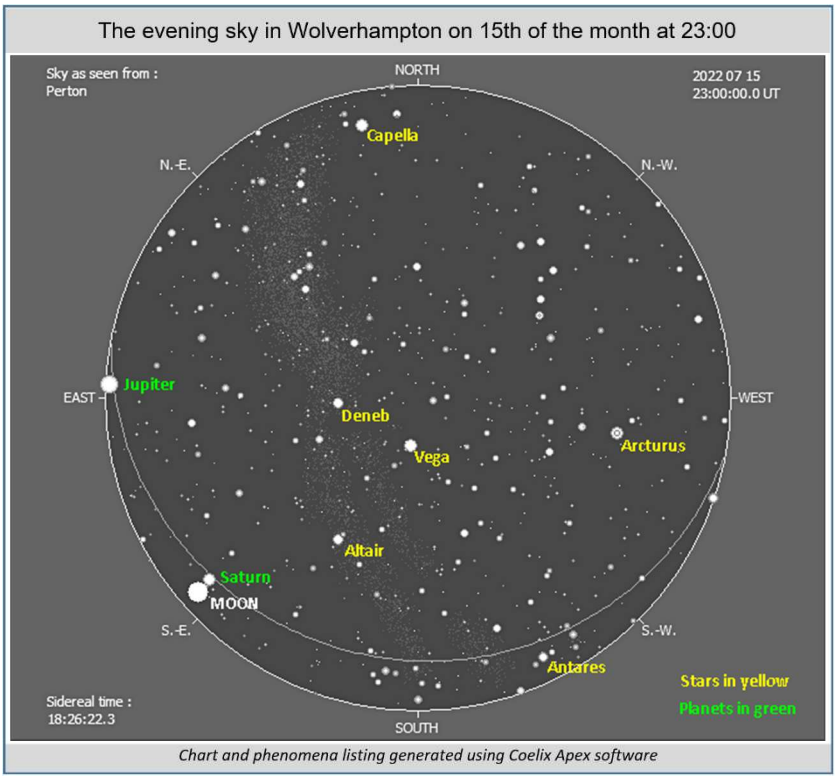
The Night Sky in July 2022
- a quick and easy guide



PERTON LIBRARY ASTRONOMY GROUP

Monthly Guide Compiled by Doug Bickley

MOON PHASES	
First quarter	7 July
Full Moon	13 July
Third (last) quarter	20 July
New Moon	28 July

Space Diary

Events this month to look out for:

3 Crescent Moon above left of Regulus (evening twilight)
7 Moon above Spica (evening twilight)
10 Moon near Antares (evening twilight)
13 Full Moon
16 Moon below Saturn (morning)
19 Moon below Jupiter (morning)
22 Moon rises between Mars and Uranus (morning)
23 Crescent Moon below right of Pleiades M45 (morning)
24 Crescent Moon above left of Aldebaran and the Hyades (morning)
26 Crescent Moon above Venus (morning twilight)
27 Slim crescent Moon left of Venus (morning twilight)
28 New Moon
30 Delta Aquariid meteor shower peak

Noctilucent Clouds

Midsummer in the Northern Hemisphere is now past and nights slowly begin to get longer. But the skies in July are never truly dark, with twilight persisting all night (see last months guide).

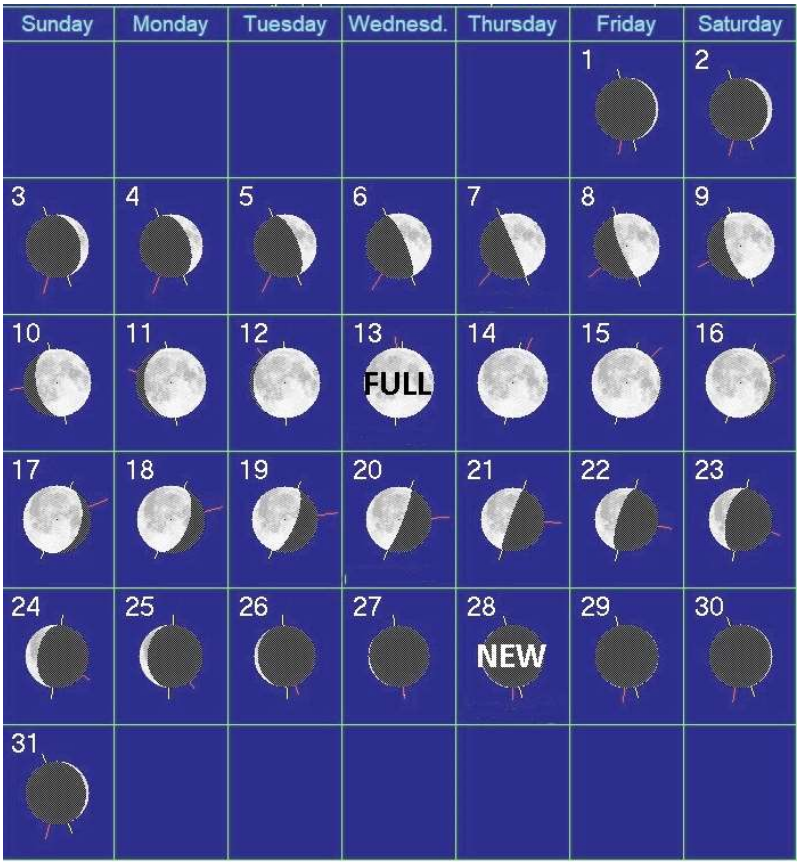
But the Noctilucent Clouds season is now with us and we are in the middle of the season for them. These clouds are extremely rare very high clouds seen in the night sky, usually on clear, summer nights. They become visible as swirls, curls and tendrils shining in the sky at about the same time as the brightest stars

come out and are usually bluish or silvery as they catch the light of the sun, towards the northerly horizon, but are impossible to forecast.

Noctilucent Clouds are caused by clouds of icy dust at very high altitude on the edge of space, around 50 miles, when temperatures and pressures in the upper atmosphere are just right.

They are then illuminated by the Sun long after it has set for us at ground level, and we see them as blue-white swirls in the sky. That's what their name means – 'nocti' (night) 'lucent' (shining).

Moon



[graphic generated by Coelix Apex software]

New moon is on 28 July and the Full Moon is on the 13 July.

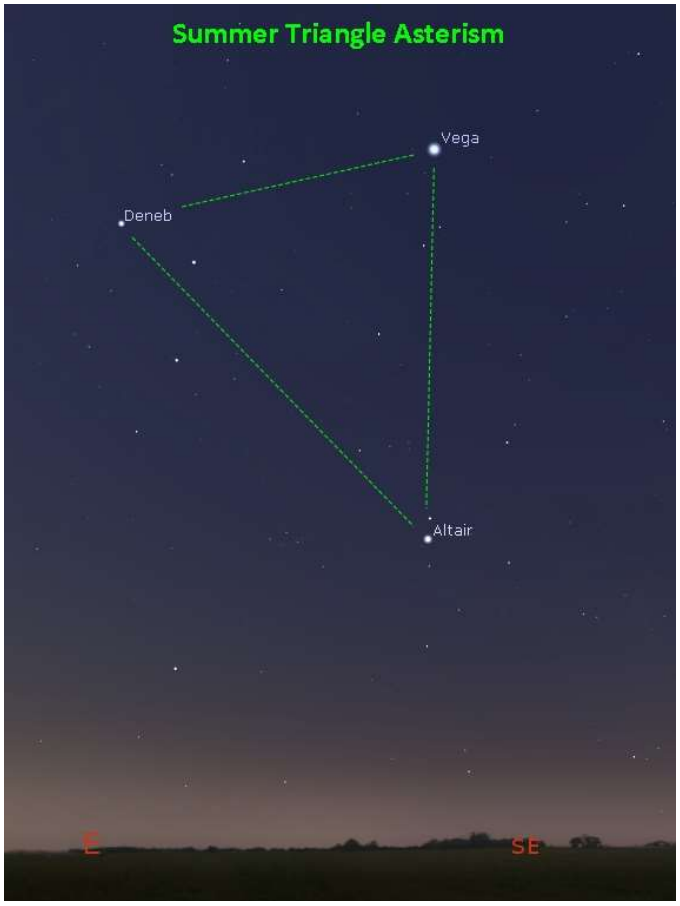
As I mentioned last month, when the Full Moon occurs near its closest approach to Earth (perigree) as in June, it is often called a Supermoon. The one in July could therefore be called a Super Buck Moon and it will be the biggest supermoon of the year.

Full Moons in July are named colloquially after the Native American Buck Moon, so called because male deer, which shed their antlers every year, begin to regrow them in July.

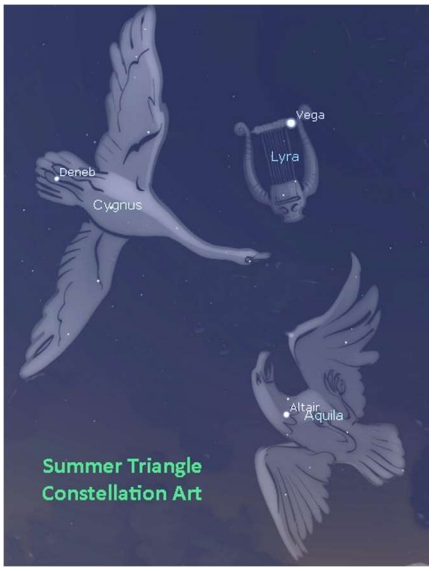
Some refer to this moon as the thunder moon, due to the summer storms in this month. In Celtic, this Moon was known as the Claiming Moon, Wyrt Moon, Herb Moon, and Mead Moon, indicating that July is the time to gather herbs (or wyrts) to dry and use as spices and remedies. The Anglo-Saxons called it the Hay Moon after the hay harvest in July.

July night sky

In the July night sky, the Summer Triangle asterism dominates the summer evening skies, marked out by three brilliant stars – Vega, Altair and Deneb.



From the UK, Vega passes almost overhead during summer evenings, and standing out particularly well because there are no other bright stars close by; the constellation of Lyra contains no other star above the third magnitude. Vega is decidedly bluish in colour, a lovely sight in binoculars or a small telescope.



[graphics generated by Stellarium software]

Although the three stars are bright they are actually at massively different distances from the Earth – Vega at 25 light years away so it's light started towards in 1997, Altair is a closer neighbour at a distance of 17 light years away, but Deneb is very remote, probably 3000 light years away.

Found among this huge asterism consisting of the constellations Lyra, Aquila, and Cygnus can be found double stars, famous variable stars, as well as nebulae and supernova remnants. The latter includes the Ring (M57) Nebula and the Veil Nebula.

A note about the ISS, which has been in the news recently, not least for its "swerve" manoeuvre when it had to avoid a piece of debris created by a Russian missile test in November when they took out their satellites Cosmos 1408 and created a swarm of shrapnel.
The longest-serving space station ever, the International Space Station was constructed by astronauts starting in 1998, and has been continuously occupied since November 2000. Most astronauts live there for six months at a time, studying the health effects of long-term missions in space. Plans only exist for use of the ISS until 2028 after which it could be deorbited, or recycled for future space stations in orbit. NASA and SpaceX are now targeting no earlier than July 11 for launch of the CRS-25 cargo resupply mission to the International Space Station, which will be the 25th uncrewed resupply mission that SpaceX flies to the orbiting lab for NASA.
Look out for the International Space Station passes all month (see table later).

Planets this month

Here is the usual run down of planetary movements for the month of July. The planets are still morning objects at this time of year and if you like planetary observing you need to wait until later in the year.

Jupiter is still in the S in the NW corner of Cetus (the Whale), at a decent altitude of 38° and is still very much a morning planet. However, nights are lengthening and views of the planet are improving. On the morning of 19 July a 65%-lit waxing gibbous Moon is close by.

Saturn is still in the S in Capricornus at an altitude of 22° in the morning sky. As for Jupiter things begin to improve for Saturn this month, as we're past the June solstice. As it approaches opposition on 14 August, Saturn is able to reach its highest position in the sky, due south, in relative darkness from mid-month onwards. On the morning of 16 July a 91%-lit waning gibbous Moon sits below Saturn, the pair rising at around 23:20.

Mars is now in Aries at an altitude of 37° in the ESE. It is a morning planet, improving in appearance over the course of the month. On 1 July, Mars shines at mag. +0.5 and larger telescopes may start to reveal surface features. By the end of the month, the planet will have brightened slightly to mag. +0.2 and on 22 July a 35%-lit waning crescent Moon sits close by. On 31 July Mars will be only 8° from mag. +5.8 Uranus.

Venus is in the ENE in Gemini at an altitude of 9° and currently a morning object, shining at mag. -3.8. During the month it rises a couple of hours before the Sun. In a medium sized telescope you may see a 90%-lit disc. A waning crescent Moon is nearby on the mornings of the 26 and 27 July.

Mercury is still very low at an altitude of only 4° in the NE in Taurus. Mercury is a morning planet at the start of July, brightening as it creeps towards the Sun. On 1 July it shines at mag. -0.7 and rises 70 minutes before sunrise. By the 7th, it brightens to mag. -1.2 but rises only 55 minutes before the Sun. The last date of visibility is probably 12 July, when it rises at mag. -1.7 above the NE horizon, 30 minutes before sunrise. Superior conjunction is on 16 July, after which it emerges into the evening sky but is poorly placed.

Uranus is a morning planet at an altitude of 21° in the E in Aries. Viewing will improve towards the end of the month.

Neptune is in the SE in Pisces at an altitude of 29° but is poorly placed in the morning sky at the start of the month. However by month end it will reach an altitude of nearly 30° under dark skies.

Meteor Showers

Towards the end of the month, on 30 July, the Delta Aquariid meteor shower will reach its peak, although meteors may be visible from 12 July to 23 August. The Aquariids leave 'trains', persistent glowing trails from the fireball that linger in the sky for several moments.

The shower is produced by debris trails from the comets Marsden and Kracht. Although it is not of one the prolific meteor showers, it is expected to deliver about 20 or so meteors per hour during its peak. The waning crescent Moon is not expected to interfere during the peak hours, but as always it is recommended that you make observations from a dark spot, since meteors from this shower are generally not overly bright or luminous and the best time to start your quest is after midnight. Unfortunately for us in the UK those in the southern hemisphere will have a better chance. Note that while the radiant is located in the constellation Aquarius, meteors can appear from almost any point in the sky.

International Space Station (ISS) forecast time for evening passes visible this month.

Lots of visible passes this month, many are in the wee small hours but here are the ones forecast from 10pm to midnight. Data from the Heavens-Above website, always best to check nearer the time and even better download one of the apps shown below.
[source: https://www.heavens-above.com/]

Date	Mag	Transit time	Start Time	Start Alt.degs.	Start Az.	High point	End Time	End Alt.degs.	End Az.
09-Jul	-1.7	00:58	23:56	15°	ESE	15°	23:56	10°	E
11-Jul	-3.1	06:07	23:50	10°	SW	33°	23:56	10°	E
12-Jul	-2.7	05:34	23:02	10°	SSW	24°	23:08	10°	E
13-Jul	-2.2	04:39	22:14	10°	S	18°	22:19	10°	E
13-Jul	-3.7	06:33	23:50	10°	WSW	53°	23:56	10°	E
14-Jul	-3.4	06:23	23:01	10°	SW	42°	23:07	10°	E
15-Jul	-3.0	06:02	22:13	10°	SW	31°	22:19	10°	E
15-Jul	-3.9	06:42	23:49	10°	WSW	72°	23:56	10°	E
16-Jul	-3.8	06:39	23:00	10°	WSW	63°	23:07	10°	E
17-Jul	-3.6	06:32	22:12	10°	WSW	51°	22:18	10°	E
17-Jul	-3.9	06:42	23:48	10°	W	77°	23:55	10°	E
18-Jul	-3.9	06:42	23:00	10°	W	77°	23:06	10°	E
19-Jul	-3.8	06:41	22:11	10°	WSW	71°	22:18	10°	E
19-Jul	-3.8	05:21	23:47	10°	W	65°	23:53	22°	ESE
20-Jul	-3.9	06:38	22:59	10°	W	74°	23:05	10°	ESE
21-Jul	-3.8	06:42	22:10	10°	W	77°	22:17	10°	E
21-Jul	-3.4	04:09	23:47	10°	W	44°	23:51	34°	SSE
22-Jul	-3.6	05:37	22:58	10°	W	56°	23:04	18°	ESE
23-Jul	-3.7	06:41	22:09	10°	W	67°	22:16	10°	ESE
23-Jul	-2.6	03:05	23:46	10°	W	26°	23:49	26°	SSW
24-Jul	-3.0	04:44	22:57	10°	W	35°	23:02	22°	SSE
25-Jul	-3.3	06:21	22:08	10°	W	46°	22:15	11°	SE
25-Jul	-1.6	01:43	23:46	10°	WSW	14°	23:48	14°	SW
26-Jul	-2.0	03:48	22:57	10°	W	20°	23:00	17°	S
27-Jul	-2.5	05:39	22:07	10°	W	28°	22:13	11°	SSE
28-Jul	-1.2	01:16	22:57	10°	SW	10°	22:58	10°	SSW
29-Jul	-1.5	04:07	22:07	10°	WSW	15°	22:11	10°	S

Android:
ISS Detector Satellite Tracker

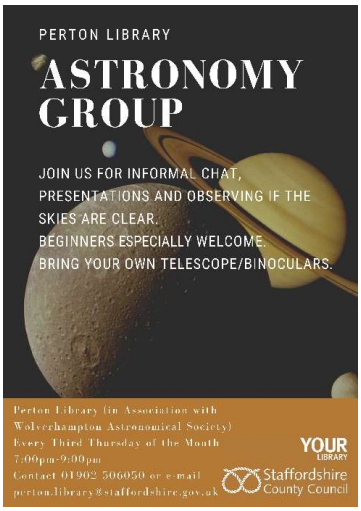
IOS:
ISS Spotter

Phenomena of the month of July *(generated using Coelix Apex software)*:

	Date	Hour	Description of the phenomenon
	yyyy mm dd	hh:mm	
1	2022 07 01	09:02	Close encounter between Venus and Aldebaran (topocentric dist. center to center = 4.1°)
2	2022 07 04	07:00	The Earth at its aphelion (distance to the Sun = 1.01672 AU)
3	2022 07 06	11:26	Close encounter between Mercury and M 35 (topocentric dist. center to center = 0.9°)
4	2022 07 07	02:14	FIRST QUARTER OF THE MOON
5	2022 07 10	22:00	Mercury at its perihelion (distance to the Sun = 0.30750 AU)
6	2022 07 13	09:08	Moon at perigee (geocentric dist. = 357264 km)
7	2022 07 13	18:37	FULL MOON
8	2022 07 16	19:37	SUPERIOR CONJUNCTION of Mercury with the Sun (geoc. dist. center to center = 1.5°)
9	2022 07 19	03:59	Close encounter between the Moon and Jupiter (topocentric dist. center to center = 2.8°)
10	2022 07 19	23:59	Close encounter between Venus and M 35 (topocentric dist. center to center = 1.5°)
11	2022 07 20	14:18	LAST QUARTER OF THE MOON
12	2022 07 26	10:22	Moon at apogee (geocentric dist. = 406275 km)
13	2022 07 26	16:42	Close encounter between the Moon and Venus (topocentric dist. center to center = 3.6°)
14	2022 07 28	00:00	Meteor shower : Piscis Austrinids (5 meteors/hour at zenith; duration = 26.0 days)
15	2022 07 28	17:55	NEW MOON
16	2022 07 30	00:00	Meteor shower : Alpha Capricornids (5 meteors/hour at zenith; duration = 43.0 days)
17	2022 07 30	00:00	Meteor shower : S. Delta Aquarids (25 meteors/hour at zenith; duration = 43.0 days)

[table generated by Coelix Apex software]

PERTON LIBRARY ASTRONOMY GROUP (PLAG)



The group meets on the third Thursday of every month of the year at Perton Library (WV6 7QU), from 7pm to 9pm. No subscription, no need to book, all free, just drop in at any time during the evening.

As we come out of lockdown, we want to re-launch the group as it was, a relaxed and friendly gathering with the occasional talk.

We are particularly suited to beginners who very often bring their telescopes along for advice on how to set up – we have experienced members who can help with this. If the skies are clear we do try to do some observing from an area at the rear of the building.

WOLVERHAMPTON ASTRONOMICAL SOCIETY LECTURES

After a very successful season of online lectures we are now planning for the 2022/23 season and have already booked speakers. Talks will now be in person probably also streamed to our YouTube channel, and we may combine this with a hybrid streamed service. Links to anything online will only be available to paid-up members.

The host location for our new live talks will be the University of Wolverhampton in the city centre. Access and facilities are excellent and car parking adjacent. We will send full details later.

Live lectures will be supplemented by the occasional online lecture, please keep an eye on our social media pages and the website for announcements. We will maintain Monday evening chat nights on Zoom, with again the first 30 minutes for beginners to ask questions. In these sessions we give basic astronomy advice and swap tips, sometimes with a short talk.

Invitations to all talks are emailed to members. For the coming year Wolvas subscription remains a bargain at £10 per annum and you can sign up now our website www.wolvas.org.uk and pay your subscription by bank transfer or other means (see website).

The 2021/22 lecture season is now finished and as usual we have a break over the summer. The 2022/23 season begins in September, here is a taster for the next programme of speakers:

12/09/22	Andrew Gascoyne	Solar Physics - The Coronal Heating Problem.....Solved?
26/09/22	Steve Wootton	'David Harris' Lecture - Planning an Observation Night
10/10/22	Phil Barnard	(post AGM) The Linscott Telescope
24/10/22	Gary Poyner	An Introduction to Variable Star Observing
07/11/22	Prof.Don Pollacco	The PLATO Mission - The Habitable Zone Explorer
21/11/22	Dr Jonathan Smoker	*TBA*
05/12/22	Mary McIntyre FRAS	A History of Women in Astronomy
17/04/23	Martin Lunn	Astronomy in the Mediterranean

Lectures in person or online will only be available to paid-up members of Wolverhampton Astronomical Society. We continue to try and bring you some of the best speakers around.

Watch out for updates

As well as our webpage www.wolvas.org.uk we will be posting details of events on social media, so keep an eye on our Facebook (https://www.facebook.com/wolvasuk) and Twitter (https://twitter.com/wolvasuk) accounts for the latest updates and news.