

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

MAIN Meeting

10th November 2025

Visiting asteroids, comets and KBOs

Jon Pineau
Stellar Solutions Aerospace

EDITORIAL

I hear that the telescope workshop on the 20th Oct was well attended and several people were helped with their telescope setups and some limited observing was done. Unfortunately, I was away in Suffolk at a star party so did not make that event. As noted in the meetings section there is no beginners meeting this month and it is replaced by a social event on the 24th November at the Pack Horse in Milton. This is always a fun event so if you are interested, please contact Steve Creasey. Costs and a menu should be circulated shortly.

On the topic of meetings, as mentioned in the last Spacewatch there is the IAS show in Warwickshire which includes free talks and vendors on Saturday 1st Nov, see <https://www.ukastroshow.com> for more details.

I hope you all got the chance to see the comet C/2025 A6 (Lemmon) last month as it was a good sight from a dark sky in binoculars with a decent tail. C/2025 R2 (Swan) also became a decent object in binoculars, although it was just a round smudge with no tail. Its main challenge was that its speed of movement meant it was very difficult to image as even in 4 minutes it moved substantially. It is worth noting that although the moon is now getting in the way A6 will still

brighten a little in the first week of November. I see the continual BS about 3I continues with people claiming it is still an alien spacecraft. Social media certainly does give a window to the nutters of this world.

We have an event to support at the Science Centre Oxford on the 28th Nov in Oxford. I am informed this is outside the hated congestion charge zone as long as you come at it from the ring road. I am hoping we get a clear night for this one.

We had a wonderful moon dog display last month on the 6th Oct as well and some images were posted on the FB groups. Otherwise, it does not look to have been a great month for imagers.

I do hear that there may be a couple of new smartscopes coming out soon with Dwarf introducing a Dwarf Mini in December and ZWO suggesting the long awaited S30Pro may be coming out perhaps in February 2026 so excellent devices for imaging comets 😊

I apologise for including my images in the members section but we did not have many images submitted this month.

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:

owenb1367@gmail.com

REPORT OF LAST MEETING

Octobers Meeting

Gwyneth Hueter

Erwin Finlay Freundlich, a collaborator of Einstein's, sounds like quite a dry topic, but serendipity can strike in the strangest of places, so read on.

Mike Frost has graced us a few times in the past. He is deep into the history of astronomy and is into eclipse chasing. He was attending a STEM ambassadors' meeting and was chatting to an IT industry chap who just happened to say that his grandfather worked with Albert Einstein. How do you respond to that bombshell?

Needless to say, Mike spent some time with Willie Goldschmidt to gather information on Erwin Finlay Freundlich (1885-1964).

Freundlich's mother was of British descent (she came from Cheltenham) and his German father was a factory owner. He started off working in naval architecture then went to work in Berlin where he met up with Einstein, who had started off working in Zurich. Einstein was already working on his general relativity theory but was aware that his mathematical abilities were letting him down, and he found that Freundlich had the best brain for maths. He also trusted Freundlich in that he had studied under the brilliant mathematician Felix Klein. He was finding it useful to have Freundlich as a sounding board for his ideas; if Freundlich struggled to understand something, he knew he'd have to simplify it.

Freundlich features in the 2017 National Geographic TV, 'Genius', a serial about Einstein. He features in the 2013 biography by Stuart Clark, 'The Day without yesterday', which covers Einstein, Georges Lemaitre and the birth of modern cosmology. Einstein was aware there was something not right about the Kepler/Newton laws because of the backtracking in Mercury's orbit - a mere 43" per century. It had to be caused by the

Sun's gravity. The gravity would be able to bend starlight and affect Mercury's orbit. Freundlich planned to observe a total solar eclipse in 1914 so he could observe the star field before and during totality so that the bending of starlight could be observed in the comparison shots. He took a team to the Crimea for 21/8/14 but they were detained by the Russians and their equipment was confiscated. They were released in a prisoner swap. It later transpired that the calculations were not quite right at that point and the observations would not have worked out, thereby setting things back by who knows how much! Arthur Eddington was able to prove it later, during the 1919 solar eclipse.

Freundlich proposed that gravity could also cause light to redshift. He was in Potsdam near Berlin and Einstein had a curious solar tower built to observe the solar spectrum using a coelostat to reflect the light of the sun going several floors from the roof dome down to the ground. The turbulence of the Sun's atmosphere made it very hard to detect any redshift and it wasn't detected until the 1950s. Although the gravitational bending of light had been confirmed by Eddington, Freundlich chased the solar eclipses of 1922, 1926 and 1929 but was still not 100% sure it existed.

The remarkable thing is that he was brave enough to travel. As he had a Jewish background, the rise of Nazism brought about a career move to Istanbul and he gave up his German passport for his own safety. At this time Ataturk was liberalising Turkey and the first physics textbook to be translated into Turkish was written by Freundlich. He then made his way to the UK via Prague (and a Czech passport!), and added the middle name Finlay in order to give himself a bit of Scottishness. Prague was not safe for him as Nazism expanded eastward, and in 1939 he was invited to St Andrews university by Eddington. Mike gives a nail biting account of

how his wife and two children managed to escape from Prague a few days before the war broke out. (Explained through telegrams that he sourced). They got out via Holland four days before the war broke out. Phew.

Freundlich became Napier Professor of observational/theoretical astronomy at St Andrews in 1951. He developed the first Schmidt-Cassegrain astronomical telescope. Curiously, he got one ready and got it installed at Mills Observatory Dundee, even though that was meant for public observations. St Andrews observatory had not been ready. The Schmidt was still in use up to the early 2000s but by then it had given a 6" Cooke refractor in place of the Schmidt to Mills observatory. The 39" Schmidt is still the largest scope in the UK. Freundlich retired to Wiesbaden, Germany, but not before playing around with the 'tired light' theory to explain the redshift in far distant light. He worked with the German (a refugee Jew) Max Born, grandfather of Olivia Newton John.

It is remarkable that such a man remains in the living memory of some people; do please look on the St Andrews university website and you will be able to access a biography and obituary (courtesy of the RAS). There are also some photographs and paintings, revealing that he was very tall.

What's up for November 2023

Steve Creasey and Cristina Garcia Pozuelo Sanchez

The clocks have now gone back, meaning we now get to look at clouds, in the cold, an hour earlier for six months.

Joking aside, it does mean we are able to partake in our hobby at a more sociable time, and we now get to enjoy the beautiful skies full of the winter constellations, such as Aries, Taurus, Orion, Gemini and Auriga, with all of the amazing objects contained within them.

For now most of the focus is on the pair of comets visible to us in the Northern hemisphere, comet C/2025 A6 (Lemmon), with an apparent magnitude around +4.3, is now in a very favourable position in the early evening to the West, and comet C/2025 R2 (SWAN), with an apparent magnitude around +6.0, is also in a very good position for observing in the early evening in the South West.

Both are visible in binoculars and small telescopes, and comet A6 (Lemmon) should be visible to the naked eye from a dark enough location away from light pollution.

As well as the comets, as usual this time of year, there is a lot to see in the winter sky.

The Planets

Mercury

Visibility: Mercury will be best viewed during the first half of November.

Position: It will be in the west just after sunset, making it a good target just as twilight sets in.

Greatest Eastern Elongation: Mercury reaches its greatest eastern elongation on November 5, meaning it will be as far from the Sun in the evening sky as it gets. Look for it low on the horizon about 20–30 minutes after sunset

Venus

Visibility: Excellent — Venus is the “Morning Star” this month.

Constellation: Virgo, moving eastward toward Libra.

Brightness: Around magnitude -4.2 , making it the brightest object in the pre-dawn sky aside from the Moon.

Apparent size: Roughly 17 arcseconds, showing a waning gibbous phase (illuminated about 65–70%).

Before dawn (5–6:30 a.m.), in the East–southeast, Venus rises a few hours before sunrise and dominates the sky.

Around sunrise Low in the southeast Still visible in bright twilight if the sky is clear.

Venus rises around 3–4 a.m. (local time) and remains visible until sunrise.

It climbs higher each morning through the month, offering excellent viewing opportunities.

Naked eye: Venus is an unmistakable, dazzling white “star”, far brighter than anything else in the sky.

- Binoculars or small telescope:

- The planet shows a distinct gibbous phase (similar to a small, bright Moon).

- No surface detail can be seen — just a brilliant crescent or gibbous shape.

- Best time: About 1–2 hours before sunrise when Venus is highest and sky still dark.

- Avoid sunrise glare: Never look through optics once the Sun is up.

- Observe with low magnification (40–80 $\times$) to see the planet’s phase clearly.

- A polarizing or violet filter can help reduce glare and enhance contrast.

- Venus pairs beautifully with nearby Spica (α Virginis) early in the month.

Brightness -4.2 mag

Phase Gibbous ($\sim 70\%$)

Best time 1–2 h before sunrise

In November 2025, Venus shines brilliantly as the Morning Star — a spectacular pre-dawn beacon in Virgo, outshining everything except the Moon. Best seen before sunrise, it displays a bright gibbous phase through binoculars or a small telescope and offers one of the most rewarding views of the year.

Mars

Distance from Earth: Still relatively far — not yet at its best for telescopic viewing (next opposition will be January 2027).

Mars is in Sco during the month so it will be effectively not visible as it sets during evening twilight

Jupiter

Visibility: Excellent — Jupiter reaches opposition in January 2026, meaning it's visible all night, at its brightest, and closest to Earth for the year.

Constellation: Taurus, near the Pleiades and Aldebaran, making it easy to spot.

Brightness: Around magnitude -2.9 , brighter than any star — unmistakable.

Apparent size: Roughly 49 arcseconds across — large and detailed in telescopes.

When and Where to Look:

After sunset (early evening), Jupiter rises in the East bright and steady in Taurus.

Midnight, Jupiter will be South at its highest in the sky.

Jupiter sets before sunrise in the West.

Saturn

Visibility: Good — Saturn is past opposition (which occurred in September 2025) but still well visible in the evening sky.

Constellation: Aquarius, moving slowly eastward.

Brightness: Around magnitude $+0.7$, so it's easily visible to the naked eye as a steady, yellowish "star."

Apparent size: About 17 arcseconds across (rings included: ~ 40 arcseconds).

After sunset (early evening), look South–southwest, Saturn is prominent soon after dusk.

Mid-evening (~ 9 p.m.) Southwest, highest and best for telescope viewing.

Late evening (~ 11 p.m.) Low in the west, begins to set before midnight by late November.

It's an evening object, best observed between twilight and about 10 p.m. before it gets too low.

Visibility gradually shortens as the month goes on.

Uranus

Visibility: Excellent — Uranus reaches opposition around November 21, 2025, meaning it's visible all night and at its brightest for the year. It can be found in the constellation of Taurus, near the Pleiades (M45) — an easy star-hopping landmark.

Brightness: Around magnitude $+5.5 - +5.7$ — borderline naked-eye under very dark skies, but easy with binoculars or a small telescope. Its appearance is a small bluish-green disk, about 3.7–4 arcseconds across.

Best seen in the evening through to midnight, when Taurus is high in the sky.

From mid-November to early December, visibility is ideal.

Neptune

Neptune is still well-placed in the evening sky, though it passed opposition in September 2025.

Constellation: Pisces, drifting slowly eastward near the border with Aquarius.

Brightness: Around magnitude +7.8, so it's not visible to the naked eye, but easy to find with binoculars or a telescope.

Appearance: A tiny bluish-grey disk, about 2.3 arcseconds across — it looks like a small, steady blue "star" compared with twinkling background stars.

Best time to look: Evenings through late night, when Pisces is high in the southern sky.

Best between sunset and midnight (before it sets in the west).

Direction: Look south to southwest after dark. Around 9–10 p.m. local time, it's near its highest point.

Meteor Showers

November's Leonids

- Peak night: November 17–18, 2025
 - Active period: November 6–30
 - Expected peak rate: Around 15–20 meteors per hour (ZHR under ideal dark-sky conditions)
 - Parent comet: 55P/Tempel–Tuttle
 - Radiant: In the constellation Leo, near the star Algieba (γ Leonis)
 - Best time: After midnight until dawn, when Leo is high in the eastern sky
 - Leo rises around 11 p.m. local time, so activity increases rapidly after midnight.
 - The peak night (Nov 17–18) offers the best balance of radiant height and dark skies.
- Moon Conditions (2025)
- The Moon will be just past last quarter (about 45% illuminated) — it rises after 1 a.m., so the first half of the night will be fairly dark.
 - Rates in 2025 are expected to be modest (15–20/hour), but the shower is famous for rare outbursts

roughly every 33 years (next major one expected around 2031–2032).

Summary:

The Leonids 2025 will peak on November 17–18, offering a modest display of fast, bright meteors. With a waning crescent Moon and dark skies after midnight, conditions are good for observing — especially if you can get away from city lights and watch from a wide, open horizon.

The Taurid meteor showers

The Taurid meteor shower is composed of two streams: The Southern Taurids which peak between Nov. 4 and Nov. 5; and the Northern Taurids which peak between Nov. 10 and Nov. 11.

These showers produce infrequent, slow and long-lasting meteors associated with comet Encke, a small comet with a nucleus measuring approximately 2.98 miles (4.8 km) in diameter. Viewing conditions for the 2025 Taurid meteor showers are going to be hampered by the moon this year, with a full moon on the 5th and last quarter on the 12th.

The Taurids are rich in fireballs, so if you see a Taurid it can be very brilliant, but their rates are very low. When a Taurid appears it's usually big and bright. Typically, the Taurids produce only a handful of visible meteors per hour.

As the Taurids occur in late October they are sometimes referred to as "Halloween fireballs". Taurid meteors tend to be larger than other meteors and can survive for longer periods as they pass through Earth's atmosphere. According to NASA, Orionids for example, typically burn up at altitudes around 58 miles (93 km) whereas Taurids typically make it as far as 42 miles (66 km). They also travel relatively slowly, traversing the sky at about 17 miles (27 kilometers) per second or 65,000 miles (104,000 km) per hour. The Perseids, on the other hand, zip through the sky at 37 miles (59 km) per second or 133,000 miles (212,000 km) per hour.

Comets

We have been blessed in October with two bright comets in C/2025 A6 (Lemmon) and C/2025 R2 (Swan). R2 is now moving rapidly away from the earth and fading but may still be a binocular object through November. C/2025 A6 will brighten as it moved towards the Sun. Unfortunately, its orbit is also going to take it south so after the first week in November it will be difficult to see. The Moon will also impact views in this time frame. 3I is still behind the Sun until late November but when it comes out from behind the sun it maybe 11th magnitude which means it may be visible as a hazy spot in medium sized telescopes and the Seestars. For those up in the mornings C/2025 K1 (Atlas) seems to have survived perihelion, much to many peoples surprise, and is now a 10th mag object in Virgo but it is moving north.

Deep Sky Objects

M33 Triangulum Galaxy

NGC 925 Barred Spiral Galaxy in Triangulum

NGC 908 Spiral Galaxy in Cetus

NGC 957 Open Cluster in Perseus

NGC 1023 The Perseus Lenticular Galaxy

NGC 1027 Open Cluster in Cassiopeia

NGC 1055 Spiral Galaxy (edge on) in Cetus

NGC 891 Spiral Galaxy (edge on), the 2nd best Galaxy in Andromeda and one of the best edge on galaxies.

NGC 1514 Planetary Nebula in Taurus (The Crystal Ball Nebula)

Polaris, The North Star, a binary with Polaris B, but is actually a triple star system with the much closer Polaris AB (Probably not resolvable with our amateur equipment though)

M35 and **NGC 2158** Open Clusters in the constellation of Gemini, although apparently close together, the much fainter NGC2158 is some 9000 LY further away than M35

Clear Skies

Steve and Cristina

BORROWING THE SEESTAR

As many of you will know, the Society now owns a Seestar 50 telescope, which is available for members to borrow.

It is small, extremely portable, easy to store, and easy to use via a free downloadable app on your smart phone.

Unlike traditional telescopes, you cannot look through the Seestar. It is used to take digital images that are downloaded to your phone (which you can then download to a PC, etc. for image processing if you so desire).

Apart from an off/on button physically on the telescope, all commands and instructions go through the phone app.

Apart from needing your own smart phone, everything you require is supplied.

You need no experience of either using a telescope or image processing to use the Seestar as it does virtually all the work for you automatically. However, there are plenty of user options if you want to play around with it.

There are two main requirements if you want to borrow the Seestar.

The first is you have to have been a member of the society for the past 18 months, and the second is you have to leave a deposit of £50.

The money is fully refundable as long as you return the Seestar in the same condition as you received it.

You can borrow the Seestar for two calendar months (longer if nobody else has asked to borrow it) so you get plenty of time to take lots of images.

If you are interested in borrowing the equipment contact me at bobdryden@ntlworld.com

Bob

AL NAGLER RIP

Although the name may not be familiar to many here as he was not involved with imaging Al Nagler who died on Monday 2th October was a genius in designing optics and after designing simulators for the LEM's of the Apollo program went on to design truly revolutionary eyepieces that changed the way we looked at objects. He also designed a range of small refractors that also changed the look and feel of telescopes. He was still innovating and died at his desk. He founded Tele Vue optics and made them a byword amongst the visual observing community. See <https://skyandtelescope.org/astronomy-news/al-nagler-1935-2025/> for more info.

Upcoming Meeting Notes

Observing evening: Observing evening: There will be no virtual observing sessions this season unless we can find someone to take over running them if we continue them next session.

Beginners' meetings: There is no beginners meeting in November instead we have our Christmas Social on the 24th November at the Pack Horse in Milton. For information please contact Steve Creasey

1st November – International Astronomy Show. See details at <https://www.ukastroshow.com/>

Mailing List: we have now moved to a new mailing list on groups.io called

abingdonas@groups.io

The new Groups.io group mailing list has been created and Groups.io are sending out invitations to 89 addresses

The old list on its homepage said:

1. This mailing list is a public mailing list - anyone may join or leave, at any time.

This mailing list requires approval from the List Owner, before subscriptions are finalized.

...

This mailing list is for email discussions of astronomical topics and the exchange of messages, notices of meetings and events organised by Abingdon Astronomical Society and others, and astronomical news between members of Abingdon Astronomical Society.

On the new list homepage (at <https://groups.io/g/abingdonas/>),

This Groups.io Group and mailing list is for email discussions of astronomical topics and the exchange of messages, notices of meetings and events organised by Abingdon

Astronomical Society and others, and astronomical news between members of Abingdon Astronomical Society.

Group membership is primarily for current and/or recent members of Abingdon Astronomical Society. Those who are permitted to join the Group but do not become members of Abingdon Astronomical Society nor have been recent members may, in due course, be removed from this Group.

The Group is not listed in the Groups.io directory but, currently, once found the archived messages will be visible publicly.

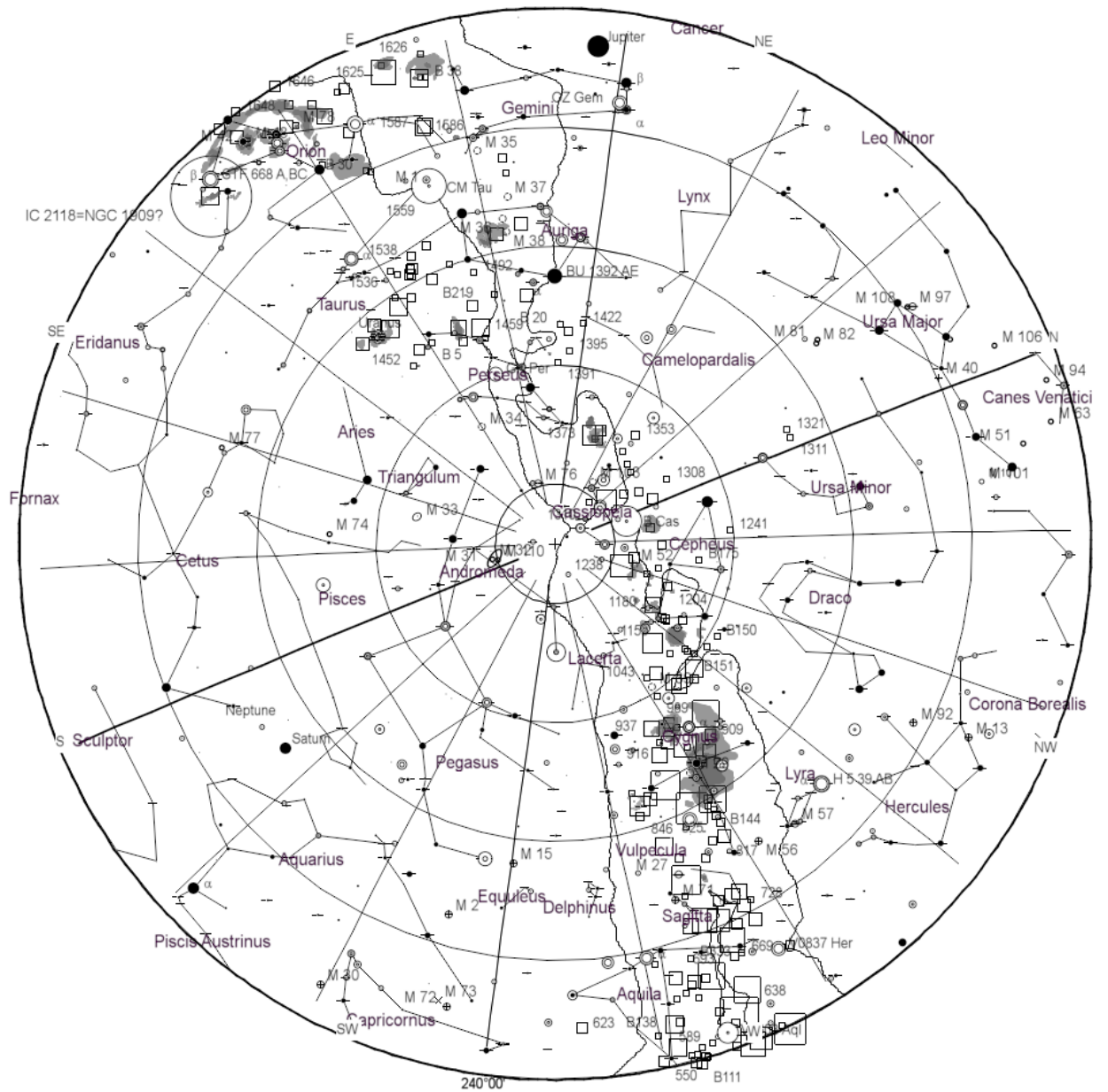
Members of the current aaslist should have been invited to join but if you have not then you can subscribe from the website

We also operate two Facebook groups so you can also keep in touch with the society through those.

We have also setup a new WhatsApp group for real time announcements of astronomical/meteorological (NLC, Auroral) phenomena. The group is open to all members of the society. To join leave your mobile number with any member of the committee and you will receive an invite to join

STAR CHART

The night sky at 21:00 (UT) Saturday 15th November 2025

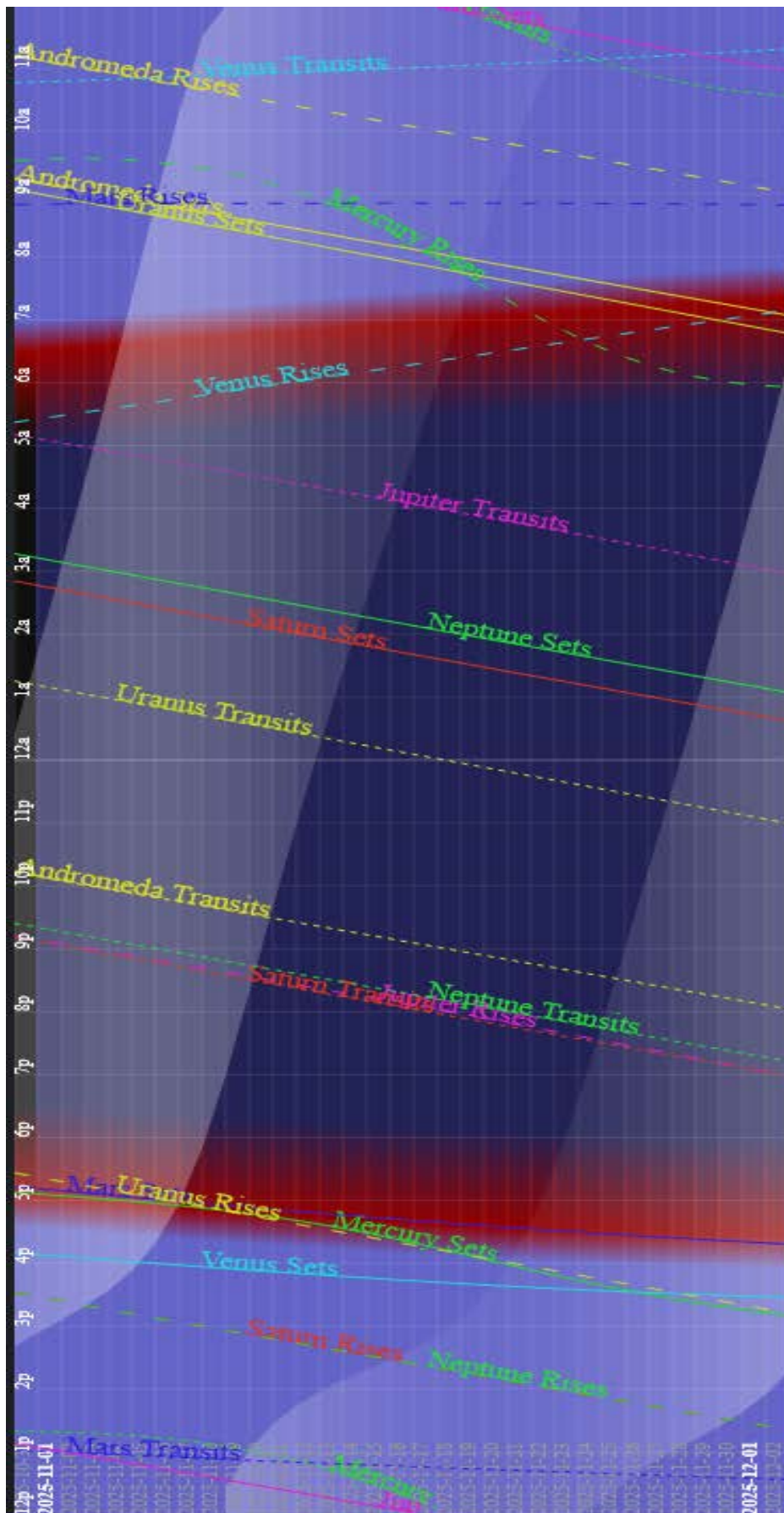


MOON PHASES NOVEMBER 2025

Moon phases and solar and lunar rise and set times for Nov. 2025						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1  ↑ 14:59 ↓ 01:12  ↑ 07:07 ↓ 16:31  05:06 18:32
2  ↑ 15:11 ↓ 02:36  ↑ 07:09 ↓ 16:29  05:08 18:30	3  ↑ 15:24 ↓ 04:03  ↑ 07:11 ↓ 16:27  05:10 18:29	4  ↑ 15:39 ↓ 05:34  ↑ 07:13 ↓ 16:26  05:11 18:27	5  ↑ 15:58 ↓ 07:09  ↑ 07:15 ↓ 16:24  05:13 18:26	6  ↑ 16:27 ↓ 08:46  ↑ 07:17 ↓ 16:22  05:14 18:24	7  ↑ 17:09 ↓ 10:19  ↑ 07:18 ↓ 16:20  05:16 18:23	8  ↑ 18:10 ↓ 11:36  ↑ 07:20 ↓ 16:19  05:17 18:21
9  ↑ 19:29 ↓ 12:31  ↑ 07:22 ↓ 16:17  05:19 18:20	10  ↑ 20:55 ↓ 13:07  ↑ 07:24 ↓ 16:16  05:20 18:19	11  ↑ 22:20 ↓ 13:31  ↑ 07:26 ↓ 16:14  05:22 18:18	12  ↑ 23:41 ↓ 13:48  ↑ 07:27 ↓ 16:12  05:23 18:16	13  ↑ --- ↓ 14:00  ↑ 07:29 ↓ 16:11  05:25 18:15	14  ↑ 00:57 ↓ 14:11  ↑ 07:31 ↓ 16:10  05:26 18:14	15  ↑ 02:10 ↓ 14:20  ↑ 07:33 ↓ 16:08  05:28 18:13
16  ↑ 03:22 ↓ 14:30  ↑ 07:34 ↓ 16:07  05:29 18:12	17  ↑ 04:33 ↓ 14:41  ↑ 07:36 ↓ 16:05  05:31 18:11	18  ↑ 05:46 ↓ 14:54  ↑ 07:38 ↓ 16:04  05:32 18:10	19  ↑ 06:59 ↓ 15:12  ↑ 07:40 ↓ 16:03  05:33 18:09	20  ↑ 08:12 ↓ 15:35  ↑ 07:41 ↓ 16:02  05:35 18:08	21  ↑ 09:23 ↓ 16:07  ↑ 07:43 ↓ 16:01  05:36 18:07	22  ↑ 10:24 ↓ 16:51  ↑ 07:45 ↓ 16:00  05:37 18:07
23  ↑ 11:14 ↓ 17:50  ↑ 07:46 ↓ 15:58  05:39 18:06	24  ↑ 11:51 ↓ 18:59  ↑ 07:48 ↓ 15:57  05:40 18:05	25  ↑ 12:17 ↓ 20:14  ↑ 07:49 ↓ 15:57  05:41 18:05	26  ↑ 12:36 ↓ 21:33  ↑ 07:51 ↓ 15:56  05:43 18:04	27  ↑ 12:52 ↓ 22:52  ↑ 07:53 ↓ 15:55  05:44 18:03	28  ↑ 13:04 ↓ ---  ↑ 07:54 ↓ 15:54  05:45 18:03	29  ↑ 13:16 ↓ 00:12  ↑ 07:56 ↓ 15:53  05:46 18:02
30  ↑ 13:28 ↓ 01:34  ↑ 07:57 ↓ 15:52  05:47 18:02						

Beginners Meeting Talks 2025/26

Date	Long Talk	Speaker	Long Talk	Speaker
SEP 29th	Whats Up	Dan	Eyepieces -	Owen
OCT 27th	Jupiter	Ian	NEO	Bob
NOV 24th	Xmas Meal			
DEC 1st	First Telescope	Ian	Orion	Owen
JAN 26th	Brown Dwarfs	Dan	Intro. to Solar System Imaging	Chris Pickford
FEB 23rd	TBC	Cristina	Messier Marathon	Owen
MAR 16th	Observing Planetary Moons	Bob	Weather Apps & websites	Chris
APR 27th	TBC	Cristina	Naming Astronomical Objects	Dan
MAY 18th	Local Galaxies	Owen	Setting Up an Equatorial Mount	Chris
JUN 15th	Solar Eclipses	Bob	Putting Together a Mobile Imaging rig	Ian



Planet rise and set times for November 2025

Recent images from Members



Double Cluster in Perseus- Cristina



NGC 7380 – Wizard Nebula – Cristina



Comet C/2025 A6 (Lemmon) – Steve Creasey



C/2025 A6 (Lemmon) – John Fathens using a RASA 8



Moon dogs – Chris Holt



NGC 2244 – Owen Brazell



C/2025 R2 (Swan) – note fast movement – Owen Brazell



C/2025 A6 (Lemmon) – Owen Brazell



C/2025 A6 – over Faringdon – Steve Creasey