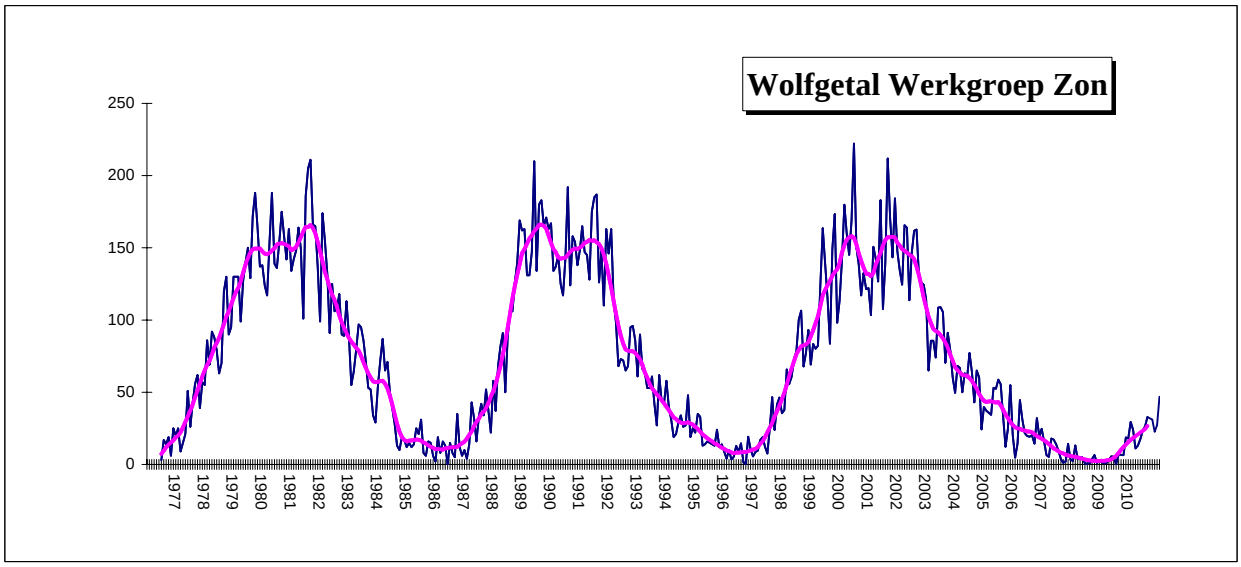
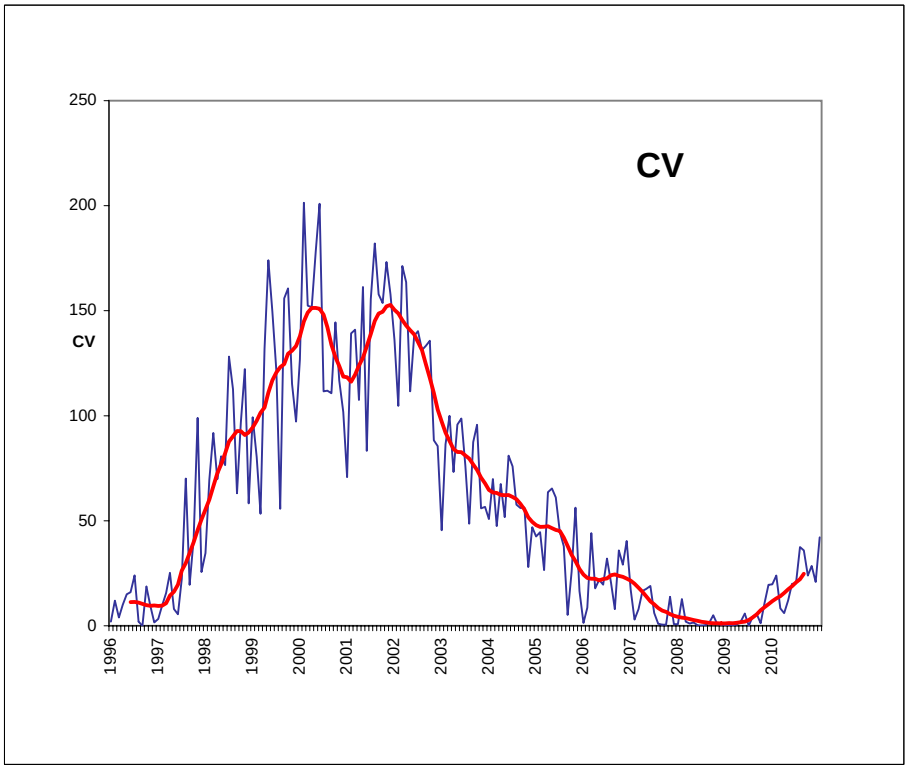
NIEUWSBRIEF V.V.S. WERKGROEP ZON

Waarnemingsresultaten en nieuws voor zonnewaarnemers	Jaargang : 16	Nummer: 180	Februari 2011

Franky Dubois Poelkapellestraat 57 Langemark 8920

Web site: http://www.bso.vvs.be/ e-mail astrosun@skynet.be





Gemiddelden werkgroep zon Februari 2011

Groepen :		Wolfgetal :		RE'	
	N **1,88**		N **28,6**		**353,6**
	S **0,96**		S **18,2**	CV	**42,1**
	N+S **2,84**		N+S **46,9**		

202 waarnemingen 27 waarnemers

Wolfnumbers Belgian Solar Observers

Month: **February 2011**

	SIDC	L. Meeus			H.Coeckelberghs			Publ Obs Mira			O. Steen			F. Dubois			L. Claeys			J. Bourgeois			A.T.Son			H. De Backer			B. Thooris			J. Carels			Dag
Dag	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	
1	15										1	7	17																					1
2	13																																	2
3	18										3	8	38	3	8	38	2	3	23							2	7	27	3	3	33	3	9	39	3
4	22																																	4
5	16																																	5
6	9																																	6
7	9	1	3	13	0	0	0				1	3	13	1	3	13	1	4	14				1	2	12	1	2	12	1	1	11				7
8	39	5	20	70							5	22	72	5	17	67	2	7	27				4	13	53	5	11	61	2	3	23	4	17	57	8
9	31	3	16	46													3	14	44	3	25	55	3	21	51	3	20	50							9
10	21	2	13	33							2	13	33	2	9	29	2	12	32				2	14	34	2	10	30	1	2	12				10
11	35										4	18	58	4	14	54													1	5	15				11
12	37										4	16	56	4	17	57	4	15	55	4	20	60	3	31	61	4	19	59	3	11	41				12
13	48																									5	33	83				3	23	53	13
14	53										4	37	77	6	49	109													3	20	50	3	20	50	14
15	51													5	42	92	1	18	28				3	41	71	4	40	80				3	33	63	15
16	48	4	42	82	2	24	44	3	47	77	13	36	166	3	33	63	5	42	92				3	41	70	3	46	76	3	22	52	3	41	71	16
17	40	2	42	62							2	39	59	2	32	52	4	32	72	2	52	72	2	53	73	3	44	74	2	21	41	2	54	74	17
18	49																																	18
19	50																			3	48	78												19
20	42																																	20
21	29																						2	29	49									21
22	23	2	17	37							2	16	36	2	14	34	2	8	28	2	19	39	2	23	43	2	12	32	1	7	17	2	20	40	22
23	19																2	6	26																23
24	13																																	24
25	10										2	3	23	1	1	11																			25
26	26																2	5	25																26
27	27										3	13	43	3	10	40	3	9	39							3	15	45	2	7	27				27
28	31																3	14	44																28
#		**29,4**		**49,0**			**22,0**			**77,0**			**53,2**			**50,7**			**39,2**			**60,8**			**51,7**			**52,4**			**29,3**			**55,9**	

Observations of the SIDC are not included in the Belgian monthly Wolfnumber.
Publ Obs Mira : observers : Francis Meeus , Guido Mattheus and Marc Rayen

	SIDC	F.Feys			R.Verboven			KSB			D.V.Hessche			G.Gubbels			J. Claes			E. De Ceuninck			R. Dezeure			B. Taillieu			K.Dewaele			F. van Loo			Dag
Dag	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	
1	15	1	17	27																															1
2	13																																		2
3	18							2	2	22										4	8	48	2	5	25	3	11	41							3
4	22	3	17	47																															4
5	16																																		5
6	9	1	3	13																												1	2	12	6
7	9	2	6	26				1	2	12				2	10	30	1	3	13	1	3	13	1	2	12										7
8	39	4	16	56				5	13	63				6	27	87	5	21	71	5	18	68	2	5	25	4	19	59	2	9	29	5	16	66	8
9	31	3	24	54				3	16	46				3	18	48																3	17	47	9
10	21	2	16	36				2	10	30				2	16	36																			10
11	35	1	6	16																3	17	47	2	6	26	4	17	57							11
12	37	4	52	92	3	19	49	4	20	60				3	22	52										4	14	54				4	21	61	12
13	48	6	90	150																															13
14	53	4	39	79																4	31	71	4	19	59										14
15	51	4	94	134				4	41	81				4	35	75																			15
16	48	3	59	89				3	39	69				4	45	85	4	49	89				3	17	47	3	25	55				2	22	42	16
17	40	3	117	147				2	45	65				2	37	57	2	31	51	2	38	58	2	25	45	2	17	37				2	25	45	17
18	49																																		18
19	50				3	31	61							3	33	63																			19
20	42	3	46	76																															20
21	29	2	31	51										2	22	42																			21
22	23				2	20	40	2	11	31				2	21	41				1	16	26	2	12	32	2	11	31				1	14	24	22
23	19	2	29	49													2	17	37																23
24	13																																		24
25	10	2	7	27																															25
26	26	3	31	61													3	12	42																26
27	27	3	28	58																3	10	40	2	8	28	3	9	39	3	11	41				27
28	31	3	15	45																															28
#		**29,4**		**63,5**			**50,0**			**47,9**			***#####***			**56,0**			**50,5**			**46,4**			**33,2**			**46,6**			**35,0**			**42,4**	

	SIDC	J.Bonse			B.De Wit			J.Bavais			G.Vandenbulcke			W.De Meester			E.Neven									R.De Laet									Dag
Dag	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R	g	f	R				
1	15																																		1
2	13																																		2
3	18																																		3
4	22																																		4
5	16																																		5
6	9																																		6
7	9	1	2	12													1	1	11							1	3	13							7
8	39	2	10	30							2	4	24				5	11	61							5	14	64							8
9	31	3	20	50																						3	16	46							9
10	21																																		10
11	35																																		11
12	37																																		12
13	48																																		13
14	53																																		14
15	51																																		15
16	48	3	44	74													3	40	70							4	41	81							16
17	40				2	21	41										2	30	50							2	39	59							17
18	49																									2	14	34							18
19	50																																		19
20	42																																		20
21	29																																		21
22	23				2	6	26																												22
23	19																2	17	37																23
24	13																																		24
25	10																																		25
26	26																2	10	30																26
27	27										2	10	30																						27
28	31																																		28
#		**29,4**		**42**			**33,5**			***#####***			**27,0**			***#####***			**43,2**			***#####***			***#####***			**49,5**			***#####***			***#####***	

Observations R.DE Laet are made with a PST detuned !

Sunspotnumbers VVS Belgium

Month: 'February 2011

	GROUPS			WOLFNUMBER					
Day	N	S	N+S	N	S	N+S	RE'	CV	OBS
1	0	1	1	0	22	**22**	167	3	2
2									
3	1	2	3	11,8	21	**33**	32	4,5	10
4	1	2	3	12,0	35,0	**47**	116		1
5									
6	1	0	1	12,5	0,0	**13**	12		2
7	1	0	1	13,5	0	**14**	17	2,8	17
8	4	1	5	43,4	10,5	**54**	158	36	21
9	2	1	3	31,9	16,9	**49**	172	34	11
10	1	1	2	12,7	17,8	**31**	130	17	10
11	2	2	4	13,4	25,6	**39**	133	15,5	7
12	2	2	4	26,5	32	**58**	267	29,8	14
13	3	2	5	44,0	51	**95**	767	51	3
14	3	1	4	35,7	35	**71**	793	74,3	8
15	3	1	4	42,9	35,1	**78**	933	85,5	8
16	3	1	4	39,7	30,0	**70**	935	86,7	20
17	1	1	2	29,7	32,0	**62**	12,44	77	20
18	1	1	2	17,0	17,0	**34**			1
19	2	1	3	47,0	20,3	**67**	734	86	3
20	2	1	3	59,0	17,0	**76**	860		1
21	2	0	2	47,3	0	**47**	622	67	3
22	2	0	2	32,8	0	**33**	333	52	16
23	2	0	2	37,3	0	**37**	232		4
24									
25	2	0	2	20,3	0	**20**	48	6	3
26	2	1	3	31,8	8	**40**	732		4
27	2	1	3	20,4	19	**39**	172	29,3	11
28	2	1	3	33,6	10,9	**45**	108		2
	1,88	**0,96**	**2,84**	**28,6**	**18,2**	**46,9**	**353,6**	**42,1**	**202**

Monthly mean: **46,9** Covering: **25/28** Spotless days: **0**
Observations: **202** Number of observers: **27**

V.V.S. BELGIUM SOLAR SECTION FRANKY DUBOIS
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Belgium
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Observers:
E.De Ceuninck ; J.Janssens ; Publ obs Mira ; J.Bourgeois ; R.Dezeure ; F.Feys H. De Backer; F.Dubois ; B.Taillieu ; J.Carels ; K. Dewaele L.Meeus ; O.Steen ; KSB ; L.Claeys ; B.Thooris ; J.Bonse J.Claes ; R.Verboven ;F. Van Loo ; A.T.Son ; H.Coeckelberghs G.Gubbels ; J Bavais ; D.Van Hessche; E.Neven ; R.De Laet

VVS Belgian Solar Observers Prominence number Rp

Month : February 2011

Day	J. Janssens time	Q	W	H	e	PST Rp	F. Dubois time	Q	W	H	e	Lille 20/20 Rp	E. De Ceunick time	Q	W	H	e	PST Rp	F.Feys time	Q	W	H	e	Lunt 60 Rp	J. Hambsch time	Q	W	H	e	asm 60 Rp	G. Gubbels time	Q	W	H	e	Lunt 60 Rp
1																			8,57	3	1,5	5	8	58												
2																																				
3							11,39	4	1	6	15	75	14.50	3,5	2,5	6	11	71																		
4																			8,30	3,5	1,5	5	8	58												
5																																				
6																			7,23	4,5	1	8	16	96												
7																			7,22	3,5	1,5	12	15	135												
8							8,45	4	1	5	9	59	10.30	4,0	3,5	5	6	56	8,00	4	1	9	12	102	12u15	2,5	2,5	7	7	77	15.47	3.5	1.5	7	17	87
9																			11,25	4	1,5	9	14	104												
10																			7,02	3,5	1	8	10	90												
11																			9,39	3	1	7	18	88												
12	8:45	3	2	8	16	96													7,33	5	1	8	12	92							11.39	3.5	1	10	33	133
13																			7,17	5	1	8	19	99												
14																																				
15																			7,22	4,5	1	8	13	93												
16																			8,24	3,5	1	7	10	80												
17							11,10	3	1	6	11	71							7,29	4,5	1	8	11	91	12u00	3,5	2,5	6	12	72	14.55	4	1	9	25	115
18																																				
19																																				
20																			13,40	4	1,5	6	10	70												
21																			6,32	4,5	1	11	17	127	12u00	3,5	2,5	6	6	66						
22							11,31	4	1	5	6	56	10.30	3,5	3,5	6	7	67																		
23																			10,27	4	2	12	17	137												
24																																				
25																			7,40	4,5	1,5	8	14	94												
26													10.30	4,0	3	5	6	56	8,14	4	1,5	6	9	69												
27																			7,50	3,5	2	5	6	56												
28																			13,05	3,5	1,5	6	8	68												
	1	3	2	8,0	16	96,0	4	3,8	1,0	5,5	10,3	65,3	4	3,8	3,1	5,5	7,5	62,5	20	4,0	1,3	7,8	12,4	90,4	3	3,2	2,5	6,3	8,3	71,7	3	4,0	1,0	8,67	25,0	111,7

Day	O. Steen time	Q	W	H	e	PST Rp	H. Coekelberghs time	Q	W	H	e	PST Rp	J. Claes time	Q	W	H	e	PST Rp	T.Spaninks time	Q	W	H	e	Prom Viewer Rp	R.De Laet time	Q	W	H	e	PST Rp	L.Meeus time	Q	W	H	e	Lunt Rp
1																																				
2																																				
3	9,00	3,5	2	6	10	70																														
4																																				
5																																				
6																																				
7	12,30	3	2	7	8	78	11:17	2	3	7	11	81	1030	3	2	6	12	72							11:30	1,5	4	8	11	91						
8	14,30	3,5	2	7	8	78							1030	4	1	5	10	60	11.30	3	2	10	13	113	11:30	3,5	4	9	15	105						
9																									13:00	3,5	4	13	15	145						
10	8,15	3	2,5	7	9	79																														
11	15,40	3,5	2,5	8	10	90																														
12	8,50	3	2,5	7	9	79																														
13																																				
14	12,40	3	3	4	7	47																														
15																																				
16	15,00	3,5	2	7	9	79	9:17	4	4	7	19	89	1130	4	1	4	10	50	9.07	3	2	12	16	136	10:30	4	2	10	15	115						
17	13,50	3,5	2	9	15	105							1330	4	1	6	17	77							11:30	3	2	12	17	137						
18																									11:15	3	2	8	12	92						
19																																				
20																																				
21																			9.38	3	2	14	21	161												
22	8,25	3	2	6	7	67													9.15	3	2	6	9	69												
23													1000	3	2	6	11	71																		
24																																				
25																																				
26													1100	3	2	6	12	72																		
27	8,50	3	2	7	10	80																														
28																																				
	11	3,2	2,2	6,82	9,3	77,5	2	3,0	3,5	7	15	85,0	6	3,5	1,5	5,5	12,0	67,0	4	3,0	2,0	10,5	15	119,8	6	3,1	3,0	10	14,2	114,2		###	###	####	#####	######

Day	R.Blondeel time	Q	W	H	e	asm 60 Rp	R.Verboven time	Q	W	H	e	PST Rp
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
		###	###	####	###	#####		###	###	###	###	#####

Time : Beginning of observation
Q : Seeing scale SIDC
W : transparency scale of Wedel , see http://members.chello.be/j.janssens/
H : number of prominence groups at the limb
e : total of individual prominences at the limb
Rp : H*10+e
More info at : http://members.chello.be/j.janssens/

Prominence number Rp

Belgian solar observers

Month: February 2011

Day	Q	Wedel		H	e	Rp	el. Obs	Stdev	OBS
1	3	1,5		5	8	**58**			1
2									
3	3,7	1,8		6	12	**72**		2,6	3
4	3,5	1,5		5	8	**58**			1
5									
6	4,5	1,5		8	16	**96**			1
7	2,4	2,8		7	10,5	**80,5**	1	7,9	5
8	3,3	2,3		8,2	12	**94**	3	15,1	9
9	3,8	2,8		11	14,5	**124,5**		29	2
10	3,3	1,8		7,5	9,5	**84,5**		7,8	2
11	3,3	1,8		7,5	14	**89**		1,4	2
12	3,7	1,8		7,7	12,3	**89,3**	1	8,9	4
13	5	1		8	19	**99**			1
14	3	3		4	7	**47**			1
15	4,5	1		8	13	**93**			1
16	3,8	2		6,3	12	**75**	2	16,9	6
17	3,7	1,5		7	13,2	**83,2**	3	14,6	8
18	3	2		8	12	**92**			1
19									
20	4	1,5		6	10	**70**			1
21	3,7	1,8		10,3	14,7	**117,7**			3
22	3,4	2,1		5,8	7,3	**65,3**		5,9	4
23	3,5	2		9	14	**104**			2
24									
25	4,5	1,5		8	14	**94**			1
26	3,7	2,2		5,7	9	**66**			3
27	3,3	2		6	8	**68**		8,5	2
28	3,5	1,5		6	8	**68**		17	1
	3,63	**1,86**		**7,1**	**11,6**	**82,8**	**10**	**11,3**	**65**

Monthly mean: **82,8** Covering: **24/28**

Observations: **65** Number of observers: **9**

V.V.S. BELGIUM SOLAR SECTION FRANKY DUBOIS

Poekapellestraat 39

B8920 Langemark

Belgium

e-mail : astrosun@skynet.be

Observers:

Steen ; Dubois ; De Ceuninck ; Coeckelberghs ; Janssens ; Feys
Hambsch ; Claes ; G.Gubbels ; T.Spaninks ; R.Blondeel;R.Verboven

Q : Seeing scale SIDC

W : transparency scale of Wedel , see http://members.chello.be/j.janssens/

H : number of prominence groups at the limb

e : total of individual prominences at the limb

Rp : H*10+e

More info at : http://members.chello.be/j.janssens/

Different Relative Sunspotnumbers — Month : February 2011

CV

Date	F.Dubois	O.Steen	L.Meeus	J.Carels	J.Janssens	R.verboven	G.Gubbels	H.De Backer	D.Van Hessche			Mean
1		3										3,0
2												
3	5	5		5				3				4,5
4												
5												
6												
7	5	2	2				3	2				2,8
8	26	53	33	30			44	30				36,0
9			37				30	35				34,0
10	24	5	18				31	7				17,0
11	23	8										15,5
12	33	23			32		40	21				29,8
13				45				57				51,0
14	82	73		68								74,3
15	93			63			88	98				85,5
16	91	80	84	87			104	74				86,7
17	91	79	42	65			75	110				77,0
18												
19							86					86,0
20												
21							67					67,0
22	41	50	42	50			58	71				52,0
23												
24												
25	1	11										6,0
26												
27	21	41						26				29,3
28												
##	41	33,3	37	51,6	32	######	57	45	#####			42,1

Pettisindex SN

Date	G.Gubbels	F.Dubois	R.Verboven	O.Steen	J.Carels		Mean
1				7			7,0
2							
3				8	9		8,5
4							
5							
6							
7	10			3			6,5
8	42			37	31		36,7
9	35						35,0
10	40			12			26,0
11				18			18,0
12	55			42			48,5
13					77		77,0
14				65	75		70,0
15	116				*		116,0
16	154			90	*		122,0
17	133			91	*		112,0
18							
19	163						163,0
20							
21	63						63,0
22	59			90	*		74,5
23							
24							
25				21			21,0
26							
27				27			27,0
28							
##	79	#####	#####	39	48		57,3

Intersol IS

Date	F.Dubois	J.Carels	G.Gubbels			Mean
1						
2						
3		11				11,0
4						
5						
6						
7			12			12,0
8		19	32			25,5
9			21			21,0
10			18			18,0
11						
12			25			25,0
13		26				26,0
14		23				23,0
15		*	38			38,0
16		*	48			48,0
17		*	39			39,0
18						
19			36			36,0
20						
21			24			24,0
22		*	23			23,0
23						
24						
25						
26						
27						
28						
##	######	19,8	29			26,39

Becknumber

Date	F.Dubois	O.Steen	L.Meeus	De Backer	J.Carels	G.Gubbels	E.De Ceuninck	D.Van Hessche	R.Verboven	F.Feys	A.T.Son	J.Bourgeois	H.Coeckelberghs	Pbl Obs Mira	De Wit B.						Mean	Date
1		28								306											167	1
2																						2
3	32	32		28	36		32														32	3
4										116											116	4
5																						5
6										12											12	6
7	24	12	12	8		40	24			24	8		0								17	7
8	152	214	206	114	194	204	178			88	76										158	8
9			228	200		114				166	150										172	9
10	183	52	194	68		248				108	56										130	10
11	201	72					236			24											133	11
12	339	352		230		318				320	45										267	12
13				593	482					1226											767	13
14	1090	799			411		822			842											793	14
15	952			874	571	598				1828	772										933	15
16	727	753	894	1003	1114	957				1034	1146		738	986							935	16
17	723	975	945	1079	1724	820	1368			2841	1584				378						1244	17
18																						18
19						734															734	19
20										860											860	20
21						431				558	876										622	21
22	252	288	390	216	360	423	576				414				78						333	22
23										232											232	23
24																						24
25	4	111								28											48	25
26										732											732	26
27	152	88		214			208			200											172	27
28										108											108	28
	371,6	290	410	386	612	444	431	#####	#####	555	513	######	369	986	228						405	

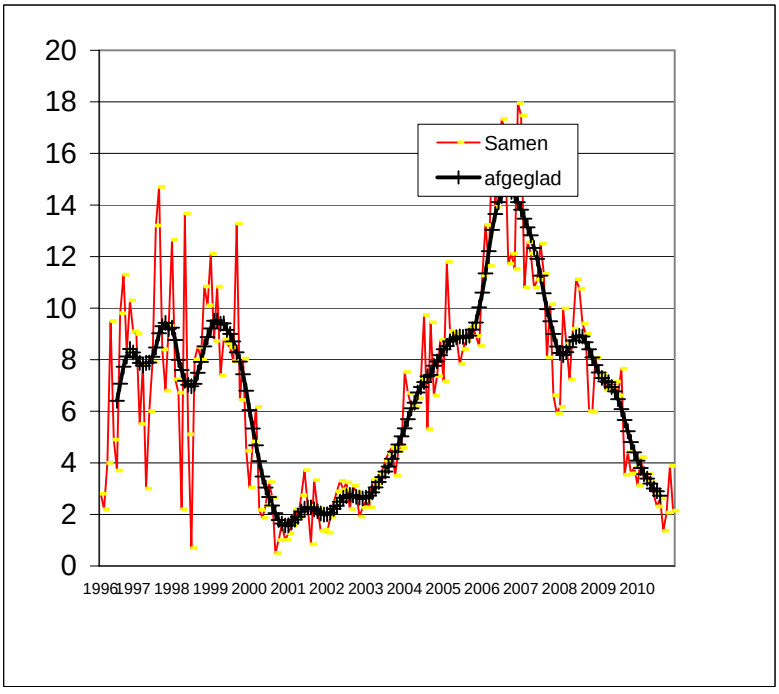
Belgian Solar Observers

Polar Faculae

Month: **February 2011**

Date	Dubois 125mm F20			Steen 102mm F15			T.Spaninks 127mm F15			G.Gubbels 114mm F7,8			J.Carels			Janssen 200mmF10			M. Szulc 60mm F15		
	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q	North	South	Q
1																					
2																					
3	1	3	3	1	2	3,5															
4																					
5																					
6																					
7										0	3	3.0									
8				0	4	4,0	0	0	4	1	4	4									
9										1	3	2.5	3	0	4						
10										1	2	2									
11																					
12										0	2	3.5				0	1	3			
13																					
14																					
15										0	3	2.5									
16				0	2	3,5	0	0	4	1	3	4									
17				0	0	3,5	0	0	4	0	3	3.5									
18																					
19																					
20																					
21							0	1	4												
22				1	1	3,5	0	0	4	1	3	3									
23																					
24																					
25																					
26																					
27				0	1	3,5															
28																					
29																					
30																					
31																					
	1,00	3,00		0,33	1,67		0,0	0,2		0,6	2,9		3,00	0,00		0,00	1,00		#####	#####	##

Obs of M.Szulc are not included in the monthly average !



SIDC Weekly bulletin on Solar and Geomagnetic activity WEEK 529 from 2011 Feb 14

SOLAR CONDITIONS
Solar activity ranged from moderate to high during the whole week and it was dominated by NOAA AR 1158. It produced an X2.2 flare peaking at 01:56 UT on February 15. This has been the strongest flare in more than four years. This AR also produced the following M-class flares: M6.6 at 17:38 UT on February 13,
M2.2 at 17:26 UT on February 14, M1.0 at 01:39 UT on February 16,
M1.6 at 14:25 UT on February 16, M6.6 at 10:11 UT on February 18,
M1.4 at 13:03 on February 18. NOAA AR 1161 produced an M1.0 flare at 07:44 UT on February 16. NOAA AR 1162 was active on February
18 with an M1.0 at flare 10:26, an M1.0 flare at 14:08 UT and an
M1.3 at 21:04 UT. The M6.6 flare on February 13, the M2.2 on February 14 and the X2.2 on February 15 were associated with Earth directed CMEs and radio bursts

GEOMAGNETIC CONDITIONS
On February 14, a shock arrived to ACE and it was followed by strong magnetic fields which created active conditions. This disturbance is believed to have originated on February 9-10 on the Sun. On February 18, the combination of the three Earth directed CMEs described in the solar section arrived to the Earth and produced a minor geomagnetic storm. A more lasting and powerful geomagnetic effect was not seen due to the absence of a strong long lasting negative Bz. The Earth seems to have gone through a sheath region right after the shock that arrived at 00:40 UT on February 18, until 19:40 UT on the same day. After that the solar wind signatures could be related to a passage through a leg/flank of a magnetic cloud.

SIDC Weekly bulletin on Solar and Geomagnetic activity WEEK 530 from 2011 Feb 21

SOLAR CONDITIONS
At the beginning of the week, AR NOAA 1158 that had produced the first X flares in four years, turned behind the limb. Solar activity was mostly quiet or at C-class flaring level during this week. Returning active region NOAA
1163 produced a M3.5 flare on Feb 24 before it turned onto the disk. A westward directed fast CME was associated with it. A filament from the northern hemisphere erupted on Feb 25.

GEOMAGNETIC CONDITIONS
Geomagnetic conditions were quiet during the whole week. The week ended with a large returning coronal hole at central meridian.

SIDC Weekly bulletin on Solar and Geomagnetic activity WEEK 531 from 2011 Feb 28

SOLAR CONDITIONS
Solar activity remained at eruptive levels most of the week with several C flares and one M flare. The main source of this activity was NOAA AR 1164. Several active regions appeared during the week and helped maintaining this activity level, with C flares from AR 1165, 1166 and 1169. A CME with no clear on disk signatures was observed by the SOHO/LASCO and STEREOA/COR2 coronagraphs on March 3rd, heading to the Earth direction, to the south.

GEOMAGNETIC CONDITIONS
Geomagnetic activity was dominated by a geomagnetic storm from March 1st 1200 UT to March 2nd 0600UT. At maximum of intensity, it reached major storm level (Kp=6) at planetary levels. Only active conditions were observed at Dourbes station in Belgium. Geomagnetic activity remained very calm the rest of the week.

SIDC Weekly bulletin on Solar and Geomagnetic activity WEEK 532 from 2011 Mar 07

SOLAR ACTIVITY
The Sun was very active this week: we observed 16 M flares and 1 X flare. In the first half of the week, mainly NOAA AR 11164 (Catania 18) and NOAA AR 1165 (Catania 19) were responsible for all this activity. When these regions turned over the solar limb, NOAA AR 11166 (Catania 22) took over. It is this last region that produced the X1.5 on wednesday March 9 at 23h23. All three active regions had a beta-gamma-delta configuration of their photospheric magnetic field.
Several clear CMEs were observed by the SOHO/LASCO and STEREO/COR2 instruments. On monday March 7 there was a CME linked to M1.9 flare at 14h30 and one associated to an M3.7 flare at 20h12. Tuesday March 8, we observed two more CMEs: these were associated to a M1.5 flare at 3h58 and a M1.4 flare at 20h16. None of these CMEs were headed directly towards earth, but we did receive a glancing blow from them on March 10 and 11.
The long duration event on monday March 7 at 20h12 (M3.7 flare) was associated with an EIT wave (observed by SWAP) and a >10MeV proton event that lasted until March 10, seen in the GOES measurements.

GEOMAGNETIC ACTIVITY
Geomagnetic conditions were mostly quiet in the beginning of the week. Kp reached level 4 during one period (around 21h) on March 7 due to to the arrival of a CME observed on the 3rd of March.
Late on March 10, we observed geomagnetic storm conditions that lasted until early morning on March 12th. The maximum Kp value that was reached, was 6. This storm was the result of the CMEs that were observed on March 7 and 8.