Sky notes

2008 February & March

by Neil Bone

Sun and Moon

Sunspot activity remains very low, with few groups of any significance being seen at the end of 2007. The minimum between cycles 23 and 24 has been protracted, but observers viewing the Sun by the safe method of projection can hope for an upturn in activity during the coming months.

The Sun's apparent eastwards motion along the ecliptic – by about a degree (twice its apparent diameter) per day – carries it north of the celestial equator at 05h48m UT (Universal Time; equivalent to GMT) on March 20, the time of the Vernal Equinox. The hours of darkness diminish markedly during this interval.

The Moon is New on February 7 and March 7, giving darkest evening skies in the opening ten days or so of each month. Full Moon falls on February 21 and March 21.

At Full on February 21, the Moon undergoes a total eclipse. The event, in the early hours of a Thursday morning, demands loss of sleep for would-be observers. First contact between the Moon's leading, easterly edge and the deep central umbra of Earth's shadow is at 01h43m UT (though if recent previous eclipses are anything to go by, some darkening of the Moon's limb may be evident ahead of this time). The Moon is completely immersed in the umbra between 03h01m and 03h51m UT. As it cuts across the umbra's southern side, the Moon may show a brighter rim to its south, even at mid-eclipse. The Moon leaves the umbra at 05h09m UT, by which time dawn will be approaching.

The 2007 March 3 lunar eclipse imaged at 22h38m UT, a few minutes before totality. *Image: Neil Bone.*

At the preceding New Moon on February 7, an annular solar eclipse is visible from the Antarctic, while those in eastern Australia will see a partial eclipse. No part of this event is visible from the British Isles.

Civil clocks go forward by one hour on Sunday March 30, as British Summer Time comes into operation. Observers should remember to subtract an hour from BST to arrive at the astronomical standard of UT thereafter.

The planets

Following late January's reasonably favourable evening apparition, Mercury reaches inferior conjunction between Sun and Earth on February 6, and moves into the morning sky where it remains too close to the Sun to be visible from UK latitudes.

Venus closes in towards the Sun and is lost from view in the morning sky by late February.

Mars is still a prominent evening object, among the stars of Gemini west of Castor and Pollux. Now several weeks past opposition, the Red Planet is fading, and its apparent disk diameter dwindling, as Earth pulls away. In early February, Mars shines at magnitude –0.5 and presents a 12 arcsecond disk; by the month's end, it has faded below mag 0 and the apparent disk is less than 10 arcseconds across. During March, Mars fades to mag +0.1, and with a disk diameter of 7 arcseconds will reveal its surface detail only in larger amateur telescopes.

Rather unfavourably placed low in the early morning southeastern sky against the stars of Sagittarius, Jupiter returns to view following conjunction. At mag –2, it is close to the south of the much brighter mag –4 Venus at the beginning of February. This year sees Jupiter at its most southerly position and, appearing low in the sky, it will be difficult to observe from UK latitudes.

Saturn reaches opposition, 180° from the Sun in Earth's sky, on February 24. Located a few degrees southeast of Regulus in Leo, Saturn shines at mag +0.2. The rings are now presented at a relatively narrow angle, opening very slightly during February and March. Cloud detail on the planet's globe is much less marked than that on Jupiter, but can be discerned by a patient observer using a telescope of 100–150mm aperture or greater. The brightest of Saturn's satellites, mag +7 Titan, is readily visible in small telescopes, four ring-spans due east of the planet around February 3 and 19 and March 6 and 22, due west about eight days later.

Comet 17P/Holmes

The big observational attraction of late 2007, Comet 17P/Holmes could still be a binocular object as it starts to loop back eastwards against the stars of Perseus from Algol towards Epsilon Persei during February and March. Comet-watchers will be hoping that Holmes repeats the performance at its discovery apparition in 1892–'3 where the initial outburst was followed a couple of months later by a further flare-up in brightness.

Meteors

Meteor activity reaches its annual minimum during February and March, with low back-

Comet 17P/Holmes on 2007 December 7. *Image: Alex Pratt.*

ground sporadic rates and only very minor showers in evidence. Towards the end of March, the Virginids become active, producing a trickle of one or two meteors per hour from radiants in the Virgo Bowl and to the east of Spica. Virginids can often be long and slow, and occasional bright shower members are seen.

Variable stars

The long period variable Mira (Omicron Ceti) should reach maximum brightness in early February, becoming an easy naked-eye object just west of the triangle of Alpha, Gamma and Delta Ceti making up the Sea Monster's head. At maximum, Mira typically reaches third magnitude, but the star can sometimes become a lot brighter: when it last reached peak brightness, in 2007 March, Mira attained second magnitude. Brightness estimates made relative to constant-magnitude comparison stars at weekly intervals will allow Mira's behaviour this time around to be followed. Suitable comparisons are highlighted at **http://www.britastro.org/vss/xchartcat/index.html**

Eclipsing binary Algol (Beta Persei) has favourable minima for UK-based observers on the nights of February 4–5, 7–8, 10 and 27–28, and March 1–2, 18–19 and 21–22. During eclipses, Algol fades from mag +2.1 to +3.4.

Deep sky

Orion remains well-placed in early February, on the meridian in early evening. As spring approaches, the window is closing on opportunities to see the ever-attractive Orion Nebula, M42. To Orion's east, immersed in the faint winter Milky Way, is the dim constellation Monoceros, home to many faint challenging nebulae which make testing targets for observers with large telescopes.

Monoceros does contain one fine object for smaller instruments, the open cluster M50 (NGC 2323). M50 can be found about a third of the way along a line drawn from Sirius towards Procyon. With an overall integrated mag of +5.9, the cluster is visible in 10×50 binoculars, which will resolve it into a scattering of faint stars. Small telescopes (80–100mm aperture) reveal about 100 cluster members spread over a 15–20 arcminute area.

Southeast from Monoceros, Puppis has some rich Milky Way fields and several fine open clusters, many of them sadly just too far south to be observed from UK latitudes. Two of the best which are accessible are M47 (NGC 2422) and M46 (NGC 2437), about 15° due east of Sirius. The two clusters appear close together, separated by an angular distance of 1.5° (three Moonwidths), with M47 being the brighter and more westerly. On a good night, M47 (integrated mag +4.4) is visible to the naked eye as a 'knot' of faint stars. Binoculars show 10 to 12 fifth- and sixth-magnitude stars spread over an area half a degree across. M46, by way of contrast, is rather fainter (mag +6.1), appearing as an oval haze in binoculars. Telescopically, it resolves into a mass of perhaps 150 ninth -magnitude stars covering a half-degree area. The faint (mag +11.0) planetary nebula NGC 2438 lies 7 arcminutes north of M46's centre, and is a good object for telescopes of 150mm and greater aperture.

Although close together in line of sight, M47 and M46 lie at very different respective distances of 1600 and 5600 light years.

Puppis' other Messier object, M93 (NGC 2447) is a mag +6.2 open cluster 9° south of the M47/46 pair, containing about 80 stars of 8th magnitude and fainter in a 20 arcminute span.

While it lacks the overall brightness of its summer counterpart, the winter Milky Way presented early on February and March evenings is certainly an excellent hunting ground for open clusters. Alongside the relatively southerly objects described here, plenty more can be found north from Monoceros in the direction of Gemini and Auriga.

Neil Bone

Erratum

The total solar eclipse of 2008 August 1

We regret that due to an editorial error, the images in Figure 3 of the above paper in the 2007 October *Journal* (*J. Brit. Astron. Assoc.*, **117**(5), 2007, p. 232) were transposed. We thank Mr R. F. Tindall of Great Shelford, Cambs., for pointing this out, and apologise to the author and to members for the error.

The corrected figure is given below.

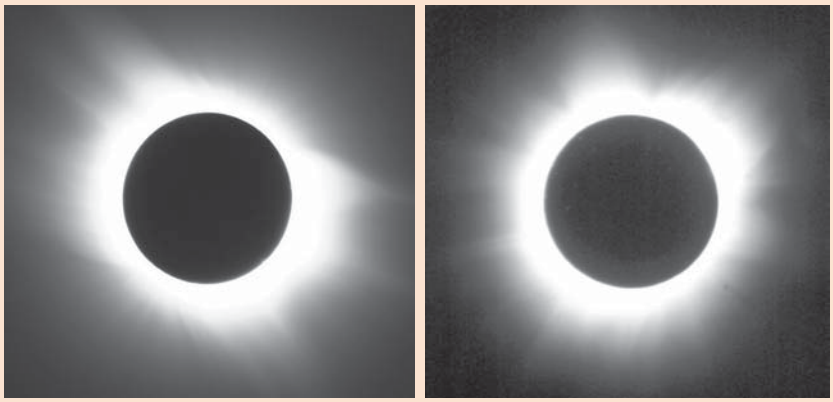

Figure 3. The corona at solar minimum and maximum. *Left:* Minimum – 2006, Libya; *Right:* Maximum – 2001, Madagascar. *(Sheridan Williams)*