

# Newsletter Belgian Solar Observers

Results and news for solar observers

Volume 16

Number 179

January 2011

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## Content Newsletter

Graphics and relative number for this month

Daily Wolfnumbers by the members

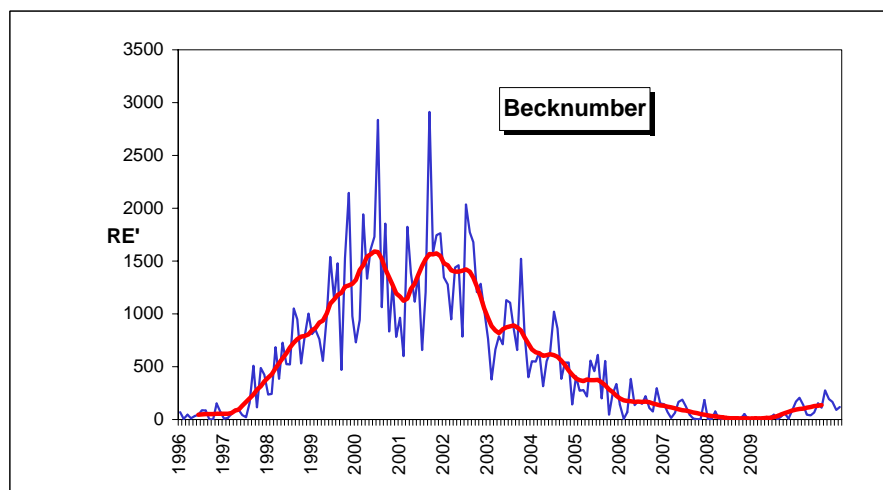
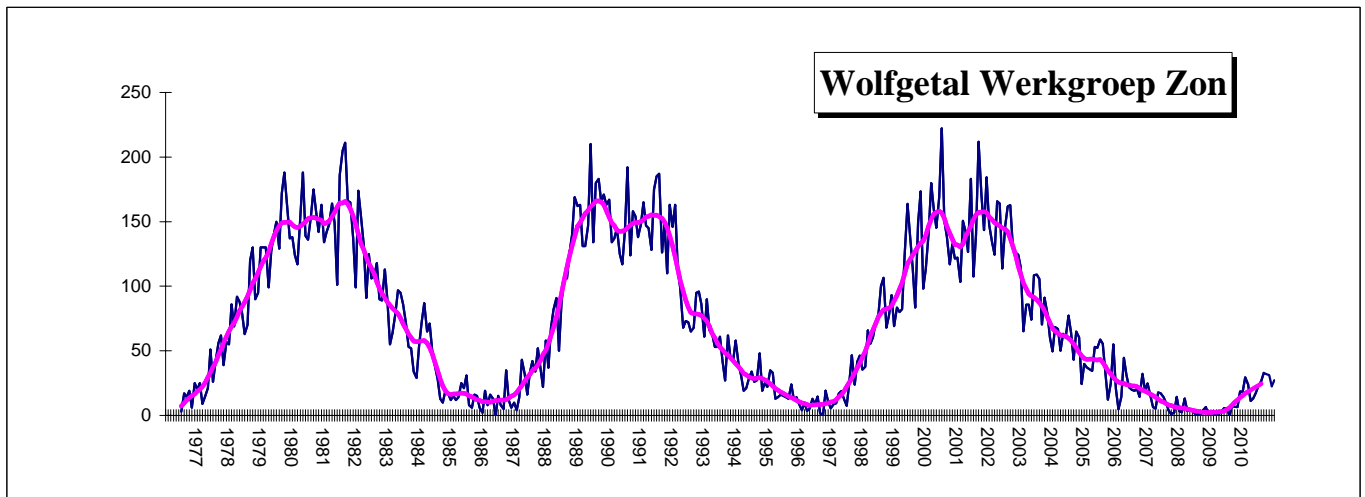
Monthly sunspot report

Polar faculae and CV numbers

Prominence numbers by the members

Monthly prominence report

Photo album and drawings



### Mean of January observations

Groups :	N	1,57	Wolfnumb N	19,9	Beck :	119,6
	S	0,54	S	7,4	CV	20,9
	N+S	2,11	N+S	27,3		
239 observations	28 observers					



# Sunspotnumbers VVS Belgium

Month: **January 2011**

Day	GROUPS			WOLFNUMBER			RE'	CV	OBS
	N	S	N+S	N	S	N+S			
1	2	1	3	29	13	42	193		1
2	2	1	3	27,6	18,4	46	225	51,6	15
3	2	1	3	19	11	30			1
4	2	1	3	18,7	19,4	38,1	200	24	10
5	2	1	3	15,4	15,4	30,8	148	29,5	17
6									
7	1	1	2	12	14	26	102	21	2
8	2	1	3	13,3	15,6	28,9	99	13	6
9	2	1	3	19,3	8,8	28,1	85	13,3	18
10	3	0	3	30,4	0,0	30,4	59	12,4	16
11									
12	2	0	2	32	0	32	180		1
13	1	0	1	11	0	11	44		1
14	3	0	3	51	0	51	84		1
15	1	0	1	6,6	0,0	6,6	25	10	5
16	2	0	2	14,4	0,0	14,4	60	18,5	18
17	1	0	1	14,3	0,0	14,3	80		3
18	1	1	2	22,5	13,5	36,0	216	32	2
19	1	1	2	15,2	10,4	25,6	94	11,8	9
20	1	1	2	18,9	9,3	28,2	98	15	20
21	2	0	2	30	0	30	199	20	11
22	2	0	2	41	0	41	222	33,5	4
23									
24	2	0	2	31,2	0	31,2	192	38,5	5
25	2	0	2	39	0	39	152		1
26	2	0	2	25	0	25	76	41	6
27	2	0	2	18,3	0	18,3	91	20,5	10
28	1	1	2	3	11,0	14,0	17	2	17
29	0	1	1	0	12,1	12,1	18	1,9	21
30	0	1	1	0	17,9	17,9	72	7,6	16
31	0	1	1	0	17,5	17,5	198		2
	<b>1,57</b>	<b>0,54</b>	<b>2,11</b>	<b>19,9</b>	<b>7,4</b>	<b>27,3</b>	<b>119,6</b>	<b>20,9</b>	<b>239</b>

Monthly mean: **27,3**    Covering: **28/31**    Spotless days: **0**  
 Observations: **239**    Number of observers: **28**

**V.V.S. BELGIUM SOLAR SECTION FRANKY DUBOIS**

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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**



# Prominence number Rp

## Belgian solar observers

Month: January 2011

Day	Q	Wedel	H	e	Rp	el. Obs	Stdev	OBS
1	3,5	1,5	6	12	72			1
2	3,3	1,7	9,3	16	109	2	13,6	5
3	4	1	6	15	75			1
4	2,8	2,8	5	5,5	55,5		0,7	2
5	2,8	2,8	5,7	6,5	63,5			6
6								
7	2,5	1	6	13	73			1
8	3,5	1,5	5	7	57	1	2,8	3
9	3,4	2,5	7,6	14,8	90,8			5
10	3,1	2,1	6	10,8	70,8			5
11								
12	4	1	6	16	76			1
13	4	1	7	22	92			1
14	4,5	1	8	14	94			1
15	3	2,5	4	6	46			1
16	3,2	2,7	6,4	11,2	75,2			5
17	3	1	6	11	71			1
18	3	1	7	20	90			1
19	4	2,2	7,7	14,3	91,3			3
20	4	2,4	6	12,2	72,2	1		7
21	4	1,5	7	10,5	80,5		3,5	2
22	4,5	1,3	6,5	11	76			2
23								
24	3,8	2,5	6,5	11	76		7,1	2
25	4	1	7	12	82			1
26	4	2	7	8	78			1
27	3,2	2,2	7,7	9,7	86,7			3
28	3,4	2,5	4,3	10,3	53,3	1	3	5
29	3,2	2,1	8	14,8	94,8			6
30	3,3	2,1	6,8	12,2	80,2		14,3	5
31	3	1	6	8	68			1
	<b>3,50</b>	<b>1,78</b>	<b>6,5</b>	<b>12,0</b>	<b>76,8</b>	<b>5</b>	<b>6,4</b>	<b>78</b>

Monthly mean: **76,8** Covering: **28/31**  
Observations: **78** Number of observers: **9**

**V.V.S. BELGIUM SOLAR SECTION FRANKY DUBOIS**

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### Observers:

Steen ; Dubois ; De Ceuninck ; Coeckelberghs ; Janssens ; Feys  
Hamsch ; 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 : January 2011

CV											Pettisindex SN					Intersol IS					
Date	F.Dubois	O.Steen	L.Meewis	J.Carels	J.Janssens	R.verboven	G.Gubbels	H.De Backer	D.Van Hesseche	Mean	G.Gubbels	F.Dubois	R.Verboven	O.Steen	J.Carels	Mean	F.Dubois	J.Carels	G.Gubbels	Mean	
1																					
2		67	38	46			61	46		51,6	76	27		46	64	53,3	11	14	17	14,0	
3																					
4		22		26						24,0				35	43	39,0		18			18,0
5	50	13		16	16		60	22		29,5	74	12		17	39	35,5	4	10	18	10,7	
6												14				14,0	6				6,0
7			21							21,0		12				12,0	3				3,0
8	12	12		15						13,0				13	21	17,0		14			14,0
9	13	11	16	13		10	21	10	12	13,3	22			11	18	17,0		6	5		5,5
10	12	12	13	11			14	13	12	12,4	18			13	11	14,0		2	11		6,5
11																					
12																					
13												14				14,0	6				6,0
14																					
15		10					10			10,0		31		10		20,5	17				17,0
16	12	25	20	6			10	38		18,5		17		21	15	17,7	9	8			8,5
17												22				22,0	15				15,0
18	32									32,0		31				31,0	18				18,0
19	10	13	12				12			11,8				18		18,0					
20	14	14	12	13			14	13	25	15,0	23			20	17	20,0		10	16		13,0
21	19	18						23		20,0		36		25		30,5	10				10,0
22		41						26		33,5				40		40,0					
23												21				21,0	6				6,0
24	38	39								38,5		20		36		28,0	2				2,0
25												4				4,0	6				6,0
26	21		82				20			41,0		6				6,0	8				8,0
27	20	20		22			20			20,5		14		20	22	18,7	7	5			6,0
28	3	1	2	2			3	1	2	2,0	9			3	4	5,3		5	11		8,0
29	3	3	2	2	2	1	2	0	2	1,9	4			6	4	4,7		5	5		5,0
30	6	6					2	16	8	7,6	10			17		13,5			11		11,0
31																					
##	18	19,2	22	15,6	9	5,5	22	16	14	20,9	30	19	#####	21	23	20,7	8,5	8,8	12		9,44

Becknumber

Date	F.Dubois	O.Steen	L.Meewis	De Backer	J.Carels	G.Gubbels	E.De Ceuninck	D.Van Hesseche	R.Verboven	F.Feys	A.T.Son	J.Bourgeois	H.Coeckelberghs	Pbl Obs Mira	Mean	Date
1									193						193	1
2		226	238	220	291	282				157	158				225	2
3																3
4		149			251	262			118		218				200	4
5	130	131		160	96	348	48			110			160		148	5
6																6
7			122						82						102	7
8	45	49			81		113		205						99	8
9	53	41	73	44	69	122	113	49	176	110	90				85	9
10	45	49	49	56	41	76		57		86	90		44	56	59	10
11																11
12									180						180	12
13									44						44	13
14									84						84	14
15		37		37					0						25	15
16	36	54	100	37	52		176	24	48	56	32	44			60	16
17									80						80	17
18	312								120						216	18
19	60	64	56	36			208		140						94	19
20	92	80	64	72	56	92	88	180	124	96		162	72		98	20
21	170	136		104			196		164				425		199	21
22		127		188					352						222	22
23																23
24	181	237					175		176						192	24
25									152						152	25
26	69		40	132					64						76	26
27	74	74		88	82		100		185	37					91	27
28	20	12	12	8	16	36	32	16		16		0			17	28
29	24	24	16	0	16	16	40	20	12	16	20	12			18	29
30	48	72		144		40	126	64		56	28				72	30
31									198						198	31
	90,6	92	77	88	96	127	129	59	94	127	73	90	63	178	120	

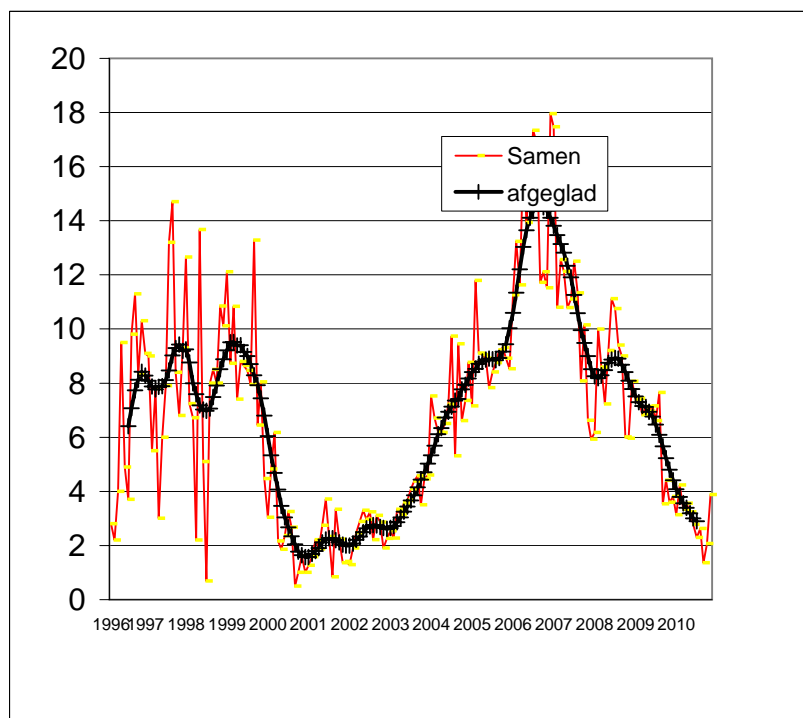
# Belgian Solar Observers

## Polar Faculae

Month: January 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									1	0	4	3	2	4								
3	1	3	3																	3	8	
4																						
5									0	0	3	3	2	2.5				0	0	3	2	9
6																						
7																					2	10
8																						
9									0	0	4	2	2	3.5	3	0	4				1	12
10				0	0	3.5					2	1	3.5								1	8
11																						
12																					3	4
13																						
14																						
15																						
16									0	0	4										1	5
17																					2	4
18																						
19				3	4	3.5																
20				2	3	3.5	0	0	4													
21																						
22																						
23																					2	7
24																					4	7
25																						
26																						
27										4												
28											3	4	2.5								1	6
29				0	1	3.5	0	0	4		1	2	3.0				0	0	3.0			
30											1	3	3.5								3	5
31																					3	8
	1,00	3,00		1,25	2,00		0,2	0,0		2,1	2,3		3,00	0,00		0,00	0,00		2,15	7,15	##	

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



SIDC Weekly bulletin on Solar and Geomagnetic Activity  
WEEK 525 from 2011 Jan 17

#### SOLAR ACTIVITY

The most noticeable sunspot group/active region of this week was Cat 98/NOAA AR 1147. On Jan 17, the group was located on the east of the solar disk. From Jan 21, when the group was located near the central meridian, an extra bi polar sunspot group Cat 01/NOAA AR 1149 grew. The rising phase of this area introducing an additional magnetic complexity, involved several C-flares on Jan 21, 22 and 24.

On Jan 24, NOAA AR 1149 has a beta-gamma configuration, while NOAA AR 1147 has an alpha configuration.

The fact that both regions lie in each others vicinity, increases the chances for magnetic interaction leading to instability and energy releases.

#### GEOMAGNETIC ACTIVITY

The geomagnetic conditions were quiet this week. Kp did not exceed the value t-2.

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SIDC Weekly bulletin on Solar and Geomagnetic activity  
WEEK 526 from 2011 Jan 24

#### SOLAR ACTIVITY

NOAA AR 1149 was the most active region during the week, it produced several C-class flares: a C1.4 at 06:25 UT on 24 Jan, a C1.2 at

12:05 UT on 27 Jan, a C1.5 at 04:25 UT on 28 Jan and another C1.5 at 10:22 UT on 28 Jan. A stronger, M1.3, flare was also associated with NOAA AR 1149. It occurred at 01:03 UT on 28 Jan. This flare was associated with a Type II radio burst, a CME and a proton flux increase.

There were CMEs occurring every day of the week, none of them were believed to be directed towards the Earth.

#### GEOMAGNETIC ACTIVITY

The geomagnetic conditions were quiet to unsettled the whole week.

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SIDC Weekly bulletin on Solar and Geomagnetic WEEK 527 from 2011 Jan 31

#### SOLAR ACTIVITY

There was a very low solar activity over the entire week. The X-ray background stayed at A level, with only a few B sub-flares, mainly on Feb.4 when several small active regions emerged simultaneously. A large recurrent coronal hole started to influence the Earth magnetosphere late on Jan.31. It reached its maximum speed on Feb.1 at 530km/s, and then declined. There was only one large halo CME on Feb.1 at 23:48UT. LASCO and STEREO coronagraphs indicate that this was a backside event. Barring the emergence of a new large active region, solar activity is expected to remain low over the coming days.

#### GEOMAGNETIC ACTIVITY

The week started with quiet to unsettled geomagnetic conditions on Jan.31 and Feb.1 due to the coronal hole influence. Then, conditions were mostly quiet on Feb. 2 and 3.

On Feb.4 at 1:30 UT, a weak CME shock was recorded in the solar wind by the ACE spacecraft. There was only a small speed increase to 400km/s, without any significant geomagnetic effect. Then around 19:00, the wind speed rose again steeply to 650km/s, marking the arrival of the associated magnetic cloud. This triggered a major geomagnetic storm (Kp=6) that lasted for a few hours, until Feb.5, 1:00UT. The origin of this very effective CME is unclear: the only possible association is a filament eruption and streamer blowout that occurred on Jan.30, but had however a very low initial speed of 230 km/s and was not detected in LASCO coronagraph images.

The solar wind speed reached a maximum of about 650km/s on Feb.5 around 3:00UT. It then slowly declined down to 500km/s by the end of Feb.6. The Earth magnetosphere remained unsettled over the last two days of the week, due to the high wind speed, with a last brief active episode on Feb.6.

Quieter geomagnetic conditions are expected for the first days of the new week.

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SIDC Weekly bulletin on Solar and Geomagnetic WEEK 528 from 2011 Feb 07

#### SOLAR CONDITIONS

Solar activity was dominated in the beginning of the period by NOAA AR 11153 which strengthened into a beta-gamma group while rotating out of field over the solar west limb. The region triggered a handful of C-flares, and on Feb 12 an M1.9 flare.

More firework originated in NOAA AR 11159, from Feb 12 in the C-class and on Feb 13, 17:38 a M6.6 flare.

#### GEOMAGNETIC CONDITIONS

The period was characterized by a moderate solar wind speed between 350 km/s and 500 km/s.

Geomagnetic activity was therefore very low with Kp at most reach values Kp=3 in the beginning of the period and at most Kp=2 after mid Feb 8.

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# BSO Comparative summary of 2010

<u>1. Belgian Solar Observers</u>	2010	2009	2008	2007	2006	2005
Number of observations	4324	5325	5102	4744	4401	3836
Number of observers	33	34	35	34	30	25
Number of observing days	341	340	359	346	348	352
k- factor	0,713	0,681	0,721	0,691	0,688	0,722
Correlation (%)	99,9	95,6	94,3	97,1	97,5	98,4

## 2. The Wolfnumber or sunspotnumber

Mean Wolfnumber	23,5	4,7	3,8	11,1	21,9	41
Highest Wolfnumber	69	48,6	63	52,9	79	159
Lowest Wolfnumber	0	0	0	0	0	0
Mean Wolfnumber north	15,2	3,2	1,3	1,8	3,5	15,4
Mean Wolfnumber south	8,3	1,5	2,5	9,3	18,4	25,6
Number of spotless days	37	230	255	141	56	15

## 3. The groupnumber

Mean Groupnumber	1,88	0,39	0,36	0,87	1,64	2,86
Mean Groupnumber north	1,22	0,26	0,12	0,16	0,28	1,18
Mean Groupnumber south	0,67	0,13	0,24	0,71	1,36	1,68
Total number of groups	101	30	30	45	89	127
Number of groups North	64	18	10	13	20	44
Number of groups South	37	12	20	32	69	83

## 4. The Becknumber

Mean Becknumber	138,1	22,2	15,2	84,6	159	373,6
Highest Becknumber	1050	421	502	993	1030	1891
Lowest Becknumber	0	0	0	0	0	0
Number of observations	2648	3021	2431	2026	1974	1713
Number of observing days	345	340	352	346	340	344

## 5. Classification Value

Mean CV	21,3	2,65	2,25	11,97	21,3	43,4
Highest value	78	53	85	90	102	171
Lowest value	0	0	0	0	0	0
Number of observations	1746	2165	1754	1323	939	844
Number of observing days	325	339	351	336	335	336

## 6. Prominence number Rp

Mean Rp	66,8	40,06	42,7	53,9	67,6
Highest value	123,5	96	101,5	106,5	115,7
Lowest value	21	7,7	8,8	11	29
Number of observations	1353	1687	1899	1905	1788
Number of observing days	324	324	334	328	324