Georgi Dobrovolski Solar Observatory

Annual Report for 2005

Compiled by Howard Barnes.

Printed, April MMVI

ISSN 0112-9333

Times Used (And Not Used) In This Publication.

The term "Greenwich Mean Time" (GMT) is *not* used in this publication as it is ambiguous and is used, both mistakenly and ***wrongly***, in the sense of the Greenwich civil atomic scale, **Co-ordinated Universal Time (UTC)**. From 1675, until the beginning of 1925, Greenwich Mean Time was measured by the Royal Observatory, from GREENWICH MEAN *MID-DAY*, 12 hours ***BEHIND*** Universal Time (UT).

For the purposes of lengthy solar observations, the GDSO considers all Universal Times (UT0, UT1, UT2, UT0R, UT1R, UT2R, UTC etc.) as being the same. Times in this loose sense are labelled UT. If a stated time in this publication is not labelled at all, then it is to be considered as being UT. In Sections A & B, UT is given to the nearest fifth minute (within the time period of the observation concerned); in Section D, it is given to the nearest minute.

For central-meridian purposes, the GDSO also considers Terrestrial Time (TT) as being the same as UT. From January 1999 to December 2005 [UTC] (inclusive), TT-UTC = +64.1840 seconds.

A leap-second was INSERTED into UTC at 2005 December 31, 23h 59m 60s UTC; therefore from January 2006 to, at least, December 2006 [UTC] (inclusive), TT-UTC = +65.1840 seconds. These values are approximate equivalents of the amount of time the Earth has lost, as a 'clock', since 1900. For the period 1999-2005, International Atomic Time (TAI) preceded UTC by 32.0000 seconds. From January 2006, TAI precedes UTC by 33.0000 seconds.

As this publication has an international distribution, both New Zealand Standard Time (NZST) [UTC + 12 hours] and New Zealand Daylight Time (NZDT) [UTC + 13 hours] are ignored. (See also page xiv.)

PLEASE NOTE: There is NO other word order in English ***whatsoever***, and NO other letter order (at all) for the name, and abbreviation, of **Co-ordinated Universal Time (UTC)**. It is, after all, the co-ordinated version of Universal Time.

UTC in some other European languages are as follows;

LANGUAGE	Name in full.
French	Temps Universel Coordonné
German	Koordinierte Weltzeit
Dutch	Gecoördineerde Wereldtijd
Italian	Tempo Universale Coordinato
Spanish	Tiempo Universal Coordinado
Portuguese	Tempo Universal Coordenado
Norwegian	Koordinert Universaltid

The language-independent abbreviation UTC, is used in **all** languages.

Billion, Trillion.

If the word 'billion' is ever used in any GDSO report, it is to be taken in its literal sense of 'million to the power of two', that is 1 million million. Likewise, 'trillion' is to be considered as 'million to the power of three', that is 1 million million million.

The value of 1000 million might be occasionally referred to, in GDSO reports, as the 'sesquillion', literally 'million to the power of one and a half'.

The Decimal Point.

FOR CONTINENTAL EUROPEAN, ASIAN AND SOUTH & CENTRAL AMERICAN READERS:

The full-stop (.) is used as the decimal point in this publication.

Preface

The Sun was observed 136 times throughout 2005. Fifteen observations were spotless (that being 11% of the year's observations). The annual observed mean Wolf Number for 2005 is 37.51, compared with 56.43 for 2004. The corrected R_{GD} value for 2005 is 29.63, compared with 44.10 for 2004.

A high-latitude spot (+31°) was observed on 2005 February 09 and February 11. This was later considered as part of Region 0732 (some 15° further south) by OTHER observatories, but not so by the GDSO.

While activity levelled off in 2004, it started to fall again during 2005. The lowest observed mean Wolf Number for 2005 was 8.55 in October, corrected to 7.04. The highest observed monthly mean was 59.50 for June, although December and May came fairly close second and third respestively (52.2 and 50.14, corrected to 40.68 and 43.57).

The Group Complexity Index (GCI) went from a high in May (15.3750) to a low in December (3.9189). Unfortunately, international values are still unobtainable.

The adjusted 2800 MHz solar flux averaged 120.6 for September, with an annual mean of 94.2 $\mu W/m^2/Hz$. This compares with 106.6 for 2004.

Concerning flares, 2005 started promising with a mean daily output (MDO) of 87.4 $\mu W/m^2$ for January, but then spluttered along struggling to get to 31 in July, falling back to 11.8 the following month. In September, however, the Sun unleashed several large flares; starting with a 1700 $\mu W/m^2$ event on the 7th. Others measured 360, 540 and 620 $\mu W/m^2$. These allowed the mean daily output to reach 169.7 in September. Flare activity then plummeted to a mere 0.12 in October. The flares in September helped the annual MDO to rise to 28.8, an annual *increase* on 2004's value of 21.9.

Sunspot area peaked at 643 microhemispheres in January, and slumped to 37 in October. The annual mean was 388, compared with 489 for 2004.

The Annual Report for 2006 will be published in April 2007.

HOWARD BARNES.
April 2006.

CORRECTED PETTISINDICES

As there have been no forthcoming definitive international Pettisindex data, Tables P3-P6 (pages F19-20) have been partially updated with ***provisional*** data for 2005 in this issue.

Definitive data for 1998 onwards will be updated when available.

REFERENCES ON GRAPH PAGES.

Referenced table numbers on graph pages are 'push-button links', therefore, to see any table referenced, just press the headings or graphs.

Notes.

Date & Time Format.

As from 2004's issue, the date and time format in Section A will revert to DD/HHMM. This change is merely a space-saving measure.

When digital dates are presented in full, they appear in year/month/day format. In short format, dates appear as month/day.

The calendar used in this report is the **Gregorian**.

Rounding.

From 1992, the GDSO adopted the following policy for rounding. It is still effective.

If the exact value ends with the digit '5' at the decimal place one more than stated, then the procedure is, for example;

for 2 decimal places	62.625 [exact] becomes 62.62
	37.375 [exact] becomes 37.38
for 4 decimal places	62.66225 [exact] becomes 62.6622
	37.33775 [exact] becomes 37.3378

ie. values with **even** second-to-last digit get rounded DOWN
values with **odd** second-to-last digit get rounded UP.

This procedure eliminates 100% from becoming 101%.

NOAA Region Numbers.

On 14th June 2002 (UT), NOAA Region Numbers (used in Section B) reached 9999. The NOAA decided to keep the numbers four-digit, therefore 9999 was followed by 0000, then 0001. Although the NOAA has not strictly adhered to this decision (in some cases ignoring any leading zeroes), all NOAA region numbers after this date are to be considered as greater than 10000.

The GDSO has decided to go along with the NOAA's original four-digit decision, stating all leading zeroes.

Noon.

The word 'noon' is ***not*** used in this report because of its original (and proper) use, meaning 'ninth [hour]' that being 3 p.m. The ancient Romans considered sunrise (circa 6 a.m.) as the start of the day.

Metric Prefixes

Yotta (Y)	10^{24}	Giga (G)	10^{9}	Deci (d)	10^{-1}	Pico (p)	10^{-12}
Zetta (Z)	10^{21}	Mega (M)	10^{6}	Centi (c)	10^{-2}	Femto (f)	10^{-15}
Exa (E)	10^{18}	Kilo (k)	10^{3}	Milli (m)	10^{-3}	Atto (a)	10^{-18}
Peta (P)	10^{15}	Hecto (h)	10^{2}	Micro (μ)	10^{-6}	Zepto (z)	10^{-21}
Tera (T)	10^{12}	Deca (da)	10^{1}	Nano (n)	10^{-9}	Yocto (y)	10^{-24}

Georgi Dobrovolski Solar Observatory

100% Amateur. 100% Privately Owned and Funded.

Observatory's Position:

Latitude: 36º 55' 25" South
Longitude: 174º 53' 54" East
Altitude: 7 mètres AMSL.

Observatory's Telescope:

76mm f12 refractor

E-mail: gdso@earthling.net

NEW Website: http://www.freewebs.com/gdso

MOVING?

If any subscriber of this report is changing his/her/their postal address, PLEASE let the GDSO know by writing to the above e-mail address. Please include your post code.

ERRATA.
(in addition to any other errata)

2002's Report:

Page B31;
Line for 2002/09/11 and Region 0103's classification which reads EAX should read EAC.

2003's Report:

Page C2;
smoothed values for July - September 2003

Jul	779.85	806.00	should read:	779.29	805.79
Aug	778.08	814.27	”	776.95	813.71
Sep	768.03	814.84	”	766.90	813.99

Page F24;
smoothed values for September - December 2003

2003	$SN(S^{HBm})$	$SN(S^{W})$	$SN(S^{B13})$		$SN(S^{HBm})$	$SN(S^{W})$	$SN(S^{B13})$
Sep	96.21	93.48	95.50	should read	96.21	93.49	95.51
Oct	85.73	–	–	”	85.73	–	–
Nov	75.93	–	–	”	75.94	–	–
Dec	71.93	–	–	”	71.95	–	–

Geórgi Timoféyevich Dobrovólski.

Georgi Dobrovolski (right) was born to Timoféi Dobrovolski and Maria Dobrovólskaya on 1st June 1928, at Odessa, the Ukraine, USSR.

Georgi initially wanted a naval career, but was turned down. He then applied to, and was accepted by, the Air Force. He later joined the cosmonaut corps and became a crew member of Soyúz (Union) 11, with Vladisláv Vólkov and Víktor Patsáyev under his command.

After a successful 23-day stay in space, Georgi along with his colleagues, died just before re-entry into the Earth's atmosphere on the 30th June 1971.

Georgi Timofeyevich left a wife, Lyudmíla, and two daughters, Marína and Natásha, then aged 12 and 4.

The Pronunciation of the Name Georgi Dobrovolski.

Cosmonaut Georgi Dobrovolski's name is pronounced as follows:

GeORgi, 3 syllables with the 'G's pronounced hard, as in 'gamma', and the stress on the second syllable (OR). The 'I' is pronounced as a long 'ee'.

DobroVOLski has the stress on the third syllable (VOL), and the first two 'O's are pronounced as unstressed 'A's, as in the English word 'son', particularly the second 'O'. Again, the 'I' is pronounced as a long 'ee'. The 'L' in Dobrovolski is palatised.

Contents

CONTENTS continued:

List of Definitions in this Publication.

WN (Wolf Number):

$R_{GD} = k(10g + f)$

where f = number of sunspots,
g = number of sunspot regions
& k = up- or downgrading figure to bring observatories to a world standard.

WN = observed Wolf Number, same as above, but k = 1.

BX (Beckindex):

$$BX_{GD} = k\left(\sum_{i=1}^{g} G_i f_i\right)$$

where g = number of regions,
f = number of sunspots,
G = region constant,
& k = up- or downgrading figure to bring observatories to a world standard.

BX = observed Beckindex, same as above, but k = 1.

see next page for group constants.

QC (Quality Count):

$$QC = \sum_{i=1}^{g} Z_i$$

where g = number of regions,
Z = region constant based on Zurich classes.

see next page for group constants.

SN (Pettisindex):

$PX_{GD} = k(10p + s)$

where s = number of penumbral-free sunspots,
p = number of penumbrae,
& k = up- or downgrading figure to bring observatories to a world standard.

SN = observed Pettisindex, same as above, but k = 1.

CV (Classification Value):

$$CV_{GD} = k\left(\sum_{i=1}^{g} M_i\right)$$

where g = number of regions,
M = region constant based on McIntosh classes,
k = up- or downgrading figure to bring observatories to a world standard.

CV = observed Classification Value, same as above, but k = 1.

see next page for group constants.

IS (Inter-Sol Index):

$IS_{GD} = k(gr + f)$

where gr = number of multi-spot regions,
f = number of sunspots,
& k = up- or downgrading figure to bring observatories to a world standard.

IS = observed Inter-Sol Index, same as above, but k = 1.

Micro-hemisphere (μh):

This unit of area, equal to 1 000 000th of the visible hemisphere of the Sun, is used in Section C of the report. It is approximately equal to 3 000 000 square kilometres.
A small spot's area would be in the vicinity of 5 or 10 μh, while a large region's area would be greater than 1000 μh. A very large region would have an area greater than 2000 μh.

Group Constants.

The following are group constants for Beckindices, Classification Values and Quality Counts.

BECKINDICES

A	B	C	D	E	F	G	H	J
4	4	8	18	25	36	50	44	37

CLASSIFICATION VALUES

AXX	1	CRO	5	DKI	46	EHC	59	ESO	26	FRI	18
BXI	3	CSI	12	DKO	43	EHI	53	FAC	33	FRO	15
BXO	2	CSO	11	DRI	16	EHO	50	FAI	24	FSC	36
CAI	9	DAC	31	DRO	13	EKC	56	FAO	21	FSI	30
CAO	8	DAI	22	DSC	34	EKI	47	FHC	60	FSO	27
CHI	42	DAO	19	DSI	28	EKO	44	FHI	54	HAX	7
CHO	41	DHC	58	DSO	25	ERI	17	FHO	51	HHX	40
CKI	39	DHI	52	EAC	32	ERO	14	FKC	57	HKX	37
CKO	38	DHO	49	EAI	23	ESC	35	FKI	48	HRX	4
CRI	6	DKC	55	EAO	20	ESI	29	FKO	45	HSX	10

QUALITY COUNTS

	A	B	C	D	E	F	G	H	J
QC	1	2	3	4	5	6	4	3	2
QC^2	1	4	9	16	25	36	16	9	4

Formulæ.

The following are formulæ used in the analysis of sunspot data etc.

s (sample standard deviation) is computed as:

$$\sqrt{\frac{\sum k^2 - \frac{\left(\sum k\right)^2}{n_k}}{n_k - 1}}$$

The annual s result is computed from a total pool of k values.

s 'SIDC' (annual standard deviation based on the SIDC's formula) is computed as:

$$\frac{\sum (s \times n_k)}{\sum n_k}$$

Es (estimate of standard deviation) is computed as:

$$\frac{\sqrt{\sum \left(s^2 \times n_k\right)}}{\sum n_k}$$

d (mean deviation) is computed as:

$$\frac{\sum \left| x - \bar{x} \right|}{\sum n}$$

Smoothing Formulæ.

The following are the three formulæ used in the smoothing of GDSO sunspot data. All are based on monthly means ($\bar{x}$).

Data suffixed (S^{HBm}) are computed as:

$$\frac{(\bar{x}_{+3}+\bar{x}_{-3})+2(\bar{x}_{+2}+\bar{x}_{-2})+3(\bar{x}_{+1}+\bar{x}_{-1})+4\bar{x}_0}{16}$$

Data suffixed (S^{W}) are computed as:

$$\frac{\sum_{-5}^{+5}\bar{x}+\frac{\bar{x}_{+6}+\bar{x}_{-6}}{2}}{12}$$

Data suffixed (S^{B13}) are computed as:

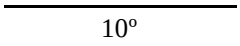
$$\frac{0.75(\bar{x}_{+6}+\bar{x}_{-6})+2(\bar{x}_{+5}+\bar{x}_{-5})+3(\bar{x}_{+4}+\bar{x}_{-4})+4(\bar{x}_{+3}+\bar{x}_{-3})+5(\bar{x}_{+2}+\bar{x}_{-2})+6(\bar{x}_{+1}+\bar{x}_{-1})+6.5\bar{x}_0}{48}$$

McIntosh Sunspot Group Classifications.

(Illustrations highly stylised)

The McIntosh classifications are comprised of 3 letters representing; the Modified Zürich class (without G & J); the penumbra of the largest spot in the group (non-e***X***istent, ***R***udimentary, Small ***S***ymmetric, Small ***A***symmetric, Large Symmetric [***H***], & Large Asymmetric [***K***]); and the internal spot distribution (non-e***X***istent, ***O***pen, ***I***ntermediate & ***C***omplex or compact). See also page B2.

ZÜRICH CLASS	PENUMBRA: LARGEST SPOT	SUNSPOT DISTRIBUTION
A		
B	X	
C	R	
D	S	X
E	A	O
F	H	I
G *	K	C
H		
J **		



* Under the McIntosh system, Zürich class G is either E or F.

** Under the McIntosh system, Zürich class J is H.

The McIntosh examples in the left column are AXX, BXO, CSO, DSI, EHC, FKC, EHO, HHX and HSX respectively.
The McIntosh examples in the right column above are HSX, CSO, CSI and EHC respectively.

What is Universal Time?

The times of various events, particularly astronomical phenomena, are often given in "Universal Time" (abbreviated UT) which is sometimes referred to, now colloquially, as "Greenwich Mean Time" (abbreviated GMT). The two terms are often used loosely to refer to time kept on the Greenwich meridian (longitude zero), five hours ahead of US Eastern Standard Time [or twelve hours behind New Zealand Standard Time]. Times given in UT are almost always given in terms of a 24-hour clock. Thus, 14:42 (often written simply 1442) is 2:42 p.m., and 21:17 (2117) is 9:17 p.m. Sometimes a Z is appended to a time to indicate UT, as in 0935Z.

When a precision of one second or better is needed, however, it is necessary to be more specific about the exact meaning of UT. For that purpose different designations of Universal Time have been adopted. In astronomical and navigational usage, UT often refers to a specific time called UT1, which is a measure of the rotation angle of the Earth as observed astronomically. It is affected by small variations in the rotation of the Earth, and can differ slightly from the civil time on the Greenwich meridian. Times which may be labelled "Universal Time" or "UT" in data provided by the Astronomical Applications Department of the U.S. Naval Observatory (for example, in the annual almanacs) conform to this definition.

However, in the most common civil usage, UT refers to a time scale called "Co-ordinated Universal Time" (abbreviated UTC), which is the basis for the world-wide system of civil time. This time scale is kept by time laboratories around the world, including the U.S. Naval Observatory, and is determined using highly precise atomic clocks. The International Bureau of Weights and Measures (BIPM) makes use of data from the timing laboratories to provide the international standard UTC which is accurate to approximately a nanosecond (thousand-millionth of a second) per day. The length of a UTC second is defined in terms of an atomic transition of the element cæsium under specific conditions, and is not directly related to any astronomical phenomena.

UTC is the time distributed by standard radio stations that broadcast time, such as WWV and WWVH. It can also be obtained readily from the Global Positioning System (GPS) satellites. The difference between UTC and UT1 is made available electronically and broadcast so that astronomers and navigators can obtain UT1. UTC is the basis for civil standard time in most countries. Standard time within U.S. time zones is an integral number of hours offset from UTC.

UTC is equivalent to the civil time for Iceland, Liberia, Morocco, Senegal, Ghana, Mali, Mauritania, and several other countries. During the [northern] winter months, UTC is also the civil time the United Kingdom and Ireland.

[New Zealand times are; NZ Standard Time (UTC + 12 hours),
Chatham Islands Standard Time (UTC + 12 hours 45 minutes),
NZ Daylight Time (UTC + 13 hours) and
Chatham Islands Daylight Time (UTC + 13 hours 45 minutes).]

One can think of UT1 as being the time determined by the rotation of the Earth, over which we have no control, whereas UTC is a human invention. It is relatively easy to manufacture highly precise clocks that keep UTC, while the only 'clock'keeping UT1 precisely is the Earth itself. Nevertheless, it is desirable that our civil time scale not be very different from the Earth's time, so, by international agreement, UTC is not permitted to differ from UT1 by more than 0.9 second. When it appears that the difference between the two kinds of time may approach this limit (or a sufficient difference accumulates to allow an alteration, staying within the above tolerance), a one-second change called a "leap second" is introduced into UTC. This occurs on average about once every year to a year and a half. [Leap-second decisions are made by the International Earth Rotation and Reference Systems Service (IERS), now based in Germany; website http://www.iers.org/.]

For more information on time, time scales, and accurate clocks, see the U.S. Naval Observatory Time Service Department web pages. Related information can be found on the pages of the National Institute of Standards and Technology (NIST), and the International Bureau of Weights and Measures (BIPM).

Historical Note:

"Greenwich Mean Time" is a widely used historical term, but one that has been used in several ways. Because of the ambiguity, its use is no longer recommended in technical contexts.

Prior to 1925, in astronomical almanacs, a day of "Greenwich Mean Time" began at Greenwich ***mid-day***. This reckoning of "Greenwich Mean Time" is now called "Greenwich Mean Astronomical Time" (GMAT), and is no longer used. **Persons using old editions of the almanacs for historical research should be aware of the previous convention.**

Copied from the US Naval Observatory's website,
and slightly 'doctored' for New Zealand purposes and clarification by the GDSO.

Glossary

AA	Active Area.
AGO	Astronomical-Geodetic Society (of the Academy of Sciences of Russia).
BAA	British Astronomical Association.
BX	Beckindex (observed).
BX_{GD}	Beckindex (corrected by the GDSO).
BX_{GDm}	Beckindex (corrected and modified by the GDSO). (see page F1)
BX_{I}	Beckindex (as determined by Sonne, Germany).
CV	Classification Value (observed).
CV_{GD}	Classification Value (corrected by the GDSO).
CV_{GDm}	Classification Value (corrected and modified by the GDSO). (see page F1)
CV_{I}	Classification Value (as determined by the CV Network, Norway).
g	Active Area (observed).
g_{B}	Active Area (as determined by BAA Solar Section).
g_{GD}	Active Area (corrected by the GDSO).
g_{GDm}	Active Area (corrected and modified by the GDSO). (see page F1)
GDSO	Georgi Dobrovolski Solar Observatory.
HIA	Herzberg Institute of Astrophysics, Canada.
IS	Inter-Sol Index (observed).
IS_{GD}	Inter-Sol Index (corrected by the GDSO).
IS_{GDm}	Inter-Sol Index (corrected and modified by the GDSO). (see page F1)
IS_{I}	Inter-Sol Index (as determined by the Paderborn Public Observatory, Germany).
KSB	Koninklijke Sterrenwacht van België / Royal Observatory of Belgium.
NIST	U.S. National Institute of Standards & Technology.
NOAA	U.S. National Oceanic and Atmospheric Administration.
NRCC	National Research Council, Canada.
ORB	Observatoire Royal de Belgique / Royal Observatory of Belgium.
PX_{GD}	Pettisindex (corrected by the GDSO).
PX_{I}	Pettisindex (as determined by Sonne, Germany).
QC	Quality Count (observed).
QC^2	Squared Quality Count (observed).
R_{GD}	Wolf Number (corrected by the GDSO).
R_{GDm}	Wolf Number (corrected and modified by the GDSO). (see page F1)
R_{I}	Wolf Number (as determined by the SIDC).
SIDC	Solar Influences Data-analysis Centre, formerly Sunspot Index Data Centre.
SN	Pettisindex (observed).
TAI	International Atomic Time / Temps Atomique International (see page ii).
TT	Terrestrial Time (see page ii).
UT	Universal Time (see pages ii and xiv).
UTC	Co-ordinated Universal Time / Temps Universel Coordonné (see pages ii and xiv).
WN	Wolf Number (observed).
Z	Zulu (= UTC).

The Kiepenheuer Scales (Q & S) and Transparency Scale.

Grade	Q (Quietness)	Grade	S (Sharpness)	Grade	T (Transparency)
1.0	No scintillation on the solar surface noticeable, neither at limb nor on disc.	1.0	Some fine structures in great umbræ, very sharp fine structures in penumbræ.	1.0	Deep blue sky near Sun.
1.5	Amplitude of scintillation at limb 0.5", no noticeable scintillation in sunspots.	1.5	Sharp fine structures in penumbræ, granulation visible very well.	1.5	No haze.
2.0	Scintillation at limb 1 - 1.5", slightly waving, scintillation in sunspots hardly noticeable.	2.0	Some fine structures in penumbræ and at umbra-penumbral boundaries, granulation visible well.	2.0	Very little haze. Haze extending 10º out from the Sun.
2.5	Scintillation at limb 2 - 2.5" and visible on the solar disc, waving limb.	2.5	Granulation visible, the boundaries between umbræ, penumbræ and photosphere are sharp but without any fine structures.	2.5	Slightly hazy. Haze extending 20º out from the Sun.
3.0	Scintillation at limb 3 - 3.5", limb strongly waving.	3.0	Granulation difficult to see, umbra-penumbral boundaries still sharp.	3.0	Some haze. Haze extending 30º out from the Sun.
3.5	Scintillation at limb 4 - 5".	3.5	Granulation invisible, umbræ and penumbræ still separable.	3.5	Hazy. Haze extending 40º out from the Sun.
4.0	Scintillation at limb 6 - 7".	4.0	Umbræ and penumbræ only separable in great spots, granulation invisible.	4.0	Very hazy. Haze extending 50º out from the Sun.
4.5	Scintillation at limb 8 - 10". Observation would be abandoned.	4.5	Umbræ and penumbræ only in very great spots, granulation invisible. Observation would be abandoned.	4.5	Very very hazy. Haze extending 60º out from the Sun. Observation would be abandoned.
5.0	Scintillation at limb >10". Observation would be abandoned.	5.0	Umbræ and penumbræ indistinguishable. Observation would be abandoned.	5.0	Nearly opaque. Observation would be abandoned.

Section A

SOLAR OBSERVATIONAL DATA for **2005** obtained using the 76 mm refractor.

ALL TIMES IN UNIVERSAL TIME (UT).

CR = Carrington Rotation Number, with fraction of rotation stated.
Rotation 1 commenced at 1853/11/09;1144 UT (approximately).
g = Active Area or group count for WHOLE solar disc.
f = Sunspot count for WHOLE solar disc.
WN = Wolf Number (k in formula neglected).
TWN = Truncated Wolf Number (Wolf Number minus A and B class regions).
p = Penumbral count for WHOLE solar disc.
s = Penumbra-free spot count for WHOLE solar disc.
SN = Pettisindex.
BX = Beckindex.
CV = Classification Value.
QC = Quality Count.
QC^2 = Squared Quality Count.
IS = Inter-Sol Index.
See page ix for all definitions.
Q = Quietness [steadiness] of image (on the Kiepenheuer scale; see opposite page),
1 = steady, 5 = heavy boiling.
S = Sharpness [clarity] of image (on the Kiepenheuer scale; see opposite page),
1 = fine features visible, 5 = umbræ & penumbræ indistinguishable from each other.

T = Transparency of the Earth's atmosphere, where 1 = excellent, 5 = worthless.
If any of Q, S or T is greater (worse) than 4, the observation will be abandoned.

EARTH-ORIENTATED VALUES (EOVs) [second line of entries]:

Earth-orientated values are obtained by the following formula:

$$\sum_{i=1}^{g} (I \times \cos L)$$

where I is the observed value of the index involved and L is the CMD (heliographic longitudinal) value, in degrees, as stated in Section B of this report. Heliographic latitude and the 'pitch and roll' of the Sun are not taken into account.

These values are calculated to give a truer sense of activity in relation to the Earth. They **never** exceed the observed values. If a region has the Wolf Number of 44 and is situated at 45° from the central meridian, then its Earth-orientated value is 31.11... (44 × cos45° [ie. 44 × 0.7071067]). Earth-orientated values are rounded to whole numbers, with the exception of g and p values which are stated to one decimal place.

In this section, observed values are stated on the first line of each observation, EOVs are stated on the second line and are italicised. Each observation is lined-off for clarity. The lay-out appears thus:

observed values →
Earth-orientated values →

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
17/1955	.1584	3	21	51	51	6	7	67	794	61	12	48	24	2.0	2.5	2.5
		2.2	*17*	*39*	*39*	*4.4*	*6*	*50*	*703*	*44*	*9*	*35*	*19*			
19/2035	.2326	4	44	84	84	9	16	106	1098	96	18	84	48	1.5	2.0	2.0
		3.9	*42*	*81*	*81*	*8.7*	*16*	*103*	*1067*	*93*	*17*	*81*	*46*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
JANUARY 2005																
10/0240	2005.2948	2	5	25	25	4	1	41	90	53	8	32	7	1.5	2.0	2.0
		1.1	*3*	*13*	*13*	*2.2*	*0*	*22*	*48*	*29*	*4*	*17*	*4*			
12/1945	.3940	3	25	55	55	3	7	37	200	29	9	27	28	2.0	3.0	3.0
		2.6	*21*	*47*	*47*	*2.6*	*6*	*33*	*167*	*25*	*8*	*24*	*24*			
13/2105	.4326	3	48	78	78	5	13	63	784	86	11	41	51	2.0	2.5	2.5
		2.9	*45*	*74*	*74*	*4.8*	*12*	*61*	*733*	*81*	*11*	*39*	*48*			
14/2205	.4707	3	39	69	69	3	10	40	652	65	11	43	42	2.0	2.5	2.5
		3.0	*39*	*68*	*68*	*3.0*	*10*	*40*	*642*	*64*	*11*	*42*	*42*			
18/1945	.6134	5	40	90	79	9	9	99	952	85	13	43	42	1.5	2.0	2.0
		3.3	*29*	*62*	*51*	*6.0*	*7*	*67*	*693*	*57*	*8*	*29*	*31*			
20/2120	.6890	4	20	60	60	7	6	76	393	87	13	47	23	1.5	2.5	2.0
		2.8	*11*	*39*	*39*	*3.9*	*4*	*43*	*187*	*45*	*8*	*27*	*13*			
21/2025	.7242	4	20	60	60	7	5	75	507	104	14	52	23	2.0	2.5	2.0
		2.8	*14*	*42*	*42*	*4.7*	*4*	*51*	*296*	*59*	*9*	*34*	*16*			
23/1930	.7959	2	5	25	25	2	3	23	40	23	6	18	7	1.0	2.0	2.0
		1.5	*3*	*18*	*18*	*1.5*	*2*	*17*	*28*	*17*	*4*	*13*	*5*			
25/1935	.8692	2	13	33	33	4	3	43	253	41	6	20	14	1.0	2.0	2.5
		1.8	*11*	*29*	*29*	*3.5*	*3*	*38*	*224*	*36*	*5*	*18*	*12*			
26/1950	.9062	2	12	32	32	3	5	35	235	32	6	20	13	2.5	2.5	2.5
		1.7	*11*	*29*	*29*	*2.7*	*5*	*32*	*220*	*29*	*5*	*19*	*12*			
28/2125	.9817	2	6	26	26	3	2	32	127	32	6	20	7	3.0	3.0	2.5
		1.4	*5*	*19*	*19*	*2.3*	*2*	*25*	*102*	*25*	*5*	*17*	*6*			
30/1955	2026.0526	2	9	29	18	2	6	26	148	23	5	17	10	1.5	2.0	2.0
		1.8	*7*	*25*	*14*	*1.6*	*5*	*20*	*116*	*18*	*4*	*13*	*8*			
31/1955	.0892	2	8	28	28	5	2	52	144	53	8	32	10	2.0	2.0	1.5
		1.6	*7*	*22*	*22*	*4.1*	*2*	*43*	*119*	*44*	*6*	*25*	*8*			
FEBRUARY 2005																
03/2000	2026.1990	1	1	11	11	1	0	10	37	10	2	4	1	1.5	2.0	1.5
		0.9	*1*	*10*	*10*	*0.9*	*0*	*9*	34	*9*	*2*	*4*	*1*			
09/2215	.4219	4	7	47	36	3	3	33	117	60	9	23	8	2.0	2.5	2.0
		2.7	*6*	*32*	*23*	*1.9*	*3*	*21*	71	*36*	*6*	*16*	*7*			
11/1945	.4912	6	13	73	49	5	5	55	313	110	15	41	18	1.0	2.0	2.5
		4.9	*10*	*59*	*36*	*3.4*	*4*	*38*	*246*	*72*	*12*	*29*	*15*			
16/2000	.6745	3	27	57	57	5	16	66	524	87	10	36	30	1.5	2.0	2.0
		2.7	*26*	*53*	*53*	*4.5*	*16*	*61*	504	*81*	*9*	*32*	*29*			
17/2115	.7130	4	19	59	59	6	11	71	399	97	12	40	22	1.5	2.0	2.5
		2.6	*16*	*42*	*42*	*4.2*	*10*	*52*	327	*75*	*8*	*30*	*19*			
19/2015	.7846	3	8	38	27	3	3	33	149	57	7	21	9	1.5	2.0	2.0
		1.5	*5*	*20*	*14*	*1.7*	*2*	*19*	91	*37*	*4*	*13*	*6*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
FEBRUARY 2005 continued.																
20/2020	.8213	2	6	26	26	3	1	31	146	53	6	20	8	1.0	2.0	2.0
		1.2	*4*	*16*	*16*	*1.8*	*1*	*18*	90	*30*	*4*	*12*	*5*			
23/2200	.9336	1	5	15	15	2	2	22	90	22	4	16	6	2.0	2.5	2.5
		0.9	*4*	*13*	*13*	*1.7*	*2*	*19*	*79*	*19*	*3*	*14*	*5*			
26/2020	2027.0409	1	1	11	0	0	1	1	4	1	1	1	1	1.5	2.0	2.0
		0.6	*1*	*6*	*0*	*0.0*	*1*	*1*	*2*	*1*	*1*	*1*	*1*			
28/2025	.1141	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.5	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
MARCH 2005																
01/2045	2027.1512	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.5	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
04/2035	.2608	1	1	11	11	1	0	10	37	10	2	4	1	1.5	2.0	2.0
		0.3	*0*	*3*	*3*	*0.3*	*0*	*3*	*11*	*3*	*1*	*1*	*0*			
05/2025	.2971	1	4	14	14	1	1	11	32	8	3	9	5	2.0	2.5	2.5
		0.5	*2*	*7*	*7*	*0.5*	*1*	*6*	*16*	*4*	*2*	*5*	*3*			
08/2015	.4067	2	15	35	35	6	5	65	270	53	8	32	17	1.5	2.0	2.0
		1.5	*10*	*25*	*25*	*3.9*	*3*	*42*	*185*	*37*	*6*	*23*	*12*			
09/2035	.4438	3	23	53	53	5	12	62	441	81	11	43	25	1.0	1.5	2.0
		1.9	*18*	*37*	*37*	*3.3*	*10*	*43*	*311*	*40*	*7*	*29*	*20*			
11/2030	.5169	3	21	51	51	6	9	69	512	81	11	43	24	2.0	2.0	2.0
		2.5	*19*	*44*	*44*	*5.3*	*8*	*61*	*449*	*63*	*9*	*37*	*21*			
12/2100	.5542	3	20	50	50	6	9	69	531	82	10	38	21	1.5	2.5	2.5
		2.6	*20*	*45*	*45*	*5.6*	*9*	*65*	*512*	*72*	*9*	*35*	*21*			
14/2110	.6277	3	18	48	48	6	3	63	474	94	12	50	21	2.0	2.5	2.0
		2.3	*16*	*39*	*39*	*4.5*	*3*	*48*	*423*	*76*	*9*	*38*	*18*			
15/2050	.6638	2	25	45	45	4	15	55	591	73	8	34	27	1.5	2.0	2.0
		1.8	*20*	*38*	*38*	*3.4*	*12*	*46*	*469*	*66*	*7*	*29*	*22*			
16/2045	.7003	2	12	32	32	4	4	44	232	95	8	34	14	2.0	2.5	2.5
		1.6	*9*	*26*	*26*	*3.0*	*3*	*33*	*165*	*75*	*6*	*25*	*11*			
18/2040	.7734	2	12	32	32	4	5	45	186	100	7	25	14	2.0	2.5	2.0
		1.0	*7*	*17*	*17*	*2.4*	*3*	*27*	*125*	*52*	*4*	*14*	*8*			
21/2150	.8850	3	15	45	45	5	6	56	266	79	10	34	17	2.0	2.5	3.0
		1.7	*13*	*29*	*29*	*3.6*	*5*	*42*	*213*	*40*	*6*	*22*	*14*			
22/2050	.9201	2	16	36	36	4	7	47	288	44	8	32	18	1.5	2.0	2.5
		1.6	*13*	*29*	*29*	*3.2*	*6*	*38*	*237*	*36*	*6*	*26*	*15*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
MARCH 2005 continued.																
29/2120	2028.1773	0	0	0	0	0	0	0	0	0	0	0	0	1.0	2.0	2.5
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
30/2055	.2133	1	1	11	0	0	1	1	4	1	1	1	1	2.0	2.0	2.5
		0.3	*0*	*3*	*0*	*0.0*	*0*	*0*	*1*	*0*	*0*	*0*	*0*			
31/2145	.2513	1	1	11	0	0	1	1	4	1	1	1	1	1.5	2.0	2.0
		0.5	*0*	*5*	*0*	*0.0*	*0*	*0*	*2*	*0*	*0*	*0*	*0*			
APRIL 2005																
01/2100	2028.2868	2	3	23	11	1	2	12	45	12	4	8	4	2.0	2.0	2.0
		1.6	*3*	*19*	*7*	*0.7*	*2*	*9*	*33*	*9*	*3*	*7*	*4*			
02/2120	.3239	3	10	40	40	4	3	43	218	42	8	24	11	2.0	2.0	2.0
		2.0	*9*	*29*	*29*	*3.0*	*3*	*33*	*182*	*32*	*6*	*20*	*10*			
03/2105	.3602	3	17	47	47	5	10	60	344	51	8	24	18	1.5	2.0	1.5
		2.3	*16*	*39*	*39*	*4.2*	*10*	*52*	*308*	*43*	*7*	*21*	*17*			
06/2105	.4702	3	8	38	38	4	4	44	143	55	9	29	10	1.5	2.5	2.5
		1.8	*4*	*23*	*23*	*2.4*	*2*	*26*	*89*	*32*	*5*	*16*	*5*			
07/2150	.5080	3	7	37	37	3	3	33	85	30	8	22	9	1.0	2.0	2.5
		1.9	*4*	*23*	*23*	*1.9*	*2*	*20*	*60*	*19*	*5*	*12*	*5*			
09/2140	.5810	3	13	43	43	4	7	47	223	50	9	29	15	1.5	2.0	2.5
		2.2	*10*	*32*	*32*	*3.1*	*5*	*36*	*189*	*39*	*6*	*21*	*11*			
10/2140	.6177	2	7	27	27	3	4	34	145	38	6	20	8	2.5	2.5	2.0
		1.1	*6*	*17*	*17*	*2.1*	*4*	*25*	*111*	*29*	*4*	*16*	*7*			
12/2135	.6909	2	8	28	28	3	4	34	190	32	7	25	10	2.0	2.0	1.5
		1.2	*5*	*17*	*17*	*1.4*	*4*	*18*	*70*	*16*	*4*	*12*	*7*			
13/2125	.7273	3	11	41	30	4	5	45	203	45	9	35	13	1.5	2.0	2.5
		2.4	*7*	*32*	*21*	*2.5*	*4*	*29*	*118*	*29*	*6*	*22*	*9*			
14/2140	.7644	4	13	53	41	5	5	55	221	64	14	54	17	1.0	2.0	2.0
		3.0	*9*	*40*	*28*	*3.4*	*4*	*38*	*152*	*44*	*10*	*38*	*12*			
15/2145	.8012	3	10	40	40	4	5	45	130	45	10	34	13	1.5	2.5	2.5
		2.2	*8*	*30*	*30*	*3.1*	*4*	*35*	*105*	*35*	*8*	*26*	*10*			
17/2135	.8743	3	10	40	29	2	7	27	76	22	7	19	12	1.5	2.0	2.0
		2.2	*9*	*31*	*29*	*2.0*	*6*	*26*	*72*	*21*	*6*	*18*	*11*			
18/2140	.9111	3	9	39	27	2	6	26	64	23	8	22	12	1.5	1.5	2.0
		2.3	*8*	*31*	*27*	*2.0*	*5*	*24*	*58*	*22*	*7*	*19*	*10*			
21/2215	2029.0221	2	2	22	11	1	1	11	41	11	3	5	2	2.0	2.0	2.5
		1.5	*2*	*17*	*6*	*0.6*	*1*	*7*	*25*	*7*	*2*	*3*	*2*			
24/2155	.1316	2	3	23	11	1	2	12	52	42	5	13	4	2.0	2.0	2.5
		1.1	*2*	*13*	*1*	*0.1*	*2*	*3*	*13*	*7*	*2*	*5*	*3*			
26/2155	.2051	2	8	28	17	1	3	13	60	40	4	10	9	1.5	2.0	2.0
		1.3	*5*	*18*	*10*	*0.6*	*2*	*7*	*34*	*23*	*2*	*6*	*5*			
29/2145	.3149	3	29	59	48	3	7	37	669	70	10	42	31	2.0	2.0	2.0
		2.6	*27*	*54*	*46*	*2.9*	*6*	*36*	*636*	*67*	*9*	*40*	*29*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC²	IS	Q	S	T
MAY 2005																
04/2205	2029.4990	2	32	52	52	5	10	60	511	71	8	34	34	2.0	2.5	2.0
		1.3	*20*	*33*	*33*	*3.2*	*6*	*38*	*327*	*45*	*5*	*22*	*22*			
05/2210	.5359	2	34	54	54	9	10	100	773	87	9	41	36	2.0	2.5	2.0
		1.2	*23*	*35*	*35*	*6.0*	*7*	*67*	*537*	*50*	*6*	*27*	*24*			
06/2210	.5726	2	19	39	39	9	5	95	433	87	9	41	21	1.5	2.5	2.5
		1.1	*13*	*24*	*24*	*6.1*	*5*	*66*	*319*	*41*	*5*	*26*	*14*			
08/2145	.6454	3	34	64	53	10	17	117	1126	81	12	62	36	2.0	2.0	2.0
		1.5	*29*	*44*	*42*	*8.6*	*15*	*100*	*1014*	*47*	*8*	*43*	*30*			
10/2235	.7201	3	53	83	83	14	19	159	1568	123	15	77	56	1.5	2.0	2.0
		2.4	*44*	*68*	*68*	*11.2*	*16*	*128*	*1285*	*93*	*12*	*60*	*46*			
22/2155	2030.1600	2	4	24	24	3	1	31	91	38	6	20	5	2.5	2.5	2.5
		0.8	*2*	*10*	*10*	*1.2*	*0*	*12*	*37*	*15*	*2*	*8*	*2*			
24/2215	.2340	2	15	35	35	5	7	57	210	40	7	25	17	1.5	2.0	2.5
		1.5	*12*	*27*	*27*	*3.8*	*5*	*43*	*160*	*30*	*5*	*19*	*13*			
JUNE 2005																
01/2325	2030.5299	5	20	70	59	8	5	85	345	84	14	46	23	1.0	2.0	2.0
		2.8	*13*	*40*	*34*	*4.3*	*3*	*47*	*231*	*45*	*7*	*24*	*14*			
05/2305	.6764	5	29	79	79	12	11	131	492	171	19	73	34	1.0	2.0	2.5
		3.6	*24*	*60*	*60*	*9.6*	*10*	*106*	*418*	*113*	*14*	*54*	*28*			
06/2255	.7129	5	33	83	83	10	13	113	564	157	19	73	38	2.0	2.5	2.0
		3.9	*25*	*63*	*63*	*7.7*	*10*	*87*	*424*	*111*	*15*	*56*	*29*			
08/2250	.7863	4	38	78	78	9	11	101	803	149	17	73	42	1.5	2.5	2.5
		3.3	*31*	*64*	*64*	*7.3*	*9*	*82*	*654*	*125*	*14*	*60*	*34*			
09/2255	.8232	5	45	95	84	13	11	141	944	145	17	67	49	1.0	2.5	2.5
		3.5	*40*	*75*	*71*	*11.0*	*10*	*120*	*857*	*126*	*13*	*53*	*43*			
19/2305	2031.1911	2	18	38	38	4	6	46	415	45	9	41	20	1.0	2.0	2.0
		1.5	*13*	*28*	*28*	*3.0*	*4*	*34*	*304*	*34*	*7*	*30*	*15*			
25/2255	.4115	0	0	0	0	0	0	0	0	0	0	0	0	2.0	2.0	2.0
		0.0	*0*	*0*	*0*	*0.0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
26/2310	.4486	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.0	2.0
		0.0	*0*	*0*	*0*	*0.0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
29/2300	.5587	5	16	66	54	7	6	76	259	76	15	49	20	2.0	2.0	3.0
		3.2	*11*	*43*	*34*	*4.9*	*4*	*53*	*185*	*53*	*10*	*32*	*14*			
30/2240	.5950	5	36	86	86	11	12	122	568	93	18	66	41	1.5	2.0	2.0
		3.9	*30*	*69*	*69*	*9.1*	*10*	*102*	*465*	*73*	*14*	*51*	*34*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
JULY 2005																
01/2325	2031.6329	9	46	136	136	16	17	177	786	159	30	106	53	2.5	2.0	2.0
		5.9	*37*	*97*	*97*	*11.3*	*14*	*127*	*626*	*108*	*20*	*74*	*42*			
08/2220	.8886	5	36	86	75	13	13	143	742	93	16	62	40	1.5	2.5	2.5
		4.2	*29*	*71*	*62*	*10.1*	*11*	*111*	*590*	*73*	*13*	*47*	*33*			
13/2235	2032.0727	4	9	49	49	7	1	71	277	107	14	52	12	2.0	3.0	3.5
		2.1	*5*	*25*	*25*	*3.8*	*1*	*39*	*105*	*53*	*8*	*30*	*7*			
19/2220	.2929	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.0	2.5
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
20/2225	.3298	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.0	2.5
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
21/2250	.3672	0	0	0	0	0	0	0	0	0	0	0	0	2.0	2.0	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
23/2240	.4404	2	9	29	17	2	5	25	134	24	6	20	11	1.0	2.0	2.5
		1.6	*6*	*23*	*11*	*1.3*	*4*	*17*	*89*	*16*	*5*	*14*	*8*			
28/2220	.6236	3	14	44	44	9	2	92	252	81	12	48	17	2.0	2.5	2.5
		2.1	*9*	*30*	*30*	*5.5*	*2*	*57*	*169*	*53*	*8*	*33*	*11*			
29/2215	.6602	3	20	50	50	8	8	88	330	71	11	41	23	1.0	2.0	2.0
		2.2	*12*	*34*	*34*	*4.8*	*6*	*53*	*193*	*50*	*8*	*30*	*14*			
AUGUST 2005																
02/2210	2032.8071	4	30	70	70	10	12	112	529	120	13	45	33	1.5	2.0	1.5
		3.0	*26*	*57*	*57*	*8.6*	*10*	*96*	*462*	*98*	*10*	*36*	*29*			
03/2215	.8439	4	25	65	54	10	10	110	455	97	11	37	27	1.5	2.0	2.0
		3.6	*23*	*59*	*48*	*8.9*	*9*	*98*	*413*	*85*	*10*	*33*	*25*			
04/2240	.8813	3	25	55	55	6	15	75	389	53	9	29	27	1.0	2.0	2.0
		2.8	*24*	*51*	*51*	*5.6*	*14*	*70*	*363*	*49*	*8*	*27*	*25*			
08/2200	2033.0272	4	16	56	56	6	7	67	237	66	13	45	19	2.0	2.5	2.5
		2.6	*10*	*36*	*36*	*3.4*	*4*	*39*	*138*	*36*	*8*	*24*	*12*			
13/2305	.2124	2	17	37	26	5	7	57	292	32	5	17	18	2.0	3.0	3.0
		1.2	*14*	*27*	*23*	*4.3*	*6*	*49*	*251*	*27*	*4*	*14*	*15*			
16/2305	.3226	2	7	27	16	2	4	24	112	23	5	17	8	2.0	2.5	2.5
		1.9	*7*	*26*	*16*	*2.0*	*4*	*24*	*111*	*23*	*5*	*17*	*8*			
17/2155	.3576	2	3	23	12	1	2	12	20	12	4	10	4	2.0	2.0	2.0
		1.9	*3*	*22*	*11*	*0.9*	*2*	*11*	*19*	*11*	*4*	*9*	*4*			
18/2205	.3945	3	16	46	35	5	6	56	244	44	8	26	18	1.5	2.0	2.0
		2.3	*15*	*38*	*32*	*4.8*	*5*	*53*	*237*	*41*	*7*	*24*	*17*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC²	IS	Q	S	T
AUGUST 2005 continued.																
19/2150	2033.4309	5	18	68	46	6	6	66	353	50	10	26	20	1.5	2.0	2.0
		3.0	*15*	*45*	*37*	*5.1*	*5*	*56*	*300*	*41*	*7*	*21*	*17*			
21/2210	.5048	3	26	56	56	5	6	56	487	54	10	36	28	1.5	2.0	2.5
		1.9	*20*	*39*	*39*	*3.5*	*5*	*40*	*365*	*38*	*7*	*27*	*22*			
25/2145	.6510	3	17	47	47	6	8	68	510	62	11	41	20	2.0	2.5	2.0
		2.2	*11*	*32*	*32*	*3.7*	*5*	*42*	*362*	*38*	*8*	*28*	*13*			
28/2125	.7606	4	11	51	40	4	4	44	241	40	9	25	13	1.5	2.0	2.0
		2.5	*8*	*33*	*29*	*3.0*	*3*	*33*	*174*	*30*	*6*	*19*	*10*			
29/2130	.7974	4	15	55	44	5	7	57	294	52	11	37	18	1.0	2.0	2.0
		2.8	*12*	*40*	*33*	*3.8*	*6*	*44*	*227*	*40*	*8*	*28*	*14*			
30/2150	.8346	3	12	42	27	3	8	38	116	39	9	29	15	1.5	2.5	2.5
		2.6	*11*	*36*	*21*	*2.4*	*7*	*31*	*95*	*31*	*8*	*24*	*13*			
SEPTEMBER 2005																
01/2155	2033.9081	1	2	12	12	1	1	11	16	11	3	9	3	1.5	3.0	3.0
		1.0	*2*	*12*	*12*	*1.0*	*1*	*11*	*16*	*11*	*3*	*9*	*3*			
02/2150	.9447	1	2	12	12	1	1	11	16	11	3	9	3	2.0	2.5	2.5
		1.0	*2*	*12*	*12*	*1.0*	*1*	*11*	*16*	*11*	*3*	*9*	*3*			
14/2035	2034.3829	1	46	56	56	9	13	103	1150	56	5	25	47	1.0	2.0	2.5
		1.0	*46*	*55*	*55*	*8.9*	*13*	*102*	*1139*	*55*	*5*	*25*	*47*			
19/2225	.5691	2	9	29	29	4	4	44	244	96	8	34	10	1.5	2.5	2.5
		0.8	*5*	*14*	*14*	*2.1*	*2*	*23*	*133*	*43*	*4*	*17*	*6*			
20/2135	.6045	1	6	16	16	3	2	32	150	32	5	25	7	1.5	2.5	2.0
		0.8	*5*	*13*	*13*	*2.4*	*2*	*25*	*118*	*25*	*4*	*20*	*6*			
23/2135	.7144	2	7	27	16	1	5	15	52	40	4	10	8	1.5	2.5	2.5
		1.3	*6*	*19*	*16*	*1.0*	*4*	*14*	*49*	*39*	*3*	*9*	*7*			
26/2210	.8253	2	3	23	23	2	0	20	125	47	5	13	4	1.5	3.0	3.0
		1.5	*2*	*17*	*17*	*1.5*	*0*	*15*	*90*	*33*	*4*	*9*	*3*			
29/2045	.9331	1	1	11	11	1	0	10	37	10	2	4	1	2.0	2.0	2.0
		1.0	*1*	*11*	*11*	*1.0*	*0*	*10*	*37*	*10*	*2*	*4*	*1*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
OCTOBER 2005																
06/2000	2035.1886	1	11	21	21	2	7	27	198	22	4	16	12	1.5	2.5	2.5
		1.0	*11*	*21*	*21*	*2.0*	*7*	*27*	*197*	*22*	*4*	*16*	*12*			
09/2205	.3017	1	2	12	0	0	2	2	8	2	2	4	3	2.0	3.5	3.0
		1.0	*2*	*12*	*0*	*0.0*	*2*	*2*	*8*	*2*	*2*	*4*	*3*			
11/2030	.3725	1	1	11	0	0	1	1	4	1	1	1	1	1.0	2.5	2.5
		1.0	*1*	*11*	*0*	*0.0*	*1*	*1*	*4*	*1*	*1*	*1*	*1*			
16/2035	.5559	1	1	11	11	1	0	10	37	10	2	4	1	1.5	2.5	2.5
		0.7	*1*	*7*	*7*	*0.7*	*0*	*7*	*24*	*7*	*1*	*3*	*1*			
17/2030	.5924	1	1	11	11	1	0	10	37	10	2	4	1	1.5	3.0	2.5
		0.8	*1*	*9*	*9*	*0.8*	*0*	*8*	*30*	*8*	*2*	*3*	*1*			
23/2000	.8114	0	0	0	0	0	0	0	0	0	0	0	0	1.0	2.0	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
24/2125	.8503	0	0	0	0	0	0	0	0	0	0	0	0	2.0	3.0	3.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
25/2010	.8850	0	0	0	0	0	0	0	0	0	0	0	0	1.0	2.0	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
26/2040	.9224	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.0	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
30/1955	2036.0677	1	3	13	13	2	1	21	54	28	4	16	4	1.5	2.5	2.5
		0.6	*2*	*8*	*8*	*1.3*	*1*	*13*	*34*	*18*	*3*	*10*	*3*			
31/1940	.1040	1	5	15	15	3	2	32	125	35	5	25	6	1.5	2.5	2.0
		0.8	*4*	*13*	*13*	*2.5*	*2*	*27*	*105*	*29*	*4*	*21*	*5*			
NOVEMBER 2005																
08/2005	2036.3976	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.5	2.5
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
09/2150	.4369	0	0	0	0	0	0	0	0	0	0	0	0	1.5	2.5	2.0
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
10/2015	.4711	0	0	0	0	0	0	0	0	0	0	0	0	2.0	3.0	2.5
		0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
13/2015	.5810	1	9	19	19	2	2	22	225	47	5	25	10	2.0	2.5	2.5
		0.4	*3*	*7*	*7*	*0.7*	*1*	*8*	*84*	*18*	*2*	*9*	*4*			
14/2015	.6176	1	21	31	31	4	5	45	756	57	6	36	22	1.5	2.5	2.5
		0.5	*11*	*16*	*16*	*2.1*	*3*	*24*	*401*	*30*	*3*	*19*	*12*			
17/1955	.7270	1	25	35	35	7	11	81	900	57	6	36	26	1.5	2.5	2.0
		1.0	*24*	*33*	*33*	*6.7*	*10*	*77*	*856*	*54*	*6*	*34*	*25*			

DATE/UT	CR	g	f	WN	TWN	p	s	SN	BX	CV	QC	QC^2	IS	Q	S	T
NOVEMBER 2005 continued.																
21/2145	2036.8762	2	17	37	37	6	6	66	540	76	10	52	19	2.0	3.5	3.0
		1.3	*13*	*26*	*26*	*4.3*	*4*	*47*	*424*	*54*	*7*	*38*	*14*			
22/2005	.9103	2	12	32	32	6	4	64	500	74	9	41	14	1.5	2.5	2.0
		1.3	*8*	*21*	*21*	*4.0*	*3*	*43*	*333*	*49*	*6*	*27*	*9*			
24/1930	.9826	3	12	42	42	5	6	56	186	92	11	41	15	1.5	2.5	2.5
		2.0	*9*	*28*	*28*	*3.8*	*4*	*42*	*151*	*52*	*8*	*31*	*11*			
26/1930	2037.0559	1	4	14	14	1	3	13	32	12	3	9	5	3.0	3.5	2.0
		1.0	*4*	*14*	*14*	*1.0*	*3*	*13*	*32*	*12*	*3*	*9*	*5*			
29/1955	.1663	1	1	11	11	1	0	10	37	10	2	4	1	2.0	2.5	2.5
		0.7	*1*	*8*	*8*	*0.7*	*0*	*7*	*26*	*7*	*1*	*3*	*1*			
30/2020	.2035	3	14	44	44	6	4	64	251	52	9	29	16	2.0	2.5	3.0
		1.8	*10*	*29*	*29*	*4.2*	*3*	*45*	*184*	*35*	*6*	*19*	*12*			
DECEMBER 2005																
11/2115	2037.6076	3	9	39	39	5	3	53	249	52	9	33	10	1.5	2.5	3.0
		1.9	*5*	*25*	*25*	*3.1*	*2*	*32*	*149*	*32*	*6*	*20*	*6*			
12/2030	.6430	4	13	53	42	5	6	56	328	53	10	34	14	1.5	2.5	2.0
		2.6	*9*	*35*	*30*	*3.6*	*4*	*40*	*236*	*38*	*7*	*24*	*10*			
17/1940	.8248	3	6	36	25	2	4	24	73	23	6	14	7	1.5	2.0	2.0
		2.7	*5*	*32*	*22*	*1.8*	*4*	*21*	*65*	*21*	*5*	*12*	*6*			
18/2110	.8637	3	14	44	44	5	5	55	290	51	8	24	15	1.5	3.0	3.5
		2.5	*13*	*38*	*38*	*4.5*	*5*	*50*	*268*	*46*	*7*	*22*	*14*			
19/1955	.8983	3	17	47	47	6	7	67	305	52	9	29	19	2.0	3.0	2.5
		2.2	*16*	*38*	*38*	*5.2*	*7*	*59*	*283*	*44*	*7*	*24*	*17*			
26/1915	2038.1535	6	12	72	61	6	5	65	229	65	14	38	14	1.5	2.5	2.5
		4.1	*9*	*50*	*44*	*4.3*	*4*	*46*	*157*	*46*	*10*	*27*	*10*			
27/2000	.1912	5	9	59	59	6	3	63	189	70	13	37	11	2.0	3.0	3.0
		4.1	*7*	*48*	*48*	*4.9*	*2*	*51*	*158*	*57*	*10*	*29*	*8*			
28/1920	.2268	5	8	58	47	4	4	44	118	38	11	27	10	1.5	2.0	2.0
		4.3	*7*	*50*	*39*	*3.3*	*4*	*37*	*99*	*31*	*9*	*22*	*8*			
29/1915	.2632	5	12	62	62	6	4	64	204	59	14	42	15	1.5	2.0	2.5
		3.9	*9*	*48*	*48*	*4.5*	*3*	*48*	*144*	*43*	*11*	*32*	*11*			

OBSERVATIONAL RESULTS from MURMANSK, RUSSIA, for **2003**.

In this subsection, solar results from Viktor Yevgenyevich Troshenkov of the Murmansk Department of the Astronomical-Geodetic Society of Russia, are presented for the year **2003**. There will be a two-year delay in presenting these data, until next minimum, when there will be a 'catch-up' as space in this report permits.

The layout is approximately as Mr Troshenkov originally presented the data to the GDSO. There is no further analysis of the data.

It must be appreciated that Viktor Yevgenyevich observes from within the Arctic Circle, hence, observations from early December to late January each year are impossible.

AREA, below, is an estimate of sunspot area in millionths of the visible disc.
C = Condition, 1 = excellent, 5 = very poor.

DATE	UT	g	f	WN	IS	AREA	C
JANUARY 2003							
20	1020	3	3	33	3	290	4.0
22	1020	6	8	68	10	582	3.5
24	1030	6	14	74	18	680	4.0
25	1105	4	18	58	22	525	4.0
27	1040	8	19	99	27	322	4.0
28	1015	9	27	117	35	618	3.5
30	1030	6	17	77	23	430	3.5
31	1025	4	8	48	11	300	4.0
Means	—	5.75	14.25	71.75	18.63	468.44	3.81
FEBRUARY 2003							
01	1120	6	12	72	17	280	3.5
06	1100	4	18	58	21	177	3.0
07	1125	6	18	78	22	150	3.5
13	1050	7	25	95	29	125	2.0
22	1000	3	12	42	13	366	2.5
23	0900	2	10	30	11	270	3.0
27	1140	5	16	66	20	186	2.5
Means	—	4.71	15.86	63.00	19.00	222.00	2.86

DATE	UT	g	f	WN	IS	AREA	C
MARCH 2003							
01	0745	4	10	50	13	170	4.0
03	1105	4	16	56	19	302	3.5
04	0820	9	30	120	38	322	3.0
05	0955	6	31	91	35	344	2.5
08	1200	7	27	97	32	496	2.0
11	0830	8	33	113	38	715	1.0
13	0925	4	17	57	21	589	3.5
14	0840	6	39	99	45	621	1.0
15	0910	6	47	107	53	828	1.5
16	1000	5	49	99	54	720	2.5
17	1355	3	22	52	24	672	2.5
19	1315	2	11	31	12	770	4.0
20	1020	3	13	43	15	197	3.0
21	0710	1	1	11	1	3	2.0
22	1315	2	4	24	5	6	1.0
24	0745	5	13	63	17	58	2.5
25	0905	7	31	101	38	149	1.0
26	1215	6	33	93	38	395	1.5
27	0745	6	64	124	70	697	2.0
28	0750	8	70	150	76	923	1.5
29	0800	8	102	182	109	1166	1.0
30	1110	9	95	185	103	1410	3.0
31	0840	9	66	156	73	1188	3.0
Means	—	5.57	35.83	91.48	40.39	553.98	2.28

OBSERVATIONAL RESULTS from MURMANSK, RUSSIA, for **2003** continued.

DATE	UT	g	f	WN	IS	AREA	C
APRIL 2003							
01	0745	8	66	146	73	1108	2.0
02	1300	7	68	138	73	694	3.0
04	0640	7	73	143	78	1445	1.0
05	0805	6	47	107	53	875	1.5
06	1025	6	30	90	34	698	1.5
07	0635	7	23	93	28	619	2.5
08	0555	4	14	54	17	553	1.0
09	0915	4	11	51	13	557	1.0
10	0640	5	20	70	24	553	1.0
11	0610	2	9	29	11	538	1.0
12	0655	2	16	36	18	555	3.0
13	0630	4	12	52	16	445	1.0
14	0720	5	23	73	28	508	1.5
15	0715	3	10	40	12	486	1.0
17	0920	1	3	13	4	53	2.0
18	1035	3	6	36	8	550	2.5
19	0635	4	15	55	18	747	1.5
20	0540	4	18	58	21	841	2.0
21	1440	5	25	75	29	560	2.0
22	1205	7	48	118	54	445	2.0
23	0715	8	60	140	68	662	2.5
24	1540	7	41	111	46	388	2.0
25	0630	7	49	119	55	575	2.5
26	0820	10	53	153	62	970	3.0
27	0820	9	64	154	72	1256	1.0
28	0605	9	78	168	86	1400	1.0
30	0725	9	122	212	129	2255	1.0
Means	—	5.67	37.19	93.85	41.85	753.15	1.74

DATE	UT	g	f	WN	IS	AREA	C
MAY 2003							
05	1430	8	72	152	77	1408	2.0
07	1535	5	24	74	28	384	2.0
08	1210	5	12	62	15	358	2.0
10	1145	2	6	26	8	208	1.0
11	1205	3	7	37	10	292	3.0
12	0620	5	13	63	17	370	2.0
13	0505	5	13	63	16	252	1.0
14	0550	4	19	59	23	242	2.0
15	0615	5	20	70	24	209	1.0
17	0915	5	20	70	23	137	3.0
18	0655	4	16	56	20	110	2.5
19	0540	6	30	90	35	174	1.5
20	0935	5	38	88	42	396	2.5
21	1605	5	34	84	38	294	2.0
22	1055	7	24	94	29	323	2.0
24	1250	4	7	47	10	184	2.5
25	0850	5	31	81	36	422	1.5
26	0715	5	50	100	55	911	1.0
30	0710	3	53	83	56	1276	2.5
31	1050	4	44	84	47	1185	3.0
Means	—	4.75	26.65	74.15	30.45	456.75	2.0

OBSERVATIONAL RESULTS from MURMANSK, RUSSIA, for **2003** continued.

DATE	UT	g	f	WN	IS	AREA	C
JUNE 2003							
02	0835	3	23	53	26	408	2.0
03	0605	3	26	56	29	558	1.0
04	1340	5	35	85	39	764	3.5
06	0710	8	84	164	92	1290	1.5
08	1700	6	131	191	135	3754	2.5
09	0635	6	176	236	180	3069	2.0
10	1110	4	176	216	180	3704	2.0
11	1125	5	177	227	182	2872	2.5
12	0700	5	173	223	178	2630	3.0
13	1535	6	92	152	98	1268	3.5
15	0905	6	39	99	45	494	3.0
17	1120	9	60	150	68	673	1.0
18	1200	7	64	134	69	575	1.5
19	1210	7	82	152	88	634	1.5
20	0920	5	119	169	124	728	1.0
22	0420	3	60	90	63	552	1.5
24	1355	7	67	137	73	605	1.0
25	0615	7	54	124	61	770	2.0
26	1240	7	56	126	63	692	1.0
27	0640	8	50	130	58	975	2.0
28	1750	10	60	160	68	1306	1.5
Means	—	6.05	85.90	146.38	91.38	1348.62	1.95

DATE	UT	g	f	WN	IS	AREA	C
JULY 2003							

DATA UNAVAILABLE AT TIME OF PRINT. WILL BE UP-DATED AS SOON AS POSSIBLE.

Means	—	6.72	61.84	129.04	67.56	849.38	1.16

OBSERVATIONAL RESULTS from MURMANSK, RUSSIA, for **2003** continued.

AUGUST 2003

DATE	UT	g	f	WN	IS	AREA	C
01	0430	5	24	74	27	656	1.0
02	0520	5	46	96	49	915	1.0
03	0445	7	60	130	67	1114	1.0
07	1100	6	72	132	78	1486	2.0
08	1600	7	61	131	68	1537	3.0
11	1150	4	48	88	52	593	2.5
14	1620	6	63	123	66	886	3.0
18	1110	5	48	98	51	423	3.0
20	0930	6	36	96	42	243	2.0
21	1000	5	45	95	50	264	2.5
25	0735	7	78	148	84	430	2.0
30	1430	7	30	100	35	444	2.0
31	0750	7	23	93	28	350	2.0
Means	—	5.92	48.77	108.00	53.62	718.62	2.08

SEPTEMBER 2003

01	1425	4	15	55	18	187	2.0
03	0750	5	12	62	16	168	2.0
04	0935	6	20	80	25	184	2.5
05	1055	3	18	48	21	142	3.0
06	1140	3	14	44	17	176	1.0
07	1115	3	9	39	12	122	2.5
08	1150	2	11	31	13	60	1.0
09	0935	2	12	32	14	65	2.5
11	0940	2	29	49	31	112	2.5
13	1145	1	14	24	15	76	3.0
14	1425	1	6	16	7	48	3.5
15	0835	4	12	52	14	59	3.0
16	1335	6	21	81	25	86	2.0
17	0655	7	35	105	39	155	1.0
19	0815	5	30	80	35	277	3.0
20	0700	6	18	78	23	298	1.5
21	0840	5	31	81	35	650	2.5
24	1205	4	49	89	53	585	3.5
25	1250	4	62	102	66	815	2.5
26	0915	5	75	125	79	612	2.0
28	1140	4	61	101	65	784	2.5
Means	—	3.90	26.38	65.43	29.67	269.62	2.33

OCTOBER 2003

DATE	UT	g	f	WN	IS	AREA	C
01	0845	6	39	99	44	514	2.5
02	0820	7	40	110	46	476	2.5
03	1020	7	38	108	42	460	2.0
05	0745	4	31	71	32	356	3.0
06	0935	4	32	72	34	361	1.5
09	1115	3	24	54	33	315	4.0
12	0955	2	3	23	4	25	3.0
13	1015	1	2	12	3	8	2.5
16	1010	2	8	28	10	25	1.5
20	1040	3	43	73	46	1285	3.5
21	1040	3	30	60	33	1404	3.5
23	0955	3	33	63	36	2788	3.5
24	0925	2	14	34	16	2730	4.0
26	1015	4	109	149	113	5912	1.5
30	0940	7	80	150	87	7744	3.5
Means	—	3.87	35.07	73.73	38.60	1626.89	2.80

NOVEMBER 2003

05	1015	2	2	22	2	60	4.0
09	1000	3	11	41	14	73	4.0
Means	—	2.50	6.50	31.50	8.00	66.50	4.00

DECEMBER 2003

No observations, due to polar night.

2003	Means	5.29	38.77	91.68	43.12	726.75	2.30

Section B

SUNSPOT REGIONAL BREAKDOWNS – 2005.

This section states all regions observed by the GDSO in the format of;

* NOAA/SEC region number (if known);
* co-ordinates of regions in degrees of heliographic latitude (B) [+ if NORTH, - if SOUTH], and in degrees of heliographic longitude (CMD) in respect to the central meridian [+ if WEST, - if EAST]. CMD increases with time.
* f (spots), p (penumbræ), s (outlying spots) and five columns which state the distribution of umbræ within penumbræ (see page B2);
* GDSO's determination of the McIntosh classifications of each observed region.

The central meridian value (CM) is based on the Carrington system of heliographic longitude.

All regions observed are listed in increasing longitudal order. East is to the LEFT of North when it comes to co-ordinates on the Sun.

Observations during 2005 are numbered 4483 to 4618 inclusive.

NOTE:
On 14th June 2002 (UT), NOAA Region Numbers (used in Section B) reached 9999. The NOAA decided to keep the numbers four-digit, therefore 9999 was followed by 0000, then 0001.

ALL TIMES IN UNIVERSAL TIME (UT).

OBS = Number of GDSO observation.
CM values are stated in degrees.
REG. No are NOAA/SEC region numbers.
B = HELIOGRAPHIC LATITUDE OF REGION (+ IF NORTH, - IF SOUTH).
CMD = HELIOGRAPHIC DEGREES AWAY FROM THE CENTRAL MERIDIAN (- IF EAST, + IF WEST). EAST IS TO THE **LEFT** OF NORTH.
L = CARRINGTON LONGITUDE OF REGION.
f = NUMBER OF SUNSPOTS IN REGION.
p = NUMBER OF PENUMBRÆ IN REGION.
s = NUMBER OF PENUMBRA-FREE SUNSPOTS IN REGION.
gr = NUMBER OF MULTI-SPOT GROUPS (in individual lines, single spot regions = 0, multi-spot regions = 1).
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.
LETTERS IN 'CLASS' COLUMN ARE McINTOSH CLASSIFICATIONS DETERMINED BY THE GDSO.
BRUNNER (SINGLE LETTER 'ZURICH') CLASSIFICATIONS ARE THE SAME AS THE INITIAL McINTOSH CLASS LETTER, EXCEPT THE FOLLOWING:
E?O, F?O = G; and HAX, HRX & HSX = J.
gr + efp + ef = g.
grfp + grf + efp + ef = f.
grf + ef = s.

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4483	2005 / 01 / 10	0240	253.9	0719	-08	-62	192	3	2	1	1	2	1	0	0	DSI	–
				0718	-08	-52	202	2	2	0	1	2	0	0	0	DSO	–
4484	2005 / 01 / 12	1945	218.2	0720	+13	-39	179	16	1	2	1	14	2	0	0	CAI	penumbra almost ring-shaped
				0719	-06	-26	192	2	1	1	1	1	1	0	0	CSO	–
				0718	-08	-18	200	7	1	4	1	3	4	0	0	CAI	–
4485	2005 / 01 / 13	2105	204.3	0720	+13	-25	179	26	1	4	1	22	4	0	0	DKI	–
				0719	-06	-14	190	14	3	4	1	10	4	0	0	DAC	–
				0718	-08	-03	201	8	1	5	1	3	5	0	0	CAI	–
4486	2005 / 01 / 14	2205	190.5	0720	+13	-11	180	20	1	3	1	17	3	0	0	EKI	short
				0719	-05	-01	190	13	1	4	1	9	4	0	0	CAI	–
				0718	-08	+09	200	6	1	3	1	3	3	0	0	CAI	–
4487	2005 / 01 / 18	1945	139.2	0723	+07	-66	073	1	1	0	0	0	0	1	0	HSX	–
				0724	-12	+04	143	1	0	1	0	0	0	0	1	AXX	–
				0720	+13	+41	180	34	6	7	1	27	7	0	0	EKC	–
				0719	-06	+51	190	3	1	1	1	2	1	0	0	CAO	–
				0718	-07	+62	201	1	1	0	0	0	0	1	0	HSX	–
4488	2005 / 01 / 20	2120	112.0	0726	-02	-43	069	3	1	2	1	1	2	0	0	CSI	–
				0723	+06	-37	075	1	1	0	0	0	0	1	0	HSX	–
				0725	-12	+31	132	4	1	2	1	2	2	0	0	CAI	–
				0720	+14	+68	180	12	4	2	1	10	2	0	0	EKC	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4489	2005 / 01 / 21	2025	99.3	0726	-02	-30	069	3	2	1	1	2	1	0	0	DSI	small
				0723	+06	-25	074	1	1	0	0	0	0	1	0	HSX	–
				0725	-04	+33	132	12	2	4	1	8	4	0	0	DAI	–
				0720	+13	+80	179	4	2	0	1	4	0	0	0	EKO	–
4490	2005 / 01 / 23	1930	73.5	0723	+06	+01	074	2	1	1	1	1	1	0	0	CSO	–
				0725	-03	+61	134	3	1	2	1	1	2	0	0	CSI	–
4491	2005 / 01 / 25	1935	47.0	0727	-09	-28	019	12	3	3	1	9	3	0	0	DAC	–
				0723	+06	+27	074	1	1	0	0	0	0	1	0	HSX	–
4492	2005 / 01 / 26	1950	33.8	0727	-09	-15	019	11	2	5	1	6	5	0	0	DAI	–
				0723	+06	+40	074	1	1	0	0	0	0	1	0	HSX	–
4493	2005 / 01 / 28	2125	6.6	0727	-05	+13	020	5	2	2	1	3	2	0	0	DAI	–
				0723	+05	+67	074	1	1	0	0	0	0	1	0	HSX	–
4494	2005 / 01 / 30	1955	341.1	0728	-13	-04	337	1	0	1	0	0	0	0	1	AXX	–
				0727	-09	+39	020	8	2	5	1	3	5	0	0	DAI	–
4495	2005 / 01 / 31	1955	327.9	0729	-10	-22	306	5	3	2	1	3	2	0	0	DSC	small
				0727	-09	+49	017	3	2	0	1	3	0	0	0	DAO	–
4496	2005 / 02 / 03	2000	288.4	0729	-11	+22	310	1	1	0	0	0	0	1	0	HSX	–
4497	2005 / 02 / 09	2215	208.1	0734	-04	-72	136	1	1	0	0	0	0	1	0	HSX	–
				0733	-08	-55	153	1	1	0	0	0	0	1	0	HHX	–
				?	+31	-37	171	1	0	1	0	0	0	0	1	AXX	big
				0730	-21	-10	198	4	1	2	1	2	2	0	0	CAI	–
4498	2004 / 02 / 11	1945	183.2	0735	-08	-63	120	3	2	1	1	2	1	0	0	DHI	–
				0734	-04	-47	136	1	1	0	0	0	0	1	0	HSX	–
				0733	-08	-34	149	3	1	0	1	3	0	0	0	HKX	–
				?	+31	-12	171	2	0	2	1	0	2	0	0	BXO	–
				0732	+11	+01	184	2	0	2	1	0	2	0	0	BXO	–
				0730	-20	+16	199	2	1	0	1	2	0	0	0	HAX	–
4499	2005 / 02 / 16	2000	117.2	0735	-07	+04	121	21	2	14	1	7	14	0	0	DHI	tight
				0734	-04	+21	138	2	1	0	1	2	0	0	0	HAX	–
				0733	-08	+37	154	4	2	2	1	2	2	0	0	DSI	–
4500	2005 / 02 / 17	2115	103.3	0735	-10	+16	119	13	2	10	1	3	10	0	0	DHI	tight
				0734	-05	+32	135	2	1	0	1	2	0	0	0	HAX	–
				0733	-08	+50	153	3	2	1	1	2	1	0	0	DSI	–
				0732	+09	+83	186	1	1	0	0	0	0	1	0	HSX	resighted
4501	2005 / 02 / 19	2015	77.5	0735	-09	+42	120	6	2	2	1	4	2	0	0	DKI	tight
				0734	-05	+60	138	1	0	1	0	0	0	0	1	AXX	–
				0733	-08	+77	155	1	1	0	0	0	0	1	0	HSX	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4502	2005 / 02 / 20	2020	64.3	0736	+13	+48	112	2	1	0	1	2	0	0	0	HAX	–
				0735	-09	+56	120	4	2	1	1	3	1	0	0	DKI	tight
4503	2005 / 02 / 23	2200	23.9	0737	-07	+29	053	5	2	2	1	3	2	0	0	DAI	small
4504	2005 / 02 / 26	2020	345.3	0739	-04	-54	291	1	0	1	0	0	0	0	1	AXX	–
4505	2005 / 02 / 28	2025	318.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4506	2005 / 03 / 01	2045	305.6	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4507	2005 / 03 / 04	2035	266.1	0741	+12	-72	194	1	1	0	0	0	0	1	0	HSX	–
4508	2005 / 02 / 05	2025	253.0	0741	+12	-60	193	4	1	1	1	3	1	0	0	CAO	–
4509	2005 / 03 / 08	2015	213.6	0742	-06	-59	155	9	4	4	1	5	4	0	0	DAC	long
				0741	+14	-20	194	6	2	1	1	5	1	0	0	DAI	tight
4510	2005 / 03 / 09	2035	200.2	0743	-09	-78	122	1	1	0	0	0	0	1	0	HHX	–
				0742	-06	-45	155	13	3	7	1	6	7	0	0	EAC	short
				0741	+12	-05	195	9	1	5	1	4	5	0	0	CAI	–
4511	2005 / 03 / 11	2030	173.9	0743	-07	-53	121	2	1	0	1	2	0	0	0	HKX	–
				0742	-05	-21	153	16	4	7	1	9	7	0	0	EAC	short
				0741	+13	+21	195	3	1	2	1	1	2	0	0	CSI	–
4512	2005 / 03 / 12	2100	160.5	0743	-08	-37	123	1	1	0	0	0	0	1	0	HHX	–
				0742	-06	-04	156	18	4	9	1	9	9	0	0	EAC	short
				0741	+12	+40	200	1	1	0	0	0	0	1	0	HSX	–
4513	2005 / 03 / 14	2110	134.0	0743	-07	-11	123	2	1	0	1	2	0	0	0	HKX	–
				0742	-05	+23	157	14	3	3	1	11	3	0	0	EAC	short
				0741	+12	+67	201	2	2	0	1	2	0	0	0	DSO	–
4514	2005 / 03 / 15	2050	121.0	0743	-08	+03	124	2	1	1	1	1	1	0	0	CHO	–
				0742	-05	+38	159	23	3	14	1	9	14	0	0	EAC	short
4515	2005 / 03 / 16	2045	107.9	0743	-08	+15	123	4	1	2	1	2	2	0	0	CKI	–
				0742	-06	+48	156	8	3	2	1	6	2	0	0	EKC	short
4516	2005 / 03 / 18	2040	81.6	0743	-08	+42	124	9	3	3	1	6	3	0	0	DHC	–
				0742	-06	+78	160	3	1	2	1	1	2	0	0	CHI	–
4517	2005 / 03 / 21	2150	41.4	0745	+12	-55	346	3	1	1	1	2	1	0	0	CAO	–
				0744	-12	+12	053	11	3	5	1	6	5	0	0	DAC	–
				0743	-08	+83	124	1	1	0	0	0	0	1	0	HHX	–
4518	2005 / 03 / 22	2050	28.8	0745	+12	-45	344	7	2	4	1	3	4	0	0	DAI	–
				0744	-13	+24	053	9	2	3	1	6	3	0	0	DAI	–
4519	2005 / 03 / 29	2120	296.2	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4520	2005 / 03 / 30	2055	283.2	0748	+10	-74	209	1	0	1	0	0	0	0	1	AXX	big
4521	2005 / 03 / 31	2145	269.6	0748	+09	-61	209	1	0	1	0	0	0	0	1	AXX	big
4522	2005 / 04 / 01	2100	256.8	0748	+09	-48	209	1	1	0	0	0	0	1	0	HSX	very small
				0747	-09	-12	245	2	0	2	1	0	2	0	0	BXO	–
4523	2005 / 04 / 02	2120	243.4	0749	-06	-78	165	1	1	0	0	0	0	1	0	HSX	–
				0748	+09	-35	208	1	1	0	0	0	0	1	0	HSX	small
				0747	-07	+02	245	8	2	3	1	5	3	0	0	DAI	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4524	2005 / 04 / 03	2105	230.3	0749	-06	-65	165	1	1	0	0	0	0	1	0	HSX	–
				0748	+11	-22	208	1	1	0	0	0	0	1	0	HSX	small
				0747	-05	+17	247	15	3	10	1	5	10	0	0	DAC	–
4525	2005 / 04 / 06	2105	190.7	0750	-07	-68	123	2	1	1	1	1	1	0	0	CSO	–
				0749	-05	-27	164	1	1	0	0	0	0	1	0	HSX	small
				0747	-05	+56	247	5	2	3	1	2	3	0	0	DSC	–
4526	2005 / 04 / 07	2150	177.1	0750	-07	-53	124	4	1	2	1	2	2	0	0	CAI	–
				0749	-05	-13	164	1	1	0	0	0	0	1	0	HSX	small
				0747	-06	+72	249	2	1	1	1	1	1	0	0	CSO	–
4527	2005 / 04 / 09	2140	150.8	0750	-07	-26	125	9	2	5	1	4	5	0	0	DSI	–
				0749	-05	+15	166	1	1	0	0	0	0	1	0	HSX	small
				0751	-07	+72	223	3	1	2	1	1	2	0	0	CSI	small, long
4528	2005 / 04 / 10	2140	137.6	0750	-07	-14	124	6	2	4	1	2	4	0	0	DSI	–
				0751	-07	+81	219	1	1	0	0	0	0	1	0	HSX	small
4529	2005 / 04 / 12	2135	111.3	0752	+00	-78	033	3	2	0	1	3	0	0	0	EAO	–
				0750	-07	+13	124	5	1	4	1	1	4	0	0	CS1	–
4530	2005 / 04 / 13	2125	98.2	0752	+01	-58	040	7	3	2	1	5	2	0	0	EAC	short
				0753	+12	+04	102	1	0	1	0	0	0	0	1	AXX	big
				0750	-07	+26	124	3	1	2	1	1	2	0	0	CSI	–
4531	2005 / 04 / 14	2140	84.8	0754	-08	-53	032	4	2	1	1	3	1	0	0	DSI	–
				0752	+01	-45	040	5	2	1	1	4	1	0	0	EAI	short
				0753	+12	+17	102	2	0	2	1	0	2	0	0	BXO	–
				0750	-07	+39	124	2	1	1	1	1	1	0	0	CSO	–
4532	2005 / 04 / 15	2145	71.6	0754	-08	-40	032	3	1	2	1	1	2	0	0	CSI	–
				0752	+01	-32	040	5	2	2	1	3	2	0	0	DAI	–
				0750	-07	+52	124	2	1	1	1	1	1	0	0	CSO	tight
4533	2005 / 04 / 17	2135	45.3	0755	-11	-78	327	1	0	1	0	0	0	0	1	AXX	big
				0754	-08	-13	032	3	1	2	1	1	2	0	0	CSI	–
				0752	+02	-02	043	6	1	4	1	2	4	0	0	CAI	–
4534	2005 / 04 / 18	2140	32.0	0755	-11	-69	323	2	0	2	1	0	2	0	0	BXO	big
				0754	-07	-02	030	3	1	2	1	1	2	0	0	CSI	–
				0752	+01	+11	043	4	1	2	1	2	2	0	0	CAI	–
4535	2005 / 04 / 21	2215	352.1	0755	-12	-22	330	1	0	1	0	0	0	0	1	AXX	–
				0752	+03	+54	046	1	1	0	0	0	0	1	0	HSX	–
4536	2005 / 04 / 24	2155	312.6	0756	-06	-83	230	1	1	0	0	0	0	1	0	HHX	–
				0755	-12	+14	327	2	0	2	1	0	2	0	0	BXO	–
4537	2005 / 04 / 26	2155	286.2	0756	-06	-56	230	7	1	2	1	5	2	0	0	CKI	–
				0755	-13	+41	327	1	0	1	0	0	0	0	1	AXX	–
4538	2005 / 04 / 29	2145	246.6	?	-10	-47	200	1	0	1	0	0	0	0	1	AXX	–
				0756	-06	-19	228	23	1	4	1	19	4	0	0	EKI	class correct
				0757	-05	+08	255	5	2	2	1	3	2	0	0	DAI	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4539	2005 / 05 / 04	2205	180.4	0758	-07	-50	130	15	4	7	1	8	7	0	0	EAC	widespread
				0756	-07	+51	231	17	1	3	1	14	3	0	0	CKI	–
4540	2005 / 05 / 05	2210	167.1	0758	-06	-39	128	23	6	8	1	15	8	0	0	EAC	–
				0756	-09	+63	230	11	3	2	1	9	2	0	0	DKC	–
4541	2005 / 05 / 06	2210	153.9	0758	-07	-25	129	13	6	5	1	8	5	0	0	EAC	–
				0756	-08	+77	231	6	3	0	1	6	0	0	0	DKC	–
4542	2005 / 05 / 08	2145	127.7	0759	+12	-73	055	6	2	2	1	4	2	0	0	EKI	–
				0761	+04	-77	051	1	0	1	0	0	0	0	1	AXX	–
				0758	-08	+04	132	27	8	14	1	13	14	0	0	FAC	–
4543	2005 / 05 / 10	2235	100.8	0759	+12	-52	049	8	4	1	1	7	1	0	0	EHC	–
				0762	-08	-20	081	14	4	6	1	8	6	0	0	DAC	–
				0758	-10	+34	135	31	6	12	1	19	12	0	0	FAC	–
4544	2005 / 05 / 22	2155	302.4	0767	-07	-68	234	3	2	1	1	2	1	0	0	DSI	–
				0766	+15	-63	239	1	1	0	0	0	0	1	0	HSX	–
4545	2005 / 05 / 24	2215	275.8	0767	-08	-41	235	9	4	3	1	6	3	0	0	DAC	–
				0766	+13	-38	238	6	1	4	1	2	4	0	0	CAI	–
4546	2005 / 06 / 01	2325	169.3	0773	-12	-76	093	4	3	0	1	4	0	0	0	DAC	long
				0772	-18	-36	133	12	3	3	1	9	3	0	0	DAC	–
				0769	-10	-30	139	1	1	0	0	0	0	1	0	HSX	–
				0771	+25	+58	227	1	0	1	0	0	0	0	1	AXX	–
				0767	-08	+72	241	2	1	1	1	1	1	0	0	CSO	–
4547	2005 / 06 / 05	2305	116.5	0776	-05	-71	045	3	2	0	1	3	0	0	0	DHO	long
				0775	+12	-61	055	3	1	1	1	2	1	0	0	CKO	–
				0773	-13	-23	093	6	2	3	1	3	3	0	0	DAI	long
				0772	-18	+18	134	11	4	5	1	6	5	0	0	DAC	–
				0774	+04	+21	137	6	3	2	1	4	2	0	0	DAC	–
4548	2005 / 06 / 06	2255	103.4	0776	-05	-62	041	9	2	3	1	6	3	0	0	DKI	–
				0775	+12	-49	054	4	2	1	1	3	1	0	0	DKI	–
				0773	-12	-10	093	6	2	3	1	3	3	0	0	DAI	–
				0772	-18	+29	132	11	3	4	1	7	4	0	0	DAC	–
				0774	+06	+30	133	3	1	2	1	1	2	0	0	CSI	–
4549	2005 / 06 / 08	2250	76.9	0776	-06	-35	042	17	3	5	1	12	5	0	0	EKC	short
				0775	+10	-23	054	9	2	0	1	9	0	0	0	DKO	–
				0773	-14	+16	093	5	2	3	1	2	3	0	0	DSI	long
				0772	-18	+56	133	7	2	3	1	4	3	0	0	DAI	–
4550	2005 / 06 / 09	2255	63.6	0777	+05	-72	352	1	0	1	0	0	0	0	1	AXX	–
				0776	-06	-22	042	24	7	5	1	19	5	0	0	EKC	–
				0775	+08	-10	054	15	3	4	1	11	4	0	0	DHC	–
				0773	-14	+29	093	2	1	1	1	1	1	0	0	CSO	long
				0772	-18	+69	133	3	2	0	1	3	0	0	0	DAO	–
4551	2005 / 06 / 19	2305	291.2	0780	-07	-39	252	5	2	1	1	4	1	0	0	DAI	–
				0779	-17	+44	335	13	2	5	1	8	5	0	0	EAI	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4552	2005 / 06 / 25	2255	211.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4553	2005 / 06 / 26	2310	198.5	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4554	2005 / 06 / 29	2300	158.9	0784	+16	-71	088	2	1	1	1	1	1	0	0	CSO	–
				0783	-01	-60	099	5	2	1	1	4	1	0	0	DAI	–
				0781	+15	-54	105	1	1	0	0	0	0	1	0	HSX	–
				0785	-18	-36	123	2	0	2	1	0	2	0	0	BXO	–
				0782	-17	-10	149	6	3	2	1	4	2	0	0	DAC	–
4555	2005 / 06 / 30	2240	145.8	0784	+16	-58	088	5	2	1	1	4	1	0	0	DAI	–
				0783	-02	-47	099	9	2	2	1	7	2	0	0	DAI	–
				0781	+14	-38	108	4	1	2	1	2	2	0	0	CAI	–
				0785	-18	-22	124	4	1	2	1	2	2	0	0	CAI	–
				0782	-17	+03	149	14	5	5	1	9	5	0	0	DAC	–
4556	2005 / 07 / 01	2325	132.2	0788	-06	-84	048	1	1	0	0	0	0	1	0	HSX	–
				0786N*	-10	-77	055	2	1	1	1	1	1	0	0	CSO	–
				0786S*	-13	-75	057	2	2	0	1	2	0	0	0	DSO	–
				0784	+18	-44	088	5	2	2	1	3	2	0	0	DAI	–
				0783	-03	-34	098	15	4	7	1	8	7	0	0	DAC	–
				0781	+13	-24	108	1	1	0	0	0	0	1	0	HSX	–
				0785	-19	-08	124	6	1	4	1	2	4	0	0	CAI	–
				0782	-18	+18	150	11	2	3	1	8	3	0	0	DAI	–
				0787	-11	+20	152	3	2	0	1	3	0	0	0	DAO	–
4557	2005 / 07 / 08	2220	40.1	?	+18	-31	009	1	0	1	0	0	0	0	1	AXX	–
				0789	+15	-25	015	7	2	4	1	3	4	0	0	DAI	–
				0788	-05	+09	049	2	1	0	1	2	0	0	0	HAX	–
				0786	+12	+15	055	16	5	5	1	11	5	0	0	DAC	–
				0783	-02	+61	101	10	5	3	1	7	3	0	0	EAC	–
4558	2005 / 07 / 13	2235	333.8	0790	-10	+33	007	3	2	1	1	2	1	0	0	DSI	small
				0789	+17	+36	010	2	2	0	1	2	0	0	0	DSO	–
				0788	-05	+74	048	1	1	0	0	0	0	1	0	HSX	–
				0786	+11	+82	056	3	2	0	1	3	0	0	0	EKO	near W limb
4559	2005 / 07 / 19	2220	254.6	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4560	2005 / 07 / 20	2225	241.3	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4561	2005 / 07 / 21	2250	227.8	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4562	2005 / 07 / 23	2240	201.4	0791	+13	-50	151	7	2	3	1	4	3	0	0	DAI	–
				?	+17	+12	213	2	0	2	1	0	2	0	0	BXO	small

* GDSO designation

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4563	2005 / 07 / 28	2220	135.5	0792	+12	-78	057	5	4	0	1	5	0	0	0	DAC	–
				0793	+14	-25	110	3	2	0	1	3	0	0	0	DAO	–
				0791	+14	+20	155	6	3	2	1	4	2	0	0	DAC	–
4564	2005 / 07 / 29	2215	122.3	0792	+11	-67	055	12	5	3	1	9	3	0	0	DAC	–
				0793	+14	-12	110	5	2	3	1	2	3	0	0	DSI	–
				0791	+14	+32	154	3	1	2	1	1	2	0	0	CSI	–
4565	2005 / 08 / 02	2210	69.5	0795	+15	-51	018	1	1	0	0	0	0	1	0	HSX	–
				0794	-11	-47	022	7	2	4	1	3	4	0	0	DKI	–
				0792	+12	-12	057	19	6	7	1	12	7	0	0	DKC	–
				0793	+13	+42	111	3	1	1	1	2	1	0	0	CAI	–
4566	2005 / 08 / 03	2215	56.2	0795	+15	-38	018	1	1	0	0	0	0	1	0	HSX	–
				0794	-11	-34	022	11	5	5	1	6	5	0	0	DKC	–
				0796	-07	-05	051	1	0	1	0	0	0	0	1	AXX	big
				0792	+11	+01	057	12	4	4	1	8	4	0	0	DAC	–
4567	2005 / 08 / 04	2240	42.7	0795	+13	-29	014	1	1	0	0	0	0	1	0	HSX	–
				0794	-11	-21	022	16	4	9	1	7	9	0	0	DSC	–
				0792	+11	+14	057	8	1	6	1	2	6	0	0	CAI	–
4568	2005 / 08 / 08	2200	350.2	0795	+12	+26	016	1	1	0	0	0	0	1	0	HSX	–
				0794	-13	+35	025	7	1	4	1	3	4	0	0	CAI	–
				0796	-08	+63	053	2	2	0	1	2	0	0	0	DSO	resighted
				0792	+11	+67	057	6	2	3	1	3	3	0	0	DAI	–
4569	2005 / 08 / 13	2305	283.5	0798	-05	-68	216	1	0	1	0	0	0	0	1	AXX	–
				0797	-13	-30	254	16	5	6	1	10	6	0	0	DAC	–
4570	2005 / 08 / 16	2305	243.8	0798	-08	-27	217	1	0	1	0	0	0	0	1	AXX	big
				0797	-14	+08	252	6	2	3	1	3	3	0	0	DAI	–
4571	2005 / 08 / 17	2155	231.3	0798	-09	-14	217	1	0	1	0	0	0	0	1	AXX	small
				0797	-14	+21	252	2	1	1	1	1	1	0	0	CSO	–
4572	2005 / 08 / 18	2205	218.0	0800	+16	-61	157	1	0	1	0	0	0	0	1	AXX	big
				0798	-10	+03	221	12	4	3	1	9	3	0	0	DAC	–
				0797	-14	+36	254	3	1	2	1	1	2	0	0	CSI	–
4573	2005 / 08 / 19	2150	204.9	0801	+06	-70	135	1	0	1	0	0	0	0	1	AXX	small
				0800	+16	-48	157	2	1	0	1	2	0	0	0	HAX	–
				0798	-10	+17	222	13	4	4	1	9	4	0	0	DAC	–
				0797	-13	+50	255	1	1	0	0	0	0	1	0	HSX	–
				0799	-10	+68	273	1	0	1	0	0	0	0	1	AXX	–
4574	2005 / 08 / 21	2210	178.3	0800	+17	-21	157	10	2	3	1	7	3	0	0	DAI	small
				0798	-11	+46	224	15	2	3	1	12	3	0	0	DAI	–
				0797	-14	+76	254	1	1	0	0	0	0	1	0	HSX	–
4575	2005 / 08 / 25	2145	125.6	0803	+12	-70	056	8	3	4	1	4	4	0	0	DAC	–
				0804	+11	-15	111	2	1	1	1	1	1	0	0	CSO	–
				0800	+17	+32	158	7	2	3	1	4	3	0	0	EAO	–

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4576	2005 / 08 / 28	2125	86.2	0805	-08	-62	024	2	1	0	1	2	0	0	0	HAX	–
				0803	+11	-29	057	7	2	3	1	4	3	0	0	DAI	–
				0801	+09	+42	128	1	1	0	0	0	0	1	0	HSX	small
				0800	+16	+67	153	1	0	1	0	0	0	0	1	AXX	–
4577	2005 / 08 / 29	2130	72.9	0806	-17	-52	021	5	2	2	1	3	2	0	0	DAI	–
				0805	-08	-49	024	2	1	0	1	2	0	0	0	HAX	–
				0803	+11	-16	057	7	2	4	1	3	4	0	0	DAI	small
				0801	+09	+55	128	1	0	1	0	0	0	0	1	AXX	–
4578	2005 / 08 / 30	2150	59.6	0806	-17	-39	021	4	2	2	1	2	2	0	0	DSI	–
				0805	-08	-36	024	3	1	1	1	2	1	0	0	CAO	–
				0803	+11	-03	057	5	0	5	1	0	5	0	0	BXI	–
4579	2005 / 09 / 01	2155	33.1	0805	-10	-10	023	2	1	1	1	1	1	0	0	CSO	–
4580	2005 / 09 / 02	2150	19.9	0805	-10	+02	022	2	1	1	1	1	1	0	0	CSO	–
4581	2005 / 09 / 14	2035	222.1	0808	-11	+08	230	46	9	13	1	33	13	0	0	EKC	–
4582	2005 / 09 / 19	2225	155.1	0810	+10	-52	103	8	3	4	1	4	4	0	0	EKC	small
				0808	-11	+77	232	1	1	0	0	0	0	1	0	HHX	–
4583	2005 / 09 / 20	2135	142.4	0810	+10	-38	104	6	3	2	1	4	2	0	0	EAC	–
4584	2005 / 09 / 23	2135	102.8	0812	-01	-75	028	1	0	1	0	0	0	0	1	AXX	–
				0810	+09	+04	107	6	1	4	1	2	4	0	0	CKI	–
4585	2005 / 09 / 26	2210	62.9	0812	-01	-33	030	1	1	0	0	0	0	1	0	HSX	–
				0810	+08	+48	111	2	1	0	1	2	0	0	0	HKX	–
4586	2005 / 09 / 29	2045	24.1	0812	-03	+06	030	1	1	0	0	0	0	1	0	HSX	small
4587	2005 / 10 / 06	2000	292.1	0813	-08	-07	285	11	2	7	1	4	7	0	0	DAI	–
4588	2005 / 10 / 09	2205	251.4	0814	-07	-16	235	2	0	2	1	0	2	0	0	BXO	–
4589	2005 / 10 / 11	2030	225.9	0814	-06	+09	235	1	0	1	0	0	0	0	1	AXX	elongated
4590	2005 / 10 / 16	2035	159.9	0815	+08	-49	111	1	1	0	0	0	0	1	0	HSX	–
4591	2005 / 10 / 17	2030	146.7	0815	+08	-35	112	1	1	0	0	0	0	1	0	HSX	–
4592	2005 / 10 / 23	2000	67.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4593	2005 / 10 / 24	2125	53.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4594	2005 / 10 / 25	2010	41.4	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4595	2005 / 10 / 26	2040	27.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4596	2005 / 10 / 30	1955	335.6	0818	-06	-51	285	3	2	1	1	2	1	0	0	DSI	small
4597	2005 / 10 / 31	1940	322.6	0818/9	-08	-33	290	5	3	2	1	3	2	0	0	ESC	small/short
4598	2005 / 11 / 08	2005	216.9	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4599	2005 / 11 / 09	2150	202.7	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4600	2005 / 11 / 10	2015	190.4	–	–	–	–	0	0	0	0	0	0	0	0	–	–
4601	2005 / 11 / 13	2015	150.8	0822	-06	-68	083	9	2	2	1	7	2	0	0	EKI	–
4602	2005 / 11 / 14	2015	137.7	0822	-06	-58	080	21	4	5	1	16	5	0	0	FKC	–
4603	2005 / 11 / 17	1955	98.3	0822	-07	-18	080	25	7	11	1	14	11	0	0	FKC	–
4604	2005 / 11 / 21	2145	44.6	0824	-12	-60	345	4	2	2	1	2	2	0	0	DSI	–
				0822	-08	+34	079	13	4	4	1	9	4	0	0	FKI	class correct

OBS	DATE	UT	CM	REG.No	B	CMD	L	f	p	s	gr	grfp	grf	efp	ef	Class.	Remarks
4605	2005 / 11 / 22	2005	32.3	0824	-12	-49	343	4	2	2	1	2	2	0	0	ESI	lopsided
				0822	-07	+48	080	8	4	2	1	6	2	0	0	FKO	–
4606	2005 / 11 / 24	1930	6.3	0825	-06	-27	339	5	2	2	1	3	2	0	0	DAI	–
				0824	-12	-20	346	4	2	2	1	2	2	0	0	DSI	–
				0822	-09	+82	088	3	1	2	1	1	2	0	0	CHI	long
4607	2005 / 11 / 26	1930	339.9	0824	-14	+03	343	4	1	3	1	1	3	0	0	CSI	–
4608	2005 / 11 / 29	1955	300.1	0824	-14	+46	346	1	1	0	0	0	0	1	0	HSX	–
4609	2005 / 11 / 30	2020	286.7	0827	+08	-58	229	2	1	1	1	1	1	0	0	CSO	–
				0826	-02	-38	249	11	4	3	1	8	3	0	0	DAC	long
				0824	-14	+59	346	1	1	0	0	0	0	1	0	HSX	–
4610	2005 / 12 / 11	2115	141.3	0835	+18	-56	085	7	3	3	1	4	3	0	0	EAC	short
				0834	-07	-52	089	1	1	0	0	0	0	1	0	HSX	–
				0830	+12	+40	181	1	1	0	0	0	0	1	0	HSX	–
4611	2005 / 12 / 12	2030	128.5	?	-09	-62	067	1	0	1	0	0	0	0	1	AXX	small
				0835	+20	-43	086	10	3	5	1	5	5	0	0	EAC	short
				0834	-06	-40	089	1	1	0	0	0	0	1	0	HSX	–
				0830	+10	+52	181	1	1	0	0	0	0	1	0	HSX	–
4612	2005 / 12 / 17	1940	63.1	0837	-10	-25	038	1	0	1	0	0	0	0	1	AXX	–
				0835	+19	+24	087	1	1	0	0	0	0	1	0	HSX	big
				0834	-07	+29	092	4	1	3	1	1	3	0	0	CSI	–
4613	2005 / 12 / 18	2110	49.1	0837	-10	-11	038	12	3	5	1	7	5	0	0	DAC	–
				0835	+20	+38	087	1	1	0	0	0	0	1	0	HSX	–
				0834	-06	+43	092	1	1	0	0	0	0	1	0	HSX	–
4614	2005 / 12 / 19	1955	36.6	0837	-10	+01	038	14	4	6	1	8	6	0	0	DAC	–
				0835	+20	+50	087	2	1	1	1	1	1	0	0	CSO	–
				0834	-06	+55	092	1	1	0	0	0	0	1	0	HSX	–
4615	2005 / 12 / 26	1915	304.8	0843	+13	-70	235	1	1	0	0	0	0	1	0	HSX	–
				0841	+12	-50	255	5	2	2	1	3	2	0	0	DAI	–
				0840	-03	-43	262	1	1	0	0	0	0	1	0	HSX	–
				0842	-06	-20	285	1	1	0	0	0	0	1	0	HSX	small
				0838	+16	+15	320	3	1	2	1	1	2	0	0	CSI	long
				0839	+18	+62	007	1	0	1	0	0	0	0	1	AXX	big
4616	2005 / 12 / 27	2000	291.2	0843	+12	-56	235	3	1	2	1	1	2	0	0	CSI	–
				0841	+12	-36	255	3	2	1	1	2	1	0	0	DSI	–
				0840	-03	-29	262	1	1	0	0	0	0	1	0	HSX	–
				0842	-06	-06	285	1	1	0	0	0	0	1	0	HSX	small
				0838	+16	+32	323	1	1	0	0	0	0	1	0	HSX	–
4617	2005 / 12 / 28	1920	278.4	0843	+12	-43	235	2	1	1	1	1	1	0	0	CSO	–
				0841	+12	-24	254	3	1	2	1	1	2	0	0	CSI	–
				0840	-03	-17	261	1	1	0	0	0	0	1	0	HRX	–
				0842	-06	+07	285	1	0	1	0	0	0	0	1	AXX	–
				0838	+16	+46	324	1	1	0	0	0	0	1	0	HSX	–
4618	2005 / 12 / 29	1915	265.2	0843	+12	-30	235	2	1	1	1	1	1	0	0	CSO	–
				0841	+12	-11	254	3	1	2	1	1	2	0	0	CSI	–
				0840	-03	-04	261	1	1	0	0	0	0	1	0	HRX	–
				0844	-15	+56	321	5	2	1	1	4	1	0	0	DAI	–
				0838	+16	+59	324	1	1	0	0	0	0	1	0	HSX	–

Section C

DAILY SUNSPOT AREA TOTALS - **2005**.

EARTH-ORIENTATED VALUES (EOVs):

Earth-orientated values are obtained by the following formula:

$$\sum_{i=1}^{g} (I \, x \cos L)$$

where I is the observed value of the index involved and L is the CMD (heliographic longitudinal) value, in degrees, as stated by the NOAA. These longitudinal values are not stated in this report.

The Earth-orientated values are calculated to give a truer sense of sunspot area in relation to the Earth. They **never** exceed the observed values. If a region has the area of 4000 microhemispheres and is situated at 45° from the central meridian, then its Earth-orientated value is 2828 (4000 × cos45° [ie. 4000 × 0.7071067]). Earth-orientated values, in this section (pages C2-3), are rounded to whole numbers. Values for 2005 should be considered as ±0.5%.

The stated Earth-orientated values are **NOT** millionths of the visible solar hemisphere, **nor** millionths of the visible solar disc. They should be used in comparison with true values that are stated alongside them, on pages C2-3.

DAILY SUNSPOT AREA TOTALS - **2005**.

All data obtained from United States observatories through the US NOAA.
Data in this section might have accumulated errors of up to 50 units or micro-hemispheres.
All dates are UT dates.
Unit used is 1 000 000th of the visible solar hemisphere, or micro-hemisphere.

DAILY SUNSPOT AREA **EARTH-ORIENTATED** VALUES - the second and *italicised* of the two columns.

Based on data obtained from United States observatories through the US NOAA.
Values **based** on the micro-hemisphere. The values are **NOT** millionths of the visible solar hemisphere, **nor** millionths of the visible solar disc. See page C1 for details.

DATE	JAN		FEB		MAR		APR		MAY		JUN		DATE
01	230	*192*	170	*107*	10	*10*	60	*51*	910	*889*	500	*234*	**01**
02	250	*152*	150	*75*	20	*19*	100	*94*	970	*822*	270	*163*	**02**
03	160	*160*	50	*19*	20	*18*	120	*86*	1040	*756*	260	*197*	**03**
04	40	*39*	80	*30*	110	*28*	170	*139*	1040	*666*	520	*341*	**04**
05	30	*26*	40	*20*	110	*52*	290	*133*	830	*461*	630	*343*	**05**
06	30	*22*	140	*78*	80	*52*	180	*98*	870	*410*	760	*491*	**06**
07	80	*20*	360	*131*	140	*77*	240	*126*	400	*167*	1030	*747*	**07**
08	170	*42*	360	*180*	160	*86*	250	*149*	510	*252*	1130	*898*	**08**
09	190	*85*	490	*298*	560	*215*	190	*126*	910	*562*	1130	*998*	**09**
10	180	*110*	530	*351*	470	*321*	140	*88*	870	*638*	1070	*977*	**10**
11	120	*85*	900	*587*	490	*388*	90	*90*	1330	*919*	920	*886*	**11**
12	600	*483*	790	*623*	530	*458*	160	*91*	1140	*784*	840	*762*	**12**
13	1240	*1111*	720	*630*	650	*593*	220	*138*	1280	*725*	700	*559*	**13**
14	1790	*1744*	760	*712*	640	*576*	290	*194*	720	*544*	560	*381*	**14**
15	1980	*1964*	690	*661*	720	*589*	230	*180*	490	*451*	730	*419*	**15**
16	1960	*1888*	720	*685*	670	*560*	160	*138*	520	*461*	650	*351*	**16**
17	1770	*1499*	620	*555*	540	*390*	200	*151*	360	*295*	530	*314*	**17**
18	1650	*1192*	590	*475*	600	*311*	180	*151*	400	*266*	530	*448*	**18**
19	1400	*824*	520	*347*	640	*249*	140	*123*	310	*111*	500	*382*	**19**
20	1580	*642*	580	*293*	370	*191*	130	*108*	170	*29*	400	*257*	**20**
21	1290	*382*	560	*234*	330	*149*	70	*48*	130	*23*	340	*188*	**21**
22	1230	*287*	510	*108*	360	*139*	80	*41*	200	*75*	250	*110*	**22**
23	230	*155*	200	*48*	220	*185*	80	*24*	150	*81*	30	*30*	**23**
24	500	*338*	40	*31*	170	*154*	0	*0*	170	*122*	20	*18*	**24**
25	330	*175*	30	*17*	290	*274*	340	*106*	180	*155*	10	*8*	**25**
26	160	*140*	70	*32*	140	*133*	550	*275*	190	*178*	0	*0*	**26**
27	140	*118*	20	*17*	120	*107*	770	*525*	270	*260*	60	*9*	**27**
28	150	*106*	0	*0*	60	*50*	1060	*884*	390	*334*	90	*31*	**28**
29	160	*81*	– –	– –	30	*19*	930	*865*	230	*204*	180	*83*	**29**
30	120	*97*	– –	– –	10	*5*	1060	*1052*	360	*293*	400	*285*	**30**
31	180	*137*	– –	– –	30	*18*	– –	– –	270	*167*	– –	– –	**31**
MEAN	643.23	–	381.79	–	299.68	–	282.67	–	568.06	–	501.33	–	**MEAN**

DAILY SUNSPOT AREA TOTALS - **2005** continued.

All data obtained from United States observatories through the US NOAA.
Data in this section might have accumulated errors of up to 50 units or micro-hemispheres.
All dates are UT dates.
Unit used is 1 000 000th of the visible solar hemisphere, or micro-hemisphere.

DAILY SUNSPOT AREA **EARTH-ORIENTATED** VALUES - the second and *italicised* of the two columns.

Based on data obtained from United States observatories through the US NOAA.
Values **based** on the micro-hemisphere. The values are **NOT** millionths of the visible solar hemisphere, **nor** millionths of the visible solar disc. See page C1 for details.

DATE	JUL		AUG		SEP		OCT		NOV		DEC		DATE
01	630	*450*	780	*532*	80	*78*	0	*0*	80	*74*	390	*286*	**01**
02	1400	*1002*	660	*490*	80	*68*	0	*0*	70	*69*	720	*595*	**02**
03	1460	*1204*	570	*491*	60	*59*	0	*0*	40	*40*	550	*498*	**03**
04	1150	*931*	500	*464*	60	*54*	60	*49*	20	*19*	580	*520*	**04**
05	1310	*1054*	480	*463*	40	*31*	150	*138*	50	*46*	420	*361*	**05**
06	1130	*887*	420	*394*	40	*24*	130	*128*	70	*57*	280	*219*	**06**
07	1150	*965*	400	*336*	10	*0*	120	*120*	180	*86*	140	*93*	**07**
08	1090	*879*	370	*245*	550	*175*	80	*77*	120	*49*	220	*127*	**08**
09	810	*612*	360	*180*	1450	*749*	30	*26*	30	*7*	280	*119*	**09**
10	550	*469*	190	*87*	1420	*934*	20	*15*	0	*0*	350	*160*	**10**
11	490	*334*	220	*85*	1270	*1042*	50	*36*	0	*0*	340	*174*	**11**
12	370	*196*	210	*62*	840	*779*	40	*38*	120	*8*	270	*191*	**12**
13	440	*109*	110	*68*	860	*850*	10	*9*	120	*39*	340	*282*	**13**
14	400	*50*	190	*173*	1000	*996*	50	*9*	610	*305*	340	*290*	**14**
15	130	*63*	170	*163*	880	*842*	70	*30*	810	*563*	360	*302*	**15**
16	190	*49*	140	*138*	620	*526*	50	*31*	740	*621*	340	*231*	**16**
17	60	*2*	110	*105*	470	*303*	40	*32*	720	*677*	240	*218*	**17**
18	0	*0*	130	*110*	510	*227*	30	*27*	690	*685*	270	*224*	**18**
19	0	*0*	320	*258*	460	*173*	50	*48*	650	*639*	390	*322*	**19**
20	0	*0*	680	*541*	250	*186*	20	*20*	700	*590*	370	*275*	**20**
21	0	*0*	680	*468*	210	*189*	20	*19*	590	*461*	260	*152*	**21**
22	0	*0*	860	*498*	230	*225*	20	*18*	600	*409*	280	*152*	**22**
23	90	*52*	860	*412*	280	*256*	10	*9*	410	*241*	290	*230*	**23**
24	110	*83*	700	*272*	220	*196*	0	*0*	320	*124*	340	*188*	**24**
25	130	*116*	450	*282*	170	*143*	0	*0*	210	*88*	300	*178*	**25**
26	160	*155*	290	*194*	160	*117*	0	*0*	80	*80*	440	*286*	**26**
27	130	*130*	280	*166*	210	*122*	0	*0*	70	*68*	350	*248*	**27**
28	340	*143*	270	*169*	200	*84*	0	*0*	100	*72*	230	*196*	**28**
29	540	*239*	270	*168*	170	*36*	10	*3*	90	*62*	340	*268*	**29**
30	580	*361*	150	*123*	20	*19*	40	*25*	240	*158*	260	*199*	**30**
31	660	*428*	120	*109*	– –	– –	60	*49*	– –	– –	250	*204*	**31**
MEAN	500.00	–	385.16	–	427.33	–	37.42	–	284.33	–	339.68	–	**MEAN**

Quarterly Means: First: 443.56 Second: 451.98 Third: 437.61 Fourth: 219.78

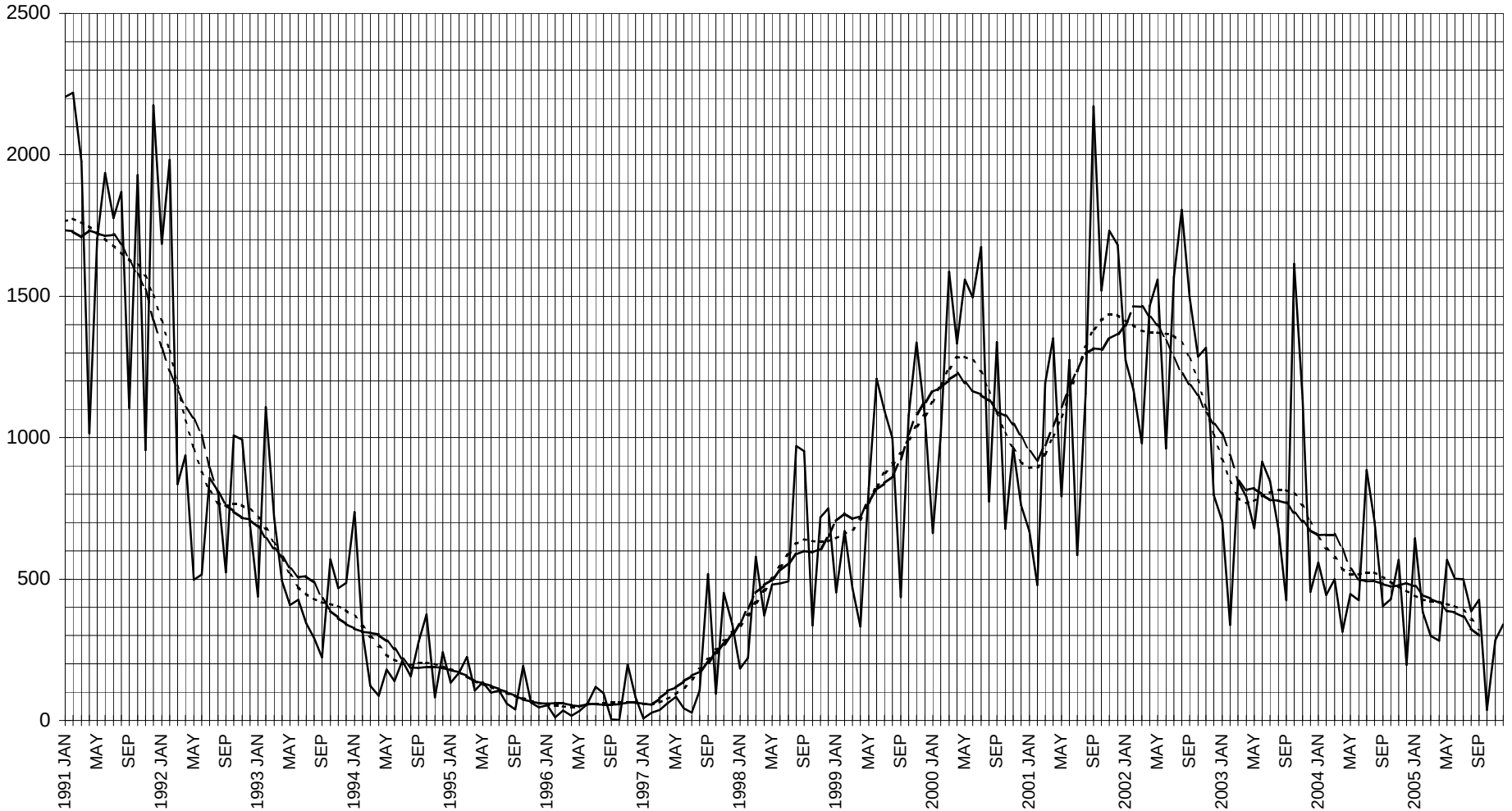
Annual Mean : 387.75

SMOOTHED **NOAA AREA** MONTHLY VALUES – **1997 - 2005**.

Data based upon NOAA monthly mean values.
Unit used in observed values is 1 000 000th of the visible solar hemisphere.
Smoothing methods used are the Waldmeier and the Barnes-13 methods.

MONTH	Observed	S^{W}	S^{B13}	MONTH	Observed	S^{W}	S^{B13}	MONTH	Observed	S^{W}	S^{B13}
1997 Jan	7.74	59.50	57.91	2000 Jan	662.26	1162.54	1126.96	2003 Jan	705.48	1015.14	922.74
Feb	27.14	56.16	54.89	Feb	1007.59	1177.26	1185.82	Feb	338.21	938.04	845.34
Mar	36.45	78.04	62.75	Mar	1586.77	1205.41	1245.75	Mar	845.81	846.50	789.57
Apr	62.00	103.36	76.77	Apr	1332.33	1226.28	1283.28	Apr	791.33	815.67	767.65
May	83.23	117.77	92.63	May	1558.71	1194.09	1286.53	May	679.03	821.99	775.64
Jun	43.33	139.15	116.86	Jun	1495.33	1165.66	1271.48	Jun	914.33	800.27	791.92
Jul	27.74	157.32	147.02	Jul	1674.84	1152.96	1233.53	Jul	846.13	779.29	805.79
Aug	106.45	172.73	179.85	Aug	773.23	1131.13	1165.92	Aug	677.74	776.95	813.71
Sep	518.67	203.39	215.37	Sep	1337.33	1092.69	1083.56	Sep	425.67	766.90	813.99
Oct	93.87	238.90	249.17	Oct	677.74	1077.12	1014.63	Oct	1615.16	732.60	799.30
Nov	451.67	268.38	280.06	Nov	965.00	1046.01	958.39	Nov	1138.67	703.09	760.26
Dec	341.29	303.34	309.26	Dec	761.61	1004.92	917.46	Dec	454.19	673.05	700.27
1998 Jan	184.19	341.10	336.57	2001 Jan	667.74	950.36	893.18	2004 Jan	544.84	654.26	644.94
Feb	220.71	396.49	372.39	Feb	478.21	920.93	896.37	Feb	442.76	656.98	606.49
Mar	578.71	450.55	416.91	Mar	1193.55	971.66	940.40	Mar	500.00	657.18	575.03
Apr	372.00	478.68	459.89	Apr	1352.00	1041.55	1003.34	Apr	314.00	606.87	539.14
May	480.65	499.91	500.59	May	792.26	1108.62	1071.95	May	448.06	533.69	515.62
Jun	485.00	528.09	544.21	Jun	1275.67	1178.90	1149.74	Jun	424.33	499.18	516.56
Jul	492.26	556.34	588.40	Jul	585.16	1242.43	1234.53	Jul	885.32	492.53	523.58
Aug	971.29	586.24	624.53	Aug	1156.45	1296.42	1320.93	Aug	703.87	494.09	522.53
Sep	951.33	600.34	639.49	Sep	2171.70	1316.30	1384.57	Sep	404.33	483.20	509.20
Oct	336.13	594.05	635.11	Oct	1520.65	1312.17	1414.97	Oct	428.87	473.55	491.69
Nov	719.00	606.50	630.58	Nov	1731.83	1348.88	1436.18	Nov	568.67	477.25	474.12
Dec	750.32	650.75	633.72	Dec	1681.61	1367.75	1434.30	Dec	196.13	485.45	457.84
1999 Jan	453.23	705.99	644.45	2002 Jan	1272.42	1395.68	1415.14	2005 Jan	643.23	472.61	441.73
Feb	669.29	732.29	659.33	Feb	1169.29	1463.70	1399.32	Feb	381.79	443.27	427.00
Mar	468.39	711.97	675.03	Mar	979.68	1462.55	1379.55	Mar	299.68	430.95	421.64
Apr	331.33	721.41	710.06	Apr	1466.67	1424.56	1370.94	Apr	282.67	415.60	419.12
May	820.32	778.09	769.25	May	1558.71	1397.47	1372.26	May	568.06	387.44	412.11
Jun	1207.33	817.24	829.21	Jun	962.00	1343.33	1368.34	Jun	501.33	381.58	404.77
Jul	1095.48	839.35	875.31	Jul	1569.03	1282.85	1362.21	Jul	500.00	365.24	387.18
Aug	999.35	862.16	905.61	Aug	1805.16	1224.60	1336.49	Aug	385.16	327.34	357.18
Sep	435.67	922.85	942.60	Sep	1495.33	1184.40	1281.26	Sep	427.33	301.59	322.36
Oct	1078.39	1011.16	994.58	Oct	1285.32	1150.68	1202.94	Oct	37.42	–	–
Nov	1337.00	1083.64	1042.09	Nov	1317.00	1085.89	1105.46	Nov	284.33	–	–
Dec	1071.94	1126.40	1079.44	Dec	797.10	1047.25	1010.23	Dec	339.68	–	–

OBSERVED and SMOOTHED NOAA SUNSPOT AREA VALUES (in MICRO-HEMISPHERES) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE PAGE C4 IN THIS REPORT AND C2 IN PREVIOUS REPORTS



Section D

MAJOR SOLAR FLARE TIMINGS.

In this section, data on flares are given in the format of beginning, maximum and ending times, along with the flares' x-ray strengths (in microWatts per square mètre). This report deals with 2005's flares.

Flares with a strength of less than 1 microWatt per square mètre are not stated.

Analysis of these flare data appears on pages D7 and D8 of this report.

MAJOR SOLAR FLARES for **2005**.

ALL TIMES IN UNIVERSAL TIME (UT).

Data were collected through the US NOAA from a 24-hour satellite watch over the year concerned.

Strength of the flares are stated in microWatts per square mètre ($\mu W/m^2$).

If any flares are not > 1 $\mu W/m^2$ in strength, then they are not listed. If the strength of a flare is not known (by the GDSO), or if the strength is questionable, it is also not listed.

If no major flares (> 1 $\mu W/m^2$) are observed on any particular day, then the date is left out of the list.

* A in time columns means the flare continued **after** the end of the observation.
* B in time columns means the flare started **before** the observation began.
* OA after maximum time column means the maximum was that time **or after**. This occurs only when the ending time is suffixed with an A and that that time is the same as the maximum time.
* OB after the maximum time column means the maximum was that time **or before**. This occurs only when the beginning time is suffixed with a B and that that time is the same as the maximum time.
* U in time columns means 'uncertain'.

If times go beyond 24 hours UT, then 0015 is stated as 2415, etc.

	UNIVERSAL TIME					UNIVERSAL TIME					UNIVERSAL TIME				
DATE	**BEG.**	**MAX.**	**END.**	**STR**	**DATE**	**BEG.**	**MAX.**	**END.**	**STR**	**DATE**	**BEG.**	**MAX.**	**END.**	**STR**
2005/01/01	0001	0031	0039	170	2005/01/14	0736	0738	0747	6.8	2005/01/15	0039	0041	0130	120
	1408	1424	1432	1.2	cont.	0821	0837	0844	1.4		0238	0240	0242	2.9
01/03	0408	0419	0457	3.8		0854	0858	0901	1.8		0334	0339	0409	4.2
	0931	0939	0941	1.1		0912	0917	0923	1.9		0410	0434	0459	13
	1058	1109	1118	1.1		0951	0955	0958	1.0		0429B	0431	0452	84
01/04	0150	0156	0204	1.0		1017B	1017	1042 A	8.9		0556	0559	0750	86
	0606	0614	0646	3.3		1134	1144	1153	2.3		1149B	1149U	1159A	12
	1104B	1114	1129	7.3		1202	1205	1208	2.1		1227	1231	1234	7.4
01/08	1936	1957	2015	1.0		1233	1241	1250	4.6		1352	1357	1359	5.5
01/09	0828	0845	1017	24		1338	1342	1346	2.4		1436B	1510	1552	32
	1452	1453	1458	2.6		1400	1424	1447	18		1652	1705	1723	8.0
01/10	2145	2215	2227	1.0		1524	1551	1556	8.0		1703	1707	1709	7.2
01/11	1604	1616	1619	1.4		1602	1606	1614	10		1751	1802	1828	4.2
	2325	2329	2331	1.1		1655	1658	1703	2.5		1757	1802	1805	2.9
01/13	0058	0058	0108	1.0		1735	1742	1750	2.8		1812	1815	1818	4.4
	0808	0819	0829	1.0		1753	1757	1803	15		1846	1852	1918	8.8
	1119	1126	1129	1.6		1821	1829	1833	6.8		1947	1948	2053	3.5
	1403	1410	1413	2.3		1836	1841	1845	7.7		2013B	2021	2027	5.4
	1636	1638	1650	3.3		1907	1911	1917	3.3		2154	2249	2514	260
	1708	1714	1721	4.2		1932	1936	1943	1.4		2201	2208	2216	10
	1903	1903	1907	2.5		2026	2030	2035	1.2	01/16	0754	0758	0802	4.4
	2021	2026	2031	1.2		2058B	2127	2127A	19		1005	1009	1013	4.0
	2245	2253	2313	6.8		2208B	2210	2217	9.6		1147	1151	1157	2.8
01/14	0010	0013	0016	1.0		2225B	2226	2230	3.0		1441B	1442	1458	2.9
	0246	0247	0249	1.4		2256	2256	2307	6.0		1512	1514	1613	5.9
	0358	0405	0425	9.3		2330	2330	2343	5.6		1758	1807	1816	2.0
	0545	0549	0552	1.0							1828	1830	1838	3.7
	CONTINUED.										2200	2201	2303	24

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/01/17	0244	0259	0307	3.9
	0310	0321	0332	26
	0606	0610	0615	3.9
	0659	0952	1007	380
01/18	0039	0041	0059	6.0
	0209	0210	0221	3.2
	0541	0546	0549	2.0
	0552	0615	0624	6.1
	0748B	0752	0752 A	2.4
	1123	1132	1159	16
	1540	1549	1636	46
	1830	1900	1938	4.2
	1843	1848	1852	2.1
01/19	0310	0324	0337	1.8
	0444	0448	0452	1.9
	0514	0527	0541	7.2
	0726	0813	0956	67
	0803	0822	0840	130
	1015	1023	1042A	27
	1539	1539	1539	16
	2322	2325	2332	5.3
01/20	0037	0047	0056	1.6
	0325	0333	0347	4.8
	0641	0646	0854	710
	1612	1646	1707	8.0
	1813	1816	1819	3.6
	2147	2153	2156	4.5
01/21	0022	0023	0028	5.8
	0423	0425	0432	6.3
	0630	0636	0638	1.6
	0641	0646	0649	1.8
	0821	0835	0840	1.3
	0905	0912	0918	1.7
	1010	1016	1019	17
	1207	1212	1216	1.3
	1347	1355	1410	12
	1705	1711	1714	1.6
	2043	2049	2055	1.6
01/22	0414	0432	0447	3.1
	1235	1245	1247	1.3
	2050	2053	2055	1.6
	2056	2100	2105	1.4
	2108	2113	2118	1.9
01/23	0128	0151	0201	10
	0443	0505	0523	4.5
01/31	1046	1052	1058	1.3
2005/02/04	1502	1509	1516	1.3
	2229	2236	2239	1.2
	2303	2309	2336	1.3
	2345	2357	2408	7.1
02/05	1805	1813	1821	1.2
02/06	0925	0939	0951	1.2
02/07	0945	0951	0956	1.8
	1659	1704	1715	1.1
	1720	1730	1736	1.8
	2236	2244	2253	3.7
2005/02/08	1519	1527	1533	1.9
	2134	2144	2153	1.2
02/10	0007	0010	0015	1.7
02/11	0954	1000	1005	1.0
02/13	1028	1040	1051	2.7
	1454	1454	1503	1.4
02/14	0402B	0408	0423	1.9
	1152	1158	1206	1.5
02/15	1928	1948	2005	1.1
02/16	1633	1637	1640	1.9
	2333	2336	2418	4.9
02/17	2339	2344	2348	2.3
02/18	0100	0105	0110	1.0
	0117	0121	0124	1.4
	0436	0437	0446	1.2
	1252	1322	1328	2.0
	1505	1545	1558	1.4
02/19	0603	0609	0615	1.2
	1036	1101	1113	33
02/23	0621	0628	0633	1.3
	0931	0934	0936	2.6
NO MAJOR FLARES OBSERVED FROM 2005/02/24 TO 2005/03/04 INCLUSIVE.				
2005/03/05	1957	2007	2010	1.1
03/09	0133	0136	0138	1.0
	0234	0237	0300	1.8
03/10	1136	1142	1144	7.3
03/11	0030	0051	0103	1.2
03/12	0836	0906	0917	1.7
03/14	0651	0708	0725	1.0
03/15	0645	0647	0651	2.0
03/18	0235B	0235	0241	1.3
03/19	0700	0707	0713	2.3
	2012	2023	2032	2.2
03/20	0132	0159	0208	4.1
	0613	0614	0619	1.2
	1142	1152	1154	2.1
03/21	1540	1547	1552	2.7
03/24	2340	2344	2355	1.0
NO MAJOR FLARES OBSERVED FROM 2005/03/25 TO 2005/04/05 INCLUSIVE.				
2005/04/05	2004	2004	2009	1.1
04/06	0548	0605	0621	1.0
	0631	0636	0641	1.6
04/11	0248	0253	0255	1.0
04/12	1718	1719	1724	2.0
04/17	0134	0144	0152	3.3
	1212	1224	1233	1.2
	1242	1249	1255	2.1
	2059	2108	2119	4.6
04/26	0223B	0229	0240	1.2
	0429B	0456	0608	5.3
	0528	0533	0544	1.8
	2004	2008	2016	1.8
2005/04/28	0223	0236	0250	3.0
04/29	2037	2037	2053	1.7
04/30	1823	1827	1836	1.0
2005/05/01	1625	1638	1704	1.9
	2305	2407	2432	2.2
05/02	2113	2248	2507	8.0
05/03	1028	1036	1045	2.7
05/04	1400	1415	1428	1.1
05/05	0236	0310	0316	1.3
	1047	1103	1116	1.7
	1435	1440	1455	2.4
	2020	2020	2027	7.8
05/06	0309	0311	0316	9.3
	0526	0553	0603	2.2
	0912	0931	0953	1.0
	1111	1128	1135	13
	1606	1656	1830	8.5
	2337	2342	2346	1.0
05/07	0757	0813	0819	14
	0846	0851	0857	1.2
	1148	1156	1203	1.2
05/08	0923	0928	0935	1.2
05/09	0333B	0333	0339	2.8
	0957	1008	1032	1.4
	1037	1103	1111	8.9
	1139	1146	1151	5.6
	1224	1231	1237	2.5
	2059	2109	2127	3.7
	2302	2305	2307	2.7
	2335	2336	2338	2.7
05/10	0136	0219	0224	1.7
	0353	0400	0405	2.0
	0517	0520	0532	13
	0859	0905	0911	2.2
	1221	1226	1231	1.5
	1411	1421	1424	1.3
	1609	1615	1631	1.1
	1941	1956	2022	5.8
05/11	0408	0416	0426	1.4
	0451	0454	0456	1.0
	0611	0641	0656	12
	0903	0908	0913	1.7
	1030	1033	1035	1.0
	1133	1137	1139	1.0
	1200	1209	1212	1.0
	1254	1308	1316	1.8
	1659	1700	1715	6.9
	1921	1939	2016	11
	2332	2334	2343	5.9
05/12	0014	0017	0023	2.7
	0026	0029	0035	4.2
	0107	0113	0120	9.4
	0143	0147	0149	1.9
	0257	0309	0324	2.0
	0511	0512	0514	1.0
	0704	0704	0714	1.4
	0730	0733	0907	16

CONTINUED.

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/05/12	1113	1118	1121	1.4
cont.	1316	1319	1322	1.2
	1342	1345	1413	3.0
	1701	1703	1717	1.6
	1736	1740	1819	14
	1953	1953	1956	2.4
	2138	2148	2156	2.0
	2247	2248	2311	2.1
05/13	0317	0324	0333	1.6
	1255	1304	1331	1.5
	1631	1641	1946	80
05/14	1321	1326	1330	1.1
	1459	1506	1513	4.0
	1551	1557	1603	3.5
	2018	2058	2236	2.8
05/15	0007	0011	0015	2.5
	0237	0240	0251	1.4
	0604	0615	0627	1.2
	0702	0708	0713	1.0
	1737	1744	1802	1.2
	1842	1855	1911	1.8
	2041	2045	2056	2.9
	2124	2149	2203	1.6
	2231B	2231	2253	35
	2346	2403	2429	2.1
05/16	0234	0240	0321	14
	0334	0336	0402	2.9
	0905	0908	0919	16
	0957	1000	1004	1.3
	1256	1256	1323	1.2
	1554	1606	1628	1.8
	1642	1645	1706	2.0
	1939	1943	2009	5.5
	2037	2042	2046	1.1
05/17	0235	0236	0324	18
	0401	0403	0425	8.4
	0549	0553	0558	2.8
	2332	2351	2411	1.1
05/18	0822	0828	0832	1.6
	1434	1449	1457	2.0
NO MAJOR FLARES OBSERVED FROM 2005/05/19 TO 2005/05/25 INCLUSIVE.				
05/26	2103	2137	2223	8.6
05/27	0501B	0505	0517	2.5
	0633	0635	0644	6.9
	1226	1230	1240	11
	1935	1940	1944	1.1
05/28	0222	0230	0250	5.4
	0456	0459	0501	1.1
	1718	1726	1733	1.0
	2211	2217	2227	1.7
05/31	1439	1443	1503	2.4
2005/06/01	0239B	0245	0307	17
	0436B	0441	0445	1.2
	0657	0704	0709	2.0
	1041	1051	1057	2.3
	1143	1149	1155	1.0
	1245	1245	1248	1.0

CONTINUED.

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/06/01	1753	1754	1802	3.1
cont.	1803	1816	1827	5.9
	2213	2216	2224	7.2
06/02	2257	2305	2314	1.3
06/03	0210	0227	0255	3.1
	0407	0410	0445	13
	1151	1226	1245	10
	2351	2353	2434	6.2
06/04	0037	0040	0050	2.0
	0053	0101	0115	4.9
	0148B	0149	0155	2.0
	0637	0643	0647	2.2
	0840	0848	0854	1.1
	1129	1140	1154	1.3
	1654	1655	1704	1.3
	2217	2225	2249	2.8
06/05	0327	0330	0341	1.2
	1304	1350	1408	3.5
06/06	0332	0335	0424	1.1
	0420	0428	0432	1.1
	1201	1207	1211	1.0
	1849	1851	1909	1.2
06/07	1338	1339	1354	3.0
	1908	1914	1918	2.5
06/08	0128	0129	0154	1.2
	0306	0317	0323	1.1
	0616	0624	0656	2.4
	0636	0640	0645	1.7
06/09	1328	1334	1423	1.5
	1628	1631	1634	1.0
06/10	0304	0310	0319	2.0
06/12	0206	0213	0234	3.5
	1603	1605	1614	3.0
06/14	0703	0718	0813	4.2
	1542	1555	1624	7.4
06/15	1840	1842	1849	2.2
06/16	0158	0200	0211	1.6
	0721	0905	0939	1.7
	2009	2010U	2016	40
06/17	1845	1904	1911	1.4
	2210	2236	2243	2.7
06/18	0018	0021	0024	1.6
	0825	0829	0835	1.3
	1139	1149	1157	1.0
	2010	2034	2043	1.0
	2309	2311	2319	1.8
06/19	1924	1926	1936	2.1
06/21	1802	1803	1821	2.1
	1629	1630	1646	1.8
06/25	0340	0345	0359	1.3
06/26	2017	2035	2055	1.2
06/27	0843	0848	0851	2.8
2005/07/01	0457	0502	0507	5.3
	1248	1256	1305	1.2
07/02	0311	0314	0333	3.5
	0626	0639	0704	2.7
	0919	0929	0937	2.0
	1240	1241	1244	2.8
	1609	1614	1616	1.2
	1901	1902	1905	1.3

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/07/03	0450	0457	0519	4.7
	0953	0955	0958	1.6
	1207	1227	1241	1.0
	2106	2109	2124	1.2
07/04	2028	2037	2044	1.0
	2219	2221	2229	1.1
07/05	0129B	0130	0134	1.8
	0954	0959	1005	1.2
	1500	1505	1545	1.3
07/06	0846	0848	0855	2.5
	0906	0928	0934	1.0
	1305	1306	1311	1.4
	1317	1318	1324	1.0
	1605	1607	1610	1.4
	1746	1749	1755	5.9
	1841	1846	1857	1.4
	2018	2022	2024	1.0
	2123	2123	2132	1.0
07/07	0800	0801	0811	1.6
	0840	0840	0851	1.2
	1218	1229	1255	2.6
	1327	1329	1343	3.8
	1516	1516	1525	2.7
	1610	1627	1722	49
07/08	0518	0518	0529	1.9
	1540	1618	1719	1.6
07/09	0924	1027	1045	2.1
	2036	2040	2051	1.5
	2156	2204	2238	28
07/10	0509	0520	0536	1.6
	1515	1516	1519	9.9
	2139	2142	2144	1.4
07/11	0605	0616	0646	2.4
	1505	1508	1542	8.4
	1716	1732	1741	3.3
	2250	2255	2300	1.4
07/12	0147	0210	0222	4.2
	0522	0525	0527	2.4
	0612	0631	0636	1.5
	0652	0700	0710	3.0
	0757	0803	0822	8.3
	0957	1003	1009	2.3
	1116	1127	1138	3.1
	1209	1213	1218	1.5
	1247	1306	1325	10
	1533	1537	1540	2.3
	1550B	1550U	1726A	15
	2129	2131U	2149	4.2
	2240	2252	2304	13
	2336	2339	2344	4.0
07/13	0127	0138	0146	4.2
	0319	0319	0323	11
	0638	0638	0654	4.7
	0736	0739	0745	2.1
	0814	0822	0829	2.7
	0915	0915	0920	3.9
	1005	1014	1019	1.6
	1203	1219	1224	32
	1401	1449	1538	50
	1905	1908	1918	12
	2149	2154	2158	12

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/07/14	0148	0153	0157	3.8
	0320	0323	0329	10
	0523	0528	0531	2.2
	0557	0725	0743	91
	1016	1055	1129	120
	1629	1634	1639	7.3
	1716	1725	1728	13
	2250	2257	2302	11
07/15	0155	0200	0203	1.6
	0246	0304	0327	1.6
	0943	1445	1715	2.3
	1139	1146	1150	4.0
	1946	1948	1953	1.8
	2010	2325	2405	7.3
07/16	0248	0252	0255	1.3
	0327	0338	0345	10
	0629	0630	0635	1.8
	0707	0714	0724	2.2
	1116	1119	1124	4.8
07/17	0614	0629	0632	4.3
NO MAJOR FLARES OBSERVED FROM 2005/07/18 TO 2005/07/26 INCLUSIVE.				
07/27	0433	0502	0530	37
	1030	1102	1234	1.7
	2239	2300	2315	4.5
07/28	0001	0030	0054	10
	0613	0637	0652	2.8
	2151	2200	2221	48
07/29	1723	1732	1739	3.4
07/30	0507	0517	0605	9.4
	0608	0625	0940	130
	1649	1700	1724	8.9
07/31	0647	0704	0710	1.4
	0920	0922	0938	7.0
	1215	1224	1233	11
2005/08/01	0517	0518	0525	1.4
	1214	1221	1227	5.8
	1337	1340	1439	10
08/02	0733	0746	0756	2.9
	1238	1245	1301	8.7
	1825	1831	1903	42
	2015	2015	2027	6.7
08/03	0241	0245	0250	1.7
	0458	0503	0533A	34
	1354	1407	1437	9.3
	2054	2108	2130	2.1
08/04	0307	0314	0320	1.1
	0544	0558	0626	8.4
08/05	0710	0714	0803	2.6
	2022	2044	2053	1.1
08/07	1143	1249	1410	1.4
NO MAJOR FLARES OBSERVED FROM 2005/08/08 TO 2005/08/20 INCLUSIVE.				
08/21	1006	1019	1024	2.8
08/22	0109B	0132	0213	26
	1652	1711	1845	56

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/08/23	1435	1504	1602A	27
	2027	2031	2036	1.9
	2158	2205	2211	3.4
	2310	2315	2319	1.2
08/24	0155	0201	0207	2.2
	0407	0411	0418	1.2
	0613	0706	0728	4.7
08/25	0437	0437	0502	64
08/26	0241	0312	0338	1.3
	1139	1155	1210	2.1
	2153B	2155	2211	2.3
08/27	2052	2054	2058	1.4
08/28	1023	1029	1035	16
08/29	1655	1703	1711	1.3
	2152	2154	2204	6.5
	2359	2402	2423	1.2
08/30	0422	0426	0429	1.4
08/31	1026	1151	1251	2.0
2005/09/04	1408	1506	1621	2.0
09/05	0853	1041	1220	2.7
09/06	0749	1120	1206	1.3
	1452	1648	1728	1.6
	1932	2202	2444	14
09/07	0959	1003	1007	2.3
	1119	1123	1127	2.4
	1234	1244	1249	9.6
	1423	1426	1430	1.7
	1724	1728	1847	1700
09/08	1058	1117	1125	2.9
	1255	1258	1302	2.0
	1433	1436	1442	4.0
	1449	1452	1456	1.9
	1601	1609	1618	4.2
	1700	1700	1715	21
	2023	2029	2041	21
	2052	2105	2442	540
09/09	0217	0219	0223	10
	0236	0300	0431	11
	0243	0300	0307	110
	0449	0450	0526	18
	0533	0550	0659	62
	0825	0826	0831	3.7
	0914	0918	0922	3.1
	0926	0931	0941	4.8
	0942	0959	1008	360
	1233	1247	1252	3.0
	1526	1526	1531	4.2
	1537	1543	1548	2.8
	1633	1638	1647	1.0
	1743	1755	1840	19
	1913	1946	2328	620
09/10	0542	0614	0734	37
	0859	0907	0931	19
	1024	1028	1034	7.6
	1335	1342	1444	7.8
	1544	1550	1558	7.1
	1634	1643	1651	110
	1915	1923	2039	41
	2130	2211	2243	210

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/09/11	0229	0235	0240	34
	0611	0618	0636	7.1
	0706	0710	0717	4.4
	1335B	1335U	1437A	30
	2029	2040	2049	13
	2205	2208	2211	1.9
	2214	2215	2223	6.5
	2322	2324	2344	2.0
09/12	0045	0049	0053	3.3
	0242	0248	0253	2.0
	0449	0505	0527	15
	0700	0701	0705	13
	0845	0847U	0930A	61
	1533	1537	1542	1.1
	1629	1633	1635	1.1
	1635	1638	1640	1.2
	1928	1940	1942	3.2
	2007	2008	2016	15
	2207	2225	2242	7.2
	2257	2301	2303	5.6
	2315B	2315	2323	5.5
09/13	0056	0057	0106	4.3
	0326	0328	0339	3.4
	0357	0400	0402	1.5
	0415	0418	0420	1.9
	0442	0442	0453	5.1
	0828	0829	0833	1.8
	1041	1121	1124	13
	1339	1352	1424	4.5
	1904	1906	1910	2.9
	1922	1923	2313	150
	2315	2322	2330	170
09/14	0416	0423	0428	3.8
	0659	0705	0723	5.2
	0859	0904	0908	2.2
	1005	1038	1054	46
	1247	1257	1301	3.4
	1925	1929	1951	4.4
	2111	2112	2141	4.3
	2251	2303	2318	5.8
	2340	2341	2354	3.7
09/15	0057	0103	0105	8.5
	0155B	0210	0224	13
	0500	0501	0504	2.6
	0648	0653	0658	1.8
	0836	0837	0936	110
	1037	1042	1046	1.0
	1436	1437	1441	1.0
	1448	1535	1546	7.1
	1532	1535	1537	5.2
	1614	1620	1624	1.1
	1633	1650	1702	4.8
	1828	1829	1832	2.3
	1900	1900	1931	10
	2035	2039	2041	1.5
	2156	2200	2205	3.8

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/09/16	0146	0148	0405	44
	0522	0522	0525	1.1
	0856	0856	0906	1.2
	1308	1313	1315	1.5
	1442	1443	1457	6.1
	1521	1523	1533	7.9
	1742	1745	1822	13
	1930	1935	2020	35
	2337	2339	2348	6.2
09/17	0212	0213	0218	2.0
	0440	0441	0444	3.3
	0602	0605	0733	98
	0917	0920	0923	1.2
	0934	0939	0948	1.5
	1033	1036	1039	2.5
	1458	1504	1506	1.5
09/18	0424	0433	0438	3.7
	0454	0503	0529	1.8
	1207	1214	1217	1.1
09/19	0339	0350	0416	3.8
	2014	2022	2030	1.2
09/20	0820	0844	0856	1.2
09/23	0554	0556	0607	1.5
NO MAJOR FLARES OBSERVED FROM 2005/09/24 TO 2005/10/04 INCLUSIVE.				
10/05	0818	0819	0824	1.4
10/11	1720	1727	1732	1.1
10/12	0538	0541	0552	1.2
NO MAJOR FLARES OBSERVED FROM 2005/10/13 TO 2005/11/05 INCLUSIVE.				
2005/11/06	1438	1443	1446	1.1
11/09	0241	0301	0306	1.2
11/12	1418	1458	1603	2.5
	1925	1933	1937	9.5
11/13	0013	0036	0045	9.5
	0309	0406	0413	1.9
	0520	0522	0523	6.7
	0602	0603	0607	2.7
	1241	1249	1257	2.7
	1429	1451	1456	25
	2119	2158	2216	2.8
11/14	0019	0049	0108	2.0
	0149	0205	0218	1.4
	0358	0401	0406	7.3
	0420	0421	0424	26
	0547	0553	0559	1.0
	0836	0837	0842	2.8
	1144	1149	1154	1.0
	1217	1234	1313	1.4
	1416	1421	1423	39
	2203B	2206	2211	10

DATE	UNIVERSAL TIME BEG.	MAX.	END.	STR
2005/11/15	0045	0054	0101	1.4
	0300	0302	0314	5.2
	0805	0818	0823	2.3
	0828	0832	0834	1.3
	1157	1205	1208	2.3
	1237	1243	1248	1.0
	1528	1532	1535	2.0
	1537	1540	1542	2.1
	1553	1557	1559	1.2
	1722	1751	1804	14
	2050	2110	2112	2.3
11/16	1141	1213	1248	5.9
11/17	2045	2149	2157	1.8
	2334	2334	2350	4.1
11/18	0028	0032	0050	12
	0802	0808	0817	1.6
	1308	1311	1314	1.1
	1515	1527	1534	1.2
	2354	2357	2407	5.8
11/19	2015	2016	2029	1.5
11/20	0723	0736	0749	2.5
	1506	1520	1530	1.5
11/26	0331	0409	0423	1.0
11/29	1643	1655	1739	4.0
11/30	1746	1752	1755	14
2005/12/01	0009	0018	0028	1.4
	0218	0238	0257	2.1
	0449	0504	0512	5.7
	0815	0837	0850	6.0
	1210	1221	1230	1.5
	1532	1533	1542	2.2
12/02	0028	0034	0036	1.7
	0208	0211	0218	1.3
	0242	0252	0300	65
	0552	0600	0609	4.9
	1010	1013	1042	78
	2027B	2113	2209	10
	2057	2119	2137	20
12/03	0538B	0543	0555	3.6
	0725	0737	0744	5.3
	0848	0849	0907	3.5
	0908	0913	0920	2.1
	1753	1805	1814	1.7
12/04	0832	0929	1017	2.1
12/08	1852	1902	1915	1.7
	2133	2141	2152	1.1
12/11	1333	1338	1341	1.1
12/13	2133	2147	2158	1.7
12/14	1003	1012	1018	1.0
12/16	1248	1257	1314	2.4
	2035	2103	2110	1.3
12/22	0946	0947	0959	3.5
	1643	1647	1706	2.9
12/25	1008	1011	1031	1.2
12/28	2232	2238	2250	1.2
12/29	2036	2106	2128	1.1

X-RAY FLARE ANALYSIS, 2004 - 2005.

The following is an analysis of solar x-ray flares showing monthly values of 'mean daily output' (MDO), 'mean x-ray strength' (MXS), and 'mean daily mean' (MDM), all expressed in microWatts / square mètre.

All data are based on US NOAA satellite data.

d = number of days of data.
n = number of events.

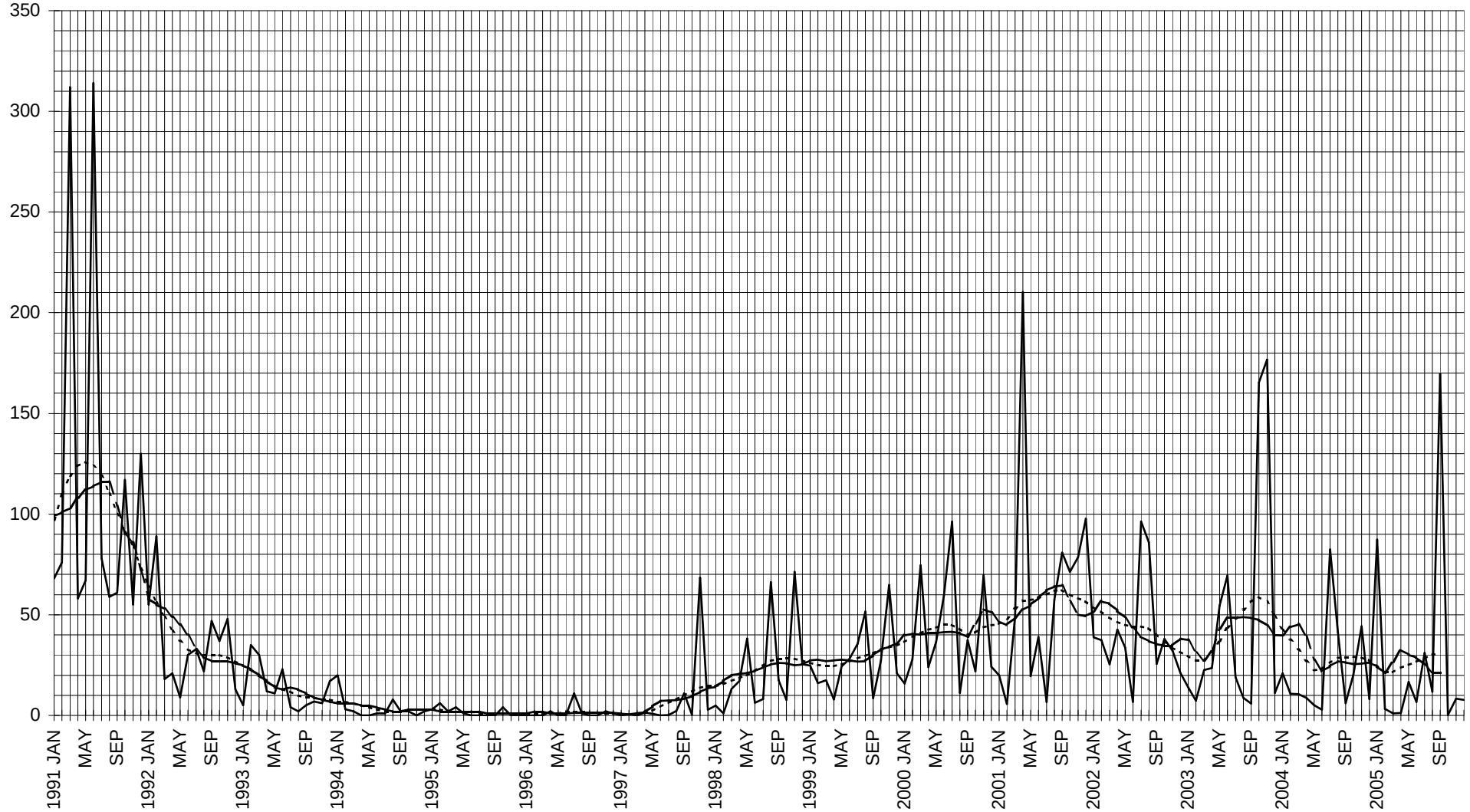
	DATE	MDO	MXS	MDM	d	n
2004	January	20.8774	6.8126	6.2524	31	95
	February	10.7759	5.5804	2.1575	29	56
	March	10.6548	3.2382	2.0900	31	102
	April	8.6600	4.1238	3.0022	30	63
	May	5.0516	2.9547	1.7335	31	53
	June	2.9333	2.1463	1.3214	30	41
	July	82.5387	13.2575	9.4363	31	193
	August	41.3516	9.1564	4.3145	31	140
	September	6.1633	4.7410	2.0273	30	39
	October	20.2323	6.5333	2.8117	31	96
	November	44.2933	11.0733	5.4910	30	120
	December	8.2065	5.4128	1.8338	31	47
	Means	21.9407	7.6845	3.5532	366	1045
2005	January	87.3645	21.3252	14.1598	31	127
	February	3.2250	2.9129	1.5170	28	31
	March	1.0968	2.1250	0.8199	31	16
	April	1.1233	2.1062	0.5475	30	16
	May	16.7161	4.9827	3.6767	31	104
	June	6.7700	3.5017	2.1857	30	58
	July	31.0742	9.4441	6.3858	31	102
	August	11.7774	9.8676	5.9728	31	37
	September	169.7000	42.4250	22.5625	30	120
	October	0.1194	1.2333	0.1194	31	3
	November	8.3533	5.4478	2.1233	30	46
	December	7.6871	7.6871	1.5511	31	31
	Means	28.7660	15.1948	5.1460	365	691

SMOOTHED **NOAA X-RAY FLARE** MONTHLY VALUES – **1997 - 2005**.

Data based upon NOAA monthly mean values of MEAN DAILY OUTPUT.
Unit used in observed values is 1 microWatt per square mètre.
Smoothing methods used are the Waldmeier and the Barnes-13 methods.

MONTH	Observed	S^W	S^{B13}	MONTH	Observed	S^W	S^{B13}	MONTH	Observed	S^W	S^{B13}
1997 Jan	0.0000	1.04	0.82	2000 Jan	15.7710	39.76	36.51	2003 Jan	14.0774	37.66	29.58
Feb	0.6250	0.67	0.67	Feb	27.7931	40.60	38.94	Feb	7.4143	31.22	27.51
Mar	0.0806	1.20	0.87	Mar	74.4806	40.12	41.09	Mar	22.5806	27.19	27.26
Apr	1.5167	1.67	1.17	Apr	23.9533	41.11	42.59	Apr	23.5900	31.68	30.22
May	0.9032	4.44	2.43	May	36.5710	41.09	43.63	May	54.5968	43.02	36.97
Jun	0.0367	7.28	4.44	Jun	59.5500	41.43	45.02	Jun	69.3900	48.64	43.60
Jul	0.2548	7.58	6.23	Jul	96.2226	41.74	45.14	Jul	18.9484	48.51	48.18
Aug	2.2839	7.80	8.05	Aug	11.1194	41.00	43.03	Aug	8.7194	48.94	52.31
Sep	10.8833	8.36	9.90	Sep	37.4533	39.04	40.18	Sep	5.9867	48.58	56.36
Oct	0.4516	9.55	11.90	Oct	21.9677	45.76	41.06	Oct	165.3935	47.46	58.88
Nov	68.5467	11.75	13.78	Nov	69.7133	52.81	43.83	Nov	176.8233	44.77	56.48
Dec	2.9000	13.57	14.64	Dec	24.2516	51.25	44.82	Dec	11.2387	39.94	49.19
1998 Jan	4.8613	14.16	14.68	2001 Jan	19.9323	46.66	45.48	2004 Jan	20.8774	39.82	42.37
Feb	1.0286	17.15	15.65	Feb	5.7786	44.86	48.04	Feb	10.7759	43.83	37.62
Mar	13.1774	20.09	17.31	Mar	49.4613	48.60	53.01	Mar	10.6548	45.20	32.77
Apr	17.0967	20.66	18.61	Apr	210.1867	52.46	56.81	Apr	8.6600	39.16	26.99
May	38.1516	21.07	19.94	May	19.5903	54.89	57.52	May	5.0516	27.59	22.64
Jun	6.2567	22.12	22.03	Jun	39.0267	58.32	58.13	Jun	2.9333	21.94	22.91
Jul	8.2097	23.89	24.87	Jul	6.6484	62.17	60.12	Jul	82.5387	24.58	26.21
Aug	66.2581	25.35	27.24	Aug	57.4161	64.27	61.99	Aug	41.3516	27.04	28.57
Sep	17.4233	26.15	28.30	Sep	80.9167	64.58	62.46	Sep	6.1633	26.32	29.13
Oct	7.6194	25.95	28.51	Oct	71.2226	56.59	60.14	Oct	20.2323	25.61	29.16
Nov	71.2567	25.00	28.20	Nov	78.6800	50.20	58.38	Nov	44.2933	25.78	28.75
Dec	25.3548	25.33	27.35	Dec	97.7903	49.45	56.74	Dec	8.2065	26.43	27.56
1999 Jan	24.8742	27.38	26.30	2002 Jan	38.8194	51.84	53.91	2005 Jan	87.3645	24.45	24.98
Feb	15.9857	27.90	25.18	Feb	37.2821	56.76	51.56	Feb	3.2250	21.07	21.62
Mar	17.4032	26.92	24.49	Mar	25.3387	55.64	48.84	Mar	1.0968	26.65	21.57
Apr	8.0067	27.37	24.61	Apr	42.6167	51.95	46.54	Apr	1.1233	32.63	23.77
May	24.4419	27.92	25.36	May	33.7613	48.62	45.09	May	16.7161	30.29	25.09
Jun	28.0400	27.46	26.82	Jun	6.7533	43.49	44.32	Jun	6.7700	28.77	26.91
Jul	35.5097	26.90	28.44	Jul	96.3355	39.26	44.37	Jul	31.0742	25.14	28.47
Aug	51.5871	27.01	29.56	Aug	85.8323	36.98	43.33	Aug	11.7774	21.39	30.17
Sep	8.5333	29.88	30.98	Sep	25.5800	35.62	40.46	Sep	169.7000	21.23	30.94
Oct	27.1839	32.93	32.79	Oct	38.0194	34.72	36.96	Oct	0.1194	–	–
Nov	64.8733	34.09	33.94	Nov	32.0333	34.79	33.71	Nov	8.3533	–	–
Dec	20.9065	35.91	34.65	Dec	21.1161	38.27	31.69	Dec	7.6871	–	–

OBSERVED and SMOOTHED NOAA X-RAY FLARE MEAN DAILY OUTPUT VALUES (IN MICROWATTS PER SQUARE METRE)
1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE PREVIOUS PAGE



Section E

2800 MHz (107 mm) SOLAR FLUX - **2005**.

Daily readings on the wavelength of 107 mm are obtained at Penticton BC, Canada, at approximately 2000 UT (local apparent mid-day) .

These figures are on an approximate scale of 60 to 750; the actual lowest observed value is 63.0 on 1954/06/27, adjusted to 65.1. The highest observed value being 707.6 was obtained on 2005/09/09, being adjusted to 717.6.

The lowest adjusted value is 61.8 on 1953/02/24, observed as 63.1.

The most recent maximum observed value is the above-mentioned September 2005 value, and the most recent minimum observed value is 64.9 in July 1996 (adjusted to 67.0). The most recent minimum adjusted value is 65.7 in February 1996 (observed as 67.5).

The values for 2005 are on pages E2 and E3 of this report. The first of these two tables contains the observed values, some of which are corrected for the occasional burst. The second table contains values adjusted to the distance of 1 AU (149 597 870 km).

As Penticton gets three readings a day, at 1700, 2000 and 2300 UT (in the northern summer, March to October, inclusive), and 1800, 2000 and 2200 UT (in the northern winter, November to February, inclusive), two monthly means are stated from 2001 onwards, on pages E2 and E3.

The top values are the means of the 2000 UT readings only, stated for continuity sake; the bottom values (on the shaded lines) are the thrice-daily means of the month concerned.

Thrice-daily monthly means are stated and smoothed on page E5.

1 Flux Unit = 100 yoctoWatts/m^2/Hz.
= 1 x 10^{-22} Watt/m^2/Hz.

THE TERM 'JANSKY' IS NOT USED IN THIS PUBLICATION DUE TO THE TERM'S ORIGINAL USE AS 1 W/m^2/Hz.

All flux data, courtesy of the Herzberg Institute of Astrophysics, National Research Council, Canada.

DAILY 2800 MHz SOLAR RADIO FLUX **OBSERVED** INDICES **2005**.
All data obtained by the Dominion Radio Astrophysical Observatory, Penticton, British Columbia, Canada.
All observations carried out at local apparent mid-day, approximately 2000 UT.
Unit used is 1 x 10^{-22} $W/m^2/Hz$.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DATE
01	98.9	83.7	73.7	78.3	111.6	94.3	114.6	111.2	79.2	72.1	77.3	98.2	**01**
02	100.0	81.8	74.6	80.2	112.2	93.3	123.8	110.2	77.1	74.9	78.0	106.3	**02**
03	94.2	83.0	77.0	81.1	112.3	95.3	129.8	108.9	74.2	74.3	76.8	101.3	**03**
04	88.0	82.1	78.9	84.8	108.7	96.9	123.7	106.1	74.6	82.7	77.4	95.2	**04**
05	88.2	94.6	81.2	88.3	109.1	105.4	126.8	98.8	75.0	81.3	79.3	91.7	**05**
06	83.2	97.0	83.6	88.0	110.4	106.0	123.0	93.4	83.4	79.5	81.7	89.1	**06**
07	83.5	103.1	87.0	87.8	99.9	109.1	124.9	92.3	117.0	78.8	79.4	89.0	**07**
08	88.5	108.2	93.5	87.7	101.3	115.7	110.4	86.4	94.1	78.1	79.4	89.6	**08**
09	87.5	108.6	99.9	88.4	110.0	116.1	106.6	82.5	707.6	78.9	78.1	89.1	**09**
10	90.1	114.1	101.6	88.3	119.2	114.3	101.8	76.3	116.0	79.1	77.9	91.4	**10**
11	94.2	114.1	104.9	87.5	125.3	108.0	93.3	75.9	109.7	77.6	78.6	93.1	**11**
12	102.1	116.4	110.1	84.9	117.4	103.0	96.2	76.2	118.0	76.8	83.1	88.3	**12**
13	115.6	115.5	113.8	83.5	125.9	91.8	91.7	75.4	302.0	78.0	87.8	87.9	**13**
14	129.8	118.1	111.5	85.4	99.5	93.8	89.9	74.8	116.6	78.4	92.4	89.6	**14**
15	144.9	121.7	108.2	84.9	103.0	94.5	87.2	75.8	119.4	79.6	100.0	87.0	**15**
16	144.5	112.8	104.6	82.9	99.1	98.1	76.3	75.8	134.1	79.2	94.0	85.8	**16**
17	137.5	111.3	101.7	83.6	90.0	90.8	74.1	77.0	103.9	78.1	100.5	85.2	**17**
18	124.3	104.2	96.5	81.3	83.8	90.0	72.0	82.7	102.2	78.3	101.1	85.6	**18**
19	132.5	98.5	93.0	78.2	84.7	86.9	71.2	93.1	91.1	77.9	102.0	89.5	**19**
20	122.7	95.7	89.0	77.0	83.5	86.1	72.1	98.1	87.8	76.7	96.4	87.8	**20**
21	113.5	94.5	89.8	77.1	81.9	82.8	72.8	98.5	86.0	75.3	94.7	86.5	**21**
22	102.2	92.3	87.3	77.2	82.1	79.5	73.6	157.3	83.7	74.7	92.6	87.6	**22**
23	95.8	84.6	87.7	79.3	83.4	77.5	80.1	112.3	82.8	74.2	89.7	93.1	**23**
24	94.6	80.3	87.1	82.3	85.2	76.7	80.2	98.6	81.4	73.4	86.6	91.9	**24**
25	94.1	78.2	82.1	86.0	83.8	76.7	83.9	92.4	81.0	73.0	79.9	91.8	**25**
26	89.3	76.6	77.7	90.9	90.4	78.7	86.5	93.2	81.3	72.0	80.8	92.5	**26**
27	86.9	75.8	78.4	95.3	95.5	77.4	90.6	92.1	76.9	71.6	80.7	92.3	**27**
28	84.9	75.0	79.7	98.0	92.5	80.0	95.8	89.8	74.6	73.1	81.9	89.1	**28**
29	86.4	– –	78.8	105.0	92.7	88.2	103.7	89.2	73.8	74.1	84.7	90.3	**29**
30	85.5	– –	77.6	106.4	94.9	102.5	105.0	86.0	72.2	75.6	94.7	89.9	**30**
31	86.2	– –	76.7	– –	96.3	– –	109.7	84.0	– –	77.8	– –	87.4	**31**
MEAN	102.2	97.2	89.9	86.0	99.5	93.6	96.5	92.4	119.2	76.6	86.2	90.7	**MEAN**
THRICE-DAILY	*101.0*	*97.3*	*90.0*	*85.9*	*101.7*	*94.4*	*100.4*	*98.2*	*109.6*	*76.7*	*86.4*	*90.8*	**THRICE-DAILY**

2005 Once-Daily Annual Mean : 94.1

DAILY 2800 MHz SOLAR RADIO FLUX INDICES - **2005 ADJUSTED TO 1 AU**.
All data obtained by the Dominion Radio Astrophysical Observatory, Penticton, British Columbia, Canada.
All observations carried out at local apparent mid-day, approximately 2000 UT.
Unit used is 1 x 10^{-22} $W/m^2/Hz$.

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	DATE
01	95.6	81.3	72.4	78.2	113.4	96.9	118.5	114.6	80.6	72.3	76.1	95.5	**01**
02	96.7	79.4	73.4	80.2	114.0	96.0	128.0	113.5	78.5	75.0	76.8	103.3	**02**
03	91.0	80.7	75.7	81.1	114.2	98.0	134.1	112.2	75.4	74.4	75.5	98.4	**03**
04	85.1	79.8	77.7	84.9	110.6	99.8	127.8	109.2	75.8	82.7	76.1	92.5	**04**
05	85.3	92.0	79.9	88.5	111.0	108.6	131.0	101.7	76.2	81.3	77.9	89.0	**05**
06	80.4	94.3	82.3	88.2	112.4	109.2	127.2	96.1	84.7	79.4	80.3	86.5	**06**
07	80.7	100.3	85.7	88.0	101.8	112.4	129.1	94.9	118.8	78.7	78.0	86.3	**07**
08	85.6	105.4	92.2	87.9	103.2	119.3	114.2	88.9	95.5	78.0	77.9	86.9	**08**
09	84.6	105.8	98.5	88.8	112.2	119.7	110.2	84.7	717.6	78.7	76.6	86.4	**09**
10	87.1	111.1	100.3	88.6	121.6	117.9	105.2	78.3	117.6	78.8	76.4	88.7	**10**
11	91.1	111.2	103.6	87.9	127.9	111.4	96.4	77.9	111.1	77.3	77.0	90.2	**11**
12	98.8	113.5	108.8	85.3	119.9	106.3	99.4	78.3	119.5	76.5	81.4	85.6	**12**
13	111.9	112.7	112.5	84.0	128.6	94.7	94.8	77.4	305.6	77.6	86.0	85.2	**13**
14	125.6	115.2	110.3	86.0	101.7	96.8	92.9	76.7	117.9	78.0	90.4	86.8	**14**
15	140.2	118.7	107.0	85.5	105.2	97.5	90.1	77.7	120.6	79.1	97.8	84.2	**15**
16	139.8	110.2	103.6	83.6	101.4	101.3	78.8	77.7	135.5	78.7	91.8	83.1	**16**
17	133.1	108.8	100.7	84.2	92.0	93.7	76.5	78.9	104.9	77.5	98.2	82.5	**17**
18	120.3	101.8	95.7	82.0	85.8	92.9	74.4	84.7	103.2	77.7	98.8	82.8	**18**
19	128.3	96.3	92.2	78.9	86.7	89.8	73.5	95.3	91.9	77.2	99.6	86.6	**19**
20	118.8	93.6	88.3	77.8	85.6	88.9	74.4	100.4	88.5	76.0	94.1	84.9	**20**
21	109.9	92.5	89.2	77.9	83.9	85.5	75.2	100.8	86.7	74.6	92.4	83.7	**21**
22	99.1	90.4	86.7	78.1	84.2	82.1	75.9	160.9	84.3	74.0	90.3	84.8	**22**
23	92.8	82.8	87.1	80.2	85.5	80.1	82.7	114.8	83.3	73.4	87.5	90.1	**23**
24	91.7	78.6	86.6	83.2	87.4	79.2	82.8	100.7	81.9	72.5	84.4	88.9	**24**
25	91.2	76.7	81.7	87.1	86.0	79.3	86.5	94.4	81.4	72.1	77.9	88.8	**25**
26	86.6	75.1	77.4	92.1	92.8	81.3	89.2	95.2	81.7	71.2	78.7	89.5	**26**
27	84.3	74.4	78.1	96.6	98.1	80.0	93.4	94.0	77.2	70.7	78.6	89.2	**27**
28	82.4	73.6	79.4	99.4	95.1	82.6	98.7	91.6	74.9	72.1	79.7	86.1	**28**
29	83.9	– –	78.6	106.5	95.3	91.2	106.9	90.9	74.0	73.1	82.4	87.4	**29**
30	82.9	– –	77.5	108.0	97.5	105.9	108.2	87.6	72.4	74.5	92.0	86.9	**30**
31	83.6	– –	76.5	– –	99.0	– –	113.1	85.6	– –	76.7	– –	84.5	**31**
MEAN	99.0	94.9	89.0	86.6	101.7	96.6	99.6	94.7	120.6	76.1	84.4	87.9	**MEAN**
THRICE-DAILY	*97.8*	*94.9*	*89.1*	*86.5*	*103.9*	*97.4*	*103.7*	*100.6*	*110.8*	*76.2*	*84.5*	*88.0*	**THRICE-DAILY**

2005 Once-Daily Annual Mean : 94.2

SMOOTHED **NRCC *ONCE-DAILY* 2800MHz SOLAR FLUX** MONTHLY VALUES.

Data based upon NRCC (ONCE-DAILY) monthly mean values ADJUSTED TO THE DISTANCE OF 1 AU.
Unit used in observed values is 1 x 10^{-22} Watt/m^2/Hz.
Smoothing methods used are the Waldmeier and the Barnes-13 methods.

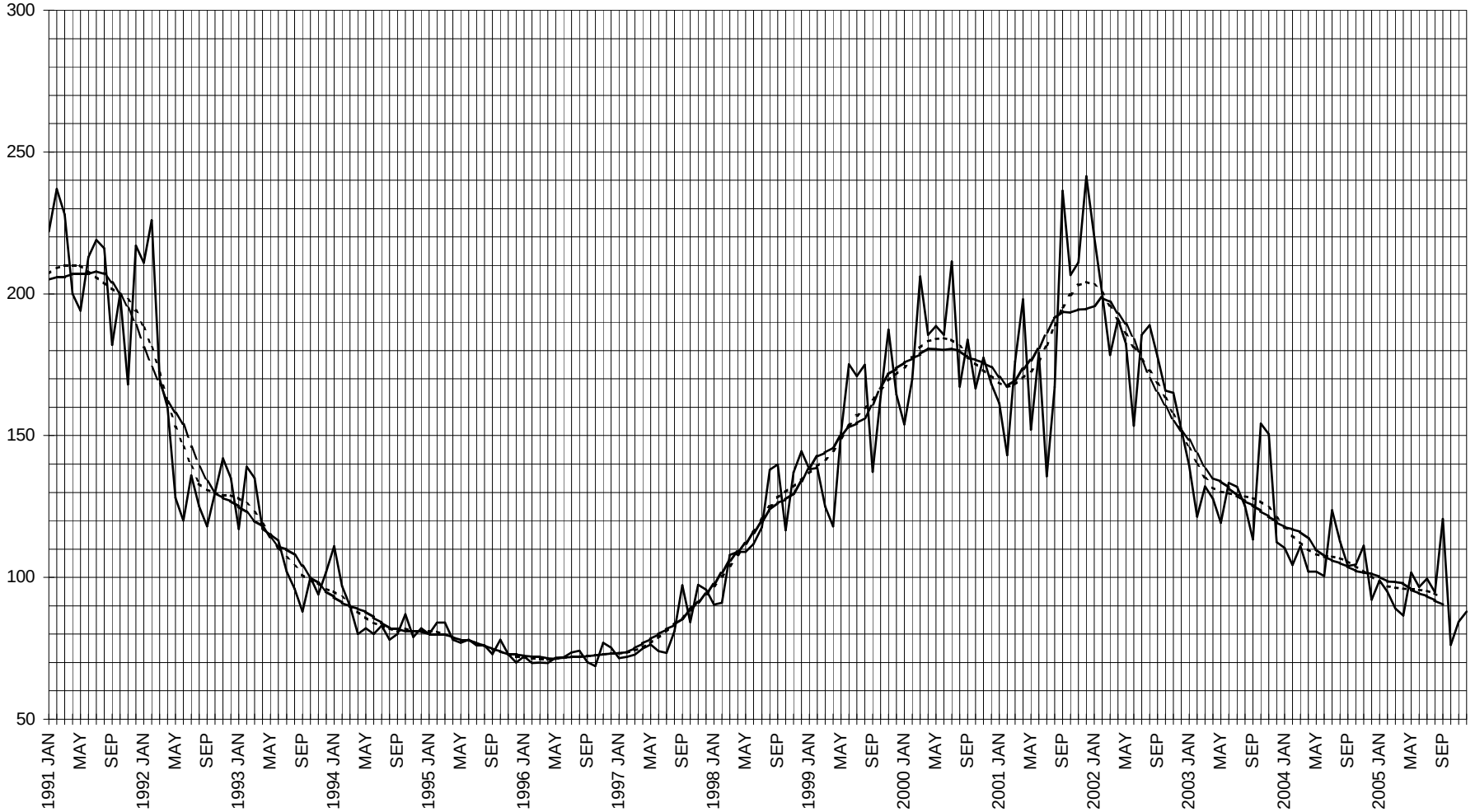
MONTH	Adjusted	S^W	S^{B13}	MONTH	Adjusted	S^W	S^{B13}	MONTH	Adjusted	S^W	S^{B13}
1997 Jan	71.6	73.4	73.3	2000 Jan	153.9	175.7	174.1	2003 Jan	139.4	148.5	145.5
Feb	72.0	73.6	73.5	Feb	169.9	177.1	177.5	Feb	121.4	143.6	139.8
Mar	72.8	75.1	74.3	Mar	206.1	178.7	180.9	Mar	132.1	138.3	135.0
Apr	75.0	76.8	75.5	Apr	185.5	180.8	183.3	Apr	127.7	135.1	131.8
May	76.3	78.3	76.9	May	188.7	180.5	184.1	May	119.2	134.0	130.3
Jun	74.0	80.0	78.6	Jun	185.5	180.2	184.4	Jun	133.4	131.7	129.7
Jul	73.4	81.7	80.8	Jul	211.4	180.7	183.8	Jul	131.9	128.9	129.2
Aug	81.0	83.3	83.3	Aug	167.2	179.9	181.5	Aug	125.2	127.0	128.7
Sep	97.2	85.5	85.9	Sep	183.8	177.5	178.1	Sep	113.4	125.4	128.0
Oct	84.3	88.4	88.7	Oct	166.6	176.8	175.4	Oct	154.2	123.4	126.9
Nov	97.4	91.2	91.4	Nov	177.5	175.8	173.2	Nov	150.6	121.6	124.6
Dec	95.7	94.1	94.2	Dec	168.2	174.0	171.1	Dec	112.5	119.6	121.1
1998 Jan	90.4	97.5	97.0	2001 Jan	161.3	170.6	168.8	2004 Jan	110.4	117.8	117.5
Feb	91.1	101.8	100.3	Feb	143.1	167.4	167.3	Feb	104.4	117.0	114.7
Mar	108.0	105.9	104.1	Mar	176.1	169.6	168.1	Mar	111.0	116.1	112.4
Apr	109.0	109.0	108.0	Apr	198.1	173.4	170.2	Apr	102.0	113.6	110.0
May	109.0	112.0	111.9	May	152.0	176.5	172.6	May	102.1	109.9	108.2
Jun	111.8	115.7	116.1	Jun	179.2	180.9	176.4	Jun	100.5	107.4	107.6
Jul	117.7	119.7	120.6	Jul	135.6	186.4	182.0	Jul	123.7	106.1	107.4
Aug	138.0	123.7	124.9	Aug	167.1	191.3	188.9	Aug	112.7	105.2	106.9
Sep	139.8	126.4	128.1	Sep	236.3	193.7	195.3	Sep	104.1	103.9	105.7
Oct	116.6	127.5	130.1	Oct	206.6	193.5	199.6	Oct	104.6	102.4	104.1
Nov	137.1	129.6	132.0	Nov	211.1	194.5	203.0	Nov	111.2	101.7	102.4
Dec	144.5	134.0	134.3	Dec	241.4	194.7	204.3	Dec	92.1	101.5	100.5
1999 Jan	138.1	138.8	136.7	2002 Jan	220.1	195.7	203.2	2005 Jan	99.0	100.3	98.6
Feb	138.6	142.6	139.1	Feb	200.1	198.7	200.4	Feb	94.9	98.6	97.0
Mar	124.9	144.0	141.5	Mar	178.4	197.2	195.6	Mar	89.0	98.5	96.4
Apr	118.0	145.9	144.7	Apr	191.1	193.0	190.5	Apr	86.6	98.0	96.2
May	151.0	150.0	149.2	May	182.4	189.4	185.8	May	101.7	95.7	95.9
Jun	175.2	152.9	153.6	Jun	153.4	183.8	181.1	Jun	96.6	94.4	95.7
Jul	171.0	154.4	157.1	Jul	185.5	176.7	176.9	Jul	99.6	93.5	95.4
Aug	175.0	156.3	159.8	Aug	188.9	170.1	172.9	Aug	94.7	91.9	94.5
Sep	137.2	161.0	162.8	Sep	177.8	164.9	168.4	Sep	120.6	90.5	92.9
Oct	163.7	167.2	166.4	Oct	165.9	160.3	163.2	Oct	76.1	—	—
Nov	187.4	171.6	169.4	Nov	165.1	155.0	157.3	Nov	84.4	—	—
Dec	164.5	173.6	171.5	Dec	152.3	151.6	151.4	Dec	87.9	—	—

SMOOTHED **NRCC *THRICE-DAILY* 2800MHz SOLAR FLUX** MONTHLY VALUES.

Data based upon NRCC (THRICE-DAILY) monthly mean values ADJUSTED TO THE DISTANCE OF 1 AU.
Unit used in observed values is 1 x 10^{-22} Watt/m^2/Hz.
Smoothing methods used are the Waldmeier and the Barnes-13 methods.

MONTH	Adjusted	S^W	S^{B13}	MONTH	Adjusted	S^W	S^{B13}	MONTH	Adjusted	S^W	S^{B13}
1997 Jan	*71.2*	*73.3*	*73.1*	2000 Jan	*153.9*	*176.5*	*174.6*	2003 Jan	*139.1*	*148.8*	*145.6*
Feb	*71.9*	*73.5*	*73.4*	Feb	*168.6*	*177.9*	*178.2*	Feb	*121.5*	*144.0*	*140.0*
Mar	*72.8*	*74.9*	*74.2*	Mar	*206.8*	*179.5*	*181.7*	Mar	*130.9*	*138.7*	*135.3*
Apr	*75.1*	*76.7*	*75.4*	Apr	*185.5*	*181.6*	*184.3*	Apr	*127.4*	*135.5*	*132.2*
May	*76.4*	*78.2*	*76.8*	May	*195.4*	*181.2*	*185.3*	May	*120.1*	*134.2*	*130.8*
Jun	*74.2*	*79.9*	*78.6*	Jun	*186.1*	*180.9*	*185.5*	Jun	*137.1*	*131.7*	*130.1*
Jul	*73.5*	*81.5*	*80.8*	Jul	*212.2*	*181.4*	*184.9*	Jul	*132.2*	*128.8*	*129.5*
Aug	*81.0*	*83.1*	*83.2*	Aug	*167.6*	*180.7*	*182.4*	Aug	*125.2*	*126.9*	*128.8*
Sep	*96.9*	*85.4*	*85.8*	Sep	*184.6*	*178.4*	*178.9*	Sep	*113.8*	*125.4*	*128.0*
Oct	*84.5*	*88.3*	*88.5*	Oct	*167.1*	*177.5*	*176.0*	Oct	*155.1*	*123.5*	*126.7*
Nov	*97.3*	*91.1*	*91.2*	Nov	*176.6*	*175.9*	*173.4*	Nov	*145.6*	*121.7*	*124.2*
Dec	*93.9*	*94.0*	*93.9*	Dec	*168.3*	*173.8*	*171.0*	Dec	*111.9*	*119.4*	*120.6*
1998 Jan	*89.9*	*97.4*	*96.8*	2001 Jan	*162.2*	*170.4*	*168.6*	2004 Jan	*110.3*	*117.5*	*117.1*
Feb	*91.0*	*101.9*	*100.2*	Feb	*143.2*	*167.3*	*167.0*	Feb	*104.5*	*116.7*	*114.4*
Mar	*108.5*	*106.2*	*104.2*	Mar	*176.6*	*169.6*	*167.8*	Mar	*111.2*	*115.8*	*112.1*
Apr	*109.0*	*109.4*	*108.3*	Apr	*193.7*	*173.5*	*169.9*	Apr	*101.8*	*113.4*	*109.9*
May	*109.5*	*112.4*	*112.3*	May	*150.8*	*176.7*	*172.5*	May	*102.3*	*110.0*	*108.3*
Jun	*112.1*	*116.1*	*116.7*	Jun	*179.6*	*180.8*	*176.4*	Jun	*100.7*	*107.8*	*107.9*
Jul	*117.6*	*120.3*	*121.3*	Jul	*136.0*	*185.9*	*182.0*	Jul	*124.1*	*106.5*	*107.9*
Aug	*143.3*	*124.2*	*125.6*	Aug	*170.9*	*190.7*	*188.9*	Aug	*112.4*	*105.6*	*107.3*
Sep	*139.5*	*126.9*	*128.7*	Sep	*236.5*	*193.2*	*195.2*	Sep	*105.4*	*104.3*	*106.2*
Oct	*116.8*	*127.9*	*130.6*	Oct	*209.1*	*193.2*	*199.4*	Oct	*105.5*	*102.7*	*104.6*
Nov	*136.9*	*130.0*	*132.4*	Nov	*209.9*	*194.5*	*202.7*	Nov	*113.7*	*102.1*	*102.9*
Dec	*145.3*	*134.4*	*134.6*	Dec	*233.6*	*194.8*	*203.9*	Dec	*92.3*	*102.1*	*101.0*
1999 Jan	*137.2*	*139.2*	*136.8*	2002 Jan	*220.4*	*195.7*	*202.7*	2005 Jan	*97.8*	*101.1*	*99.2*
Feb	*138.3*	*142.8*	*139.1*	Feb	*200.3*	*198.3*	*199.9*	Feb	*94.9*	*99.7*	*97.7*
Mar	*124.9*	*144.0*	*141.4*	Mar	*178.9*	*196.6*	*195.1*	Mar	*89.1*	*99.5*	*97.1*
Apr	*117.9*	*145.9*	*144.7*	Apr	*191.4*	*192.4*	*190.1*	Apr	*86.5*	*98.5*	*96.9*
May	*151.6*	*150.0*	*149.2*	May	*183.5*	*188.8*	*185.5*	May	*103.9*	*96.0*	*96.6*
Jun	*174.7*	*152.9*	*153.6*	Jun	*154.1*	*183.6*	*181.0*	Jun	*97.4*	*94.6*	*96.4*
Jul	*170.1*	*154.4*	*157.2*	Jul	*182.4*	*176.8*	*176.9*	Jul	*103.7*	*93.7*	*96.0*
Aug	*176.3*	*156.4*	*160.0*	Aug	*188.2*	*170.2*	*172.9*	Aug	*100.6*	*92.2*	*94.8*
Sep	*137.2*	*161.1*	*162.9*	Sep	*178.3*	*164.9*	*168.4*	Sep	*110.8*	*90.7*	*93.0*
Oct	*164.2*	*167.3*	*166.5*	Oct	*166.8*	*160.2*	*163.2*	Oct	*76.2*	—	—
Nov	*187.7*	*172.0*	*169.6*	Nov	*165.7*	*154.9*	*157.3*	Nov	*84.5*	—	—
Dec	*164.9*	*174.3*	*171.8*	Dec	*152.6*	*151.6*	*151.4*	Dec	*88.0*	—	—

ADJUSTED and SMOOTHED NRCC 2800 MHz SOLAR FLUX (IN 10^{-22} W/SQ. METRE/HZ) 1991-2005
SOLID = ADJUSTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE PAGE E4 (IN THIS AND PREVIOUS REPORTS)



Section F

ANALYSES OF GDSO DATA AND GRAPHS.

MODIFIED k VALUES.

Starting with the 2003 issue, modified k co-efficients were introduced. The actual modified k values are not published but the products of the observed values and the modified k values will, and will be suffixed GDm. Normal corrected values, suffixed GD, will continue to be published.

As the usual k co-efficients (which are mathematically correct) can produce some unusual results (especially near minimum), it has been decided to apply a weighted formula to the values k, and I/GDSO. The formula is:

$$x(bar) \times ([2k + \{I/GDSO\}] \div 3)$$

This means that, using data in previous GDSO reports, this sequence can be back-dated to 1973.

INTERNATIONAL GROUP COMPLEXITY INDICES (GCI_I).

In the 1999 issue (pp F43-44), publication of International Group Complexity Indices (GCI_I), started. These data are obtained from Sonne's g, Re [WN] and p results.

It must be pointed out that, as these data were obtained [by Sonne] with GCI not being-in-mind, we get the occasional situation of g = 0.1, and Re = 1 (a sunspot region having no sunspots) throughout minimum. One cause of this, is rounding. It has been decided to let these data stand as they are. Because of this decision, the GCI_I can drop to 0, which, strictly speaking, is an impossibility. This situation, of g = 0.1, and Re = 1, occurs rarely and has only occurred about 10 times during the 1986 minimum, creating only one monthly value of 0 [June 1986].

It was hoped that this issue would deal with data from 1998-2005, however, these data might appear in the GDSO Annual Report for 2006. This situation is out of the GDSO's control.

TABLE W1:
MONTHLY **WOLF NUMBER** MEANS OF GDSO DATA for **2005**.
g = mean of Active Areas or groups on the solar disc.
f = mean of sunspots on the solar disc.
WN = mean Wolf Number (k neglected; see list of definitions).
TWN = mean Truncated Wolf Number (Wolf Number without A and B class regions).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	g	f	WN	δ	*TWN*	*d*	n	w	Q	S	T	C
Jan	2.77	19.23	46.92	20.1	*45.23*	*19.9*	13	0.4826	1.81	2.35	2.23	2.1282
Feb	2.50	8.70	33.70	21.1	*28.00*	*17.8*	10	0.5272	1.50	2.15	2.10	1.9167
Mar	1.81	11.50	29.62	16.3	*28.25*	*18.1*	16	0.4998	1.66	2.19	2.25	2.0312
Apr	2.71	9.88	36.94	8.3	*30.88*	*10.2*	17	0.5151	1.68	2.06	2.15	1.9608
May	2.29	27.29	50.14	15.0	*48.57*	*13.6*	7	0.4757	1.86	2.29	2.21	2.1190
Jun	3.60	23.50	59.50	28.1	*56.10*	*26.5*	10	0.5188	1.45	2.15	2.25	1.9500
Jul	2.89	14.89	43.78	32.5	*41.22*	*32.9*	9	0.4833	1.67	2.22	2.44	2.1111
Aug	3.29	17.00	49.86	11.0	*41.71*	*13.5*	14	0.5098	1.61	2.21	2.18	2.0000
Sep	1.38	9.50	23.25	10.6	*21.88*	*10.6*	8	0.4621	1.56	2.50	2.50	2.1875
Oct	0.64	2.18	8.55	6.2	*6.45*	*7.0*	11	0.4806	1.45	2.55	2.41	2.1364
Nov	1.25	9.58	22.08	14.8	*22.08*	*14.8*	12	0.4373	1.83	2.71	2.42	2.3194
Dec	4.11	11.11	52.22	9.5	*47.33*	*8.9*	9	0.4590	1.61	2.50	2.56	2.2222
Year	2.43	13.25	37.51	19.8	*34.10*	*19.5*	—	0.4902	1.64	2.31	2.29	2.0797

TABLE W2:
ROTATIONAL **WOLF NUMBER** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	g	f	WN	δ	*TWN*	*d*	n	w	Q	S	T	C
2024	2004/12/05.73	1.50	4.75	19.75	10.7	*19.75*	*10.7*	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	2.91	21.18	50.27	20.1	*49.27*	*19.2*	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	2.80	10.30	38.30	16.6	*32.60*	*14.1*	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	1.87	12.20	30.87	15.8	*30.13*	*16.8*	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	2.44	8.00	32.38	11.8	*27.38*	*12.4*	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	2.33	23.78	47.11	17.0	*40.89*	*19.0*	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	4.00	26.29	66.29	21.0	*63.14*	*20.4*	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	3.71	21.71	58.86	39.6	*55.57*	*37.2*	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	2.30	13.20	36.20	23.2	*33.90*	*23.7*	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	2.85	12.46	40.92	14.4	*33.00*	*14.3*	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	1.50	12.00	27.00	10.3	*25.17*	*11.6*	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	0.56	1.78	7.33	6.5	*4.78*	*6.4*	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	1.09	9.45	20.36	13.7	*20.36*	*13.7*	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	2.62	9.75	36.00	11.8	*33.25*	*12.4*	8	0.4288	1.88	2.69	2.56	2.3750

TABLE W3:
CORRECTED **WOLF NUMBERS** for **2004 - 2005**.

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Wolf Numbers have to be upgraded to give reflections of international results. International Wolf Number results are computed by the Solar Influences Data Analysis Centre (SIDC), at the Observatoire Royal de Belgique, Bruxelles, Belgium.

Below are the 'observed' Wolf Numbers along with the monthly k co-efficients and the corrected values (R_{GD}) for 2004 - 2005. The SIDC's final values (R_I) are also stated.

I/GDSO = SIDC's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.
$I/GDSO_A$ = SIDC's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.
s = sample standard deviation of k values.
s 'SIDC' = annual *s* computed on the SIDC formula.
E*s* = annual estimate of standard deviation.

		WN	k	R_{GD}	*s*	R_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	R_I
2004	Jan	57.18	0.7273	41.59	0.1125	41.82	0.7393	0.7138	11	10	37.3
	Feb	53.60	0.8086	43.34	0.2547	42.56	0.7649	0.7649	5	5	45.8
	Mar	58.20	0.8029	46.73	0.1156	46.60	0.7961	0.7961	15	15	49.1
	Apr	48.91	0.8717	42.63	0.2156	41.94	0.8290	0.8290	11	11	39.3
	May	67.50	0.7934	53.55	0.0753	53.20	0.7778	0.7778	10	10	41.5
	Jun	50.50	0.7565	38.21	0.1860	38.05	0.7475	0.7475	8	8	43.2
	Jul	72.56	0.7021	50.95	0.1045	50.65	0.6899	0.6899	16	16	51.1
	Aug	53.00	0.8310	44.04	0.2423	42.26	0.7300	0.7300	16	16	40.9
	Sep	37.78	0.7032	26.57	0.2170	26.97	0.7353	0.7353	9	9	27.7
	Oct	73.78	0.7767	57.30	0.1262	57.79	0.7967	0.7967	9	9	48.0
	Nov	69.00	0.7783	53.70	0.1185	53.26	0.7591	0.7591	8	8	43.5
	Dec	19.75	0.8338	16.47	0.2806	15.81	0.7342	0.7342	8	8	17.9
2004	Means	56.43	0.7814	44.10	–	43.61	0.7556	0.7533	–	–	40.4
		s = 0.1767			*s* 'SIDC' = 0.1646				E*s* = 0.0158		
2005	Jan	46.92	0.7776	36.49	0.1340	35.89	0.7393	0.7393	13	13	31.3
	Feb	33.70	0.8969	30.23	0.1509	29.58	0.8398	0.8190	10	9	29.2
	Mar	29.62	0.8192	24.27	0.1810	24.35	0.8270	0.8080	16	14	24.5
	Apr	36.94	0.6693	24.72	0.1555	24.70	0.6672	0.6672	17	17	24.2
	May	50.14	0.8689	43.57	0.1666	43.33	0.8547	0.8547	7	7	42.7
	Jun	59.50	0.7321	43.56	0.1326	44.04	0.7563	0.7361	10	8	39.3
	Jul	43.78	0.6325	27.69	0.1525	28.09	0.6599	0.6371	9	6	40.1
	Aug	49.86	0.7613	37.96	0.1528	37.90	0.7579	0.7579	14	14	36.4
	Sep	23.25	1.0025	23.31	0.2573	22.50	0.8978	0.8978	8	8	21.9
	Oct	8.55	0.8239	7.04	0.2042	7.24	0.8936	0.8085	11	7	8.7
	Nov	22.08	0.8171	18.05	0.2787	17.95	0.8038	0.7434	12	9	18.0
	Dec	52.22	0.7775	40.60	0.1200	40.47	0.7702	0.7702	9	9	41.1
2005	Means	37.51	0.7897	29.63	–	29.33	0.7664	0.7544	–	–	29.8
		s = 0.1902			*s* 'SIDC' = 0.1705				E*s* = 0.0160		

TABLE W4:
CORRECTED **WOLF NUMBERS** for Rotations 2011 - 2037.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled R_{GD}.

R_{GD} = WN x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.

ROTATION	START DATE, UT	WN	k	R_{GD}	*s*	R_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k
2011	2003/12/17.17	58.09	0.7425	43.13	0.0740	43.24	0.7480	0.7480	11	11
2012	2004/01/13.50	58.00	0.7368	42.73	0.1793	43.36	0.7690	0.7138	5	4
2013	2004/02/09.84	47.27	0.8038	38.00	0.1794	37.70	0.7846	0.7846	11	11
2014	2004/03/08.18	67.50	0.8189	55.27	0.1258	54.95	0.8044	0.8044	10	10
2015	2004/04/04.48	48.40	0.8644	41.84	0.2258	41.06	0.8161	0.8161	10	10
2016	2004/05/01.74	67.50	0.7934	53.55	0.0753	53.20	0.7778	0.7778	10	10
2017	2004/05/28.96	50.50	0.7565	38.21	0.1860	38.05	0.7475	0.7475	8	8
2018	2004/06/25.16	75.64	0.6745	51.01	0.1032	50.80	0.6659	0.6659	11	11
2019	2004/07/22.36	75.00	0.7157	53.68	0.1038	53.02	0.6893	0.6893	10	10
2020	2004/08/18.58	39.73	0.8667	34.44	0.2460	33.56	0.8003	0.8003	15	15
2021	2004/09/14.84	31.43	0.6852	21.53	0.2047	21.93	0.7227	0.7227	7	7
2022	2004/10/12.12	87.08	0.7667	66.77	0.1010	67.04	0.7761	0.7761	12	12
2023	2004/11/08.42	40.67	0.8336	33.90	0.1928	33.71	0.8197	0.8197	3	3
2024	2004/12/05.73	19.75	0.8338	16.47	0.2806	15.81	0.7342	0.7342	8	8
2025	2005/01/02.05	50.27	0.7655	38.49	0.1381	37.87	0.7288	0.7288	11	11
2026	2005/01/29.39	38.30	0.8669	33.20	0.1315	32.53	0.8146	0.8146	10	10
2027	2005/02/25.73	30.87	0.8123	25.07	0.1188	25.16	0.8207	0.8056	15	13
2028	2005/03/25.05	32.38	0.7516	24.33	0.2080	24.12	0.7317	0.7143	16	15
2029	2005/04/21.33	47.11	0.7192	33.88	0.2435	34.51	0.7594	0.7594	9	9
2030	2005/05/18.56	66.29	0.8006	53.07	0.1036	52.67	0.7823	0.7823	7	7
2031	2005/06/14.77	58.86	0.6568	38.66	0.1540	39.01	0.6748	0.6456	7	5
2032	2005/07/11.96	36.20	0.7041	25.49	0.1868	26.16	0.7597	0.7348	10	7
2033	2005/08/08.18	40.92	0.8301	33.97	0.2556	32.98	0.7575	0.7575	13	13
2034	2005/09/04.42	27.00	0.9061	24.46	0.2046	23.87	0.8395	0.8395	6	6
2035	2005/10/01.69	7.33	0.8550	6.27	0.2384	6.51	0.9545	0.8333	9	5
2036	2005/10/28.98	20.36	0.7049	14.35	0.0821	14.81	0.7723	0.7009	11	8
2037	2005/11/25.29	36.00	0.8917	32.10	0.2806	31.03	0.8021	0.8021	8	8

TABLE W5:
SMOOTHED **WOLF NUMBERS** for **2003 - 2005**.

The following are smoothed Wolf Numbers in three different systems. See page xii for all smoothing formulæ.

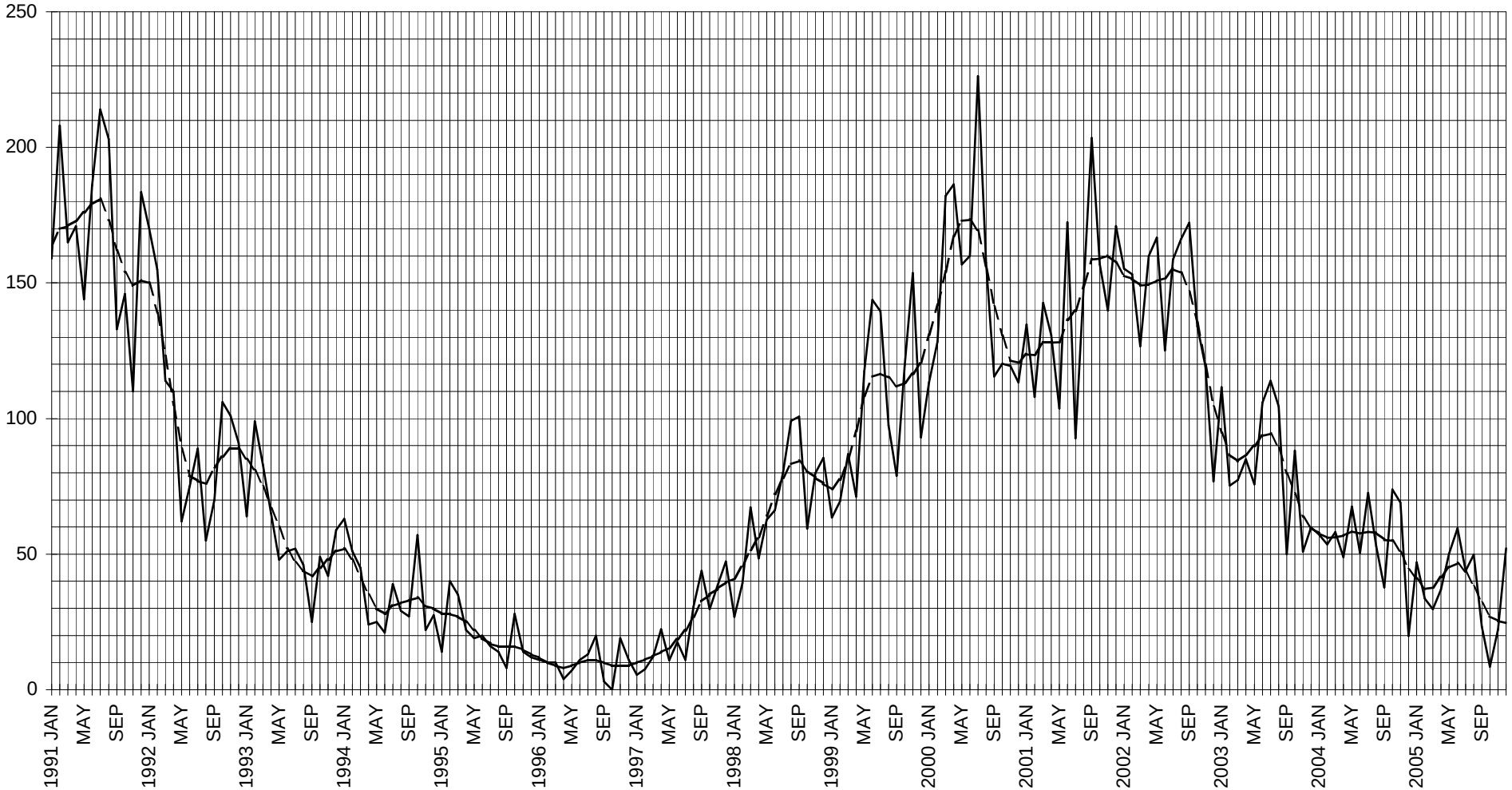
YEAR	MONTH	WN	WN(S^{HBm})	WN(S^{W})	WN(S^{B13})	R_{GD}	R_{GD}(S^{W})	R_{GD}(S^{B13})
2003	Jan	111.62	94.71	111.33	103.97	76.24	81.05	75.54
	Feb	75.33	86.69	106.90	98.09	53.49	78.43	71.59
	Mar	77.38	84.24	99.23	93.26	55.06	73.40	68.53
	Apr	84.94	86.71	92.23	90.19	57.60	69.10	66.82
	May	75.75	89.89	87.47	88.68	54.91	66.05	66.32
	Jun	105.93	93.71	83.92	87.55	82.79	63.50	66.24
	Jul	114.00	94.50	80.94	85.57	93.73	61.36	65.49
	Aug	104.54	89.07	77.77	82.11	78.68	59.49	63.48
	Sep	50.00	79.62	76.06	78.06	37.49	58.72	60.90
	Oct	88.22	72.23	73.76	73.60	68.85	57.75	58.03
	Nov	50.92	63.78	71.92	69.20	47.46	57.07	55.06
	Dec	59.89	59.73	69.26	65.01	47.34	55.16	51.86
2004	Jan	57.18	57.78	65.23	61.44	41.59	51.52	48.89
	Feb	53.60	56.04	61.35	59.12	43.34	48.29	46.99
	Mar	58.20	56.26	58.70	57.85	46.73	46.39	45.97
	Apr	48.91	56.92	57.59	57.27	42.63	45.46	45.28
	May	67.50	58.52	57.74	57.45	53.55	45.24	45.01
	Jun	50.50	57.62	56.82	57.42	38.21	44.21	44.63
	Jul	72.56	58.37	54.72	56.59	50.95	42.71	43.84
	Aug	53.00	58.00	53.46	55.33	44.04	41.95	42.85
	Sep	37.78	55.30	51.44	53.53	26.57	40.47	41.50
	Oct	73.78	55.03	49.75	51.52	57.30	38.79	39.96
	Nov	69.00	50.79	48.53	48.95	53.70	37.63	38.09
	Dec	19.75	44.32	48.18	46.43	16.47	37.43	36.37
2005	Jan	46.92	41.00	47.36	44.53	36.49	36.69	35.00
	Feb	33.70	37.31	46.03	43.30	30.23	35.46	33.93
	Mar	29.62	37.74	45.29	42.71	24.27	35.08	33.33
	Apr	36.94	41.51	41.97	41.72	24.72	32.84	32.48
	May	50.14	45.02	37.30	40.44	43.57	29.27	31.37
	Jun	59.50	46.64	36.69	39.88	43.56	28.79	30.79
	Jul	43.78	43.47	36.83	38.85	27.69	—	—
	Aug	49.86	38.05	34.42	36.39	37.96	—	—
	Sep	23.25	31.98	32.64	33.32	23.31	—	—
	Oct	8.55	27.23	—	—	7.04	—	—
	Nov	22.08	25.46	—	—	18.05	—	—
	Dec	52.22	24.64	—	—	40.60	—	—

TABLE W6:
QUARTERLY AND YEARLY **WOLF NUMBER** MEANS for 2001 - 2005.

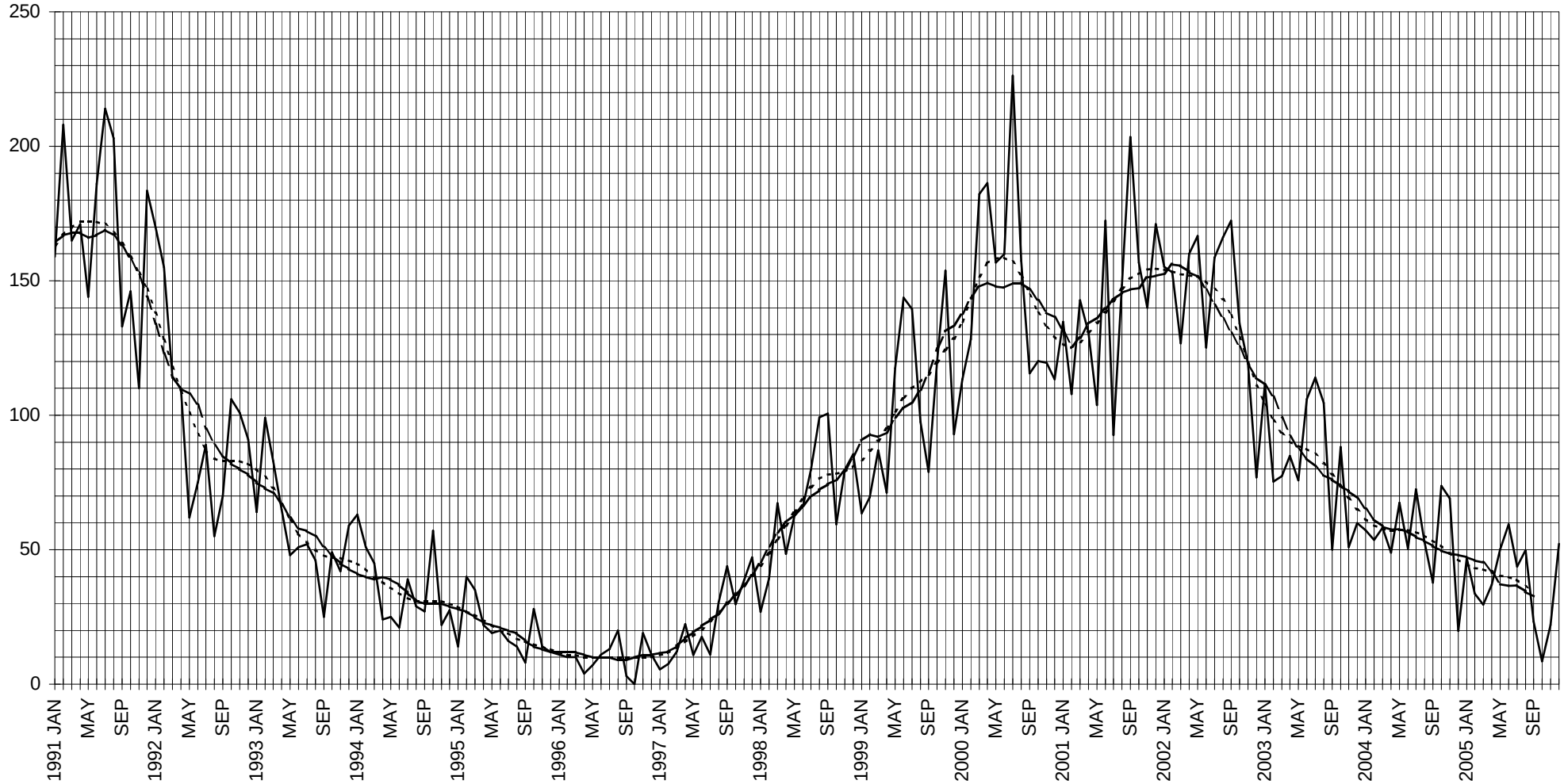
YEAR/ QUARTER	WN	WN(S^{HBm})	WN(S^{W})	WN(S^{B13})	R_{GD}	g	f
2001 / 1	130.96	125.06	128.60	126.28	100.23	7.84	52.56
2	140.18	130.92	136.68	134.44	117.04	9.03	49.92
3	148.18	149.11	145.12	146.75	117.41	8.96	58.59
4	155.94	158.87	150.18	153.79	120.29	9.53	60.65
2001	142.90	140.99	140.15	140.32	112.89	8.76	55.28
2002 / 1	146.52	151.17	154.83	153.44	109.38	9.09	55.65
2	150.00	150.64	150.56	151.22	111.70	9.55	54.47
3	164.92	151.89	135.90	142.29	116.32	8.65	78.46
4	114.70	119.89	119.36	119.81	88.17	7.11	43.57
2002	144.34	143.40	140.16	141.69	106.87	8.57	58.60
2003 / 1	91.60	88.55	105.82	98.44	64.01	6.33	28.27
2	88.37	90.10	87.87	88.81	64.07	5.24	35.92
3	94.76	87.73	78.26	81.91	73.65	5.67	38.09
4	69.72	65.25	71.65	69.27	57.96	3.85	31.22
2003	85.49	82.91	85.90	84.61	64.86	5.18	33.64
2004 / 1	57.10	56.69	61.76	59.47	44.46	3.39	23.23
2	55.76	57.69	57.38	57.38	45.33	3.72	18.52
3	57.29	57.22	53.21	55.15	43.12	3.10	26.32
4	54.96	50.05	48.82	48.97	43.72	3.32	21.76
2004	56.43	55.41	55.29	55.24	44.10	3.36	22.86
2005 / 1	36.44	38.68	46.23	43.51	30.01	2.31	13.36
2	46.29	44.39	38.65	40.68	33.73	2.88	17.47
3	41.23	37.83	34.63	36.19	33.09	2.68	14.45
4	25.91	25.78	—	—	20.85	1.84	7.47
2005	37.51	36.67	—	—	29.63	2.43	13.25

NB: WN(S^{HBm}), WN(S^{W}) & WN(S^{B13}) quarterly values are means of 3 monthly values.
WN(S^{HBm}), WN(S^{W}) & WN(S^{B13}) yearly values are means of 12 monthly values.
R_{GD} quarterly values are computed as quarterly WN means multiplied by quarterly k means.
Annual values of R_{GD} are annual Wolf Number means multiplied by annual k means.

OBSERVED and SMOOTHED GDSO WOLF NUMBERS (WN and WN[SHBm]) 1991-2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE W5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO WOLF NUMBERS (WN,WN[SW] and WN[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE W5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO WOLF NUMBERS (R_{GD}, R_{GD}[SW] and R_{GD}[SB13]) 1991-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE W5 (IN THIS AND PREVIOUS REPORTS)

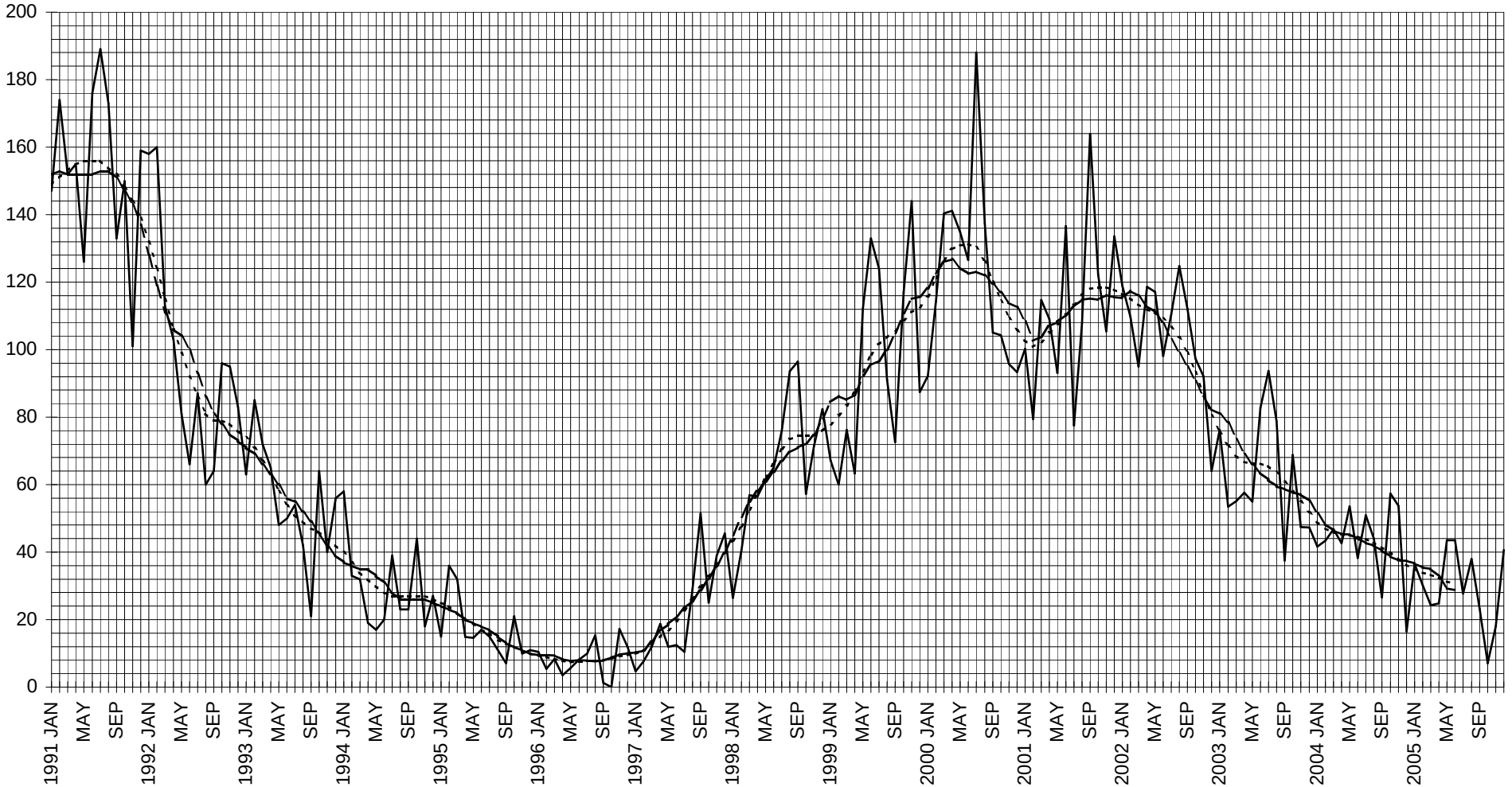


TABLE G1:
MONTHLY **ACTIVE AREA (g)** MEANS OF GDSO DATA for **2005**.
g = mean of Active Areas or groups on the solar disc.
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	g	δ	n	w	Q	S	T	C
Jan	2.77	0.8	13	0.4826	1.81	2.35	2.23	2.1282
Feb	2.50	1.5	10	0.5272	1.50	2.15	2.10	1.9167
Mar	1.81	0.9	16	0.4998	1.66	2.19	2.25	2.0312
Apr	2.71	0.5	17	0.5151	1.68	2.06	2.15	1.9608
May	2.29	0.4	7	0.4757	1.86	2.29	2.21	2.1190
Jun	3.60	1.8	10	0.5188	1.45	2.15	2.25	1.9500
Jul	2.89	2.1	9	0.4833	1.67	2.22	2.44	2.1111
Aug	3.29	0.8	14	0.5098	1.61	2.21	2.18	2.0000
Sep	1.38	0.5	8	0.4621	1.56	2.50	2.50	2.1875
Oct	0.64	0.5	11	0.4806	1.45	2.55	2.41	2.1364
Nov	1.25	0.8	12	0.4373	1.83	2.71	2.42	2.3194
Dec	4.11	1.0	9	0.4590	1.61	2.50	2.56	2.2222
Year	2.43	1.3	—	0.4902	1.64	2.31	2.29	2.0797

TABLE G2:
ROTATIONAL **ACTIVE AREA (g)** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	g	δ	n	w	Q	S	T	C
2024	2004/12/05.73	1.50	0.6	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	2.91	0.8	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	2.80	1.2	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	1.87	0.8	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	2.44	0.8	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	2.33	0.4	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	4.00	1.1	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	3.71	2.6	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	2.30	1.4	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	2.85	1.0	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	1.50	0.5	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	0.56	0.5	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	1.09	0.7	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	2.62	0.8	8	0.4288	1.88	2.69	2.56	2.3750

TABLE G3:
CORRECTED **ACTIVE AREA (g)** VALUES for **2004 - 2005**.

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Active Area means have to be upgraded to give reflections of international results. International Active Area results are computed by the Solar Section of the British Astronomical Association. Below are the 'observed' Active Area (g) means along with the monthly k co-efficients and the corrected values (g_{GD}) for 2004 - 2005. The BAA's final values (g_B) are also stated.

I/GDSO = BAA's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.

$I/GDSO_A$ = BAA's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.

n = number of GDSO observations.

n_k = number of k values.

s = sample standard deviation of k values.

s 'SIDC' = annual *s* computed on the SIDC formula.

E*s* = annual estimate of standard deviation.

		g	k	g_{GD}	*s*	g_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	g_B
2004	Jan	3.00	0.9350	2.80	0.2115	2.84	0.9697	0.9091	11	10	2.69
	Feb	4.00	0.9867	3.95	0.2181	3.90	0.9500	0.9500	5	5	3.43
	Mar	3.47	1.0571	3.66	0.3242	3.60	1.0000	1.0000	15	15	3.56
	Apr	3.36	1.2000	4.04	0.4387	3.87	1.0541	1.0541	11	11	3.35
	May	4.20	0.9600	4.03	0.0843	4.02	0.9524	0.9524	10	10	3.27
	Jun	3.62	0.7896	2.86	0.1962	2.82	0.7586	0.7586	8	8	2.86
	Jul	3.69	0.9487	3.50	0.1883	3.44	0.8983	0.8983	16	16	3.25
	Aug	3.00	1.0604	3.18	0.2913	3.12	1.0000	1.0000	16	16	2.98
	Sep	2.22	0.9074	2.02	0.1884	2.01	0.9000	0.9000	9	9	2.15
	Oct	4.67	0.9259	4.32	0.1690	4.36	0.9524	0.9524	9	9	3.68
	Nov	3.62	1.0625	3.85	0.1768	3.82	1.0345	1.0345	8	8	3.24
	Dec	1.50	1.0000	1.50	0.4629	1.46	0.9167	0.9167	8	8	1.51
2004	Means	3.36	0.9952	3.34	—	3.30	0.9551	0.9504	—	—	3.00
		s = 0.2770			*s* 'SIDC' = 0.2505			E*s* = 0.0243			
2005	Jan	2.77	0.9974	2.76	0.1828	2.74	0.9722	0.9722	13	13	2.26
	Feb	2.50	0.9815	2.45	0.0556	2.44	0.9600	0.9600	10	9	2.46
	Mar	1.81	1.0128	1.84	0.1730	1.83	1.0000	1.0000	16	13	1.82
	Apr	2.71	0.8594	2.33	0.1965	2.30	0.8261	0.8636	17	16	2.12
	May	2.29	1.0000	2.29	0.1925	2.29	1.0000	1.0000	7	7	2.56
	Jun	3.60	0.9063	3.26	0.2485	3.24	0.8889	0.8889	10	8	2.70
	Jul	2.89	0.7722	2.23	0.2005	2.23	0.7692	0.7692	9	6	2.98
	Aug	3.29	0.8845	2.91	0.1728	2.91	0.8913	0.8913	14	14	2.96
	Sep	1.38	1.1875	1.63	0.5303	1.59	1.0909	1.0909	8	8	1.47
	Oct	0.64	1.0000	0.64	0.0000	0.64	1.0000	1.0000	11	7	0.66
	Nov	1.25	1.0556	1.32	0.1667	1.35	1.1333	1.0667	12	9	1.31
	Dec	4.11	0.9537	3.92	0.1914	3.91	0.9459	0.9459	9	9	3.37
2005	Means	2.43	0.9627	2.34	—	2.31	0.9273	0.9297	—	—	2.22
		s = 0.2282			*s* SIDC' = 0.1907			E*s* = 0.0201			

TABLE G4:
CORRECTED **ACTIVE AREA (g)** VALUES for Rotations 2011 - 2037.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled g_{GD}.

g_{GD} = g x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.

ROTATION	START DATE, UT	g	k	g_{GD}	*s*	g_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k
2011	2003/12/17.17	3.45	0.9188	3.17	0.1614	3.18	0.9211	0.9211	11	11
2012	2004/01/13.50	3.20	0.9833	3.15	0.3000	3.23	1.0625	0.9375	5	4
2013	2004/02/09.84	3.09	1.0394	3.21	0.3774	3.14	0.9706	0.9706	11	11
2014	2004/03/08.18	4.20	1.0357	4.35	0.1692	4.30	1.0000	1.0000	10	10
2015	2004/04/04.48	3.30	1.2200	4.03	0.4572	3.85	1.0606	1.0606	10	10
2016	2004/05/01.74	4.20	0.9600	4.03	0.0843	4.02	0.9524	0.9524	10	10
2017	2004/05/28.96	3.62	0.7896	2.86	0.1962	2.82	0.7586	0.7586	8	8
2018	2004/06/25.16	4.27	0.8799	3.76	0.1285	3.72	0.8511	0.8511	11	11
2019	2004/07/22.36	3.10	1.0250	3.18	0.2423	3.12	0.9677	0.9677	10	10
2020	2004/08/18.58	2.67	1.0589	2.82	0.2811	2.79	1.0250	1.0250	15	15
2021	2004/09/14.84	1.86	0.9286	1.72	0.1890	1.72	0.9231	0.9231	7	7
2022	2004/10/12.12	4.75	0.9583	4.55	0.1897	4.56	0.9649	0.9649	12	12
2023	2004/11/08.42	3.33	1.1111	3.70	0.1925	3.69	1.1000	1.1000	3	3
2024	2004/12/05.73	1.50	1.0000	1.50	0.4629	1.46	0.9167	0.9167	8	8
2025	2005/01/02.05	2.91	0.9970	2.90	0.2003	2.87	0.9688	0.9688	11	11
2026	2005/01/29.39	2.80	0.9833	2.75	0.0527	2.74	0.9643	0.9643	10	10
2027	2005/02/25.73	1.87	1.0128	1.89	0.1730	1.88	1.0000	1.0000	15	13
2028	2005/03/25.05	2.44	0.8988	2.19	0.1735	2.19	0.8974	0.8947	16	14
2029	2005/04/21.33	2.33	0.8958	2.09	0.2663	2.02	0.8095	0.8947	9	8
2030	2005/05/18.56	4.00	1.0071	4.03	0.1305	4.02	1.0000	1.0000	7	7
2031	2005/06/14.77	3.71	0.7333	2.72	0.2211	2.67	0.6923	0.6923	7	5
2032	2005/07/11.96	2.30	0.8452	1.94	0.2065	1.96	0.8696	0.8696	10	7
2033	2005/08/08.18	2.85	0.9718	2.77	0.3538	2.72	0.9189	0.9189	13	13
2034	2005/09/04.42	1.50	1.0833	1.62	0.4916	1.58	1.0000	1.0000	6	6
2035	2005/10/01.69	0.56	1.0000	0.56	0.0000	0.56	1.0000	1.0000	9	5
2036	2005/10/28.98	1.09	1.0625	1.16	0.1768	1.20	1.1667	1.0833	11	8
2037	2005/11/25.29	2.62	0.9688	2.54	0.1989	2.53	0.9524	0.9524	8	8

TABLE G5:
SMOOTHED **ACTIVE AREA (g)** VALUES for **2003 - 2005**.

The following are smoothed Active Area (g) values in three different systems. See page xii for all smoothing formulæ.

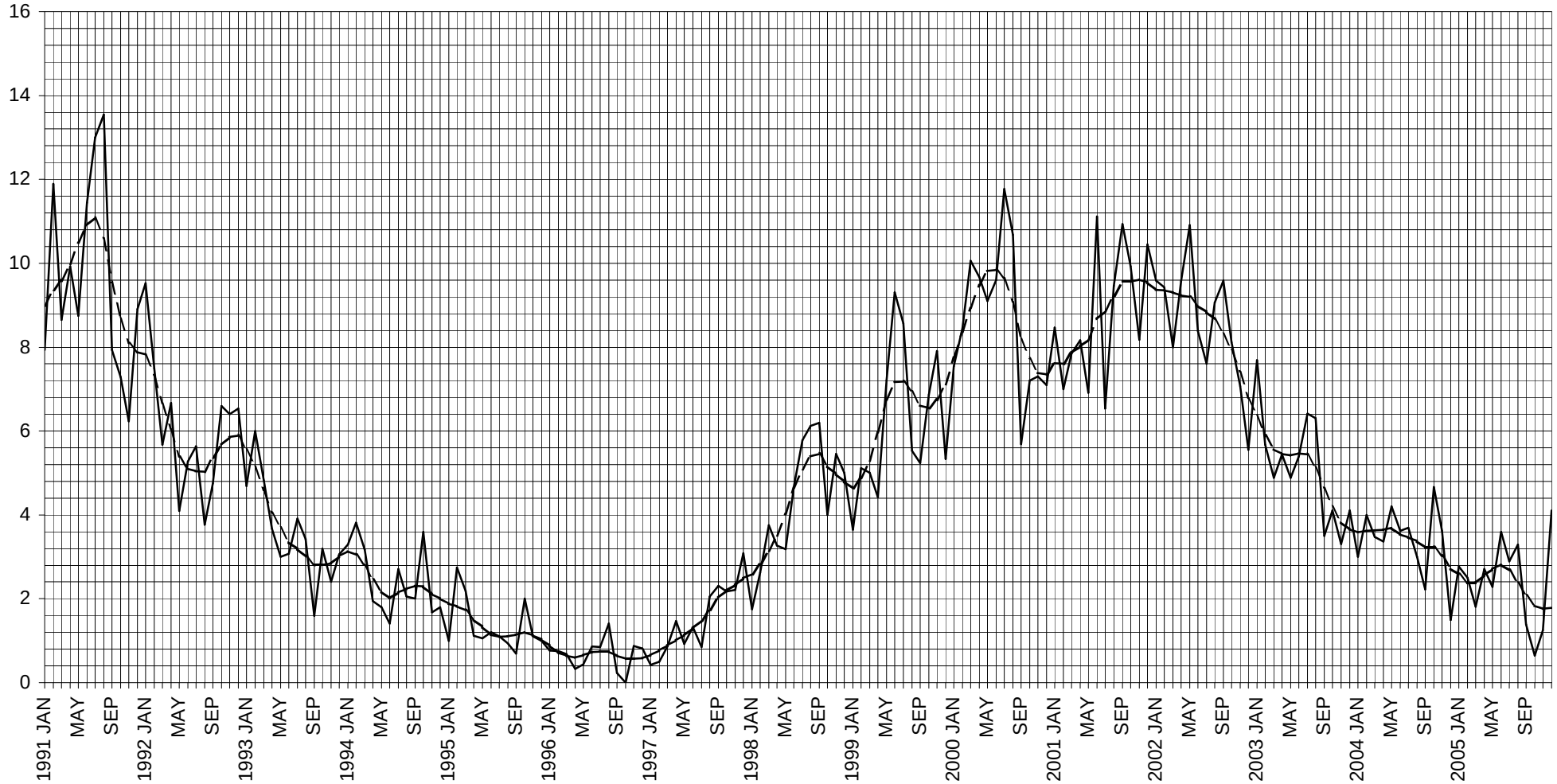
YEAR	MONTH	g	$g(S^{HBm})$	$g(S^{W})$	$g(S^{B13})$	g_{GD}	$g_{GD}(S^{W})$	$g_{GD}(S^{B13})$
2003	Jan	7.69	6.3669	6.6954	6.5433	6.47	5.8821	5.7948
	Feb	5.67	5.8950	6.5312	6.2309	4.90	5.7625	5.5066
	Mar	4.88	5.5588	6.1633	5.9198	4.31	5.4600	5.2188
	Apr	5.44	5.4556	5.7433	5.6582	4.53	5.0979	4.9628
	May	4.88	5.4138	5.4200	5.4553	4.02	4.7771	4.7540
	Jun	5.40	5.4612	5.2033	5.2866	4.65	4.5508	4.6004
	Jul	6.42	5.4450	4.9479	5.0883	6.06	4.3338	4.4482
	Aug	6.31	5.1381	4.6829	4.8439	5.54	4.1412	4.2622
	Sep	3.50	4.6394	4.5546	4.5988	2.81	4.0746	4.0819
	Oct	4.11	4.1956	4.4092	4.3511	3.40	4.0271	3.9285
	Nov	3.31	3.8256	4.2942	4.1370	3.13	4.0071	3.8219
	Dec	4.11	3.6600	4.1917	3.9588	4.02	3.9329	3.7269
2004	Jan	3.00	3.5850	4.0038	3.8017	2.80	3.7517	3.6296
	Feb	4.00	3.6162	3.7521	3.6826	3.95	3.5467	3.5691
	Mar	3.47	3.6306	3.5608	3.6072	3.66	3.4154	3.5432
	Apr	3.36	3.6488	3.5308	3.5770	4.04	3.4208	3.5279
	May	4.20	3.6912	3.5671	3.5708	4.03	3.4892	3.5060
	Jun	3.62	3.5350	3.4712	3.5185	2.86	3.4142	3.4342
	Jul	3.69	3.4681	3.3529	3.4276	3.50	3.3075	3.3392
	Aug	3.00	3.3831	3.2808	3.3255	3.18	3.2433	3.2390
	Sep	2.22	3.2269	3.1492	3.2098	2.02	3.1050	3.1207
	Oct	4.67	3.2288	3.0529	3.0972	4.32	2.9579	3.0039
	Nov	3.62	3.0294	2.9462	2.9485	3.85	2.8142	2.8647
	Dec	1.50	2.7212	2.8658	2.8034	1.50	2.7583	2.7375
2005	Jan	2.77	2.5825	2.8317	2.7154	2.76	2.7221	2.6416
	Feb	2.50	2.3794	2.8104	2.6702	2.45	2.6579	2.5634
	Mar	1.81	2.3806	2.7875	2.6432	1.84	2.6304	2.5077
	Apr	2.71	2.5625	2.5846	2.5772	2.33	2.4608	2.4239
	May	2.29	2.7050	2.3179	2.4956	2.29	2.2021	2.3238
	Jun	3.60	2.8206	2.3279	2.4772	3.26	2.1975	2.2893
	Jul	2.89	2.6825	2.3725	2.4432	2.23	2.2388	2.2559
	Aug	3.29	2.3744	2.2238	2.3153	2.91	2.0900	2.1495
	Sep	1.38	2.0813	2.1088	2.1495	1.63	—	—
	Oct	0.64	1.8356	—	—	0.64	—	—
	Nov	1.25	1.7644	—	—	1.32	—	—
	Dec	4.11	1.7850	—	—	3.92	—	—

TABLE G6:
QUARTERLY & YEARLY **ACTIVE AREA (g)** MEANS for 2001 - 2005.

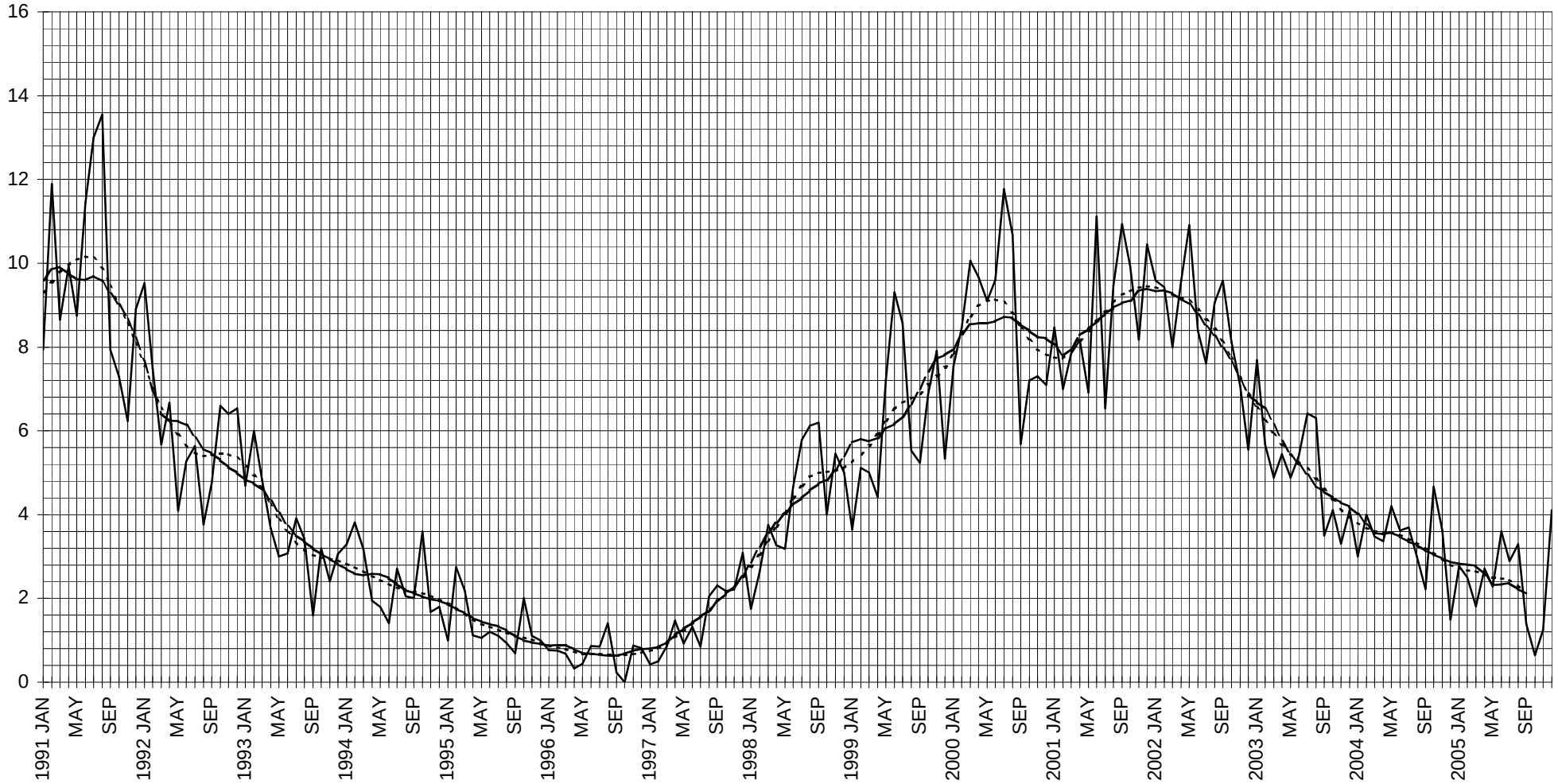
YEAR / QUARTER	g	$g(S^{HBm})$	$g(S^{W})$	$g(S^{B13})$	g_{GD}
2001 / 1	7.84	7.70	7.93	7.79	6.85
2	9.03	8.29	8.44	8.38	8.49
3	8.96	9.21	8.93	9.05	8.15
4	9.53	9.57	9.28	9.40	8.63
2001	8.76	8.69	8.65	8.66	7.93
2002 / 1	9.09	9.34	9.32	9.35	8.06
2	9.55	9.14	8.98	9.06	7.91
3	8.65	8.61	8.24	8.40	7.36
4	7.11	7.37	7.26	7.31	6.78
2002	8.57	8.62	8.45	8.53	7.55
2003 / 1	6.33	5.94	6.46	6.23	5.44
2	5.24	5.44	5.46	5.47	4.40
3	5.67	5.07	4.73	4.84	5.01
4	3.85	3.89	4.30	4.15	3.46
2003	5.18	5.09	5.24	5.17	4.50
2004 / 1	3.39	3.61	3.77	3.70	3.40
2	3.72	3.62	3.52	3.56	3.74
3	3.10	3.36	3.26	3.32	3.05
4	3.32	2.99	2.95	2.95	3.30
2004	3.36	3.40	3.38	3.38	3.34
2005 / 1	2.31	2.45	2.81	2.68	2.31
2	2.88	2.70	2.41	2.52	2.60
3	2.68	2.38	2.24	2.30	2.54
4	1.84	1.80	—	—	1.85
2005	2.43	2.33	—	—	2.34

NB: $g(S^{HBm})$, $g(S^{W})$ & $g(S^{B13})$ quarterly values are means of 3 monthly values.
$g(S^{HBm})$, $g(S^{W})$ & $g(S^{B13})$ yearly values are means of 12 monthly values.
g_{GD} quarterly values are computed as quarterly g means multiplied by quarterly k means.
Annual values of g_{GD} are annual Active Area means multiplied by annual k means.

OBSERVED and SMOOTHED GDSO ACTIVE AREAS (g and g[SHBm]) 1991 - 2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE G5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO ACTIVE AREAS (g and g[SW] and g[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUE, SEE TABLE G5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO ACTIVE AREAS (gGD, gGD[SW] and gGD[SB13]) 1991-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE G5 (IN THIS AND PREVIOUS REPORTS)

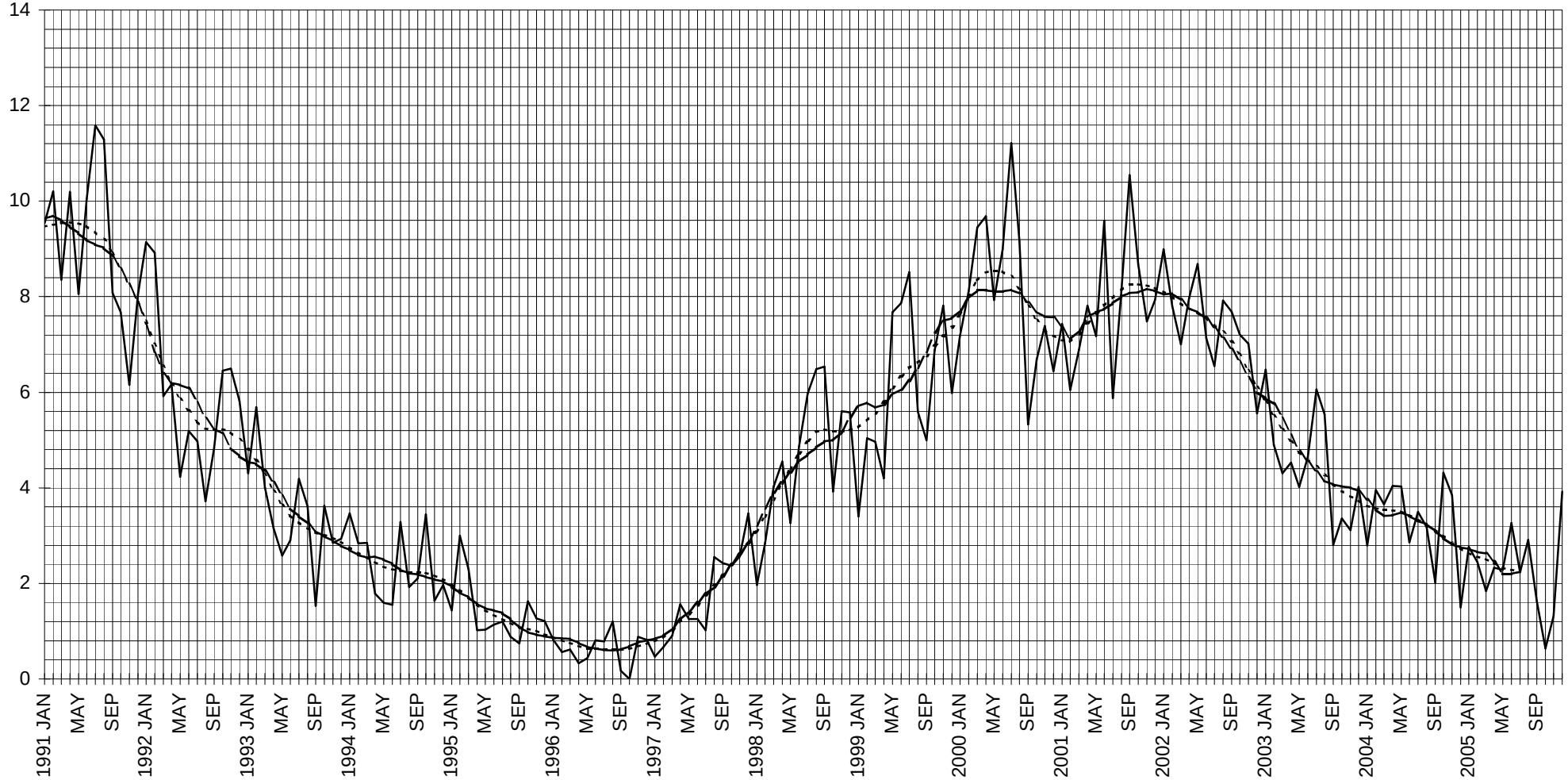


TABLE P1:
MONTHLY **PETTISINDEX** MEANS OF GDSO DATA for **2005**.
p = mean of penumbræ on the solar disc.
s = mean of penumbral-free sunspots on the solar disc.
SN = mean Pettisindex (k neglected; see list of definitions).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	p	s	SN	δ	n	w	Q	S	T	C
Jan	4.38	5.54	49.38	18.2	13	0.4826	1.81	2.35	2.23	2.1282
Feb	2.80	4.20	32.20	19.4	10	0.5272	1.50	2.15	2.10	1.9167
Mar	3.25	4.88	37.38	25.2	16	0.4998	1.66	2.19	2.25	2.0312
Apr	2.94	4.59	34.00	12.2	17	0.5151	1.68	2.06	2.15	1.9608
May	7.86	9.86	88.43	33.5	7	0.4757	1.86	2.29	2.21	2.1190
Jun	7.40	7.50	81.50	40.8	10	0.5188	1.45	2.15	2.25	1.9500
Jul	6.11	5.11	66.22	53.3	9	0.4833	1.67	2.22	2.44	2.1111
Aug	5.29	7.29	60.14	19.6	14	0.5098	1.61	2.21	2.18	2.0000
Sep	2.75	3.25	30.75	21.7	8	0.4621	1.56	2.50	2.50	2.1875
Oct	0.82	1.18	9.36	9.7	11	0.4806	1.45	2.55	2.41	2.1364
Nov	3.17	3.42	35.08	27.6	12	0.4373	1.83	2.71	2.42	2.3194
Dec	5.00	4.56	54.56	9.5	9	0.4590	1.61	2.50	2.56	2.2222
Year	4.11	5.02	46.12	28.6	—	0.4902	1.64	2.31	2.29	2.0797

TABLE P2:
ROTATIONAL **PETTISINDEX** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	p	s	SN	δ	n	w	Q	S	T	C
2024	2004/12/05.73	2.38	1.50	25.25	16.6	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	4.55	5.82	51.27	19.6	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	3.50	4.90	39.90	16.9	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	3.47	5.13	39.80	23.6	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	2.75	4.19	31.69	15.4	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	5.89	8.22	67.11	45.0	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	8.57	8.43	94.14	31.3	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	7.29	7.71	80.57	57.2	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	5.20	5.30	57.30	40.8	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	3.85	5.15	43.62	18.8	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	3.33	4.00	37.33	24.1	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	0.44	1.11	5.56	6.7	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	3.18	3.36	35.18	24.7	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	3.88	4.00	42.75	20.3	8	0.4288	1.88	2.69	2.56	2.3750

TABLE P3:
CORRECTED **PETTISINDICES** for **1997 and *2005 (provisional)* .**

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Pettisindices have to be upgraded to give reflections of international results. International Pettisindex results are computed by Thomas Wichary, Germany, on behalf of Sonne, Germany.

Below are the 'observed' Pettisindices along with the monthly k co-efficients and the corrected values (PX_{GD}) for 1997 & 2005. Sonne's final values (PX_I) are also stated.

I/GDSO = Sonne's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.

$I/GDSO_A$ = Sonne's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.

n = number of GDSO observations.

n_k = number of k values.

s = sample standard deviation of k values.

s 'SIDC' = annual *s* computed on the SIDC formula.

E*s* = annual estimate of standard deviation. ***ITALISED DATA, PROVISIONAL***

		SN	k	PX_{GD}	*s*	PX_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	PX_I
1997	Jan	3.16	1.9301	6.10	1.8460	–	1.2000	1.1724	19	7	2.7
	Feb	8.60	3.3725	29.00	4.0092	–	1.1744	1.1628	10	3	9.5
	Mar	8.21	2.6215	21.53	2.2516	–	1.7391	1.7304	14	11	10.5
	Apr	20.05	1.9036	38.17	1.5208	–	1.3386	1.3307	19	15	20.9
	May	6.54	3.2662	21.36	5.5809	–	1.7294	1.7176	13	11	20.3
	Jun	8.89	2.2612	20.10	1.8026	–	1.5938	1.5875	18	17	14.4
	Jul	5.30	4.0134	21.27	6.1102	–	1.3019	1.2075	20	10	6.8
	Aug	25.67	1.5009	38.52	0.4494	–	1.4471	1.4397	21	19	31.1
	Sep	52.44	1.4903	78.15	0.3601	–	1.3600	1.3600	16	16	73.8
	Oct	21.76	1.6329	35.54	0.7439	–	1.3730	1.3730	17	17	27.7
	Nov	40.93	1.7525	71.73	1.8656	–	1.2478	1.2478	14	14	54.8
	Dec	49.31	1.2996	64.08	0.3025	–	1.2153	1.2153	13	13	58.4
1997	Means	20.95	2.0724	43.42	–	–	1.3517	1.3461	–	–	27.6

s = 2.5430 *s* 'SIDC' = 1.8475 E*s* = 0.2066

2005	Jan	49.38	***0.9394***	***46.39***	***0.1949***	***46.13***	***0.9237***	***0.9237***	13	***13***	***38.4***
	Feb	32.20	***1.0732***	***34.56***	***0.5292***	***33.47***	***0.9720***	***0.9720***	10	***9***	***27.1***
	Mar	37.38	***1.0894***	***40.72***	***0.5898***	***38.73***	***0.9298***	***0.9313***	16	***13***	***34.0***
	Apr	34.00	***0.8288***	***28.18***	***0.2178***	***27.82***	***0.7976***	***0.8145***	17	***16***	***25.0***
	May	88.43	***0.7524***	***66.53***	***0.1674***	***66.21***	***0.7415***	***0.7415***	7	***7***	***57.6***
	Jun	81.50	***0.7526***	***61.34***	***0.2244***	***61.36***	***0.7534***	***0.7534***	10	***8***	***49.6***
	Jul	66.22	***0.8204***	***54.33***	***0.1423***	***54.11***	***0.8104***	***0.8104***	9	***6***	***67.5***
	Aug	60.14	***0.8121***	***48.84***	***0.1410***	***48.32***	***0.7862***	***0.7862***	14	***14***	***43.9***
	Sep	30.75									
	Oct	9.36									
	Nov	35.08									
	Dec	54.56									
2005	Means	46.12			–			–	–		

s = *s* 'SIDC' = E*s* =

TABLE P4:
CORRECTED **PETTISINDICES** for Rotations 1942 - 2010.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled PX_{GD}.

PX_{GD} = SN x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values. ***ITALISED DATA, PROVISIONAL***

ROTATION	START DATE, UT	SN	k	PX_{GD}	*s*	PX_{GD}	I/GDSO	$I/GDSO_A$	n	n_k
1923	1997/05/22.10	11.15	3.6807	41.05	5.2832	—	1.6621	1.6621	13	13
1924	1997/06/18.31	1.72	2.2765	3.92	1.2745	—	2.3548	2.1290	18	11
1925	1997/07/15.50	14.47	3.4723	50.23	5.8781	—	1.3088	1.2903	15	11
1926	1997/08/11.72	28.50	1.4628	41.69	0.3647	—	1.3957	1.3879	18	16
1927	1997/09/07.97	50.67	1.5508	78.57	0.3380	—	1.3961	1.3961	15	15
1928	1997/10/05.24	22.31	1.6340	36.46	0.7683	—	1.3641	1.3641	16	16
1929	1997/11/01.54	40.93	1.7525	71.73	1.8656	—	1.2478	1.2478	14	14
1930	1997/11/28.84	47.50	1.3140	62.41	0.3424	—	1.2042	1.2042	10	10
2025	2005/01/02.05	51.27	***0.9319***	***47.78***	***0.2124***	***47.49***	***0.9149***	***0.9149***	11	***11***
2026	2005/01/29.39	39.90	***1.0621***	***42.38***	***0.5002***	***41.22***	***0.9749***	***0.9749***	10	***10***
2027	2005/02/25.73	39.80	***0.9355***	***37.23***	***0.1367***	***37.13***	***0.9280***	***0.9280***	15	***13***
2028	2005/03/25.05	31.69	***0.9613***	***30.46***	***0.6210***	***28.93***	***0.8166***	***0.8182***	16	***14***
2029	2005/04/21.33	67.11	***0.8410***	***56.44***	***0.2145***	***54.33***	***0.7467***	***0.7618***	9	***8***
2030	2005/05/18.56	94.14	***0.7678***	***72.29***	***0.1482***	***72.91***	***0.7876***	***0.7876***	7	***7***
2031	2005/06/14.77	80.57	***0.7464***	***60.14***	***0.2708***	***60.47***	***0.7589***	***0.7589***	7	***5***
2032	2005/07/11.96	57.30	***0.7685***	***44.04***	***0.1104***	***43.59***	***0.7452***	***0.7452***	10	***7***
2033	2005/08/08.18	43.62							13	
2034	2005/09/04.42	37.33							6	
2035	2005/10/01.69	5.56							9	
2036	2005/10/28.98	35.18							11	
2037	2005/11/25.29	42.75							8	

TABLE P5:
SMOOTHED **PETTISINDICES** for **1998 - 2003**.

The following are smoothed Pettisindices in three different systems. See page xii for all smoothing formulæ.

YEAR	MONTH	SN	$SN(S^{HBm})$	$SN(S^{W})$	$SN(S^{B13})$	PX_{GD}	$PX_{GD}(S^{W})$	$PX_{GD}(S^{B13})$
1998	Jan	22.31	40.46	44.81	44.01	—	—	—
	Feb	33.81	46.57	50.76	48.69	—	—	—
	Mar	79.35	53.43	56.13	54.01	—	—	—
	Apr	46.45	57.01	59.48	59.01	—	—	—
	May	72.41	64.64	62.35	63.54	—	—	—
	Jun	57.89	70.80	66.18	68.16	—	—	—
	Jul	65.44	75.31	70.63	73.00	—	—	—
	Aug	108.25	81.34	74.09	76.82	—	—	—
	Sep	98.93	83.39	76.38	78.86	—	—	—
	Oct	55.62	82.10	78.76	80.24	—	—	—
	Nov	75.92	81.67	82.53	82.30	—	—	—
	Dec	106.33	82.15	88.63	85.50	—	—	—
1999	Jan	71.91	81.24	96.27	89.68	—	—	—
	Feb	67.33	85.46	100.30	94.22	—	—	—
	Mar	100.71	94.11	99.82	98.83	—	—	—
	Apr	82.42	104.71	102.90	104.77	—	—	—
	May	126.79	118.76	111.45	112.43	—	—	—
	Jun	149.94	126.58	116.00	118.93	—	—	—
	Jul	156.69	129.02	117.44	123.08	—	—	—
	Aug	113.82	130.06	121.94	126.03	—	—	—
	Sep	81.88	128.34	129.49	129.59	—	—	—
	Oct	146.53	131.30	139.44	135.18	—	—	—
	Nov	190.18	133.77	146.09	140.23	—	—	—
	Dec	101.17	135.63	148.92	144.02	—	—	—
2000	Jan	111.85	144.97	155.60	150.78	—	—	—
	Feb	135.23	155.48	163.09	160.74	—	—	—
	Mar	213.94	169.75	167.88	170.20	—	—	—
	Apr	208.11	186.84	170.40	176.40	—	—	—
	May	160.70	194.71	168.20	179.10	—	—	—
	Jun	183.90	198.42	167.16	180.80	—	—	—
	Jul	283.00	196.72	170.05	180.52	—	—	—
	Aug	167.42	181.64	171.29	175.57	—	—	—
	Sep	143.08	166.65	169.59	168.12	—	—	—
	Oct	145.86	153.47	165.93	161.29	—	—	—
	Nov	138.10	141.20	162.24	155.82	—	—	—
	Dec	128.18	140.98	162.20	152.48	—	—	—

TABLE P5 continued:
SMOOTHED **PETTISINDICES** for **1998 - 2003**.

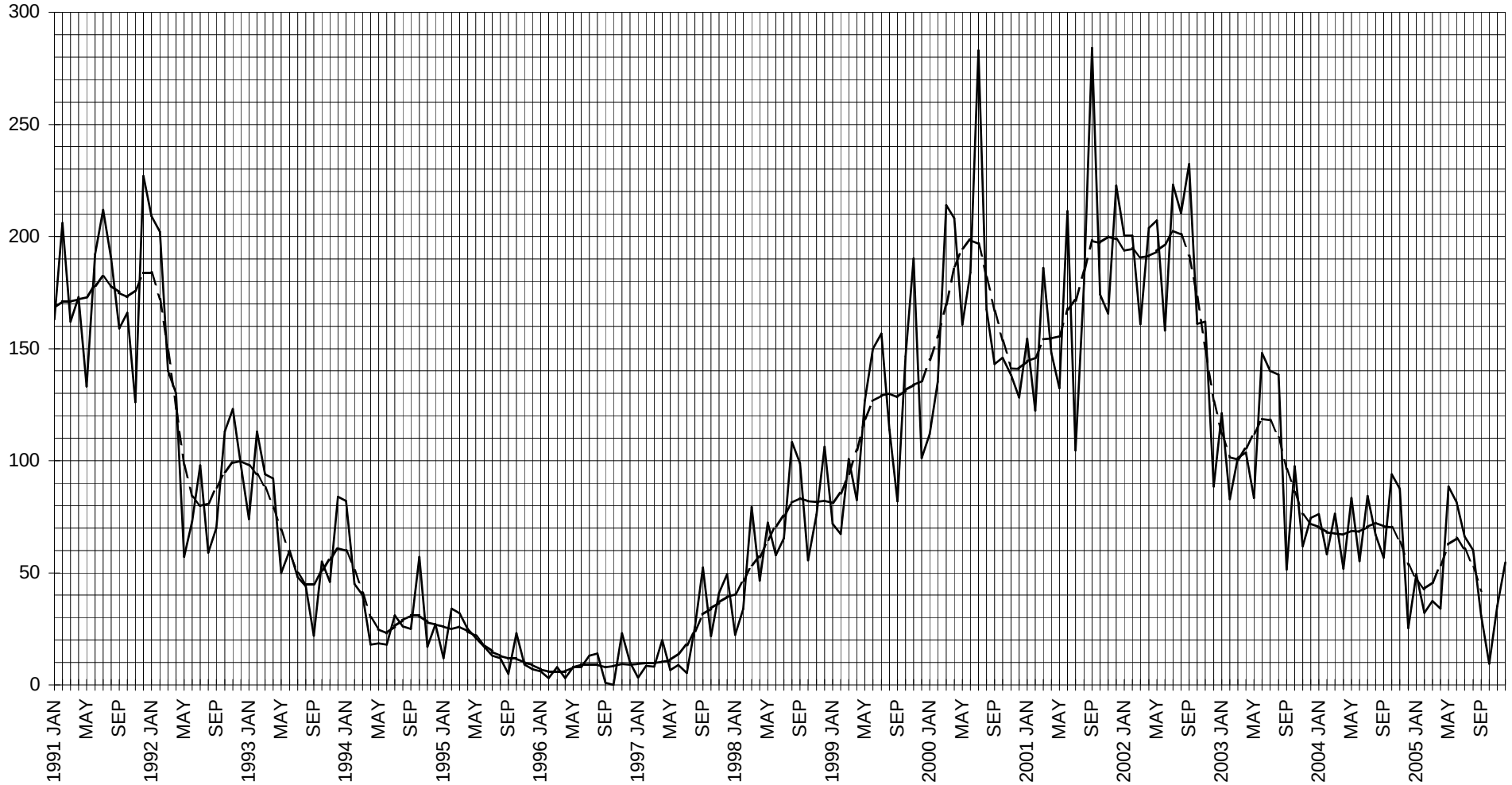
YEAR	MONTH	SN	$SN(S^{HBm})$	$SN(S^{W})$	$SN(S^{B13})$	PX_{GD}	$PX_{GD}(S^{W})$	$PX_{GD}(S^{B13})$
2001	Jan	154.35	144.46	155.91	149.53	–	–	–
	Feb	122.38	145.86	148.96	148.49	–	–	–
	Mar	186.10	154.28	155.32	152.53	–	–	–
	Apr	148.08	154.61	162.38	157.98	–	–	–
	May	132.27	155.62	164.70	162.98	–	–	–
	Jun	211.31	167.51	169.78	168.82	–	–	–
	Jul	104.53	171.52	175.64	175.08	–	–	–
	Aug	179.07	184.44	180.81	182.12	–	–	–
	Sep	284.12	198.15	183.01	187.66	–	–	–
	Oct	174.17	197.14	184.28	190.50	–	–	–
	Nov	165.55	200.08	189.72	193.31	–	–	–
	Dec	222.73	198.92	190.62	194.69	–	–	–
2002	Jan	200.37	193.85	193.33	195.39	–	–	–
	Feb	200.36	194.44	199.58	195.76	–	–	–
	Mar	160.92	190.74	198.73	194.87	–	–	–
	Apr	203.79	191.22	196.02	195.10	–	–	–
	May	207.09	193.29	195.32	195.65	–	–	–
	Jun	158.08	196.52	189.58	193.63	–	–	–
	Jul	223.00	202.57	180.68	189.67	–	–	–
	Aug	210.44	200.94	172.48	183.85	–	–	–
	Sep	232.33	191.26	165.10	175.09	–	–	–
	Oct	161.00	173.05	158.44	163.61	–	–	–
	Nov	162.00	149.78	149.12	150.09	–	–	–
	Dec	88.45	126.52	143.55	137.75	–	–	–
2003	Jan	121.08	111.84	139.67	127.63	–	–	–
	Feb	82.89	101.76	133.21	119.76	–	–	–
	Mar	101.25	100.63	122.66	113.82	–	–	–
	Apr	103.67	105.72	112.48	110.04	–	–	–
	May	83.44	112.03	105.66	108.35	–	–	–
	Jun	147.93	118.68	100.90	107.34	–	–	–
	Jul	140.08	118.12	98.45	105.39	–	–	–
	Aug	138.31	110.24	95.55	101.07	–	–	–
	Sep	51.38	96.21	93.49	95.51	–	–	–
	Oct	97.61	85.73	90.29	89.52	–	–	–
	Nov	61.77	75.94	88.13	84.00	–	–	–
	Dec	74.44	71.95	84.25	78.57	–	–	–

TABLE P6:
QUARTERLY AND YEARLY **PETTISINDEX** MEANS for 1998 - 2003.

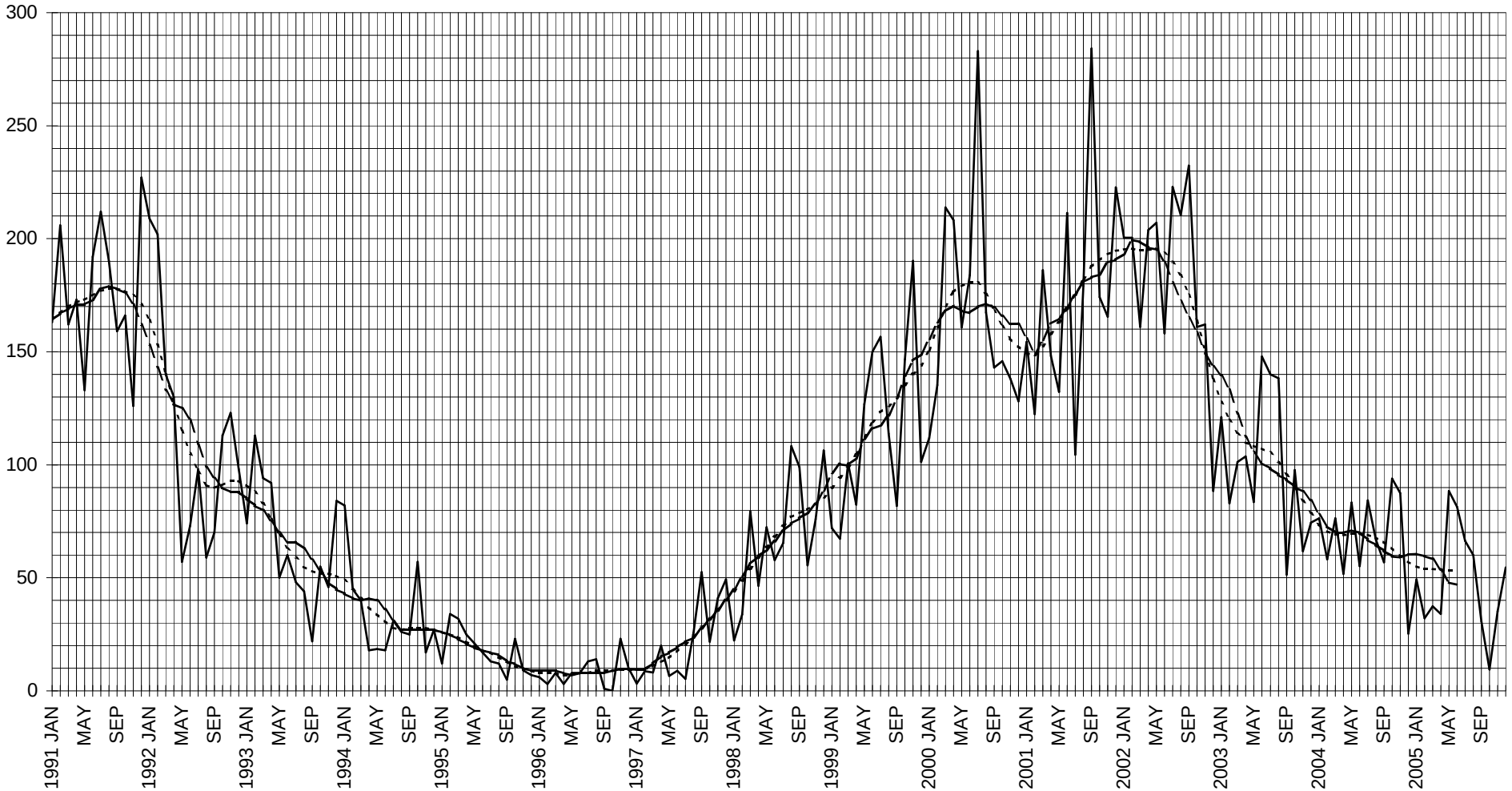
YEAR/ QUARTER	SN	$SN(S^{HBm})$	$SN(S^{W})$	$SN(S^{B13})$	PX_{GD}	p	s
1998 / 1	45.86	46.82	50.57	48.90	–	3.69	8.92
2	61.16	64.15	62.67	63.57	–	4.86	12.51
3	95.12	80.01	73.70	76.23	–	8.00	15.12
4	80.61	81.97	83.31	82.68	–	6.78	12.80
1998	69.58	68.24	67.56	67.84	–	5.75	12.16
1999 / 1	82.56	86.94	98.80	94.24	–	6.85	14.03
2	122.93	116.68	110.12	112.04	–	10.43	18.64
3	116.68	129.14	122.96	126.23	–	9.80	18.68
4	144.84	133.57	144.82	139.81	–	12.32	21.68
1999	117.73	116.58	119.17	118.08	–	9.93	18.40
2000 / 1	157.98	156.73	162.19	160.57	–	13.38	24.17
2	183.41	193.32	168.59	178.77	–	15.76	25.83
3	193.78	181.67	170.31	174.74	–	16.78	26.00
4	138.09	145.22	163.46	156.53	–	11.89	19.23
2000	168.92	169.24	166.14	167.65	–	14.50	23.89
2001 / 1	158.74	148.20	153.40	150.18	–	13.86	21.14
2	169.56	159.25	165.62	163.26	–	15.10	18.54
3	189.65	184.70	179.82	181.62	–	16.90	20.67
4	187.09	198.71	188.21	192.83	–	16.59	21.21
2001	175.60	172.72	171.76	171.97	–	15.52	20.43
2002 / 1	189.22	193.01	197.21	195.34	–	16.61	23.13
2	189.11	193.68	193.64	194.79	–	16.74	21.74
3	220.62	198.26	172.75	182.87	–	19.31	27.50
4	143.20	149.78	150.37	150.48	–	12.52	17.98
2002	186.26	183.68	178.49	180.87	–	16.35	22.73
2003 / 1	104.33	104.74	131.85	120.40	–	9.20	12.33
2	110.61	112.14	106.35	108.58	–	9.76	13.06
3	117.88	108.19	95.83	100.66	–	10.45	13.33
4	80.75	77.87	87.56	84.03	–	7.12	9.50
2003	103.09	100.74	105.40	103.42	–	9.11	12.04

NB: $SN(S^{HBm})$, $SN(S^{W})$ & $SN(S^{B13})$ quarterly values are means of 3 monthly values.
$SN(S^{HBm})$, $SN(S^{W})$ & $SN(S^{B13})$ yearly values are means of 12 monthly values.
PX_{GD} quarterly values are computed as quarterly SN means multiplied by quarterly k means.
Annual values of PX_{GD} are annual Pettisindex means multiplied by annual k means.

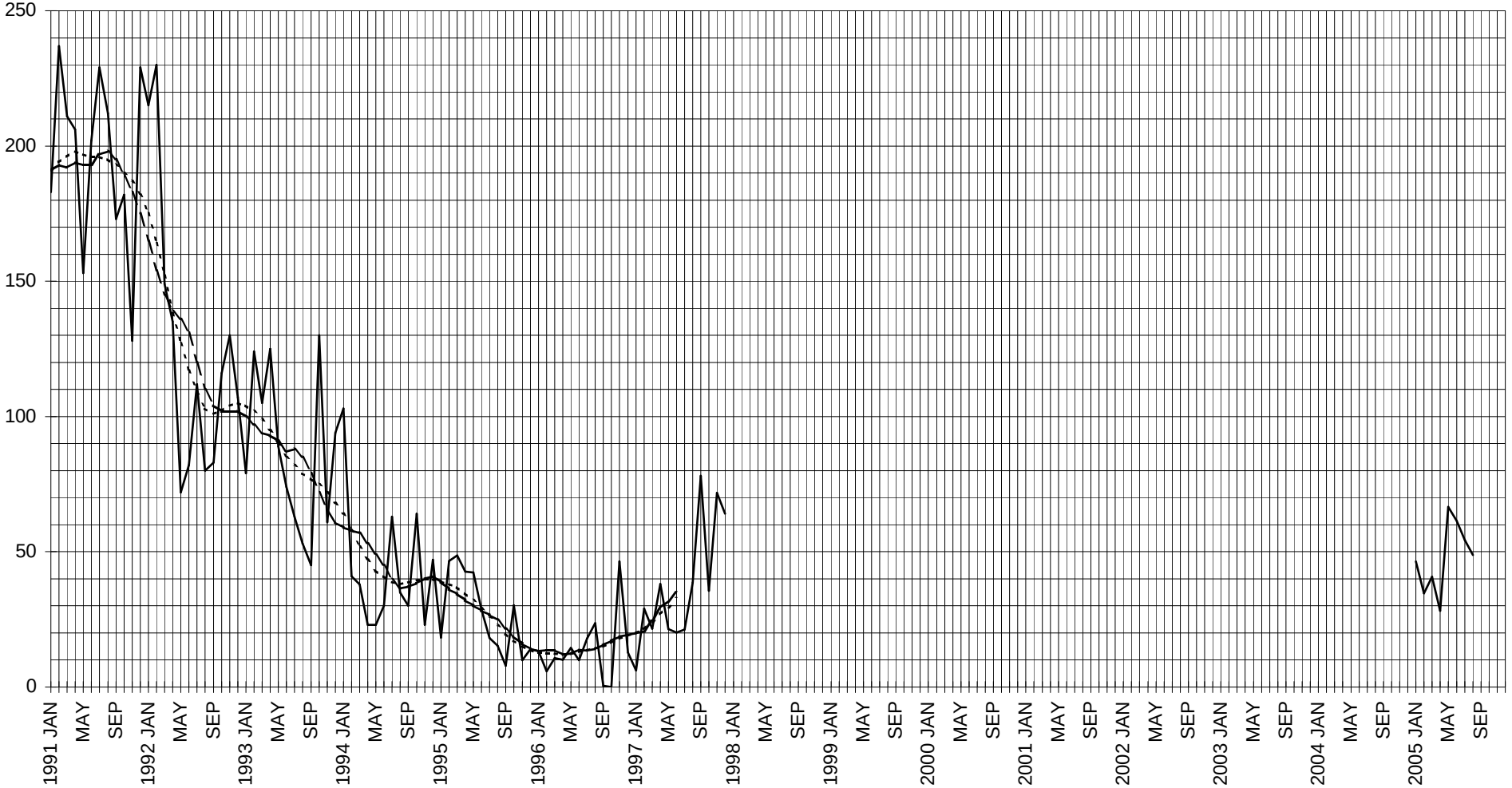
OBSERVED and SMOOTHED GDSO PETTISINDICES (SN and SN[SHBm]) 1991-2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE P5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO PETTISINDICES (SN, SN[SW] and SN[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE P5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO PETTISINDICES (PXGD, PXGD[SW] and PXGD[SB13]) 1991-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE P5 (IN THIS AND PREVIOUS REPORTS)



2005's DATA **PROVISIONAL**

TABLE B1:
MONTHLY **BECKINDEX** MEANS OF GDSO DATA for **2005**.
BX = mean Beckindex (k neglected; see list of definitions).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	BX	δ	n	w	Q	S	T	C
Jan	348.08	238.1	13	0.4826	1.81	2.35	2.23	2.1282
Feb	177.90	140.5	10	0.5272	1.50	2.15	2.10	1.9167
Mar	241.75	179.9	16	0.4998	1.66	2.19	2.25	2.0312
Apr	171.12	102.4	17	0.5151	1.68	2.06	2.15	1.9608
May	673.14	413.6	7	0.4757	1.86	2.29	2.21	2.1190
Jun	439.00	235.2	10	0.5188	1.45	2.15	2.25	1.9500
Jul	280.11	226.1	9	0.4833	1.67	2.22	2.44	2.1111
Aug	305.64	127.0	14	0.5098	1.61	2.21	2.18	2.0000
Sep	223.75	236.6	8	0.4621	1.56	2.50	2.50	2.1875
Oct	42.09	45.6	11	0.4806	1.45	2.55	2.41	2.1364
Nov	285.58	258.9	12	0.4373	1.83	2.71	2.42	2.3194
Dec	220.56	66.3	9	0.4590	1.61	2.50	2.56	2.2222
Year	269.47	208.7	—	0.4902	1.64	2.31	2.29	2.0797

TABLE B2:
ROTATIONAL **BECKINDEX** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	BX	δ	n	w	Q	S	T	C
2024	2004/12/05.73	121.50	108.5	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	384.82	248.0	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	206.70	123.2	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	257.60	175.0	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	130.94	79.9	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	581.44	402.3	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	492.71	238.0	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	395.71	265.2	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	236.60	162.5	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	226.00	130.8	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	293.00	285.7	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	31.56	39.4	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	298.73	272.9	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	195.62	111.2	8	0.4288	1.88	2.69	2.56	2.3750

TABLE B3:
CORRECTED **BECKINDICES** for **2004 - 2005**.

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Beckindices have to be upgraded to give reflections of international results. International Beckindex results are computed by Sonne, Germany.

Below are the 'observed' Beckindices along with the monthly k co-efficients and the corrected values (BX_{GD}) for 2004 - 2005. Sonne's final values (BX_I) are also stated.

I/GDSO = Sonne's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.

$I/GDSO_A$ = Sonne's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.

n = number of GDSO observations.

n_k = number of k values.

s = sample standard deviation of k values.

s 'SIDC' = annual *s* computed on the SIDC formula.

E*s* = annual estimate of standard deviation.

		BX	k	BX_{GD}	*s*	BX_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	BX_I
2004	Jan	579.18	1.3260	768.00	0.4000	763.15	1.3009	1.2868	11	10	595
	Feb	232.80	1.1623	270.59	0.5603	258.73	1.0095	1.0095	5	5	617
	Mar	620.73	1.2565	779.96	0.3528	755.98	1.1406	1.1406	15	15	765
	Apr	271.36	1.3719	372.29	0.5647	362.43	1.2630	1.2630	11	11	353
	May	523.30	1.8573	971.93	0.9778	917.42	1.5448	1.5448	10	10	603
	Jun	357.50	1.2688	453.60	0.5448	474.19	1.4416	1.4416	8	8	662
	Jul	939.94	1.7126	1609.78	0.9266	1473.81	1.2787	1.2787	16	16	1205
	Aug	606.75	1.7730	1075.79	0.6940	1006.77	1.4318	1.4318	16	16	1007
	Sep	290.33	1.5761	457.59	0.6361	454.65	1.5457	1.5457	9	9	430
	Oct	603.78	1.4622	882.83	0.3209	863.07	1.3640	1.3640	9	9	653
	Nov	900.12	1.3998	1260.01	0.2777	1228.42	1.2945	1.2945	8	8	736
	Dec	121.50	2.0290	246.53	1.7022	213.14	1.2047	1.2047	8	8	204
2004	Means	546.75	1.5382	841.04	—	801.79	1.3229	1.3216	—	—	654
		s = 0.7570		*s* SIDC' = 0.6626				E*s* = 0.0671			
2005	Jan	348.08	1.9462	677.43	1.2871	640.08	1.6243	1.6243	13	13	502
	Feb	177.90	1.7349	308.64	0.6986	311.19	1.7780	1.7780	10	9	314
	Mar	241.75	2.0652	499.27	1.8515	440.86	1.3405	1.3382	16	14	320
	Apr	171.12	1.5496	265.16	0.8762	252.99	1.3362	1.3362	17	17	276
	May	673.14	1.4218	957.08	0.6983	903.01	1.1808	1.1808	7	7	689
	Jun	439.00	1.3184	578.76	0.4275	592.14	1.4098	1.4091	10	8	575
	Jul	280.11	1.3421	375.92	0.6036	396.36	1.5609	1.5601	9	6	688
	Aug	305.64	1.9823	605.88	1.3805	574.64	1.6756	1.6756	14	14	514
	Sep	223.75	3.4797	778.59	3.3100	656.10	1.8374	1.8374	8	8	556
	Oct	42.09							11		
	Nov	285.58		DATA UNOBTAINABLE					12		
	Dec	220.56		AT TIME					9		
				OF PRINT.							
2005	Means	269.47							—	—	
		s =		*s* SIDC' =				E*s* =			

TABLE B4:
CORRECTED **BECKINDICES** for Rotations 2011 - 2037.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled BX_{GD}.

BX_{GD} = BX x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.

ROTA-TION	START DATE, UT	BX	k	BX_{GD}	σ	BX_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k
2011	2003/12/17.17	479.36	1.3744	658.86	0.3696	658.75	1.3738	1.3738	11	11
2012	2004/01/13.50	634.80	1.1769	747.10	0.3842	735.26	1.1210	1.0926	5	4
2013	2004/02/09.84	348.09	1.2262	426.83	0.4062	420.04	1.1677	1.1677	11	11
2014	2004/03/08.18	681.60	1.3901	947.48	0.6123	891.25	1.1426	1.1426	10	10
2015	2004/04/04.48	281.50	1.2362	347.98	0.3593	342.19	1.1744	1.1744	10	10
2016	2004/05/01.74	523.30	1.8573	971.93	0.9778	917.42	1.5448	1.5448	10	10
2017	2004/05/28.96	357.50	1.2688	453.60	0.5448	474.19	1.4416	1.4416	8	8
2018	2004/06/25.16	742.73	1.6595	1232.54	0.9482	1130.30	1.2465	1.2465	11	11
2019	2004/07/22.36	1396.10	1.5933	2224.38	0.7142	2099.75	1.3255	1.3255	10	10
2020	2004/08/18.58	245.87	1.9078	469.06	0.7788	448.04	1.6513	1.6513	15	15
2021	2004/09/14.84	242.86	1.5572	378.17	0.3249	380.07	1.5806	1.5806	7	7
2022	2004/10/12.12	994.33	1.3118	1304.34	0.2373	1301.45	1.3031	1.3031	12	12
2023	2004/11/08.42	181.33	1.6227	294.26	0.2069	294.95	1.6342	1.6342	3	3
2024	2004/12/05.73	121.50	2.0290	246.53	1.7022	213.14	1.2047	1.2047	8	8
2025	2005/01/02.05	384.82	2.0238	778.79	1.3942	728.47	1.6315	1.6315	11	11
2026	2005/01/29.39	206.70	1.7653	364.89	0.6199	363.36	1.7431	1.7431	10	10
2027	2005/02/25.73	257.60	1.5702	404.49	0.9174	383.93	1.3307	1.3307	15	13
2028	2005/03/25.05	130.94	1.9188	251.24	1.7119	224.62	1.3088	1.3045	16	15
2029	2005/04/21.33	581.44	1.6044	932.88	1.1493	858.03	1.2182	1.2182	9	9
2030	2005/05/18.56	492.71	1.4883	733.31	0.1743	742.77	1.5460	1.5460	7	7
2031	2005/06/14.77	395.71	1.2537	496.12	0.6759	518.37	1.4224	1.4213	7	5
2032	2005/07/11.96	236.60	1.6128	381.58	0.7407	400.92	1.8580	1.8571	10	7
2033	2005/08/08.18	226.00	2.9384	664.08	2.9171	552.54	1.4578	1.4578	13	13
2034	2005/09/04.42	293.00	1.7646	517.04	0.9553	512.08	1.7139	1.7139	6	6
2035	2005/10/01.69	31.56	DATA UNOBTAINABLE AT TIME OF PRINT.						9	
2036	2005/10/28.98	298.73							11	
2037	2005/11/25.29	195.62							8	

TABLE B5:
SMOOTHED **BECKINDICES** for **2003 - 2005**.

The following are smoothed Beckindices in three different systems. See page xii for all smoothing formulæ.

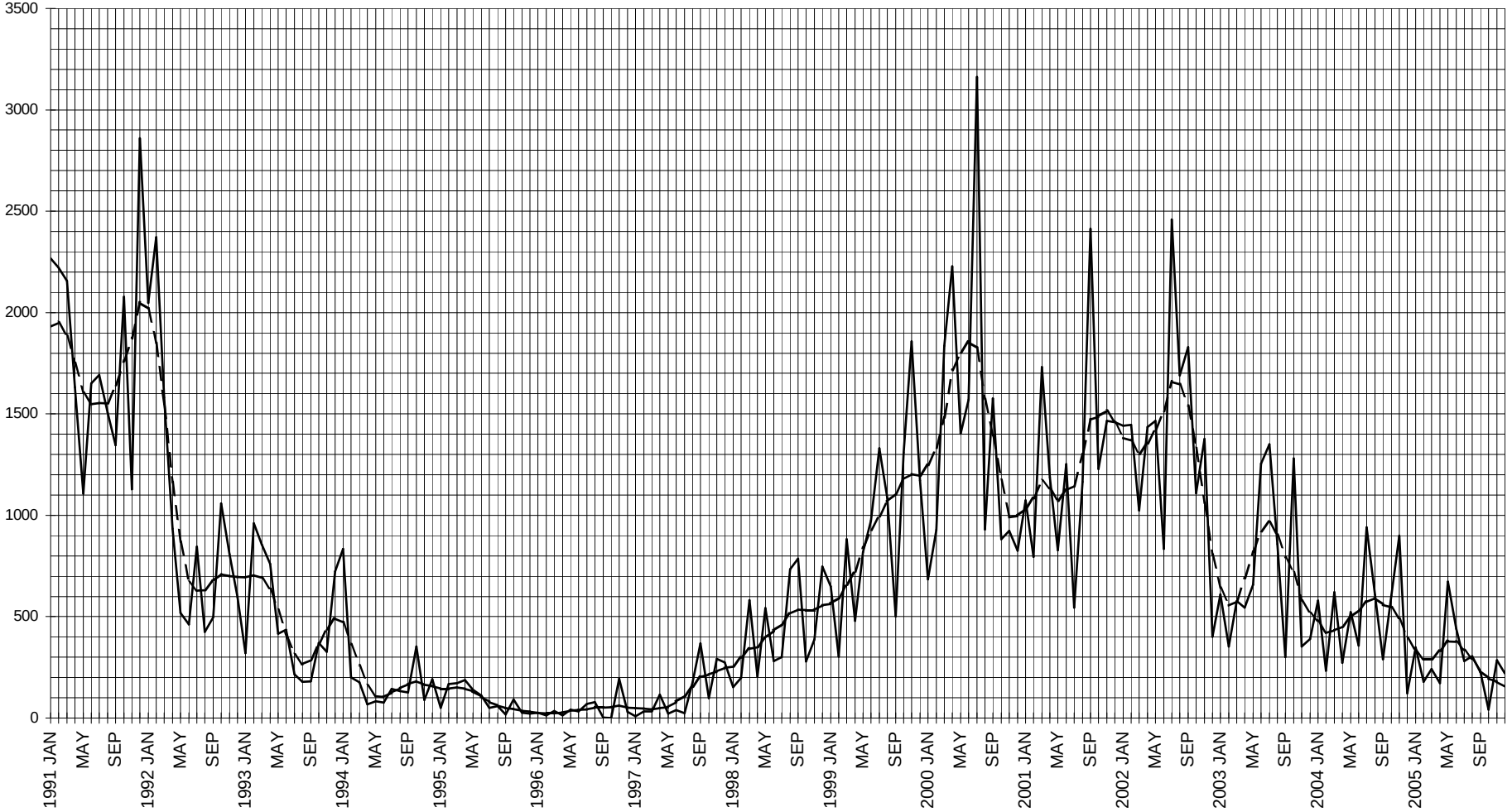
YEAR	MONTH	BX	$BX(S^{HBm})$	$BX(S^{W})$	$BX(S^{B13})$	BX_{GD}	$BX_{GD}(S^{W})$	$BX_{GD}(S^{B13})$
2003	Jan	610.46	641.7	1025.9	856.1	715.69	1358.2	1114.2
	Feb	353.78	556.4	945.1	784.5	383.19	1258.3	1031.9
	Mar	576.12	574.6	846.7	746.3	712.02	1120.7	994.9
	Apr	545.39	691.4	790.1	745.1	1004.54	1051.4	1011.0
	May	657.06	818.6	754.5	769.9	852.95	1020.8	1058.6
	Jun	1255.60	920.7	711.4	794.9	1783.03	975.0	1099.7
	Jul	1351.33	967.9	709.6	806.7	1814.80	971.4	1115.9
	Aug	858.00	904.3	703.2	786.7	1171.96	968.9	1088.1
	Sep	300.75	791.8	700.0	750.9	443.71	967.0	1034.8
	Oct	1279.61	719.0	690.5	704.8	1727.08	943.5	962.8
	Nov	352.46	579.3	673.5	644.3	569.12	922.1	876.5
	Dec	389.89	518.8	630.5	577.5	452.63	871.7	786.1
2004	Jan	579.18	480.1	575.9	524.8	768.00	807.8	719.6
	Feb	232.80	420.6	548.3	500.3	270.59	795.2	701.5
	Mar	620.73	434.2	537.4	492.8	779.96	791.8	709.8
	Apr	271.36	451.1	508.8	486.3	372.29	757.2	722.1
	May	523.30	496.3	503.5	497.3	971.93	750.8	756.8
	Jun	357.50	530.4	515.1	520.6	453.60	771.0	805.6
	Jul	939.94	572.2	494.3	529.8	1609.78	758.6	834.3
	Aug	606.75	591.5	482.4	526.0	1075.79	756.4	837.8
	Sep	290.33	559.5	464.3	508.9	457.59	746.3	815.5
	Oct	603.78	545.7	444.3	486.0	882.83	730.2	781.5
	Nov	900.12	489.9	446.4	459.0	1260.01	725.1	737.3
	Dec	121.50	395.4	456.1	426.5	246.53	729.7	686.3
2005	Jan	348.08	334.3	432.0	390.9	677.43	683.5	628.4
	Feb	177.90	290.0	391.9	362.6	308.64	612.5	579.3
	Mar	241.75	288.6	376.6	349.1	499.27	606.3	562.0
	Apr	171.12	330.7	350.4	337.8	265.16	—	—
	May	673.14	378.1	301.4	323.2	957.08	—	—
	Jun	439.00	377.2	279.9	312.6	578.76	—	—
	Jul	280.11	335.1	274.0	298.9	375.92	—	—
	Aug	305.64	290.9	256.9	276.3	605.88	—	—
	Sep	223.75	233.1	243.8	249.2	778.59	—	—
	Oct	42.09	196.0	—	—	—	—	—
	Nov	285.58	181.7	—	—	—	—	—
	Dec	220.56	155.2	—	—	—	—	—

TABLE B6:
QUARTERLY AND YEARLY **BECKINDEX** MEANS for 2001 - 2005.

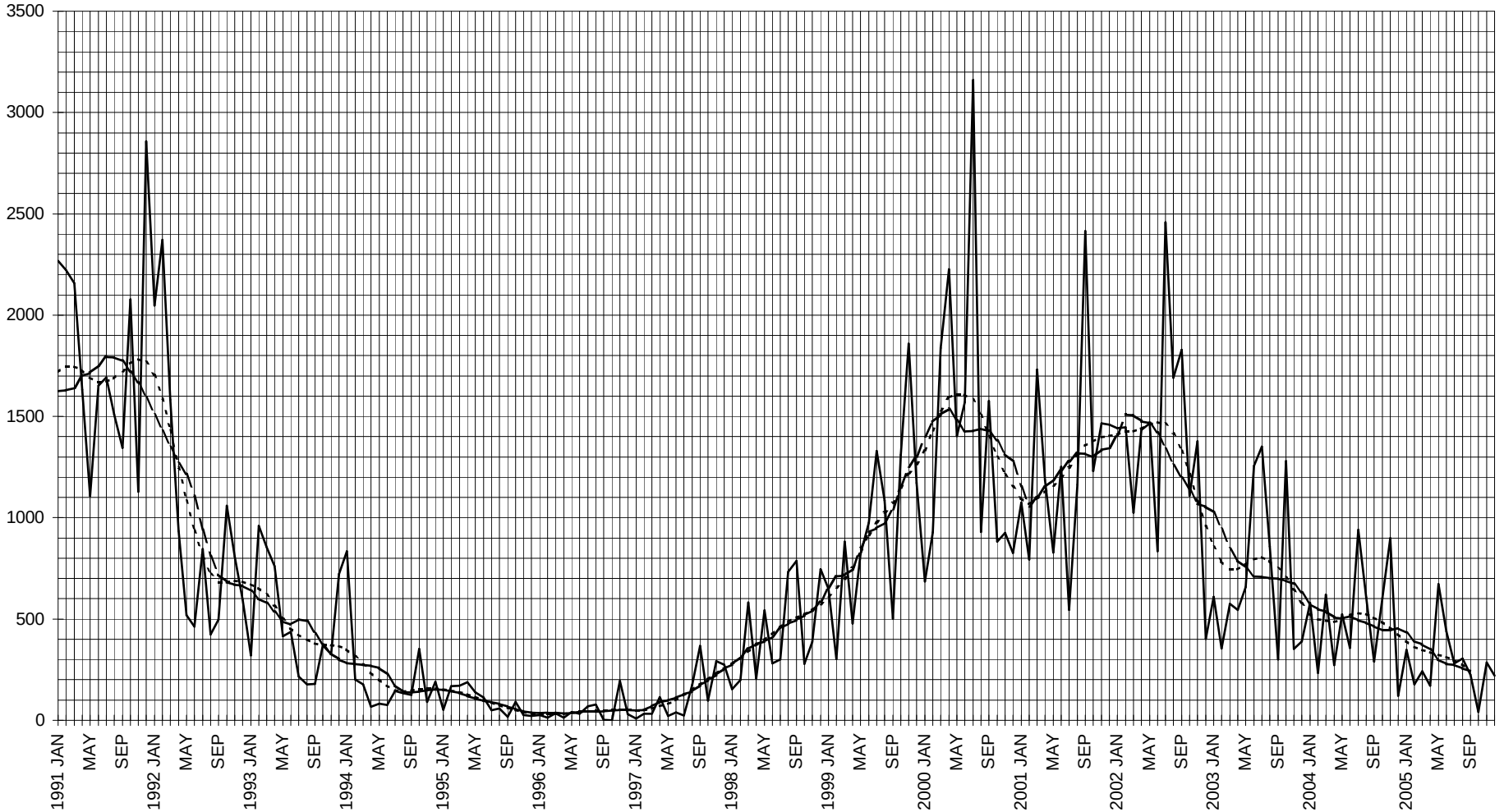
YEAR/ QUARTER	BX	BX(S^{HBm})	BX(S^{W})	BX(S^{B13})	BX_{GD}	n
2001 / 1	1263.96	1096.87	1103.37	1085.57	1398.60	50
2	1111.95	1109.17	1190.47	1160.80	1818.08	39
3	1383.04	1305.83	1304.70	1304.37	2041.07	49
4	1379.62	1487.07	1325.87	1393.73	1966.69	34
2001	1286.28	1249.73	1231.10	1236.12	1793.87	172
2002 / 1	1325.63	1351.63	1473.60	1421.57	1554.15	46
2	1237.71	1430.20	1454.83	1457.93	1758.45	38
3	2013.54	1615.03	1266.53	1402.47	2655.41	48
4	1023.36	1066.00	1088.80	1084.27	1330.46	44
2002	1418.69	1365.72	1320.94	1341.56	1841.26	176
2003 / 1	524.30	590.90	939.23	795.63	609.52	30
2	799.27	810.23	752.00	769.97	1227.03	49
3	902.30	888.00	704.27	781.43	1248.88	33
4	778.10	605.70	664.83	642.20	1079.74	40
2003	761.80	723.71	765.08	747.31	1058.92	152
2004 / 1	543.42	445.0	553.9	506.0	686.88	31
2	382.00	492.6	509.1	501.4	577.14	29
3	667.32	574.4	480.3	521.6	1138.60	41
4	544.28	477.0	448.9	457.2	883.70	25
2004	546.75	497.2	498.1	496.5	841.04	126
2005 / 1	260.82	304.3	400.2	367.5	505.90	39
2	353.26	362.0	310.6	324.5	517.12	34
3	277.10	286.4	258.2	274.8	629.83	31
4	183.59	177.6	—	—	—	32
2005	269.47	282.6	—	—	—	136

NB: BX(S^{HBm}), BX(S^{W}) & BX(S^{B13}) quarterly values are means of 3 monthly values.
BX(S^{HBm}), BX(S^{W}) & BX(S^{B13}) yearly values are means of 12 monthly values.
BX_{GD} quarterly values are computed as quarterly BX means multiplied by quarterly k means.
Annual values of BX_{GD} are annual Beckindex means multiplied by annual k means.

OBSERVED and SMOOTHED GDSO BECKINDICES (BX and BX[SHBm]) 1991-2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE B5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO BECKINDICES (BX, BX[SW] and BX[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE B5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO BECKINDICES (BXGD, BXGD[SW], BXGD[SB13]) 1991-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE B5 (IN THIS AND PREVIOUS REPORTS)

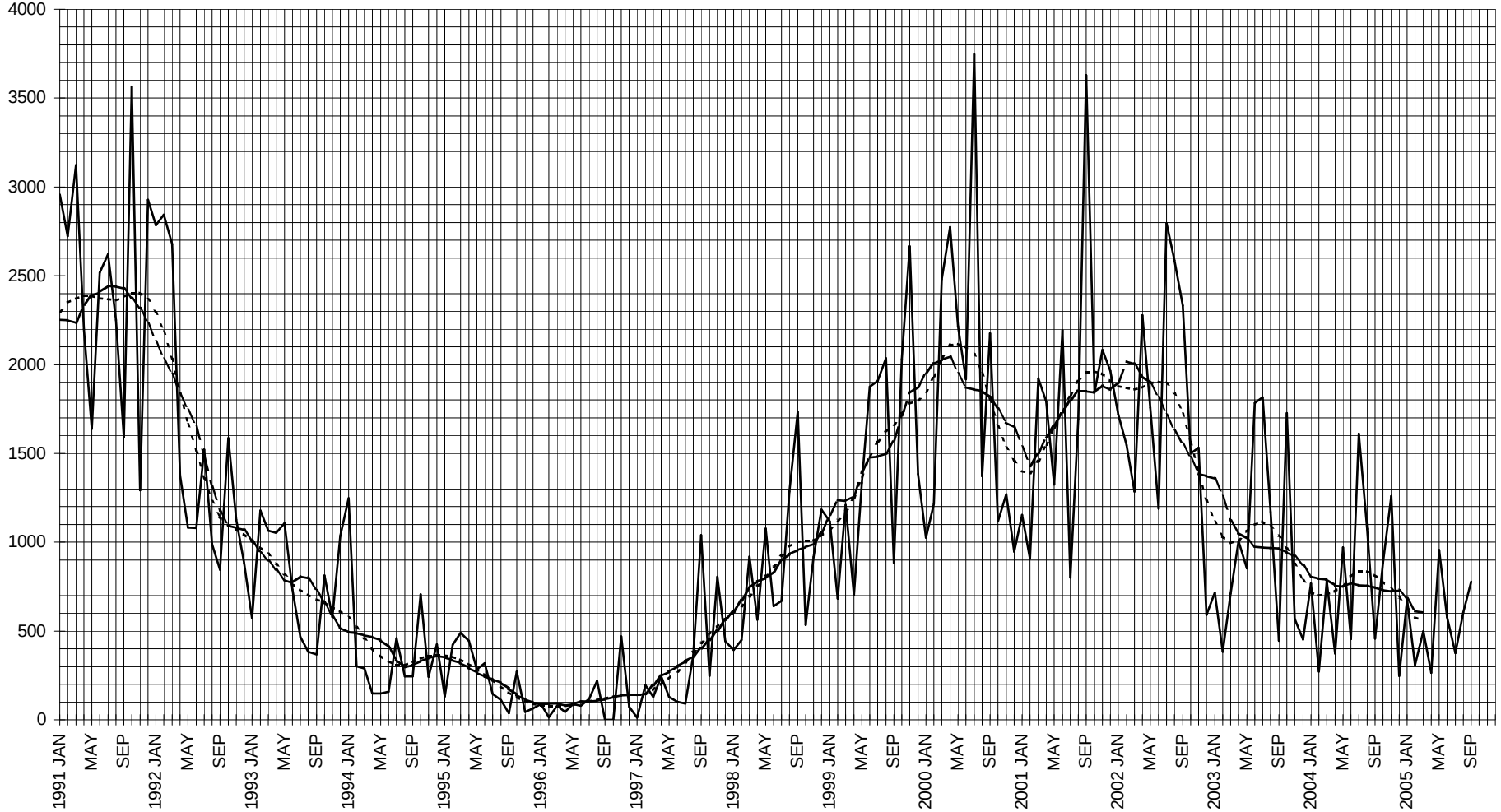


TABLE C1:
MONTHLY **CLASSIFICATION VALUE** MEANS OF GDSO DATA for **2005**.
CV = mean Classification Value (k neglected; see list of definitions).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	CV	δ	n	w	Q	S	T	C
Jan	54.85	23.5	13	0.4826	1.81	2.35	2.23	2.1282
Feb	49.70	33.2	10	0.5272	1.50	2.15	2.10	1.9167
Mar	50.12	35.9	16	0.4998	1.66	2.19	2.25	2.0312
Apr	39.53	12.8	17	0.5151	1.68	2.06	2.15	1.9608
May	75.29	22.0	7	0.4757	1.86	2.29	2.21	2.1190
Jun	92.00	51.0	10	0.5188	1.45	2.15	2.25	1.9500
Jul	59.44	47.5	9	0.4833	1.67	2.22	2.44	2.1111
Aug	53.14	19.0	14	0.5098	1.61	2.21	2.18	2.0000
Sep	37.88	21.9	8	0.4621	1.56	2.50	2.50	2.1875
Oct	9.82	10.2	11	0.4806	1.45	2.55	2.41	2.1364
Nov	39.75	29.5	12	0.4373	1.83	2.71	2.42	2.3194
Dec	51.44	9.4	9	0.4590	1.61	2.50	2.56	2.2222
Year	49.71	30.1	—	0.4902	1.64	2.31	2.29	2.0797

TABLE C2:
ROTATIONAL **CLASSIFICATION VALUE** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	CV	δ	n	w	Q	S	T	C
2024	2004/12/05.73	23.25	13.3	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	57.91	25.0	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	57.20	25.0	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	53.40	34.4	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	31.94	16.8	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	68.00	24.7	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	112.00	49.7	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	66.57	44.2	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	55.30	39.9	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	38.15	15.7	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	46.83	19.5	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	5.00	6.0	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	42.36	27.1	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	38.12	17.3	8	0.4288	1.88	2.69	2.56	2.3750

TABLE C3:
CORRECTED **CLASSIFICATION VALUES** for **2004 - 2005**.

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Classification Values have to be upgraded to give reflections of international results. International Classification Value results are computed by Kjell Inge Malde, of Norway.

Below are the 'observed' Classification Values along with the monthly k coefficients and the corrected values (CV_{GD}) for 2004 - 2005. Norway's final values (CV_I) are also stated.

I/GDSO = Norway's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.
$I/GDSO_A$ = Norway's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.
s = sample standard deviation of k values.
s 'SIDC' = annual *s* computed on the SIDC formula.
E*s* = annual estimate of standard deviation.

		CV	k	CV_{GD}	*s*	CV_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	CV_I
2004	Jan	79.64	0.8584	68.36	0.1187	68.39	0.8596	0.8447	11	10	57.1
	Feb	58.00	0.7476	43.36	0.2410	42.64	0.7103	0.7103	5	5	52.1
	Mar	78.33	0.8228	64.45	0.1586	63.66	0.7923	0.7923	15	15	65.1
	Apr	52.00	0.8139	42.32	0.1014	42.03	0.7972	0.7972	11	11	42.2
	May	69.20	1.1450	79.23	0.3876	77.05	1.0506	1.0506	10	10	59.2
	Jun	71.50	0.6493	46.43	0.1260	46.41	0.6486	0.6486	8	8	51.2
	Jul	73.13	1.0701	78.25	0.5678	74.36	0.9103	0.9103	16	16	68.4
	Aug	70.38	0.9530	67.07	0.1868	66.56	0.9316	0.9316	16	16	67.5
	Sep	62.00	0.7534	46.71	0.2532	45.62	0.7007	0.7007	9	9	48.1
	Oct	91.00	0.8137	74.05	0.2227	74.11	0.8156	0.8156	9	9	57.1
	Nov	94.00	0.9335	87.74	0.1443	87.75	0.9335	0.9335	8	8	60.7
	Dec	23.25	0.9960	23.16	0.4251	21.81	0.8226	0.8226	8	8	22.4
2004	Means	69.75	0.8974	62.59	—	61.49	0.8503	0.8488	—	—	54.5
		s = 0.3139			*s* 'SIDC' = 0.2535				E*s* = 0.0264		
2005	Jan	54.85	1.0205	55.97	0.4002	55.03	0.9691	0.9691	13	13	44.8
	Feb	49.70	0.8335	41.43	0.1631	41.48	0.8370	0.8370	10	9	42.2
	Mar	50.12	1.1508	57.68	1.4054	50.85	0.7419	0.7382	16	14	34.9
	Apr	39.53	0.8034	31.76	0.2481	31.13	0.7560	0.7560	17	17	29.9
	May	75.29	0.8151	61.37	0.1366	62.15	0.8463	0.8463	7	7	60.4
	Jun	92.00	0.7427	68.33	0.2078	68.49	0.7478	0.7467	10	8	58.5
	Jul	59.44	0.7068	42.01	0.2937	42.68	0.7402	0.7234	9	6	61.5
	Aug	53.14	0.9507	50.53	0.2992	48.99	0.8642	0.8642	14	14	47.0
	Sep	37.88	0.9381	35.53	0.3218	33.52	0.7789	0.7789	8	8	33.2
	Oct	9.82	1.1713	11.50	0.9781	9.67	0.6111	0.6111	11	7	6.2
	Nov	39.75	0.8605	34.21	0.2690	33.03	0.7715	0.7589	12	9	26.7
	Dec	51.44	1.0333	53.16	0.2679	52.18	0.9762	0.9762	9	9	49.9
2005	Means	49.71	0.9296	46.21	—	44.30	0.8142	0.8114	—	—	41.3
		s = 0.5831			*s* 'SIDC' = 0.4412				E*s* = 0.0536		

TABLE C4:
CORRECTED **CLASSIFICATION VALUES** for Rotations 2011 - 2037.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled CV_{GD}.

CV_{GD} = CV x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.

ROTA-TION	START DATE, UT	CV	k	CV_{GD}	*s*	CV_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k
2011	2003/12/17.17	76.55	0.9684	74.13	0.2395	72.12	0.8895	0.8895	11	11
2012	2004/01/13.50	66.60	0.8414	56.04	0.1016	56.42	0.8589	0.8198	5	4
2013	2004/02/09.84	61.73	0.7652	47.24	0.1724	46.95	0.7511	0.7511	11	11
2014	2004/03/08.18	85.70	0.8507	72.91	0.1738	71.51	0.8016	0.8016	10	10
2015	2004/04/04.48	50.10	0.8107	40.62	0.1063	40.28	0.7904	0.7904	10	10
2016	2004/05/01.74	69.20	1.1450	79.23	0.3876	77.05	1.0506	1.0506	10	10
2017	2004/05/28.96	71.50	0.6493	46.43	0.1260	46.41	0.6486	0.6486	8	8
2018	2004/06/25.16	78.73	1.0657	83.90	0.6850	78.81	0.8718	0.8718	11	11
2019	2004/07/22.36	75.80	1.0168	77.08	0.1627	76.18	0.9815	0.9815	10	10
2020	2004/08/18.58	64.00	0.9116	58.34	0.2545	57.14	0.8552	0.8552	15	15
2021	2004/09/14.84	44.43	0.7936	35.26	0.2084	34.22	0.7235	0.7235	7	7
2022	2004/10/12.12	114.83	0.8489	97.48	0.2086	98.40	0.8730	0.8730	12	12
2023	2004/11/08.42	50.67	0.8785	44.51	0.1782	43.78	0.8355	0.8355	3	3
2024	2004/12/05.73	23.25	0.9960	23.16	0.4251	21.81	0.8226	0.8226	8	8
2025	2005/01/02.05	57.91	1.0381	60.12	0.4260	59.08	0.9843	0.9843	11	11
2026	2005/01/29.39	57.20	0.8349	47.76	0.1785	47.80	0.8374	0.8374	10	10
2027	2005/02/25.73	53.40	0.7778	41.53	0.1716	40.71	0.7316	0.7316	15	13
2028	2005/03/25.05	31.94	1.1771	37.59	1.3459	33.48	0.7906	0.7847	16	15
2029	2005/04/21.33	68.00	0.8223	55.92	0.2826	56.13	0.8317	0.8317	9	9
2030	2005/05/18.56	112.00	0.7315	81.92	0.0924	83.04	0.7615	0.7615	7	7
2031	2005/06/14.77	66.57	0.8086	53.83	0.3552	53.22	0.7811	0.7790	7	5
2032	2005/07/11.96	55.30	0.6519	36.05	0.1846	36.10	0.6546	0.6383	10	7
2033	2005/08/08.18	38.15	1.0126	38.64	0.2779	38.01	0.9637	0.9637	13	13
2034	2005/09/04.42	46.83	0.9023	42.26	0.3715	40.01	0.7580	0.7580	6	6
2035	2005/10/01.69	5.00	1.4927	7.46	0.9880	6.53	0.9333	0.9333	9	5
2036	2005/10/28.98	42.36	0.6623	28.06	0.2181	28.77	0.7124	0.6996	11	8
2037	2005/11/25.29	38.12	1.0675	40.70	0.3240	39.30	0.9574	0.9574	8	8

TABLE C5:
SMOOTHED **CLASSIFICATION VALUES** for **2003 - 2005**.

The following are smoothed Classification Values in three different systems. See page xii for all smoothing formulæ.

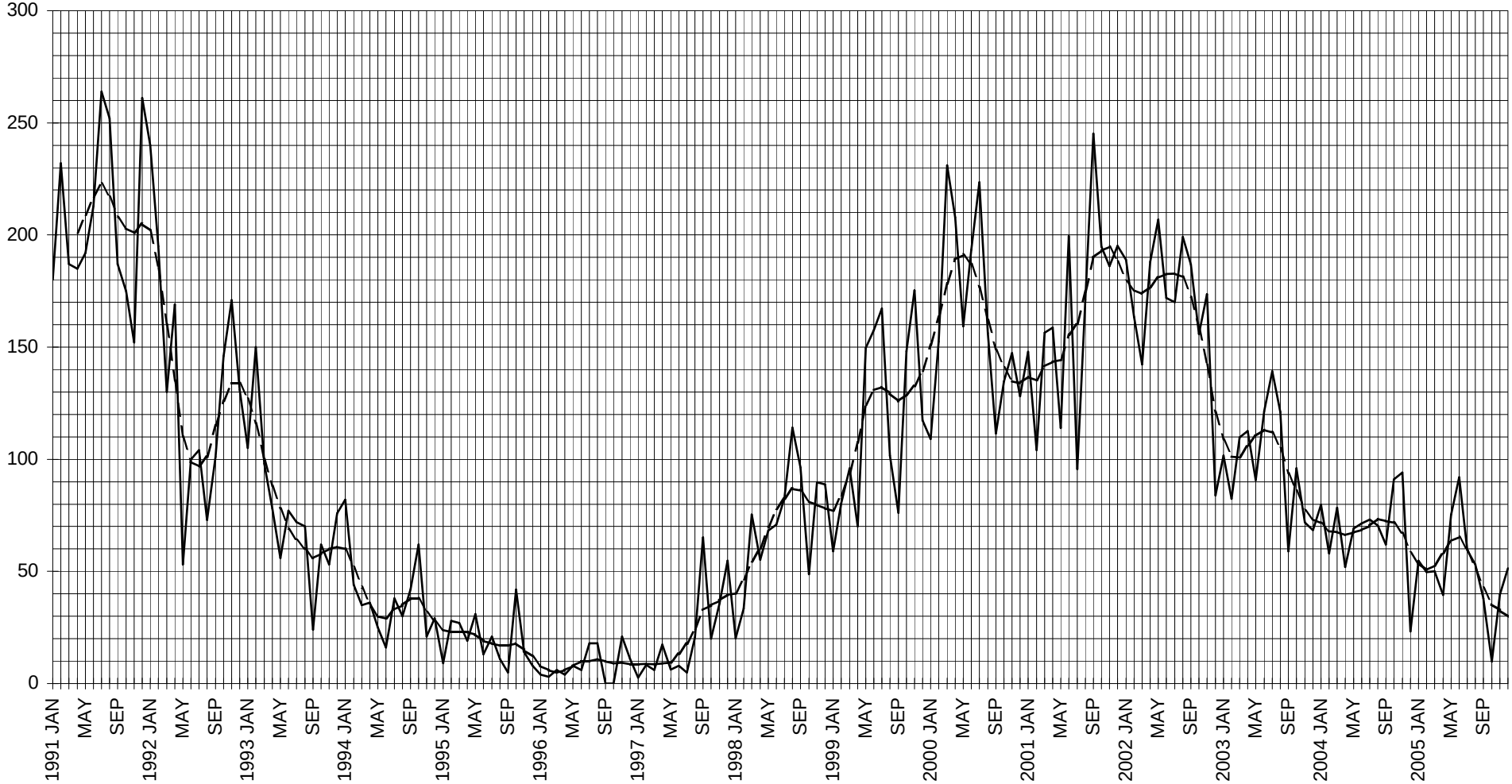
YEAR	MONTH	CV	$CV(S^{HBm})$	$CV(S^{W})$	$CV(S^{B13})$	CV_{GD}	$CV_{GD}(S^{W})$	$CV_{GD}(S^{B13})$
2003	Jan	101.69	108.77	131.02	121.96	93.49	121.48	118.67
	Feb	82.33	101.29	126.49	115.98	59.56	118.31	110.40
	Mar	109.75	100.85	117.92	111.30	79.85	110.94	103.30
	Apr	112.61	106.25	110.09	108.03	93.72	103.67	97.76
	May	90.62	110.37	103.35	105.78	71.00	98.03	93.79
	Jun	121.40	113.21	98.47	104.33	106.84	89.18	90.35
	Jul	139.25	112.02	96.91	102.60	126.26	82.68	87.92
	Aug	121.08	104.77	94.97	98.76	103.15	80.95	85.45
	Sep	59.00	93.70	92.65	93.61	46.08	79.64	81.80
	Oct	96.00	85.89	88.82	88.15	89.64	76.85	77.56
	Nov	71.85	77.30	85.40	82.96	70.49	75.06	73.44
	Dec	68.33	73.32	82.43	78.19	64.60	72.88	69.22
2004	Jan	79.64	71.62	77.59	73.91	68.36	68.36	65.06
	Feb	58.00	67.98	72.73	70.85	43.36	64.86	62.43
	Mar	78.33	67.55	70.74	69.40	64.45	63.38	61.34
	Apr	52.00	66.40	70.66	68.87	42.32	62.76	60.93
	May	69.20	67.41	71.37	69.37	79.23	62.83	61.33
	Jun	71.50	68.63	70.41	69.89	46.43	61.82	61.84
	Jul	73.13	70.22	67.50	69.48	78.25	59.58	61.83
	Aug	70.38	73.44	66.12	68.88	67.07	58.98	61.60
	Sep	62.00	72.57	64.60	67.87	46.71	58.62	60.90
	Oct	91.00	71.70	62.91	66.22	74.05	57.90	59.77
	Nov	94.00	67.03	62.64	63.78	87.74	56.71	57.72
	Dec	23.25	58.32	63.75	61.36	23.16	56.88	55.62
2005	Jan	54.85	53.56	64.03	59.85	55.97	56.28	53.89
	Feb	49.70	50.54	62.74	58.93	41.43	54.08	52.40
	Mar	50.12	52.73	61.02	58.26	57.68	52.93	51.39
	Apr	39.53	58.25	56.63	57.16	31.76	49.86	49.86
	May	75.29	63.61	50.99	55.88	61.37	45.02	47.94
	Jun	92.00	65.35	49.91	55.11	68.33	44.04	46.77
	Jul	59.44	59.30	49.81	53.16	42.01	–	–
	Aug	53.14	51.45	46.61	49.17	50.53	–	–
	Sep	37.88	42.64	43.20	44.31	35.53	–	–
	Oct	9.82	35.32	–	–	11.50	–	–
	Nov	39.75	32.73	–	–	34.21	–	–
	Dec	51.44	29.81	–	–	53.16	–	–

TABLE C6:
QUARTERLY & YEARLY **CLASSIFICATION VALUE** MEANS for 2001 - 2005.

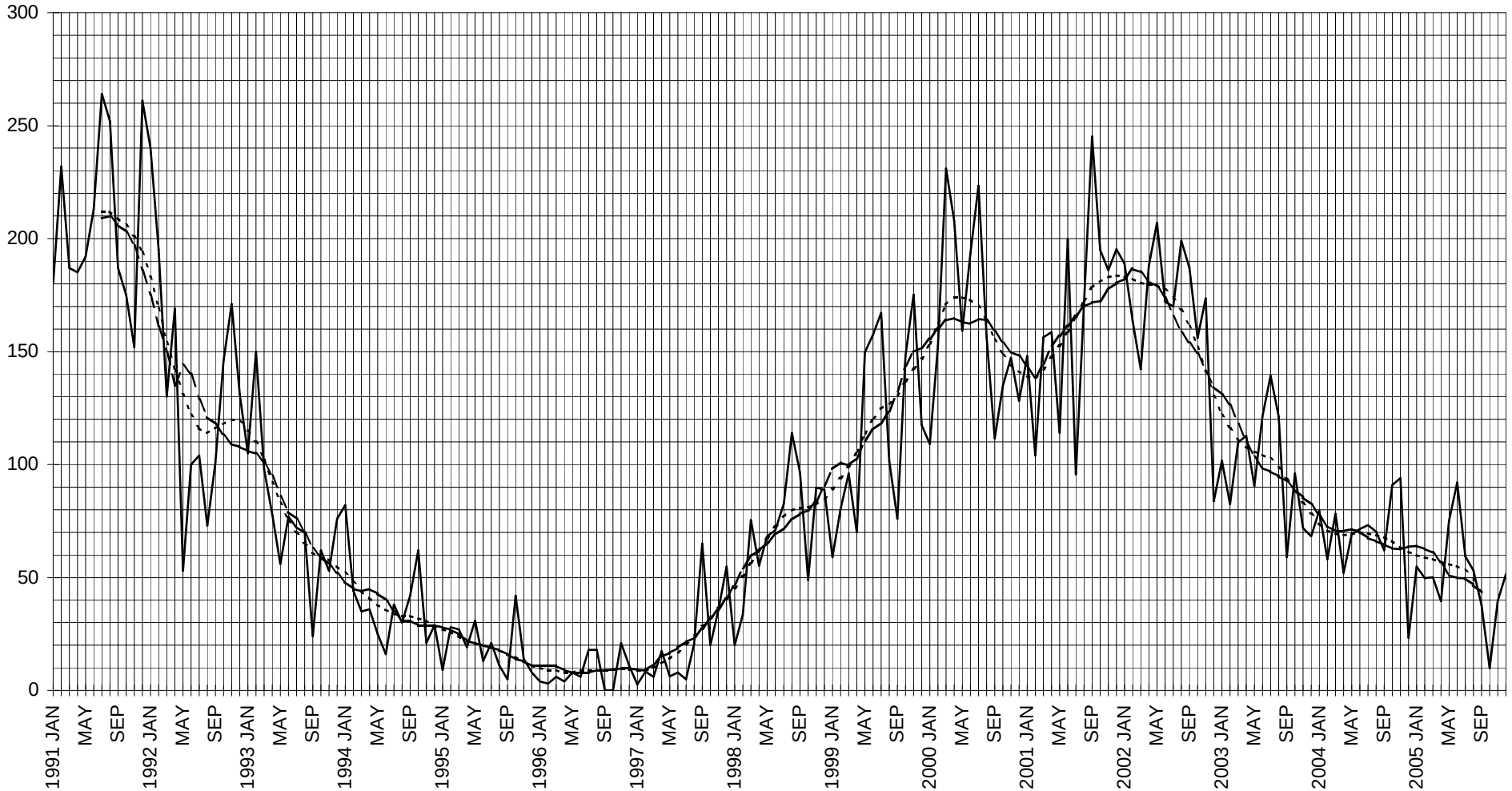
YEAR/ QUARTER	CV	$CV(S^{HBm})$	$CV(S^{W})$	$CV(S^{B13})$	CV_{GD}
2001 / 1	139.92	137.89	142.10	139.86	114.95
2	162.85	147.81	156.96	152.92	161.90
3	170.63	174.98	169.18	172.02	160.27
4	192.12	192.02	176.76	182.60	174.52
2001	164.19	163.18	161.25	161.85	149.64
2002 / 1	167.96	176.24	184.64	181.95	150.16
2	188.00	180.11	178.02	178.89	153.04
3	185.10	178.82	159.34	167.78	156.37
4	143.91	140.60	141.71	141.08	181.18
2002	170.95	168.94	165.93	167.43	163.18
2003 / 1	98.03	103.64	125.14	116.41	79.35
2	107.94	109.94	103.97	106.05	89.84
3	112.64	103.50	94.84	98.32	96.27
4	81.92	78.84	85.55	83.10	77.91
2003	100.22	98.98	102.38	100.97	86.47
2004 / 1	75.52	69.05	73.69	71.39	62.08
2	63.31	67.48	70.81	69.38	55.88
3	69.61	72.08	66.07	68.74	66.47
4	70.28	65.68	63.10	63.79	63.98
2004	69.75	68.57	68.42	68.32	62.59
2005 / 1	51.59	52.28	62.60	59.01	52.85
2	62.32	62.40	52.51	56.05	49.29
3	51.03	51.13	46.54	48.88	45.67
4	32.75	32.62	—	—	33.07
2005	49.71	49.61	—	—	46.21

NB: $CV(S^{HBm})$, $CV(S^{W})$ & $CV(S^{B13})$ quarterly values are means of 3 monthly values.
$CV(S^{HBm})$, $CV(S^{W})$ & $CV(S^{B13})$ yearly values are means of 12 monthly values.
CV_{GD} quarterly values are computed as quarterly CV means multiplied by quarterly k means.
Annual values of CV_{GD} are annual Classification Value means multiplied by annual k means.

OBSERVED and SMOOTHED GDSO CLASSIFICATION VALUES (CV and CV[SHBm]) 1991-2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE C5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO CLASSIFICATION VALUES (CV, CV[SW] and CV[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE C5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO CLASSIFICATION VALUES (CV_{GD}, CV_{GD}[SW] and CV_{GD}[SB13]) 1991-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE C5 (IN THIS AND PREVIOUS REPORTS)

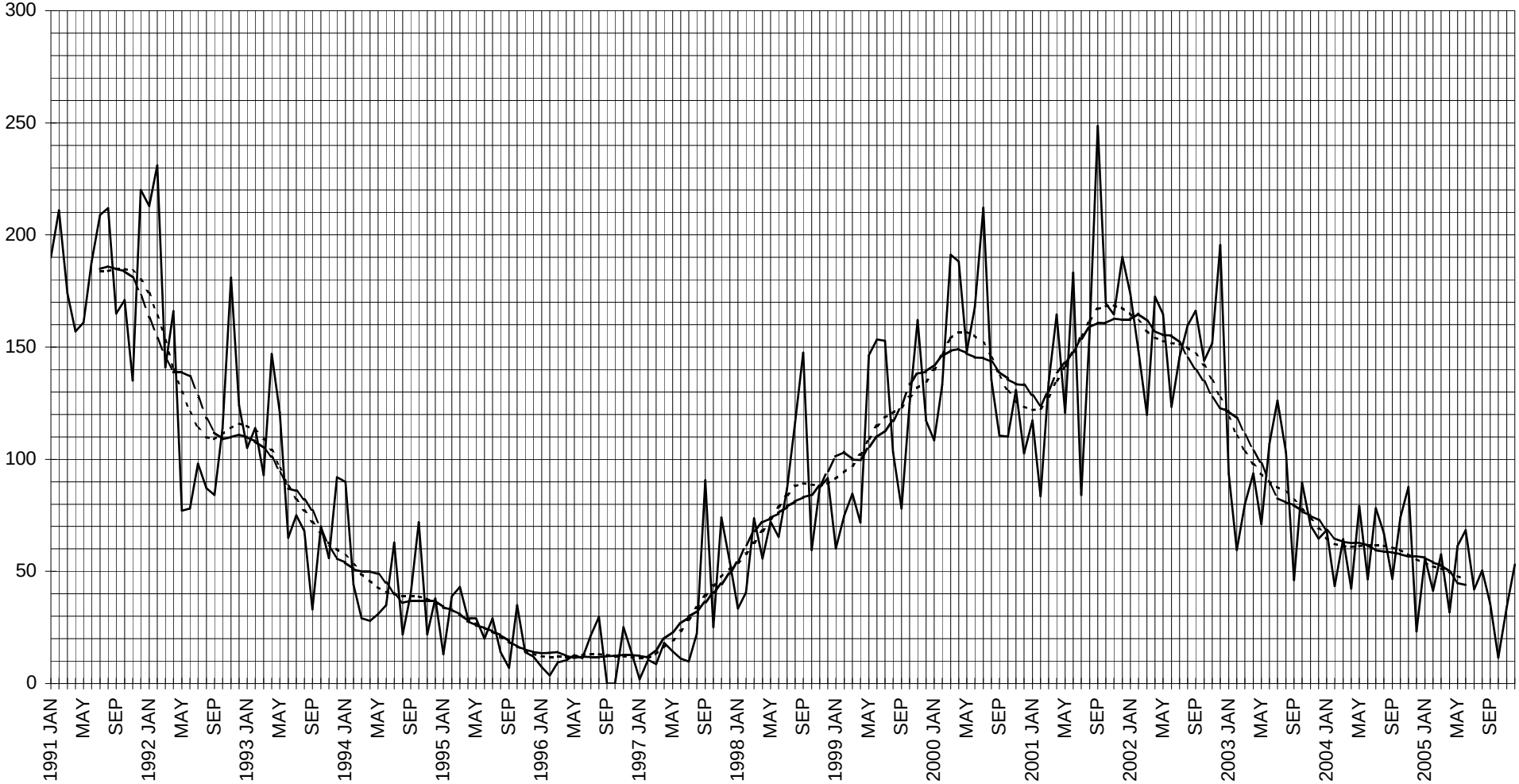


TABLE Q1:
MONTHLY **QUALITY COUNT** MEANS OF GDSO DATA for **2005**.
QC = mean Quality Count (see list of definitions).
QC^2 = mean Squared Quality Count (see list of definitions and constants, pp. ix-x).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	QC	δ	QC^2	δ	Σg	n	w	Q	S	T	C
Jan	8.92	2.7	31.69	10.5	36	13	0.4826	1.81	2.35	2.23	2.1282
Feb	6.60	4.0	20.20	12.0	25	10	0.5272	1.50	2.15	2.10	1.9167
Mar	6.25	3.8	23.75	15.9	29	16	0.4998	1.66	2.19	2.25	2.0312
Apr	7.59	2.0	24.41	9.1	46	17	0.5151	1.68	2.06	2.15	1.9608
May	9.43	2.3	42.86	15.2	16	7	0.4757	1.86	2.29	2.21	2.1190
Jun	12.80	5.9	48.80	21.6	36	10	0.5188	1.45	2.15	2.25	1.9500
Jul	9.89	7.5	36.56	28.0	26	9	0.4833	1.67	2.22	2.44	2.1111
Aug	9.14	2.1	30.00	8.7	46	14	0.5098	1.61	2.21	2.18	2.0000
Sep	4.38	1.4	16.12	8.9	11	8	0.4621	1.56	2.50	2.50	2.1875
Oct	1.82	1.5	6.36	6.9	7	11	0.4806	1.45	2.55	2.41	2.1364
Nov	5.08	3.4	22.75	16.8	15	12	0.4373	1.83	2.71	2.42	2.3194
Dec	10.44	2.3	30.89	6.6	37	9	0.4590	1.61	2.50	2.56	2.2222
Year	7.59	4.0	27.18	15.6	—	—	0.4902	1.64	2.31	2.29	2.0797

TABLE Q2:
ROTATIONAL **QUALITY COUNT** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	QC	δ	QC^2	δ	Σg	n	w	Q	S	T	C
2024	2004/12/05.73	4.38	2.5	14.88	11.6	12	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	9.36	2.8	33.00	11.1	32	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	7.80	3.0	25.00	9.8	28	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	6.60	3.6	25.27	15.0	28	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	6.81	2.8	21.69	10.1	39	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	8.33	3.0	36.11	18.3	21	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	14.14	4.4	53.86	20.2	28	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	12.57	8.2	46.29	28.0	26	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	7.60	4.9	27.20	17.8	23	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	7.77	2.9	25.15	9.8	37	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	4.83	1.2	18.50	9.5	9	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	1.22	1.1	3.22	3.4	5	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	5.09	3.0	24.73	15.1	12	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	7.00	2.5	22.00	9.8	21	8	0.4288	1.88	2.69	2.56	2.3750

TABLE Q3:
COMPARED **QUALITY COUNTS** for **2004 - 2005**.

Data unobtainable.

TABLE Q5:
SMOOTHED **QUALITY COUNT** VALUES for **2004 - 2005**.

The following are smoothed Quality Count values in three different systems.
See page xii for all smoothing formulæ.

YEAR	MONTH	QC	$QC(S^{HBm})$	$QC(S^{W})$	$QC(S^{B13})$	QC^2	$QC^2(S^{HBm})$	$QC^2(S^{W})$	$QC^2(S^{B13})$
2004	Jan	11.36	11.54	12.71	12.09	45.55	42.90	47.63	44.97
	Feb	11.00	11.29	11.90	11.63	34.60	40.78	44.56	43.04
	Mar	12.13	11.27	11.30	11.33	49.87	40.82	42.27	41.79
	Apr	9.00	11.16	11.20	11.18	28.64	40.29	41.55	41.10
	May	12.80	11.30	11.34	11.18	43.20	41.15	42.01	41.18
	Jun	11.25	11.00	11.12	11.11	43.25	41.02	41.47	41.30
	Jul	11.94	10.93	10.69	10.90	49.64	41.16	39.72	40.75
	Aug	9.69	10.97	10.40	10.65	36.31	41.73	38.54	39.88
	Sep	7.22	10.64	9.98	10.34	25.00	40.48	36.85	38.71
	Oct	15.33	10.76	9.67	10.02	56.22	40.80	35.59	37.48
	Nov	13.38	10.08	9.47	9.58	56.38	38.04	35.40	35.89
	Dec	4.38	8.86	9.40	9.13	14.88	32.83	35.61	34.13
2005	Jan	8.92	8.18	9.38	8.85	31.69	29.56	35.30	32.88
	Feb	6.60	7.42	9.27	8.70	20.20	26.56	34.49	32.19
	Mar	6.25	7.59	9.13	8.62	23.75	27.60	33.86	31.91
	Apr	7.59	8.44	8.44	8.43	24.41	31.48	31.41	31.31
	May	9.43	9.18	7.54	8.20	42.86	35.12	27.93	30.53
	Jun	12.80	9.58	7.44	8.12	48.80	36.38	27.20	30.17
	Jul	9.89	8.90	7.48	7.92	36.56	33.21	27.12	29.25
	Aug	9.14	7.70	7.03	7.42	30.00	28.37	25.60	27.22
	Sep	4.38	6.47	6.65	6.78	16.12	23.24	24.24	24.70
	Oct	1.82	5.54	—	—	6.36	19.63	—	—
	Nov	5.08	5.22	—	—	22.75	18.39	—	—
	Dec	10.44	5.06	—	—	30.89	17.18	—	—

TABLE Q6:
QUARTERLY AND YEARLY **QUALITY COUNT** MEANS for 2001 - 2005.

YEAR/ QUARTER	QC	QC(S^{HBm})	QC(S^{W})	QC(S^{B13})	QC^2	QC^2(S^{HBm})	QC^2(S^{W})	QC^2(S^{B13})
2001 / 1	25.04	24.03	24.64	24.26				
2	27.62	25.52	26.37	26.04				
3	28.33	28.82	28.10	28.39				
4	29.91	30.58	29.39	29.89				
2001	27.52	27.24	27.13	27.14				
2002 / 1	29.41	29.97	29.84	29.94	112.72	113.70	112.75	113.23
2	30.03	29.22	28.75	29.01	112.08	111.37	109.16	110.42
3	28.58	27.65	25.98	26.70	112.96	105.70	97.55	100.99
4	22.23	22.83	22.60	22.69	82.50	83.95	83.38	83.58
2002	27.52	27.42	26.79	27.08	105.09	103.68	100.71	102.06
2003 / 1	18.10	17.60	20.07	19.02	60.23	61.14	73.80	68.50
2	16.49	17.07	16.92	17.00	60.57	63.05	62.14	62.46
3	18.18	16.43	15.04	15.55	69.58	63.34	56.16	58.93
4	12.80	12.67	13.75	13.37	50.30	48.21	51.81	50.60
2003	16.20	15.94	16.45	16.23	59.76	58.94	60.98	60.12
2004 / 1	11.68	11.37	11.97	11.68	45.87	41.50	44.82	43.27
2	10.93	11.15	11.22	11.16	37.69	40.82	41.68	41.19
3	10.02	10.85	10.36	10.63	37.73	41.12	38.37	39.78
4	11.20	9.90	9.51	9.58	43.04	37.22	35.53	35.83
2004	10.87	10.82	10.77	10.76	40.78	40.17	40.10	40.02
2005 / 1	7.23	7.73	9.26	8.72	25.49	27.91	34.55	32.33
2	9.50	9.07	7.81	8.25	35.38	34.33	28.85	30.67
3	8.13	7.69	7.05	7.37	28.32	28.27	25.65	27.06
4	5.47	5.27	—	—	19.41	18.40	—	—
2005	7.59	7.44	—	—	27.18	27.23	—	—

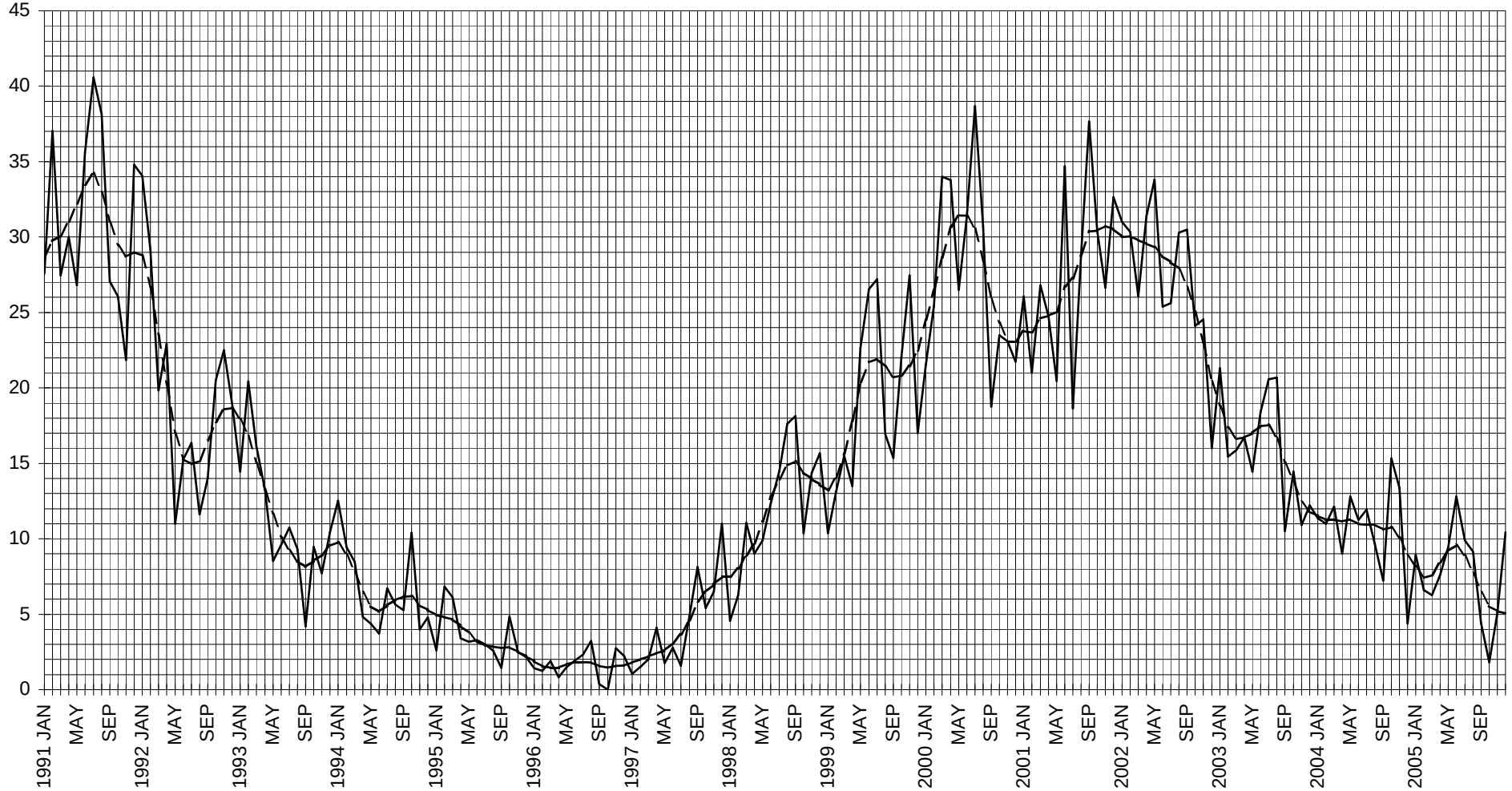
NB: QC(S^{HBm}), QC(S^{W}) & QC(S^{B13}) quarterly values are means of 3 monthly values.
QC(S^{HBm}), QC(S^{W}) & QC(S^{B13}) yearly values are means of 12 monthly values.

QC^2(S^{HBm}), QC^2(S^{W}) & QC^2(S^{B13}) quarterly values are means of 3 monthly values.
QC^2(S^{HBm}), QC^2(S^{W}) & QC^2(S^{B13}) yearly values are means of 12 monthly values.

OBSERVED and SMOOTHED GDSO QUALITY COUNTS (QC and QC[S^{HBm}]) 1991-2005

SOLID = OBSERVED, DASHED = S^{HBm}

FOR EXACT VALUES, SEE TABLE Q5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO QUALITY COUNTS (QC, QC[SW] and QC[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE Q5 (IN THIS AND PREVIOUS REPORTS)

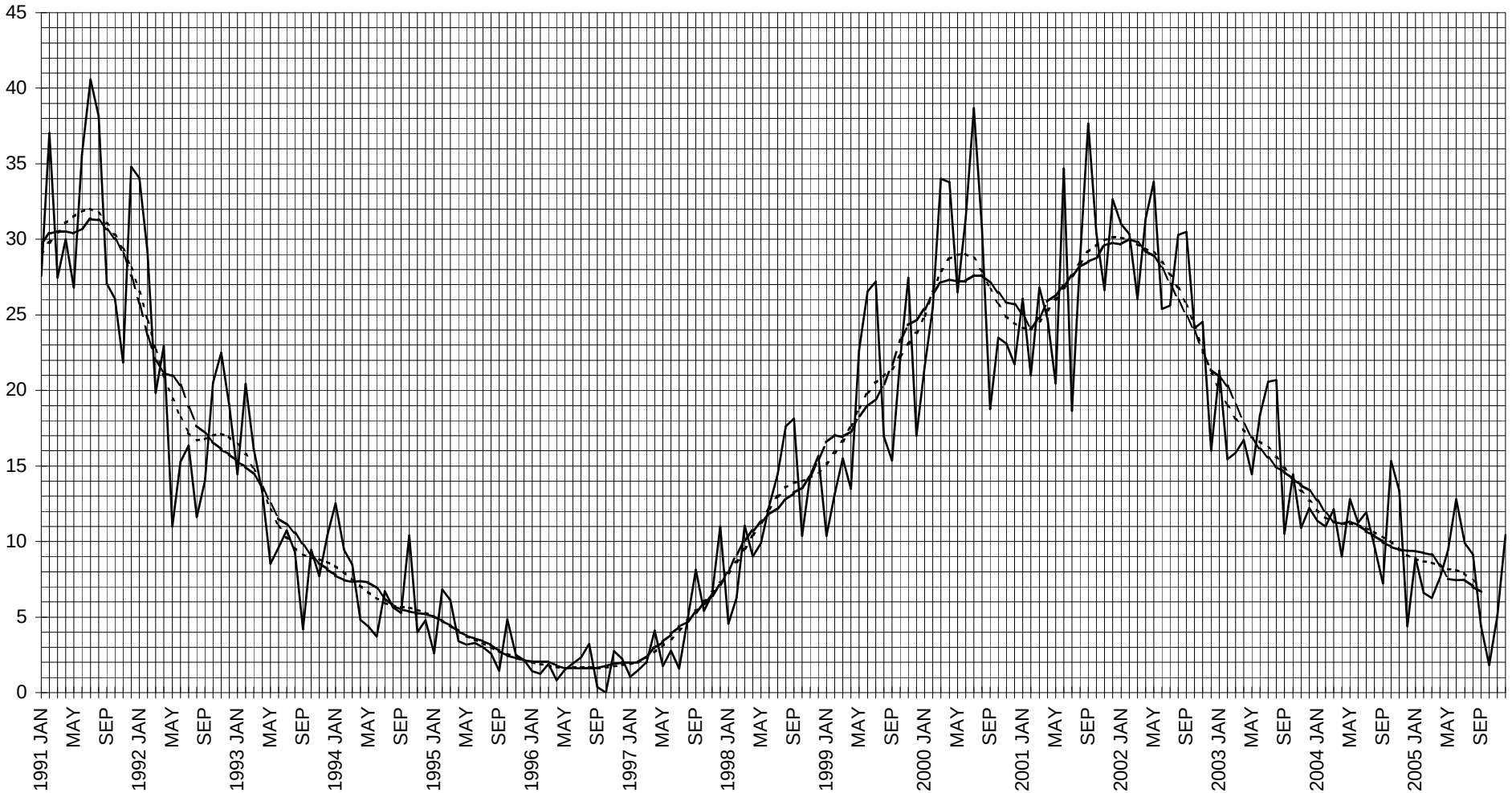


TABLE I-1:
MONTHLY **INTER-SOL INDEX** MEANS OF GDSO DATA for **2005**.
IS = mean Inter-Sol Index (k neglected; see list of definitions).
δ = mean deviation from the mean (the value immediately to its left).
n = total number of observations.
w = mean weight, 1 = excellent, 0.2 = very poor.
Q = mean quietness [steadiness] of image (on the Kiepenheuer scale).
S = mean sharpness [clarity] of image (on the Kiepenheuer scale).
T = mean transparency of the atmosphere (1 = excellent, 5 = opaque).
C = mean condition [(Q+S+T)/3].

MONTH	IS	δ	n	w	Q	S	T	C
Jan	21.31	12.5	13	0.4826	1.81	2.35	2.23	2.1282
Feb	10.30	7.8	10	0.5272	1.50	2.15	2.10	1.9167
Mar	12.88	8.7	16	0.4998	1.66	2.19	2.25	2.0312
Apr	11.65	4.4	17	0.5151	1.68	2.06	2.15	1.9608
May	29.29	12.8	7	0.4757	1.86	2.29	2.21	2.1190
Jun	26.70	14.1	10	0.5188	1.45	2.15	2.25	1.9500
Jul	17.33	14.2	9	0.4833	1.67	2.22	2.44	2.1111
Aug	19.14	5.7	14	0.5098	1.61	2.21	2.18	2.0000
Sep	10.38	9.2	8	0.4621	1.56	2.50	2.50	2.1875
Oct	2.55	2.7	11	0.4806	1.45	2.55	2.41	2.1364
Nov	10.67	8.0	12	0.4373	1.83	2.71	2.42	2.3194
Dec	12.78	2.9	9	0.4590	1.61	2.50	2.56	2.2222
Year	14.96	10.1	—	0.4902	1.64	2.31	2.29	2.0797

TABLE I-2:
ROTATIONAL **INTER-SOL INDEX** MEANS OF GDSO DATA.
Abbreviations as above.

ROT.	start date, UT	IS	δ	n	w	Q	S	T	C
2024	2004/12/05.73	5.38	5.6	8	0.4535	1.56	2.56	2.69	2.2708
2025	2005/01/02.05	23.36	12.6	11	0.4712	1.82	2.41	2.32	2.1818
2026	2005/01/29.39	12.20	6.7	10	0.5317	1.55	2.10	2.05	1.9000
2027	2005/02/25.73	13.67	8.2	15	0.4993	1.67	2.23	2.20	2.0333
2028	2005/03/25.05	9.62	4.3	16	0.5213	1.59	2.06	2.16	1.9375
2029	2005/04/21.33	25.44	14.6	9	0.4887	1.83	2.17	2.17	2.0556
2030	2005/05/18.56	29.71	12.6	7	0.4955	1.50	2.29	2.36	2.0476
2031	2005/06/14.77	24.86	17.0	7	0.5061	1.71	2.07	2.21	2.0000
2032	2005/07/11.96	15.00	10.4	10	0.5172	1.50	2.15	2.30	1.9833
2033	2005/08/08.18	14.38	6.3	13	0.4785	1.69	2.35	2.35	2.1282
2034	2005/09/04.42	12.83	11.4	6	0.4781	1.50	2.42	2.42	2.1111
2035	2005/10/01.69	2.00	2.4	9	0.4806	1.44	2.56	2.44	2.1481
2036	2005/10/28.98	10.55	7.9	11	0.4571	1.64	2.64	2.36	2.2121
2037	2005/11/25.29	10.88	5.1	8	0.4288	1.88	2.69	2.56	2.3750

TABLE I-3:
CORRECTED **INTER-SOL INDICES** for **2004 - 2005**.

As the GDSO is in suburban Auckland, it can suffer terrible atmospheric conditions, hence the 'observed' Inter-Sol Indices have to be upgraded to give reflections of international results. International Inter-Sol Index results are computed by Paderborn Public Observatory, Germany.

Below are the 'observed' Inter-Sol Indices along with the monthly k co-efficients and the corrected values (IS_{GD}) for 2004 - 2005. Paderborn's final values (IS_I) are also stated.

I/GDSO = Paderborn's mean (of days observed by the GDSO) divided by the GDSO's monthly mean.

$I/GDSO_A$ = Paderborn's mean (of days with GDSO k values) divided by the GDSO's observed mean for the *same* days.

n = number of GDSO observations.

n_k = number of k values.

s = sample standard deviation of k values.

s 'SIDC' = annual *s* computed on the SIDC formula.

E*s* = annual estimate of standard deviation.

		IS	k	IS_{GD}	*s*	IS_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k	IS_I
2004	Jan	29.91	1.2153	36.35	0.1550	36.46	1.2266	1.2033	11	10	30.44
	Feb	16.00	1.9265	30.82	1.4263	28.23	1.4408	1.4408	5	5	36.87
	Mar	26.07	1.4198	37.01	0.2508	36.71	1.3848	1.3848	15	15	38.83
	Apr	17.36	1.4140	24.55	0.3394	24.48	1.4018	1.4018	11	11	24.42
	May	28.30	1.4363	40.65	0.2318	40.28	1.3974	1.3974	10	10	31.11
	Jun	16.62	1.3557	22.54	0.4320	22.55	1.3581	1.3581	8	8	30.49
	Jul	38.38	1.3090	50.23	0.1706	49.30	1.2359	1.2359	16	16	45.34
	Aug	25.06	1.7542	43.97	0.9140	40.17	1.3004	1.3004	16	16	36.53
	Sep	17.11	1.6163	27.66	0.8155	26.16	1.3547	1.3547	9	9	21.75
	Oct	30.89	1.5015	46.38	0.3102	45.61	1.4269	1.4269	9	9	33.47
	Nov	35.25	1.3858	48.85	0.5160	46.63	1.1967	1.1967	8	8	32.84
	Dec	5.38	2.7333	14.69	1.6950	12.42	1.4630	1.4630	8	8	10.73
2004	Means	25.23	1.5510	39.13	—	37.17	1.3181	1.3156	—	—	31.08
		s = 0.4925			*s* 'SIDC' = 0.3923			E*s* = 0.0395			
2005	Jan	21.31	1.3458	28.68	0.2310	27.94	1.2417	1.2417	13	13	23.68
	Feb	10.30	1.9514	20.10	0.6690	18.78	1.5663	1.5622	10	9	15.04
	Mar	12.88	1.5207	19.58	0.9429	18.62	1.2981	1.2832	16	14	16.77
	Apr	11.65	1.2290	14.31	0.3367	14.08	1.1675	1.1675	17	17	14.24
	May	29.29	1.2741	37.31	0.4820	36.36	1.1763	1.1763	7	7	32.67
	Jun	26.70	1.1596	30.96	0.1986	31.13	1.1785	1.1694	10	8	27.73
	Jul	17.33	1.2723	22.05	0.4092	22.33	1.3210	1.3064	9	6	32.70
	Aug	19.14	1.5401	29.48	0.6036	28.67	1.4128	1.4128	14	14	26.70
	Sep	10.38	1.8422	19.11	0.7028	17.20	1.2904	1.2904	8	8	17.31
	Oct	2.55	2.0779	5.29	1.0577	4.79	1.4882	1.4543	11	7	4.17
	Nov	10.67	1.9081	20.35	1.9733	18.18	1.2966	1.2700	12	9	13.87
	Dec	12.78	1.3960	17.84	0.3320	17.53	1.3248	1.3248	9	9	19.26
2005	Means	14.96	1.5178	22.70	—	21.53	1.2839	1.2777	—	—	
		s = 0.8004			*s* 'SIDC' = 0.6412			E*s* = 0.0716			

TABLE I-4:
CORRECTED **INTER-SOL INDICES** for Rotations 2011 - 2037.

As a k value is attributed to each spotted observation, the k value for any specific rotation is the mean of all the k values for the rotation concerned.

The corrected values are labelled IS_{GD}.

IS_{GD} = IS x k.
s = sample standard deviation of k values.
I/GDSO = International mean (of days observed by the GDSO) divided by the GDSO's rotation mean.
$I/GDSO_A$ = International mean (of days observed by the GDSO) divided by the GDSO's observed mean for the *same* days.
n = number of GDSO observations.
n_k = number of k values.

ROTATION	START DATE, UT	IS	k	IS_{GD}	*s*	IS_{GDm}	I/GDSO	$I/GDSO_A$	n	n_k
2011	2003/12/17.17	26.18	1.2399	32.46	0.2590	32.97	1.2980	1.2980	11	11
2012	2004/01/13.50	29.00	1.0627	30.82	0.0586	31.35	1.1174	1.0644	5	4
2013	2004/02/09.84	18.55	1.6487	30.57	0.9570	29.13	1.4147	1.4147	11	11
2014	2004/03/08.18	28.30	1.5034	42.55	0.3604	41.83	1.4275	1.4275	10	10
2015	2004/04/04.48	17.50	1.3315	23.30	0.2116	23.26	1.3253	1.3253	10	10
2016	2004/05/01.74	28.30	1.4363	40.65	0.2318	40.28	1.3974	1.3974	10	10
2017	2004/05/28.96	16.62	1.3557	22.54	0.4320	22.55	1.3581	1.3581	8	8
2018	2004/06/25.16	36.00	1.2981	46.73	0.1420	45.73	1.2143	1.2143	11	11
2019	2004/07/22.36	46.10	1.2629	58.22	0.2248	57.37	1.2075	1.2075	10	10
2020	2004/08/18.58	15.07	1.8276	27.54	0.9256	25.67	1.4554	1.4554	15	15
2021	2004/09/14.84	14.00	1.7806	24.93	0.8959	23.32	1.4363	1.4363	7	7
2022	2004/10/12.12	43.50	1.3336	58.01	0.2159	57.32	1.2862	1.2862	12	12
2023	2004/11/08.42	8.67	1.7897	15.51	0.7178	15.28	1.7100	1.7100	3	3
2024	2004/12/05.73	5.38	2.7333	14.69	1.6950	12.42	1.4630	1.4630	8	8
2025	2005/01/02.05	23.36	1.3298	31.07	0.2372	30.27	1.2267	1.2267	11	11
2026	2005/01/29.39	12.20	1.7691	21.58	0.5983	20.62	1.5316	1.5316	10	10
2027	2005/02/25.73	13.67	1.6099	22.00	0.8801	20.55	1.2921	1.2877	15	13
2028	2005/03/25.05	9.62	1.3198	12.70	0.5645	12.49	1.2548	1.2381	16	15
2029	2005/04/21.33	25.44	1.1696	29.76	0.5040	29.53	1.1429	1.1429	9	9
2030	2005/05/18.56	29.71	1.2669	37.64	0.2915	37.14	1.2159	1.2159	7	7
2031	2005/06/14.77	24.86	1.1634	28.92	0.2869	29.44	1.2269	1.2129	7	5
2032	2005/07/11.96	15.00	1.3398	20.10	0.4023	20.43	1.4061	1.3910	10	7
2033	2005/08/08.18	14.38	1.6862	24.25	0.7161	22.83	1.3894	1.3894	13	13
2034	2005/09/04.42	12.83	1.6357	20.99	0.6860	19.12	1.1991	1.1991	6	6
2035	2005/10/01.69	2.00	2.3152	4.63	1.1847	4.06	1.4639	1.4111	9	5
2036	2005/10/28.98	10.55	1.3056	13.77	0.2538	13.72	1.2911	1.2618	11	8
2037	2005/11/25.29	10.88	2.0463	22.25	2.0890	19.46	1.2746	1.2746	8	8

TABLE I-5:
SMOOTHED **INTER-SOL INDICES** for **2003 - 2005**.

The following are smoothed Inter-Sol Indices in three different systems. See page xii for all smoothing formulæ.

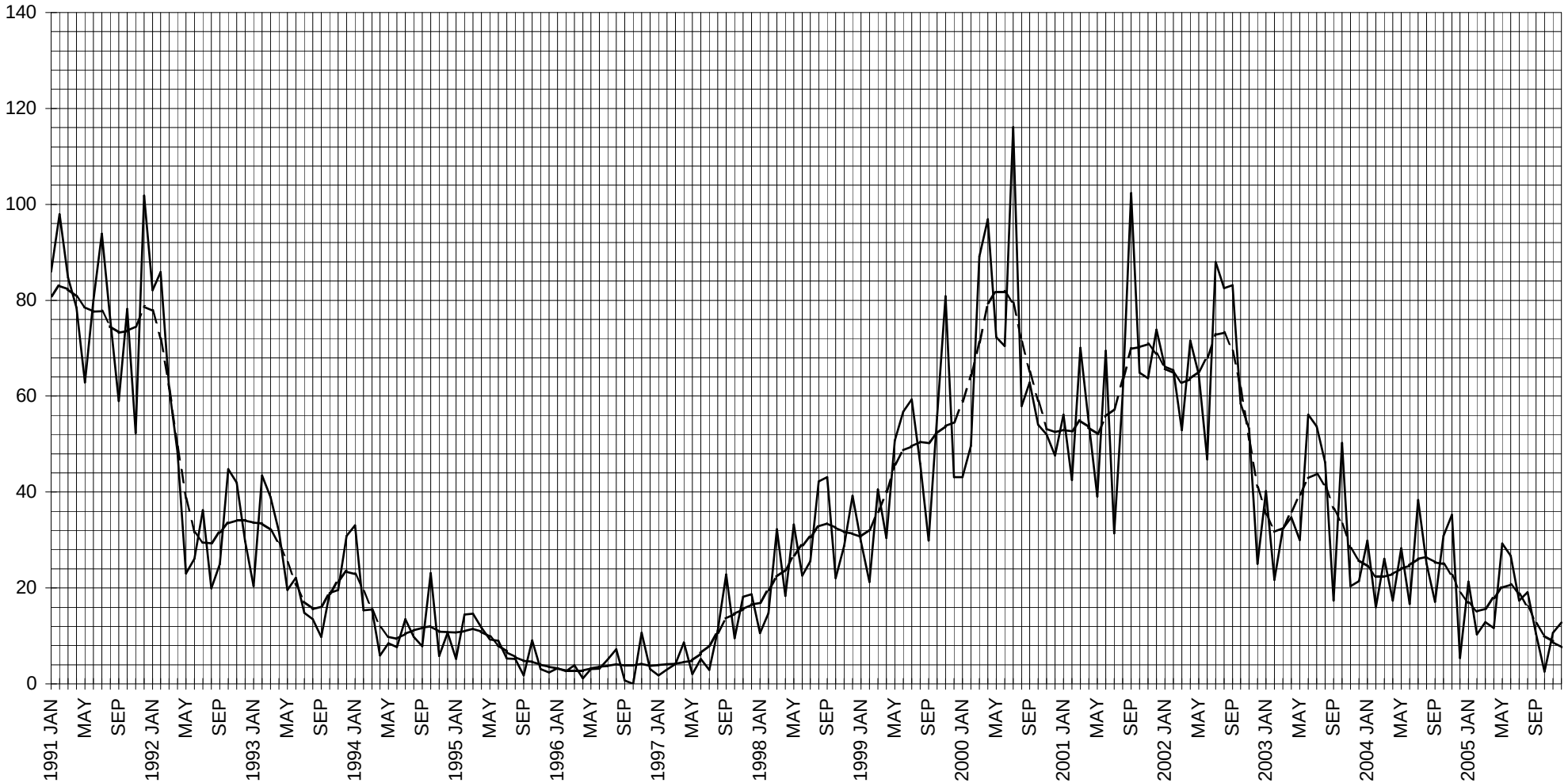
YEAR	MONTH	IS	IS(S^{HBm})	IS(S^{W})	IS(S^{B13})	IS_{GD}	IS_{GD}(S^{W})	IS_{GD}(S^{B13})
2003	Jan	40.23	35.34	49.03	43.03	48.98	63.32	57.29
	Feb	21.67	31.70	46.09	40.04	33.28	60.75	54.48
	Mar	32.38	32.52	41.83	38.13	55.32	56.47	52.70
	Apr	34.72	35.97	38.75	37.52	43.92	53.55	52.16
	May	30.00	39.53	37.04	37.93	38.58	52.02	52.64
	Jun	56.13	42.95	35.52	38.39	74.15	49.80	53.07
	Jul	53.67	43.84	34.95	38.27	73.15	48.30	52.71
	Aug	46.23	41.33	34.28	37.12	64.05	47.67	51.21
	Sep	17.38	36.54	33.78	35.37	28.39	46.80	48.86
	Oct	50.28	33.33	32.79	33.20	65.81	45.23	46.03
	Nov	20.38	28.34	32.00	30.79	34.67	44.51	43.00
	Dec	21.44	25.79	30.28	28.24	25.56	42.45	39.64
2004	Jan	29.91	24.53	28.00	26.12	36.35	39.34	36.82
	Feb	16.00	22.39	26.48	24.88	30.82	37.55	35.33
	Mar	26.07	22.43	25.59	24.29	37.01	36.68	34.72
	Apr	17.36	22.88	24.77	23.97	24.55	35.84	34.50
	May	28.30	24.07	24.58	24.20	40.65	35.62	35.01
	Jun	16.62	24.66	24.53	24.67	22.54	35.76	35.94
	Jul	38.38	26.10	23.50	24.68	50.23	34.99	36.42
	Aug	25.06	26.58	22.91	24.38	43.97	34.22	36.31
	Sep	17.11	25.35	22.12	23.68	27.66	33.05	35.54
	Oct	30.89	25.08	21.33	22.72	46.38	31.90	34.31
	Nov	35.25	22.63	21.14	21.54	48.85	31.33	32.57
	Dec	5.38	18.97	21.60	20.38	14.69	31.54	30.67
2005	Jan	21.31	16.94	21.14	19.33	28.68	30.72	28.73
	Feb	10.30	15.15	20.02	18.55	20.10	28.94	27.01
	Mar	12.88	15.67	19.49	18.23	19.58	27.98	25.95
	Apr	11.65	17.86	18.03	17.88	14.31	25.91	24.99
	May	29.29	20.13	15.82	17.39	37.31	23.01	24.08
	Jun	26.70	20.72	15.11	17.01	30.96	21.96	23.54
	Jul	17.33	18.77	14.78	16.25	22.05	21.23	22.70
	Aug	19.14	16.13	13.74	14.92	29.48	19.56	21.20
	Sep	10.38	12.63	13.02	13.33	19.11	—	—
	Oct	2.55	10.04	—	—	5.29	—	—
	Nov	10.67	8.83	—	—	20.35	—	—
	Dec	12.78	7.70	—	—	17.84	—	—

TABLE I-6:
QUARTERLY & YEARLY **INTER-SOL INDEX** MEANS for 2001 - 2005.

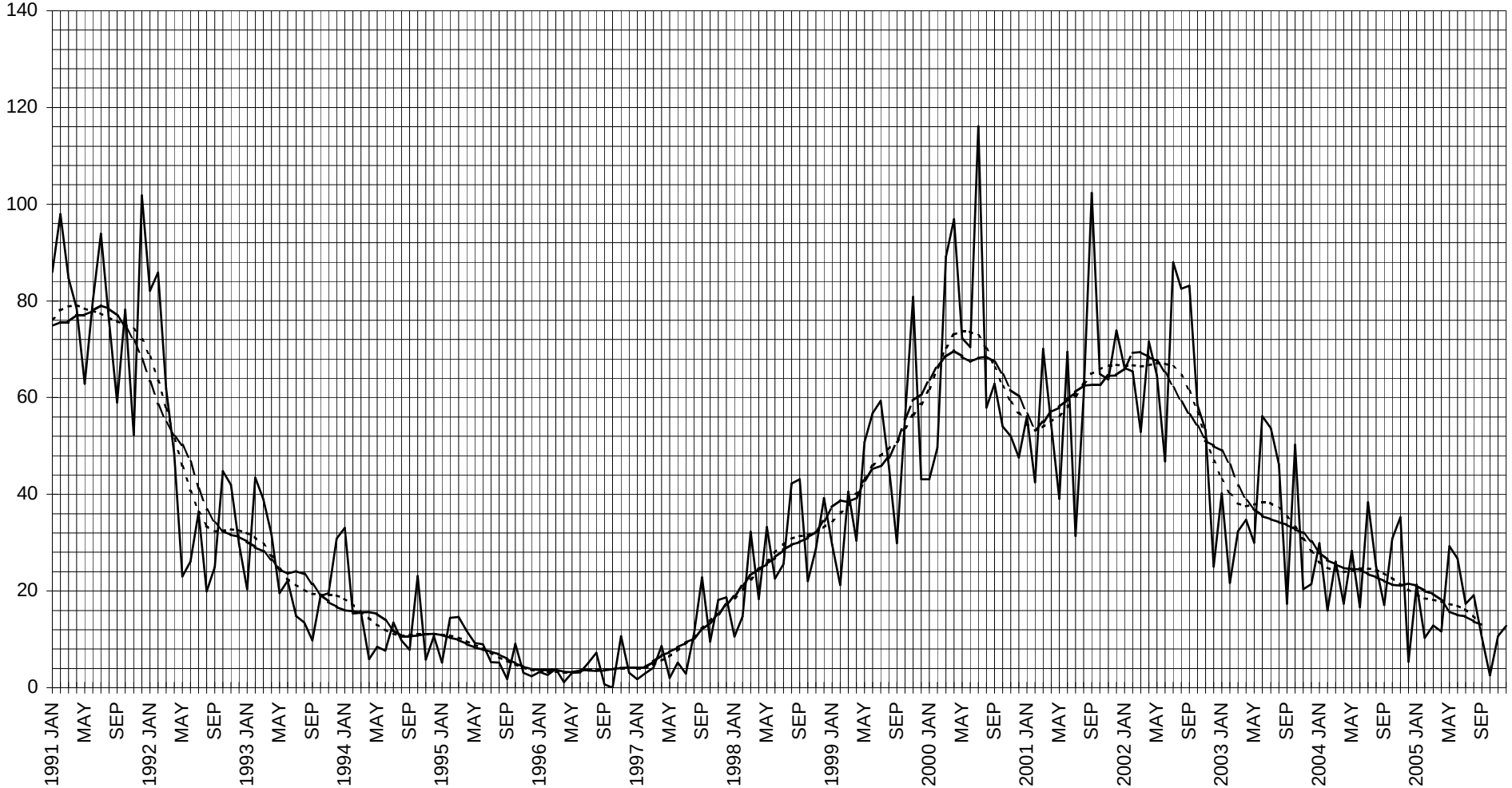
YEAR / QUARTER	IS	$IS(S^{HBm})$	$IS(S^{W})$	$IS(S^{B13})$	IS_{GD}
2001 / 1	58.18	53.53	54.94	53.89	71.03
2	56.23	53.76	58.22	56.47	82.47
3	64.86	63.53	62.09	62.65	90.61
4	67.44	69.99	63.94	66.50	95.56
2001	61.47	60.20	59.80	59.88	83.94
2002 / 1	62.20	64.49	68.26	66.63	84.57
2	61.05	65.61	67.07	67.00	80.91
3	84.73	71.81	59.24	64.11	97.63
4	48.32	51.19	51.76	51.77	68.27
2002	64.62	63.27	61.58	62.38	84.59
2003 / 1	32.57	33.19	45.65	40.40	47.03
2	39.73	39.48	37.10	37.95	51.22
3	41.94	40.57	34.34	36.92	60.29
4	34.08	29.15	31.69	30.74	47.79
2003	37.31	35.60	37.20	36.50	51.55
2004 / 1	25.81	23.12	26.69	25.10	37.06
2	20.93	23.87	24.63	24.28	29.42
3	28.51	26.01	22.84	24.25	44.20
4	24.12	22.23	21.36	21.55	44.83
2004	25.23	23.81	23.88	23.79	39.13
2005 / 1	15.03	15.92	20.22	18.70	23.52
2	19.71	19.57	16.32	17.43	24.07
3	16.35	15.84	13.85	14.83	25.66
4	8.47	8.86	—	—	15.00
2005	14.96	15.05	—	—	22.70

NB: $IS(S^{HBm})$, $IS(S^{W})$ & $IS(S^{B13})$ quarterly values are means of 3 monthly values.
$IS(S^{HBm})$, $IS(S^{W})$ & $IS(S^{B13})$ yearly values are means of 12 monthly values.
IS_{GD} quarterly values are computed as quarterly IS means multiplied by quarterly k means.
Annual values of IS_{GD} are annual Inter-Sol means multiplied by annual k means.

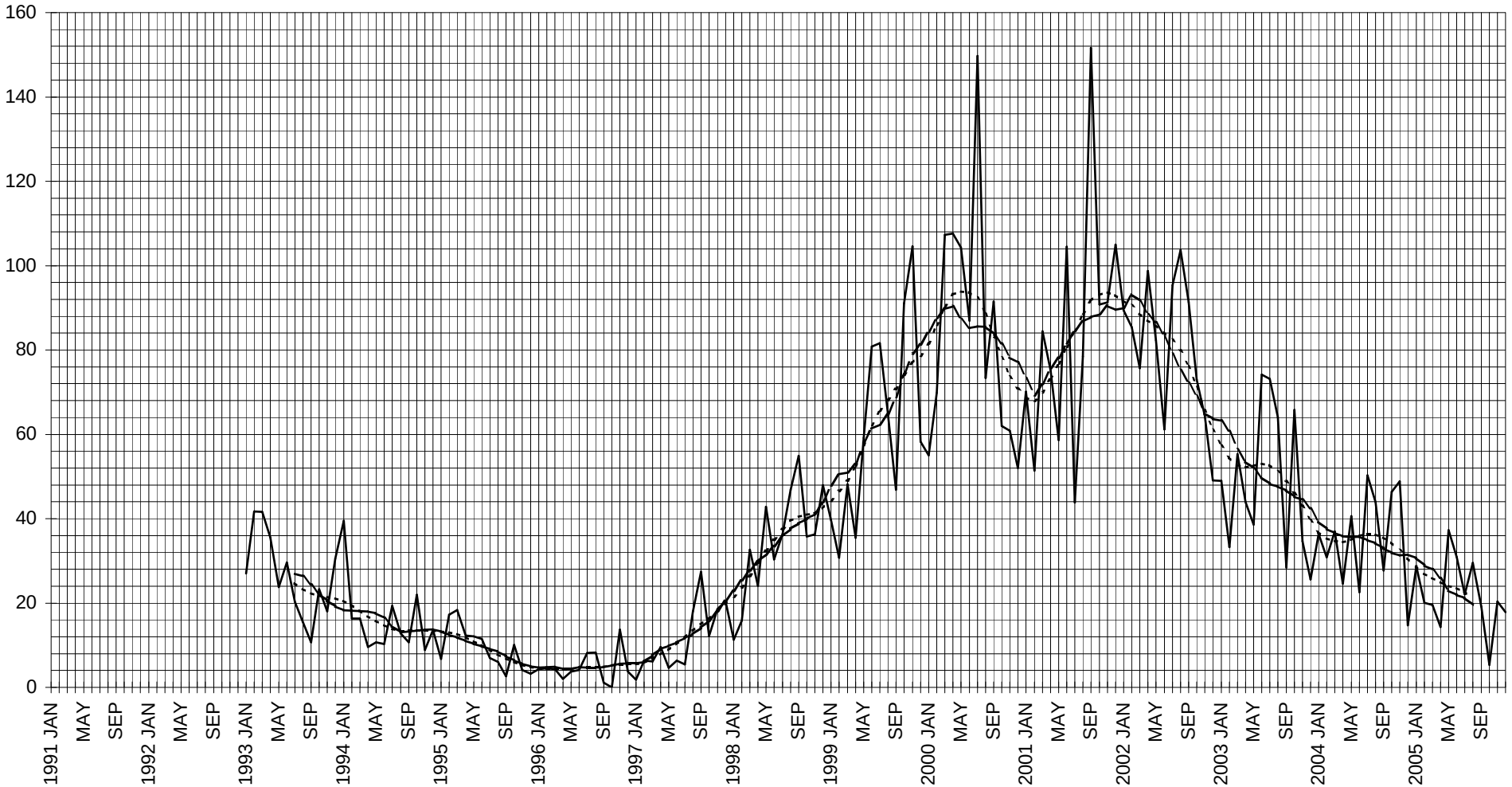
OBSERVED and SMOOTHED GDSO INTER-SOL INDICES (IS and IS[SHBm]) 1991-2005
SOLID = OBSERVED, DASHED = SHBm
FOR EXACT VALUES, SEE TABLE I-5 (IN THIS AND PREVIOUS REPORTS)



OBSERVED and SMOOTHED GDSO INTER-SOL INDICES (IS, IS[SW] and IS[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE I-5 (IN THIS AND PREVIOUS REPORTS)



CORRECTED and SMOOTHED GDSO INTER-SOL INDICES (IS_{GD}, IS_{GD}[SW] and IS_{GD}[SB13]) 1993-2005
SOLID = CORRECTED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE I-5 (IN THIS AND PREVIOUS REPORTS)



DATA START AT JANUARY 1993

MISCELLANEOUS DATA.
TABLE M7:
REGION CLASSIFICATION **PERCENTAGES** 2003 - 2005.

		A	B	C	D	E	F	G	H	J	Sg	NOBS
2003	Jan	10.0	11.0	19.0	31.0	2.0	0.0	0.0	0.0	27.0	100	13
	Feb	21.6	2.0	11.8	29.4	7.8	0.0	0.0	0.0	27.5	51	9
	Mar	5.1	10.3	7.7	43.6	10.3	0.0	0.0	5.1	17.9	39	8
	Apr	9.2	7.1	22.4	37.8	5.1	0.0	0.0	3.1	15.3	98	18
	May	12.8	7.7	21.8	17.9	1.3	7.7	2.6	11.5	16.7	78	16
	Jun	14.8	6.2	9.9	38.3	14.8	6.2	0.0	0.0	9.9	81	15
	Jul	10.4	5.2	10.4	19.5	9.1	11.7	1.3	5.2	27.3	77	12
	Aug	12.2	6.1	18.3	32.9	17.1	1.2	0.0	0.0	12.2	82	13
	Sep	10.7	10.7	21.4	25.0	3.6	7.1	0.0	0.0	21.4	28	8
	Oct	12.2	4.1	12.2	32.4	10.8	13.5	0.0	0.0	14.9	74	18
	Nov	7.0	7.0	11.6	44.2	4.7	4.7	2.3	0.0	18.6	43	13
	Dec	13.5	0.0	18.9	35.1	0.0	5.4	0.0	0.0	27.0	37	9
	2003	11.7	6.6	15.9	31.7	7.6	4.7	0.5	2.3	19.0	788	152
2004	Jan	3.0	3.0	12.1	57.6	9.1	3.0	6.1	3.0	3.0	33	11
	Feb	10.0	10.0	15.0	35.0	0.0	0.0	0.0	0.0	30.0	20	5
	Mar	11.5	1.9	13.5	25.0	19.2	7.7	3.8	1.9	15.4	52	15
	Apr	18.9	5.4	16.2	29.7	2.7	0.0	0.0	2.7	24.3	37	11
	May	0.0	2.4	21.4	31.0	7.1	0.0	0.0	0.0	38.1	42	10
	Jun	10.3	13.8	17.2	17.2	3.4	13.8	0.0	3.4	20.7	29	8
	Jul	13.6	5.1	23.7	28.8	5.1	10.2	0.0	0.0	13.6	59	16
	Aug	8.3	4.2	12.5	35.4	4.2	6.2	4.2	2.1	22.9	48	16
	Sep	0.0	0.0	15.0	50.0	0.0	0.0	0.0	10.0	25.0	20	9
	Oct	0.0	4.8	26.2	31.0	7.1	4.8	0.0	0.0	26.2	42	9
	Nov	0.0	0.0	3.4	41.4	3.4	17.2	0.0	3.4	31.0	29	8
	Dec	0.0	0.0	8.3	16.7	16.7	0.0	0.0	0.0	58.3	12	8
	2004	7.3	4.3	16.5	32.9	6.9	5.9	1.4	1.9	22.9	423	126
2005	Jan	5.6	0.0	30.6	33.3	8.3	0.0	2.8	0.0	19.4	36	13
	Feb	12.0	8.0	4.0	32.0	0.0	0.0	0.0	8.0	36.0	25	10
	Mar	6.9	0.0	24.1	24.1	20.7	0.0	0.0	17.2	6.9	29	16
	Apr	10.9	8.7	30.4	17.4	6.5	0.0	2.2	2.2	21.7	46	17
	May	6.2	0	12.5	31.2	31.2	12.5	0.0	0.0	6.2	16	7
	Jun	5.6	2.8	19.4	58.3	8.3	0.0	0.0	0.0	5.6	36	10
	Jul	3.8	3.8	11.5	57.7	3.8	0.0	3.8	0.0	15.4	26	9
	Aug	19.6	2.2	15.2	39.1	0.0	0.0	2.2	0.0	21.7	46	14
	Sep	9.1	0.0	27.3	0.0	27.3	0.0	0.0	18.2	18.2	11	8
	Oct	14.3	14.3	0.0	28.6	14.3	0.0	0.0	0.0	28.6	7	11
	Nov	0.0	0.0	20.0	26.7	13.3	20.0	6.7	0.0	13.3	15	12
	Dec	10.8	0.0	21.6	13.5	5.4	0.0	0.0	0.0	48.6	37	9
	2005	9.4	3.0	20.0	31.8	8.8	1.5	1.5	3.0	20.9	330	136

See 'Rounding'; page iv.

MISCELLANEOUS DATA continued.

TABLE M8:
REGION CLASSIFICATION **MEANS** 2003 - 2005.

YEAR	MONTH	A	B	C	D	E	F	G	H	J	S g	NOBS
2003	Jan	0.77	0.85	1.46	2.38	0.15	0.00	0.00	0.00	2.08	100	13
	Feb	1.22	0.11	0.67	1.67	0.44	0.00	0.00	0.00	1.56	51	9
	Mar	0.25	0.50	0.38	2.13	0.50	0.00	0.00	0.25	0.88	39	8
	Apr	0.50	0.39	1.22	2.06	0.28	0.00	0.00	0.17	0.83	98	18
	May	0.63	0.38	1.06	0.88	0.06	0.38	0.13	0.56	0.81	78	16
	Jun	0.80	0.33	0.53	2.07	0.80	0.33	0.00	0.00	0.53	81	15
	Jul	0.67	0.33	0.67	1.25	0.58	0.75	0.08	0.33	1.75	77	12
	Aug	0.77	0.38	1.15	2.08	1.08	0.08	0.00	0.00	0.77	82	13
	Sep	0.38	0.38	0.75	0.88	0.12	0.25	0.00	0.00	0.75	28	8
	Oct	0.50	0.17	0.50	1.33	0.44	0.56	0.00	0.00	0.61	74	18
	Nov	0.23	0.23	0.38	1.46	0.15	0.15	0.08	0.00	0.62	43	13
	Dec	0.56	0.00	0.78	1.44	0.00	0.22	0.00	0.00	1.11	37	9
	2003	0.61	0.34	0.82	1.64	0.39	0.24	0.03	0.12	0.99	788	152
2004	Jan	0.09	0.09	0.36	1.73	0.27	0.09	0.18	0.09	0.09	33	11
	Feb	0.40	0.40	0.60	1.40	0.00	0.00	0.00	0.00	1.20	20	5
	Mar	0.40	0.07	0.47	0.87	0.67	0.27	0.13	0.07	0.53	52	15
	Apr	0.64	0.18	0.55	1.00	0.09	0.00	0.00	0.09	0.82	37	11
	May	0.00	0.10	0.90	1.30	0.30	0.00	0.00	0.00	1.60	42	10
	Jun	0.38	0.50	0.62	0.62	0.12	0.50	0.00	0.12	0.75	29	8
	Jul	0.50	0.19	0.88	1.06	0.19	0.38	0.00	0.00	0.50	59	16
	Aug	0.25	0.12	0.38	1.06	0.12	0.19	0.12	0.06	0.69	48	16
	Sep	0.00	0.00	0.33	1.11	0.00	0.00	0.00	0.22	0.56	20	9
	Oct	0.00	0.22	1.22	1.44	0.33	0.22	0.00	0.00	1.22	42	9
	Nov	0.00	0.00	0.12	1.50	0.12	0.62	0.00	0.12	1.12	29	8
	Dec	0.00	0.00	0.12	0.25	0.25	0.00	0.00	0.00	0.88	12	8
	2004	0.25	0.14	0.56	1.10	0.23	0.20	0.05	0.06	0.77	423	126
2005	Jan	0.15	0.00	0.85	0.92	0.23	0.00	0.08	0.00	0.54	36	13
	Feb	0.30	0.20	0.10	0.80	0.00	0.00	0.00	0.20	0.90	25	10
	Mar	0.12	0.00	0.44	0.44	0.38	0.00	0.00	0.31	0.12	29	16
	Apr	0.29	0.24	0.82	0.47	0.18	0.00	0.06	0.06	0.59	46	17
	May	0.14	0.00	0.29	0.71	0.71	0.29	0.00	0.00	0.14	16	7
	Jun	0.20	0.10	0.70	2.10	0.30	0.00	0.00	0.00	0.20	36	10
	Jul	0.11	0.11	0.33	1.67	0.11	0.00	0.11	0.00	0.44	26	9
	Aug	0.64	0.07	0.50	1.29	0.00	0.00	0.07	0.00	0.71	46	14
	Sep	0.12	0.00	0.38	0.00	0.38	0.00	0.00	0.25	0.25	11	8
	Oct	0.09	0.09	0.00	0.18	0.09	0.00	0.00	0.00	0.18	7	11
	Nov	0.00	0.00	0.25	0.33	0.17	0.25	0.08	0.00	0.17	15	12
	Dec	0.44	0.00	0.89	0.56	0.22	0.00	0.00	0.00	2.00	37	9
	2005	0.23	0.07	0.49	0.77	0.21	0.04	0.04	0.07	0.51	330	136

See 'Rounding'; page iv.

MISCELLANEOUS DATA continued.

TABLE M9A:
GDSO PENUMBRA/GROUP MEANS **2004 - 2005**.

The following $\overline{p/g}$ data are obtained by averaging each p/g value from every observation within the period concerned, ie. the number of penumbræ per group per observation.

The $\bar{p}/\bar{g}$ data are obtained by dividing the total number of penumbræ by the total number of groups within the period concerned, ie. the number of penumbræ per group, the true arithmetical mean.

s values are sample standard deviations.
n = number of observations.
OWS = observations *with* sunspots.

YEAR	MTH	$\overline{p/g}$	*s*	$\overline{p/g}(S^W)$	$\overline{p/g}(S^{B13})$	$\bar{p}/\bar{g}$	$\bar{p}/\bar{g}(S^W)$	$\bar{p}/\bar{g}(S^{B13})$	Σg	n	OWS
2004	Jan	2.2950	0.5414	1.7491	1.7548	2.2121	1.7020	1.7127	33	11	10
	Feb	1.3233	0.5456	1.7324	1.7433	1.3000	1.7046	1.6981	20	5	5
	Mar	2.0444	0.7930	1.7732	1.7576	1.9038	1.7473	1.7034	52	15	15
	Apr	1.6273	0.8235	1.8196	1.7805	1.3784	1.7773	1.7154	37	11	11
	May	1.8267	0.7731	1.8461	1.8014	1.7381	1.7898	1.7355	42	10	10
	Jun	1.2896	0.4230	1.8670	1.8275	1.3448	1.8108	1.7711	29	8	8
	Jul	1.9033	0.9922	1.8299	1.8469	1.9492	1.7830	1.8017	59	16	16
	Aug	1.9521	0.6965	1.7922	1.8623	2.0000	1.7493	1.8241	48	16	16
	Sep	2.5556	1.6853	1.7658	1.8582	2.2500	1.7372	1.8309	20	9	9
	Oct	1.7209	0.4917	1.7232	1.8233	1.8095	1.7204	1.8138	42	9	9
	Nov	2.2812	0.9989	1.7631	1.7966	2.2414	1.7791	1.8030	29	8	8
	Dec	1.5000	0.8864	1.8588	1.7882	1.5833	1.8795	1.8051	12	8	8
	2004	1.8971	0.8947	—	—	1.8369	—	—	423	126	125
2005	Jan	1.5744	0.4718	1.9003	1.7777	1.5833	1.9161	1.8019	36	13	13
	Feb	1.1389	0.5980	1.8948	1.7731	1.1200	1.9067	1.8050	25	10	9
	Mar	1.5952	0.8287	1.8697	1.7901	1.7931	1.8800	1.8261	29	16	14
	Apr	1.0539	0.4135	1.8414	1.8351	1.0870	1.8477	1.8646	46	17	17
	May	3.3571	1.2414	1.8424	1.8967	3.4375	1.8381	1.9109	16	7	7
	Jun	2.0562	0.3995	1.8521	1.9405	2.0556	1.8349	1.9350	36	10	8
	Jul	2.1324	0.7498	1.8510	1.9541	2.1154	1.8318	1.9304	26	9	6
	Aug	1.5917	0.6409	1.8287	1.9374	1.6087	1.8211	1.9011	46	14	14
	Sep	2.3125	2.8150	1.7917	1.8868	2.0000	1.7876	1.8427	11	8	8
	Oct	1.2857	1.1127	—	—	1.2857	—	—	7	11	7
	Nov	2.7407	1.8766	—	—	2.5333	—	—	15	12	9
	Dec	1.2722	0.4353	—	—	1.2162	—	—	37	9	9
	2005	1.7323	1.2096	—	—	1.6939	—	—	330	136	121

MISCELLANEOUS DATA continued.

TABLE M9B:
GDSO SUNSPOT/GROUP MEANS **2004 - 2005**.

The following $\overline{f/g}$ data are obtained by averaging each $\overline{f/g}$ value from every observation within the period concerned, ie. the number of sunspots per group per observation.

The $\overline{f}/\overline{g}$ data are obtained by dividing the total number of sunspots by the total number of groups within the period concerned, ie. the number of sunspots per group, the true arithmetical mean.

s values are sample standard deviations.
Σg = number of regions observed.
n = number of observations.
OWS = observations *with* sunspots.

YEAR	MTH	$\overline{f/g}$	*s*	$\overline{f/g}(S^W)$	$\overline{f/g}(S^{B13})$	$\overline{f}/\overline{g}$	$\overline{f}/\overline{g}(S^W)$	$\overline{f}/\overline{g}(S^{B13})$	Σg	n	OWS
2004	Jan	9.6017	3.6180	6.4378	6.3668	9.0606	6.2330	6.1829	33	11	10
	Feb	3.3367	1.4961	6.4591	6.3129	3.4000	6.3582	6.1121	20	5	5
	Mar	8.0008	5.0915	6.5634	6.3413	6.7885	6.5168	6.1117	52	15	15
	Apr	5.1000	2.1175	6.5337	6.3769	4.5405	6.3945	6.0985	37	11	11
	May	6.6700	3.6048	6.5634	6.4661	6.0714	6.3107	6.1802	42	10	10
	Jun	3.5875	2.0755	6.6567	6.6037	3.9310	6.4040	6.3720	29	8	8
	Jul	9.8207	8.2255	6.4277	6.6519	9.6780	6.2574	6.4970	59	16	16
	Aug	6.5771	4.3689	6.2994	6.6578	7.6667	6.1726	6.5578	48	16	16
	Sep	8.7037	8.7705	6.2035	6.5666	7.0000	6.1574	6.5260	20	9	9
	Oct	5.2712	1.9971	6.0410	6.3763	5.8095	6.1019	6.4132	42	9	9
	Nov	9.3333	6.5168	6.1800	6.2198	9.0345	6.3094	6.3257	29	8	8
	Dec	2.6875	2.8402	6.5176	6.1246	3.1667	6.6620	6.2774	12	8	8
	2004	6.9481	5.4201	—	—	6.8085	—	—	423	126	125
2005	Jan	6.4872	4.0554	6.4528	5.9887	6.9444	6.5817	6.1685	36	13	13
	Feb	3.3704	2.5543	6.1989	5.8778	3.4800	6.2893	6.0685	25	10	9
	Mar	5.6667	3.1764	6.1269	5.9049	6.3448	6.1816	6.0872	29	16	14
	Apr	3.5343	1.9466	6.0338	6.0208	3.6522	6.0786	6.1605	46	17	17
	May	11.5714	5.7557	5.9532	6.1627	11.9375	5.9224	6.2096	16	7	7
	Jun	6.7875	2.3594	5.9595	6.2457	6.5278	5.8461	6.1766	36	10	8
	Jul	5.0657	1.7623	5.8759	6.2027	5.1538	5.7171	6.0231	26	9	6
	Aug	5.2393	2.3115	5.6875	6.0669	5.1739	5.5101	5.7928	46	14	14
	Sep	8.3125	15.3202	5.5442	5.8492	6.9091	5.3278	5.4975	11	8	8
	Oct	3.4286	3.6450	—	—	3.4286	—	—	7	11	7
	Nov	9.2407	8.2273	—	—	7.6667	—	—	15	12	9
	Dec	2.9315	1.3995	—	—	2.7027	—	—	37	9	9
	2005	5.7287	5.5597	—	—	5.4606	—	—	330	136	121

MISCELLANEOUS DATA continued.

TABLE M9C:

GDSO GROUP COMPLEXITY INDICES **2004 - 2005**.

The Group Complexity Index (GCI) is an index for showing how complex sunspot groups can get throughout the sunspot cycle. It is not an activity index like the Wolf Number etc.

The GCI is computed as $(\bar{p}+\bar{f})/\bar{g}$ as long as there is the same number of observations for each component, as well as the same observations for each component, whatever period is concerned. If the three components are not common to all observations, then incomplete observations are ignored.

The minimum GCI value is 1 (spotless observations do not count), and the approximate maximum value is about 20.

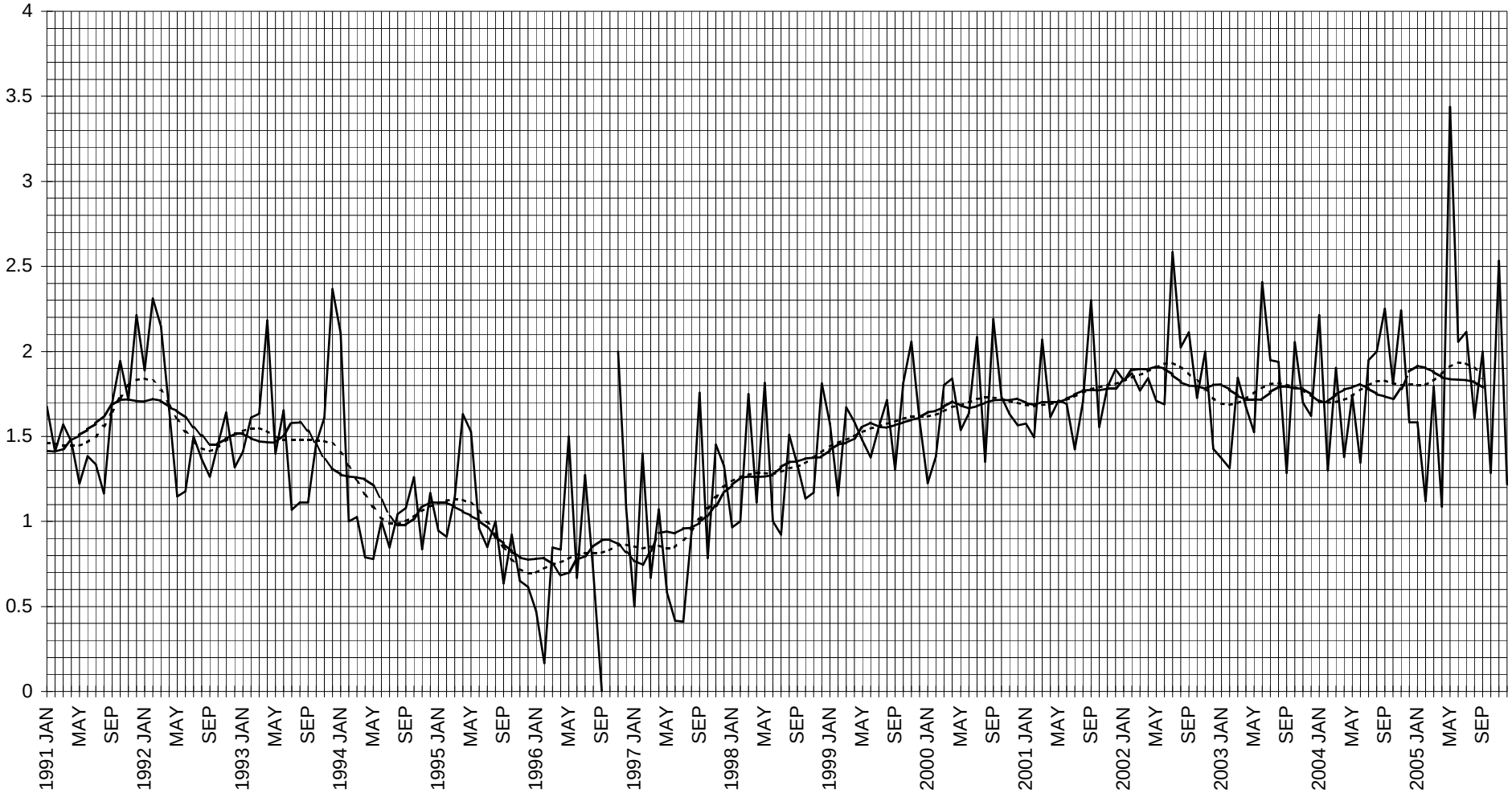
Σg = number of regions observed.

n = number of observations.

OWS = observations *with* sunspots.

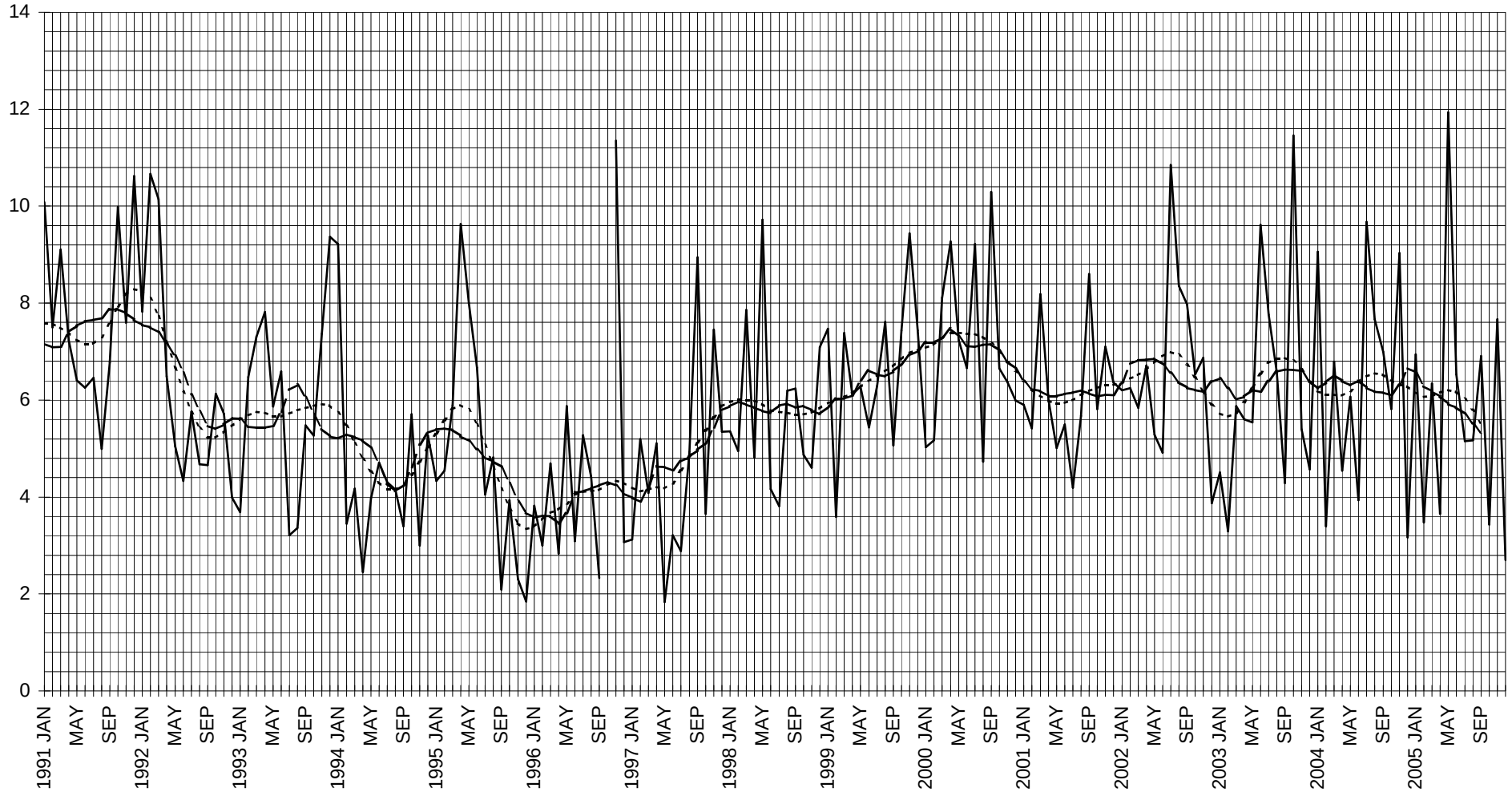
YEAR	MTH	$\bar{p}/\bar{g}$	$\bar{f}/\bar{g}$	GCI	GCI(S^{W})	GCI(S^{B13})	Σg	n	OWS
2004	Jan	2.2121	9.0606	11.2727	7.9349	7.8956	33	11	10
	Feb	1.3000	3.4000	4.7000	8.0627	7.8102	20	5	5
	Mar	1.9038	6.7885	8.6923	8.2641	7.8150	52	15	15
	Apr	1.3784	4.5405	5.9189	8.1718	7.8139	37	11	11
	May	1.7381	6.0714	7.8095	8.1005	7.9157	42	10	10
	Jun	1.3448	3.9310	5.2759	8.2148	8.1431	29	8	8
	Jul	1.9492	9.6780	11.6271	8.0405	8.2987	59	16	16
	Aug	2.0000	7.6667	9.6667	7.9219	8.3820	48	16	16
	Sep	2.2500	7.0000	9.2500	7.8947	8.3569	20	9	9
	Oct	1.8095	5.8095	7.6190	7.8224	8.2270	42	9	9
	Nov	2.2414	9.0345	11.2759	8.0885	8.1287	29	8	8
	Dec	1.5833	3.1667	4.7500	8.5415	8.0825	12	8	8
	2004	1.8369	6.8085	8.6454	—	—	423	126	125
2005	Jan	1.5833	6.9444	8.5278	8.4977	7.9704	36	13	13
	Feb	1.1200	3.4800	4.6000	8.1960	7.8734	25	10	9
	Mar	1.7931	6.3448	8.1379	8.0616	7.9132	29	16	14
	Apr	1.0870	3.6522	4.7391	7.9264	8.0251	46	17	17
	May	3.4375	11.9375	15.3750	7.7605	8.1205	16	7	7
	Jun	2.0556	6.5278	8.5833	7.6811	8.1115	36	10	8
	Jul	2.1154	5.1538	7.2692	7.5489	7.9535	26	9	6
	Aug	1.6087	5.1739	6.7826	7.3312	7.6939	46	14	14
	Sep	2.0000	6.9091	8.9091	7.1154	7.3402	11	8	8
	Oct	1.2857	3.4286	4.7143	—	—	7	11	7
	Nov	2.5333	7.6667	10.2000	—	—	15	12	9
	Dec	1.2162	2.7027	3.9189	—	—	37	9	9
	2005	1.6939	5.4606	7.1545	—	—	330	136	121

OBSERVED and SMOOTHED GDSO PENUMBRAE PER SUNSPOT GROUP (p/g, p/g[SW] and p/g[SB13] 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE M9A (IN THIS AND PREVIOUS REPORTS)



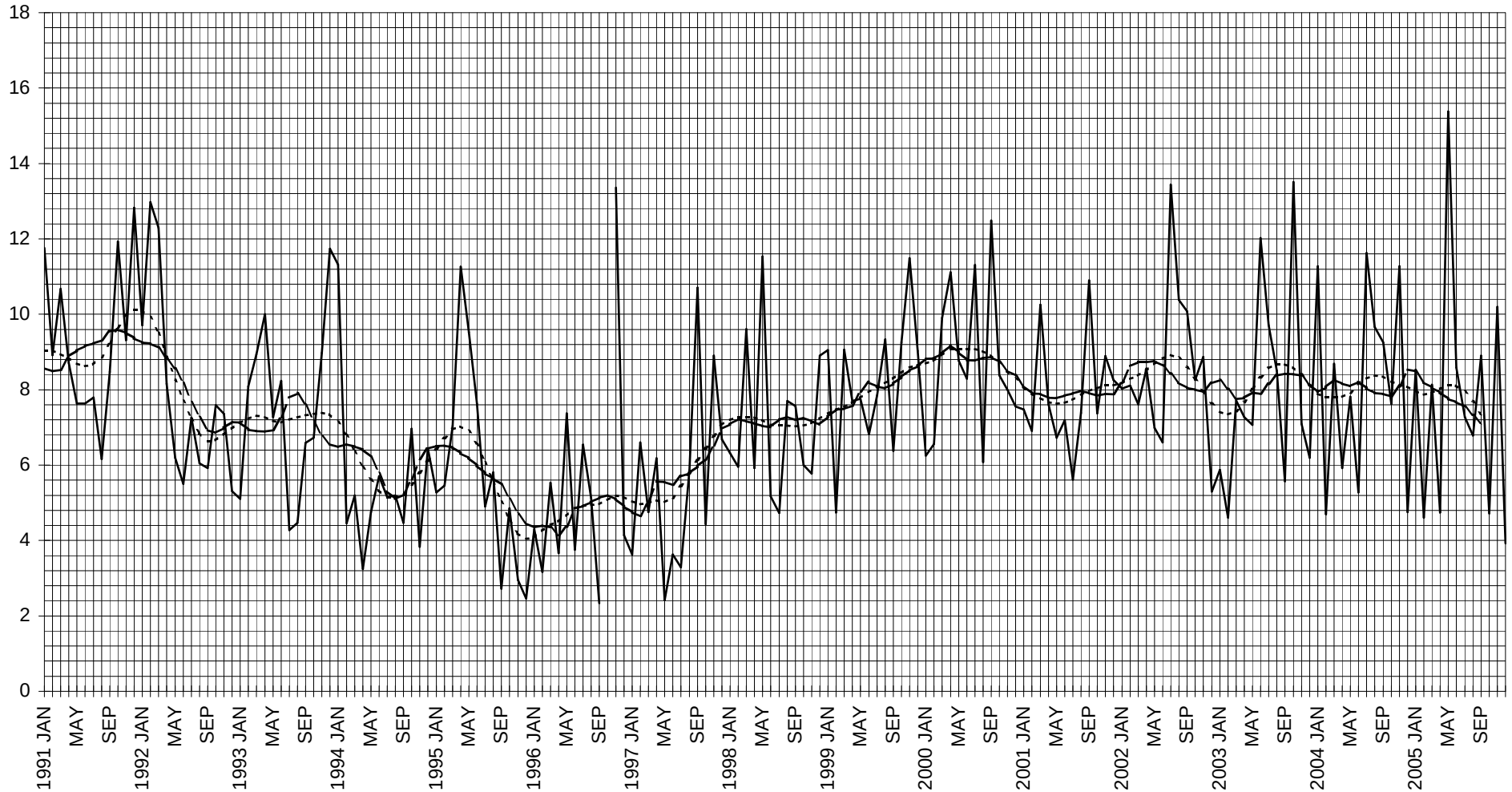
AS THERE WERE NO GROUPS IN OCTOBER 1996, p/g IS NON-EXISTENT FOR THAT MONTH

OBSERVED and SMOOTHED GDSO SPOTS PER SUNSPOT GROUP (f/g, f/g[SW] and f/g[SB13]) 1990-2004
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE M9B (IN THIS AND PREVIOUS REPORTS)



AS THERE WERE NO GROUPS IN OCTOBER 1996, f/g IS NON-EXISTENT FOR THAT MONTH

OBSERVED and SMOOTHED GDSO GROUP COMPLEXITY INDICES (GCI, GCI[SW] and GCI[SB13]) 1991-2005
SOLID = OBSERVED, DASHED = SW, DOTTED = SB13
FOR EXACT VALUES, SEE TABLE M9C (IN THIS AND PREVIOUS REPORTS)



AS THERE WERE NO GROUPS IN OCTOBER 1996, GCI IS NON-EXISTENT FOR THAT MONTH

MISCELLANEOUS DATA continued.

TABLE M10A:
INTERNATIONAL PENUMBRA/GROUP MEANS **1997 - 2001**.

The following $\overline{p/g}$ data are obtained by averaging each p/g value from every observation within the period concerned, ie. the number of penumbræ per group per observation.International data below are gleaned from Sonne, Germany.

The $\bar{p}/\bar{g}$ data are obtained by dividing the total number of penumbræ by the total number of groups within the period concerned, ie. the number of penumbræ per group, the true arithmetical mean.

s values are sample standard deviations.
n = number of observations.
DCC = days with common components.

YEAR	MTH	$\overline{p/g}_I$	*s*	$\overline{p/g}_I(S^W)$	$\overline{p/g}_I(S^{B13})$	$\bar{p}/\bar{g}_I$	$\bar{p}/\bar{g}_I(S^W)$	$\bar{p}/\bar{g}_I(S^{B13})$	DCC
1997	Jan	0.3033	0.6440	1.1404	1.1197	0.6494	1.4399	1.4266	19
	Feb	0.7967	1.4276	1.0381	1.0944	1.6279	1.3056	1.3976	17
	Mar	1.5300	1.4447	1.1404	1.1490	1.7532	1.3931	1.4418	19
	Apr	1.4894	1.0137	1.2900	1.2144	1.7778	1.5425	1.4905	26
	May	1.3576	0.7478	1.3571	1.2531	1.4363	1.6022	1.5069	28
	Jun	0.8815	1.1003	1.4085	1.3145	1.0566	1.6234	1.5365	30
	Jul	0.2691	0.5665	—	—	0.7051	—	—	23
	Aug	1.6306	0.9538	—	—	1.6453	—	—	29
	Sep	2.6636	0.8354	—	—	2.7932	—	—	30
	Oct	1.3039	0.7401	—	—	1.4815	—	—	31
	Nov	2.6181	1.1866	—	—	2.5479	—	—	30
	Dec	2.5220	1.1976	—	—	2.2866	—	—	30
	1997	1.5371	1.2650	—	—	1.9219	—	—	312
1998	Jan								
	Feb								
	Mar				DATA				
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul				TIME				
	Aug								
	Sep				OF				
	Oct				PRINT.				
	Nov								
	Dec								
	1998			—	—		—	—	

MISCELLANEOUS DATA continued.

TABLE M10A continued:

INTERNATIONAL PENUMBRA/GROUP MEANS **1997 - 2001.**

YEAR	MTH	$\overline{p/g_I}$	*s*	$\overline{p/g_I}(S^W)$	$\overline{p/g_I}(S^{B13})$	$\overline{p}/\overline{g}_I$	$\overline{p}/\overline{g}_I(S^W)$	$\overline{p}/\overline{g}_I(S^{B13})$	DCC
1999	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	1999			–	–		–	–	
2000	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	2000			–	–		–	–	
2001	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	2001			–	–		–	–	

MISCELLANEOUS DATA continued.

TABLE M10B:
INTERNATIONAL SPOTS/GROUP MEANS **1997 - 2001**.

The following $\overline{f/g}$ data are obtained by averaging each f/g value from every observation within the period concerned, ie. the number of spots per group per observation.International data below are gleaned from Sonne, Germany.

The $\overline{f}/\overline{g}$ data are obtained by dividing the total number of spots by the total number of groups within the period concerned, ie. the number of spots per group, the true arithmetical mean.

s values are sample standard deviations.
n = number of observations.
DCC = days with common components.

YEAR	MTH	$\overline{f/g}_I$	σ	$\overline{f/g}_I(S^W)$	$\overline{f/g}_I(S^{B13})$	$\overline{f}/\overline{g}_I$	$\overline{f}/\overline{g}_I(S^W)$	$\overline{f}/\overline{g}_I(S^{B13})$	DCC
1997	Jan	2.4891	2.8075	4.1487	4.0750	3.1169	4.8530	4.7781	19
	Feb	3.6114	3.1812	3.9081	4.0607	5.3488	4.5621	4.7648	17
	Mar	5.3633	2.6230	4.1686	4.2352	5.5195	4.8214	4.9386	19
	Apr	5.2027	2.7646	4.6127	4.4361	6.0000	5.2884	5.1307	26
	May	3.6888	2.4982	4.8353	4.5668	4.2005	5.4735	5.2288	28
	Jun	4.3627	2.8847	5.0169	4.7737	4.7170	5.5414	5.3700	30
	Jul	2.7207	2.7766	—	—	4.1667	—	—	23
	Aug	5.1352	4.2248	—	—	5.2778	—	—	29
	Sep	8.4137	3.3270	—	—	8.9815	—	—	30
	Oct	4.1613	2.3896	—	—	4.6405	—	—	31
	Nov	9.2933	4.7072	—	—	9.0230	—	—	30
	Dec	7.3496	5.6597	—	—	6.4177	—	—	30
	1997	5.3597	4.0750	—	—	6.2761	—	—	312
1998	Jan								
	Feb								
	Mar			DATA					
	Apr								
	May			UNOBTAINABLE					
	Jun			AT					
	Jul								
	Aug			TIME					
	Sep			OF					
	Oct								
	Nov			PRINT.					
	Dec								
	1998			—	—		—	—	

MISCELLANEOUS DATA continued.

TABLE M10B continued:

INTERNATIONAL SPOT/GROUP MEANS **1997 - 2001.**

YEAR	MTH	$\overline{f/g_I}$	*s*	$\overline{f/g}_I(S^W)$	$\overline{f/g_I}(S^{B13})$	$\overline{f}/\overline{g_I}$	$\overline{f}/\overline{g}_I(S^W)$	$\overline{f}/\overline{g_I}(S^{B13})$	DCC
1999	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	1999			–	–		–	–	
2000	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	2000			–	–		–	–	
2001	Jan								
	Feb				DATA				
	Mar								
	Apr				UNOBTAINABLE				
	May								
	Jun				AT				
	Jul								
	Aug				TIME				
	Sep								
	Oct				OF				
	Nov								
	Dec				PRINT.				
	2001			–	–		–	–	

MISCELLANEOUS DATA continued.

TABLE M10C:

INTERNATIONAL GROUP COMPLEXITY INDICES (GCI_I) **1997 - 2001**.

The Group Complexity Index (GCI_I) is an index for showing how complex sunspot groups can get throughout the sunspot cycle. It is not an activity index like the Wolf Number etc. International data below are gleaned from Sonne, Germany.

The GCI is computed as $(\bar{p}+\bar{f})/\bar{g}$ as long as there is the same number of observations for each component, as well as the same observations for each component, whatever period is concerned. If the three components are not common to all observations, then incomplete observations are ignored.

The minimum GCI value is, theoretically, 1 (spotless observations do not count), and the approximate maximum value is about 20.

DCC = days with common components.

YEAR	MTH	$\bar{p}/\bar{g}_I$	$\bar{f}/\bar{g}_I$	GCI_I	$GCI_I(S^W)$	$GCI_I(S^{B13})$	DCC
1997	Jan	0.6494	3.1169	3.7662	6.2929	6.2047	19
	Feb	1.6279	5.3488	6.9767	5.8676	6.1625	17
	Mar	1.7532	5.5195	7.2727	6.2145	6.3804	19
	Apr	1.7778	6.0000	7.7778	6.8309	6.6212	26
	May	1.4363	4.2005	5.6369	7.0757	6.7357	28
	Jun	1.0566	4.7170	5.7736	7.1648	6.9065	30
	Jul	0.7051	4.1667	4.8718	–	–	23
	Aug	1.6453	5.2778	6.9231	–	–	29
	Sep	2.7932	8.9815	11.7747	–	–	30
	Oct	1.4815	4.6405	6.1220	–	–	31
	Nov	2.5479	9.0230	11.5709	–	–	30
	Dec	2.2866	6.4177	8.7043	–	–	30
1997		1.9219	6.2761	8.1979	–	–	312
1998	Jan						
	Feb						
	Mar			DATA			
	Apr						
	May			UNOBTAINABLE			
	Jun			AT			
	Jul						
	Aug			TIME			
	Sep			OF			
	Oct						
	Nov			PRINT.			
	Dec						
1998					–	–	

MISCELLANEOUS DATA continued.

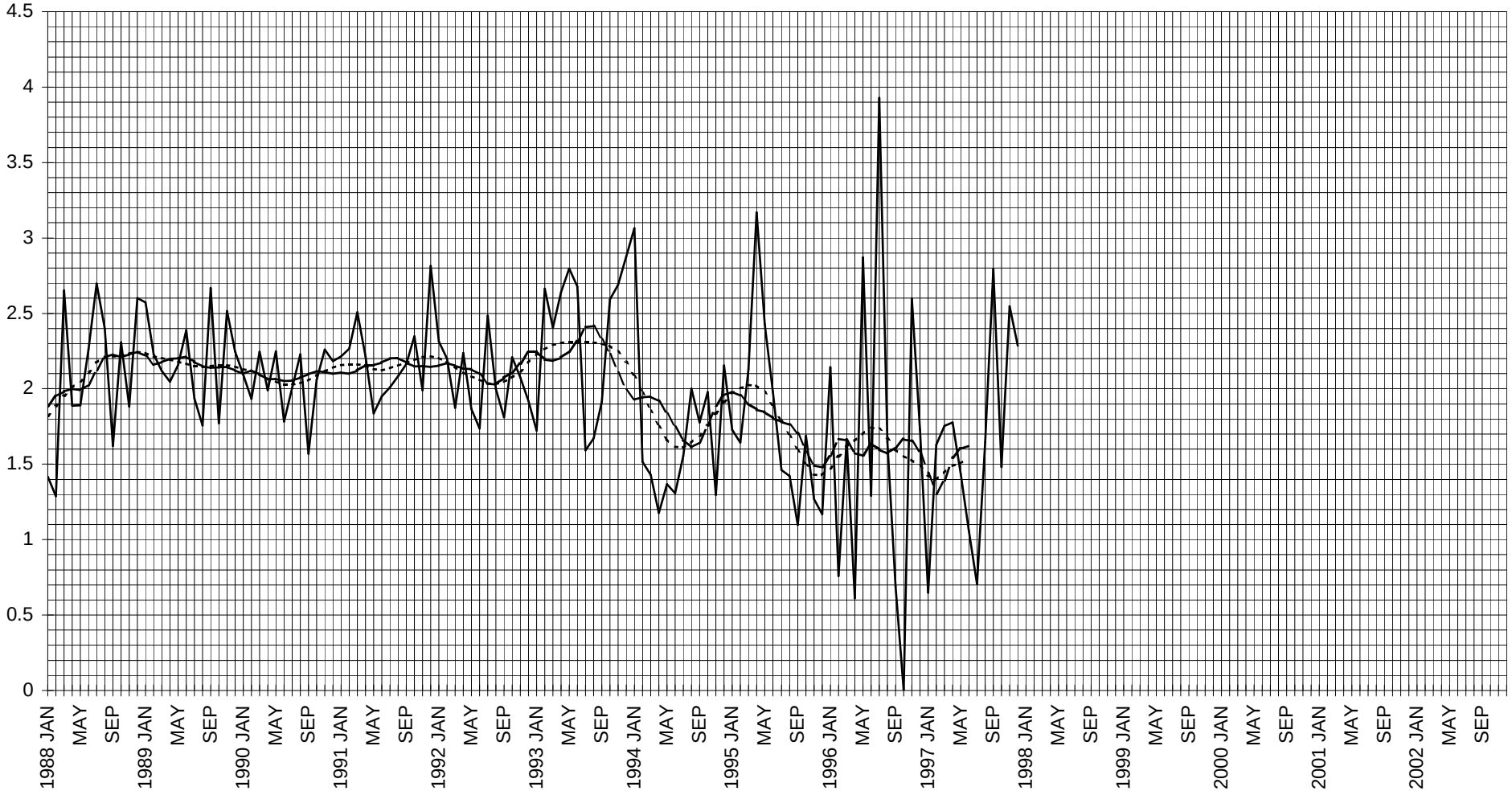
TABLE M10C continued:
INTERNATIONAL GROUP COMPLEXITY INDICES (GCI_I) **1997 - 2001**.

YEAR	MTH	$\bar{p}/\bar{g}_I$	$\bar{f}/\bar{g}_I$	GCI_I	$GCI_I(S^W)$	$GCI_I(S^{B13})$	DCC
1999	Jan						
	Feb			DATA			
	Mar						
	Apr			UNOBTAINABLE			
	May						
	Jun			AT			
	Jul						
	Aug			TIME			
	Sep						
	Oct			OF			
	Nov						
	Dec			PRINT.			
1999					–	–	
2000	Jan						
	Feb			DATA			
	Mar						
	Apr			UNOBTAINABLE			
	May						
	Jun			AT			
	Jul						
	Aug			TIME			
	Sep						
	Oct			OF			
	Nov						
	Dec			PRINT.			
2000					–	–	
2001	Jan						
	Feb			DATA			
	Mar						
	Apr			UNOBTAINABLE			
	May						
	Jun			AT			
	Jul						
	Aug			TIME			
	Sep						
	Oct			OF			
	Nov						
	Dec			PRINT.			
2001					–	–	

OBSERVED and SMOOTHED INTERNATIONAL PENUMBRAE PER SUNSPOT GROUP (p/g_l, p/g_l[SW] and p/g_l[SB13]) 1988-2002

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13

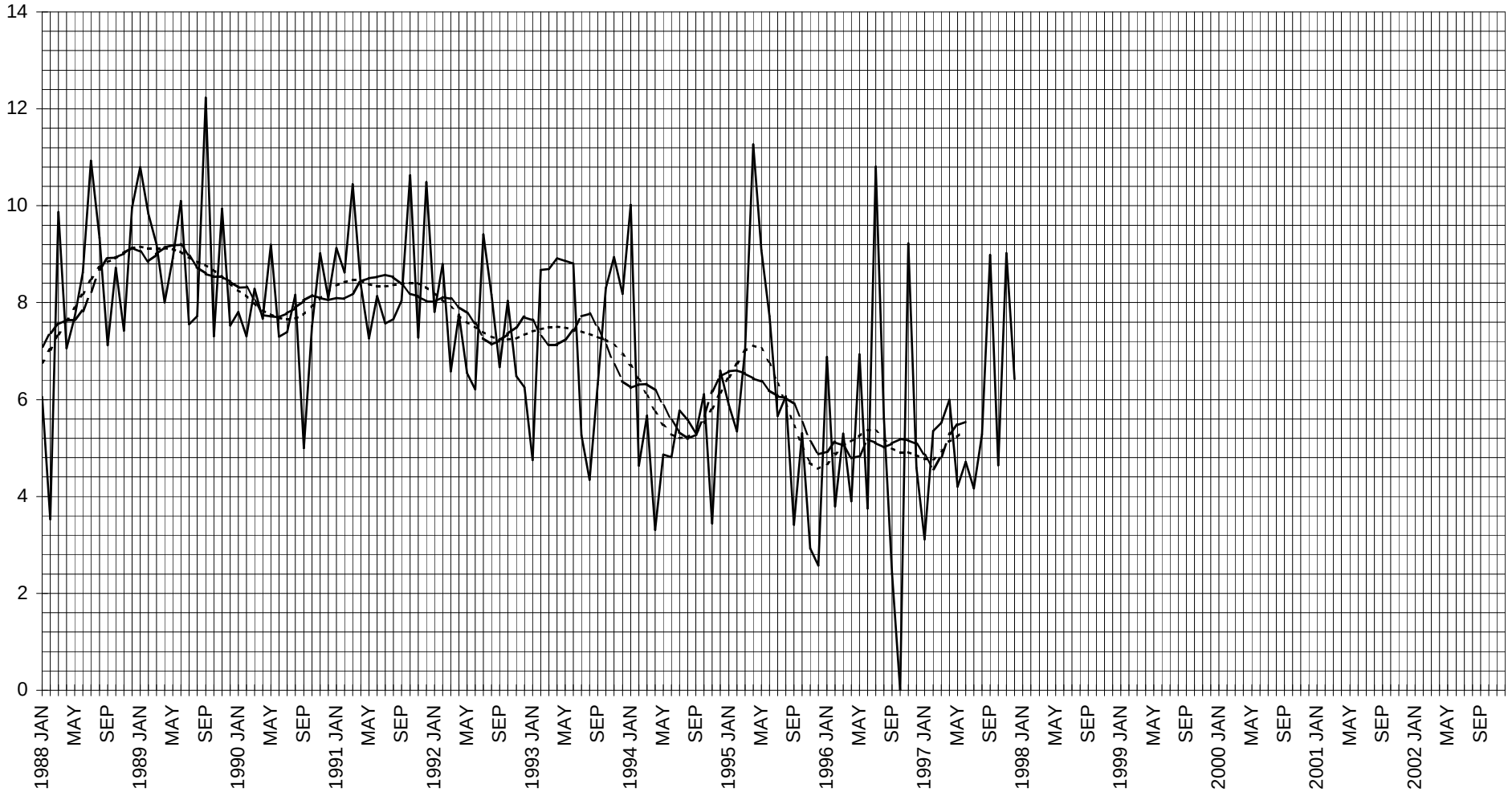
FOR EXACT VALUES, SEE TABLE M10A



OBSERVED and SMOOTHED INTERNATIONAL SPOTS PER SUNSPOT GROUP (f/g_I, f/g_I[SW] and f/g_I[SB13]) 1988-2002

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13

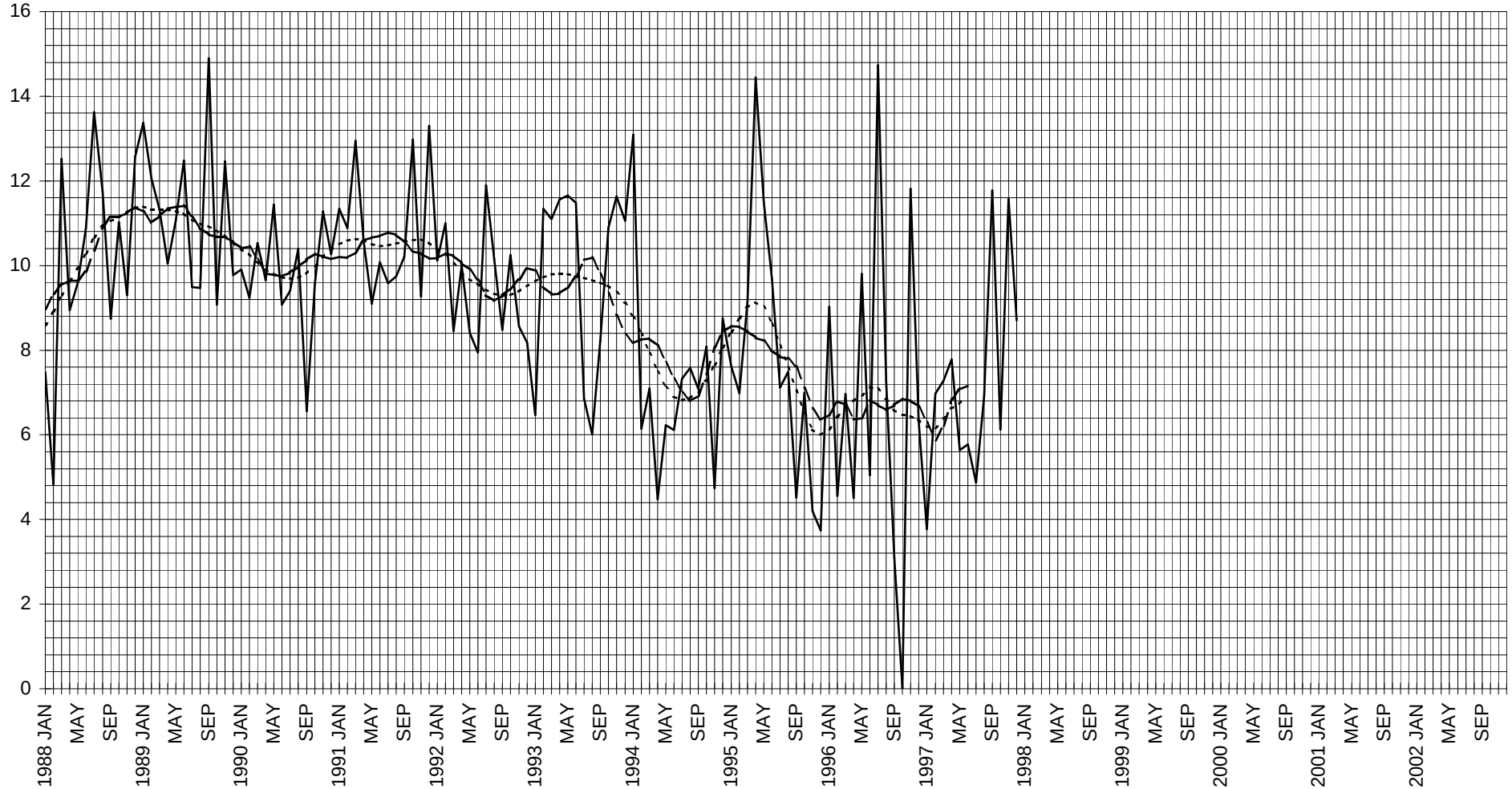
FOR EXACT VALUES, SEE TABLE M10B



OBSERVED and SMOOTHED INTERNATIONAL GROUP COMPLEXITY INDEX (GCI_I , GCI_I[SW] and GCI_I[SB13]) 1988-2002

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13

FOR EXACT VALUES, SEE TABLE M10C



ISSN 0112-9333

AR2005