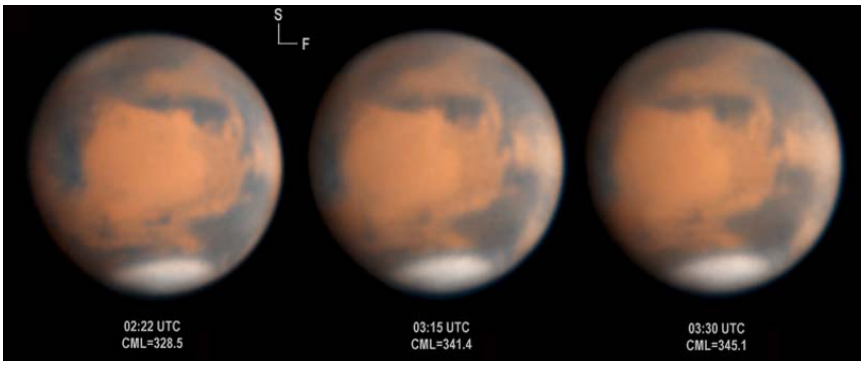
Sky Notes: 2010 February and March

by Callum Potter

Usually February and March are amongst the coldest and snowiest months of the year. But these months are often the clearest too, with moisture literally being frozen out of the air, assuming there is a let up in the rain and snow. 2009 did not seem to be a great year for observational astronomy in the UK. Gary Poyner was telling me it was one of the poorest for clear nights for him for many years. Are we seeing a trend in weather patterns with less favourable observing conditions, or just a short term variation? Whether this is due to global climate change or not, we have to hope this will not be the pattern of the future. However, I am always optimistic that there will be a few great nights for observing, hopefully around the time of New Moon – these 'great nights' really do make it all worth while.

And please remember in March, in the United Kingdom we put the clocks forward one hour at 1.00 a.m. on Sunday March 28, returning to British Summer Time.



Mars on 2010 January 1, diameter 12.68", imaged by Damian Peach.

Sun

2009 December saw an upturn in sunspot numbers, and it seems likely that the start of new cycle 24 has finally begun, making sunspot observations particularly valuable. It will also be interesting to see if the start of the new cycle sees any major aurora. There are some anecdotal reports of mid-latitude aurora (that is aurora visible from the southern parts of the UK), being seen at 'quiet' times on the Sun, during the rise or fall of the sunspot cycle. Of course aurorae are the result of major solar flares or coronal mass ejections, but it is unclear if these might occur when the Sun is generally quiet.

The spring or vernal equinox occurs on March 20 at 17:32. This is the point at which the Sun crosses the celestial equator, and marks the start of Spring in the northern hemisphere.

Moon

The Moon is New on February 14 and March 15, and Full on February 28 and March 30.

There are a few bright star occultations occurring which will be interesting to observe. On February 21 a series of occultations and grazing occultations is visible from the UK as the Moon traverses near Messier 45, the Pleiades. Although not occulting any of the main stars of the open cluster, it will occult some of the outlying members. Consult your BAA *Handbook* for details. The Moon will be close to the cluster at the end of twilight, and this should make an interesting and challenging photo opportunity, it being difficult to capture the bright Moon (it is about 1st quarter), and the faint stars of the Seven Sisters together in one exposure.

On March 9 at 05:03 in the morning magnitude 2.9 lambda Sagittarii is occulted, reappearing at 06:17. Then on March 27 at 01:59 UT, magnitude 3.8 omicron Leonis disappears. These times are for Greenwich, so to find times for your local circumstances, please consult your BAA *Handbook*, page 26.

Planets

Mercury and Venus are not favourable, though by the end of March Mercury will again be observable, and will be particularly favourable in April. Venus will be low in the West hugging the horizon at the end of February and through March. At the end of March Venus and Mercury will be visible near to each other, so Venus will be useful as a finder, but things will improve in April, so more about this in the next *Sky Notes*.

Mars is the best of the planets on show in February and March, having just passed opposition at the end of January. Indeed Mars will be high in the sky in Cancer, and ideally placed for observation, but its disk is now rapidly diminishing, from about 14" at the start of February to just below 10" at the end of March. The planet's pass through Cancer does not place it nicely near to Messier 44, Praesepe, or the Beehive clus-

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Comets often make interesting approaches past clusters and nebulae – this image of Comet Lulin passing M44 was taken by Alan Tough of Elgin on 2009 March 4.

ter as it is also known, being some 3° distant at its closest around February 8, but it could make an interesting photo opportunity for a wide field shot, and should be a nice binocular view.

Jupiter is in conjunction with the Sun and un-observable these months, leaving Saturn as the only other major planet on view. Saturn is in Virgo, and will be at opposition on March 22. The tilt of the rings is still somewhat narrow, 3° at opposition, and will be closing a little more, but as we move towards year end, the rings will open again, returning to their normal spectacular beauty.

Uranus and Neptune are unfavourable.

Meteors and comets

February and March are lean months with no prominent meteor showers.

The lean time for comets also continues, with none really in binocular range, and a few faint telescopic specimens, but well within CCD range. 29P/Schwassmann–Wachmann is quite well placed to the west of Regulus but faint, with a predicted magnitude of around 12.5.

In late March C/2009 O2 Catalina will pass by the Andromeda Galaxy, M31, in the early evening and might reach 9th magnitude at that time, so could make for an interesting, though difficult, wide field imaging opportunity.

The brightest predicted comet is 81P/Wild, perhaps reaching 8th magnitude. It will sweep through Virgo north of Spica, heading towards Syrma, iota Virginis. An area rich in faint galaxies, so again there may be some interesting encounters for CCD imagers.

Variable stars

Eclipsing binaries are ideal objects for those starting out in variable star measurements. Beta Persei – Algol, the winking demon – has a number of well placed minima in February and March. Lambda Tauri, Elthor, has some well timed eclipses in early February. Both of these can be observed with the naked eye or binoculars. RZ Cassiopeiae is a fainter magnitude 6.2 to 7.7 variable, and binoculars will be needed, but it too has some favourable minima in February and March. Again, consult your BAA *Handbook* for details.

If you have a digital SLR camera it would be an interesting project to take images through the night to see if you can capture some of the lightcurve of these objects. Several passes will be needed to capture the full lightcurve. Relatively short exposures only are required of perhaps a few seconds at most depending on the lens used, with the camera fixed on a tripod. You may need to experiment to select a suitable exposure time, but this can be done on any clear night. RAW images are best, and then the magnitude can be measured using software such as AIP4Win or IRIS.

Consult the BAA Variable Star Section website for charts of these objects showing comparison stars.

Deep sky

If you have not done so already, then February and March may be your last opportunity of the winter to observe the low-altitude constellations under Orion: Lepus, Canis Major, and Puppis. For those of you collecting Messier objects, be sure to scoop up M79, a nice globular cluster in Lepus, and the open clusters M41 in Canis Major, and M93, M46 & M47 in Puppis.

Whilst in Canis Major, lets not forget to look at Sirius, and see if perhaps its companion, the 'pup' as it is sometimes known, can be seen. Sirius B orbits A in around 50 years, and currently the pair are widening. However, there is such a brightness difference with the pup being magnitude 8.5, that spotting the pup some 8 seconds of arc away from magnitude –1.46 A makes this a difficult observation, even with electronic assistance. Excellent seeing and high magnification will help in this endeavour, as will placing the primary just outside the field of the eyepiece.

One of our closest neighbour stars, the Sirius system is about 8.6 light years distant. Sirius A is spectral type A, and around two solar masses. Sirius B is a white dwarf, spectral type DA2, about the size of the Earth and the mass of our Sun. The evolution of this system is fascinating; around 120 million years ago, Sirius B would have been a much larger five solar mass red giant star, outshining its now brighter companion. The pair would have made a spectacular double star system for observers on Earth.

And whilst in Lepus, try to find R Leporis, Hind's Crimson Star, a startlingly red carbon rich star. It is a long-period Mira type variable star swinging from 5th to 11th magnitude. Observed to be around 8th magnitude in 2009 December, its brightness is increasing in this part of its 430-day cycle, and currently should be in easy binocular range.

Callum Potter

Erratum

The Christian name of the Belgian astronomer and comet discoverer Arend was Sylvain, not 'Silvio' as printed on page 335 of the 2009 December *Journal*. Apologies – *Ed.*

Notice

Nominations for the Council ballot

Each year in May, your Council prepares the balloting list from the names of those members nominated. The Balloting List is sent to members in August and the members elected serve from the AGM in October. The elected Council comprises:

1 President, 1 Treasurer, 3 Secretaries and 10 other members.

It obviously shows a robust situation if the number of proposed members exceeds the number of vacancies so that a true election occurs. Council meetings normally take place during the afternoon of a Wednesday Ordinary Meeting or during the morning of a Saturday meeting. If you would like to be nominated you must be a paid-up member. Please ask two other paid-up members to propose and second you and then sign the letter yourself to show that you are willing to stand. Alternatively you may wish to nominate someone else, in which case the same conditions apply. Nomination forms are available from the Business Secretary.

All nominations must be in writing and sent to the BAA office to arrive by 2010 May 7.

Ron Johnson, *Business Secretary*