

Forthcoming CAWAS Meetings on Zoom at 7:00pm BST		
Friday June 11th	John Davies	Missions to near Earth Asteroids
Friday July 9th	Sandra Bratingham	Aurorae, Noctilucent Clouds and STEVE
Friday August 13th	TBD	The lighter side of Astronomy and Ancient Light

This is **Noctilucent Cloud** season, so look towards the north after sunset for a glimpse of these high-altitude (75 - 85km) clouds formed of ice crystals. Having a distinct wavy ethereal blue appearance they are so high that they are still illuminated when the sun is well below the horizon.

June	Event	
Friday	11th Mercury inferior conjunction, Moon near Venus	📷
Saturday	12th Io and Ganymede shadows	
Sunday	13th Moon near Mars	
Friday	18th Moon - first quarter	☾
Monday	21st Summer Solstice	
Wednesday	23rd Mars in front of M44	
Thursday	24th Moon - full	☉
Sunday	27th Moon near Saturn	
Tuesday	29th Moon near Jupiter	📷
July	Event	
Thursday	1st Moon - last quarter	☾
Friday	2nd Venus near M44	
Sunday	4th Mercury greatest western elongation	

Coventry and Warwickshire Astronomical Society
 The society usually meets on the second Friday in the month, at Earlsdon Methodist Church Hall. The meetings begin at 19:15 and end at 21:30. **(Suspended until further notice)**

Web Site: <http://www.covastro.org.uk>
Mailing list - Note the change to groups.io
 Join the CAWAS mailing list and receive irregular information of astronomical events and CAWAS news.

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Chairman
 John 07762 061518 johndavis744@tiscali.co.uk

Mira editor
 Ivor 024 76319519 ivorlclarke@btinternet.com

Secretary
 Geoffrey 01926 335399 gjohnstone@btinternet.com

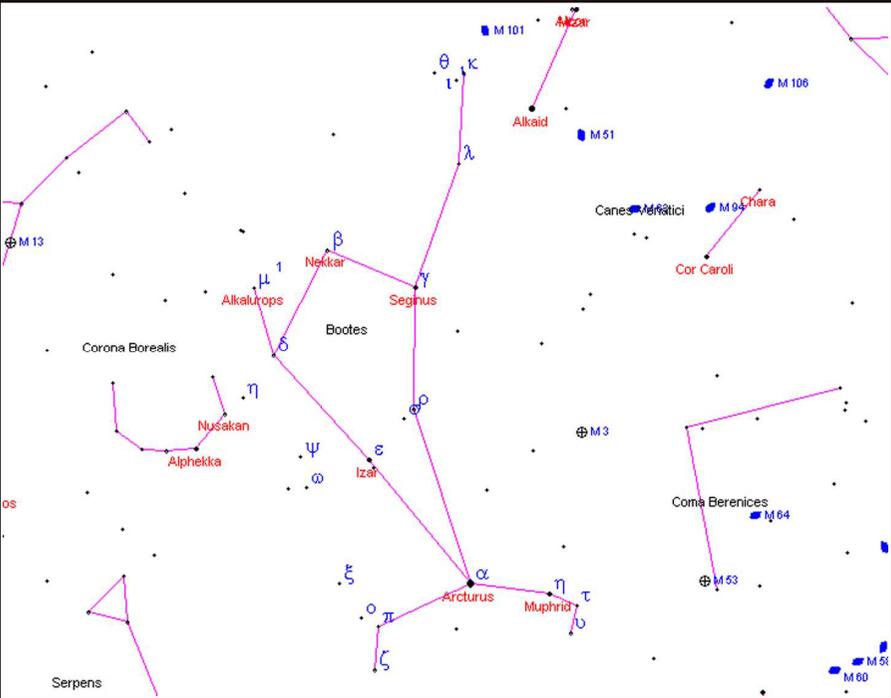
Vice Chairman
 Alan 024 76270169 alandocwho@yahoo.co.uk

Treasurer
 Vaughan 01926 402414

Skynotes
 Mark 024 76543689 mark@covastro.plus.com

Coventry and Warwickshire Astronomical Society

Sky Notes June 11th to July 9th 2021 No. 285



The Hunter and its Doubles

Boötes is easily located in the southern sky as its brightest star (Arcturus) at mag. -0.04 is the brightest star in the northern celestial hemisphere. Although devoid of bright deep-sky objects the constellation does contain a number of interesting double stars. A few notable ones are:-

- κ magnitudes $+4.6$ and $+6.6$ separated by $13.4''$
- ι $+4.9$ & $+7.5$ sep. $38.5''$ ϵ $+2.5$ & $+4.9$ sep. $2.8''$
- ξ $+4.7$ & $+6.9$ sep. $6.6''$ π $+4.9$ & $+5.8$ sep. $5.6''$

μ is actually a double double, but one component has a separation of only $0.08''$ so appears as a single mag. $+4.3$ star separated by $108.3''$ from a double star of magnitudes $+7.2$ and $+7.8$ separated by $2.2''$.

Time given in these skynotes is Co-ordinated Universal Time (UTC) known as GMT here in the UK. Add one hour to get clock time in BST.

Sun moves north from Taurus into Gemini until the Summer Solstice at 03:32 on June 21 after which it starts to move south again. As the Sun, even at midnight, never goes more than 15° below the horizon during the month astronomical twilight never ends and the sky never really becomes dark.

June 11th	Rise 03:44	Set 20:27	Dec +23° 6'
July 9th	Rise 03:55	Set 20:26	Dec +22° 20'

Mercury (+5.3 12.2" 0.3% to -0.1 7.0" 50.4%) lies in Taurus and as it is at inferior conjunction on June 11 is not visible at the beginning of the month, but when it reaches greatest western elongation (21.6°) on July 4 it might be visible very low down in the ENE just before dawn.

Venus (-3.9 10.6" 93.6% to -3.9 11.5" 87.8%) moves from Gemini into Cancer and is visible very low in the WNW just after sunset, setting around 21:50. Like Mars it passes close to the Beehive Cluster (M44) on July 2 and July 3. On June 11 the crescent Moon lies 5° to the west and on June 12 6° to the east.

Mars (+1.8 4.0" to +1.8 3.8") lies in Cancer. On June 23 Mars passes directly in front of the Beehive Cluster, which normally would look spectacular except that it is very low in the WNW at sunset, setting 2 1/2 hours after the Sun at the beginning of the month and 1 1/2 hours at the end. On Jun 13 the crescent Moon lies 2° to the north.

Jupiter (-2.6 42.6" to -2.7 46.3") lies in Aquarius and gradually moves into the evening sky throughout the month, rising just after midnight at the beginning of the month and 22:20 at the end, making it visible low in the southeast in the early hours. On June 12 Io and its shadow both transit Jupiter and they are also joined by the shadow of Ganymede. Io's shadow is first visible at 01:12. Io's transit starts at 02:34 and Ganymede's shadow at 02:38. On June 29 the Moon lies 6° to the south.

Saturn (+0.5 17.8" to +0.3 18.4") lies in Capricornus and is visible low in the SE in the later part of the night rising at 23:30 at the beginning of the month and 21:30 at the end. Currently the rings are tilted towards Earth by about 17° so are easily seen. On June 27 the Moon lies 7° to the south.

Uranus (+5.9 3.4" to +5.8 3.5") lies in Aries and throughout the month gradually starts to attain a reasonable altitude in the east in the early hours of the morning.

Neptune (+7.9 2.2" to +7.9 2.3") lies in Aquarius and is visible low in the SE in the early hours of the morning.

Asteroids reaching opposition this month are:-
(30) Urania mag. +10.7 in Ophiuchus on June 14.
(5) Astraea mag. +10.8 in Sagittarius on June 19.
(419) Aurelia mag. +10.2 in Sagittarius on June 21.
(27) Euterpe mag. +10.5 in Sagittarius on July 3.

Alcor and Mizar form a well-known naked eye double in Ursa Major, but Mizar itself is actually four stars - two spectroscopic binaries Mizar A (mag. +2.23) and Mizar B (+3.88) separated by 14.4". Mizar A being the first spectroscopic binary discovered, by Antonia Maury in 1889.



Alcor

Mizar

Nearby is another curious star, as although it is only 8th magnitude, it carries the name of Sidus Ludoviciana. It was named by Prof J. G. Liebknecht of Giessen University on Dec 2, 1722 in honour of his sovereign the Landgrave Ludwig of Hessen-Darmstadt. He believed it to be a new planet as he had made some inaccurate measurements and thought that it was in motion. The other astronomers of the day criticised his observations, with Professor L.P. Thümmig of Halle saying that it was scarcely necessary for Liebknecht to announce every telescopic star as new and to give it a special name. The curious thing is that none of these eminent astronomers noticed that Mizar was double!

Moon reaches perigee at 10:56 on June 23 making the full Moon on June 24 appear larger than normal (a 'super' Moon) with an angular diameter of 33' 05". In contrast its diameter is only 29' 30" when it reaches apogee at 15:47 on July 5. Although we are all familiar with the craters and mountains on the Moon it is always worth looking more closely to see if any **Transient Lunar Phenomena** (TLP) occur. These describe a number of strange occurrences that have been noticed on the surface of the Moon. These have been reported as flashes, strange coloured glows or hints of gaseous clouds. Numerous explanations have been made for these events and famously a meteor strike that produced a flash of light was recorded during a lunar eclipse. Interestingly, the glows have been attributed to fluorescence produced when charged particles from the solar wind, or X-rays from powerful solar flares, strike the Moon's surface. With the Sun becoming more active as it comes out of sunspot minimum it will be interesting to see if these glows become more numerous.