

Mars Section

Mars in 2009–2010: 2nd interim report

General

Despite the extremely cold winter and difficult observing conditions, reports were received from some 120 observers, and the telescopic work has continued (remarkably) till late August this year. Most observers managed considerably fewer observations than in recent years. Current work was briefly discussed in the 1st interim report,¹ in the Reports of Council,^{2,3} and in two E-circulars.^{4,5}

Albedo features

These seemed quite similar to 2007–'08, except that *Solis Lacus* had largely returned to its former shape and orientation. The map by Martin Lewis (Figure 1) nicely summarises the present appearance of the markings. The patchy linear feature in *Aethiopsis* (produced by the 2007 global dust storm) persists, as shown in Bill Leatherbarrow's image (Figure 2A). According to Figure 1 and to David Arditti's image in Figure 2B, the dark streak across *Noachis* (also generated by the 2007 global storm) continues to exist in place of *Pandorae Fretum*.

Dust storms

In 2009 Nov, Bill Flanagan (USA) and others caught a small dust storm in *Utopia*, which was surely created by a small frontal system moving off the N. polar cap. According to Wang,⁶ such front-generated events can begin only within either of two annual L_S 'windows'.

Another N. polar dust event, the subject of BAA E-circular no. 472,⁵ was observed in late 2010 Jan in *Baltia*. It soon disappeared, but a slight orange tint remained upon the NPC. An image by Damian Peach (Figure 2C) which captures the event on its first day shows that it was quite complex at high resolution.

Orographic clouds

We were well placed to see the evening orographic clouds this time, over the *Tharsis Montes*, *Olympus Mons* and also *Elysium Mons*. One example from a long sequence of images by Andrea Tasselli (Figure 2D) will suffice: the Director also had many fine views of these features. After opposition the *Tharsis Montes* (as well as *Olympus Mons*) showed up as dusky spots on the morning side of the disk.

White clouds

The Equatorial Cloud Belt (ECB) appeared seasonally right on schedule, and was caught in many post-opposition observations. Paul Abel's blue light drawing (Figure 3A) shows an apparently continuous belt of white wa-

ter-ice cloud from limb to limb. Observations in blue light will always enhance white clouds: Peter Grego's drawing (Figure 3B) shows other white clouds over *Elysium*, the morning limb, etc.

N. polar cap

The shrinkage of the cap was followed in great detail. From 2009 Nov onwards, an annular rift (drawn by David Gray in Figure 3C) was beginning to emerge, and was notified to observers by BAA E-circular no. 467.⁴ This feature had been observed in the 1990s series of aphelic oppositions, but better quality imaging has revealed it in much greater detail this year. The cap sometimes showed an irregular edge, as shown (for instance) by Ken Howlett in Figure 3D. Long after opposition, observers were able to catch *Olympia* separated from the cap.

Past reports

Our analysis of the great perihelic opposition of 2003 was published in the October and the current *Journals*. The final report on the 2005 opposition was accepted for publication by Council at its meeting in September, whilst the 2007–'08 report is about half completed, so that the Director hopes to be working upon the full Section Report for the present apparition during the next year, thereby bringing our work up to date. A list of all contributors will appear in the final reports.

Richard McKim, Director

References

- 1 R. J. McKim, *J. Brit. Astron. Assoc.*, **120**(1), 10–11 (2010)
- 2 R. J. McKim, *ibid.*, **119**(5), 266–267 (2009)
- 3 R. J. McKim, *ibid.*, **120**(5), 299 (2010)
- 4 BAA E-circular no. 467, 2010 Jan 28
- 5 BAA E-circular no. 472, 2010 Feb 4
- 6 H. H. Wang *et al.*, 'Cyclones, tides and the origin of a cross-equatorial dust storm on Mars', *Geophys. Res. Ltr.*, **30**(9), doi: 2002GL016828 (2003)

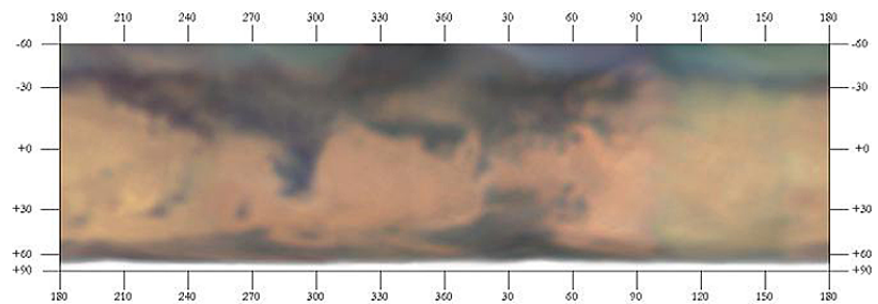


Figure 1. Albedo map compiled by M. R. Lewis from his own images, 222mm refl., 2010 Jan 17–Mar 5.

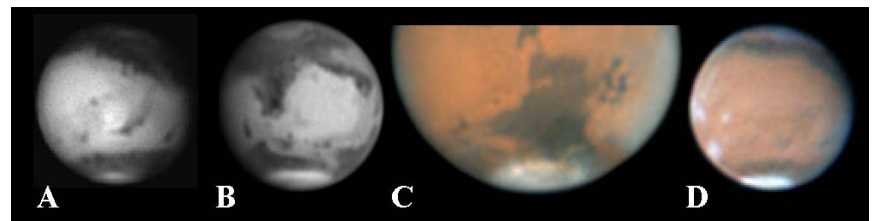


Figure 2. A. 2010 Feb 16, CML= 218°, 300mm MKT, infrared image by W. J. Leatherbarrow. B. 2010 Jan 4, CML= 306°, 355mm SCT, red light image by D. L. Arditti. C. 2010 Jan 29, CML= 21°, 355mm SCT, RGB image by D. A. Peach. D. 2010 Feb 19, CML= 174°, 300mm refl., RGB image by A. Tasselli.

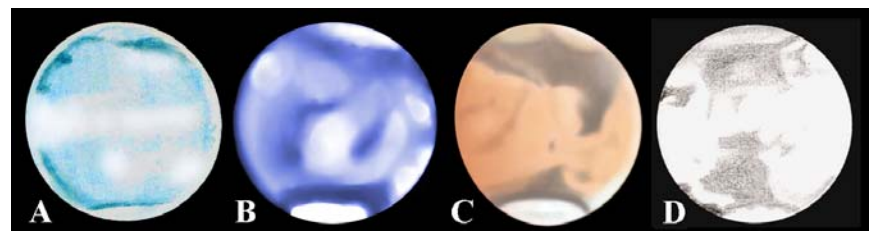


Figure 3. A. 2010 Mar 2, CML= 128°, 203mm refl. x312, blue filter drawing by P. G. Abel. B. 2010 Jan 14, CML= 221°, 200mm SCT x200, W80A blue filter, computer-coloured drawing by P. T. Grego. C. 2009 Dec 8, CML= 257°, 415mm DK Cass. x365, computer-coloured drawing by D. Gray. D. 2010 Jan 26, CML= 36°, 203mm SCT, drawing adapted from Registax-processed videos by K. C. Howlett.