



### Messenger at Mercury, 2008 January

In the last issue of the *Journal* [(118(1), 6–9 (2008)] we reviewed recent BAA observations of Mercury. NASA's *Messenger* spacecraft encountered the planet on Jan 14, approaching to just 200km at the closest point. As can be seen from Figure 2, it imaged part of the hemisphere that *Mariner 10* did not view during any of its three encounters of 1974–'75.

It is easy to calculate what part of the planet was sunlit. Extrapolation from the BAA *Handbook* shows that Mercury (during its E. elongation) on January 14 at 0h UT had a CM longitude of 224° and a phase of 0.82. The phase angle  $i$  is given by:

$$\text{phase} = 0.5 (1 + \cos i)$$

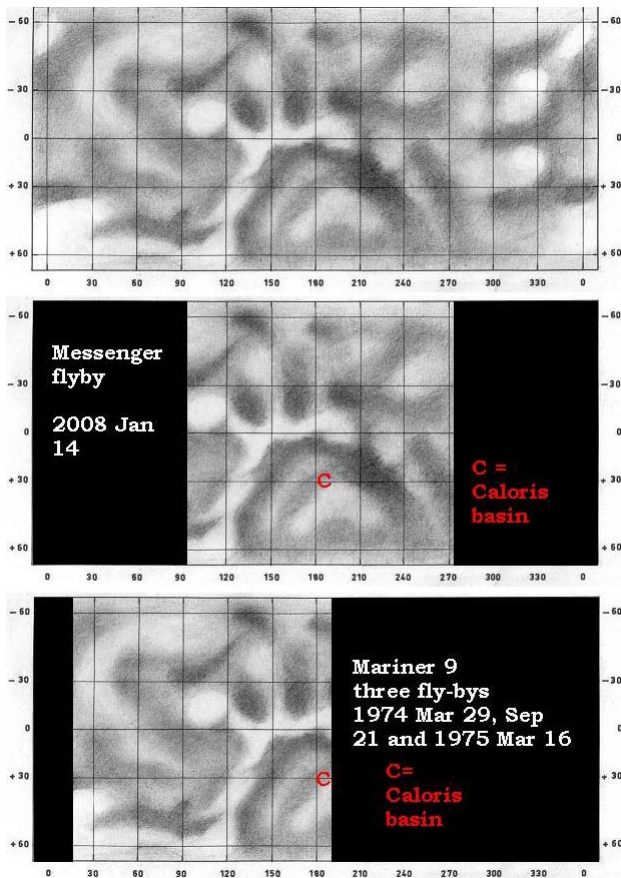
therefore  $i=50^\circ$ . This implies that longitudes from 94° to 274° (at the observable terminator) were sunlit and therefore imaged. (*Messenger* arrived later than 0h UT, but the calculation will serve our purposes.)

*Messenger* returned a number of excellent images, and in this short note we illustrate some examples (Figure 1 (on the cover), and Figures 2–4). One of the highlights of the new mission was the imaging of the entire *Caloris* basin (Figures 1 & 3), leading to a larger estimate of its diameter from 1300km to close to 1550km. This basin had appeared bisected at the terminator on the *Mariner* images. Under the near-vertical lighting prevailing this time, *Caloris* appears relatively bright and therefore geologically com-

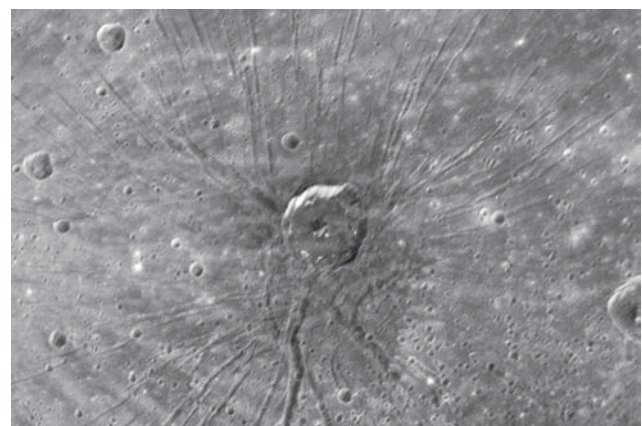
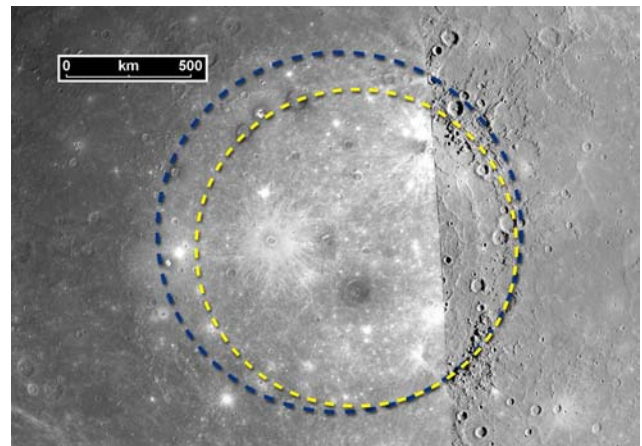
paratively young, and may be one of the largest and youngest basins in the Solar System. The basin is an area of smooth plains but is also pockmarked by a number of young craters; it also has a large number of radial and tangential lineaments and some unusual dark-rimmed craters (Figure 3A).

The *Messenger* website adds the following: 'Near the centre of the basin, an area unseen by *Mariner 10*, this remarkable feature – nicknamed 'the spider' by the science team – was revealed. A set of troughs radiates outward in a geometry unlike anything seen by *Mariner 10*. The radial troughs are interpreted to be the result of extension (breaking apart) of the floor materials that filled the *Caloris* basin after its formation. Other troughs near the centre form a polygonal pattern. This type of polygonal pattern of troughs is also seen along the interior margin of the *Caloris* basin. An impact crater about 40km (~25 miles) in diameter appears to be centred on 'the spider.' (Figure 3B).'

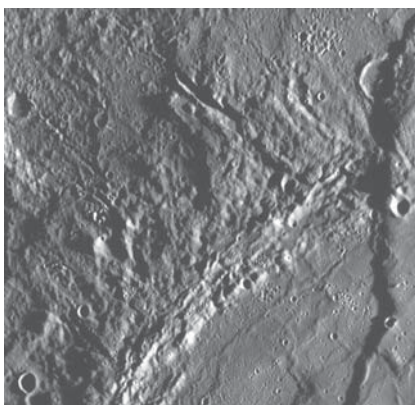
Elsewhere on the planet, *Messenger* observed further examples of scarps (Figure 4), and therefore provided more evidence of its past crustal shrinkage. It re-observed some features discovered by *Mariner 10*, under different lighting conditions (Figure 5). It also



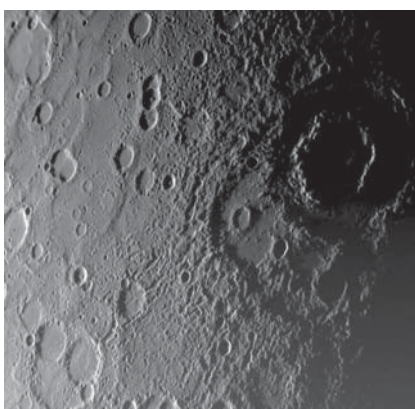
**Figure 2.** The standard albedo map of Mercury, compiled from ground-based photographs and drawings, after Camichel & Dollfus (1968), upon which are superimposed the longitudes imaged by *Mariner 10* and *Messenger*. South is uppermost.



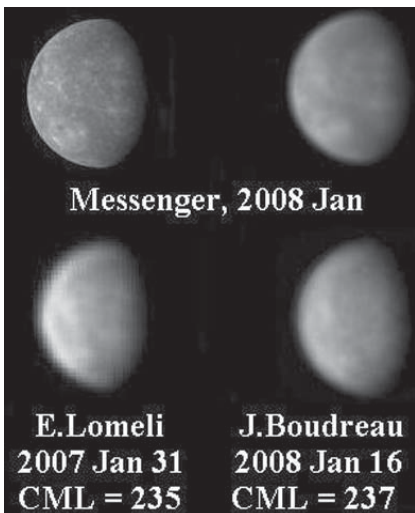
**Figure 3A (top).** A close-up view of *Caloris*. On the left, *Messenger*'s view; stitched onto the right is a collage from *Mariner 10*, under more oblique lighting. Note how the modern estimate of the basin diameter (in blue) has been revised upwards from that of the 1970s (in yellow). North is uppermost.  
**Figure 3B (bottom).** The striking pattern of fractures in the centre of *Caloris* basin, centred upon a 40km wide impact crater. North is uppermost.



**Figure 4.** Mercurian cliffs: a new long scarp on the previously unknown hemisphere. This *Messenger* image is 200km wide. North is uppermost.



**Figure 5.** *Vivaldi*, a double-ringed crater whose outer diameter is about 200km. Craterlets down to 1km diameter can be resolved. This crater had previously been imaged by *Mariner 10* at lower resolution and under different illumination. North is uppermost.



**Figure 6.** Recent CCD images by Ed Lomeli (Sacramento, CA, USA, 235mm SCT) and John Boudreau (Saugus, MA, USA, 279mm SCT) compare very well with *Messenger*'s image of the *Caloris* hemisphere. (Boudreau's image kindly supplied by Frank Melillo.)

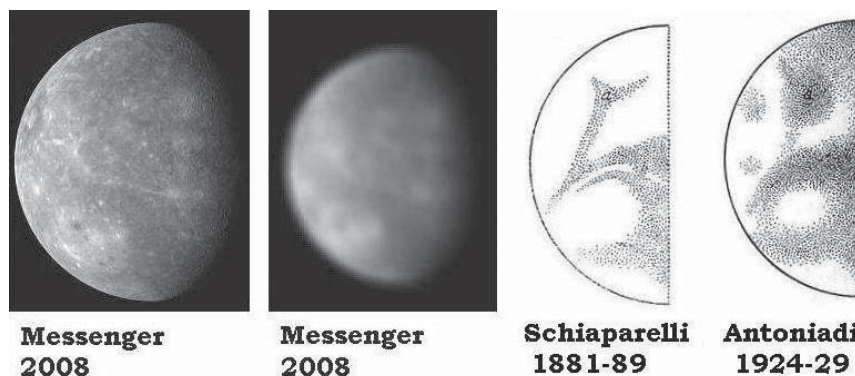
carried out spectroscopic analyses to determine the surface mineralogical composition as well as investigating the planet's sodium 'tail', magnetic field and magnetosphere.

It is important to compare *Messenger*'s new images of the previously unmapped hemisphere with Earth-based images and drawings: see Figures 6–7. In Figure 7 we compare the classic work of G. V. Schiaparelli and E. M. Antoniadi with a blurred and degraded version of Figure 1. Both observers had clearly mapped the *Caloris* basin with its darker surroundings. In Figure 6 we compare more recent CCD work. Again the ac-

cord is very good, and the resolution of the ground-based work surprisingly high. Another puzzling feature of the older telescopic work was the fact that Mercury's S. cusp always appeared darker than the N. one. These latest images show that this is simply because the S. polar region is more densely cratered and rougher than the northern.

*Messenger* will encounter Mercury again in October before it finally enters into orbit around the innermost planet. Watch this space!

**Richard McKim, Director**



**Figure 7.** Reduced and blurred copies of Figure 1 compared with the classic work of Schiaparelli and Antoniadi. South is uppermost. All illustrations show *Caloris* as a light oval with dusky borders.

## From the President: Meetings!

Meetings? How many of our members actually attend the very many excellent meetings that our Meetings Secretary organises each year? Some are certainly well attended but others... less so. I realise that for some, it is very difficult due to many factors, but for others it must be because they've never ever attended a BAA Meeting anyway or perhaps that they did so many years ago and found it, well, less than stimulating. Let me assure everyone that All BAA Meetings are Excellent nowadays!

So, what types of meetings are organised each year? This year (from October 2007 to September 2008) there are four 'Ordinary Meetings' which are now held in the splendidly refurbished Burlington House (BH), Piccadilly. Sometimes these take place on a Saturday afternoon but more often on a Wednesday evening. These meetings have been among the least well supported recently with attendances sometimes dropping below 70, but hopefully this will improve now we are back in our permanent home.

All other 'general' meetings are 'one-offs', although they take place annually. The AGM in October must be held in London according to the by-laws, and also takes place at BH on a Wednesday. The Christmas Meeting, which is really a special 'Or-

dinary' meeting, is again held in BH but with a special keynote speaker. The Exhibition Meeting, one of our premier meetings, is currently being held in the National Space Centre; and finally there is the Out of London Meeting, which as the name suggests, may be held anywhere other than London! This year it will be in Cambridge as part of the AAVSO/VSS extravaganza.

We then have a number of extended meetings. Firstly, there is the infamous 'Winchester Weekend', this year moving away from King Alfred's College to nearby Sparsholt College; the first time in its 40-year-plus history that 'Winchester' will not be at King Alfred's. In addition, there is also the BAA Out of London Weekend. (I'm not sure why it is so termed as we have never had a weekend meeting in London to my knowledge.) These are starting to get a reputation for excellence, as not only are the speakers as good as at any meeting but the venues are great and the visits to local attractions extremely interesting. Last year's in Glasgow (see the February *Journal*) was a case in point and this year's in Dublin promises to be just as successful.

The BAA is of course principally an association of observers. Therefore, to encourage more people to become active in



this area we have the Observers' Workshops, and in February we had the ninth in the series, which concentrated on observing the planets. Then there are the 'Back to Basics' meetings, which are intended for newer members or even those who have not yet joined the Association and wish to know more. They are usually organised in conjunction with a local society and are proving very popular.

Finally there are the Section Meetings. Not all Sections hold an annual meeting, for some may not be suited to such a regular event. But given that delegates of such meetings are a subset of the whole BAA membership, they are usually very well attended, often with a similar attendance to a full BAA Ordinary meeting.

Why are our 'Ordinary' meetings sometimes rather poorly supported? The venues are usually excellent (like BH) and the speakers can be the same as those who will speak at a Section meeting which will attract a relatively larger audience. What is more, you usually have to pay, only a modest sum admittedly, for a Section Meeting, whereas Ordinary meetings are free! And you do get refreshments.

We need our meetings as one way of attracting and retaining new members as well as informing existing members about many of the exciting developments in modern astronomy. So, do think about coming along to a meeting if you have not already done so – you will find it very enjoyable. In-



An almost-capacity audience for the talks at a recent Exhibition Meeting. Photo: Hazel McGee

deed, if you are a society member, why not involve several others as well and make a day, or at least an afternoon or evening, of it? And don't forget, the President will be very happy to meet you personally and make you welcome.

Finally, please do remember that meetings don't organise themselves. At the time of

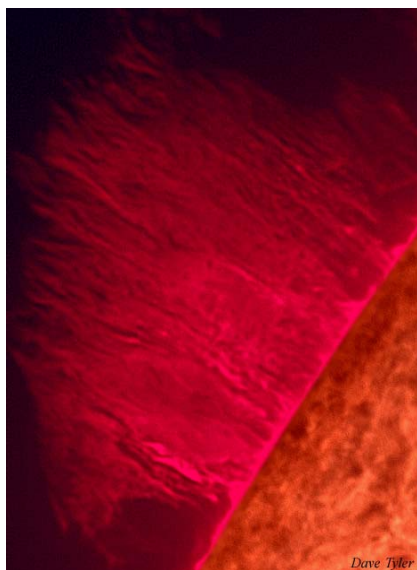
writing I've not had a reply to my request for somebody (or bodies) to help Hazel Collett organise the Back to Basics Workshops (see also page 113). I'd be delighted to be able to write in the next *Journal* that someone (or two) has offered to fill that rôle.

**Roger Pickard, President**

## Solar Section

### 2007 November

Although solar activity was very low in November, there was a slight rise compared with October. All observers reported the



Dave Tyler

Prominence on 2007 Nov 9, imaged by Dave Tyler.

following days as blank: 1–5; 8–15; 19–21; 27–29. Only three small groups appeared during the month.

**AR973** S10°/020° made a very brief appearance on Nov 6 type Axx. This spot could be a reappearance of AR972 which occupied a similar position in early October.

**AR974** N12°/201° developed on the disk close to the central meridian on Nov 16 type Bxo. The group developed to type Cao on 17th but was not seen thereafter.

**AR975** N02°/101° appeared on Nov 24 type Bxo, remained unchanged the next day but decayed to type Axx on 26th and not seen thereafter.

4 observers reported a Quality MDF Q=0.14.

### H-alpha

#### Prominences

12 observers reported a prominence MDF of 2.48 for November. It was another quiet month with few prominences of note.

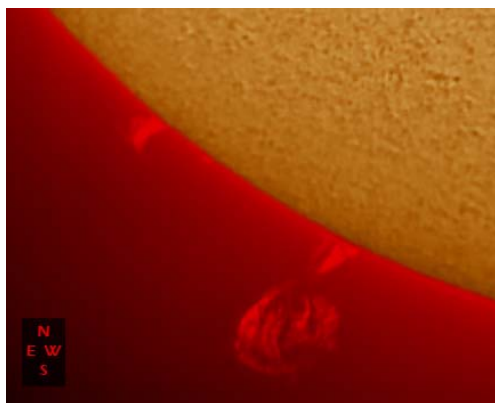
On Nov 1 Monty Leventhal reported an arch prominence on the NW limb rising to a

height of 65,000km and Ken Medway observed a tall slender arch on the NE limb.

On 9th Peter Meadows observed a striking prominence on the SE limb having the appearance of 'cumulus cloud' with a clear gap between the 'cloud' and the solar limb. On the same day, Bill Leatherbarrow observed a 'huge complex prominence' at SSE limb accompanied by two smaller adjacent prominences further to the E. Both observers also reported a number of small prominences on the E and W limbs.

Monty Leventhal observed an arch prominence on Nov 14 just E of the solar north pole rising to a height of 65,000km and Ken Medway reported a tall spike on the NE limb. Bill Leatherbarrow saw a number of small prominences on Nov 17 including a large detached fan prominence at the SW limb. Brian Mitchell also reported some bright H-alpha plage on Nov 16 and 17 around AR974.

Another arch prominence was seen on 22nd just to the E of the solar north pole rising to a height of 56,000km, and Lee Macdonald observed three small prominences on the 23rd, one of which formed a 'delicate loop'.



Prominence at 10:50 UT on 2007 Nov 03; image by Peter Lawrence.

Monty Leventhal reported a jet-type prominence on the SE limb rising to a height of 84,000km on Nov 29 and also an arch and a surge further round the limb to the S.

### Filaments

A medium sized dark filament accompanied by a smaller companion were seen just in from the N limb on Nov 9. On 17th a dark filament was observed in the NW quadrant and on 23rd a short filament was seen near

### BAA sunspot data, 2007 November–December

Day	November		December	
	g	R	g	R
1	0	0	1	7
2	0	0	0	6
3	0	0	1	7
4	0	0	1	11
5	0	0	0	7
6	0	4	2	26
7	0	2	1	21
8	0	0	2	30
9	0	0	2	38
10	0	0	1	28
11	0	0	1	32
12	0	0	1	30
13	0	0	1	36
14	0	0	1	33
15	0	0	1	26
16	1	12	1	21
17	0	3	1	13
18	0	1	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	1	0	0
23	0	1	0	0
24	1	10	0	0
25	0	3	0	0
26	0	2	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	2	0	0
31			0	0

MDFg 0.09 (47)      0.55 (48)  
 Mean R 1.32 (41)    12.01 (40)

the CM in the northern hemisphere, with a pair of short filaments near the SE limb.

### Flares

No flares were reported.

### CaK

Brian Mitchell reported that AR973 and AR974 were bright in CaK with AR974 being particularly bright on Nov 17.

### 2007 December

December saw a slight increase in solar activity on the previous month with the southern hemisphere still dominant. Most observers reported a blank disk on Dec 1–3 and 5 whilst all observers reported Dec 18 to 31 inclusive as spotless.

**AR976** S09°/333° made a brief appearance on Dec 1&2 type Bxo consisting of two small spots but was not seen thereafter.

**AR977** S05°/290° was first seen on Dec 2 as an Axx spot which by the next day had developed to type Bxo consisting of 3 small spots. The group developed to type Dso on 4th and 5th before declining back to Bxo on 6th. The group was not seen the following day.

**AR978** S08°/225° appeared on Dec 6 type Dso. The following day it was type Dao and by the 8th it had developed a small penumbral spot in the centre surrounded by 8 satellite spots. On Dec 10 the group had expanded into a roughly triangular formation, the leader of which was a marked penumbral spot with another one at the 'apex' of the triangle which had a double penumbra type Eai. By the 11th the group was approaching the CM and occupied an area estimated to be 170 millionths. Having crossed the CM on Dec 12 the group had decreased in area slightly but retained its triangular shape type Dai. On 13th there were still 5 penumbral spots

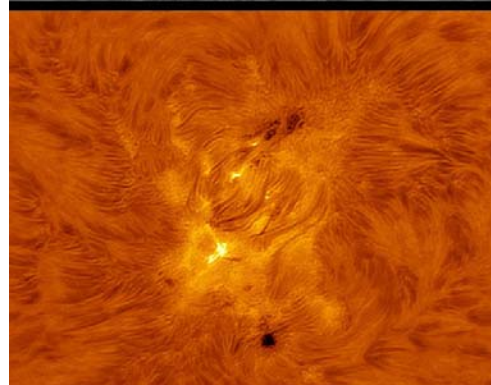
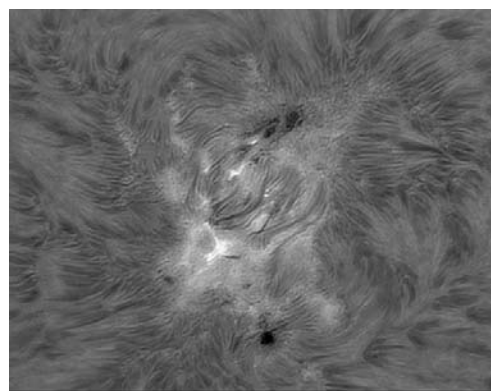
### North & south MDF of active areas g

	MDFNg	MDFSg
November	0.07	0.03 (33)
December	0.04	0.58 (31)

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

amongst 25 minor spots. By Dec 15 the group was type Dkc with the largest spot being amongst the following part of the group. The total area had increased to 340 millionths. The following day the overall size and number of spots had reduced and on Dec 17 the group approached the western limb occupying an area around 100 millionths type Cao. The group was not seen after this date.

**AR979** N07°/329° this group developed on the disk near the western limb on Dec 8 as a group of 4 spots type Cao. The group was still evident the following day type Hax but was not seen on Dec 10.



AR978 in white light and H-alpha on 2007 Dec 13, by students at the Langkawai National Solar Observatory, Malaysia, submitted by P. Casquinha.

### H-alpha

#### Prominences

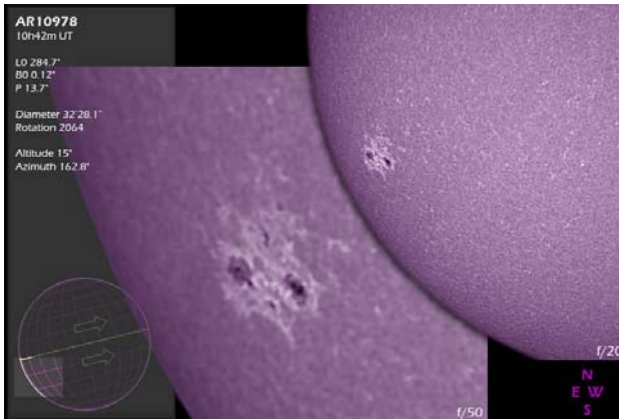
No remarkable prominences were reported during the month.

Monty Leventhal recorded a curved spike prominence on the SE limb on Dec 1 rising to a height of 130,000km and another spike prominence on Dec 2 on the NE limb rising to a height of 116,000km.

On Dec 3 Peter Meadows recorded a curved spike prominence on the NE limb which was the most striking for the month.

Bill Leatherbarrow reported several small prominences around the disk on Dec 5 and a similar observation on Dec 10.

On Dec 19 Lee Macdonald observed what a first looked like a detached promi-



AR978 imaged in CaK on 2007 Dec 07 by Peter Lawrence.

nence at the W limb near to AR978 but closer examination revealed a bright tip with a faint tail extending down to the chromosphere.

Eric Strach reported a pillar prominence on Dec 28 at N28° on the NE limb, bending

slightly to the south towards a small prominence at N29° with a small detached blob between.

On 29th Bill Leatherbarrow observed a large 'disparition brusque' at the SE limb with associated incomplete arch prominence further to the south, and a large, faint flame prominence at the WNW limb. Ken Medway also recorded a tall pillar prominence on the NE limb.

#### Filaments

On Dec 10 Bill Leatherbarrow recorded a dark filament in the SW quadrant. Few other filaments were reported and were all in association with AR978.

#### Flares

Alan Heath reported flares on 3rd, 10th and 13th. Ernest Richardson recorded a flare on 13th also.

On Dec 17 Monty Leventhal in Australia recorded a flare in association with AR978, type 1B commencing at 21:10 UT, peaking at 21:31 and ending at 21:47. Monty also recorded a further flare on Dec 31 in the southern hemisphere close to the E limb.

#### CaK

Reports were received from Ken Medway and Brian Mitchell.

A very extensive patch was seen associated with AR978 on Dec 9, 11 and 14 (see images by Peter Lawrence). A bright ring patch was seen on Dec 19 at high latitude N30°/138°. Two further bright patches were seen on Dec 14 at N12°/150° and N28°/150°.

**Lyn Smith, Director**

## Deep Sky Section

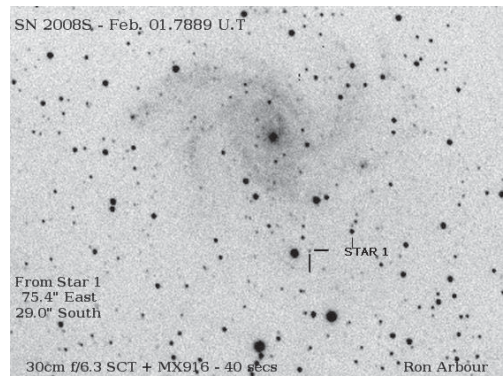
### More supernova discoveries for Ron Arbour and Tom Boles

Ron Arbour (South Wonston, Hampshire) has a habit of discovering supernovae during the first two or three months of the year and his latest continues this trend. SN 2008S was detected on the evening of 2008 Feb 01. Previous discoveries were made in March 2007 (SN 2007av and SN 2007ax) and March 2005 (SN 2005au). His latest discovery is in galaxy NGC 6946, a magnitude 9 spiral straddling the border between Cepheus and Cygnus at RA 20h 34.8m and Dec +60° 09' (2000.0). The SN itself is offset 53.1" west and 195.5" south of the galaxy centre.

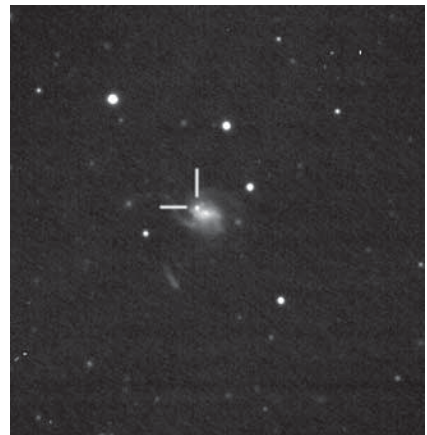
Ron operates two telescopes for his patrol work, a commercial 30cm f/6.3 Schmidt-Cassegrain and a home constructed 40cm f/5 Newtonian. This discovery, which was at magnitude 17.6, was made using the 30cm Schmidt-Cass and a Starlight Xpress CCD camera. It was announced on CBET (*Central Bureau Electronic Telegram*) 1234 and on TA (*The Astronomer*) circular E2416, from which some of this information is taken.

Confirmatory images were obtained by Tom Boles (Coddendam, Suffolk) and follow up images by Martin Moberley (Cockfield, Suffolk). A spectrum obtained by the Nordic Optical Telescope on Feb 4.83UT (TA circular E2418) suggested it was a young reddened type II<sub>n</sub> supernova. To give some idea of the work involved in supernova searching; on this particular night Ron was imaging from early evening until 02.30 the next day and acquired over 900 images – each needing to be individually checked. For anyone wanting to carry out a supernova patrol on just one galaxy there can be few better choices than NGC 6946. Nine supernovae have now been discovered in this galaxy since 1917. Ron's discovery image with the supernova marked, along with offsets from his calibration star, is given. This discovery brings Ron's supernova total to 19.

Following Ron Arbour's discovery Tom Boles made another of his own, on Febru-



Discovery image for SN 2008S in the 9th magnitude spiral galaxy NGC 6946. Ron Arbour.



Discovery image by Tom Boles for SN 2008X on 2008 February 07.

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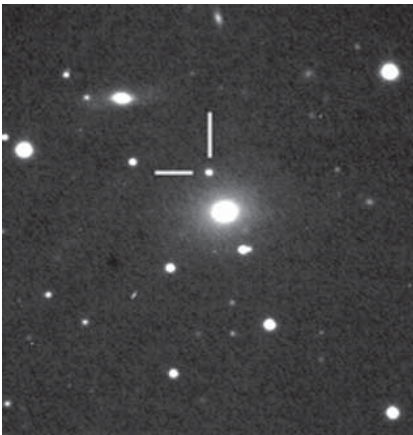
37° 11' 29.1" N, 008° 35' 57.1" W

Tel: 00351 282 471180

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Discovery image for SN 2008af in UGC 9640, 2008 February 09. *Tom Boles.*

ary 7.005UT detecting a 'new star' in NGC 4141, a magnitude 14.4(p) galaxy close to delta UMa. Designated SN 2008X and an-

nounced on CBET 1239 and 1242, and TA circular E2419 the supernova was at magnitude 17.6 and was discovered using a 35cm Schmidt-Cassegrain with Apogee AP7 CCD camera. Tom's position for the supernova at RA 12h 09m 48.33s and Dec. +58° 51'01.6" puts it 7.6" east and 4.6" north of the galaxy centre. An independent discovery of this supernova was reported by D. Madison, W. Li, and A. V. Filippenko at the University of California, Berkeley, on an unfiltered KAIT image taken on Feb. 7.52 in the course of the Lick Observatory Supernova Search. This supernova has now been determined to be a type IIp.

Two nights later on February 9, Tom confirmed that supernova discoveries often come in twos when he found 2008af in galaxy UGC 9640, a magnitude 14(p) galaxy in Boötes. Announced on CBET 1248 and TA circular E2420, the type Ia supernova lies at RA 14h 59m 28.51s and Dec. +16° 39'12.2",

putting it approximately 12.4" east and 29.6" north of the galaxy centre. This discovery, which brings Tom's total to 110, was made with the same equipment as SN 2008X.

Since I wrote the above Tom has discovered three more supernovae – and all during the same night. These are listed below. Full details, with discovery images, will appear in the June *Journal*.

2008ai in MCG +06-24-39. Discovered on Feb. 13.014UT at magnitude 17.7;

2008aj in MCG +06-30-34. Discovered on Feb. 13.134UT at magnitude 16.9;

2008ak in UGC 2519. Discovered on Feb 12.774 UT at magnitude 18.5.

Announcements of these discoveries were made on CBET 1256, 1259 and 1260 respectively.

**Stewart L. Moore**, *Director*

### Talking astronomy at Rathillet Primary School

At Rathillet Primary School near St Andrews in Fife, pupils have been encouraged by their teachers to focus this term on 'astronomy'. Both classrooms have been adorned by models and pictures of the planets and spacecraft constructed by the pupils and teachers. Two of the 17 pupils own their own telescopes and all the children display knowledge of the solar system that would put most adults to shame!

On February 7 I was invited to give the school a talk about astronomy. Pupils were 'launched' into space via a PowerPoint display, completing a tour of the solar system before exploring the galaxy and on into the universe before returning to Earth via a wormhole! Congratulations to all at Rathillet school for achieving such a high level of success. The school is following up the talk with visits to the observatories at St Andrews and Dundee.

**Lyn Smith**, *Director, Solar Section*



## Mars Section

## The opposition of Mars, 2007 – Interim report

## Introduction

Since early last summer, the Director has received a steady stream of images and drawings of the present opposition. Preliminary results were conveyed by BAA *Circulars*,<sup>1</sup> an e-mailed dust storm alert notice sent to many active contributors, and October's Council Report.<sup>2</sup> Observing tips by the Director appeared in a popular magazine.<sup>3</sup>

## Encircling dust storm, 2007 June

This event was first imaged by David Moore over eastern *Noachis* on June 24. Next day the bright streak had extended in length (Figure 1A), and impinged upon NW *Hellas*. Further activity began around *Solis Lacus* which soon extended along *Valles Marineris*, and Don Parker's image (Figure 1B) shows several discrete, bright yellow clouds. Planet-encircling status was rapidly reached, and all albedo features faded considerably, though large features such as *Syrtis Major* were never completely lost. This encircling storm was very effectively followed upon a tiny disk, which at the start was less than 7 arcsec across! We shall not review the storm here in any detail, suffice to write that atmospheric dust was settling by September, and that (as usual) the albedo features did not return fully to their normal intensity at once. NASA's twin Mars rovers operating on the planet's surface had to suspend operations due to the lack of power being generated by their solar cells, and a montage of sky images from the martian surface<sup>4</sup> showed the extent and duration of the storm from their point of view.

The seasonal date of this event (at  $L_s=264^\circ$ ) is typical, and close to that of the famous and long-enduring event of 1971 ( $L_s=260^\circ$ ). The last planet-encircling storm to occur was that of 2001.<sup>5</sup> A complete catalogue of past dust storms has been published by the Director.<sup>6</sup>

## Local dust storm, 2007 November

Jésus Sánchez imaged a small bright cloud over *Chryse Planitia* (telescopic northern *Xanthe*) and others over *Nilokeras* on November 2 (Figure 1C). It expanded to obscure *Nilokeras* and southern *Mare Acidaliuum*, dust spreading into telescopic *Chryse* to the south. It quickly faded.

## Changes in the dark markings

A number of notable changes have occurred as a result of the encircling storm, some becoming visible well before the dust had settled. The principal ones are as follows,

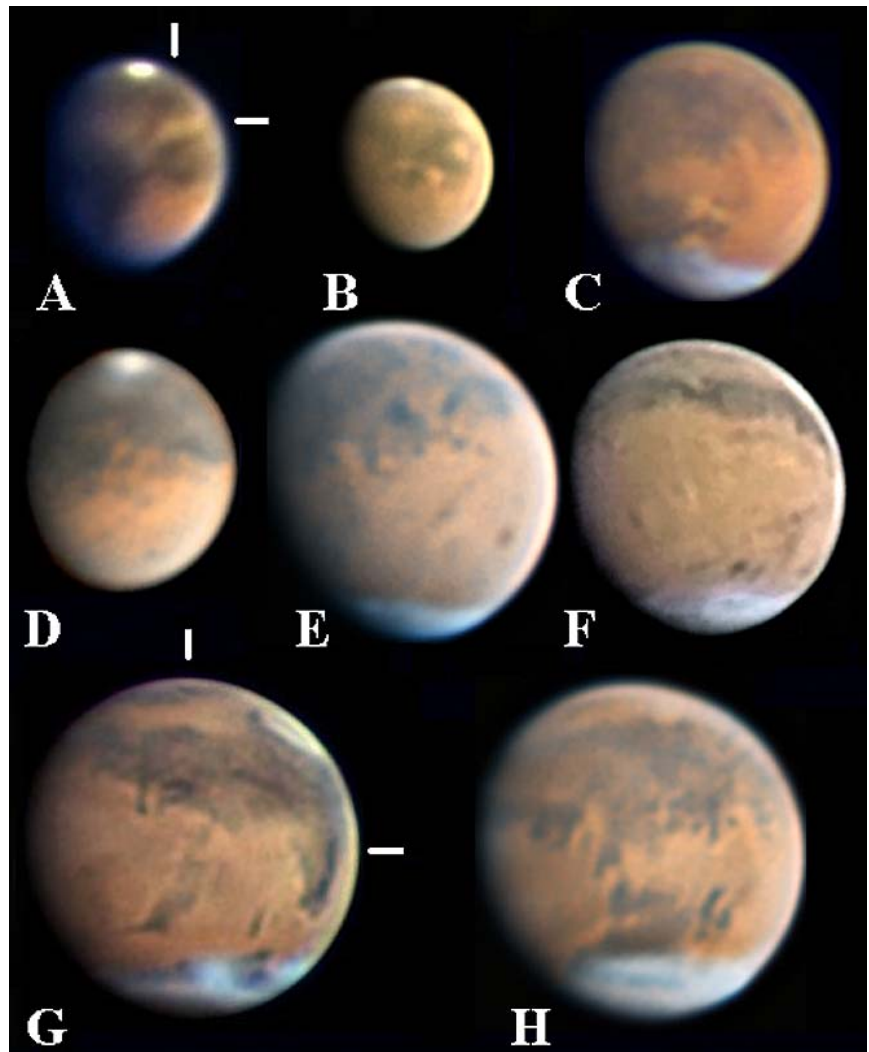


Figure 1. CCD and webcam Mars images, 2007

- A. June 25d 10h 31m, CML=298°, 300mm refl., J. Melka. Small S. polar cap; nascent *Noachis* dust storm visible as light yellowish streak.  
 B. July 19d 09h 32m, CML=49°, 410mm refl., D. C. Parker. Tiny SPC; bright dust clouds near *Solis Lacus*, over *Candor* and along *Valles Marineris*.  
 C. November 2d 04h 54m, CML=47°, 260mm refl., J. R. Sánchez. Small bright dust clouds in *Chryse Planitia* and over *Nilokeras*.  
 D. June 6d 08h 47m, CML=100°, 356mm Schmidt-Cass., D. A. Peach. Immediately before the planet-encircling dust storm, *Solis Lacus* remains unchanged from 2005.  
 E. September 27d 08h 57m, CML=85°, 410mm refl., D. C. Parker. *Solis Lacus* orientation changed; *Sirenum Sinus* is extended to meet *Gallinaria Silva*; *Olympus Mons* appears as a warm-coloured dusky spot on the morning side; N. polar hood extensive.  
 F. October 31d 11h 02m, CML=155°, 356mm Schmidt-Cass., E. Grafton. *Propontis* appears as two dark spots; the surroundings of *Cerberus* remain faint; irregular NPH; weak p.m. cloud over *Arsia Mons*.  
 G. November 23d 06h 21m, CML=236°, 356mm Schmidt-Cass., P. Casquinha. The faint N-S dark streak (arrowed) crossing *Aethiopsis* from *Hyblaesus* to NW *Mare Cimmerium* shows complex structure; NPH highly irregular with bright patches at S. edge.  
 H. November 10d 08h 30m, CML=26°, 410mm refl., D. C. Parker. *Chryse Planitia* dust storm terminated; *Baltia* visible through NPH; weak p.m. clouds.

but several other minor changes were noted.

1 A change in orientation of *Solis Lacus* was

apparent even in early August. The feature is now oriented *Sp.* to *Nf.*, being drawn out on the W. side towards *Phoenicus*



*Lacus*, somewhat as in 1926–'29,<sup>6</sup> but it is considerably thinner and smaller than it was before the storm, or during those years. Compare Figure 1D, pre-storm, with Figure 1E, post-storm. *Sirenum Sinus* also became extended northeastwards into *Gallinaria Silva*.

- 2 A new streak (also since August) has appeared across *Aethiopsis*, from the *f.* side of *Elysium* around the *Hyblaeus* secular darkening to the NW end of *Mare Cimmerium* (Figure 1G). Rather similar features were observed in this location in 1933 and in the late 1960s.<sup>6</sup>
- 3 *Propontis* now appears as two dark dots, separated by a light gap (Figure 1F), greatly resembling its 1930s and '40s aspect.<sup>7</sup> For many previous oppositions it had appeared as a dark rod-like marking, orientated E–W.
- 4 The N. end of the *Syrtis Major* seems more rounded than previously, and the intensity difference between its *p.* and *f.* sides seems greater.

### Polar regions

2007 was an excellent year to witness various seasonal phenomena in the polar regions. The S. polar cap was visible in the early observations, together with its seasonal shrinkage, but later the sub-Earth latitude was northward, allowing a view of the transition from hood to ground cap. A first indication of change was the appearance of bright patches within the hood, especially on the morning side, and sometimes these appeared brilliant. The best images showed complex detail and swirls. The brilliant spots – often bluish in tone – are generally taken to be surface frost, the fresh ground cap apparently showing through the hood at such points, but some of these temporary bright features lay southward of the hood/cap boundary, and must have been cloud or temporarily frosted areas adjacent to that region. There were a number of observations of very obvious E–W rifts in the hood, including the well-known ‘slit’ over *Baltial* northern *Mare Acidalium*, which was first observed by Dawes in 1864 (Figure 1H).

### Meteorology: white crystal clouds

During the period of enhanced warming of the atmosphere by dust particles, signs of active meteorology were low or absent, though white cloud activity had been observed earlier. In 2007 November there were signs of increasing morning and evening cloud activity. At around  $Ls=50^\circ$  (e.g., from 2008 late March onwards) we can expect to see the start of the formation of the Equatorial Cloud Band, as discussed in detail in our final Section Reports for 1995,<sup>8</sup> 1997<sup>9</sup>

and 1999.<sup>10</sup> This phenomenon is sensitive to atmospheric dust-loading, so the accurate timing of its seasonal appearance is of interest.

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**R. J. McKim, Director**

### Notes and references

- 1 BAA *E-Circular* No. 296 (2007 June 28); BAA *Circular* No. 808 (2007 July 1).
- 2 R. J. McKim, *J. Brit. Astron. Assoc.*, **117**(5), 249–250 (2007)
- 3 R. J. McKim, BBC *Sky at Night* magazine, 2007 December, pp 65–69.
- 4 Sky opacity rose sharply during the onset of the storm so that at maximum only 8.4% of visible incident light was being transmitted to the solar panels. Opacity began to fall after July 19. Mission control decided not to move *Spirit's* robotic arm for the 20 days prior to 2007 August 6 due to lack of power, and no driving was done till Aug 21. For further information see the JPL website: <http://marsrover.nasa.gov/newsroom/pressreleases/index.html>
- 5 For a preliminary account of the encircling storm of 2001, see R. J. McKim, *J. Brit. Astron. Assoc.*, **112**(3), 119–121 (2002). A final paper is presently in preparation.
- 6 R. J. McKim, *Mem. Brit. Astron. Assoc.*, **44** (1999)
- 7 The following books reproduce a Mars map for the 1939 and 1941 oppositions: G. de Vaucouleurs, *The Planet Mars*, Faber & Faber, 1950; *Physics of the Planet Mars*, Faber & Faber, 1954.
- 8 R. J. McKim, *J. Brit. Astron. Assoc.*, **115**(6), 313–333 (2005)
- 9 R. J. McKim, *ibid.*, **116**(4), 169–186 (2006)
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## Rob McNaught names asteroid for Harry Ford

Comet discoverer Robert H. McNaught has honoured his old friend and mentor Dr Harry Ford MBE by naming an asteroid after him.

The small main asteroid belt body ‘Harryford’, no. 6907, was discovered by Rob at Siding Spring in 1990 November. Harry, when he was curator of the Mills Observatory in Dundee in the 1970s, gave young Rob full use of the building and its instruments. Harry later became Planetarium Lecturer at the Old Royal Observatory, Greenwich, and is now retired.

**Dave Gavine**



Photograph of C/2006 P1 (McNaught) by the discoverer, taken with a Canon Eos 5D digital camera on 2007 January 20 at Siding Spring, Australia. (© 2007 Robert H. McNaught.)