SPACEWATCH
the newsletter of the Abingdon Astronomical Society

Next Talk
14th March 2016
"Astrophotography "
Nik Szymanek FRAS

THE NIGHT SKY THIS MONTH

by Bob Dryden

Mercury: Now one day past greatest elongation, Mercury is heading back towards the Sun and Superior Conjunction on 23rd March. It is currently around 0.0 magnitude, and does brighten to -1.0 magnitude by mid-March, but becomes increasingly harder to see due to morning twilight. At the moment, it rises about an hour before the Sun and gains an altitude of 7° by sunrise. By the third week of February however, it appears barely 30 minutes before the Sun and is a paltry 3° high by sunrise making it very hard to find at all.

During the next week, Mercury is just 2° to the left of Venus. By the middle of February they are starting to move apart again.

Venus: This session will be our last to see Venus for this apparition. Solar elongation decreases from 30° to 22°, which sounds OK, but the ecliptic will have a shallow angle to the horizon by mid-March which means Venus will be very, very low by then. It presently rises about an hour before the Sun. Shining at a bright -3.9 magnitude means the planet is easy to see even though it is only 9° high at sunrise. By mid-March however, Venus appears just 20 minutes before the Sun so will be almost impossible to find. You probably have until the end of February in which to have a look for Venus before it is lost to the solar glare during the first week of March.

Mars: Slowly Mars is getting brighter but also moving southwards. It starts at +0.6 magnitude in Libra, rising at approximately 01.30 UT. Culmination occurs about an hour before sunrise at a height of 22°. Mars moves into Scorpius on 13th March, by which time it has reached a magnitude of +0.0. It will then be rising around 01.00 UT and culminating at 04.30 UT but at the lower altitude of 19°.

The bright, first magnitude star in Scorpius, Antares, also means 'equal to Mars', and you will have an excellent opportunity by mid-March to see if this is true. By then, Mars will be just 5° above Antares, so have a look and see if you think they are alike.

Jupiter: Jupiter starts this session rising about 20.00 UT, culminating at 02.00 UT at 42°, and ending the night 10° high in the west. Still in the constellation of Leo, Jupiter is very bright at -2.5 magnitude, making it a very obvious object. It reaches opposition on 8th March which means it rises and sets at the same time as the Sun, in other words, it is visible all night long.

On 23rd February the Moon (one day past Full phase) is approximately 2° from Jupiter.

Saturn: Still only visible in the morning sky, Saturn can be found in the constellation of Ophiuchus shining at +0.5 magnitude. During February it rises about 04.00 UT and culminates at a height of 17° just after sunrise. By March however, culmination occurs just before sunrise (by about 30 minutes) which will give the early risers amongst you a chance to have a look at the magnificent ring system which is presently at an angle of 26°.

On the morning of 2nd March the Moon (which will be one day past Last Quarter) will be around 2° above Saturn. By 14th March Saturn will form a right angled triangle with Antares and Mars.

Uranus & Neptune: This is your very last chance to see Uranus this apparition before it disappears into the evening twilight. At sunset, the planet is currently 43° high in Pisces, and it sets around 5 hours later. By mid-March it is just 20° high at sunset and very difficult to see anymore. Shining at +5.7 magnitude, you will be able to see Uranus in binoculars during February, but will probably need a telescope by March time.

Neptune is too close to the Sun to see at the moment.

Occultations: On 16th February, at the unsociable hour of 01.48 UT, the +3.7 magnitude star 54 Taurus (which is part of the Hyades cluster) is occulted by the First Quarter Moon. However, at that time, the Moon will be just 3° above the western horizon so may be a bit difficult to see if you are surrounded by houses or trees.

Asteroids: There are no bright asteroids visible at the moment but 5 Astraea is in Leo, just west of Regulus. It starts at +9.0 magnitude, brightens slightly to +8.9 magnitude by 20th February before fading to +9.6 magnitude by the end of this session.

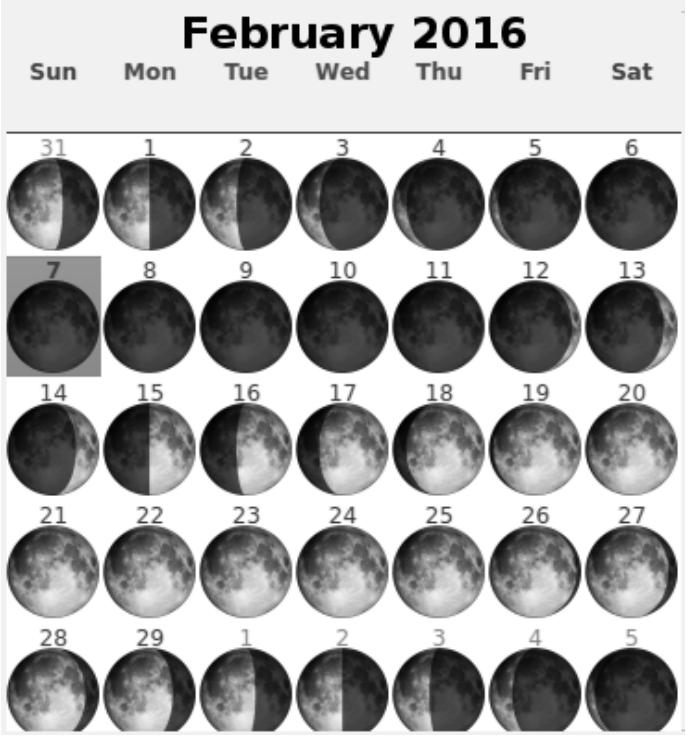
10 Hygeia is fainter, starting at +10.1 magnitude in Virgo. It crosses into Leo on 10th March and brightens to +9.5 magnitude by 14th March. This is the brightest it will get this apparition.

Comets: Comet 2013 US_{10} Catalina is still about, but fading now as it moves away from Earth. It spends this session crossing the constellation of Camelopardalis and is close to the border with Perseus by mid-March. It starts at 7th magnitude and is expected to fade to 9th magnitude by the time this session ends.

Comet SOHO P/2001 D1 will be brightening throughout this session. It is moving fast and in mid-February it will be at +10.8 magnitude in Virgo, then enters Libra on 25th

February by which time it will be 8th magnitude, into Serpens on 1st March, then Ophiuchus on 6th March (by now, 6th magnitude), Aquila on 12th March, and finally Delphinus on 14th March. It is predicted to be at +4.7 magnitude by this time.

MOON PHASES:



LAST MONTH'S TALK

by Gwyneth Hueter

January's talk, 2016

Thank you again to Wiltshire AS for providing another speaker for us: Jonathan Gale, 'Exploring and Observing Asterisms'

He is a member of SPOG = Salisbury Plain Observing Group.

Asterism is originally from French, and is defined as a prominent group of stars within a constellation, not necessarily a chance alignment of stars.

Some asterisms are a nice easy base for starhopping, such as the Summer Triangle or the Square of Pegasus. The latter is a good test for light pollution. You might see six stars within the Square from here; from Devon you might get 17.

Some asterisms are sectional i.e. they belong to part of a constellation, such as the Keystone of Hercules, Orion's belt and the Sickle of Leo.

Some of the asterisms are small, such as the Coathanger (Collinder 399, and remarked on by Arab Astronomer Al-Sufi in 964 and Kemble's Cascade (NGC 1501/2). Nice to hear a little about Fr Lucien Kemble, a Canadian night sky observer (1922-1991).

Mr Gale took us through various asterisms to look for over the seasons, including some with colours, such as the upside down sailboat around 22 in Leo Minor and the Dolphin's diamonds coming off the nose of Delphinus.

David Ratledge (who I knew when I was a member of Bolton AS in the 1980s) has a hefty list of asterisms on his own www.deep-sky.co.uk. Go and have some fun trying to look for them. And why did no one mention the Teapot?

WEBB TELESCOPE FITS FINAL MIRROR SEGMENT

The mirrors are fully installed on the James Webb Space Telescope structure at NASA's Goddard Space Flight Center in Greenbelt, Maryland. Credits: NASA/Chris Gunn

The 18th and final primary mirror segment is installed on what will be the biggest and most powerful space telescope ever launched. The final mirror installation Wednesday at NASA's Goddard Space Flight Center in Greenbelt, Maryland marks an important milestone in the assembly of the agency's James Webb Space Telescope.

"Scientists and engineers have been working tirelessly to install these incredible, nearly perfect mirrors that will focus light from previously hidden realms of planetary atmospheres, star forming regions and the very beginnings of the Universe," said John Grunsfeld, associate

administrator for NASA's Science Mission Directorate in Washington. "With the mirrors finally complete, we are one step closer to the audacious observations that will unravel the mysteries of the Universe." Using a robotic arm reminiscent of a claw machine, the team meticulously installed all of Webb's primary mirror segments onto the telescope structure. Each of the hexagonal-shaped mirror segments measures just over 4.2 feet (1.3 meters) across -- about the size of a coffee table -- and weighs approximately 88 pounds (40 kilograms). Once in space and fully deployed, the 18 primary mirror segments will work together as one large 21.3-foot diameter (6.5-meter) mirror. "Completing the assembly of the primary mirror is a very significant milestone and the culmination of over a decade of design, manufacturing, testing and now assembly of the primary mirror system," said Lee Feinberg, optical telescope element manager at Goddard. "There is a huge team across the country who contributed to this achievement."

While the primary mirror installation may be finished on the tennis court-sized infrared observatory, there still is much work to be done.

"Now that the mirror is complete, we look forward to installing the other optics and conducting tests on all the components to make sure the telescope can withstand a rocket launch," said Bill Ochs, James Webb Space Telescope project manager. "This is a great way to start 2016!"

The mirrors were built by Ball Aerospace & Technologies Corp., in Boulder, Colorado. Ball is the principal subcontractor to Northrop Grumman for the optical technology and optical system design. The installation of the mirrors onto the telescope structure is performed by Harris Corporation, a subcontractor to Northrop Grumman. Harris Corporation leads integration and testing for the telescope.

"The Harris team will be installing the aft optics assembly and the secondary mirror in order to finish the actual telescope," said Gary Matthews, director of Universe Exploration at Harris Corporation. "The heart of the telescope, the Integrated Science Instrument Module, will then be integrated into the telescope. After acoustic, vibration, and other tests at Goddard, we will ship the system down to Johnson Space Center in Houston for an intensive cryogenic optical test to ensure everything is working properly."

The James Webb Space Telescope is the scientific successor to NASA's Hubble Space Telescope. It will be the most powerful space telescope ever built. Webb will study many phases in the history of our universe, including the formation of solar systems capable of supporting life on planets similar to Earth, as well as the evolution of our own solar system. It's targeted to launch from French Guiana aboard an Ariane 5 rocket in 2018. Webb is an international project led by NASA with its partners, ESA (European Space Agency) and the Canadian Space Agency.

FURTHER DISCUSSION

Why not take a look at our website? It's at: www.abingdonastro.org.uk .

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on: http://groups.yahoo.com/group/abingdonas/ .

To join the abingdonas list, please go to http://www.yahoogroups.com. You can also unsubscribe from the list here.

To post messages to the list, please send them to abingdonas@yahoogroups.com . Please note that you will need to sign up with a YahooID if you do not already have one. You can do this on the above page.

Further information about the mailing list can be found on the abingdonas webpage at : http://groups.yahoo.com/group/abingdonas/ .

DATES FOR YOUR DIARY

22nd February 8pm Beginners' Meeting in the Main Hall.

Observing evening: Next Observing evening is the FCN Week Feb 29th -2nd Mar at Frilford Heath Golf Driving Range. Keep an eye on the AAS group mailing list.

BAA Deep Sky section Meeting 27th Feb at Rugby information at https://britastro.org/dss2016

Star Gazing event at RAL on Feb 12th 17:30-20:30. Booking is essential. Book at www.stfc.ac.uk/ral-public

The editor of "SpaceWatch" is Owen Brazell, who would very much appreciate your stories & contributions. In particular whilst many fine images are being posted on the discussion group it would be nice to have some in the SpaceWatch. Please send any news, observations, photos, etc. to:

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STAR CHART

The night sky at 10 pm (GMT) on Monday 15th February 2016