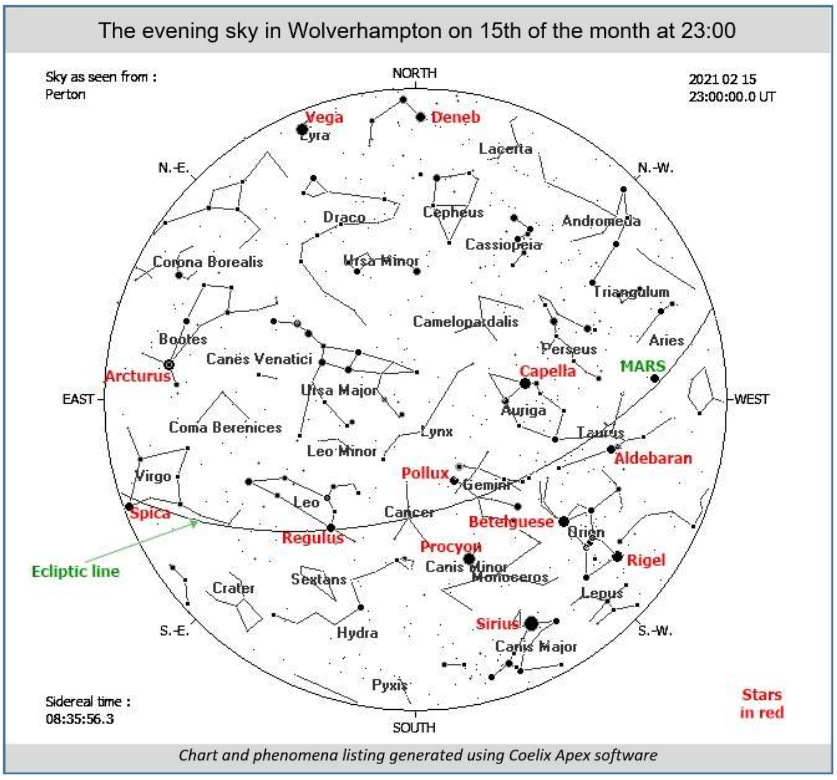
The Night Sky in February 2021
- a quick and easy guide



Perton Library Astronomy Group

Monthly Guide Compiled by Doug Bickley

MOON PHASES	
Third (last) quarter	4 Feb
New Moon	11 Feb
First quarter	19 Feb
Full Moon	27 Feb

Events this month to look out for:

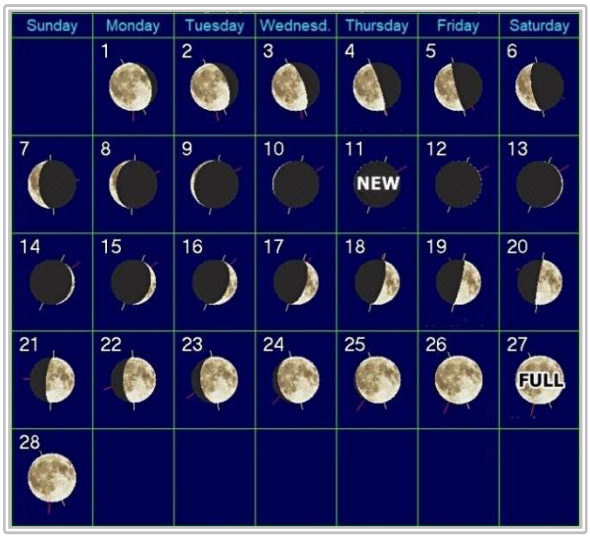
2 Moon close to Spica (morning)
10 Moon close to Saturn (morning)
17 Crescent Moon below Uranus (evening)
18 Moon below Mars (evening)
19 First quarter Moon forms triangle with Pleiades, M45 and Aldebaran (evening)
23 Moon forms triangle with Castor and Pollux (evening)
24 Moon above the Beehive Cluster M44 (evening)
25 Moon forms triangle with Saturn and Jupiter (morning twilight)
26 Almost full Moon lies left of Regulus (evening)

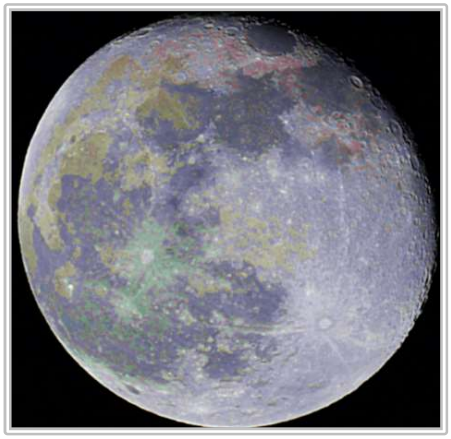
Moon

Full Moon is on February 27, this phase occurring at 03:17 UT. The February full moon has earned the name Snow Moon because of February's typically cold, snowy weather, other names being the Storm moon and Hunger moon.

On 11 February, there will be a New Moon, which means the Moon won't be visible in our night skies. Without the light of the Moon, this is the perfect time for stargazing.

Moon phases this month are shown here:
[Generated using CoelixApex software]





[picture by Doug Bickley]

Observing the Moon with the naked eye, you may see mostly patches of grey and white. The grey patches are ancient, solidified lava flows, while the white represent the Moon's primordial crust. Stretching the colours to unnatural levels as shown here is interesting and will show other lunar elements.

Colours on the Moon are dominantly controlled by variations in iron and titanium content. The mare regions have low reflectance because they contain relatively high amounts of iron oxide (FeO). Some mare basalts contain unusually high amounts of titanium oxide (TiO2) in addition to iron oxide, making for even lower reflectance. TiO2 also shifts the colour of the mare from red to blue.

There will be a good time in mid-month to see the Moon passing close to some well know celestial bodies as shown in this sequence showing the waxing crescent Moon from 17 to 20 of the month (generated from the free Stellarium software).
Let us hope for some clear skies as this will be an excellent photo opportunity.

Other tips for lunar observing:

Try binoculars (minimum magnification 7), or a telescope for more resolution and the opportunity to make out craters and mountain ranges.

During the Moon's crescent phases, pay special attention to the terminator, the dividing line marking the edge between day and night on the moon where the lunar topography may cast long shadows and make features easier to pick out.

Planets this month:

Jupiter is located in the SW in Capricornus along with Saturn and both are in the morning sky this month, but are too close to the Sun to be seen properly. A close conjunction between Jupiter and Venus occurs on the morning of the 11th, with both planets being half a degree apart. They will be difficult to see though, rising 10 minutes before the Sun, so be very careful. By month end you can see both Jupiter and Saturn shortly before sunrise if you have a low SE horizon.

Saturn is in the SE in Capricornus. After being in conjunction with the sun at the end of January it now appears in the morning sky. However it is poorly positioned all month, the best chance of spotting it will be on the 28th, when it rises one hour before the Sun.

Mercury is in the WSW in Aquarius. On the first couple of nights of February, you may catch Mercury very low in the SW, at mag +1.4 and setting about 6 pm. It then heads between us and the Sun, becoming lost around the 5th to reappear in the morning sky in the last week of the month and passing close to Jupiter and Saturn.

Venus is in the SE in Sagittarius and at mag. -3.9 a morning object but with a very low altitude it will be difficult to spot. Venus and Jupiter are 31 arcminutes apart on the 11th, again tricky to spot in the morning twilight as Venus rises just 10 minutes before the Sun – as I said above be very careful.

Mars is in the SW in Aries and will be visible in the evening sky all month. It starts the month at mag +0.4, but fades to magnitude +0.9 as it moves from Aries to Taurus. On the 18th and 19th February the crescent Moon joins Mars near the Pleiades (the Seven Sisters) star cluster. By the end of the month, Mars will sit 33° south of the Pleiades.

February is going to be a busy time for Mars with three missions arriving.

- On 9 Feb the UAE Hope Orbiter will study weather patterns and try to learn why the planet is losing hydrogen and oxygen,
- On 10 Feb China's Tianwen-1 Mars mission, which consists of an orbiter and a lander, will arrive in orbit around the Red Planet. The rover won't land until May 2021.
- On 18 Feb NASA's newest Mars rover Perseverance will arrive at the Red Planet. The rover is expected to touch down inside the 28-mile-wide Jezero Crater at approximately 20:00 GMT. Check the NASA website here for more details and watch live: https://mars.nasa.gov/mars2020/

Uranus is in the SW in Aries at mag +5.8 and sinks below the horizon around midnight. Maximum altitude is over 40° dropping to 30° by month end. This will be the last chance to see the planet before it is engulfed by the evening twilight, returning to UK dark skies in the autumn. It is worth trying to spot the planet, 20 AU distant, which shows a definite bluey green disk through a small telescope if you haven't seen it before.

Neptune is in the WSW in Aquarius at mag +7.9 ant sets about 7:30pm. However it only achieves an altitude of around 11° above the horizon. By the month end, it will be lost to the evening twilight glow.

Meteor Showers – none this month so I've included ISS passes…

International Space Station (ISS) forecast time for evening passes visible this month:
Data taken from the Heavens Above website, please recheck nearer the chosen day to get updates.
[source: https://www.heavens-above.com/]

Date	Mag	Transit time	Start			High point	End		
			Time	Alt.degs.	Az.		Time	Alt.degs.	Az.
01-Feb	-3.4	06:42	17:51	10°	W	62°	17:58	10°	ESE
01-Feb	-1.7	02:47	19:28	10°	W	23°	19:31	23°	SSW
02-Feb	-2.1	05:14	18:40	10°	W	31°	18:46	15°	SSE
03-Feb	-2.5	06:24	17:53	10°	W	40°	17:59	10°	SE
03-Feb	-0.8	02:28	19:31	10°	WSW	12°	19:33	10°	SSW
04-Feb	-1.0	04:28	18:43	10°	WSW	17°	18:47	10°	S
05-Feb	-1.3	05:27	17:55	10°	W	23°	18:00	10°	SSE
07-Feb	-0.5	02:25	17:58	10°	WSW	12°	18:00	10°	SSW

DEEP SKY OBJECTS (DSO)

This has always been very much a beginner's guide, but someone asked me last month if I could mention deep sky objects. Prominent constellations at this time of the year include Orion, Taurus, Canis Major, Canis Minor, Gemini, Auriga, Leo, Ursa Major, and Cancer - with Orion, Taurus, and Ursa Major as the most conspicuous. Whilst almost all of the constellations that are now visible contain spectacular deep-sky objects (many of which are well-known to both professional and amateur observers) not all objects in these constellations are easy targets for modest amateur equipment.

So let's ease ourselves into it this month…

Easy DSO objects to keep an eye out for include the Pleiades, Hyades and the Andromeda Galaxy. In the South West sky the Pleiades, sometimes called the 'Seven Sisters' is a cluster of stars easily visible with the naked eye but jaw dropping through binoculars or a telescope with low magnification just after sunset even from light polluted cities. The Hyades, looking like a V shape is less spectacular but also easily spotted. Open clusters such as these are always interesting and easy targets. Try to spot the Beehive Cluster which looks fantastic through a low powered telescope. Also try M67 in Cancer which is one of the oldest known open clusters and contains about 500 stars.

If you want to see galaxies, the galaxy season (March to May) is coming up and we'll talk about some next month. But for now the Andromeda Galaxy can be seen towards the West just after sunset near the Andromeda constellation. If you are in a dark area away from city lights, this galaxy can actually be seen with the naked eye! Another relatively easy target is Bodes Galaxy in Ursa Major, visible in binoculars.

Get yourself a sky map or mobile app and have a look around, you'll be surprised what you can see.

Phenomena of the month of February:

	Date	Hour	Description of the phenomenon
	yyyy mm dd	hh:mm	
1	2021 02 02	23:59	Close encounter between the Moon and Spica (topocentric dist. center to center = 5.4°)
2	2021 02 03	14:33	Moon at perigee (geocentric dist. = 370116 km)
3	2021 02 04	12:37	LAST QUARTER OF THE MOON
4	2021 02 08	08:48	INFERIOR CONJUNCTION of Mercury with the Sun (geoc. dist. center to center = 3.6°)
5	2021 02 09	13:30	Close encounter between the Moon and Pluto (topocentric dist. center to center = 2.3°)
6	2021 02 10	09:24	Close encounter between the Moon and Saturn (topocentric dist. center to center = 4.1°)
7	2021 02 11	14:06	NEW MOON
8	2021 02 13	16:36	Close encounter between the Moon and Neptune (topocentric dist. center to center = 4.4°)
9	2021 02 14	17:59	Close encounter between Mercury and Jupiter (topocentric dist. center to center = 3.9°)
10	2021 02 17	14:47	Close encounter between the Moon and Uranus (topocentric dist. center to center = 3.2°)
11	2021 02 18	05:22	Moon at apogee (geocentric dist. = 404467 km)
12	2021 02 18	20:57	Close encounter between the Moon and Mars (topocentric dist. center to center = 4.1°)
13	2021 02 19	13:47	FIRST QUARTER OF THE MOON
14	2021 02 20	03:00	Venus at its aphelion (distance to the Sun = 0.72824 AU)
15	2021 02 23	19:40	Close encounter between the Moon and Pollux (topocentric dist. center to center = 4.2°)
16	2021 02 24	21:41	Close encounter between the Moon and M 44 (topocentric dist. center to center = 1.7°)
17	2021 02 27	03:17	FULL MOON

Generated using CoelixApex software

WOLVERHAMPTON ASTRONOMICAL SOCIETY LECTURES

- Given the current situation regarding the coronavirus in the UK, and following the current Government advice to avoid all unnecessary social interaction for the foreseeable future, we have put on hold our usual face to face meetings. But the good news is that we haven't cancelled events but simply moved them online, so we can continue to bring you great talks in your own home!
- We continue to try and bring you some of the best speakers around and we have an exciting line up for the coming season.

It has been decided that for the coming year Wolvas subscription will be only £10 per annum and you can sign up now our website **www.wolvas.org.uk**

Lectures online will only be available to paid-up members of Wolverhampton Astronomical Society.

Here is a taster for upcoming lectures (all starting at 7.30pm on YouTube followed by Zoom Q&A):

8 February

Mark Gibbons – Black Holes

22 February

Mike Frost – Isaac Newton and The Surrey Pumas

An offbeat look at Newton's theory of gravity - featuring hollow Earths, counter-Earths Trojan asteroids, Kirkwood gaps, Lagrangian nodes, the three-body problem, and those mysterious beasts rumoured to haunt Surrey playing fields and Bodmin Moor. Already delivered on two continents!

8 March

Paul Pope Lecture:

Chris Lintott – The Crowd and the Cosmos

Astronomer Chris Lintott, best known as co-presenter of the BBC's long running Sky at Night programme, explains how you could help astronomers sort through galaxies, explore the surface of Mars, or even discover a planet. This is the story of the Zooniverse, which has enlisted more than two million people in search for cosmic truth.

22 March

Tracey Snelus – Aurora: The Greatest Light Show On Earth

12 April

Paul Fellows – Children of Another Sun

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.