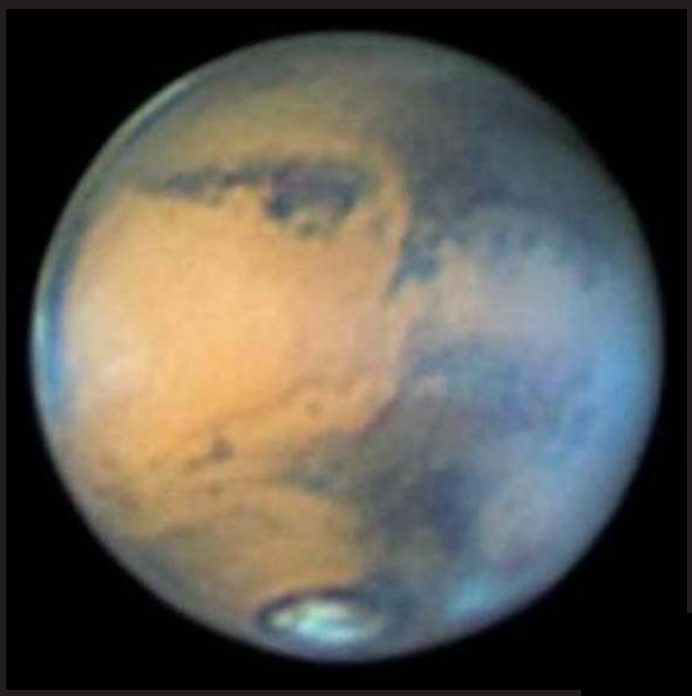
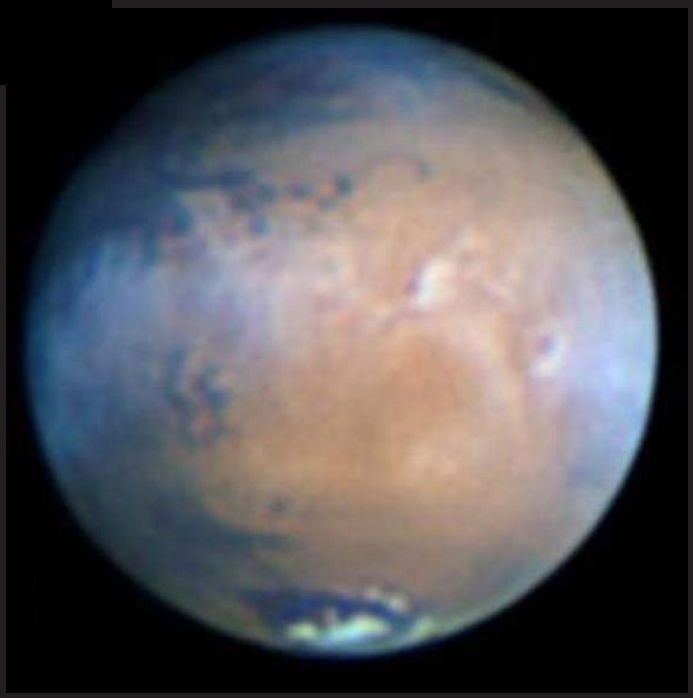
2014 June
Vol. 124 No. 3

# *Journal* of the British Astronomical Association





## Mars, glorious Mars!

*Journal* of the British Astronomical Association

*Editor:* **Mrs Hazel McGee**

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**Papers** should be sent by e-mail (preferred) or by post (**three** copies) to the **Papers Secretary** at the address shown inside the back cover of each issue. They will be refereed, and, if approved by Council, published as soon as reasonably possible. Those wishing to speak at a meeting should contact the Meetings Secretary.

**All other contributions** should be sent to the Editor. As well as *Letters to the Editor*, she will be pleased to receive contributions to *Observers' Forum*, particularly interesting astronomical photographs, drawings and images. Colour images are especially welcomed. Photos and media will be returned only if a suitable stamped addressed envelope is enclosed.

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| *Issue* | *Date* |
|---|---|
| 2014 August | 2014 June 30 |
| 2014 October | 2014 August 28 |

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# Contents



## On the cover

### Images of Mars

*Top:* An image by Wayne Jaeschke (356 mm SCT, USA) on 2014 April 22 at 03:27UT (CML= 008°) shows extensive bluish morning cloud covering *Chryse–Xanthe* and *Tempe*. NW of *Mare Acidalium*, in *Baltia*, a small bright cloud marks an early sign of the cyclonic seasonal clouds which were soon expected to form over that area. A rift extends from *Hyperboreus Lacus* well into the summer N. polar cap. [South is uppermost in all figures.]

*Bottom:* An image by Darryl P. Milika & Patricia Nicholas (356 mm SCT, ASI120MM CCD, Australia) on March 23 at 15:45UT (CML= 090°) shows *Chryse–Xanthe* cloudy on the evening side: part of the band of equatorial cloud which is better shown in blue light images. Outlying icy fragments are shown to be separated from the NPC. *Tharsis* is cloudy and specific orographic clouds are associated with the *Tharsis* volcanoes and (on the morning side) with *Olympus Mons*. In the south, *Solis Lacus* shows some structure and some trace of white cloud is following it.

*(See also Dr Richard McKim's interim Mars report on the opposite page.)*

*Mars Section*

# Follow Mars at its best this summer

Mars came to opposition on 2014 April 8,[1,2] and the Director is pleased to report he has been deluged with observations from over 60 contributors. Excellent work has been done in the UK, but the highest resolution observations have come from a number of observers based in Australia and the USA.

The planet has followed the usual seasonal course of events, with a small, rifted and near-static summer N. polar cap crowning the bottom of an inverted telescopic image, with bright white morning and evening limb clouds (especially those over the martian volcanoes in *Tharsis*, and over *Olympus Mons* and *Elysium Mons*), the equatorial cloud band much in evidence in blue light, and very little in the way of dust storm activity (with the odd small event at the edge of the polar cap).

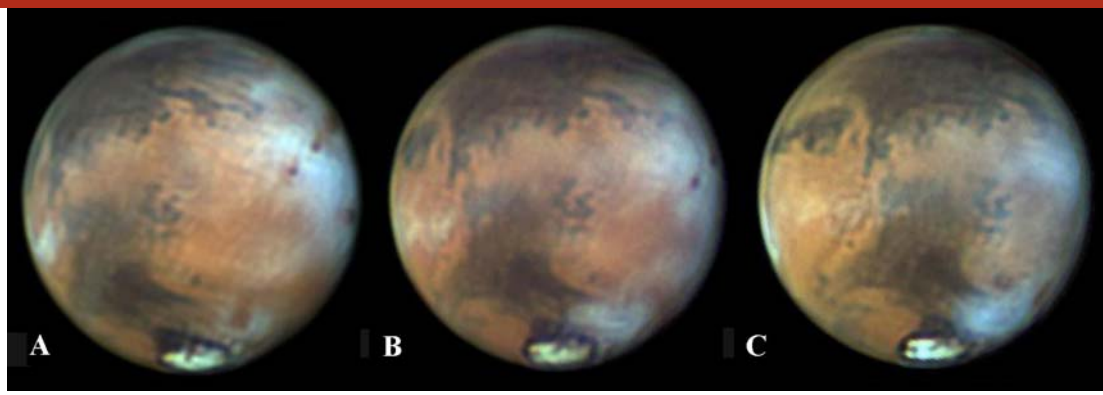


**Figure 1.** These images by Christopher Go (356 mm SCT, Flea3 monochrome CCD, Philippines) allow us to follow the development of a cyclonic cloud NW of *Mare Acidalium* and close to the NPC on (**A**) 2014 April 30 at 12:48UT (CML= 074°); (**B**) May 3 at 13:25UT (CML= 056°) and (**C**) May 4 at 12:41UT (CML= 037°). In (A) the cloud is small and incomplete to the south. In (B) and (C) it is complete and rather large, appearing at precisely the same season as in the past. In (A) and (B) we can also witness the dark calderas of the volcanoes poking through lower white cloud just off the morning terminator. (Also on May 3 Richard Bosman (Netherlands) captured the cyclonic cloud on the evening side, its spiral shape well shown by a polar projection.) [South is uppermost in all figures.]

By mid-April there was the first sign of cyclonic clouds in the *Baltia* area, as observed at the same season in earlier years. In 1995 and 2012 (under less favourable circumstances of imaging technology in 1995, and of disk diameter in 2012) BAA observers had found them fully developed by Ls= 127°. This year the clouds were fully developed at the start of May (Ls reached 125° on May 3). There was little change on the martian surface from 2012, though a few subtle variations were detected, among which was a slight fading of the dark marking in the *Aetheria* desert, at the NW corner of *Elysium*.

A full report will be presented later, but in the meantime we show some of the more interesting results up to May 6 on the front cover and here. Full details are in the figure captions.

As usual I make the request that observers try to follow the planet for as long as possible after opposition in order to give a long run of observations for later analysis. Every image or drawing will count!

**Richard McKim,** *Director*

1 R. J. McKim, *J. Brit. Astron. Assoc.*, **124**(1), 4–5 (2014)
2 R. J. McKim, 'Observing Mars in 2014', *Astronomy Now*, **28**(4), 26–29 (2014 April)

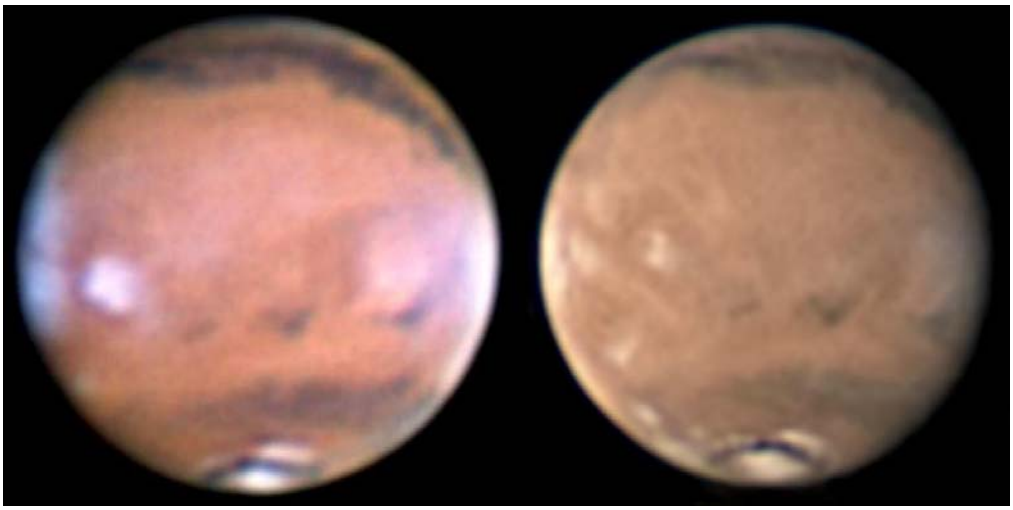

**Figure 2.** *Left:* An image from Manos Kardasis (279 mm SCT, DMK21AU CCD, Astronomik RGB filters, Greece), March 23 at 21:44UT (CML= 177°). The image shows *Olympia* and another polar cap outlier, and the very bright *Tharsis* and *Olympus Mons* evening orographic clouds. *Propontis* is dark but much smaller than on the classic reference charts, and there is a small orographic cloud at *Elysium Mons*.
*Right:* Over a month later but at nearly the same CML, Martin Lewis (445 mm refl., ASI120MC CCD, UK) imaged the same orographic clouds as well as light morning cloud over *Elysium*, and the icy NPC outlying remnants, on May 4 at 21:42UT (CML= 169°). The orographics are less bright than in the left image because they can no longer be viewed at their greatest extent and brightness at the evening terminator. Note also the slight change in the value of the latitude of the sub-Earth point.

**Figure 3.** The morning *Syrtis Major* is tinted blue by the overlying thin white cloud in this image by Toshihiko Ikemura (380 mm refl., DFK21AU618 CCD, Japan) on April 14 at 13:31UT (CML= 224°). A wealth of fine detail can be traced in the *Mare Cimmerium* to the south. The dark patch in *Aetheria* at the corner of *Elysium* (which developed from 1978 onwards) looks weaker and smaller than at the last few apparitions, while *Trivium Charontis–Cerberus* which marks the SE corner of *Elysium* continues to be hardly visible at all.

*Note:* CML= central meridian longitude; NPC= north polar cap. Ls is the areocentric longitude of Mars in its orbit, where Ls= 90° marks the start of northern spring and Ls= 180° the start of N. summer. Maps of the planet showing the main surface markings may be found on the Mars Section website at **www.britastro.org/mars**.

*Mars images continued on next page*

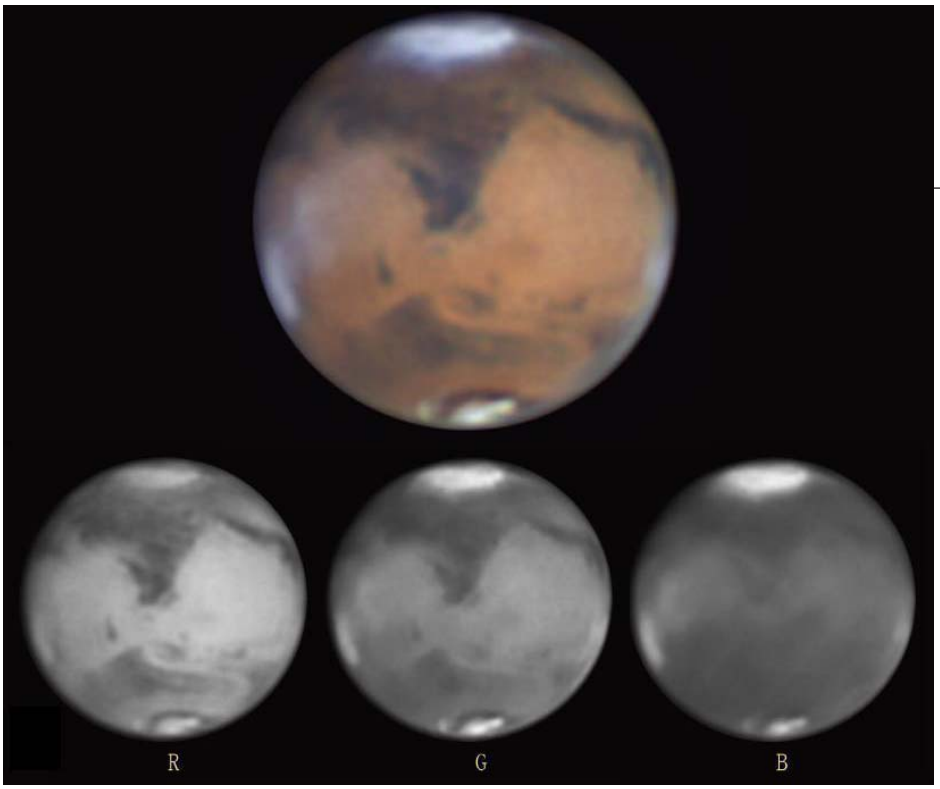


**Figure 4.** The *Elysium* evening cloud is well shown on these images by Efrain Morales Rivera (310 mm SCT, Flea CCD, Astronomik RGB filters, Puerto Rico) on March 25 at 06:10UT, CML= 292°. Note also the details within the brilliant *Hellas* basin and within the *Syrtis Major*, and the detached part of the N. polar cap, *Olympia*. *Nodus Alcyonius* remains visible as a small dark patch NE of the *Syrtis*, the area looking very much the same as it has done at every opposition from 1982 onwards. In blue light a faint and patchy equatorial cloud band extends from the E. to the W. limb. Observing visually the Director also noticed on several occasions that the *Syrtis* was bluish compared with the more brownish *Casius–Utopia* in the north.

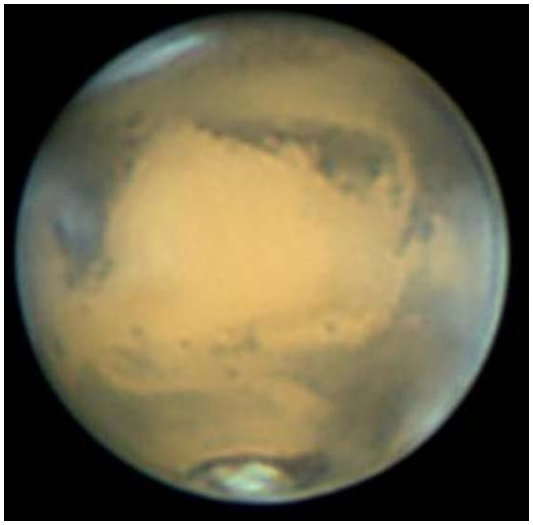

**Figure 5.** Anthony Wesley (369 mm refl., Australia) captured this scene on April 2 at 14:08UT (CML= 338°), with a lovely view of the evening *Syrtis Major* blue cloud extending from *Libya–Isidis Regio*. *Ismenius Lacus* is very small and faint near the CM. To the south, following the brilliant *Hellas* basin, a dark streak extends from *Mare Serpentis* into *Noachis*, but *Pandorae Fretum* is not visible. Figures 4 and 5 both show the location of the *Huygens* crater in *Iapigia*. The NPC band is well seen with much detail within the cap itself.