

The June night sky shows almost continuous twilight, the summer solstice on June 20<sup>th</sup> marks the shortest night, the start of summer in the northern hemisphere and the start of winter in the southern hemisphere. The bright conditions limit observations to the planets and brighter stars and observations of deep sky and low surface objects such as comets made more difficult. When the sun is just below our northern horizon and can illuminate ultra high level clouds around 90 minutes after sunset or 90 minutes before sunrise. These Noctilucent Clouds (NLC) appear low in the NW and NE and are characteristically electric blue in colour. The latest news at the time of writing is that NLC season has begun early this year. The earliest sunrise occurs on June 17<sup>th</sup> and the latest sunset occurs June 25<sup>th</sup>.

Of special interest is 20% partial solar eclipse visible from Luton on morning of June 10<sup>th</sup>, first contact is 10:08 BST mid eclipse occurs at 11:13 BST and eclipse ends at 12:22 BST . **Please note only use safe solar projection methods, Do NOT look directly at the Sun with the naked eye or any form of unfiltered optical aid (ie use an approved front end solar filter)** . More information refer to [see www.lutonastrolink.org](http://www.lutonastrolink.org) *links to the SPA for details.*

Also details on line at [www.skyatnightmagazine.com/advice/skills/solar-eclipse-10-June2021](http://www.skyatnightmagazine.com/advice/skills/solar-eclipse-10-June2021)

Mercury is at inferior conjunction on June 11<sup>th</sup> and so is not visible in June , returning to dawn skies next month ..

Venus is visible low in the NW in early evening twilight setting after 22:30 BST

Mars is visible low in evening twilight in the constellation of Cancer [The Crab], it is recognisable by its red colour although it presents a tiny 4 arc sec apparent diameter disk and is now only +1.8m magnitude. Mars is located just south of the Beehive Cluster (M44) on June 22<sup>nd</sup>.

Around late evening the ringed planet Saturn rises low in the SE in the constellation of Capricornus [The Goat] , the ring system is slightly less open than in 2020 but good views can be obtained with modest telescopes , one of Saturn's family of moons Titan is also seen as a star like point telescopically . Saturn appears as a yellow coloured star to the unaided eye, binoculars will also show the ring system, larger telescopes show more detail within the rings including the famous Cassini division . Saturn reaches opposition in early August.

After midnight the bright planet Jupiter is rising in the SE in the constellation of Aquarius [The Water Carrier]. Jupiter is unmistakable bright at -2.5m magnitude. Small telescopes show the planets cloud belts and the up to four of the Galilean moons Io, Europa, Callisto and Ganymede as tiny star like points. During June there are a number of shadow transits visible with larger telescopes the times of these events visible in the pre dawn hours may however be a challenge for all but the most enthusiastic observer.

Low in the southern aspect by late evening the summer skies treat is the constellations of Sagittarius and Scorpius Sagittarius [The Archer] is easily recognised by the famous `Teapot` asterism of stars. The Milky Way rising from the `spout` contains some very rich star fields Use binoculars to see the myriad of stars in these rich star clouds, best seen on clear dark moonless evenings from darker locations away from artificial lights.

Scorpius [The Scorpion] the upper part of the `head and claws` marked by three stars is visible low in the south in June twilight. The red star Antares the name means `rival to Mars` is easily identified ` Also in the constellation is a nice globular cluster M4 just west of Antares and M80 a binocular field of view to the north west of Antares.

In the south west the constellation of Virgo as twilight fades contains the white star Spica and the Virgo Cluster of Galaxies , the light sky conditions however mean that even at midnight the fainter objects are `difficult` to view even with larger aperture telescopes.

Our own Milky Way galaxy stretches from the constellation of Auriga [The Charioteer], marked by the bright star Capella through the constellations of Perseus and Cassiopeia all now positioned low in the north. In the east however the summer constellations of Cygnus [The Swan or Northern Cross] now rises by late evening. The bright star Vega in the adjacent constellation of Lyra [The Lyre] is seen in the north east and Altair in the constellation of Aquila low in the east by late evening. Vega, Altair and Deneb, in the constellation of Cygnus form the `Summer Triangle` asterism, a useful sign post for the summer skies. Look with binoculars along the central axis of Cygnus , down through Aquila into the south and see the rich star fields of Scutum and Sagittarius , with the famous `Teapot` asterism, low in the south in the early morning hours in June and late evening in July.

Adjacent to Lyra the familiar `keystone asterism` of the constellation Hercules is noted for the Globular clusters M13 and M92 the former containing some 750,000 stars, a nice view in a small telescope .

The familiar asterism of the plough in the constellation of Ursa Major, The Great Bear is seen high overhead with its handle or tail pointing upwards mid evening. Use the right hand pair of stars Dubhe and Merak (The pointers) to find the faint pole star Polaris and the position of North.

High in the south west the bright orange star Arcturus in the constellation of Bootes [The Herdsman] is the brightest star in the northern hemisphere of the sky. Between Arcturus and the Keystone asterism in Hercules lies the `U` shaped constellation of Corona Borealis [Northern Crown].

The moon is a welcome object to view in twilight conditions and small telescopes show a wealth of detail especially around First Quarter phase when the low angle of the Sun casts long shadows across the lunar surface for craters and features located along the terminator. The constantly changing illumination evening to evening changes the shadow detail. One specialist type of observing is Clair –obscur effect, a number of named features / effects visible at specified times. Sky at Night magazine (June 2021) mentions one such effect – *The Eyes of Clavius* – Two crater rims within the Clavius complex are partially lit from 21:00 BST on June 18<sup>th</sup> `.

Asteroid 3 Juno and Asteroid 30 Urania both reach opposition on this month in the constellation of Ophiuchus. Juno at magnitude 10.1m peaking around June 3<sup>rd</sup> and Urania at magnitude 11.0m on June 14<sup>th</sup> – both within range of moderate aperture telescopes however the bright twilight skies tend to be a problem [ LAS Newsletters 296 and 295 respectively ]

Interest in periodic comet 7P Pons - Winnecke in recent weeks within the online comet observing groups remains an extreme challenge for imaging techniques at magnitude 12m for the enthusiast in the midnight hours equipped with larger aperture telescopes at lower latitudes, the comet is located in Aquarius and so is poorly placed in our UK skies.

## Planets in June 2021

Mercury reaches inferior conjunction June 11<sup>th</sup> – Not visible.

Venus shines brightly (-3.9m) low in early evening twilight – setting by 22:30 BST

Mars is visible in the constellation of Cancer in early evening twilight.

Jupiter shines brightly in Aquarius (-2.6m) low in the south east by midnight (mid month), telescopes show cloud belt detail and Galilean moons. Jupiter reaches opposition in late August but remains very low in UK skies.

Saturn rises before midnight in Capricornus s low in south east aspect. Although it is low in our June skies it has the ring system open at 16 degrees – a classic view of this `gem` of the solar system.

Uranus in Aries is poorly placed in pre dawn skies,– best views in autumn skies.

Neptune in Aquarius and is visible in midnight skies – best seen in autumn skies

## Moons phases in June 2021

New Moon	June 10th	Moonless, best time for deep sky and Milky Way observing.
First Quarter	June 18th	Best days to see shadow details in lunar craters (early evening) **
Full Moon	June 24th	Best days to see bright ray craters like Copernicus / Tycho.
Last Quarter	June 2nd	Moon visible in daytime skies. Do not look directly at the Sun.

## Meteor shower s

Ophiuchids – peak June 10<sup>th</sup> to June 20<sup>th</sup> – low rates unfavourable  
June Bootids peak June 28<sup>th</sup> range June 22<sup>nd</sup> to July 2<sup>nd</sup>, quite favourable low rates  
June Lyrids, peak June 16<sup>th</sup> – quite favourable, low rates

## The highlights of the month.

Partial Solar Eclipse 20% mid eclipse 11:13 BST June 10<sup>th</sup> **Use only a safe solar projection method Do NOT look at the Sun directly with the naked eye or any form of unfiltered optical aid**

Saturn low in south east before midnight in late June , rings open at 20° De [tilt] showing Saturn's North Pole.

Jupiter rises late evening in late June, telescopic cloud belt details, Galilean moons and shadow transit events

Blood red star Antares in the constellation of Scorpius low in the south in the late evening sky

Noctilucent cloud –watch the NW skies 90 to 120 minutes after sunset.

Rich star fields of Scutum and Sagittarius in the south and of Cygnus low in the north east late evening (moonless).

Summer solstice June 20<sup>th</sup> 04:32 BST, earliest sunrise June 17<sup>th</sup> 04:41 BST, latest sunset of the year June 24<sup>th</sup> 21:25 BST

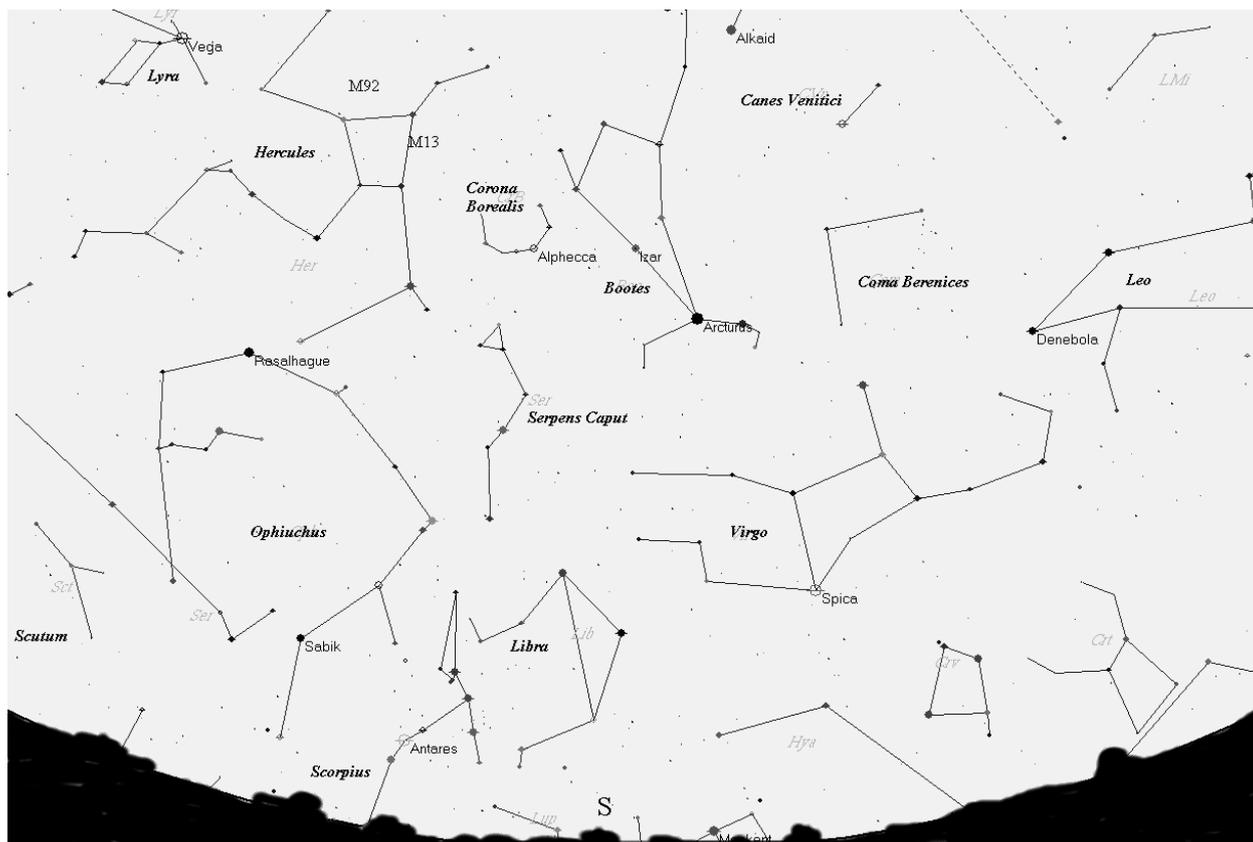
Full Moon rising June 24<sup>th</sup> -Moon illusion at moon rise at 21:41 BST , close to perigee making this a `Supermoon` .

Waxing crescent Moon a thin waxing 1.7% crescent Moon on June 11th , look low close to the NW horizon from 30 minutes after sunset from around 21:50 BST until moonset at 22:42 BST **Caution. Do NOT look at the Sun directly with or without optical aid.**

Note the waxing crescent Moon has a dimly lit part made visible by Earthshine is readily seen with binoculars or small telescope. **Only look for the crescent Moon after the sun has completely set.**

More detailed sky notes and LAS Newsletters, Finder charts are available to LAS members via the Members` page on the LAS Website [www.lutonastrolink.org.uk](http://www.lutonastrolink.org.uk). Enquiries via the contact form on the website .

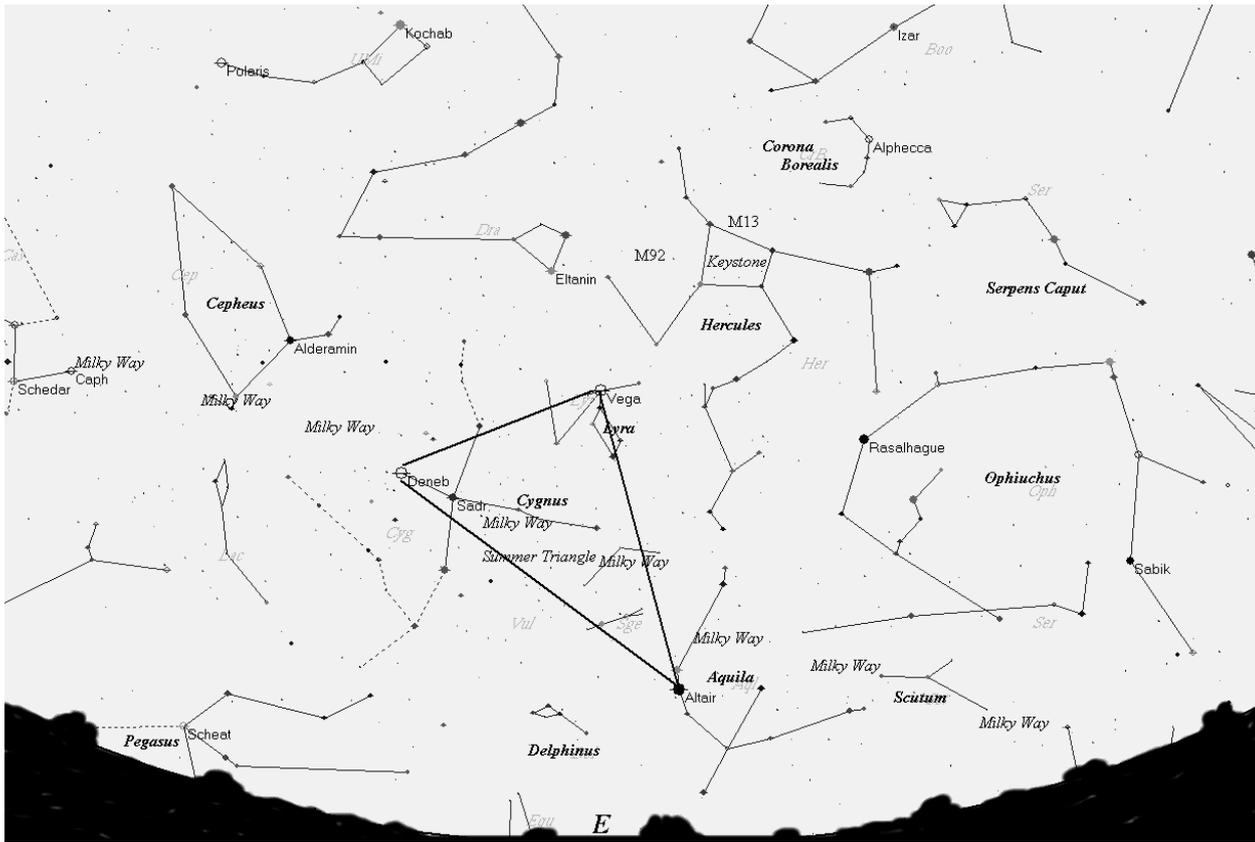
Sky looking south at 23:30 British Summer Time (BST), early June 2021



Scorpius located to the west of the `Teapot` asterism is recognised by the three stars forming the claws and the bright star Antares, the star known as `The rival to Mars` due to its distinctive blood red colour.

The orange star Arcturus, the brightest star in the northern hemisphere, is found by following the curve of stars in the handle of the Plough down. The constellation of Bootes, resembles a `kite` or `Club` in shape. The star Izar is a beautiful orange/ blue double star visible in small telescopes (60mm OG, x120). To the east of Bootes find the `horseshoe` shaped constellation of Corona Borealis (Northern Crown) and the `Keystone` Asterism in the constellation of Hercules. Hercules also has M13 the famous Globular Cluster, visible to the unaided eye as a misty patch; telescopes show the true wonder of this cluster with over 750,000 stars. Likewise another nice globular is M92 in Hercules.

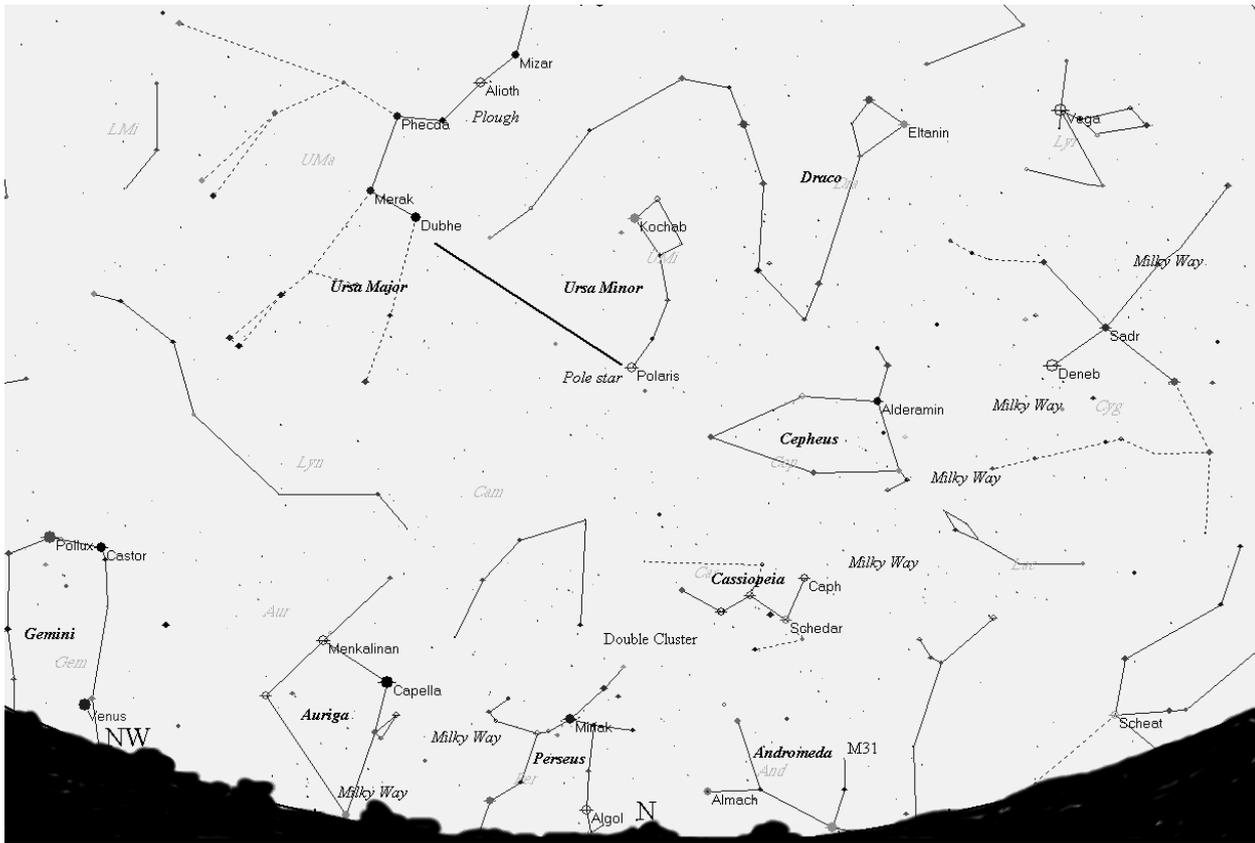
Sky looking east at 23:30 BST early June



In June the summer constellations of Lyra and Cygnus are rising by late evening, the Milky Way may be visible on moonless evenings from a dark site, subject to twilight. Binoculars show the rich star fields and dark lanes of the Milky Way. Also of note is the beautiful orange /blue double star Albireo ( $\beta$  Cygni) easily seen with small telescopes.

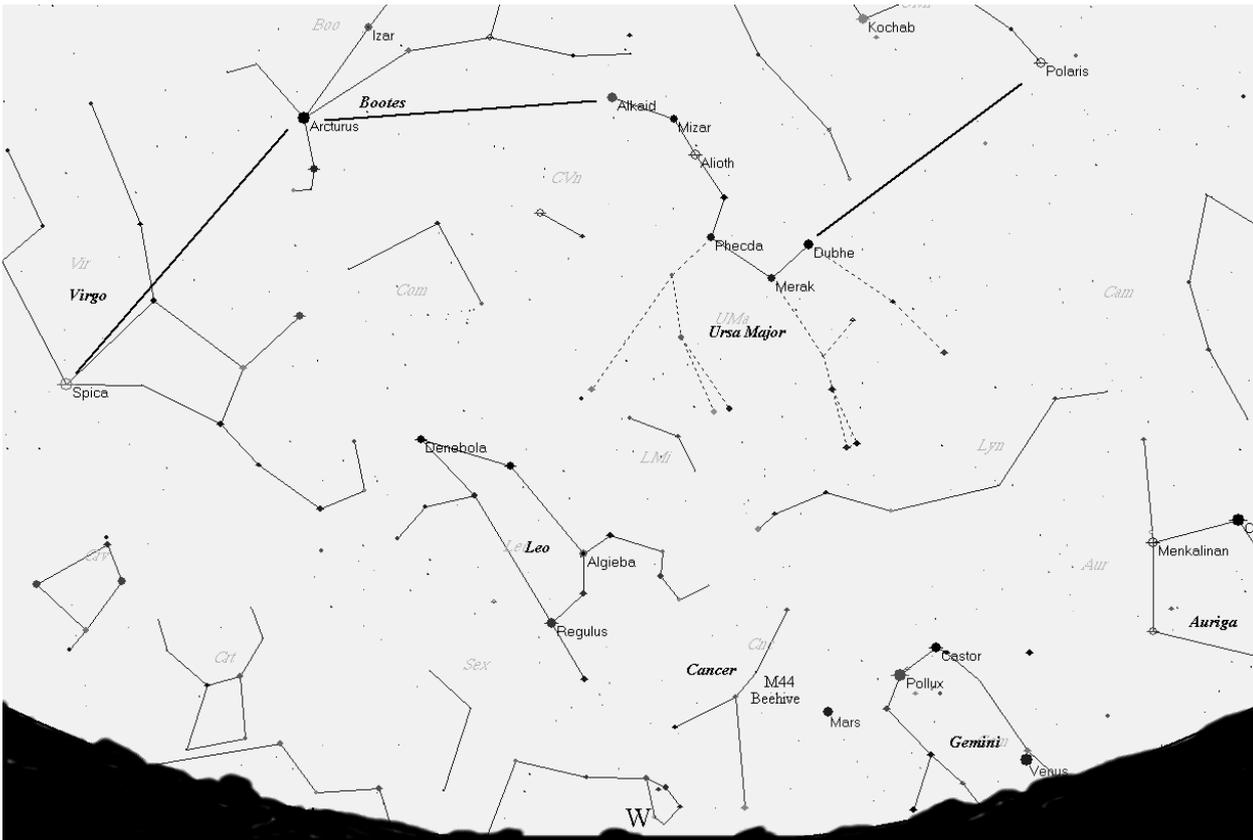
The Summer Triangle asterism formed by the three bright stars Vega, Altair and Deneb is a useful guide for finding your way around the summer night sky

Sky looking north at 23:30 BST in early June.



The Plough stands with its handle pointing upward follow the pointer's Dubhe and Merak to find the polestar Polaris. The 'W' shaped constellation of Cassiopeia is at its lowest point in the north late evening. The Milky Way follows the galactic equator and stretches from east through the constellations of Cygnus, Cassiopeia, Perseus and down into the northern horizon. The bright star Capella is an easy spot low in the NE at midnight.

Sky looking west at 22:30 BST in mid June



Venus sets by around 22:30 early June and 23:00 BST by late June – look low in the NW from 30min after sunset.

The orange star Arcturus is found by following the curve of stars in the handle of the Plough down. The constellation of Boötes, resembles a `kite` or `Club` in shape. Continue the `arc` through Arcturus to find the white star Spica in the constellation of Virgo.