Notes and News

From the President

This year's BAA stand at Astrofest (*photo by Richard Fleet*)

Astrofest success

Our larger stand at Astrofest this year was a great success. We received many favourable comments on its appearance and the display of members' observations provided a good focus for discussion with visitors. We recruited more new members at the show this year and our takings from sales were also up considerably on previous years thanks to having several new publications for sale. Thanks to the many people who were involved in organising the stand, helping put the displays together and manning the stand during the event.

Help wanted with BAA websites

Maintaining and updating the main BAA website is a lot of work and up till now this has been carried out virtually single-handedly by Callum Potter. We are looking for people who could help to take some of the load off his shoulders. Examples of the kind of work involved are: managing the galleries and picture of the week section of the website; updating the online sales catalogue; creating graphics for adverts for meetings, sales items, etc.; maintaining the meetings calendars; and adding news and information including entries for our blog and twitter feed. If you would like to help us in any or all of these areas, have the necessary web skills and have some time to spare, please get in touch with Callum at **callum.potter@gmail.com**. He will help you get started and provide support till you are up to speed.

Mike Frost and Lee Macdonald are also looking for help with the new Historical Section website. They need someone with good web design skills who would be willing to act as webmaster for the Section website. Mike and Lee have new material which they would like to put up but feel they lack the necessary technical skills to make this look good so they are appealing for help. If you think you might be able to help them, please get in touch with Mike at **frostma@aol.com**.

Our new Handbook editor

I am pleased to say that we have found a new editor for the BAA *Handbook*. She is Dr Rosalind Armson, who will be retiring from her post as a Senior Lecturer in the Communication and Systems Department at the Open University in April and will then take up her new role with the BAA. Rosalind has had a lifetime interest in astronomy and is looking forward to finally being able to take up regular observing again following a busy academic career. She also has extensive experience of producing documents to deadlines which will be very useful in her new role as *Handbook* editor. Rosalind will be working closely with Sheridan Williams, Director of the Computing Section.

Prospects are increasing of seeing the aurora

With increasingly frequent reports of activity on the Sun as the new solar cycle ramps up, the prospects of seeing the aurora are likely to increase over the coming months. It is therefore worthwhile monitoring solar activity, for example on the Spaceweather website at **http://www.spaceweather.com/**, and keeping a watch on the northern horizon whenever there are reports of solar flares or coronal mass ejections coming in our direction. See below for some more suggestions from our Aurora Section Director, Ken Kennedy, and the attached image taken recently by Alan Tough from Elgin in Scotland may whet your appetite.

David Boyd, *President*

Aurora Section

Aurora recorded by Alan Tough at Elgin, Moray, Scotland at 22:30 UT on 2011 March 1 using a Canon EOS 40D and Sigma EX 24–60mm lens.

With the prolonged period of low solar activity, the appearance and frequency of noctilucent clouds (NLC) has been the prime focus of many aurora section observers for some years. This is because it has been shown for some decades that NLC frequency is inversely related to solar activity. 2009 December saw the start of some solar activity related to Cycle 24 and by the NLC season of 2010 it seemed that this increase in solar activity had contributed to a reduction in the extent and frequency of NLC.

Only a few aurorae were seen from Scotland during 2010. These were in April, May, August, October and November. However with increasing solar activity it may now be time for auroral observers to awake from their enforced hibernation. At the geomagnetic lati-

tudes of the UK we require a Kp index of about 5 in northern Scotland and 7 in southern England to have some confidence in seeing a display. The Kp index has risen to 5+ on a few occasions in 2010 and there is no reason to believe that it will not reach this level again during the rest of the winter, so it will be worth keeping a check on the Kp index (**www.spaceweather.com**) and an eye towards the north for any activity.

It is most likely that the majority of aurorae will present as a glow or quiescent arc low in the north and these may be difficult to see, especially if street lighting interferes. Dedicated observers may find it useful to obtain a narrow passband filter which selects light within the most common emission wavelength of the aurora. A suitable filter may be obtained from Davin Optronics Limited, Greycaine Road, Watford, England, WD24 7GS. The filter is part number 7006-181 and has a passband of 10nm centred on 560nm.

Ken Kennedy, *Director*

Saturn Section

Uranus & Neptune: An interim report on the 2010 apparition

This note gives a brief report of observations made of Uranus and Neptune during the 2010 apparition. There was a marked increase in the number of observations of Uranus compared to those made during the previous few years. Observations were received from Paul Abel, David Arditti, Kevin Bailey, Mario Frassati, Maurice Gavin, David Gray, Dale Holt, Pete Lawrence, Richard McKim, Richard Miles, Damian Peach, Stanislas Maksymowicz and the Director. The majority were made visually although a number of digital images were also received.

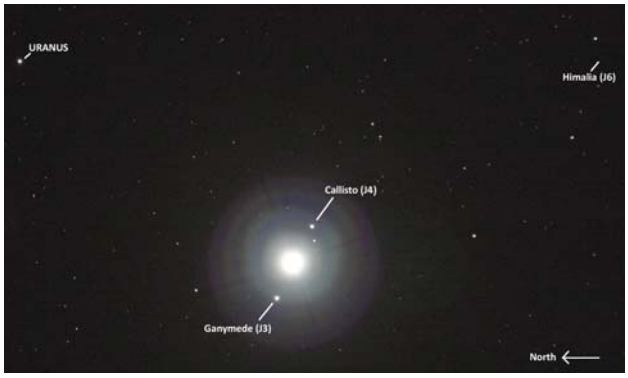


Figure 1. 2010 Sep 16, 16h21m UT. 200mm F2.8 lens, Canon 40D *(Miles)*. This image shows Jupiter and Uranus four days before opposition. North is to the left. Also shown is the faint Jovian satellite, Himlalia.

During the latter half of the year, Uranus lay close to Jupiter which was a useful guide to finding the fainter Uranus. Both planets came to opposition on 2010 September 21 when Uranus lay approximately 0.8° to the north of Jupiter. The close conjunction around the time of opposition was widely observed as shown in Figures 1 and 2. (All figures have south upwards unless otherwise noted).

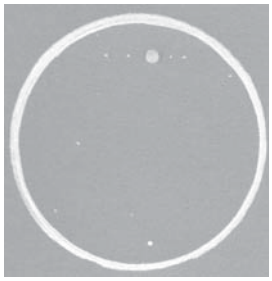


Figure 2. 2010 Sep 20, 22h40m UT. 152mm OG ×61 *(Holt)*. This drawing shows Jupiter with Uranus to the north shortly before opposition. The four brightest satellites of Jupiter are also shown.

Despite the small angular size (3.7" at opposition), a number of observations were made of Uranus' disk and typical results are shown in Figure 3.

None of the digital images received, including those taken by Peach from Barbados, revealed any definite features. Imaging Uranus presents a number of challenges.[1] These include the length of exposure required to record the planet both at visual and longer wavelengths. It is at longer wavelengths that large telescopes such as the Hubble Space Telescope and Keck telescope have detected faint bands and other atmospheric features.

At visual wavelengths, observations made with these large telescopes have revealed only a bland disk. However Abel, Gray, McKim and Maksymowicz recorded some subtle or faint features by visual means. Maksymowicz made a long series of observations using a number of telescopes with apertures up to 305mm. Gray and McKim used even larger aperture instruments (415mm and 410mm Dall–Kirkham Cassegrains respectively).

Typically, the markings sometimes reported by these observers included a slightly brighter region running across the planet's equatorial region, slightly darker bands either side of the equatorial regions, and polar shading. Although there is some consistency in some of these visual observations there are also differences and a full assessment of all of these observations will be reported separately.

The four largest satellites of Uranus are faint objects but can be detected with larger amateur instruments. Gavin was able to image all four with a 305mm SCT.

Gray and Peach observed the disk of Neptune. Peach and Gavin also imaged Neptune's largest satellite, Triton, and a typical result is shown in Figure 4.

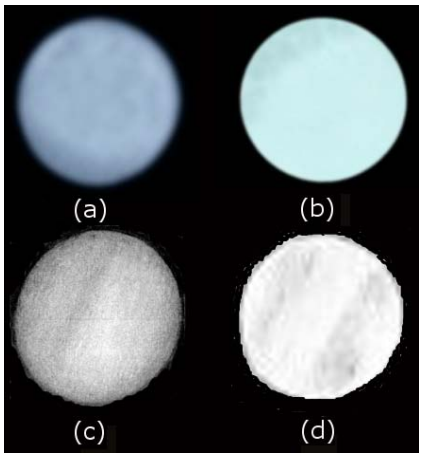


Figure 3. Observations of Uranus.
(a). 2010 Sep 25, 03h18m UT. 356mm Schmidt–Cass. *(Image by Peach)*.
(b). 2010 Sep 29, 22h39m UT. 203mm Newtonian *(Drawing by Abel)*.
(c). 2010 Oct 04, 20h45m UT. 410mm Dall–Kirkham *(Drawing by McKim)*.
(d). 2010 Nov 11, 17h50m UT. 305mm Cass. *(Drawing by Maksymowicz)*.

Figure 4. 2010 Sep 25, 02h37m to 02h52m UT. 356mm Schmidt–Cass. *(Image by Peach)*. This image shows Neptune and its largest satellite Triton.

Mike Foulkes, *Director*

1 Arditti D., 'Amateur imaging of Uranus', *J. Brit. Astron. Assoc.*, **119**(5), 288 (2009)

Solar Section

2010 December

The year ended with a slight decrease in solar activity due to the quietening of the southern hemisphere. Activity remained quite low with a lack of complex sunspot groups. Most observers reported a blank disk from Dec 18–24 inclusive.

AR1130 N13°/330° remained on the disk from the previous month. The group was type Dai containing around 15 spots on Dec 1 but then slowly declined as it approached the western limb. The group was last seen on Dec 4 type Hsx consisting of a single penumbral spot.

AR1131 N31°/209° rounded the eastern limb on Dec 2 type Hhx. This large penumbral spot was seen with the protected naked eye on most days during its passage, achieving a total area of 310 millionths on Dec 9. The sunspot was last seen on Dec 14 approaching the western limb.

AR1132 N10°/251° appeared on the disk on Dec 4 near the CM type Bxo, consisting of 4 spots. The group remained unchanged until Dec 7 when it was no longer seen.

AR1133 N15°/179° rounded the eastern limb on Dec 4 type Hsx. The group was a smaller version of AR1131 and both spots dominated the disk. AR1133 achieved a total area of 120 millionths on Dec 9 and was last observed on Dec 15 approaching the western limb.

AR1134 N18°/164° made a brief appearance on the disk in the NW quadrant on Dec 14 & 15.

AR1135 N19°/078° possible sighting of new spot on the NE limb on Dec 12 confirmed the next day, type Axx. The spot faded on Dec 14 & 15 reappearing on Dec 16 type Bxo. The group faded again on Dec 17 to a single Axx spot and was not seen again.

AR1136 S22/030° was seen on Dec 24 as a single Axx spot. The group developed to type Bxo the following day but was not seen on Dec 27.

AR1137 N16/315° was seen on Dec 26 & 27 type Bxo and Csi respectively.

AR1138 N13°/320° appeared on the disk on Dec 27 type Dao. The group lost its attendant spots on Dec 30 type Hrx and declined to type Bxo on Dec 31.

AR1139 S26°/233° appeared in the SE quadrant on Dec 30 type Bxo and declined to a single Axx spot the following day. It was not present on Dec 31.

AR1140 N32/188° rounded the eastern limb on Dec 31 type Hsx.

6 observers reported a Quality number of Q = 4.15

BAA sunspot data, 2010 December–2011 January

	December		January	
Day	g	R	g	R
1	1	23	3	46
2	2	28	3	40
3	2	29	3	37
4	3	42	2	37
5	3	35	2	30
6	2	26	2	26
7	2	24	2	32
8	2	23	2	28
9	2	23	2	23
10	2	28	2	22
11	2	23	2	24
12	2	23	2	21
13	3	32	0	6
14	2	21	0	0
15	1	14	0	4
16	1	12	1	10
17	1	9	2	20
18	0	1	2	28
19	0	0	2	23
20	0	1	2	22
21	0	2	1	26
22	0	6	2	29
23	0	4	2	31
24	0	5	2	30
25	1	16	2	26
26	1	15	2	23
27	1	16	1	14
28	1	16	1	10
29	1	14	1	14
30	1	17	1	17
31	3	36	1	18
MDFg	1.43 (48)		1.63 (53)	
Mean R	18.17 (41)		23.18 (46)	

H-alpha

Prominences

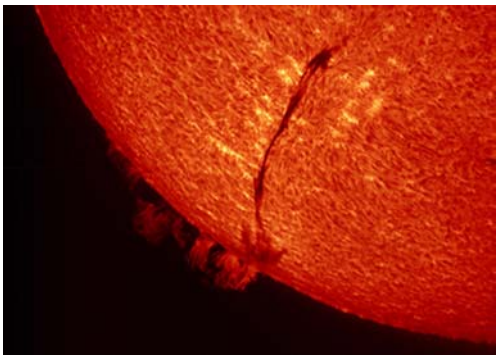
11 observers reported a prominence MDF of 3.50 for December.

A large elongated prominence was seen on Dec 3 linked to the solar surface by four strands. On Dec 4 a large flame prominence on the SW limb stretched onto the disk for 317,000km. This feature was still present the next day as a filaprom accompanied by two flame prominences within the same hearth.

North & south MDF of active areas g

	MDFNg	*MDFSg*
December	1.32	0.15 (35)
January	1.08	0.58 (41)

g = active areas (AAs)
MDF = mean daily frequency
R = relative sunspot number
The no. of observers is given in brackets.



Massive filaprom in the SE quarter imaged by Dave Tyler, 2010 Dec 5 at 12:30 UT.

A prominence on the SE limb reached a height of 130,000km on Dec 6. A large hedgerow prominence graced the SE limb on Dec 7, and on Dec 9 a tall spire was observed on the NW limb. A very impressive arch was seen at SE50° on Dec 11 and also a hedgerow prominence on the same limb but nearer towards the equator.

On Dec 13 a prominence reached a height of 121,000km on the NE limb and a hedgerow prominence was seen on the SE limb later that same day. On the following day, a prominence achieved 140,000km on the NE limb.

A spire prominence was seen on the SE limb on Dec 15 and also a filaprom on the SE limb and quadrant. A prominence reached 93,000km in height on Dec 24.

Filaments & plage

8 observers reported a filament MDF of 2.32 for December.

Plage was seen on Dec 1 around AR1130 and trailing to the east behind the main spot. A very long filament was seen near the SE limb in association with a prominence group on Dec 4 & 5 (see image). Plage was also seen around AR1130 on Dec 4 and semicircular plage was observed following AR1131 on the same day. A short dark filament was seen in association with AR1132.

On Dec 7, three filaments were seen, two trailing AR1133 and one near the western limb. Plage was still trailing AR1131 but fainter. Plage was still associated with AR1131 on Dec 11.

A long dark filament was seen in the SE quadrant on Dec 15 (in association with a prominence on the limb). A long broad filament aligned NW–SE was seen on Dec 17 stretching from S40°/075° to S50°/053°. Plage was also seen just to the east of AR1135 on Dec 17.

CaK

Strong plage appeared on Dec 13 at the E limb. By Dec 17 it had divided into four groups to the east of AR1135 and the H-alpha plage. The CaK cluster broke up into a huge mass of 'speckles' by Dec 20 stretching from N25°/090° to 25°/050°. On Dec 26

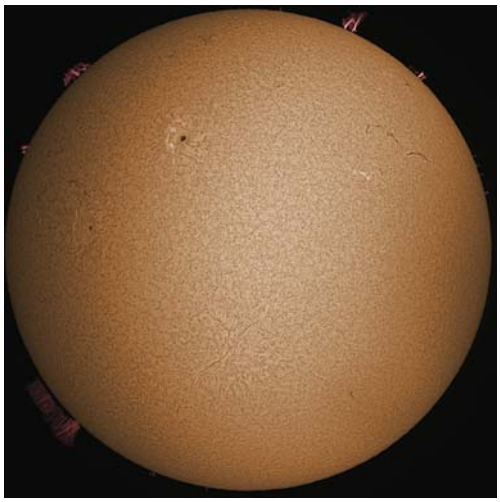


Image taken by Sheri Lynn Karl on 2010 Dec 07 at 11:39UT, showing AR1131 & AR1133.

a very strong and compact CaK marker was seen in association with a sunspot group.

2011 January

Activity in January showed a slight increase on December although still less than recent months. The northern hemisphere quietened marginally with the southern hemisphere showing some increase on December. All observers reported a blank disk on Jan 14 and most recorded a blank disk on Jan 13 & 15.

AR1138 N17°/323° remained on the disk from the previous month. The group was in decline and was now an Axx group consisting of 2 small spots. It was not seen after Jan 1.

AR1139 S30°/239° made a reappearance on the disk from December as a single Axx spot which faded and was not seen after Jan 1.

AR1140 N32°/190° remained on the disk from December close to the eastern limb. The group consisted of a large penumbral spot showing a noticeable Wilson effect. On Jan 4 the group was type Hax with an area estimated at 150 millionths. The spot progressed across the solar disk largely unchanged and was last seen approaching the western limb on Jan 11.

AR1141 N35°/267° formed on the disk in the NW quadrant on Jan 1 type Dso. The group declined to type Bxo on Jan 2 and was not seen on Jan 6.

AR1142 S14°/208° formed on the disk on Jan 1 in the SE quadrant as a bipolar group type Dsi. The group was type Dso on Jan 4 with an area of 60 millionths and had reduced to an Hrx spot by Jan 6. The group was still visible on Jan 8 as a single Axx spot but was not seen the following day.

AR1143 S22°/147° formed on the disk and was observed on Jan 7 approaching the CM type Cso. By the following day the group had declined to type Bxo consisting of 4 small spots and was not seen on Jan 9.

AR1144 S16°/173° made a brief appearance on the disk on Jan 9 type Axx.

AR1145 N17°/098° formed on the disk in the NE quadrant on Jan 9 type Bxo but was brief in its existence and no further reports were received.

AR1146 N23°/077° formed on the disk in the NE quadrant on Jan 11 type Cso consisting of one penumbral spot and 2 small spots. The group reduced to Bxo the following day and then faded on the disk.

AR1147 N23°/342° rounded the eastern limb on Jan 15 as a single Hsx spot. By Jan 18 a string of spots were seen following the penumbral sunspot to make the group type Cao with an area of 160 millionths. The group had a similar appearance on Jan 19 & 20 but by the next day several small penumbral sunspots had developed just to the south of the group, to which NOAA gave a separate designation AR1149. By Jan 22 AR1147 had decayed back to a single Hsx spot. The group remained on the disk in this formation as it approached the western limb on Jan 26.

AR1148 S28°/065° formed on the disk in the SW quadrant on Jan 17 type Bxo consisting of 3 small spots. The group was also seen unchanged on Jan 18, 19 & 20 when it was approaching the western limb.

AR1149 N18°/344° developed on the disk on Jan 21 just south of AR1147. The group was type Csi with an area of 60 millionths by Jan 22 and further developed to type Dsi in the following days. The group remained on the disk until Jan 26 approaching the western limb.

AR1150 S19°/182° rounded the eastern limb on Jan 28 type Bxi consisting of 4 small spots. The group developed to Dso with an area of 120 millionths on Jan 30 & 31.

8 observers reported a Quality number of Q = 4.20

H-alpha

Prominences

15 observers reported a prominence MDF of 3.66 for January.

On Jan 1 a pillar prominence reached an approximate height of 93,000km. A thick and bright hook shaped prominence was seen on the NE limb on Jan 8.

On Jan 16 a complex prominence was observed on the NW limb which stretched to a height of about 80,000km. Also a pair of spike prominences was seen on the SW limb. Three large diffuse and quite faint flame prominences were seen on the western limb which had reduced to just 2 prominences by the following day. On Jan 19 these two prominences were still visible largely unchanged. A large mass was also seen at NE50° on Jan 19 only.

A large pillar prominence graced the northern limb on Jan 20 and a large fan type prominence was seen on the eastern limb. Also a row of spike prominences at NW35° became two separate arcs on Jan 21. Another pillar prominence reaching a height of 147,000km was seen on Jan 22 on the NW limb.

A prominence hearth on the SE limb consisting of three pillars was observed on Jan 28 and also a low bright mass on the NE limb. A very bright T shaped prominence with much structure in the stem of the T was seen on Jan 30 on the NW limb. Also an extensive hedgerow prominence on the NE limb.

A large inclined spike prominence was seen at NW50° on Jan 31.

Filaments & plage

11 observers reported a filament MDF of 2.18 for January.

Large filaments were reported on Jan 1, 4 & 5. A straight filament about 5° long was aligned north–south on Jan 2 at N20°/200°. Two filaments were seen close to a sunspot near the northern limb and two more near a central sunspot group. Plage was also seen in association with both groups.

On Jan 6 two long dark filaments were seen, one east of AR1140 and the other south of AR1142. A chain of three filaments was seen in the SW quadrant on Jan 8 which became a chain of six filaments by Jan 9. A small region of plage was also seen around AR1145 and also near the NE limb.

Two short dark filaments preceded AR1147 from Jan 17 to 19 inclusive. Also plage seen around the rear element of AR1147. Only one short dark filament preceded the group on Jan 20.

A filament was seen on Jan 21 parallel to the W limb near a prominence hearth. On Jan 28 a long dark eastwest filament was seen SW of AR1150 and another curving filament was to the SW of the first.

CaK

All sunspots had areas of CaK activity as usual. AR1142 was not visible in white light on Jan 9 but the associated CaK area remained. AR1148 similarly was not seen in white light on Jan 19 but the CaK remained. Other CaK activity consisted of both solid patches and larges areas of 'speckles'.

Lyn Smith, *Director*

Saturn Section

A second interim report of the 2010/2011 Saturn apparition

This 2nd report provides a preliminary assessment of Saturn observations made during the period from 2011 Jan until Feb 25. This follows on from the first interim report for this apparition in the February *Journal*.[1] The following provided observations in addition to those listed in that report: Kevin Bailey, Stefan Buda, Peter Edwards, Willem Kivits, Paul Maxson and Richard McKim. All figures are oriented with south upwards.

The North Equatorial Belt (NEB) is the major belt currently visible. Some observations indicate a double structure. The South Equatorial Belt (SEB) is now partially hidden by the rings and only a narrow section is visible, lying to the south of where Ring A crosses the planet.

The major storm that erupted within the North Tropical Zone (NTropZ) during early December[1] evolved further during this period. At the end of December,[1] some bright material had started to form at a higher latitude which then spread out in longitude, although the longitudinal extent of this branch of the storm was not as extensive as that in the NTropZ, such as shown in Figure 1. The original site of the storm appeared as a bright spot which formed the f. end of the storm and was still visible during this period. It continued with its rapid positive longitudinal drift with respect to System 3. On Feb 22, the centre of this spot lay at an approximate longitude of 105° (System 3).

One of the most striking features of this storm was the appearance of this spot coupled with the bright material preceding, in both the NTropZ and at higher latitudes. Many observers commented that this had a comet-like appearance as shown in Figure 2. This spot like other regions of the storm has also shown some changes in form and intensity.

Much further p. in longitude, there have been a number of larger more distinct bright spots in the NTropZ and a few large dark spots have been observed between the two branches of the storm (Figure 3). Some spots have also been observed at latitudes other than at those occupied by the great storm.

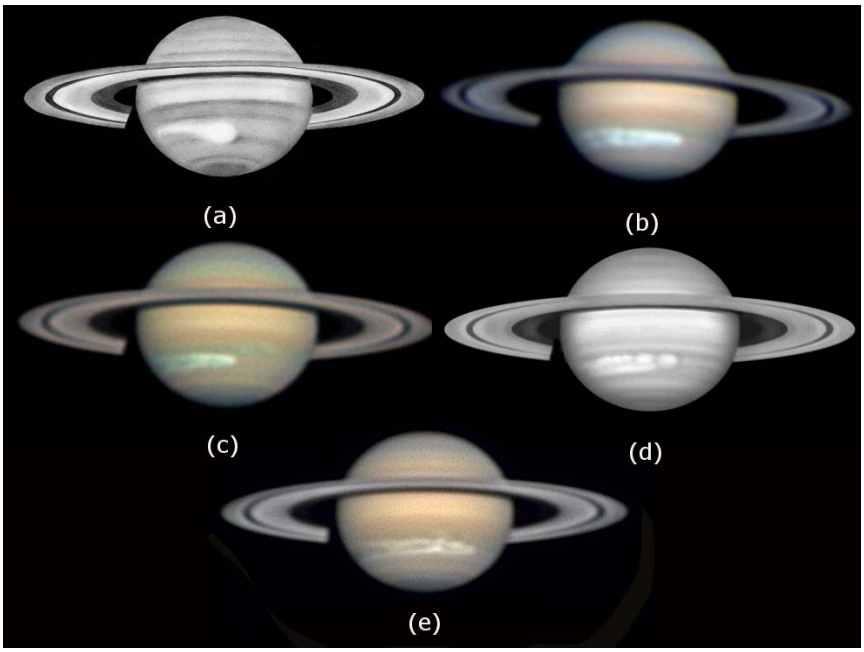


Figure 2. CCD images and drawings of the f. end of the storm showing its comet-like appearance.
(a). 2011 Jan 04, 09h34m UT. CM1= 215.0, CM2= 184.1, CM3= 308.9. 410mm DK Cass. *(Drawing by McKim).*
(b). 2011 Jan 23, 06h00m UT. CM1= 183.3, CM2= 253.9, CM3= 355.5. 203mm OG *(Image by Phillips).*
(c). 2011 Jan 28, 18h30m UT. CM1= 39.5, CM2= 296.5, CM3= 31.7. 405mm DK Cass. *(Image by Buda).*
(d). 2011 Jan 29, 04h35m UT. CM1= 26.0, CM2= 256.0, CM3= 350.2. 415mm DK Cass. *(Drawing by Gray).*
(e). 2011 Feb 20, 21h24m UT. CM1= 122.4, CM2= 352.6, CM3= 59.9. 356mm SCT *(Image by Akutsu).*

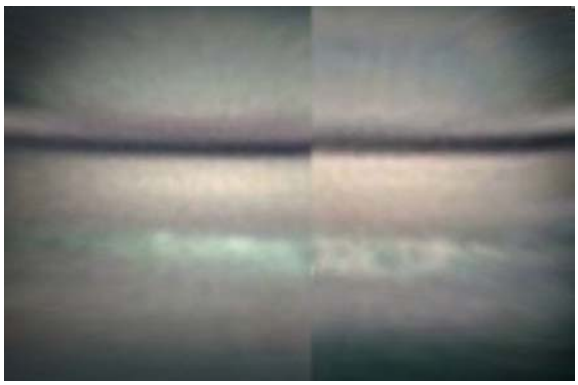


Figure 1. Map of the planet on 2011 Jan 28 compiled by Kivits, based on images by himself and Sussenbach. The map covers 210° of longitude and shows the extent of the great storm on this date.

Some lighter spots have been recorded in the NEB as shown in Figures 2(c), 2(e) and 3, and measurements are ongoing in order to establish their drifts. A light spot has also been observed further north at a latitude of approximately 56° to 57° (planetocentric). This was observed by Maxson on Jan 8 (Figure 4) and again by Akutsu on Jan 13. On both dates the spot had a System 3 longitude of approximately 180° but so far it has not been detected in any subsequent observations. More recently, in a red light image on Feb 22, Barry recorded what appears to be a faint light spot in the planet's southern hemisphere; at the time of writing, no further observations of this are available.

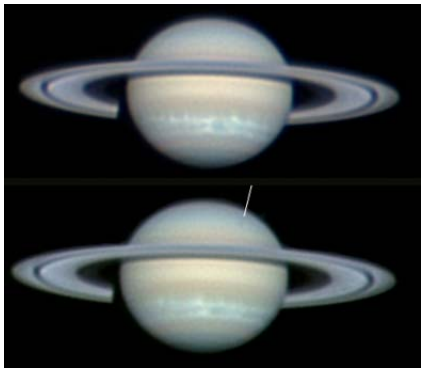


Figure 3. Changes in a dark spot in the north of the NTropZ. *(Images by Barry, 406mm refl..)*
Top: 2011 Feb 16, 19h06m UT. CM1= 263,9, CM2= 266.4, CM3= 338.6.
Bottom: 2011 Feb 24, 19h01m UT. CM1= 176.1, CM2= 280.3, CM3= 342.9. This image also shows the shadow of Tethys near to the Nf. limb as indicated.

This is a very interesting time for Saturn observers. From a UK perspective, it is hoped that the cloudy weather experienced over the country during this period will improve in order to allow more UK observers to follow these fascinating events.

Mike Foulkes, *Director*

1 Foulkes M., 'A bright storm on Saturn: An interim report of the 2010/2011 apparition', *J. Brit. Astron. Assoc.*, **121**(1), 5 (2011)

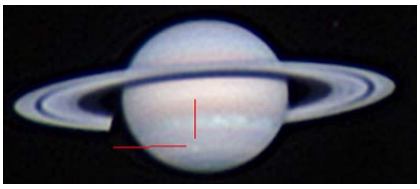


Figure 4. 2011 Jan 08, 13h05m UT. CM1= 241.6, CM2= 72.0, CM3= 191.6. 250mm Mewlon *(Image by Maxson)*. This image shows a sector of the great storm plus a light spot at higher northern latitude as indicated.

Radio Astronomy Group

An abundance of SIDs

The week of 2011 February 13–19 was an extremely active period for solar flares and I recorded more Sudden Ionospheric Disturbances (SIDs) then than were observed in the previous eight months. This abundance was even more notable given the relatively short period of each day that solar X-ray flares can influence the northern hemisphere at this time of year. The most energetic event (the X2.2 flare of Feb 15) occurred at 01:44 UT, so that European observers still have not seen an SID arising from an X-class event since 2006 December.

These repeated flares had significant effects on ionisation levels in the upper atmosphere, increasing their ability to reflect radio signals. Figure 1 shows the results of the M6.6 flare on Feb 18, obtained with a simple loop antenna plugged into a computer's sound card. Rapid cancellation or enhancement of the received signal can be seen across all eight of the Very Low Frequency (VLF) transmitters being monitored, followed by a slow return to normal signal levels as the ionisation levels dropped.

Figure 2 shows the correlation between heightened X-ray levels and received signals. Three VLF signals are shown at the top of the chart with data from the X-ray instrument on board the GOES-15 spacecraft at the bottom. Each VLF signal represents the sum of a component received directly from the transmitter (the Ground Wave) and one received after refraction by the ionosphere (the Sky Wave). Differing phase relationships between these two components result in either cancellation or enhancement effects and are dependent upon the location of the receiver in relation to the transmitter.

The X2.2 event on Feb 15 was accompanied by a Coronal Mass Ejection, producing a cloud of plasma travelling at a much slower speed than the burst of X-ray radiation. Figure 3 shows the impact of this cloud on the Earth's magnetosphere, with an interpretation of the possible sequence of events. An initial jump at 01:30 UT on Feb 18 occurred some 72 hours after the X2.2 flare. Further disturbances show the magnetosphere's continuing response to the increased solar wind.

The transit speed for plasma clouds arising from CMEs depends upon a number of factors and BAA RAG is hoping to set up a long-term study in this area. If you have a magnetometer or VLF receiver and wish to contribute, please contact me at g4csd@yahoo.co.uk

Paul Hyde, *Coordinator*

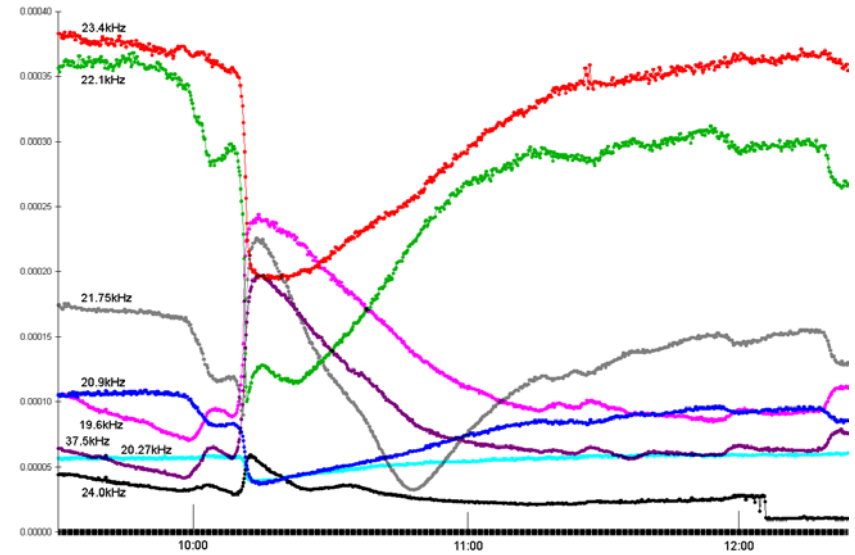


Figure 1. Received signal levels on 2011 Feb 18. *Mark Edwards, Coventry, UK*

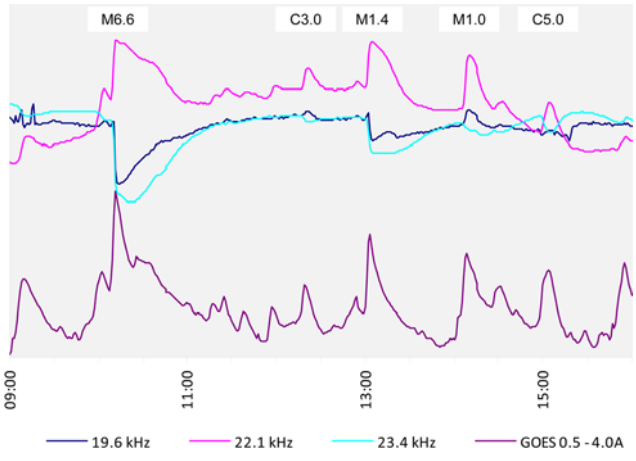


Figure 2. Received signal levels and GOES X-ray data on 2011 Feb 18. *Paul Hyde, Basingstoke, UK* and *NOAA/SWPC, Boulder, CO, USA*

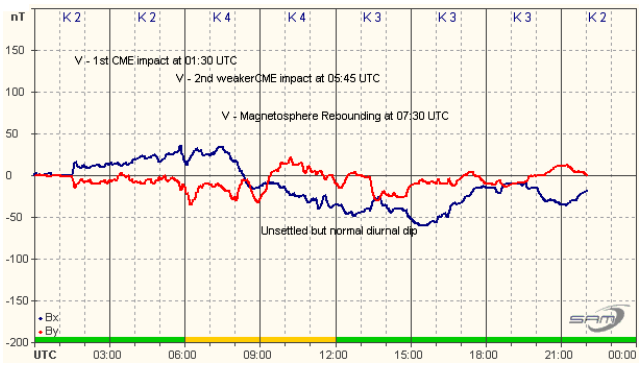


Figure 3. Magnetometer results on 2011 Feb 18. *Martyn Kinder, Haslington, Cheshire, UK*