



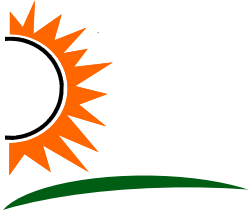
***Georgi Dobrovolski
Solar Observatory***

***OBSERVED, CORRECTED
& SMOOTHED
WOLF NUMBERS
1973 - 2013***

**COMPILED BY HOWARD BARNES,
NEW ZEALAND.**

E-MAIL: gdso@earthling.net

**Tenth Edition,
Published, October MMXIV.**



SMOOTHING FORMULÆ.

The following are the three formulæ used in the smoothing of GDSO sunspot data. All are based on monthly means .

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

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

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

$$\left(\sum_{-5}^{+5} \bar{x} + [\bar{x}_{+6} + \bar{x}_{-6}] / 2 \right) / 12$$

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

$$(0.75(x_{+6} + x_{-6}) + 2(x_{+5} + x_{-5}) + 3(x_{+4} + x_{-4}) + 4(x_{+3} + x_{-3}) + 5(x_{+2} + x_{-2}) + 6(x_{+1} + x_{-1}) + 6.5x_0) / 48$$

-oOo-

† = interpolated value.

* = data based on interpolated value.

PLEASE NOTE:

ALL smoothed data are based on rounded monthly values, hence suffixed (*†(S**)).



Observed GDSO Wolf Numbers (WN) are corrected for seeing conditions and seasonal effects to create the Corrected GDSO Wolf Numbers (R_{GD}).

These two series are smoothed (the observed by three methods, the corrected by two) to create the data in the unshaded columns.

DEFINITIONS:

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

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 $k = 1$.

MONTH	WN	$WN^r(S^{HBm})$	$WN^r(S^W)$	$WN^r(S^{B13})$	R_{GD}	$R_{GD}^r(S^W)$	$R_{GD}^r(S^{B13})$
1973 Apr	30.00	—	—	—	65.12	—	—
May	8.75	—	—	—	35.98	—	—
Jun	6.23	—	—	—	19.76	—	—
Jul	9.57	14.82	—	—	19.89	—	—
Aug	12.50	16.31	—	—	28.81	—	—
Sep	41.21	18.64	—	—	57.45	—	—
Oct	12.79	17.57	14.80	15.70	28.60	29.77	30.10
Nov	11.79	16.16	14.72	15.37	28.93	28.39	28.78
Dec	8.60	14.43	15.86	15.56	18.80	28.83	28.34
1974 Jan	19.15	13.56	17.36	16.00	28.32	30.93	28.64
Feb	14.00	14.01	18.88	16.57	22.92	32.58	29.18
Mar	8.87	15.02	18.87	17.16	16.32	32.35	29.90
Apr	18.38	17.38	18.33	18.15	37.86	32.26	31.43
May	18.29	19.92	18.57	19.45	30.13	32.33	33.22
Jun	24.22	22.78	18.73	20.42	36.20	32.19	34.66
Jul	27.50	24.64	18.44	20.78	53.83	31.84	35.33
Aug	31.08	24.36	17.90	20.46	34.35	31.03	34.91
Sep	22.40	22.12	17.62	19.52	46.46	30.25	33.49
Oct	18.56	18.73	16.66	17.79	37.39	28.18	30.64
Nov	11.90	15.30	15.21	15.56	21.78	25.55	26.85
Dec	12.33	12.35	13.73	13.21	22.71	23.47	22.93
1975 Jan	8.29	9.80	12.89	11.25	15.86	21.52	19.30
Feb	12.00	7.73	11.93	9.75	16.00	20.01	16.47
Mar	4.18	5.65	10.23	8.53	4.53	17.75	14.19
Apr	0.00	5.43	9.06	7.85	0.00	14.97	12.61
May	1.71	6.55	8.67	7.85	4.86	13.65	12.28
Jun	5.29	8.22	8.28	8.23	11.45	12.69	12.61
Jul	26.29	10.54	7.72	8.52	31.81	11.50	12.85
Aug	9.22	10.58	7.22	8.42	20.26	10.55	12.63
Sep	3.67	9.65	7.09	8.21	6.22	10.54	12.26
Oct	9.20	8.63	8.20	8.37	10.92	11.99	12.23
Nov	11.80	7.05	9.30	8.51	16.64	13.12	12.08
Dec	3.00	6.21	9.65	8.37	4.71	13.38	11.60

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1976 Jan	4.18	6.92	8.76	8.03	5.30	12.16	10.92
Feb	4.11	7.74	7.74	7.95	3.84	10.62	10.61
Mar	9.11	9.19	8.03	8.38	16.45	10.49	10.95
Apr	21.67	10.31	8.49	8.76	22.82	11.02	11.34
May	6.43	9.52	8.44	8.81	9.29	10.95	11.37
Jun	9.00	8.81	8.66	8.86	13.17	10.87	11.31
Jul	1.20	8.11	9.36	9.11	0.80	11.71	11.52
Aug	9.89	8.19	10.04	9.47	14.35	12.72	11.91
Sep	9.80	9.29	10.33	9.75	8.99	12.85	12.12
Oct	14.22	10.15	9.45	9.67	20.93	11.71	11.95
Nov	5.62	10.75	8.89	9.65	4.82	11.19	11.90
Dec	14.41	11.04	9.70	10.04	14.69	12.21	12.39
1977 Jan	9.50	10.42	10.78	10.54	15.39	13.99	13.28
Feb	15.08	9.87	11.65	10.95	17.95	15.78	14.27
Mar	5.23	9.86	12.91	11.58	5.54	18.10	15.71
Apr	4.25	10.27	14.53	12.80	6.32	20.84	18.07
May	10.50	12.33	15.89	14.53	13.41	23.14	21.20
Jun	24.45	15.50	17.27	16.51	33.52	25.53	24.72
Jul	11.55	18.66	19.06	18.71	23.17	28.38	28.45
Aug	20.60	21.88	22.53	21.78	34.89	33.37	33.16
Sep	29.13	24.94	27.47	25.88	44.09	41.07	39.29
Oct	33.75	27.05	33.17	30.64	51.66	49.43	46.15
Nov	18.77	31.17	38.85	35.87	29.26	56.89	53.25
Dec	34.33	37.64	43.38	41.50	47.54	63.53	60.96
1978 Jan	32.65	46.27	46.94	47.39	50.94	69.35	69.27
Feb	75.17	56.94	49.04	52.51	102.31	73.29	76.91
Mar	63.71	64.98	51.81	56.69	105.85	79.11	83.89
Apr	82.50	69.17	56.14	60.35	106.60	86.68	90.43
May	68.78	67.41	60.06	63.05	92.26	93.63	96.19
Jun	74.67	64.14	63.39	64.54	114.16	99.65	100.75
Jul	46.89	61.61	68.20	65.90	82.11	106.61	104.81
Aug	35.57	61.00	72.18	67.84	70.51	113.35	109.51
Sep	80.71	65.61	73.51	70.29	148.15	116.65	114.50
Oct	86.00	71.32	73.88	72.74	129.17	117.73	118.69
Nov	60.82	76.76	74.79	75.31	118.66	119.77	122.34
Dec	72.15	82.40	77.36	78.89	102.69	123.56	126.48

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1979 Jan	110.25	86.06	81.21	83.06	162.78	128.45	131.11
Feb	93.00	86.99	85.63	86.52	152.23	135.41	135.32
Mar	77.80	88.48	88.80	88.79	135.17	140.70	138.24
Apr	77.33	90.61	90.37	90.80	103.03	143.98	141.42
May	95.83	92.81	92.84	93.39	144.83	148.46	146.27
Jun	109.22	96.71	95.97	95.82	152.53	153.83	151.79
Jul	104.88	98.74	96.56	96.99	161.21	156.71	156.43
Aug	83.63	99.42	95.94	97.69	158.40	157.30	160.37
Sep	108.60	100.60	95.38	98.18	187.22	157.73	163.75
Oct	95.63	100.37	95.87	98.20	168.89	160.88	166.41
Nov	110.20	100.61	97.93	98.07	186.43	165.33	168.01
Dec	98.00	97.88	99.20	97.79	163.88	167.26	168.10
1980 Jan	98.90	94.30	98.76	97.33	170.64	166.24	166.81
Feb	89.40	92.88	97.77	96.74	158.57	161.38	163.50
Mar	68.17	93.25	96.62	96.20	139.16	157.19	159.62
Apr	98.70	97.73	96.94	96.68	174.48	156.74	157.04
May	123.71	100.55	97.96	97.71	180.28	155.80	154.61
Jun	111.83	99.82	98.92	98.52	163.35	155.09	152.12
Jul	91.83	98.21	99.21	98.97	126.06	153.59	149.68
Aug	73.00	96.27	98.85	99.41	76.73	150.45	148.04
Sep	91.60	98.93	101.09	100.92	168.40	149.37	148.26
Oct	120.25	103.06	104.25	102.78	177.00	148.77	148.60
Nov	110.13	105.19	105.17	104.04	155.57	145.98	147.87
Dec	120.93	106.47	103.40	104.49	177.90	141.26	146.06
1981 Jan	83.15	105.18	103.37	105.20	120.61	139.83	144.31
Feb	96.50	106.51	106.97	107.09	133.03	144.16	143.74
Mar	114.80	108.07	109.61	108.89	138.82	146.11	142.55
Apr	127.80	110.07	109.87	109.64	160.57	143.36	140.28
May	116.67	111.46	106.83	108.76	127.08	138.38	137.44
Jun	76.50	109.90	103.41	107.22	103.40	132.73	134.65
Jul	126.43	112.00	103.08	106.40	151.75	130.41	133.22
Aug	124.86	108.12	105.87	105.92	154.87	132.49	132.75
Sep	103.00	103.28	109.33	105.48	136.96	135.28	132.31
Oct	115.00	98.46	109.78	104.86	142.42	134.79	131.34
Nov	42.50	93.85	106.54	104.12	70.63	131.59	130.22
Dec	106.50	100.43	*103.47	*104.01	127.31	*130.25	*130.11

† = interpolated value.

* = data based on interpolated value.

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1982 Jan	89.74	108.74	*102.18	*104.33	115.65	*132.04	*131.30
Feb	156.80	115.45	*100.60	*104.33	187.77	*131.05	*132.06
Mar	137.63	*114.02	*99.75	*103.57	150.99	*127.91	*131.31
Apr	115.67	*104.53	*98.01	*101.20	136.63	*125.40	*129.44
May	51.00	*94.09	*97.33	*98.33	74.20	*125.23	*127.76
Jun	†68.47	*88.98	*97.45	*95.80	†124.31	*126.19	*126.47
Jul	103.63	*90.05	*95.93	*93.25	173.82	*124.91	*124.00
Aug	109.67	*90.65	*90.64	*89.50	108.97	*118.57	*118.96
Sep	97.67	*90.37	*82.29	*84.54	107.43	*110.17	*113.04
Oct	78.78	85.46	*76.09	*80.00	111.86	*105.04	*108.24
Nov	62.33	78.07	*75.22	*76.98	97.11	*104.27	*104.53
Dec	89.50	72.15	*76.66	*74.53	123.83	*103.79	*100.51
1983 Jan	70.27	65.65	75.43	71.24	88.35	98.79	95.34
Feb	49.40	61.83	71.39	67.68	62.86	94.07	91.30
Mar	44.57	61.02	66.26	64.87	74.26	90.18	88.58
Apr	60.00	63.19	62.06	63.05	90.27	84.80	85.72
May	85.80	66.06	58.15	60.99	102.17	78.74	82.01
Jun	68.20	65.25	53.45	57.58	84.85	71.75	76.96
Jul	74.42	61.09	49.36	53.39	93.14	66.58	71.56
Aug	41.75	51.27	48.16	49.47	76.46	66.07	66.77
Sep	42.50	41.57	49.43	46.31	46.52	67.68	62.61
Oct	33.29	34.19	50.31	43.73	43.61	67.77	59.20
Nov	13.83	30.31	48.94	41.85	20.01	66.32	57.35
Dec	25.29	33.73	46.69	41.52	33.24	63.94	57.53
1984 Jan	36.33	40.08	43.29	42.24	54.90	59.67	58.73
Feb	54.50	48.11	40.37	43.39	84.00	55.13	60.02
Mar	70.00	54.09	38.21	43.95	91.62	51.60	60.33
Apr	55.64	53.33	35.41	42.79	75.13	48.31	58.50
May	57.14	48.93	34.24	40.33	82.51	46.61	54.66
Jun	42.86	39.94	33.70	36.50	47.41	45.70	48.91
Jul	18.22	29.26	31.99	31.47	28.09	43.07	41.63
Aug	27.83	21.61	29.08	26.04	32.51	38.30	33.83
Sep	4.63	14.66	24.81	20.79	5.89	32.10	26.55
Oct	4.00	11.28	20.65	16.69	5.19	26.47	20.99
Nov	15.00	10.82	17.50	14.13	17.65	21.81	17.41
Dec	11.25	10.25	14.93	12.74	13.66	18.46	15.58

† = interpolated value.

* = data based on interpolated value.

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1985 Jan	9.22	11.02	14.09	12.55	11.35	17.26	15.27
Feb	11.88	12.24	13.58	12.96	13.16	16.22	15.63
Mar	10.00	13.30	12.80	13.51	13.58	15.17	16.23
Apr	16.00	15.53	13.27	14.26	18.03	15.96	17.15
May	21.11	17.09	13.67	14.73	28.00	16.80	17.84
Jun	17.29	16.83	13.39	14.73	21.34	16.61	17.93
Jul	23.57	16.15	12.96	14.27	25.38	16.15	17.44
Aug	10.13	13.93	13.60	13.76	10.25	16.68	16.88
Sep	3.78	11.89	14.54	13.47	3.01	17.60	16.62
Oct	16.00	10.88	14.62	13.24	27.13	17.65	16.41
Nov	12.69	11.04	14.16	12.98	15.80	16.92	15.98
Dec	6.85	11.77	12.95	12.61	10.99	15.28	15.28
1986 Jan	3.10	13.35	11.93	12.53	2.89	14.08	14.93
Feb	33.38	15.35	11.58	12.74	34.40	13.67	14.89
Mar	11.08	14.17	11.37	12.56	14.33	13.43	14.42
Apr	16.89	13.44	11.80	12.17	18.64	13.66	13.67
May	9.30	11.57	12.34	11.87	9.81	13.87	13.10
Jun	0.00	8.73	12.09	11.54	0.00	13.42	12.66
Jul	16.43	9.86	12.11	11.28	18.12	13.38	12.39
Aug	8.82	10.35	11.02	10.67	7.56	12.26	11.78
Sep	0.00	10.93	9.74	10.20	0.00	10.81	11.32
Oct	30.11	12.61	10.19	10.40	35.55	11.51	11.70
Nov	11.58	10.63	11.73	10.95	12.59	13.41	12.48
Dec	2.00	9.00	13.14	11.62	3.40	14.92	13.32
1987 Jan	8.47	9.31	13.37	12.23	9.51	15.30	14.10
Feb	1.67	10.88	14.69	13.52	0.89	16.88	15.64
Mar	12.22	14.49	17.11	15.65	13.04	19.81	18.17
Apr	26.40	18.31	18.61	17.91	36.60	22.27	21.04
May	36.89	21.50	19.69	20.06	37.57	24.18	23.91
Jun	6.10	22.25	21.21	22.12	8.32	26.07	26.67
Jul	16.00	24.83	23.87	24.57	19.12	29.15	29.88
Aug	40.89	27.90	26.89	27.20	44.44	32.95	33.42
Sep	26.09	28.92	30.82	29.89	33.40	37.77	37.08
Oct	40.00	32.21	35.89	33.15	61.10	43.15	41.02
Nov	27.43	32.83	38.56	36.45	32.93	46.07	44.71
Dec	22.67	35.83	42.52	40.78	28.51	51.18	49.58

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1988 Jan	51.71	43.76	50.03	46.82	58.23	60.39	56.48
Feb	31.00	49.61	56.45	53.51	43.45	68.12	64.12
Mar	77.09	59.97	62.83	61.09	86.00	75.17	72.50
Apr	83.33	69.16	69.79	69.08	92.94	81.71	81.04
May	44.00	75.78	76.97	77.28	51.17	88.46	89.89
Jun	94.00	87.46	87.26	86.90	117.46	99.27	100.30
Jul	108.29	96.57	98.79	97.32	130.90	111.16	111.03
Aug	102.71	104.71	109.70	107.71	118.21	122.24	121.21
Sep	117.33	116.04	117.20	117.05	128.98	129.69	130.03
Oct	115.90	126.57	121.25	125.05	122.34	133.06	137.21
Nov	123.86	138.91	128.45	133.30	133.80	138.89	144.23
Dec	173.20	150.12	139.06	141.82	186.90	146.73	150.71
1989 Jan	177.89	154.61	145.98	148.39	185.32	150.51	154.75
Feb	166.67	154.44	149.79	152.58	182.32	152.87	156.68
Mar	121.45	154.98	155.34	156.28	125.91	157.82	158.30
Apr	136.00	156.80	160.81	160.38	133.76	162.06	160.17
May	164.14	162.63	166.70	165.12	150.46	166.24	162.69
Jun	228.62	170.96	169.77	168.64	206.33	168.20	164.77
Jul	139.58	172.00	168.89	170.29	132.56	166.73	166.02
Aug	162.85	176.14	167.58	171.81	173.22	164.16	167.47
Sep	190.50	178.63	168.31	173.52	192.77	163.56	169.07
Oct	173.92	177.99	170.92	174.33	160.48	165.06	169.73
Nov	207.30	179.05	171.66	173.13	195.91	164.72	168.34
Dec	163.33	172.86	167.43	169.64	171.93	160.20	164.44
1990 Jan	166.78	166.50	163.54	165.85	164.99	156.25	159.53
Feb	146.38	161.01	165.12	163.42	140.94	157.48	155.59
Mar	159.15	156.47	163.78	160.67	152.84	156.01	151.69
Apr	160.87	153.80	160.22	157.73	142.70	152.53	148.03
May	157.07	153.69	156.30	154.87	133.48	148.99	144.91
Jun	134.13	151.99	152.50	152.57	114.76	144.34	142.58
Jul	140.93	152.49	151.61	151.81	129.28	141.84	142.09
Aug	199.23	153.45	153.87	152.30	206.20	142.46	142.82
Sep	121.93	148.89	156.69	153.12	124.36	143.81	143.28
Oct	157.15	148.87	157.36	154.11	145.54	144.31	143.65
Nov	130.00	150.59	157.22	155.70	125.90	144.54	144.35
Dec	149.44	155.20	158.81	158.36	130.23	146.79	145.84

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1991 Jan	159.21	164.25	164.01	162.53	146.66	151.82	148.51
Feb	208.16	170.01	167.21	166.63	174.27	152.93	150.77
Mar	165.18	171.18	167.83	169.72	151.93	151.91	152.71
Apr	170.92	173.20	167.82	171.60	155.46	152.42	154.62
May	143.56	175.89	166.49	172.11	126.36	151.56	155.65
Jun	185.88	178.89	167.06	172.19	175.85	151.73	156.27
Jul	214.00	180.78	168.93	171.42	188.87	153.41	156.09
Aug	203.00	173.09	167.16	168.30	173.32	153.30	154.32
Sep	133.00	162.18	162.82	163.64	132.60	151.09	151.52
Oct	145.76	154.24	158.15	158.75	149.61	147.27	148.03
Nov	109.62	149.38	152.20	153.43	101.24	143.16	144.07
Dec	183.50	151.33	144.19	146.85	158.97	136.68	138.95
1992 Jan	169.93	149.91	134.37	138.45	158.23	127.83	132.25
Feb	155.00	139.41	123.00	128.45	160.03	118.84	124.24
Mar	114.17	123.36	114.21	118.23	113.09	111.22	115.29
Apr	109.93	105.44	109.93	108.77	102.64	106.11	106.42
May	61.70	88.71	107.92	100.54	80.69	103.61	98.64
Jun	75.47	79.23	103.71	93.47	65.88	100.19	91.78
Jul	88.82	76.67	95.47	87.44	86.52	93.08	85.59
Aug	55.31	76.42	88.72	83.76	59.72	86.01	81.13
Sep	69.62	81.85	85.11	82.95	63.55	81.18	79.10
Oct	106.47	86.45	81.97	83.42	95.92	77.87	78.59
Nov	100.60	88.63	79.52	83.49	94.83	74.92	77.89
Dec	91.46	89.00	77.91	82.33	83.37	72.89	76.38
1993 Jan	64.23	85.48	75.34	79.92	63.24	70.86	74.11
Feb	98.83	81.26	73.39	76.99	85.37	68.74	71.33
Mar	83.47	74.52	71.12	72.67	71.65	66.23	67.49
Apr	65.33	66.86	66.84	66.70	64.70	63.15	62.70
May	47.60	59.62	62.00	60.72	47.89	59.56	58.01
Jun	50.87	51.97	58.21	55.88	49.85	56.16	54.14
Jul	51.64	47.20	56.83	52.53	53.93	54.81	51.48
Aug	45.81	43.81	54.81	49.83	41.53	52.41	49.08
Sep	24.59	42.48	51.23	47.89	21.32	48.57	47.08
Oct	48.87	45.00	47.90	47.10	64.25	45.03	45.74
Nov	41.88	47.81	45.25	46.74	40.46	41.85	44.27
Dec	59.31	51.42	43.06	46.10	56.15	39.32	42.33

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1994 Jan	63.29	51.98	41.27	44.82	58.07	37.46	39.92
Feb	51.36	47.75	40.03	42.92	32.80	36.10	37.17
Mar	44.88	41.44	39.42	40.49	32.13	35.42	34.35
Apr	24.18	34.57	39.83	38.07	19.34	34.67	31.68
May	25.15	30.18	39.32	35.88	16.92	32.92	29.51
Jun	20.76	28.28	37.16	33.95	19.91	30.76	28.09
Jul	38.71	30.54	33.79	32.26	39.45	27.73	27.00
Aug	28.95	32.12	31.28	31.20	23.17	26.05	26.52
Sep	26.79	33.31	30.39	31.03	23.41	26.16	26.77
Oct	56.53	33.63	29.87	31.05	44.32	25.96	26.96
Nov	21.86	30.67	29.52	30.56	18.23	25.68	26.62
Dec	27.50	29.58	29.24	29.66	26.58	25.47	25.89
1995 Jan	14.33	28.23	28.24	28.57	15.00	24.32	24.85
Feb	40.00	27.96	26.65	27.34	35.55	22.78	23.69
Mar	34.85	27.46	25.26	25.72	31.84	21.58	22.18
Apr	21.94	24.95	23.29	23.61	14.93	19.94	20.21
May	19.00	22.29	21.76	21.84	14.57	18.66	18.52
Jun	20.00	18.67	20.76	20.39	17.19	17.68	17.11
Jul	15.61	16.79	19.96	18.93	14.75	16.84	15.74
Aug	13.94	15.99	18.55	17.37	10.90	15.40	14.30
Sep	8.31	15.56	16.25	15.93	6.80	13.16	12.97
Oct	27.85	15.95	14.49	14.88	21.46	11.70	12.09
Nov	13.67	14.72	13.25	13.79	10.43	10.86	11.24
Dec	11.85	13.38	12.39	12.67	10.99	10.11	10.30
1996 Jan	10.68	11.69	11.91	11.75	10.42	9.54	9.45
Feb	9.75	9.64	12.06	11.18	5.37	9.52	8.88
Mar	10.05	8.80	12.10	10.73	8.28	9.47	8.45
Apr	4.28	8.37	10.72	10.00	3.58	8.35	7.81
May	7.06	9.42	9.77	9.64	5.69	7.74	7.48
Jun	11.21	10.43	9.93	9.84	8.19	8.06	7.67
Jul	12.92	10.65	9.67	9.99	9.90	7.87	7.86
Aug	20.35	11.06	9.36	9.90	15.32	7.72	7.95
Sep	2.85	9.85	9.36	9.68	1.31	7.97	8.03
Oct	0.00	9.08	10.19	9.86	0.00	8.76	8.45
Nov	18.69	9.48	11.10	10.32	17.20	9.64	9.13
Dec	10.76	9.11	11.53	10.63	12.01	10.08	9.62

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
1997 Jan	5.53	10.06	11.71	10.92	4.67	10.27	9.99
Feb	7.60	11.18	12.06	11.61	7.68	10.86	10.69
Mar	12.07	12.45	14.19	13.30	11.98	13.52	12.43
Apr	22.26	14.06	17.14	15.54	18.67	16.66	14.67
May	10.92	15.47	19.20	17.71	11.90	18.61	16.81
Jun	17.61	18.60	21.56	20.36	12.37	20.91	19.48
Jul	10.95	21.86	23.96	23.50	10.36	23.21	22.71
Aug	30.57	26.92	26.17	26.74	29.04	25.48	26.16
Sep	43.81	32.51	29.79	30.20	51.50	28.71	29.63
Oct	29.71	34.98	33.18	33.50	25.04	32.16	32.86
Nov	38.64	37.29	36.43	36.82	38.94	35.79	36.21
Dec	47.23	39.65	40.60	40.34	45.52	40.05	39.72
1998 Jan	26.88	41.06	45.49	44.09	26.45	44.97	43.41
Feb	39.25	45.75	51.22	48.65	40.38	50.39	47.71
Mar	67.24	51.53	56.45	53.87	56.83	54.95	52.59
Apr	48.45	56.30	60.06	59.01	56.42	58.17	57.54
May	62.65	64.17	63.01	63.92	61.41	60.87	62.17
Jun	66.11	72.18	66.32	68.81	64.97	63.76	66.54
Jul	79.78	78.10	69.44	73.27	75.90	66.99	70.61
Aug	99.19	83.23	72.22	76.45	93.53	69.50	73.43
Sep	100.67	84.33	74.30	77.92	96.52	71.12	74.51
Oct	59.46	80.74	76.07	78.36	57.29	72.22	74.41
Nov	79.77	78.18	79.30	79.03	71.45	74.61	74.53
Dec	85.47	76.08	84.82	80.69	82.35	79.56	75.81
1999 Jan	63.55	73.94	90.54	83.40	67.15	84.39	77.91
Feb	69.44	77.48	92.95	86.74	59.96	86.30	80.47
Mar	86.93	85.05	91.97	90.35	76.24	85.20	83.38
Apr	71.17	95.45	93.57	95.15	63.25	86.69	87.70
May	117.43	108.39	99.17	101.36	112.10	92.20	93.56
Jun	143.75	115.55	102.56	106.63	132.90	95.43	98.50
Jul	139.50	116.56	104.95	109.97	124.08	96.69	101.45
Aug	97.41	115.18	109.48	112.23	91.07	99.99	103.44
Sep	78.88	111.88	115.90	115.04	72.61	104.93	105.67
Oct	119.73	113.15	124.67	119.71	116.88	110.84	108.69
Nov	153.73	116.46	131.11	124.39	144.08	115.04	111.13
Dec	93.00	120.65	133.42	128.40	87.36	115.72	112.55

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
2000 Jan	113.31	130.96	137.71	134.68	92.24	118.12	115.73
Feb	128.38	141.83	143.82	143.47	114.24	122.72	121.24
Mar	182.19	154.13	147.85	151.55	140.37	126.00	126.54
Apr	186.33	167.40	149.39	156.55	141.15	126.82	129.84
May	156.80	173.03	147.98	158.32	134.84	124.28	130.96
Jun	159.90	173.36	147.41	158.60	126.59	122.52	131.28
Jul	226.23	169.24	149.15	157.01	188.00	123.10	130.31
Aug	157.37	155.70	149.18	151.85	137.43	121.98	126.20
Sep	115.54	141.21	146.69	144.68	104.99	119.45	120.18
Oct	120.14	130.50	142.73	138.10	104.32	117.04	114.44
Nov	119.50	121.52	138.20	132.78	95.69	113.96	109.40
Dec	113.36	120.66	136.50	129.35	93.34	112.64	105.79
2001 Jan	134.71	123.62	131.46	126.55	100.22	108.45	102.79
Feb	107.92	123.46	125.52	125.05	79.32	102.62	100.91
Mar	142.75	128.09	128.81	127.24	114.67	103.85	102.24
Apr	130.67	128.13	134.01	130.80	109.04	107.04	104.97
May	103.73	128.20	136.39	134.26	93.06	108.19	107.56
Jun	172.38	136.44	139.64	138.25	136.60	110.27	110.34
Jul	92.65	139.68	142.89	142.43	77.51	112.73	113.15
Aug	148.40	149.01	145.63	147.06	107.97	114.78	116.14
Sep	203.53	158.64	146.85	150.77	163.87	115.23	118.17
Oct	156.83	159.02	147.40	152.58	122.09	114.81	118.52
Nov	139.91	160.13	151.25	154.21	105.43	116.20	118.54
Dec	171.00	157.47	151.90	154.58	133.64	115.60	117.80
2002 Jan	155.21	152.71	152.68	154.17	118.92	115.37	116.55
Feb	153.14	151.68	156.18	153.64	109.74	117.44	115.25
Mar	126.69	149.13	155.62	152.50	95.02	115.99	113.40
Apr	160.00	149.41	153.37	152.11	118.59	112.81	111.98
May	166.73	150.77	151.55	151.78	117.06	111.22	111.05
Jun	125.08	151.75	146.77	149.77	98.11	107.76	109.17
Jul	158.72	155.05	141.03	146.84	110.49	103.08	106.68
Aug	166.22	153.88	135.98	143.01	124.78	98.96	103.62
Sep	172.25	146.73	130.68	137.03	112.15	94.95	99.17
Oct	134.06	135.45	125.50	128.96	97.42	90.75	93.35
Nov	119.20	119.94	118.58	119.51	92.07	85.62	86.65
Dec	76.91	104.28	113.99	110.96	64.01	82.39	80.48

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (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	28.86	29.94
Aug	49.86	38.05	34.42	36.39	37.96	26.81	28.13
Sep	23.25	31.98	32.64	33.32	23.31	25.16	25.90
Oct	8.55	27.23	32.20	30.56	7.04	24.86	23.88
Nov	22.08	25.46	31.17	28.43	18.05	24.28	22.33
Dec	52.22	24.64	28.14	26.24	40.60	22.11	20.79

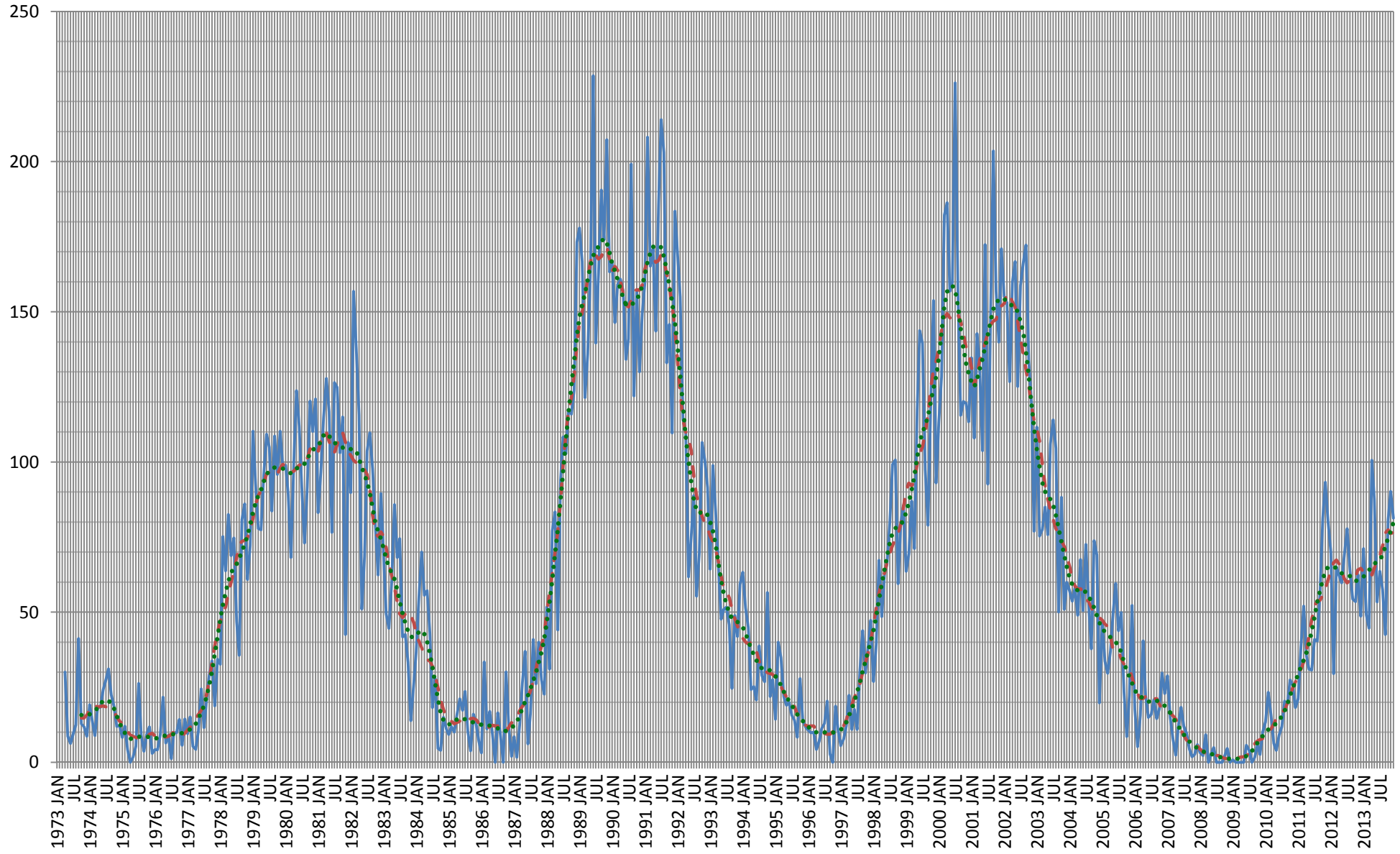
MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
2006 Jan	17.62	22.93	25.12	24.02	14.27	20.05	19.21
Feb	5.20	21.84	22.75	22.37	3.18	18.46	17.96
Mar	15.50	21.58	21.18	21.71	11.69	16.99	17.35
Apr	40.42	21.74	21.21	21.56	30.14	16.84	17.23
May	22.00	21.42	21.92	21.08	24.24	17.37	16.90
Jun	14.92	20.37	21.01	20.24	10.69	16.51	16.13
Jul	15.86	18.89	20.26	20.02	11.26	15.76	15.77
Aug	20.85	18.26	21.13	20.48	16.14	16.29	15.94
Sep	14.57	18.98	21.20	20.56	9.95	16.31	15.83
Oct	18.00	21.06	19.29	20.01	16.77	14.82	15.21
Nov	29.67	22.74	17.28	19.34	20.91	12.98	14.41
Dec	22.90	22.19	17.00	18.81	17.24	12.54	13.81
2007 Jan	28.82	20.22	16.98	17.92	19.52	12.63	13.12
Feb	14.86	16.30	16.34	16.51	10.73	12.11	12.03
Mar	7.64	12.80	15.45	14.90	4.67	11.40	10.83
Apr	2.38	10.94	14.36	13.37	1.40	10.47	9.69
May	11.83	10.81	12.56	11.88	8.78	9.04	8.64
Jun	18.30	11.28	10.72	10.51	15.42	7.73	7.70
Jul	11.93	10.51	8.94	9.16	8.80	6.49	6.74
Aug	9.60	8.89	7.34	7.88	6.14	5.38	5.81
Sep	4.45	6.59	6.88	6.95	2.82	5.04	5.11
Oct	1.85	4.66	6.84	6.19	1.54	5.02	4.54
Nov	2.60	3.79	6.37	5.40	2.01	4.71	3.94
Dec	5.89	3.90	5.43	4.64	4.68	3.95	3.34
2008 Jan	3.14	3.88	4.37	4.05	2.19	3.08	2.88
Feb	2.17	3.92	3.48	3.65	1.57	2.46	2.58
Mar	9.18	4.11	2.89	3.34	5.60	2.08	2.36
Apr	0.00	3.32	2.72	3.03	0.00	1.97	2.16
May	2.75	2.89	2.81	2.76	2.75	2.04	1.98
Jun	4.89	2.31	2.65	2.45	3.26	1.92	1.77
Jul	0.00	1.40	2.31	2.09	0.00	1.66	1.52
Aug	0.00	1.34	2.12	1.79	0.00	1.53	1.33
Sep	0.00	1.28	1.65	1.52	0.00	1.23	1.16
Oct	2.18	1.45	1.26	1.35	1.64	1.00	1.05
Nov	4.54	1.64	1.15	1.22	3.64	0.88	0.95
Dec	0.00	1.27	1.07	1.06	0.00	0.78	0.82

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
2009 Jan	0.80	0.90	1.26	1.06	0.67	0.92	0.81
Feb	0.00	0.43	1.43	1.13	0.00	1.05	0.84
Mar	0.00	0.45	1.50	1.20	0.00	1.10	0.87
Apr	0.00	1.01	1.71	1.37	0.00	1.29	0.99
May	0.00	1.56	1.78	1.62	0.00	1.36	1.18
Jun	5.64	2.26	2.12	2.05	3.65	1.64	1.52
Jul	4.00	2.62	3.07	2.70	2.99	2.42	2.05
Aug	0.00	2.64	4.57	3.66	0.00	3.68	2.88
Sep	1.56	3.28	6.19	4.99	1.11	5.16	4.07
Oct	5.82	4.58	7.10	6.37	5.23	6.10	5.34
Nov	2.56	6.96	7.53	7.63	1.78	6.53	6.53
Dec	10.07	10.24	7.84	8.79	8.48	6.86	7.64
2010 Jan	13.50	12.66	8.31	9.88	10.94	7.46	8.73
Feb	23.30	13.75	9.48	10.85	19.84	8.56	9.74
Mar	15.60	12.84	11.08	11.55	15.79	10.05	10.51
Apr	6.36	10.89	12.72	12.12	6.73	11.61	11.16
May	4.00	10.04	14.58	13.02	3.65	13.27	12.04
Jun	9.00	10.75	15.88	14.14	8.02	14.57	13.14
Jul	11.85	13.50	16.54	15.37	12.93	15.37	14.35
Aug	20.36	17.35	17.48	16.96	16.46	16.51	15.89
Sep	19.40	20.19	19.63	19.26	20.46	19.34	18.34
Oct	27.38	22.18	22.35	22.05	23.15	23.32	21.70
Nov	25.67	23.70	24.69	24.68	23.87	27.16	25.40
Dec	18.18	26.01	26.72	27.01	17.55	30.21	29.08
2011 Jan	21.18	29.53	28.83	29.36	20.99	32.62	32.78
Feb	38.36	33.55	30.87	31.73	37.28	35.16	36.65
Mar	52.00	36.40	33.25	33.94	66.13	38.22	40.36
Apr	35.38	36.92	37.05	36.31	52.01	42.92	43.98
May	31.00	36.67	42.11	39.55	50.41	49.14	47.99
Jun	30.67	37.40	47.50	43.85	34.60	54.98	52.38
Jul	40.91	41.78	52.11	48.69	44.21	59.38	56.82
Aug	40.36	50.12	53.77	53.01	46.04	61.05	60.58
Sep	56.50	60.62	53.95	56.90	64.38	61.15	63.77
Oct	81.29	70.38	55.61	60.79	92.00	62.31	66.91
Nov	93.25	73.73	57.92	63.69	104.27	63.94	69.13
Dec	80.00	72.05	60.73	65.07	77.38	65.97	69.93

MONTH	WN	WN ^r (S ^{HBm})	WN ^r (S ^W)	WN ^r (S ^{B13})	R _{GD}	R _{GD} ^r (S ^W)	R _{GD} ^r (S ^{B13})
2012 Jan	70.00	66.78	63.88	65.30	66.63	68.36	69.69
Feb	29.50	60.03	66.40	65.07	31.84	70.15	69.05
Mar	65.00	59.00	67.29	64.70	73.96	70.46	68.27
Apr	62.20	60.53	66.04	63.88	72.06	68.58	66.90
May	59.75	63.29	63.60	62.96	69.48	65.30	65.21
Jun	69.33	66.35	61.01	62.38	64.08	62.20	63.84
Jul	77.78	65.93	59.75	62.14	72.15	60.81	62.92
Aug	64.00	63.75	60.61	61.98	61.14	61.11	62.01
Sep	54.29	60.50	60.58	61.01	56.65	60.56	60.36
Oct	53.44	58.64	61.33	60.27	54.52	60.18	58.88
Nov	62.50	57.51	64.10	60.75	63.06	61.44	58.53
Dec	48.63	56.22	64.59	61.31	44.28	61.77	58.67
2013 Jan	71.13	59.13	63.34	61.82	66.27	60.80	58.95
Feb	49.10	62.02	62.47	62.66	39.57	60.18	59.66
Mar	44.67	65.46	61.71	63.81	52.85	59.44	60.73
Apr	100.57	71.18	62.35	65.16	84.15	60.21	62.18
May	87.67	70.97	64.64	66.15	87.70	62.60	63.58
Jun	53.36	66.90	67.16	66.72	53.80	65.57	64.89
Jul	63.57	64.27	68.95	67.37	59.14	68.53	66.55
Aug	57.44	62.13	72.01	68.97	59.08	71.81	68.92
Sep	42.50	64.17	76.38	71.75	40.98	76.03	72.25
Oct	80.78	71.48	77.38	74.53	88.87	77.70	75.68
Nov	90.13	79.03	76.16	77.13	85.86	76.97	78.66
Dec	81.30	84.70	76.57	79.90	92.97	77.71	81.60

OBSERVED and SMOOTHED GDSO WOLF NUMBERS (WN,WN[SW] and WN[SB13]) 1973-2013

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13



CORRECTED and SMOOTHED **GDSO WOLF NUMBERS** (RGD, RGD[SW] and RGD[SB13]) 1973-2013

SOLID = CORRECTED, DASHED = SW, DOTTED = SB13

