



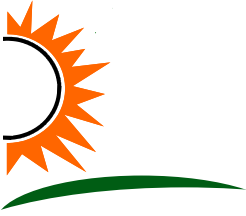
***Georgi Dobrovolski
Solar Observatory***

***OBSERVED, SQUARED
& SMOOTHED
QUALITY COUNTS
1983 - 2013***

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

E-MAIL: gdso@earthling.net

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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:

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

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QUALITY COUNT CONSTANTS

	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

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Observed GDSO Quality Counts (QC) are stated along with Squared Quality Counts (QC²). These two series are smoothed by three methods, to create the data in the unshaded columns.

DEFINITIONS:

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

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

$$\text{and } QC^2 = \sum_{i=1}^g Z_i^2$$

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1983 Jan	15.73	—	—	—	56.00	—	—	—
Feb	10.50	—	—	—	35.70	—	—	—
Mar	8.86	—	—	—	34.29	—	—	—
Apr	12.00	12.61	—	—	43.50	46.93	—	—
May	16.60	12.85	—	—	64.60	48.21	—	—
Jun	13.20	12.47	—	—	52.40	46.54	—	—
Jul	14.17	11.51	9.72	10.28	48.00	42.10	35.60	37.70
Aug	7.00	9.54	9.50	9.51	25.00	34.46	35.60	35.03
Sep	7.50	7.75	9.85	9.01	26.00	27.41	37.33	33.40
Oct	6.71	6.57	10.04	8.64	24.71	23.46	38.31	32.39
Nov	3.17	6.18	9.69	8.39	10.50	23.12	37.53	32.02
Dec	5.00	7.22	9.25	8.44	16.00	28.02	35.87	32.82
1984 Jan	8.17	8.71	8.68	8.70	37.06	35.25	33.51	34.37
Feb	12.80	10.27	8.16	8.99	54.60	42.29	31.56	35.79
Mar	15.00	11.24	7.79	9.06	57.00	46.05	30.14	36.10
Apr	10.27	10.79	7.26	8.73	44.27	44.07	28.23	34.71
May	9.86	9.66	7.02	8.16	45.00	38.49	27.34	32.14
Jun	9.57	7.86	6.91	7.35	32.14	29.72	26.97	28.44
Jul	4.00	5.71	6.52	6.28	11.56	20.51	25.27	23.73
Aug	4.83	4.20	5.82	5.13	14.83	14.13	22.03	18.79
Sep	0.62	2.87	4.85	4.06	2.12	9.06	18.03	14.42
Oct	0.86	2.18	4.01	3.27	2.57	6.91	14.52	11.23
Nov	3.33	2.14	3.46	2.80	11.33	6.93	11.74	9.22
Dec	2.19	2.07	3.02	2.54	6.31	6.75	9.67	8.20
1985 Jan	1.61	2.20	2.83	2.51	6.06	7.28	9.14	8.17
Feb	2.50	2.44	2.73	2.62	7.75	8.03	8.90	8.58
Mar	2.22	2.69	2.59	2.74	7.78	8.84	8.37	8.97
Apr	2.80	3.17	2.67	2.89	9.20	10.44	8.66	9.42
May	4.22	3.53	2.73	2.98	13.56	11.52	8.87	9.69
Jun	4.43	3.50	2.66	2.98	13.86	11.33	8.63	9.65
Jul	4.71	3.26	2.58	2.86	17.00	10.56	8.35	9.24
Aug	1.62	2.74	2.67	2.71	3.62	8.66	8.75	8.75
Sep	0.44	2.26	2.78	2.60	0.67	7.13	9.23	8.44
Oct	3.08	2.03	2.76	2.50	10.92	6.46	9.12	8.20
Nov	2.62	2.05	2.65	2.40	8.00	6.66	8.68	7.91
Dec	1.23	2.14	2.35	2.26	3.85	7.26	7.67	7.49

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1986 Jan	0.60	2.35	2.08	2.19	1.80	8.15	6.67	7.25
Feb	5.62	2.60	2.02	2.20	21.62	9.07	6.38	7.26
Mar	1.75	2.35	2.02	2.17	5.58	7.97	6.50	7.09
Apr	2.78	2.21	2.14	2.11	8.78	7.09	6.94	6.79
May	1.50	1.94	2.25	2.09	3.30	5.80	7.31	6.63
Jun	0.00	1.52	2.19	2.07	0.00	4.21	7.07	6.48
Jul	2.71	1.84	2.19	2.07	6.71	5.35	7.02	6.43
Aug	2.18	2.07	2.01	2.01	7.09	6.36	6.25	6.18
Sep	0.00	2.21	1.83	1.98	0.00	7.05	5.53	6.07
Oct	6.33	2.54	2.00	2.06	22.11	8.21	6.08	6.38
Nov	2.08	2.11	2.32	2.18	5.75	6.65	7.30	6.84
Dec	0.24	1.76	2.57	2.30	0.35	5.37	8.22	7.29
1987 Jan	1.60	1.86	2.61	2.41	4.00	5.63	8.33	7.67
Feb	0.33	2.17	2.80	2.62	1.00	6.84	9.00	8.40
Mar	2.78	2.89	3.22	2.99	9.00	9.44	10.47	9.66
Apr	5.60	3.57	3.55	3.40	18.40	11.72	11.76	11.14
May	6.44	3.98	3.74	3.78	23.11	13.15	12.57	12.56
Jun	1.00	4.03	3.99	4.14	2.20	13.15	13.47	13.87
Jul	2.80	4.52	4.44	4.56	7.20	15.05	15.02	15.40
Aug	6.56	5.11	5.01	5.04	22.78	17.47	17.09	17.20
Sep	5.73	5.47	5.75	5.55	19.36	19.05	20.25	19.33
Oct	8.57	6.06	6.69	6.17	33.71	21.40	24.20	21.94
Nov	4.29	6.08	7.13	6.77	13.71	21.35	26.00	24.41
Dec	4.08	6.61	7.81	7.54	13.92	23.72	28.77	27.61
1988 Jan	8.57	8.09	9.05	8.60	27.71	29.73	33.97	32.05
Feb	7.00	9.23	10.05	9.72	27.00	34.82	37.98	36.74
Mar	14.00	11.14	11.07	10.94	58.73	43.04	41.40	41.52
Apr	16.78	12.56	12.08	12.14	63.44	48.78	44.65	45.90
May	6.00	13.22	13.29	13.40	21.33	51.33	49.19	50.48
Jun	17.60	14.88	15.20	14.97	70.40	56.85	57.28	56.46
Jul	16.00	15.98	17.18	16.66	64.00	59.55	65.87	63.02
Aug	17.43	17.37	18.94	18.36	62.00	63.40	73.38	69.61
Sep	19.33	19.60	20.17	19.95	62.44	71.84	78.18	75.92
Oct	19.20	21.58	20.84	21.39	68.60	80.92	80.13	81.87
Nov	22.57	24.10	22.08	22.94	87.71	93.41	84.20	88.25
Dec	31.70	26.11	23.79	24.45	134.10	103.90	90.18	94.28

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1989 Jan	28.56	26.85	24.97	25.60	113.67	107.10	93.96	98.43
Feb	29.33	26.91	25.68	26.33	121.33	105.79	95.92	100.54
Mar	21.18	26.86	26.48	26.88	79.55	102.51	99.79	101.91
Apr	25.50	27.09	27.37	27.43	89.50	99.94	104.02	103.20
May	27.07	27.76	28.32	28.03	92.79	100.20	107.63	104.65
Jun	37.54	28.68	28.81	28.47	142.46	103.91	108.97	105.73
Jul	24.42	28.63	28.85	28.75	82.74	104.00	108.13	106.43
Aug	26.15	29.00	28.72	29.03	90.31	107.28	106.70	107.58
Sep	29.70	29.67	28.82	29.38	126.90	112.19	106.79	109.42
Oct	30.31	30.18	29.25	29.68	105.85	113.94	109.04	111.25
Nov	34.30	30.80	29.33	29.70	136.90	116.99	110.29	111.98
Dec	31.50	30.42	28.72	29.34	117.17	115.18	108.48	111.05
1990 Jan	29.89	29.53	28.26	28.88	110.56	111.22	106.54	109.39
Feb	24.88	28.37	28.78	28.63	90.00	107.77	108.95	108.57
Mar	28.08	27.52	29.00	28.39	113.15	105.28	108.93	107.30
Apr	28.73	26.96	28.71	28.07	109.80	102.79	106.71	105.45
May	25.73	27.05	28.16	27.73	102.40	102.73	104.63	103.52
Jun	24.44	27.34	27.47	27.46	89.44	101.50	101.82	101.76
Jul	26.47	27.91	27.16	27.43	89.27	101.21	101.19	101.27
Aug	36.46	28.36	27.57	27.62	141.54	102.39	103.52	101.93
Sep	24.67	27.69	28.05	27.77	75.33	98.86	105.32	102.51
Oct	28.46	27.27	28.08	27.82	104.15	99.47	104.88	103.02
Nov	23.00	27.13	28.17	27.98	88.67	101.52	104.55	104.11
Dec	26.22	27.48	28.68	28.35	98.00	104.59	106.04	106.06
1991 Jan	27.57	28.72	29.74	29.04	114.57	111.01	110.34	109.13
Feb	37.05	29.72	30.40	29.79	141.89	113.83	112.35	111.80
Mar	27.47	30.10	30.57	30.48	104.29	113.64	113.24	113.98
Apr	30.00	31.02	30.57	31.06	108.17	115.35	114.89	116.02
May	26.81	32.21	30.42	31.48	96.06	117.71	115.16	117.49
Jun	35.62	33.47	30.73	31.85	131.62	122.07	117.70	119.34
Jul	40.57	34.21	31.36	32.04	150.29	125.69	121.40	121.10
Aug	38.15	32.97	31.30	31.75	128.77	122.65	122.12	121.72
Sep	27.07	31.01	30.65	31.07	109.36	120.15	120.79	121.59
Oct	26.06	29.47	30.04	30.28	109.71	118.94	119.18	121.05
Nov	21.85	28.72	29.09	29.35	89.69	120.40	116.06	119.51
Dec	34.80	29.02	27.58	28.13	158.00	125.28	110.44	116.10

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1992 Jan	34.07	28.78	25.72	26.53	143.27	124.08	103.39	110.34
Feb	29.17	26.67	23.61	24.61	130.50	114.27	96.09	102.58
Mar	19.83	23.49	21.96	22.66	83.83	98.34	90.07	93.77
Apr	22.93	20.22	21.18	20.91	90.00	81.25	86.21	84.99
May	11.00	16.99	20.98	19.44	39.40	65.56	84.89	77.39
Jun	15.27	15.38	20.35	18.21	53.27	56.97	81.14	70.90
Jul	16.36	14.97	18.87	17.21	59.45	54.72	73.43	65.57
Aug	11.62	15.17	17.69	16.71	44.54	55.91	67.45	62.69
Sep	14.00	16.53	17.17	16.78	49.00	61.39	64.56	62.50
Oct	20.53	17.73	16.62	17.03	77.47	66.23	62.28	63.56
Nov	22.50	18.60	16.11	17.15	90.10	69.83	60.54	64.36
Dec	19.00	18.68	15.77	16.95	67.77	69.84	59.47	63.89
1993 Jan	14.46	17.95	15.30	16.44	48.46	67.65	57.61	62.15
Feb	20.42	16.81	14.97	15.78	81.75	64.44	55.83	59.66
Mar	16.12	15.01	14.47	14.78	63.18	58.07	53.71	55.79
Apr	13.27	13.27	13.60	13.46	55.93	51.48	50.42	50.49
May	8.53	11.64	12.52	12.11	31.60	43.92	46.03	44.87
Jun	9.60	10.11	11.55	11.01	35.47	36.31	42.45	40.23
Jul	10.73	9.24	11.11	10.24	32.73	31.47	41.76	37.23
Aug	9.33	8.53	10.57	9.61	28.48	28.29	39.88	34.83
Sep	4.18	8.13	9.79	9.15	14.06	27.73	36.09	33.02
Oct	9.47	8.52	9.12	8.95	33.47	30.95	32.76	32.26
Nov	7.71	8.92	8.60	8.84	28.88	33.96	30.21	31.96
Dec	10.44	9.56	8.18	8.69	42.94	37.01	28.40	31.52
1994 Jan	12.53	9.78	7.76	8.41	56.88	37.32	26.82	30.33
Feb	9.45	8.96	7.44	8.01	28.18	32.19	25.83	28.39
Mar	8.46	7.79	7.33	7.55	25.79	26.32	25.48	26.07
Apr	4.82	6.45	7.42	7.08	13.41	20.24	25.58	23.80
May	4.35	5.53	7.30	6.66	12.75	16.30	24.90	21.73
Jun	3.71	5.17	6.91	6.29	11.00	15.31	23.08	19.94
Jul	6.71	5.58	6.26	5.96	19.29	16.85	19.92	18.42
Aug	5.64	5.94	5.74	5.74	18.18	18.31	17.53	17.61
Sep	5.26	6.19	5.54	5.69	15.89	19.38	16.93	17.58
Oct	10.40	6.22	5.38	5.65	34.13	19.72	16.62	17.61
Nov	4.00	5.61	5.27	5.52	11.73	17.75	16.48	17.30
Dec	4.80	5.30	5.20	5.31	16.50	16.73	16.37	16.72

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1995 Jan	2.61	4.96	5.03	5.06	7.50	15.54	15.92	16.00
Feb	6.83	4.82	4.75	4.80	20.17	15.08	15.06	15.19
Mar	6.12	4.68	4.47	4.47	19.42	14.89	14.12	14.17
Apr	3.41	4.21	4.07	4.07	12.24	13.56	12.74	12.89
May	3.17	3.78	3.78	3.76	10.61	12.23	11.67	11.81
Jun	3.30	3.20	3.61	3.52	10.60	10.26	10.99	10.92
Jul	3.00	2.95	3.45	3.29	8.89	9.08	10.37	10.00
Aug	2.59	2.85	3.17	3.01	8.00	8.40	9.46	8.98
Sep	1.44	2.78	2.76	2.76	3.31	7.83	8.15	7.99
Oct	4.85	2.82	2.47	2.57	13.77	7.72	7.18	7.24
Nov	2.50	2.53	2.30	2.38	6.39	6.71	6.56	6.57
Dec	2.15	2.24	2.17	2.18	5.54	5.82	6.11	5.92
1996 Jan	1.41	1.89	2.08	2.00	3.41	4.89	5.83	5.44
Feb	1.25	1.55	2.08	1.90	2.50	4.08	5.82	5.21
Mar	1.89	1.48	2.06	1.83	5.68	4.14	5.75	5.10
Apr	0.83	1.47	1.82	1.71	2.61	4.37	5.07	4.87
May	1.50	1.70	1.63	1.64	5.39	5.18	4.65	4.79
Jun	1.93	1.85	1.64	1.67	5.07	5.57	4.85	4.97
Jul	2.31	1.83	1.63	1.70	7.69	5.48	4.86	5.11
Aug	3.24	1.82	1.62	1.69	9.00	5.42	4.95	5.13
Sep	0.38	1.60	1.64	1.65	0.69	4.81	5.04	5.04
Oct	0.00	1.48	1.78	1.68	0.00	4.62	5.47	5.17
Nov	2.75	1.58	1.93	1.77	10.12	5.07	5.85	5.44
Dec	2.24	1.61	1.98	1.84	6.47	5.06	5.87	5.59
1997 Jan	1.05	1.81	1.98	1.89	2.84	5.64	5.81	5.69
Feb	1.50	2.02	2.02	2.01	5.10	6.15	5.86	5.93
Mar	2.00	2.22	2.41	2.29	5.29	6.47	7.32	6.81
Apr	4.11	2.44	2.96	2.68	13.37	7.00	9.23	8.02
May	1.77	2.58	3.34	3.04	3.77	7.15	10.43	9.18
Jun	2.78	3.08	3.86	3.53	7.22	8.93	11.94	10.75
Jul	1.60	3.66	4.37	4.14	3.90	11.09	13.42	12.72
Aug	4.86	4.58	4.72	4.76	14.00	14.57	14.48	14.78
Sep	8.12	5.83	5.30	5.41	30.88	18.97	16.44	16.98
Oct	5.41	6.47	5.88	6.04	15.53	20.70	18.50	19.06
Nov	6.50	6.99	6.42	6.65	23.50	22.07	20.44	21.09
Dec	11.00	7.50	7.16	7.28	29.31	23.21	22.96	23.16

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
1998 Jan	4.63	7.50	8.09	7.91	15.38	23.35	25.71	25.16
Feb	6.25	8.04	9.16	8.66	18.00	25.70	29.24	27.63
Mar	11.12	8.91	10.11	9.55	39.59	29.03	32.56	30.61
Apr	9.00	9.70	10.73	10.43	28.45	31.45	34.63	33.60
May	9.88	11.16	11.27	11.30	35.29	35.98	36.22	36.43
Jun	12.33	12.80	11.79	12.17	36.11	41.01	38.28	39.40
Jul	14.44	13.94	12.22	12.97	41.11	44.71	40.38	42.35
Aug	17.62	14.87	12.75	13.58	61.38	48.51	42.19	44.67
Sep	18.13	15.14	13.22	13.89	63.33	50.04	43.85	45.96
Oct	10.38	14.40	13.59	14.00	32.69	48.17	45.35	46.62
Nov	14.38	13.96	14.31	14.19	44.38	46.97	47.96	47.64
Dec	15.67	13.59	15.43	14.56	58.07	46.38	52.07	49.42
1999 Jan	10.36	13.21	16.56	15.14	36.82	45.29	57.07	52.04
Feb	13.11	14.09	17.06	15.87	40.00	48.53	60.01	55.23
Mar	15.50	15.63	16.91	16.64	57.50	54.46	59.79	58.51
Apr	13.50	17.83	17.29	17.64	46.67	62.66	61.70	62.75
May	22.64	20.39	18.32	18.86	79.71	72.79	66.85	68.07
Jun	26.56	21.72	18.92	19.85	90.25	78.58	70.17	72.78
Jul	27.19	21.93	19.44	20.48	106.88	81.14	72.21	76.07
Aug	16.94	21.42	20.42	20.90	66.24	80.92	75.80	78.38
Sep	15.35	20.70	21.70	21.43	53.12	79.74	81.15	81.02
Oct	22.07	20.83	23.32	22.28	88.87	81.48	88.33	85.06
Nov	27.45	21.45	24.33	23.08	111.82	83.36	92.82	88.72
Dec	17.00	22.46	24.69	23.80	70.33	86.46	94.84	91.68
2000 Jan	21.54	24.52	25.37	24.94	73.38	93.66	98.46	96.17
Feb	25.46	26.50	26.42	26.51	89.62	100.90	102.22	102.27
Mar	34.00	28.64	27.14	27.91	136.38	110.25	104.71	107.84
Apr	33.78	30.66	27.34	28.70	140.00	119.53	105.54	110.90
May	26.50	31.44	27.22	28.98	94.10	122.18	104.25	111.62
Jun	31.40	31.43	27.23	29.04	124.40	122.37	103.31	111.42
Jul	38.69	30.55	27.62	28.77	159.62	118.02	104.39	109.91
Aug	30.68	28.41	27.62	27.89	103.74	107.44	104.67	105.86
Sep	18.77	25.90	27.13	26.70	75.31	97.42	103.01	100.59
Oct	23.50	24.32	26.46	25.68	86.64	89.69	99.76	95.99
Nov	23.10	23.09	25.83	24.92	83.10	83.69	96.74	92.53
Dec	21.73	23.06	25.71	24.48	76.45	84.12	95.81	90.39

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
2001 Jan	26.06	23.78	25.02	24.16	93.24	87.04	91.74	88.63
Feb	21.00	23.69	24.10	24.05	76.54	87.55	87.62	88.02
Mar	26.80	24.62	24.81	24.56	109.50	91.63	90.67	89.95
Apr	24.75	24.80	25.88	25.31	88.92	91.14	94.57	92.52
May	20.45	25.05	26.32	26.01	72.64	90.69	96.17	94.91
Jun	34.69	26.72	26.92	26.79	123.56	96.37	98.73	97.76
Jul	18.65	27.26	27.58	27.57	62.76	97.96	101.52	100.78
Aug	28.73	28.82	28.18	28.43	101.93	104.99	104.24	104.35
Sep	37.65	30.37	28.54	29.16	150.24	112.22	105.52	107.42
Oct	30.42	30.43	28.78	29.57	105.25	112.61	106.5	109.42
Nov	26.64	30.76	29.61	29.96	102.82	114.85	110.14	111.59
Dec	32.64	30.55	29.78	30.15	118.27	114.43	110.97	112.86
2002 Jan	31.00	30.01	29.68	30.13	118.37	113.20	111.36	113.39
Feb	30.36	30.07	30.04	30.00	116.64	114.52	113.84	113.55
Mar	26.08	29.82	29.81	29.69	100.23	113.39	113.04	112.74
Apr	31.36	29.58	29.24	29.42	121.64	112.82	110.69	111.86
May	33.82	29.34	28.89	29.12	127.27	111.80	109.75	110.85
Jun	25.38	28.73	28.11	28.48	88.92	109.48	107.04	108.56
Jul	25.61	28.35	27.02	27.66	106.61	108.56	102.26	105.30
Aug	30.28	27.92	25.99	26.78	117.72	106.94	97.44	101.37
Sep	30.5	26.68	24.94	25.65	115.33	101.60	92.96	96.31
Oct	24.11	25.06	23.91	24.25	83.78	94.02	88.54	90.21
Nov	24.53	22.99	22.49	22.64	101.60	84.76	82.70	83.38
Dec	16.00	20.44	21.39	21.17	54.36	73.08	78.91	77.14
2003 Jan	21.31	18.83	20.89	19.99	67.62	65.56	77.22	72.14
Feb	15.44	17.36	20.28	18.98	51.67	60.00	74.52	68.20
Mar	15.88	16.62	19.05	18.09	57.88	57.85	69.66	65.15
Apr	16.72	16.71	17.81	17.43	57.72	59.86	65.46	63.29
May	14.44	17.01	16.84	16.96	51.06	62.98	61.98	62.32
Jun	18.40	17.49	16.12	16.62	74.13	66.31	58.98	61.78
Jul	20.58	17.54	15.55	16.21	80.92	67.38	57.60	61.07
Aug	20.69	16.69	14.95	15.58	78.69	64.52	55.97	59.16
Sep	10.50	15.06	14.61	14.85	37.75	58.12	54.92	56.56
Oct	14.44	13.74	14.13	14.07	60.56	53.05	53.38	53.63
Nov	10.92	12.44	13.74	13.34	41.08	47.20	51.84	50.57
Dec	12.22	11.83	13.37	12.69	43.11	44.39	50.22	47.59

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (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	12.8	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	6.52	6.22	6.36	19.63	23.76	22.40
Nov	5.08	5.22	6.31	5.78	22.75	18.39	22.50	20.36
Dec	10.44	5.06	5.71	5.31	30.89	17.18	19.78	18.25
2006 Jan	3.85	4.67	5.06	4.83	13.69	15.68	17.42	16.42
Feb	0.80	4.32	4.62	4.51	1.87	14.10	16.24	15.39
Mar	2.83	4.22	4.40	4.42	9.50	13.71	15.81	15.25
Apr	8.00	4.29	4.43	4.41	27.00	14.32	15.68	15.32
May	4.00	4.34	4.57	4.36	10.00	15.10	15.96	15.29
Jun	3.67	4.33	4.38	4.24	16.50	16.11	15.40	15.22
Jul	3.43	4.14	4.24	4.25	12.14	15.78	15.02	15.52
Aug	5.08	4.10	4.44	4.39	26.00	16.15	15.58	16.00
Sep	3.29	4.21	4.46	4.42	9.86	15.84	15.54	15.92
Oct	3.67	4.56	4.08	4.30	9.67	16.25	14.21	15.26
Nov	6.50	4.86	3.68	4.14	26.00	16.97	12.99	14.50
Dec	4.40	4.65	3.60	3.98	14.20	15.37	12.81	13.70

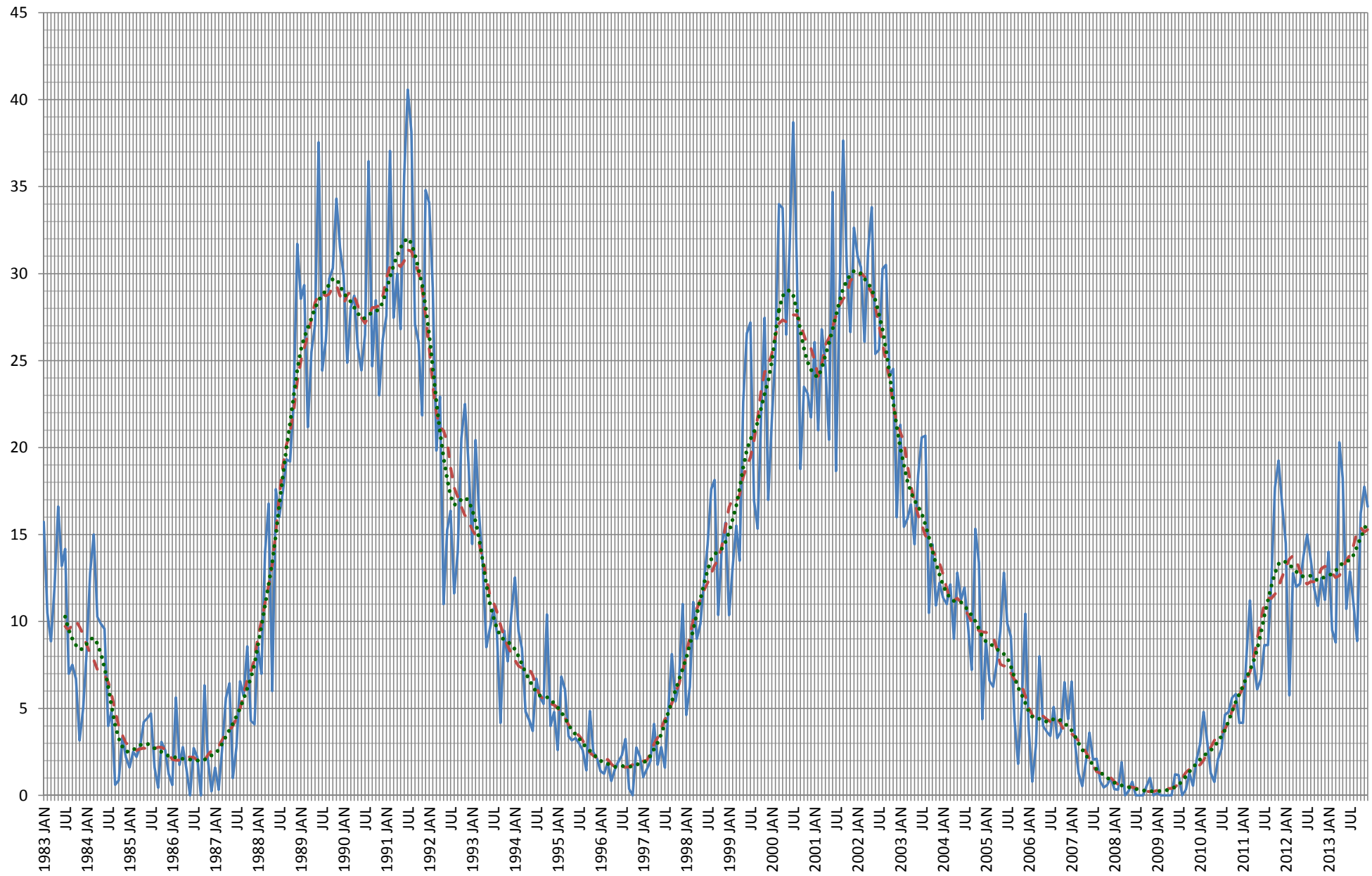
MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
2007 Jan	6.55	4.23	3.54	3.73	21.27	13.74	12.57	12.61
Feb	2.86	3.32	3.36	3.37	7.71	10.43	11.51	11.18
Mar	1.27	2.51	3.13	2.99	2.73	7.78	10.37	9.82
Apr	0.54	2.08	2.89	2.64	1.92	6.82	9.72	8.77
May	1.92	1.98	2.51	2.31	5.75	6.89	8.38	7.76
Jun	3.60	2.11	2.12	2.03	16.40	7.72	6.98	6.86
Jul	2.07	1.99	1.72	1.75	6.50	7.09	5.71	5.98
Aug	2.10	1.73	1.36	1.49	6.10	5.93	4.55	5.13
Sep	0.82	1.31	1.28	1.32	2.45	4.42	4.46	4.58
Oct	0.46	0.92	1.29	1.18	1.54	2.96	4.58	4.11
Nov	0.60	0.72	1.19	1.02	2.00	2.44	4.27	3.56
Dec	1.00	0.70	1.01	0.86	4.56	2.51	3.42	2.93
2008 Jan	0.36	0.68	0.80	0.73	0.50	2.40	2.53	2.43
Feb	0.33	0.69	0.63	0.65	0.67	2.39	2.00	2.14
Mar	1.91	0.73	0.51	0.58	7.55	2.48	1.64	1.91
Apr	0.00	0.57	0.48	0.52	0.00	1.76	1.55	1.65
May	0.25	0.47	0.50	0.47	0.25	1.32	1.59	1.42
Jun	0.78	0.36	0.47	0.42	1.44	0.88	1.43	1.21
Jul	0.00	0.21	0.42	0.37	0.00	0.40	1.23	1.03
Aug	0.00	0.24	0.40	0.33	0.00	0.58	1.19	0.92
Sep	0.00	0.28	0.31	0.29	0.00	0.75	0.85	0.77
Oct	0.55	0.33	0.23	0.27	1.64	0.96	0.54	0.70
Nov	1.00	0.37	0.22	0.25	2.85	1.05	0.53	0.68
Dec	0.00	0.28	0.22	0.23	0.00	0.79	0.64	0.65
2009 Jan	0.13	0.19	0.29	0.24	0.27	0.53	0.99	0.74
Feb	0.00	0.09	0.34	0.26	0.00	0.23	1.22	0.88
Mar	0.00	0.09	0.35	0.28	0.00	0.31	1.26	1.00
Apr	0.00	0.23	0.40	0.32	0.00	0.91	1.42	1.19
May	0.00	0.37	0.41	0.38	0.00	1.51	1.49	1.45
Jun	1.21	0.54	0.48	0.48	4.36	2.18	1.80	1.86
Jul	1.17	0.64	0.68	0.62	5.50	2.60	2.61	2.41
Aug	0.00	0.63	0.99	0.82	0.00	2.42	3.83	3.17
Sep	0.33	0.74	1.32	1.09	1.00	2.81	5.05	4.16
Oct	1.27	1.00	1.51	1.36	4.55	3.73	5.60	5.14
Nov	0.56	1.47	1.59	1.61	1.44	5.55	5.80	6.00
Dec	2.07	2.14	1.66	1.85	9.07	8.16	6.01	6.79

MONTH	QC	QC ^r (S ^{HBm})	QC ^r (S ^W)	QC ^r (S ^{B13})	QC ²	QC ^{2r} (S ^{HBm})	QC ^{2r} (S ^W)	QC ^{2r} (S ^{B13})
2010 Jan	2.92	2.63	1.76	2.06	10.58	9.83	6.28	7.49
Feb	4.80	2.83	2.02	2.27	19.00	10.36	6.98	8.07
Mar	3.10	2.64	2.40	2.44	10.10	9.25	8.26	8.50
Apr	1.27	2.26	2.76	2.59	3.09	7.54	9.53	8.87
May	0.78	2.14	3.17	2.82	1.89	6.84	10.79	9.48
Jun	2.09	2.41	3.47	3.10	7.36	7.72	11.62	10.28
Jul	2.69	3.06	3.61	3.41	9.00	9.97	11.79	11.08
Aug	4.64	3.94	3.80	3.76	13.36	12.88	12.42	12.20
Sep	4.80	4.58	4.26	4.26	18.40	15.06	14.63	14.12
Oct	5.63	4.93	4.87	4.85	17.63	15.79	17.22	16.47
Nov	5.83	5.20	5.35	5.38	18.50	16.84	18.87	18.56
Dec	4.18	5.61	5.77	5.83	12.00	19.21	20.32	20.43
2011 Jan	4.18	6.27	6.20	6.29	11.64	22.56	21.82	22.39
Feb	7.91	7.08	6.62	6.76	33.18	26.75	23.33	24.42
Mar	11.20	7.68	7.10	7.20	48.93	29.50	25.34	26.26
Apr	7.63	7.78	7.91	7.71	26.38	28.96	28.66	28.15
May	6.11	7.72	8.98	8.39	18.33	27.86	33.03	30.77
Jun	6.67	7.94	10.06	9.30	25.67	28.20	37.14	34.16
Jul	8.64	8.92	11.01	10.33	26.64	31.64	40.69	37.92
Aug	8.64	10.72	11.35	11.25	31.91	39.39	41.69	41.17
Sep	12.30	12.96	11.32	12.03	48.10	48.29	40.85	43.86
Oct	17.71	14.96	11.57	12.78	67.71	55.63	41.59	46.54
Nov	19.25	15.52	12.01	13.30	73.25	57.10	43.55	48.43
Dec	16.71	15.01	12.56	13.49	55.86	53.96	45.66	48.98
2012 Jan	14.50	13.70	13.12	13.42	53.00	48.77	48.09	48.70
Feb	5.75	12.10	13.59	13.25	15.75	42.76	49.93	48.11
Mar	12.77	11.76	13.78	13.09	46.15	42.13	49.98	47.40
Apr	12.00	11.96	13.47	12.87	47.00	44.11	48.30	46.47
May	12.17	12.56	12.91	12.67	44.67	46.33	45.70	45.53
Jun	13.78	13.28	12.40	12.58	50.00	48.73	43.78	45.06
Jul	15.00	13.31	12.15	12.59	60.78	48.13	42.81	44.81
Aug	13.58	13.06	12.29	12.63	41.92	45.45	43.04	44.39
Sep	11.86	12.56	12.28	12.48	39.29	43.03	42.77	43.29
Oct	10.89	12.21	12.46	12.36	36.22	41.27	43.15	42.34
Nov	12.50	11.95	13.05	12.46	42.17	39.97	45.13	42.42
Dec	11.25	11.62	13.18	12.57	41.00	38.81	45.34	42.58

MONTH	QC	QC^r(S^{HBm})	QC^r(S^W)	QC^r(S^{B13})	QC²	QC^{2r}(S^{HBm})	QC^{2r}(S^W)	QC^{2r}(S^{B13})
2013 Jan	14.00	12.00	12.96	12.63	44.50	39.92	44.37	42.74
Feb	9.50	12.51	12.77	12.75	29.70	41.85	43.66	43.31
Mar	8.80	13.19	12.53	12.92	25.87	44.63	42.97	44.27
Apr	20.29	14.35	12.63	13.18	76.29	49.98	43.32	45.45
May	18.22	14.36	13.07	13.36	62.89	50.55	45.04	46.31
Jun	10.73	13.53	13.51	13.44	36.91	47.88	46.63	46.75
Jul	12.86	12.96	13.82	13.54	50.57	45.86	47.98	47.30
Aug	11.00	12.44	14.36	13.82	35.00	43.22	50.97	48.66
Sep	8.88	12.86	15.18	14.32	29.63	44.46	54.62	50.81
Oct	16.22	14.30	15.39	14.82	54.44	49.81	55.39	52.88
Nov	17.75	15.66	15.14	15.29	65.25	55.90	54.51	54.92
Dec	16.60	16.71	15.28	15.83	56.00	60.71	55.02	57.24

OBSERVED and SMOOTHED GDSO QUALITY COUNTS (QC, QC[SW] and QC[SB13]) 1983-2013

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13



OBSERVED and SMOOTHED GDSO SQUARED QUALITY COUNTS (QC^2 , $QC^2[SW]$ and $QC^2[SB13]$) 1983-2013

SOLID = OBSERVED, DASHED = SW, DOTTED = SB13

