Belgian Solar Section

Annual Report 2006

Reports of solar indices

The Wolfnumber

2006 marked another highlight for the solar section when considering the number of observations. 4412 observations made it to the section leader, that ‘s 576 more than in 2005, the previous recordholder. These observations were made by about 30 observers, 5 more than the previous year. The sun has been observed on 348 days, a bit less than in 2005 due to the very gloomy months of February and December.

The Becknumber

12 members reported 1974 observations of the Becknumber. Also here, the number of observations is increasing.

The Classification Value (CV)

The Classification Value is a solar parameter which is based on the McIntosh-classification. According to experienced observers, it provides a more reliable measurement of the solar activity. This kind of observations is more difficult to perform. Therefore, only 6 observers reported on this parameter. In 2006, their observations resulted in 939 reports.
Observational results were exchanged with solar sections from the United States (ALPO and AAVSO), Switzerland (RWS), Norway (CV) , Japan (OAA) and Germany (Sonne).
Polar faculae have been regularly observed by 5 members.

Prominencenumber Rp

Early 2006, the solar section started the H-alpha program with the Rp-number. There were immediately about ten observers who reported their observations on a monthly base. The instruments vary from a PST to a 90 mm stacked Coronado filter.
The biggest problem seems to be that the prominencenumber can vary significantly throughout the day, something that was already shown several times by Octaaf Steen. As we are still in the early phase of this kind of observations, it's probably best to keep up the effort for a couple of years and evaluate at that time if something useful can be deduced from the results.
In this first year, 11 members reported 1788 observations.

Publication of the Newsletter

The Newsletter was send each month and free of charge to every Public Observatory and to 30 contributing observers. There were also 2 exchange-subscriptions. Only 3 members had to pay for the Newsletter.
Each month in 2006, a pdf-file of the Newsletter was published on the website of the solar section. There was always a Dutch and an English version available.

Internet

The website has been completely transferred to the servers of the VVS (Belgian Astronomical Association). It consists of a Dutch and an English part.
Entirely new is the image-database which became operational in September. All images and drawings received can be consulted in this database. In a calendar, the days with available images are coloured. The images and drawings contain a maximum of information on how they were made.

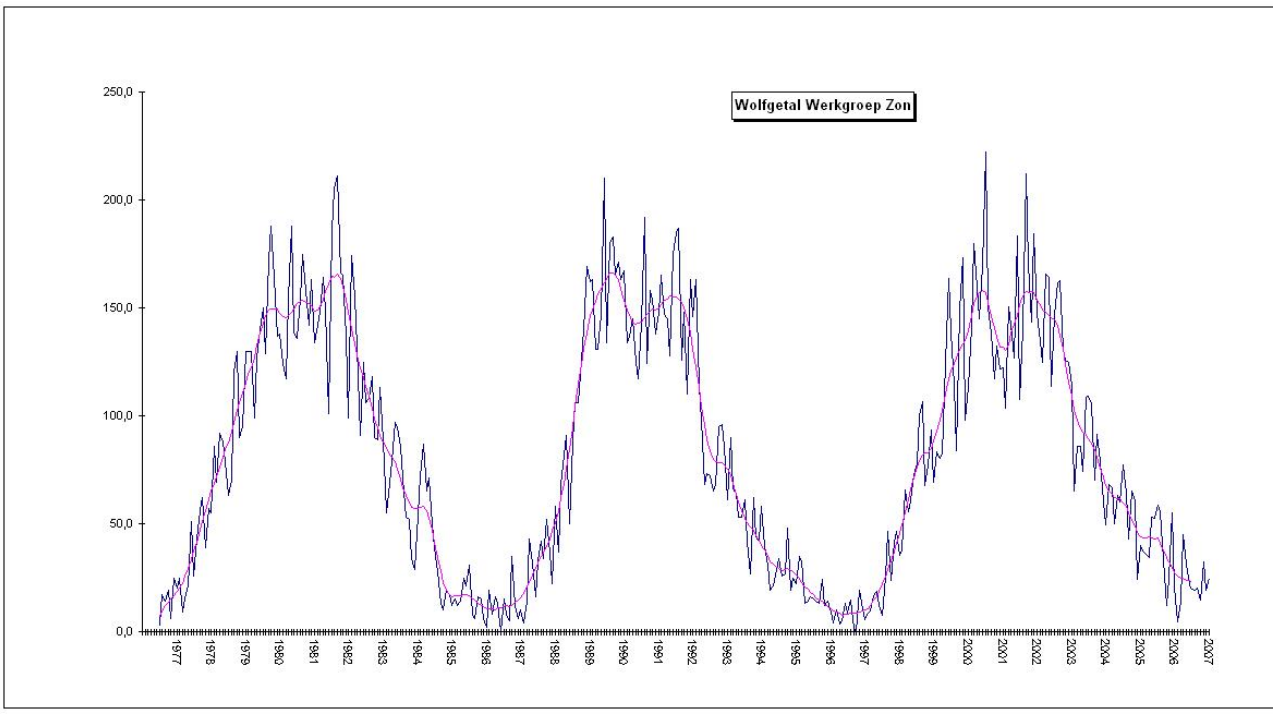
Meeting

On Saturday, October 7th, the yearly meeting of the VVS Belgian Solar Observers took place in the Europlanetarium in Genk.
Every year, it is a day to look forward to. As usual, a varied program was presented by and to the amateur astronomers.
At 11 o'clock, 27 amateurs were welcomed. Then followed a short tour in the observatory, with a visit to the 20cm Lichtenknecker refractor. Frans van Loo showed how he performed his solar observations using the projection technique. He mentioned that, occasionally, the brightest polar faculae are visible on the screen. This observation method is only used in two other places in Belgium: in Public Observatory MIRA (25 cm Heliostat) and at the Royal Observatory of Belgium.
As the sun was sometimes shining, Jan Janssens set up his PST and Josch Hambsch his 60 and 90mm Coronado filters. The views were very appreciated by the group, as one does not always get the chance to take a look through a stacked 90mm Coronado.
Guido Gubbels then gave a talk about the Limburg Solar Observers and showed the first results obtained by the group. Together with MIRA, the Europlanetarium is only the second public observatory containing a permanent group of solar observers performing daily solar observations.
In total, 5 talks were given. ***Main speaker was professional astronomer David Berghmans from the SIDC who discussed the history of the sunspotnumber.***

Future plans

This year, the website will be further optimized.
The database will be further expanded.
A new meeting is currently planned for the June-July timeframe.
New observers are always welcome and will be fully supported by all members.

Franky Dubois
Solar Section



BSO Comparative summary of 2006

1. Belgian Solar Observers	2006	2005	2004	2003	2002
Number of observations	4401	3836	3393	3283	2400
Number of obsevers	30	25	23	20	16
Number of observing days	348	352	340	342	337
k- factor	0,688	0,722	0,694	0,731	0,728
Correlation (%)	97,5	98,4	95,7	92,8	64,9
2. The Wolfnumber or sunspotnumber					
Mean Wolfnumber	21,9	41	57,7	87,4	142,6
Highest Wolfnumber	79	159	154	247,3	294
Lowest Wolfnumber	0	0	0	4,8	28
Mean Wolfnumber north	3,5	15,4	21,5	37,9	61,8
Mean Wolfnumber south	18,4	25,6	36,2	49,5	80,3
Number of spotless days	56	15	3	0	0
3. The groupnumber					
Mean Groupnumber	1,64	2,86	3,71	5,81	8,97
Mean Groupnumber north	0,28	1,18	1,32	2,68	4,08
Mean Groupnumber south	1,36	1,68	2,39	3,13	4,89
Total number of groups	89	127	184	293	472
Number of groups North	20	44	66	126	212
Number of groups South	69	83	118	167	260
4. The Becknumber					
Mean Becknumber	159	373,6	560,9	817	1359
Highest Becknumber	1030	1891	2809	4545	5000
Lowest Becknumber	0	0	0	3	90
Number of observations	1974	1713	1570	1835	1552
Number of observing days	340	344	331	338	337
5. Classification Value					
Mean CV	21,3	43,4	58,3	79	134,3
Highest value	102	171	170	267	284
Lowest value	0	0	0	1	16
Number of observations	939	844	749	785	701
Number of observing days	335	336	316	330	310
6. Prominence number Rp					
Mean Rp	67,6				
Highest value	115,7				
Lowest value	29				
Number of observations	1788				
Number of observing days	324				

Observers Wolfnumber R

	Observers 2006	jan	febr	mrt	april	may	june	july	aug	sept	okt	nov	dec	totaal
1	A.T.Son	17	2	15	17	20	17	25	20	13	19	13	5	183
2	Bourgeois	8	6	13	15	17	21	11	16	10	15	15	6	153
3	Carels	1	4	11	11	4		11	7	23	10	15	10	107
4	Claes	16	10	15	19	19	20	25	20	22	19	13	9	207
5	Claeys	17	9		26	23	25	30	24	22	20	17	12	225
6	Coeckelberghs	5	2	12	10	10	20	26	11	10	10	6	2	124
7	De Backer	20	16	29	28	19	26	31	29	15	25	20	12	270
8	De Ceuninck	21	9	24	25	24	27	30	29	27	27	22	14	279
9	Deman	8	2	9	13	8	16	25	20	20	13	13	4	151
10	Devriese	6	2	8	13	10	11	10	6	14	6	8	3	97
11	Dewaele			9	10	7	17	3	4	1				51
12	Dubois	20	11	26	26	28	27	31	25	28	24	20	14	280
13	Gabriel	24	16	25	30	27	25	31	30	30	30	27	21	316
14	Gadyne			6	3						5			14
15	Gerard	14	5			11	4	25	6	30				95
16	Gysel	8	9	14	12	5	9	20	1				2	80
17	Janssens	3	1	5	10	4	9	11	4	4	4	3	2	60
18	K. Gérard Astrolab				2	3	4	1	1					11
19	K S B	20	12	24	29	24	25	29	23	26	26	19	14	271
20	Kleber	18	12	25	25	18	21	24	21	24	18	21	9	236
21	Macharis			2	4				6	3				15
22	Meeus	14	5	19	11	9	19	23	14	20	11	13	9	167
23	Thooris				4	15	14	20	9	14	11	6	9	102
24	Publ obs Mira	13	6	11	9	12	11	19	16	18	11	11	6	143
25	Sj Dufoer									5	6	6		17
26	Steen	23	15	28	25	29	27	31	30	29	29	24	18	308
27	Tailleu	10		16	22	21	28	30	26	27	18	15	6	219
28	Vanleenhove					3	13	4	4	8				32
29	Verboven	8	2	13	10	5	13	16	5	5	10	5	2	94
30	V. Loo	12		11	15	16	7	6	10	9	9	10		105
	Observations	306	156	370	424	391	456	548	417	457	376	322	189	4412
	Observation days	30	22	31	30	29	30	31	31	30	31	28	25	348
	Nmb Observers	23	21	24	27	27	26	26	28	26	24	23	20	

Prominence number Rp

	Observers 2006	jan	febr	mrt	april	may	june	july	aug	sept	okt	nov	dec	totaal
1	Claes	11	8	14	15	16	20	21	17	13	15	10	7	167
2	Coeckelberghs	5	2	11	11	8	15	22	8	7	7	5	1	102
3	De Ceuninck	20	9	21	25	24	27	30	28	26	26	20	12	268
4	G. Deman							21	12	15	10	10	3	71
5	Dubois	14	7	20	22	20	24	27	16	20	14	10	5	199
6	Gabriel	22	16	18	28	25	23	29	30	30	28	27	20	296
7	Janssens	3	2	6			4	11	3	4	5	4	2	44
8	Hambsch	10	6	16	11	14	14	19	9	9	15	9	6	138
9	Meeus	12	4	10	6	4	12	13	5	13	7	10	5	101
10	Blondeel			6	11	14	20	20	7	13	8	10	5	114
11	Steen	19	10	26	24	29	27	31	30	29	26	24	13	288
	Observations	116	64	148	153	154	186	244	165	179	161	139	79	1788
	Observation days	24	16	28	29	30	28	31	30	30	30	27	21	324
	Nmb Observers	9	9	10	9	9	10	11	11	11	11	11	11	

Observers Becknumber Re

	Observers 2006	jan	febr	mrt	april	may	june	july	aug	sept	okt	nov	dec	total
1	A.T.Son	17	2	15	17	20	17	25	20	13	19	13	5	183
2	Bourgeois	8	6	13	15	17	21	11	16	10	15	15	6	153
3	Coeckelberghs	5	2	12	10	10	20	26	11	10	10	6	2	124
4	De Backer	20	16	29	28	19	26	31	29	15	25	20	12	270
5	Dubois	20	11	26	26	28	27	31	25	28	24	20	14	280
6	Carels	1	4	11	11	4		11	7	23	10	15	10	107
7	Publ obs Mira	13	6	11	9	12	11	19	16	18	11	11	6	143
8	Macharis			2	4				6	3				15
9	Steen	23	15	28	25	29	27	31	30	29	29	24	18	308
10	S.Dufoer									5	6	6		17
11	Claes	16	10	15	19	19	20	25	20	22	19	13	9	207
12	Meeus	14	5	19	11	9	19	23	14	20	11	13	9	167
	Observations	137	77	181	175	167	188	233	194	196	179	156	91	1974
	Observation days	27	22	31	29	29	28	31	31	30	31	28	23	340
	Nbr observers	10	10	11	11	10	9	10	11	12	11	11	11	

Observers CV

	Observers 2006	jan	febr	mrt	april	may	june	july	aug	sept	okt	nov	dec	total
1	Dubois	20	11	26	26	28	27	31	25	28	24	20	14	280
2	Carels	1	4	11	11	4		11	7	23	10	15	10	107
3	Steen	23	15	28	25	29	27	31	30	29	29	24	18	308
4	J.Janssens	3	1	5	10	4	9	11	4	4	4	3	2	60
5	S.Dufoer										5	6	6	17
6	Meeus	14	5	19	11	9	19	23	14	20	11	13	9	167
	Observations	61	36	89	83	74	82	107	80	104	83	81	59	939
	Observation days	26	22	30	29	29	27	31	31	30	30	28	22	335
	Nbr observers	5	5	5	5	5	4	5	5	5	6	6	6	

Groupnumber

2006	VVS			BAA	RWG
Month	N	S	N+S	N+S	N+S
January	0,7	0,7	**1,40**	1,21	1,10
February	0,14	0,41	**0,55**	0,31	0,30
March	0,32	1,03	**1,35**	0,75	0,70
April	0,03	3,20	**3,23**	2,68	2,70
May	0,76	2,72	**3,48**	2,11	2,00
June	0,17	1,30	**1,47**	1,1	1,20
July	0,48	0,9	**1,38**	1,16	1,30
August	0,03	1,13	**1,16**	0,97	1,10
September	0,13	1,70	**1,83**	1,33	1,50
October	0,06	1,13	**1,19**	0,89	1,00
November	0,14	1,86	**2,00**	1,71	1,90
December	0,36	0,96	**1,32**	1,05	1,10
	0,28	**1,42**	**1,70**	**1,27**	**1,33**

SIDC: Solar Influences Data Analysis Center, Brussels
SONNE prov.: SONNE network, provisional sunspot numbers
AAVSO: American Association of Variable Star Observers - Solar Division
BAA: The British Astronomical Association - Solar Section, UK
GFOES: G.F.O.E.S. Commission "Nombre de Wolf", France
OAA: The Oriental Astronomical Association - Solar Division, Japan
RWG: Rudolf Wolf Gesellschaft - Solar Obs. Group of Swiss Astron. Society
TOS: Towarzystwo Obserwatorow Slonca - Solar Observers Society, Poland
VVS: Vereniging voor Sterrenkunde, Werkgroep Zon, Belgium

Wolfnumber by other groups									
Month	SIDC	SONNE	AAVSO	BAA	GFOES	OAA	RWG	TOS	VVS
January	15,4	15,5	21,5	19,4	14,9	19,1	17,6	22,3	19,7
February	4,7	3,6	4,4	3,8	1,9	4,9	3,6	5,9	4,6
March	10,8	10,5	14,0	11,5	9,0	14,4	11,3	16,0	14,3
April	30,2	34,0	44,1	40,7	33,5	37,9	43,2	45,0	44,7
May	22,2	24,3	32,2	27,7	22,8	28,7	27,3	34,4	31,3
June	13,9	16,8	21,1	16,7	14,5	17,7	19,5	20,5	21,7
July	12,2	14,7	19,4	17,1	14,3	16,9	19,0	20,1	19,7
August	12,9	13,6	18,9	16,4	14,5	16,3	17,9	18,7	19,2
September	14,5	15,2	20,7	17,6	14,8	18,4	19,7	21,1	20,3
October	10,4	10,5	9,6	12,1	10,0	12,0	13,5	14,6	14,4
November	21,5	22,5	21,5	26,4	24,3	28,2	28,5	29,6	32,1
December	13,6	14,4	13,5	16,9	12,8	16,1	16,3	19,9	19,4
Year	**15,2**	**16,3**	**20,1**	**18,9**	**15,6**	**19,2**	**19,8**	**22,3**	**21,8**