Sky notes

2009 February & March

by Neil Bone

Sun and Moon

The Sun's daily apparent motion of roughly a degree eastwards along the ecliptic (really a consequence of Earth's orbital motion, of course) carries it to increasing northerly declinations on the celestial sphere during this interval. As a result, the hours of daylight begin to stretch out markedly at the latitudes of the British Isles: by mid-March, it takes until nearly 20h UT (Universal Time; equivalent to GMT) for the sky to become fully dark. At 11h 44m UT on March 20, the Sun sits on the intersection between the ecliptic and the celestial equator, marking the northern hemisphere spring (vernal) equinox.

With the days lengthening, the Sun becomes a more accessible target for observation (projection is the safest method) and it will be interesting to see if the coming months finally bring an end to the long period of very low activity between sunspot cycles 23 and 24. Some optimistic models of the Sun's workings had forecast that maximum in cycle 24 might arrive as early as 2010: this now seems unlikely! Through 2008, only a very few high solar-latitude spots associated with the new cycle were seen, and take-off has certainly been very slow. This is the longest interlude of low activity that most modern solar observers can remember.

The Moon is New on February 25 and March 26, and darkest evening skies will be found in the second half of either month. With the ecliptic steeply-inclined to the western evening horizon at this time of year, the waxing crescent a few days after New emerges to prominent view quite rapidly. Full Moon brings bright skies around February 9 and March 11.

Civil clocks revert to British Summer Time (BST – an hour ahead of UT/GMT) on Sunday March 29, and observers should remember to subtract the necessary hour from their reports thereafter.

The planets

Mercury reaches greatest elongation 26° west of the Sun on February 13. At magnitude 0, and rising only just an hour before sunrise, the innermost planet – seen against the stars of Sagittarius – will almost certainly be beyond reach for UK-based observers.

Venus is a very different proposition, starting this interval as an extremely prominent (mag –4) 'Evening Star'. Greatest elongation was reached in mid-January, but early in February the planet remains well east of the Sun, and throughout the month it sets roughly four hours after sunset, being the most conspicuous object apart from the Moon in evening skies. For observers using small telescopes, this is perhaps the most interesting period of the current apparition, with the planet showing a steadily-diminishing crescent phase (similar to the Moon a few days after New) and growing in apparent diameter as it draws closer towards the Earth around its orbit.

Saturn and Titan on 2008 December 7, with the rings almost edge-on to the Earth. *Image by Peter Garbett.*

By late February, Venus reaches an apparent diameter of more than 40 arcseconds, easily large enough that a 60–70mm aperture telescope at a magnification of ×40 will comfortably show the phase. On the evening of February 27, the thin crescent Moon is a couple of degrees to Venus' south.

As March opens, Venus is rapidly closing back toward the Sun in line of sight, its eastern elongation decreasing by a degree (two moonwidths) per day. The steep angle of the ecliptic in the western evening sky works to observers' advantage, and even as late as mid-March, Venus sets a couple of hours after the Sun. By this time the crescent has become very narrow and the planet's apparent diameter is close to an arcminute – even steadily-held 10×50 binoculars will show the crescent.

Venus is lost from view, close to the Sun, by the third week of March. Inferior conjunction, between Sun and Earth, is reached on March 27; by late April, Venus will have become a 'Morning Star'.

Mars and Jupiter are both too close to the Sun in the bright morning sky for observation during February. Jupiter becomes a bit more accessible, seen against the stars of the Capricornus/Aquarius border, rising around 04h UT at the end of March.

Reaching opposition on March 8, Saturn is visible night-long against the stars of Leo, just south of the Lion's 'haunches'. At mag +0.5, the planet is about a magnitude brighter than Regulus 15° to its west, but not nearly as bright as it has been in recent years. This is a result of the rings' narrow presentation, such that they reflect less sunlight in our direction. Their small tilt-angle also makes them harder to resolve in small- to medium aperture telescopes: a 150mm aperture and magnification of ×200 may be required to see them as more than linear extensions to either side of the planet.

The rings' narrow presentation, in turn, affords clearer views of most of Saturn's globe, whose banded features show subtler contrast than those of Jupiter, but can be seen well in 200mm and larger telescopes.

Saturn's main bright satellite, 8th-magnitude Titan, can be found roughly 3 arcminutes due east of the planet on February 5 and 21 and March 9 and 25: it is due west eight days later.

Asteroids

During February and March, (1) Ceres is a 7th-magnitude binocular object looping steadily retrograde (westwards) just to the north of the triangle of stars forming Leo's hindquarters.

Comets

Having reached perihelion on January 10, Comet 2007/N3 Lulin is potentially a bright binocular object at mag +4, moving steadily towards Spica in Virgo, during early- to mid-February. Observations are possible from around 02h UT, by which time Spica is reasonably well clear of the southern horizon. The last quarter and waning crescent Moon may present some problems in the early morning skies.

Meteors

February sees meteor rates at their lowest for the year, with only very minor showers and minimal background sporadic activity present. Things pick up a little towards the end of March as the Virginids, one of several

modest-activity showers emanating from close to the ecliptic plane in the course of the year, become active. The shower has radiants in the Virgo 'bowl' and to the east of Spica, and can produce observed rates of 5 meteors/hr. Virginids are often long, slow meteors, and there is a reasonable proportion of fairly bright events.

Variable stars

Eclipsing binary Algol (Beta Persei) has favourably-timed minima for UK-based observers on the nights of February 5–6, 8–9, 11–12, Feb 28–Mar 1, and March 3–4 and 23–24. The star shows a marked drop from mag +2.1 to +3.4 over a 5-hour interval, taking equally long to recover to maximum brightness.

Deep sky

Snaking across the low southern sky in late winter/early spring, Hydra is the largest of all constellations, spanning six hours of right ascension below Cancer, Leo, Crater, Corvus and Virgo. Often overlooked, it is home to three very different Messier objects. Most westerly is the open cluster M48 (NGC 2458), 20° due east of mag +2 Alphard (Alpha Hydrae, the constellation's rather solitary brightest star). Visible in 10×50 binoculars as a speckled hazy patch, M48 is resolved in a small telescope into a loose cluster of around 40 mag +7 to +9 stars in an area 40 arcminutes across (slightly wider than the Moon's apparent diameter).

The globular cluster M68 (NGC 4590) is easy to locate, 3° due south of 3rd-magnitude Beta Corvi. At mag +7.7, it is reasonably bright and easy to see, despite culminating only 15° up, even from southern England. Small telescopes show M68 to be less spherical than many globulars, being slightly broader on its western side.

I would rate Hydra's final, most easterly Messier object as the most difficult in the catalogue: it was the last I 'collected' (in 2005) in my 32-year campaign to observe them all. A face-on spiral galaxy, M83 (NGC 5236) lies nearly 20° due south of Spica, culminating only 10° high from southern England. Despite an integrated mag +7.6, M83 shows low surface contrast, and the best time to look for it is when it is highest, around 02h UT in early March. The openly-presented spiral arms have proved a rich source of supernovae over the years.

The magnificent spiral galaxy NGC 5236 (M83) is hard to observe from the UK due to its southerly declination. Image by the European Southern Observatory 2.2m telescope at La Silla.

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