.0 | 4755-1 |
| 05 | | | | | | | | | | | |
| 06 | | | | | | | | | | | |
| 07 | | | | | | | | | | | |
| 08 | | | | | | | | | | | |
| 09 | 2125 | 11 | 2 | 5 | 3 | 1 | 0 | 1.0 | 2.0 | 2.0 | 4756-2 |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | 1955 | 4 | 1 | 1 | 2 | 0 | 0 | 2.0 | 3.0 | 3.0 | 4757-2 |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| 21 | | | | | | | | | | | |
| 22 | 1920 | 8 | 1 | 6 | 1 | 0 | 0 | 1.5 | 2.5 | 2.5 | 4758-2 |
| 23 | | | | | | | | | | | |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | 2045 | 1 | 0 | 0 | 0 | 1 | 0 | 2.0 | 2.5 | 2.0 | 4759-2 |
| 28 | | | | | | | | | | | |
| 29 | 1930 | 13 | 1 | 4 | 7 | 1 | 0 | 2.0 | 2.5 | 2.5 | 4760-2 |
| 30 | 1945 | 8 | 1 | 4 | 2 | 1 | 0 | 1.5 | 2.5 | 2.5 | 4761-2 |
| 31 | 1940 | 11 | 1 | 5 | 4 | 1 | 0 | 1.5 | 2.5 | 2.5 | 4762-2 |
| TOTALS | —— | 89 | 12 | 44 | 21 | 12 | 0 | 19.0 | 27.5 | 27.0 | —— |
| NOBS | —— | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | —— |
| MNS | —— | 8.09 | 1.09 | 4.00 | 1.91 | 1.09 | 0.00 | 1.73 | 2.50 | 2.45 | —— |

# Georgi Dobrovolski Solar Observatory

## SUNSPOT CENSUS BY CLASSIFICATION FOR

# JANUARY 2007

*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 | 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1/2 |
| 02 | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 03 | 1955 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 04 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 05 | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | | | | | | | | | |
| 07 | | | | | | | | | | | | | | | | | | | |
| 08 | | | | | | | | | | | | | | | | | | | |
| 09 | 2125 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | 1955 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | |
| 22 | 1920 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 28 | | | | | | | | | | | | | | | | | | | |
| 29 | 1930 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 30 | 1945 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 31 | 1940 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| TOTALS | —— | 0 | 0 | 0 | 0 | 2 | 5 | 9 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 9 | 10 |

REGIONAL PERCENTAGES

| A | B | C | D | E | F | G | H | J | Σ g |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 8.3 | 37.5 | 0.0 | 0.0 | 0.0 | 16.7 | 37.5 | 24 |

NOBS = 11 $\overline{p / g}$ mean = 1.5152 $\overline{f / g}$ mean = 3.4394

$\overline{p} / \overline{g}$ mean = 1.4583 $\overline{f} / \overline{g}$ mean = 3.2083

GROUP COMPLEXITY INDEX (GCI) = 4.6667

# Georgi Dobrovolski Solar Observatory

## SMOOTHED RESULTS OF OBSERVED VALUES FOR THE LAST 12 MONTHS (OBTAINABLE)

### USING THE WALDMEIER & BARNES-13 METHODS.

**DATA BELOW ARE PRELIMINARY. FINAL VALUES WILL BE PUBLISHED IN GDSO ANNUAL REPORTS.**

## WALDMEIER METHOD

| MONTH | $g(S^W)$ | $WN(S^W)$ | $SN(S^W)$ | $BX(S^W)$ | $CV(S^W)$ | $QC(S^W)$ | $IS(S^W)$ |
|---|---|---|---|---|---|---|---|
| 2005 AUGUST | 2.22 | 34.42 | 44.96 | 256.9 | 46.61 | 7.03 | 13.74 |
| SEPTEMBER | 2.11 | 32.64 | 42.97 | 243.8 | 43.20 | 6.65 | 13.02 |
| OCTOBER | 2.08 | 32.20 | 42.68 | 242.2 | 42.17 | 6.52 | 12.81 |
| NOVEMBER | 2.06 | 31.17 | 40.20 | 221.1 | 40.18 | 6.31 | 11.88 |
| DECEMBER | 1.93 | 28.14 | 34.77 | 182.9 | 34.93 | 5.71 | 10.00 |
| 2006 JANUARY | 1.75 | 25.12 | 30.36 | 161.9 | 30.74 | 5.06 | 8.69 |
| FEBRUARY | 1.58 | 22.75 | 27.18 | 153.1 | 28.70 | 4.62 | 7.88 |
| MARCH | 1.48 | 21.18 | 25.31 | 145.5 | 27.42 | 4.40 | 7.27 |
| APRIL | 1.50 | 21.21 | 25.00 | 139.5 | 27.07 | 4.43 | 7.06 |
| MAY | 1.56 | 21.92 | 25.55 | 140.9 | 27.90 | 4.57 | 7.20 |
| JUNE | 1.48 | 21.01 | 24.39 | 138.9 | 27.71 | 4.38 | 7.13 |
| JULY | 1.41 | 20.26 | 23.39 | 138.1 | 28.14 | 4.24 | 7.06 |

## BARNES-13 METHOD

| MONTH | $g(S^{B13})$ | $WN(S^{B13})$ | $SN(S^{B13})$ | $BX(S^{B13})$ | $CV(S^{B13})$ | $QC(S^{B13})$ | $IS(S^{B13})$ |
|---|---|---|---|---|---|---|---|
| 2005 AUGUST | 2.32 | 36.39 | 48.69 | 276.3 | 49.17 | 7.42 | 14.92 |
| SEPTEMBER | 2.15 | 33.32 | 44.22 | 249.2 | 44.31 | 6.78 | 13.33 |
| OCTOBER | 2.01 | 30.56 | 40.00 | 223.5 | 40.02 | 6.22 | 11.80 |
| NOVEMBER | 1.93 | 28.43 | 36.02 | 197.0 | 36.23 | 5.78 | 10.37 |
| DECEMBER | 1.83 | 26.24 | 31.96 | 170.5 | 32.19 | 5.31 | 8.97 |
| 2006 JANUARY | 1.70 | 24.02 | 28.49 | 151.3 | 28.81 | 4.83 | 7.91 |
| FEBRUARY | 1.59 | 22.37 | 26.11 | 140.4 | 26.87 | 4.51 | 7.29 |
| MARCH | 1.55 | 21.71 | 25.18 | 137.1 | 26.35 | 4.42 | 7.10 |
| APRIL | 1.53 | 21.56 | 24.84 | 135.8 | 26.44 | 4.41 | 7.08 |
| MAY | 1.49 | 21.08 | 24.29 | 134.5 | 26.52 | 4.36 | 7.01 |
| JUNE | 1.41 | 20.24 | 23.57 | 135.4 | 26.76 | 4.24 | 6.98 |
| JULY | 1.38 | 20.02 | 23.53 | 140.6 | 27.97 | 4.25 | 7.13 |