SPACEWATCH

the newsletter of the Abingdon Astronomical Society

MAIN Meeting

8th December 2025

Sending humans to Mars and the Mars Society

Lucinda Offer (RAS Education and Outreach Officer),

EDITORIAL

Welcome to the last Spacewatch for 2025. I hope you have all had a good year astronomically and that there may be astronomical goodies under your Christmas tree.

The first thing to note this month is that the beginners meeting is on the 1st Dec. I know this newsletter may not reach people before that date but there will also be the usual announcements in social media on it. Our main meeting is also quite early this month.

We have had a glut of comets in the last month, hence the images in the member's section. Unfortunately, our main imagers do not seem to have been tackling them, although I note that there have been a number of images on the Oxford Astrophotography FB page on them, unfortunately not from our members. It has been interesting following C/2025 K1 (ATLAS) as it breaks up following perihelion. This was always a strange comet due to its colour and lack of Carbon in it. 3I (ATLAS) also seems to be behaving as a normal comet despite the continuing rubbish from one person who sees alien spacecraft in all the interstellar objects. How he holds a position at Harvard is somewhat strange.

I note that due to government cuts in the US and protests from indigenous Hawaiians the proposed TMT telescope may move from Hawaii to La Palma. I know this has been discussed before but with the withdrawal from science of the current US Administration this may be the way forward for it, and the Spanish government is willing to give funds for that.

It may be worth watching the Sun in the next few weeks as the sunspot that gave rise to the aurora last month (unfortunately clouded out for us) has continued to be active on the far side of the Sun and will rotate back around again in the next week or so.

I apologise as well for the quality of the star chart in this issue as the latest update to the program I use to create it seems to have developed a bug when trying to set the full screen.

Yet again I apologise for including my images in the members section but we did not have many images submitted this month due to the poor weather I believe, although getting up at 5 in the morning in this freezing weather to get them was also not easy.

I would like to end by wishing you all a good festive season and a happy new year.

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

Novembers Meeting

Dr Jon Pineau is NASA's Lucy Mission Science Operations Center Encounter Lead (Stellar Solutions). His talk: 'Robotic exploration of asteroids, comets and KBOs'. His main post is as Asteroid encounter lead for the Lucy mission but we are lucky to have him as an associate lecturer in Oxford University's physics department. A busy man.

He grew up at altitude in the Rocky Mountains so could not have had a better night sky backdrop to get hooked on astronomy and space travel. His attraction to asteroids focusses more on those that lurk away from the effects of the Sun. Time capsules, as he calls them. Beyond Jupiter's orbit they can retain pristine materials from their formation. The gravitational effects of Saturn and Neptune (10 AU and further out) have caused some of them to be pulled out of their distant orbits and then those that drift into the orbital path of Jupiter will get concentrated in Jupiter's L4/L5 points. We call these Trojans.

The naming of Lucy harks back to Donald Johanson's discovery of the Lucy humanoid fossil skeleton in Ethiopia 51 years ago. The diamond motif refers to the song which was playing at the time of his eureka realisation that this three million year old was our earliest known ancestor ('…in the sky with diamonds'). The Lucy spacecraft was launched 16/10/21, with the plan to meet six Trojans in 2027-33 in its travels but, if it encountered any others en route then it would examine them. It has already had two impromptu asteroid flybys! (More later)

Its kit includes Colour + IR spectrometers, thermal + IR scanner, wide field camera, and a high resolution surface camera, which hopes to determine how loose the structure of these bodies is. Its software is far more advanced than what was on the Rosetta/Philae (comet 67p) mission or the New Horizons craft (of Pluto/Charon and Arrokoth fame), and is able to use 'terminal tracking' to focus its instruments on its targets as it flies by, as well as ditching lots of unsuccessful images and releasing data space. Jon nevertheless had some amazing time lapse footage and stills to show us from those two aforementioned missions.

Lucy has completed two unplanned flybys:
1/11/23: Dinkinesh (an Amharic phrase meaning 'you are wonderful'). Very small and very dark, 600m in diameter and found to have a little moon, Selam, which turns out to be two small lumps - a contact binary. This is a first, a binary satellite!

20/4/25: Donaldjohanson. This one is about 8km x 3.5km, so much bigger and easier to scan. It appears elongated with a neck with craters containing loose crumbly bits.

The other pre-planned Trojan flybys are:

(12/8/27) Eurybates (about 70km diameter) and its tiny moon Queta.

(September 2027) Polymele and its little satellite (as yet officially unnamed but is nicknamed Shaun).

(March 2033) Patroclus and Menoetius, resolved by Hubble into a binary system with each moon being about 70km in diameter.

The distances involved will mean the time delay for Lucy's transmissions will be up to 45 minutes. Jon's talk was very inspiring and do have a trawl on the web and you'll find lots to excite you. Hopefully we can have him back with an update in a few years.

Facebook: Lucy Mission (has a lot of other Nasa outer solar system posts)

Instagram: Lucy_mission

Whereislucy.space gives information on what it's up to and details of two other asteroids on its radar: Leucus and Orus, due to be visited in 2028.

What's up for December 2025

Steve Creasey and Cristina Garcia Pozuelo Sanchez

This November we had our 5th AAS Christmas Social at The Packhorse Inn, Milton Hill. It was a very enjoyable evening, chatting about Astronomy and Astrophotography amongst other things with friends over good food. As usual with these things, the time went too quickly and I didn't get a chance to chat to everyone.
Thanks to everyone who attended and I look forward to doing it again next year.

Winter officially starts on the 21st December, the Winter Solstice occurring on Sunday, 21 December 2025, 3:03pm GMT, marks the point of the longest night and the shortest day for us in the Northern Hemisphere, and the shortest night and longest day in the Southern Hemisphere.
For us astronomers here in the Northern Hemisphere it is bitter sweet, as this marks the moment the long nights will slowly start to get shorter.

The Planets

Mercury – Mercury rises in the ESE before dawn, reaching an altitude of 10 degrees before sunrise during the first half of December.
but will become increasingly challenging as the month progresses.

Venus – is still a morning star and is very low as it descends towards the Sun. It reaches superior conjunction (behind the Sun) next month.

Mars – is effectively invisible this month as it approaches conjunction with the Sun.

Jupiter – Jupiter is a prominent evening object. It shines brightly and is visible most nights, making it one of the easiest planets to observe.

Saturn – Saturn can be seen in the evening sky, but it is less bright than Jupiter. It remains visible for several hours after sunset.

Uranus – Uranus will also be visible, but it requires a telescope or binoculars to see clearly. It appears as a faint blue-green dot. It will be highest in the south at about 10 pm.

Neptune - Similar to Uranus, Neptune is challenging to see without a telescope, appearing as a small dot in the sky. It will however be close to Saturn.

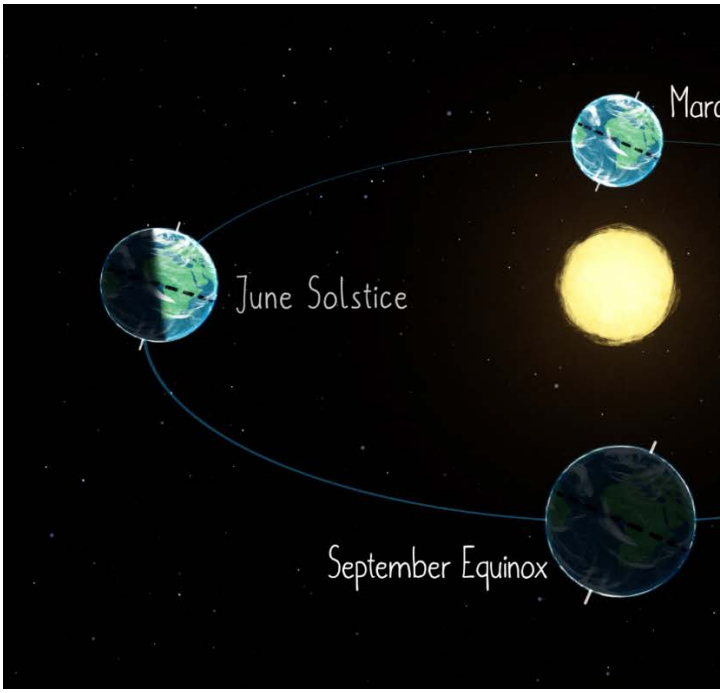
Meteor Showers

The Geminid meteor shower – Usually the best displays of the year and always a favourite among the annual meteor showers.
The Geminids, with a possible hourly rate of 150 meteors per hour, are one of the best meteor shower displays you can see all year. Reaching maximum on 13-14 December.
The Moon rising at 01:11 will be a waning crescent at around 30% illuminated.
As with most showers your best chance to see meteors is in the early hours of the morning around the peak, though a good number should be seen any time from a few hours after sunset.
Geminid meteors tend to be bold, white and quick. This shower favour's Earth's Northern Hemisphere, but it's visible from the Southern Hemisphere, too. The curious rock comet called 3200 Phaethon is the parent body of this shower.
On a dark night, near the peak of the shower, you can often catch 50 or more meteors per hour. On an optimum night for the Geminids, it's possible to see 150 meteors per hour.
The Geminid meteor shower is best around 2 a.m. because its radiant point – the point in our sky from which the meteors seem to radiate – is

highest in the sky at that time. As a general rule, the higher the constellation Gemini the Twins climbs into your sky, the more Geminid meteors you're likely to see.
This Geminids' radiant point nearly coincides with the bright star Castor in Gemini. That's a chance alignment, of course, as Castor lies about 52 light-years away, while these meteors burn up in the upper atmosphere some 60 miles (100 km) above Earth's surface.
Castor is noticeably near another bright star, the golden star Pollux of Gemini. It's fun to spot them, but you don't need to find a meteor shower's radiant point to see these meteors.

The Ursids meteor shower is active annually between December 13th and December 26th. The shower will peak on the night of December 21st into the morning of the 22nd. At its peak, observers may be able to view as many as 10 meteors in an hour. The shower is named the Ursids because the meteors seem to radiate from the direction of the constellation Ursa Minor in the sky. The Ursids are associated with the 8P/Tuttle comet.
With the New Moon

Winter Solstice
The **winter solstice** marks the official beginning of astronomical winter (as opposed to meteorological winter, which starts about three weeks prior to the solstice). The winter solstice occurs once a year in each hemisphere: once in the Northern Hemisphere (in December) and once in the Southern Hemisphere (in June). It marks the start of each hemisphere's winter season. When one hemisphere is experiencing their winter solstice, the other is simultaneously experiencing their summer solstice!
This is all thanks to Earth's tilted axis, which makes it so that one half of Earth is pointed away from the Sun and the other half is pointed towards it at the time of the solstice.
We often think of the winter solstice as an event that spans an entire calendar day, but the solstice actually lasts only a moment. Specifically, it's the exact moment when a hemisphere is tilted as far away from the Sun as it can be.



Comets

After the glut of bright comets of late we are left with some fainter ones this month 3I (Atlas) is brightening early in the month in the morning skies as it moves into Leo. In the early evening, we have C/2025 T1 (ATLAS) which was in Lyra. It is easy for imagers but is showing no tail, just a bright green coma. C/2025 K1 (ATLAS) is now almost circumpolar as it leaves the Sun but is breaking up rapidly. All of these can be imaged with the Seestar S50 so if you want to borrow the society one to have a go see Bob Dryden. Note all of these comets are fast movers so only short exposures work to stop trailing.

Deep Sky Objects

IC 3568 The Lemon slice nebula, planetary nebula in Camelopardalis

IC 2149 Planetary nebula in Auriga

M38 An Open Cluster in Auriga

NGC 1535 Cleopatras eye nebula, planetary nebula in Eridanus

NGC 7662 The Blue Snowball nebula, Planetary nebula in Andromeda
M74 Spiral galaxy in Pisces

NGC 7741 A Barred Spiral galaxy in Pegasus

The Holmberg 124 Galaxy group in Ursa Major, this one might be a bit of a challenge to spot the whole group. It contains the following galaxies :-

NGC 2805 An Intermediate Spiral galaxy,

NGC 2814 A barred spiral galaxy,
NGC 2820 Edge on Galaxy,
IC 2458 A small lenticular galaxy.

There is some interaction between NGC 2814, NGC 2820 and IC 2458

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

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: The December Beginners meeting is on Monday 1st Dec at 20:00 at the usual venue. Talks will include getting your first Telescope and Orion.

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.

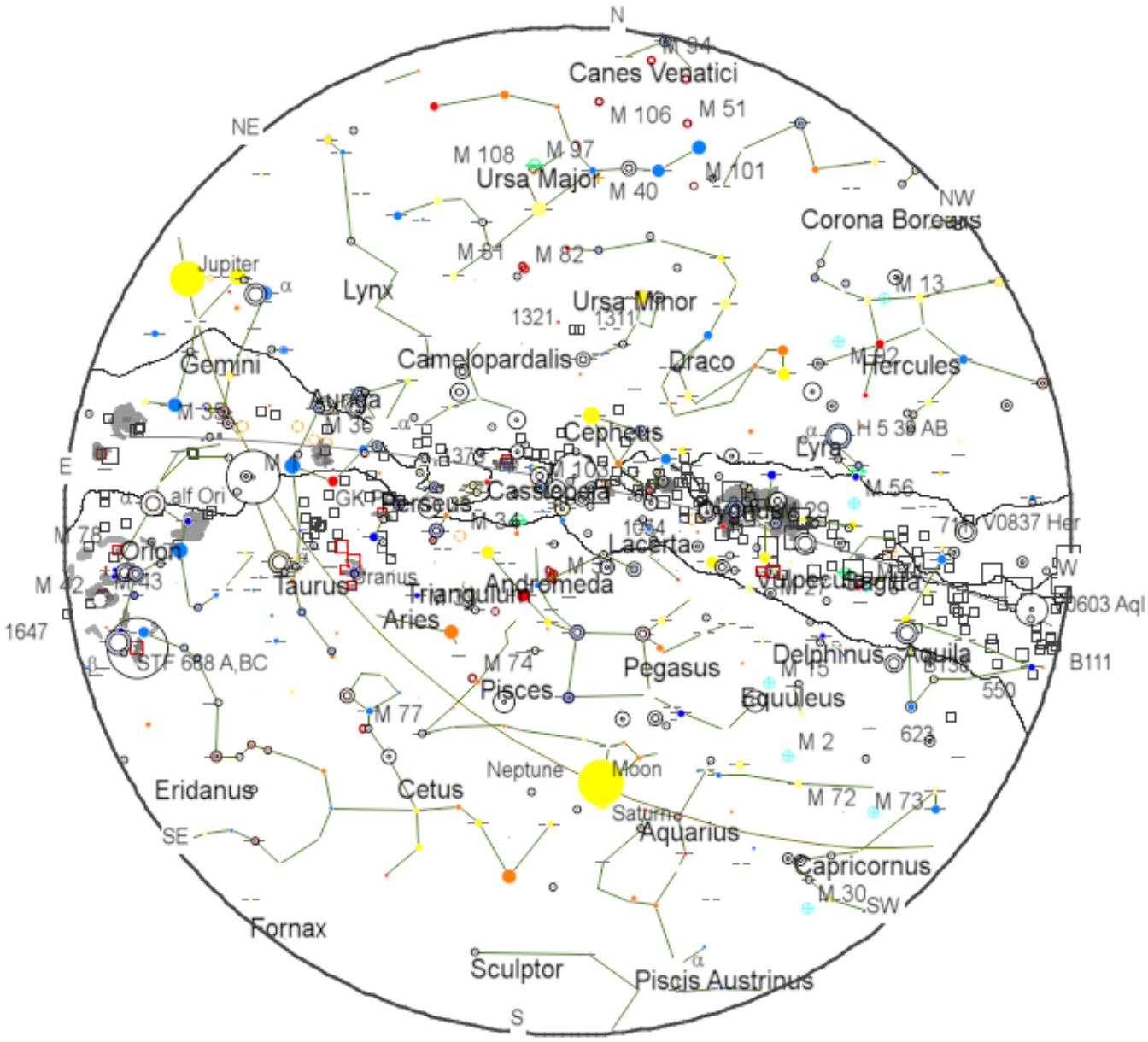
Members of the current aaslist should have been invited to join but if you have not then you can subscribe from the website

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

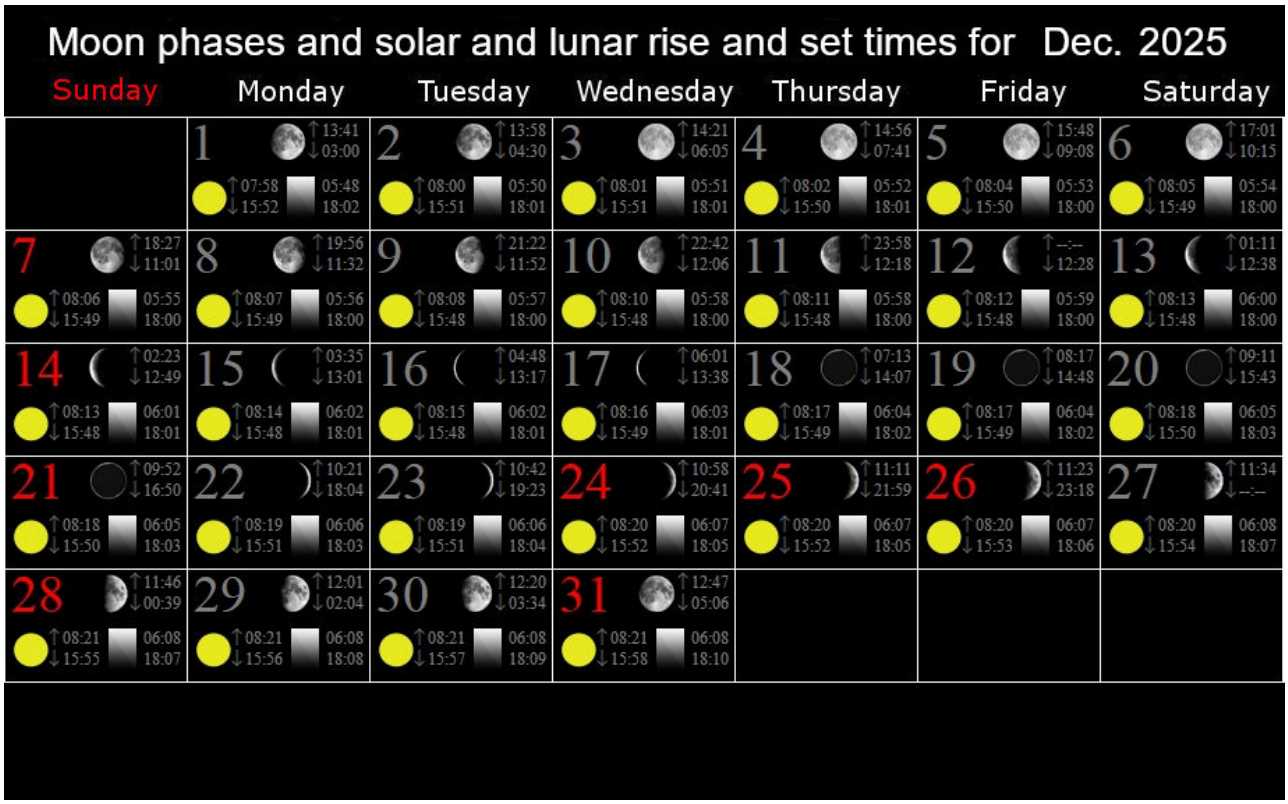
We have also setup a new WhatsApp group for real time announcements of astronomical/meteorological (NLC, Auroral) phenomena. The group is open to all members of the society. To join leave your mobile number with any member of the committee and you will receive an invite to join

STAR CHART

The night sky at 21:00 (UT) Monday 15th December 2025

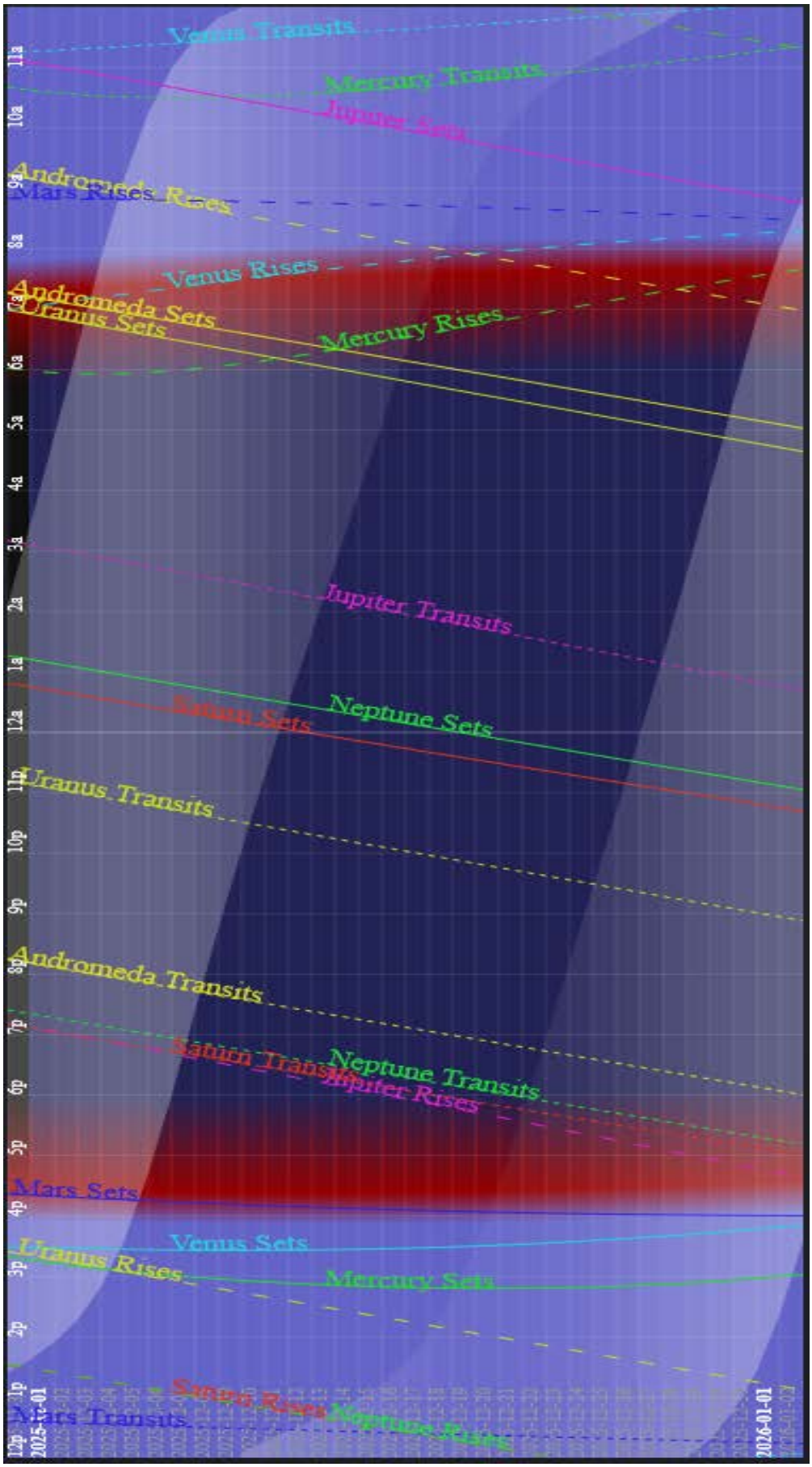


MOON PHASES DECEMBER 2025



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 December 2025

Recent images from Members

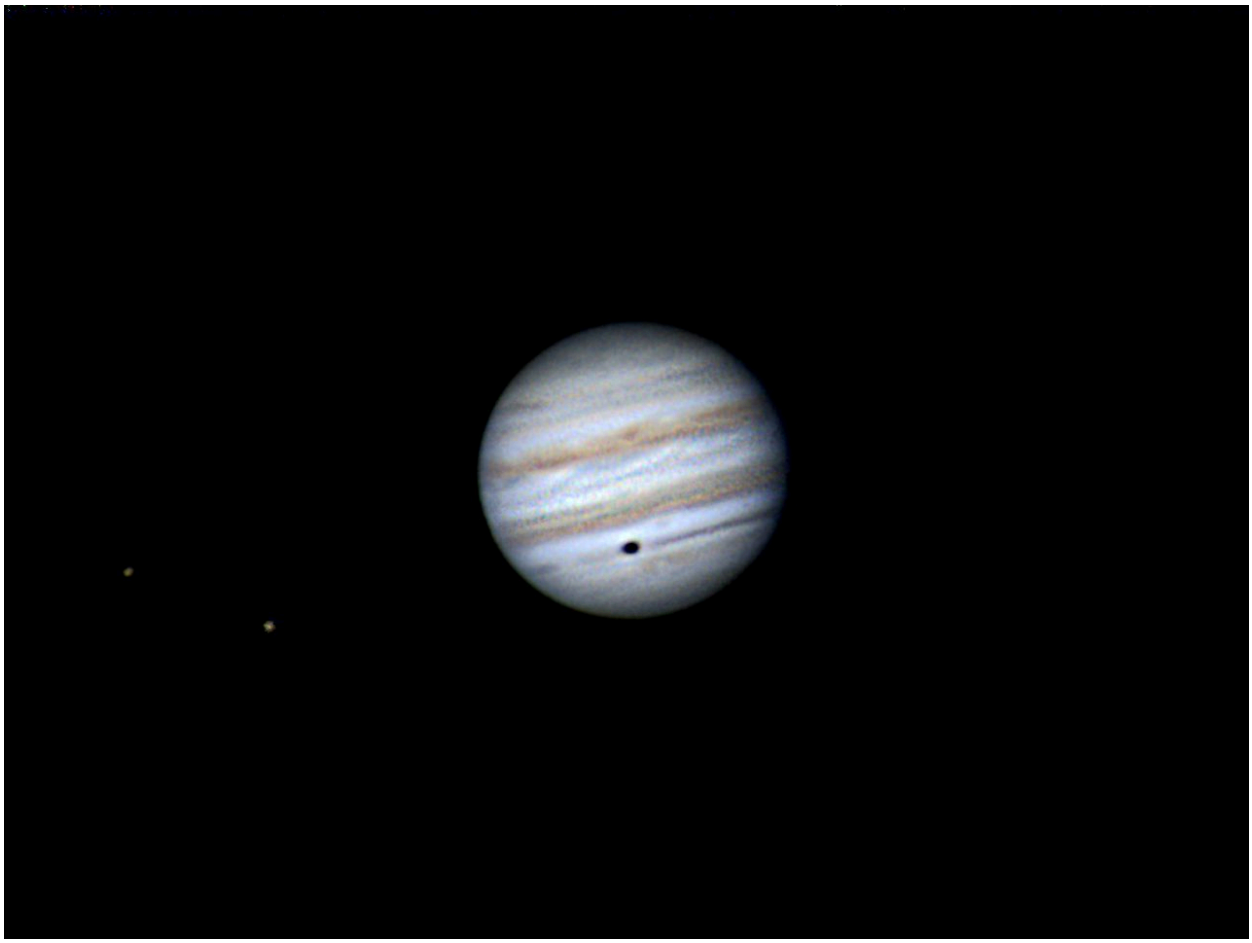
Christmas Social - Cristina

C/2025 A6 (Lemmon) - Owen Brazell

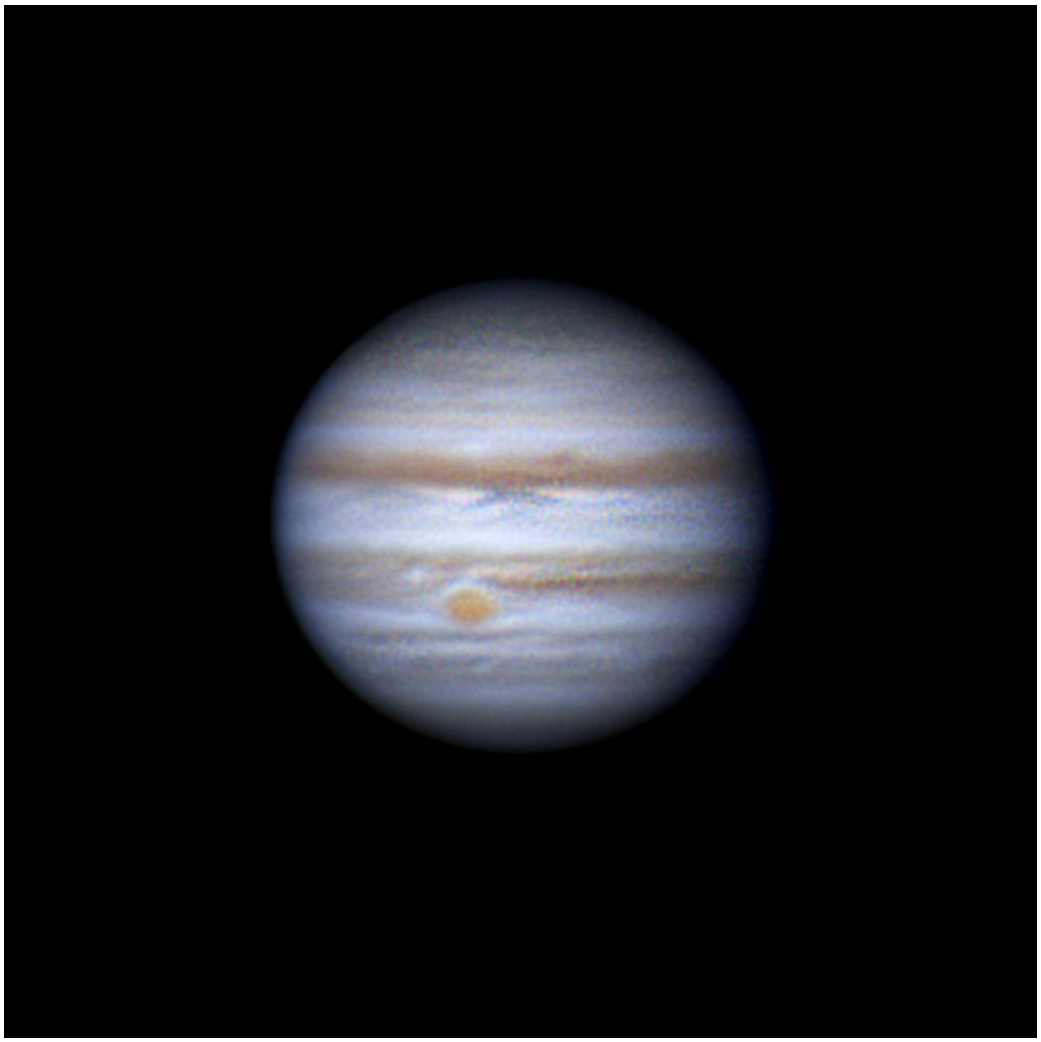
3I (ATLAS) – Owen Brazell

C/2025 K1 (ATLAS) – Owen Brazell

C/2025 T1 (ATLAS) – Owen Brazell



Jupiter showing Ganymede transit – Chris Pickford



Jupiter – Chris Pickford

C/2025 A6 (Lemmon) – Ian Smith

M1 - Cristina