CAPELLA

CAMBRIDGE ASTRONOMICAL ASSOCIATION

You can find our website at:	Newsletter 228 April 2025
www.cambridgeastronomicalassociation.com	Registered Charity No. 800782

Partial Eclipse of the Sun, 29th March

This excellent composite image of the eclipse is from Jana Barbosa.

In this Issue

Partial Eclipse of the Sun, 29th March 1
In this Issue 2
A Message from Paul 3
A Word from the Editor 3
Partial Eclipse of the Sun 29th March 2025 4
The Natural History Conversazione Festival 7
Comparing Light Pollution at Ground Level and 120m Above Ground 8
Member's Images 19
CYA Meetings 24
Cambridge Astro Plus Meetings 25
CAA Speaker Meetings 25
New for 2025: CAA & CYA Clothing with Embroidered Logos 26

A Message from Paul

Dear All,

Writing in the first week of May, we have had the AGM and an interesting and rather unusual talk from David Whitehouse entitled “Dinosaurs on the Moon” and have just started the Introduction to Astronomy course with around 25 people in attendance, many of whom were new to the CAA.

The recent CA+ meeting covering Brown Dwarfs and Rogue planets was also well attended, with some 50 people joining us - one lady and her daughter having come all the way from Evesham for the evening, and on a bank holiday Monday too.

The main point to note was that a vote was held at the AGM with all in attendance supporting the change to the annual subscription fees, which are now £8 per person per year, with a cap of just £10 per year for a family membership. This is the first time it has been increased in around 30 years and was rather overdue.

If you pay with a standing order, as many do, please log into your bank and tweak it. You have to do it on your end, and we cannot. This will enable us to do more and keep the association in top shape.

Thanks, everyone, for your help and support!

Paul Fellows

Chairman

A Word from the Editor

Hello and welcome to Capella, 228.

Thank you to all our contributors. I have a bumper issue for you, thanks to Maito Shiode, who has sent in an article based on research work he has carried out on the effects of light pollution on visual observing. Also, I’ve received a considerable number of images from our regular contributors and can only share a few of them here. Check the CAA Facebook page to see more.

If you are an observer or imager, please send me your reports and images so I can share them with the rest of the membership.

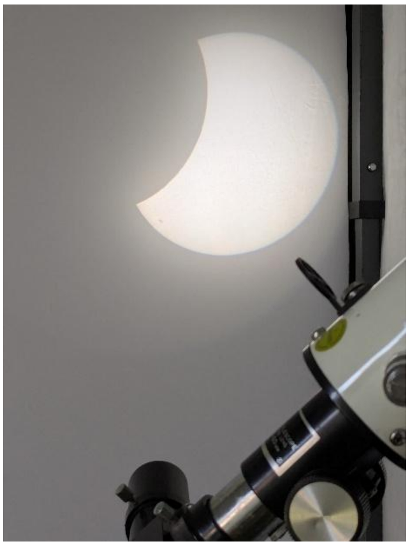
Enjoy Capella.

David editor@cambridgeastronomicalassociation.com

Partial Eclipse of the Sun 29th March 2025

A partial eclipse of the Sun occurred on 29th March between approximately 10 am and midday. The maximum obscuration of the Sun occurred shortly after 11 am when the Moon covered roughly 30% of the Sun.

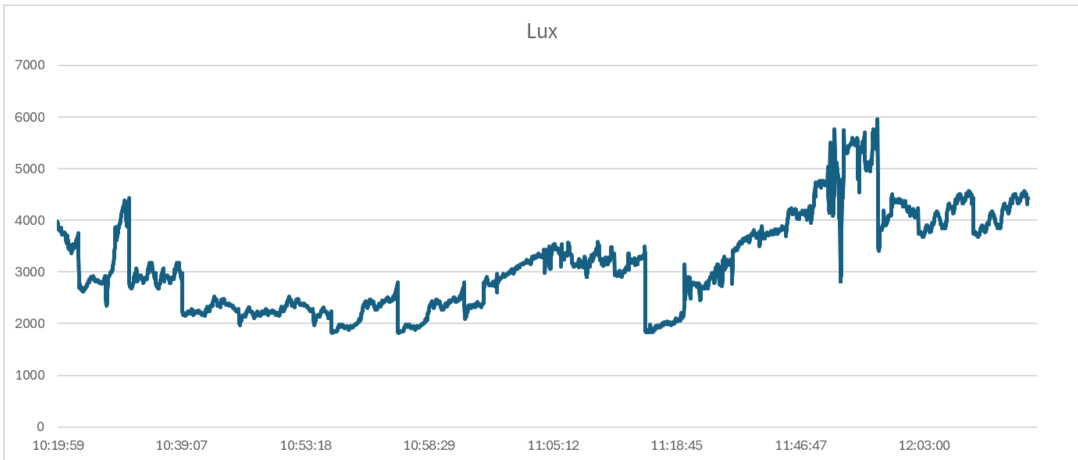
Members of the CAA and around 600 visitors gathered on the lawn of the IOA to witness the event. Dark 'eclipse glasses' were distributed to enable people to watch the eclipse safely. We set up a telescope in a tent to enable an image of the Sun to be projected onto the interior of the tent as a screen.



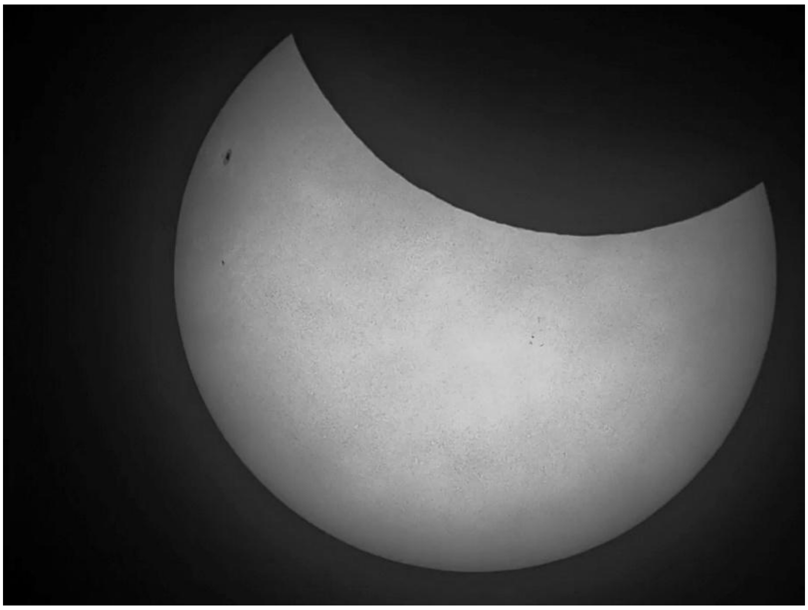
Outside, other telescopes fitted with solar filters were in constant use.

Tim Thornton measured the light flux during the eclipse using the Phyphox app on his phone. Here is the record of the intensity of sunlight he recorded. I think you can see a definite dip in the Sun's intensity.

Note: Phyphox is a free app that lets you conduct physics experiments with your phone.



Here is an image from David Davies's Seestar 50, taken around the maximum obscuration.



Here is another view from Mick Jenkins taken about the same time in hydrogen-alpha light.

David Davies

The Natural History Conversazione Festival

CAA members Paul Mardon and Maito Shiode shared the CAA exhibition booth duties at the Natural History Society's 106th 'Conversazione' natural history exhibition held at a new venue for the first time this year: The David Attenborough Building, Downing Street, Cambridge on Saturday 19th April.

Maito, assisted by his parents, manned his own booth with a display entitled 'Advancements in Stellar Calculations by Cambridge Professors'. He also kindly looked after the neighbouring CAA booth. Paul (Mardon) assisted with the CAA booth whenever his other duties as event host allowed. Some printouts of Capella were available as giveaways to encourage and inform prospective members.

This annual 1-day event attracts exhibits from a variety of local science and nature-oriented organisations, and this year was busier than last, possibly in part due to the new, more accessible venue.

We should do this event again next year. It is free to exhibit, and it gives us exposure to a good number of suitable prospective members, many with young kids in tow, so it is a potential feeder stream for CYA, CA+, and CAA.

We had a good turnout at the CAA booth, and I was able to promote the CAA to a wide range of visitors from local science enthusiasts to family groups with budding astronomers. The A1-sized posters and the colour copies of recent issues of Capella that Jerry had produced highlighted our activities effectively.

I promoted our CAA lecture series and the CYA activities, with the latter gaining strong traction with families with young children. Many visitors also enquired about the public observations. In total, around 20 people decided they would join (or at least so they told me…) and/or ask friends to come along with them to CAA lectures and the public observations. So, hopefully, we will see a few more new faces soon.

Maito on the CAA Stand

Maito Shiode and Paul Mardon

Jerry Hall and Maito Shiode

Comparing Light Pollution at Ground Level and 120m Above Ground

1. Introduction

Artificial lights emitted in urban areas are known to cause light pollution, reducing the visibility of stars in the night sky. Light pollution is mainly produced by outdoor lights such as streetlights, lights from traffic, and those from the stores and houses on or near the ground level. Lights from the streetlights and traffic are particularly problematic, accounting for nearly 70% of the glow in small towns and medium-sized cities, thereby creating glare near the streets and projecting sky glow that lights up the sky.

Reports confirm that light pollution is rife in the urban environment, and some organisations propose action plans for reducing light pollution (EnviroLiveracy 2024). What we can do in an urban environment is to find places away from the strongest concentration of the source of light pollution. One such possibility is to go vertically up. For some time now, I wondered if the extent of light pollution would change as we moved away from the ground level, to put a distance between myself and the streetlights and the lights from the traffic and stores. I wanted to address the following question: **To what extent does the night-sky visibility improve if we are away from the ground in an urban area and distance ourselves from the heavy light pollution on the ground?**

In general, getting as high up as possible to upper-storey floors provides better viewing conditions (Pavid, 2025). Yet, the difference in the extent of light pollution between the ground level and higher floors in a multi-storey building is not widely known. Among a few exceptions are studies carried out by Tong et al. (2024), who investigated the reduction in light pollution across several buildings in Hong Kong and concluded that light pollution rapidly decreases when we are 3 meters or more above the ground. They measured the difference in light pollution up to about 58 meters above ground, but it is unclear what happens beyond that height. On the other hand, BBC reports that light emitted from skyscrapers, office blocks, streetlights, and homes would scatter into the atmosphere, creating a sky glow extending as far as 150 miles (Paddison, 2021). To assess the difference in the extent of light pollution between the ground level and the upper level of a high-rise building, I conducted observations in and around a 40-storey apartment I had access to on the 35th floor.

The Site of Night-Sky Observation

The building I used for this observation is a 40-storey building (with a double-height ground floor, roughly 41 floors tall). It is a 140-meter-high landmark tower on a small artificial island called Rokko Island, just off the coast of the City of Kobe in western Japan. It is located roughly in the geometric centre of Japan with coordinates of 34N and 135E. The ground level has an altitude of 3.2m. I calculated that an apartment with a south-facing balcony on the 35th floor is at a height of 120m.

Figure 1. Rokko Island, Kobe City, Japan.

Figures 2(a) and 2(b) respectively show the observation site: (a) on the ground level and (b) 120m above ground. As illustrated by these pictures, the ground is flooded with lights, whereas when we are 120m above the ground, we have a darker and clearer view of the night sky.

(a)

(b)

Figure 2. Pictures of the observation site on Rokko Island, Japan: (a) ground level and (b) from the 35th floor (120m above ground).

Justification for the Choice of Constellations

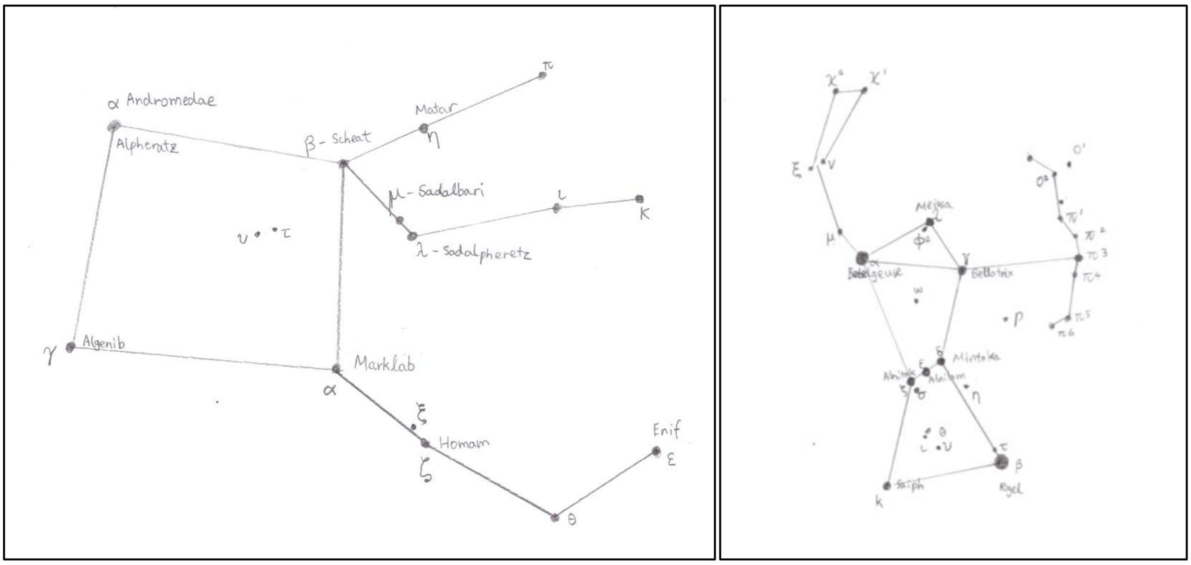
I carried out observations during my 10-day visit from December 22 2024, to January 1 2025. I initially planned to observe the stars inside the Great Square of the constellation of Pegasus, as (1) the square is visible in the southern sky in winter, (2) sufficiently bright stars demark its square, and (3) it contains stars with a range of different apparent magnitudes, thus allowing me to make an objective assessment of the extent of light pollution. However, the ground level was flooded with much more light than I had thought, and the stars inside the square were hardly visible.

After carrying out my first observation on December 24, I had to revise my plans. I decided to observe both Pegasus and Orion to improve my estimation of the extent of light pollution. I chose these two constellations as they are prominent and easily identifiable in the night sky and visible towards the south. I would have also liked to observe Auriga, but it was too close to the zenith, and the ceiling above the balcony of the 35th-floor apartment partially blocked my line of sight.

2. Design

To help me identify the correct stars, I did three things.

2.1 Memorising the Constellations by Hand Drawing Them



(a) (b)

Figure 3. Hand-drawn figures of the two constellations I used for unaided observation: (a) the constellation of Pegasus, and (b) the constellation of Orion.

Figures 3(a) and 3(b) show the images of the constellations of Pegasus and Orion that I drew. The size of the circles around the stars reflects their apparent magnitude. By drawing and studying the two constellations, I became familiar with their configuration and where to look for each star.

2.2 Checking the Position of Constellations Using an App

During my observation, I used a smartphone and the app Stellarium to confirm the approximate direction of the constellations. I used it to identify the stars and constellations. Figure 4 shows an illustrative example of how the constellation of Pegasus is shown on screen, along with Venus and Saturn, which were also in the same direction at the time. It proved invaluable in confirming my observation, as I was less familiar with the night sky in western Japan. To minimise the impact of the bright screen on my eyes, I set the screen brightness to the darkest setting to minimise the impact on my naked eye observation.

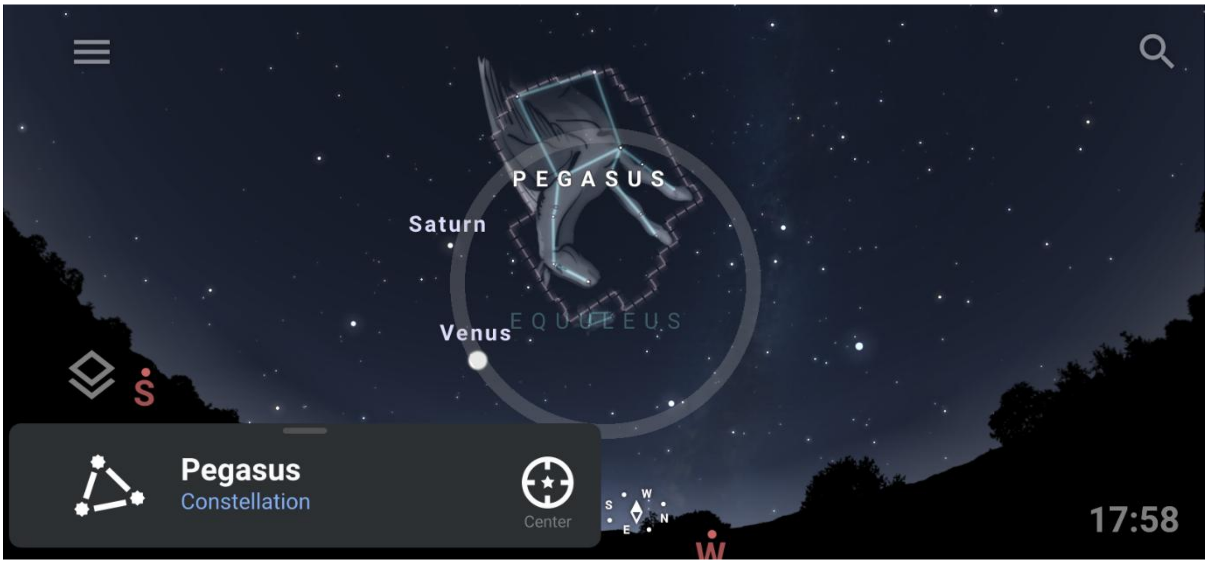


Figure 4. The constellation of Pegasus as shown on the Stellarium screen to help find the constellation.

To confirm the approximate direction of the constellations during my observation, I used a smartphone with the night-sky observation software Stellarium. I used it to identify the stars and constellations. Figure 4 shows an illustrative example of how the constellation of Pegasus was shown on the screen, along with Venus and Saturn, which were also visible in the same direction at the time. It proved to be invaluable in confirming my observation, as I was less familiar with the night sky in western Japan. The screen brightness was set to the darkest to minimise the impact on my naked eye observation.

2.3 Recording the Observations

I prepared a series of image files of the two constellations and marked each on my tablet screen as I observed the stars. Figure 5 is an illustrative example showing the recording of the constellation of Orion.

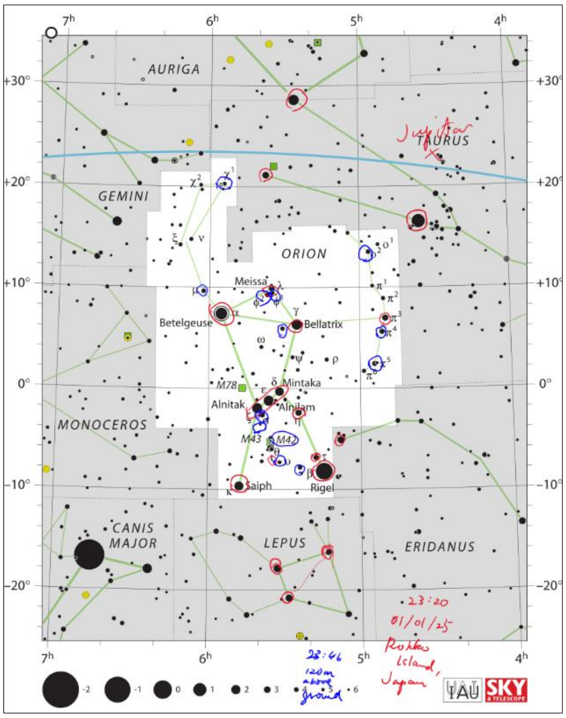


Figure 5. An example of my observation records of the constellation of Orion (recorded on 1 January 2025).

By combining these three methods, I was able to carry out my observations efficiently while also maintaining accuracy in identifying each star I could see.

Of the 10 days I stayed at the apartment, only four nights had a clear sky suitable for night sky observation. Other nights were cloudy, and the constellations were either completely invisible or were faint and only partly visible, which prevented me from carrying out observations under fair and consistent conditions and would have affected the results.

Nevertheless, for those four clear nights, I was able to conduct a fair comparison between the observations from the two different levels of heights, as I was able to move between the two levels within two minutes using the lift and observe the stars within 20 minutes of each other. It allowed me to observe under the same temperature and the same clear conditions of the sky. To improve the reliability of the observations, I repeated observations around the same time on different days. I also made sure that I observed from the same place each night and waited for clouds to pass over, if there were any. Finally, I ensured that I stayed in each location for the same time to allow my pupils to dilate to the same size so I could see all the stars.

3. Observation

3.1 The Constellation of Pegasus

The Overall Impression of Pegasus

There were differences in the set of stars I could see on the 24th-27th December, and those that were visible on January 1. These were mainly at the dimmest end of the visible stars. On all three days, I could see 4-5 brighter stars from the ground level, most of which had apparent magnitudes between 2 and 3. All the stars I saw from the ground level were also visible at 120m above ground. There were also 5-10 additional stars that could be seen only at 120m above ground. Most of these stars had an apparent magnitude between 3 and 4.6.

There were some differences in the set of stars I could see on the 24th-27th December, and those that were visible on January 1. These were mainly at the dimmest end of the visible stars. On all three days, I could see 4-5 brighter stars from the ground level, most of which had apparent magnitudes between 2 and 3. All the stars I saw from the ground level were also visible at 120m above ground. There were also 5-10 additional stars that could be seen only at 120m above ground. Most of these stars had an apparent magnitude between 3 and 4.6.

While 120m above ground provided better visibility over the ground level on all three days, the number of stars visible varied slightly between the three days. For instance, on the last day, there was no visible cloud and the visibility reported by the Japan Meteorological Agency was an all-clear 20km, yet the whole sky appeared slightly misty with a subtle silky grey shade, and it was difficult to even see the square itself from the ground level. I concluded that the poor visibility of the stars on Day 3 was due to the weather conditions. This was confirmed by the complete disappearance of a mountain range in the distance, which was usually visible even at night, and Pleiades turning into a faint smudge that evening. However, it was very clear on other nights. Even with such variations, we can still conclude that there is a difference of one magnitude between the ground and 120m up.

Pegasus Seen from the Ground Level

On the ground level, several pathway lights were nearby, and streetlights were visible in the distance. There were also several medium to high-rise buildings with well-lit windows, emitting light in all directions. Despite all these lights, the night sky was still reasonably visible. I was able to see the main stars of the constellation of Pegasus, including Alpheratz (α-Andromedae with an apparent magnitude of m=2.06), Markab (α-Pegasi, m=2.49), Scheat (β-Pegasi, m=2.42), Algenib (γ-Pegasi, m=2.83), Enif (ε-Pegasi, m=2.38) and Matar (η-Pegasi, m=2.95). However, I could not see a single star within the Great Square of Pegasus.

Also, on the 24th, I did not recognise Matar (η-Pegasi, m=2.95) but saw Homam (ζ-Pegasi, m=3.41), whereas, on the 27th, I could see Matar but not Homam. While these inconsistencies make it difficult to establish the exact limit of the visible range of stars, I concluded that, for the constellation of Pegasus, sky magnitude on the ground was between 2.95 and 3.41.

Several other celestial bodies were also visible in the night sky. For instance, Venus and Jupiter appeared distinctively bright and large, while Saturn appeared smaller but still sufficiently bright. Mars was quite bright and red. Other stars I identified include Aldebaran (m=0.87), Altair (m=0.77), Capella (m=0.08), Deneb (m=1.25), Fomalhaut (m=1.16), and Sirius (m=-1.44). I could also clearly see the main stars of the constellation of Andromeda, although, sadly, not the galaxy itself.

Pegasus Seen from 120m Above Ground

At 120m above the ground, there was seemingly less light pollution. Lights from the streets and the ground were still shining, with some particularly bright lights seen around a football stadium in the distance, the harbour and the monorail track of Rokko Liner. Other nearby apartments were also emitting lights into the night sky. Despite these light sources, it seemed darker than the ground level. As I turned my eyes to the night sky and waited for several minutes to adjust my eyes, I could see the Great Square of Pegasus with greater clarity. I also recognised several stars outside the square, including Enif and Matar. What was more, I caught a glimpse of two stars within the square using averted vision, which I believe were upsilon Pegasi (a star with an apparent magnitude of 4.53) and tau Pegasi (a star with an apparent magnitude of 4.63). Seeing such a drastic change in the light pollution levels between the ground and 120m up was quite surprising. The extent of the sky's magnitude at 120m above the ground is around magnitude 4.42 – 4.58, which is at least one magnitude higher than on the ground.

3.2 The Constellation of Orion

I started observing the constellation of Orion on the second day of my observation (December 27). To have a good view of Orion, I had to wait till later at night (23:00-00:00), but it also allowed me to observe a different night sky from the earlier observation of Pegasus. Specifically, I saw Mars, Sirius, Jupiter, and the constellation of Orion. From the ground level, I was able to see the main components of Orion, as well as a faint image of the Orion Nebula under Orion's belt and Eta Orionis A to its lower right, Cursa to the upper right of Rigel and, very faintly, 32 Orionis next to Bellatrix.

In contrast, from the 35th floor, I could see many more stars, as happened with Pegasus. First, the Orion Nebula no longer appeared like a smudge but instead showed three distinctive parts.

As with the constellation of Pegasus, I could see some inconsistencies in the range of stars between the three nights. The magnitude of the darkest star visible on the ground level (Meissa with apparent magnitude of 3.47) and that at 120m above ground (apparent magnitude 4.13 – 4.39) were also slightly different from the values I got from observing the constellation of Pegasus, on which I will elaborate more later. However, it is safe to say that night sky observation from 120m above the ground is one unit of magnitude better than on the ground level.

It was also rather odd that I could not see η Orionis on the first day, but I could on the other days, and that I could not see σ Ori AB for the first two nights, but I could on the third night. Also, as I tried to find the dimmest of the stars, I was unsure if I was seeing them or if my mind was playing a trick and making me think I saw something there. To improve the reliability of my observation, where there was any doubt, I looked away, then looked back to the same spot to see if I could still see it.

4. Analysis

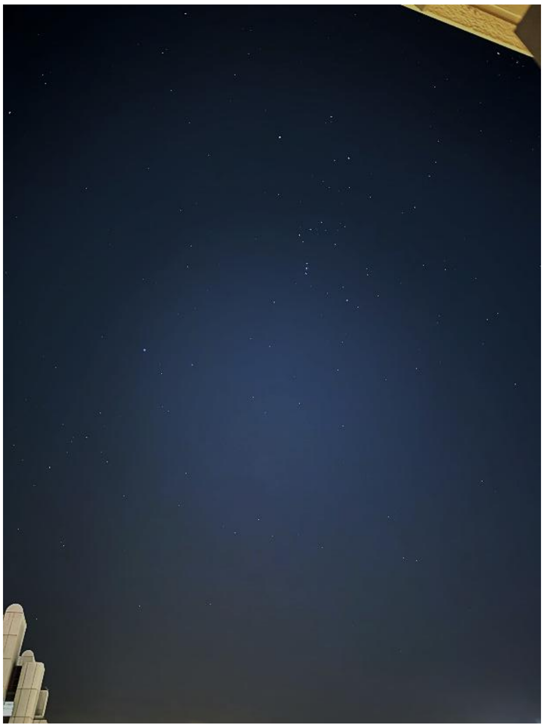
While there were some inconsistencies in the visible range of stars between different dates and also between the two constellations, the observations suggest that the visibility on the ground level and 120m above ground correspond to roughly 8 and 7 on the Bortle Scale, respectively (Table 41).

Table 41. The Bortle Scale and corresponding measurements.

Bortle Scale	Description	NELM Reading	Approximate SQM (mag/arcsec^2)
1	Excellent dark sky site	7.6 - 8.0	21.99-22.0
2	Typical truly dark site	7.1 - 7.5	21.89-21.99
3	Rural sky	6.6 - 7.0	21.69-21.89
4	Rural/suburban transition	6.1 - 6.5	20.49-21.69
5	Suburban sky	5.6 - 6.0	19.50-20.49
6	Bright suburban sky	5.1 - 5.5	18.94-19.50
7	Suburban/urban transition	4.6 - 5.0	18.38-18.94
8	City sky	4.1 - 4.5	<18.38
9	Inner-city sky	4.0	<18.38

(Source: Understanding the Bortle Scale by Trevor Jones: https://astrobackyard.com/the-bortle-scale/).

The difference between the two locations was also evident from the photographs I took. While using the smartphone, I took several pictures of the two constellations and set it to long exposure. Figures 6(a) and 6(b) respectively show the night sky seen from the ground level and 120m above ground. They both show the constellation of Orion, but there is a considerable difference in the level of detail recorded. In all instances, the camera captured much more than I could see with my own eyes, including some of the dimmer stars from both constellations, such as Matar and Homam. The range of stars shown on the photographs taken on the ground is comparable to the stars I could see with my own eyes at 120m up, which, again, seems to be separated by roughly one class on the Bortle Scale.



(a) (b)

Figure 6. Pictures of the night sky, including the constellation of Orion, taken from the observation sites at

Rokko Island, Japan: (a) taken at the ground level, and (b) 120m above ground (January 1 2025).

Change in the Bortle Scale

Based on my observations, I concluded that the ground-level sky-light pollution was one whole magnitude brighter on the Bortle Scale.

On the Bortle Scale, the extent of stars visible from the ground matches that of Class 8 (City Sky): stars forming familiar constellation patterns may be weak or invisible. On the other hand, the stars visible from the 35th floor (120m off the ground) fall into Class 7 (Suburban/Urban Transition). Here are some key descriptors for Class 7:

- The entire sky background has a vague, grayish-white hue.
- Strong light sources are evident in all directions.
- The Milky Way is totally invisible or nearly so.
- M44 or M31 may be glimpsed with the unaided eye but are very indistinct.

The initial categorisation of Class 8 for the ground-level situation also corresponds with the values shown on the light pollution map below (Figures 7(a) and 7(b)). David Lorenz produced the map, showing the value of 18.32 around South Kobe and Rokko Island, Japan.

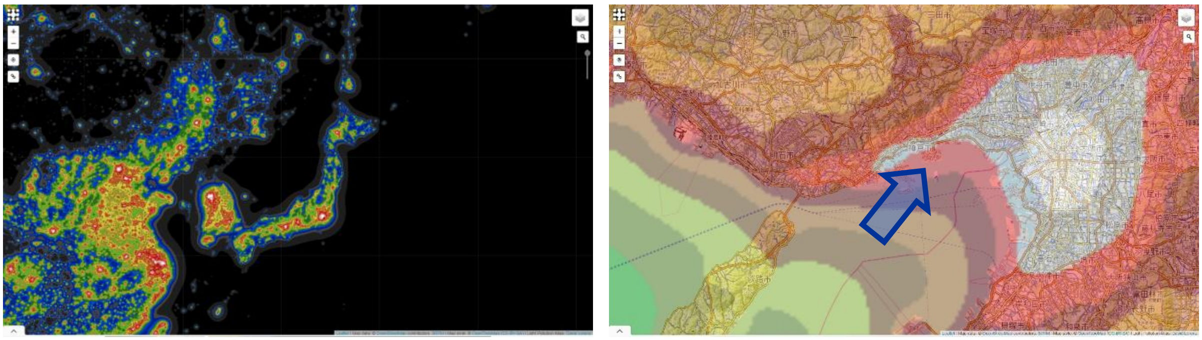


Figure 7. The extent of light pollution (a) around Japan and (b) around the Greater Kansai Region, which holds three multimillion cities: Kobe, Osaka and Kyoto. The blue arrow points to the location of Rokko Island, Japan (Source: Lorenz 2024).

5. Evaluation

As I researched this topic more, I was surprised to see how few studies or reports I could find on the association between light pollution and vertical height. At the same time, it helped me maintain an impartial, fresh perspective. My observations indicate that being off the ground helps improve our night sky visibility.

I found it interesting that the ground-level sky light pollution resulted in one whole class being brighter than it was at 120m above ground. This was a bigger difference than I thought there would be. On the ground level, I tried to block as much light as possible with my arms, but I still saw the surrounding streetlights in my averted vision. Also, on the ground level, there was a reasonably bright building towards the south, roughly in the direction of Pegasus and Orion, and this may have further reduced the number of stars that I could see in either constellation.

There was also some discrepancy between the results for Pegasus and Orion and the set of visible stars on different days. On the ground level, Orion was more visible than Pegasus, whereas 120m above the ground, Pegasus was generally more visible. In other words, the apparent magnitude of the dimmest star visible in each constellation varied by height from day to day. Here are some plausible explanations I can think of for such discrepancies:

(1) At midnight, light pollution dims because of fewer activities on the ground. The reduced light pollution late in the evening enabled more of the dimmer stars in Orion to be visible than with Pegasus.

(2) On these days and from Rokko Island, Pegasus was seen closer to the zenith than was Orion. It probably made little difference on the ground level, owing to the presence of mid- and high-rise buildings close to the constellations, i.e. the light pollution may have diminished the benefit of being close to the zenith. However, at 120m above ground, there were fewer light pollution sources in the constellation's direction. Being close to the zenith meant that the light from the stars went through less atmosphere, which could have made some of the dimmer stars more visible—hence naked eye observations being better for Pegasus and worse for Orion at 120m above ground.

(3) It may also be due to my familiarity with the various stars in the constellations. I have frequently observed the constellation of Orion from my backyard in Cambridge in the past, and this experience has made it easier for me to spot each star. In contrast, the stars in the constellation of Pegasus were less familiar to me. This may have affected the outcome of the observation, especially the dimmer stars in the constellation of Pegasus.

In some cases, stars with a brighter apparent magnitude were not visible, but those slightly darker were visible. I believe this is due to the NELM (naked-eye limiting magnitude). NELM is the faintest magnitude star seen with the naked eye at the zenith on a clear, moonless, cloudless night. I found that the ones that I could see, even though they were fainter, tended to be from near the top of each of the constellations of Orion and Pegasus. This is probably because lights from the stars closer to the zenith have less atmosphere to travel through and, therefore, are less refracted. This means that even if a star is dimmer, I can still see it better than a slightly brighter star that is away from the zenith. This was the case with both the ground level and 120m above ground. For example, in Orion, on the last day, I could not see π2 Ori (m=4.35) but could spot ν Ori (m=4.42). It is consistent with their proximity to the zenith in that π2 Ori is found towards the middle of the constellation, while ν Ori is the highest star in Orion, and this helps make the star more visible.

I also noticed that the humidity level was quite high on the nights I did not observe the constellations well. For example, on the first day of observing Pegasus (where I saw the least number of stars), the humidity was 67%. However, the humidity was down to 41% and 47% on the other days when more stars were visible, respectively. Water vapour in the air often condenses around various dust particles in the sky, which refracts light waves in many directions. This first intensifies the light pollution of the sky, and thus makes the distant stars appear fainter. This is, possibly, one of the main reasons why there was so much variation between different days, as to why the light magnitudes of the visible stars varied between the days.

In conclusion, if we wish to observe the night sky in the middle of the city, our best bet would be to go as high up as possible on a high-rise building, provided there is no excessive lighting upstairs.

References

EnviroLiveracy (2024) How to stop light pollution? The Environmental Literacy Council (accessed on January 10 2025 at https://enviroliteracy.org/how-to-stop-light-pollution/).

Japan Meteorological Agency (2024) Table of three-hour climate statistics (accessed on January 10 2025 at https://www.jma.go.jp/jma/indexe.html).

Jones, T. (2025) Understanding the Bortle Scale, *AstroBackyard* (accessed on January 10 2025 at https://astrobackyard.com/the-bortle-scale/).

Lorenz, D. (2024) Light Pollution Atlas 2022, *GitHub* (accessed on January 10 2025 at https://djlorenz.github.io/astronomy/lp2022/).

National Park Service (2024) Light Pollution, *U.S. National Park Service* (accessed on January 10 2025 at https://www.nps.gov/subjects/nightskies/lightpollution.htm).

Paddison, L. (2021) The argument for switching off lights at night, BBC Future (accessed on January 10 2025 at https://www.bbc.co.uk/future/article/20210719-why-light-pollution-is-harming-our-wildlife).

Pavid, K. (2025) How to Stargaze in Cities, *The Natural History Museum* (accessed on January 10 2025 at https://www.nhm.ac.uk/discover/how-to-stargaze-in-cities.html).

Sinnott, R. and Fienberg, R. (2011) IAU Orion Chart, IAU and Sky & Telescope magazine (accessed on January 10 2025 at https://www.iau.org/public/themes/constellations/).

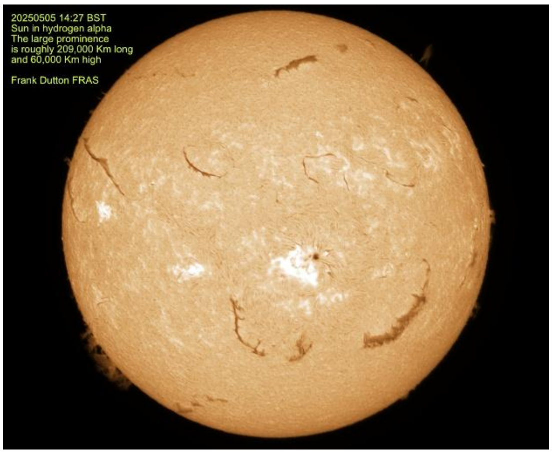
Tong, J.C.K., Lau, E.S.L., Chan, C.W.Y., Law, S.M.W., Yeung, P.C.H., Chu, H.H.K, and Lau, A.P.S. (2024) Measurement of vertical dispersion and pollution impact of artificial light at night in urban environment, Sustainable Futures, Volume 7, 100145 (accessed on January 10 2025 at https://doi.org/10.1016/j.sftr.2023.100145).

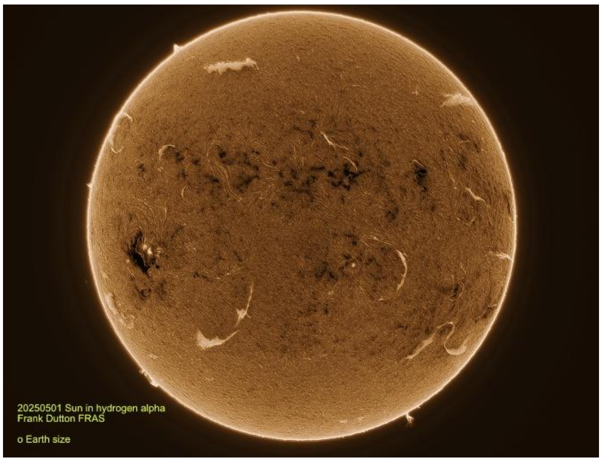
Maito Shiode

Member's Images

Here is a small selection of images I've received from members.

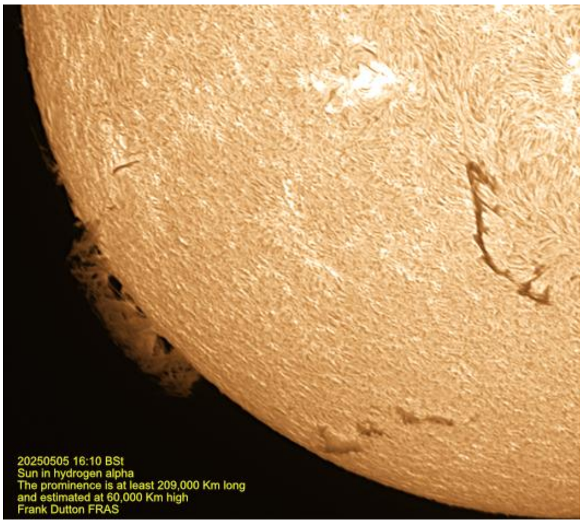
First, Frank Dutton has been photographing the Sun and Moon. Here is a selection of his solar images.





These two images show different styles for presenting solar images. In the first image, Frank notes that the prominence to the lower left is over 200,000 km long and 60,000km high. In the second image, note the small circle on the lower left, which represents the size of the Earth on the same scale.

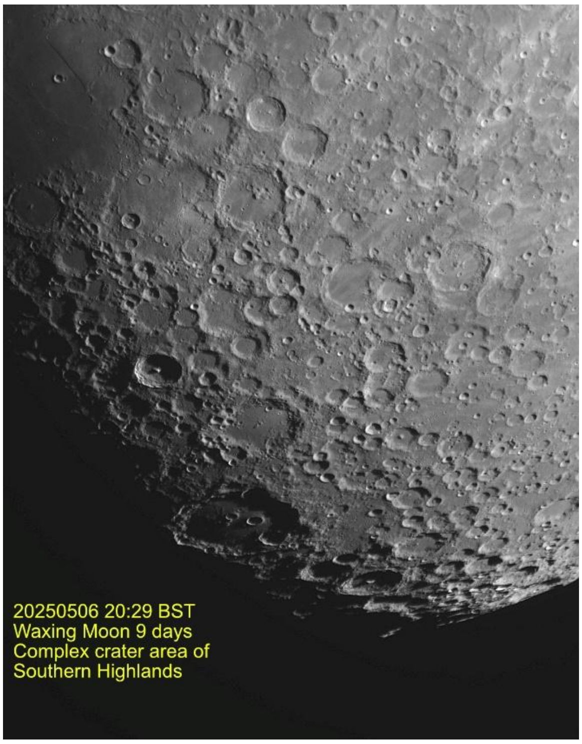
Here are two detailed images, showing the prominence in more detail, and a detailed shot of a sunspot with another circle representing the size of the Earth.



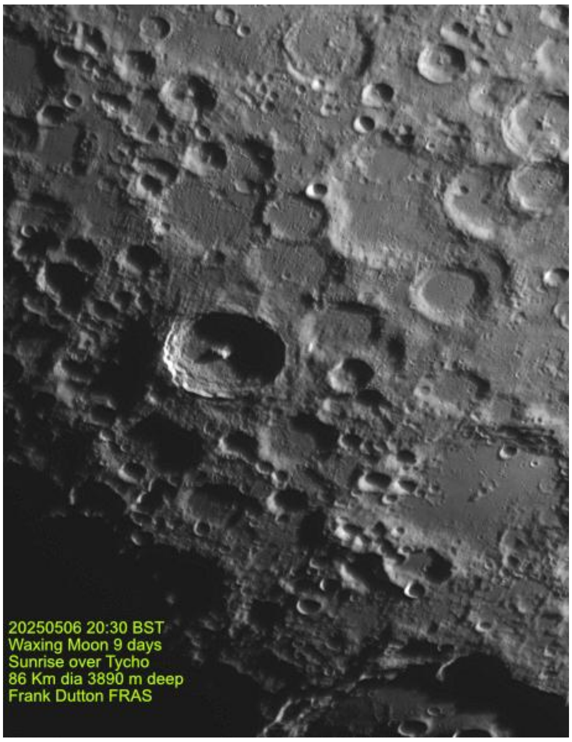
Frank used an Actuter Pheonix 40mm H-alpha telescope. Frank captured the white-light close-up of the sunspot using a C11 telescope and Baader solar film.

Frank has also made a photographic tour of the waxing Moon on 6th May, beginning around 20.20 BST.

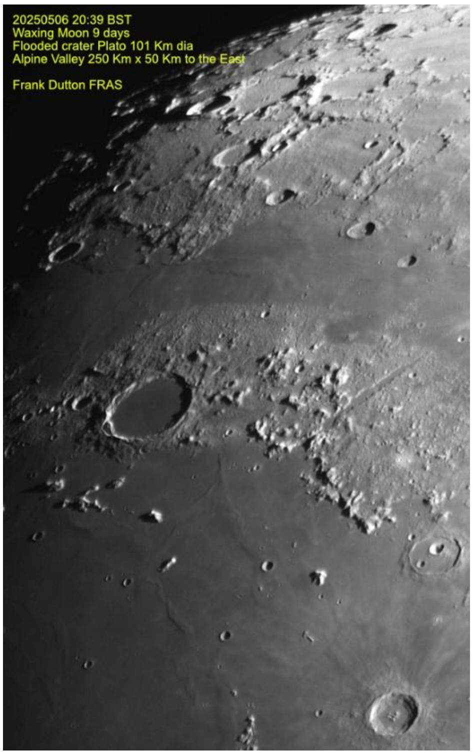
The Disc of the Waxing Moon



The Southern Highlands

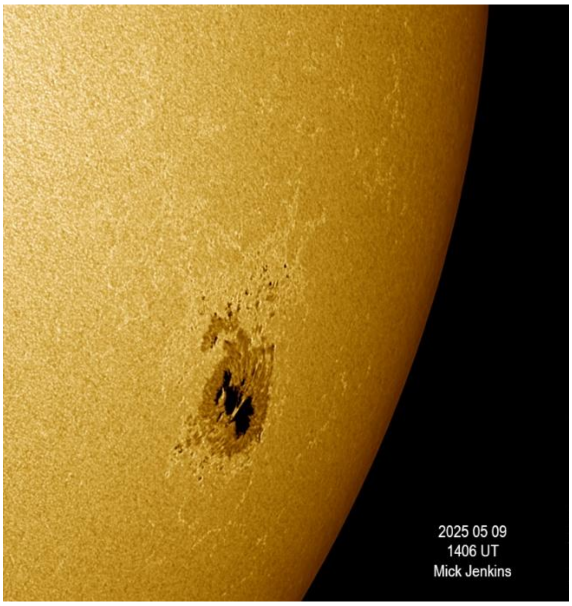


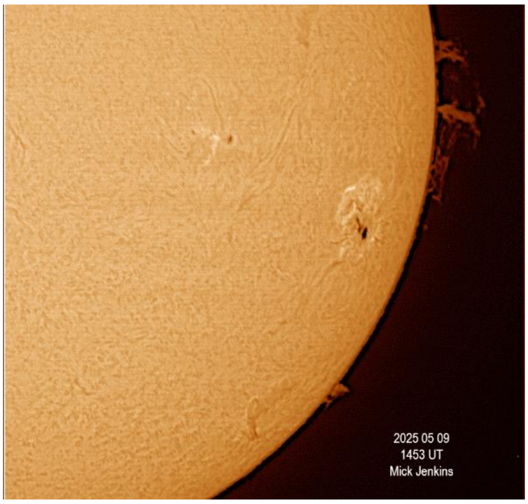
Tyco



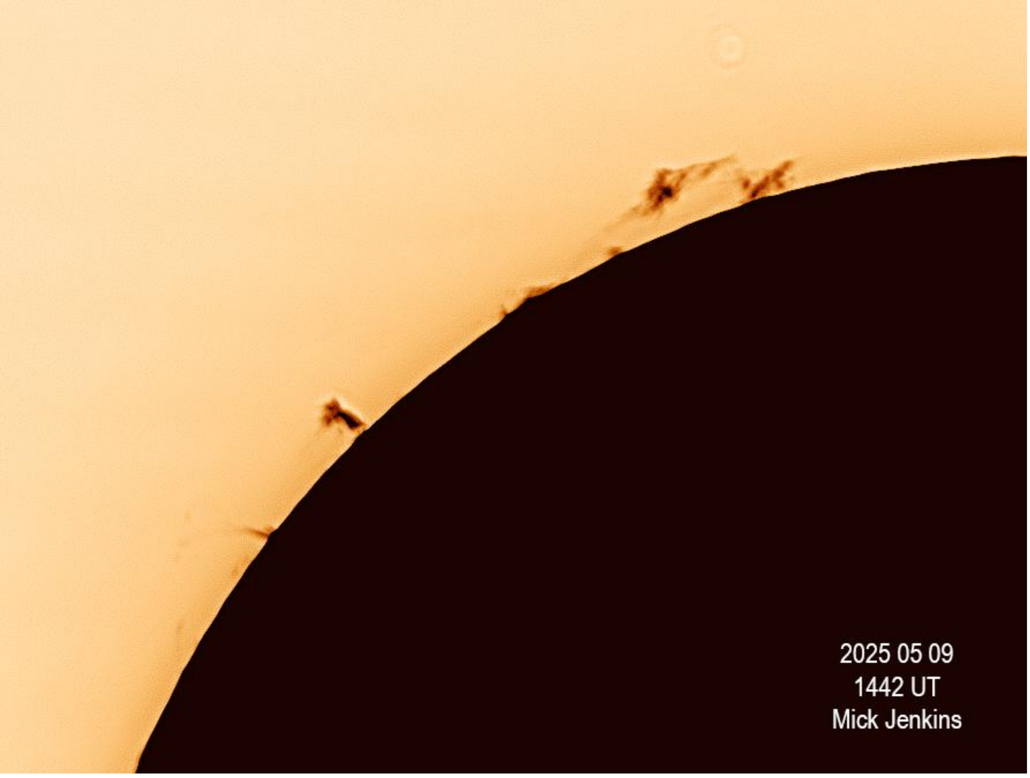
Plato and the Alpine Valley

Mick Jenkins has also been observing the Sun.



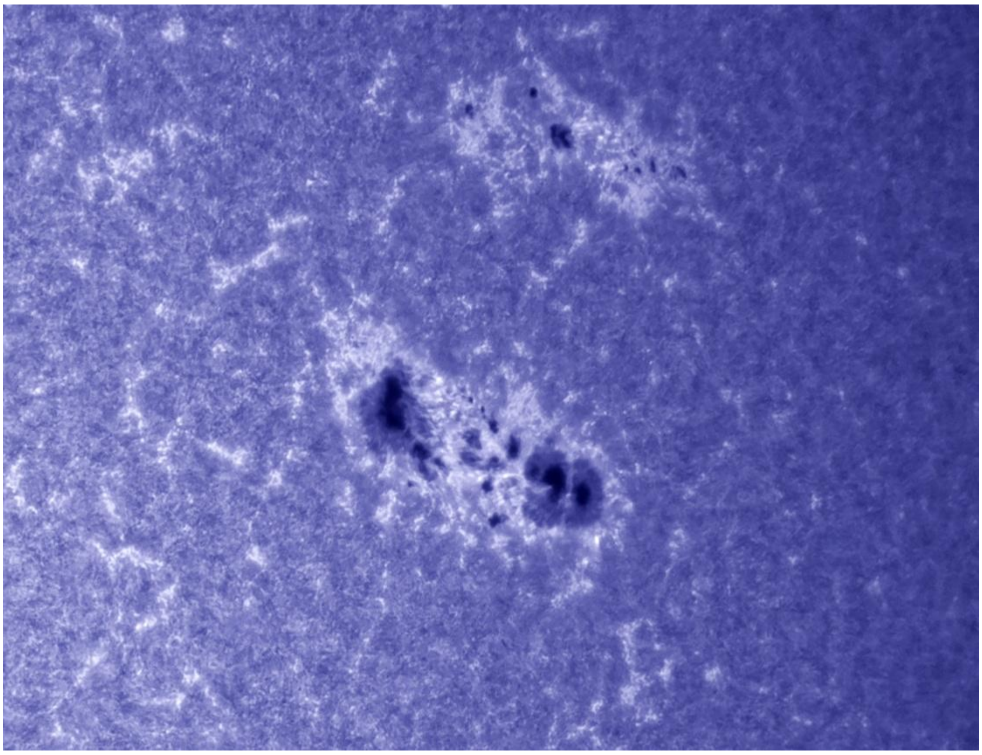


Here is an interesting ‘shadow’ image of prominences.

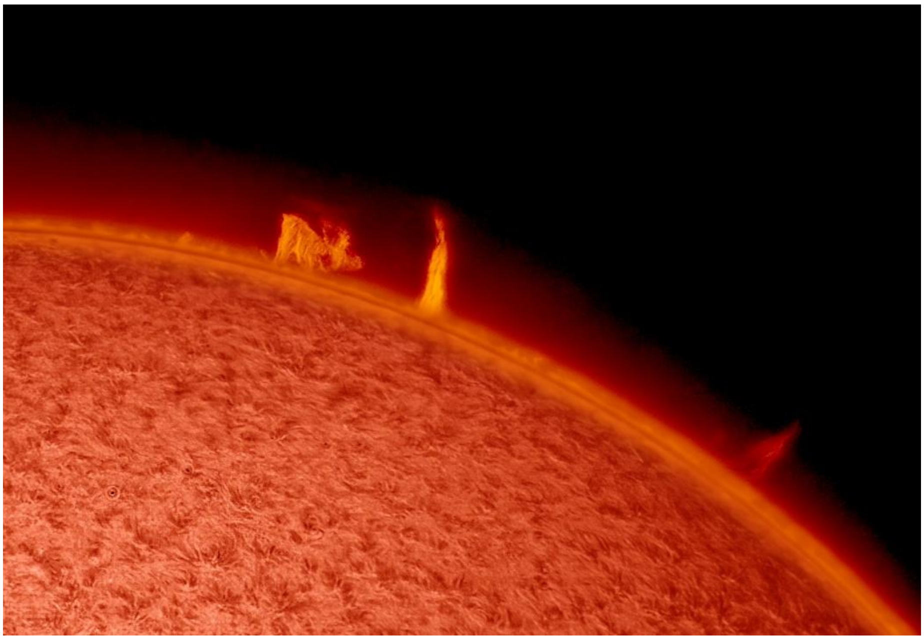


Mick uses a 100mm Skywatcher ED Pro telescope for white light images and a Coronado Solarmax II 60mm telescope for H-alpha images. The camera is an ASI174MM.

Pete Williamson has been very busy imaging solar, lunar and deepsky images. Here is an unusual image of the Sun in Calcium light.



Here is a lovely image of a prominence captured on 10th May.

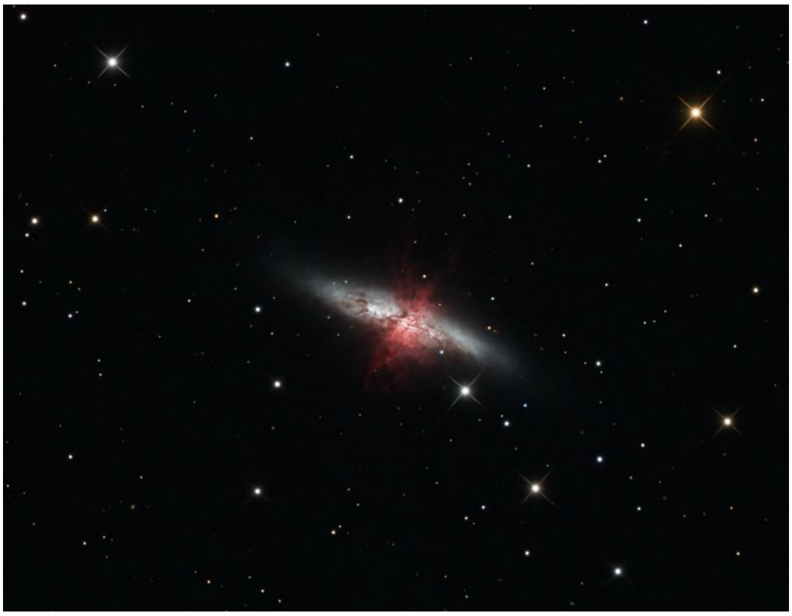


Pete uses a Coronado 90mm Solarmax III telescope with a x2 Barlow lens and an ASI 174MM camera.

Pete captured this image of M104, the Sombrero Galaxy, with a Seestar S30 smart telescope on 25th April.

David Davies has continued his exploration of deep sky objects captured with a 10" Ritchey-Chretien telescope and an ASI071MC Pro one-shot-colour camera.

David has been exploring capturing narrow-band data using an Antlia Ha/OIII filter, and mixing them with RGB data from a one-shot colour camera. His rendering of Messier 82 shows the outflow of ionised hydrogen gas from the galaxy's centre.



David used the same technique to capture NGC 2359, Thor's Helmet. At the centre of this nebula is a Wolf-Rayet star in the pre-supernova phase of its life.

David Davies

CYA Meetings

Saturday 24th May, Brown Dwarfs and Rogue Planets

We talk a lot about bright and massive stars, so we thought it would be good to let the little guys have a turn this month. Come along to learn about the smallest stars, brown dwarfs, and rogue planets that wander the galaxy on their own.

Saturday 28th June, Topic to be Confirmed

Check the website for the latest news.

Saturday 26th July, Summer Break - No Meeting

20th September: CYA/CAA Visit to National Space Centre, Leicester

For our annual away-day trip this year, we are returning to the National Space Centre in Leicester; this was a fabulous trip in previous years and was very popular.

Cambridge Astro Plus Meetings

Monday 16th June, The Sun and Solar Telescopes

As the nights are so short in June, it's time to turn our gaze to the Sun.

Monday 7th July. Summer Break – No Meeting

Monday 4th August. Summer Break – No Meeting

CAA Speaker Meetings

Friday 23rd May, A Crack in Everything, Marcus Chown

Black holes were once dismissed as absurd, but are now recognised as fundamental to the universe and even to our existence. Marcus Chown will follow their journey from obscurity to cosmic significance, blending scientific breakthroughs with the stories of those involved.

See the website for more details.

New for 2025: CAA & CYA Clothing with Embroidered Logos

Here is a new range of adult and children's clothing, including polo shirts, sweatshirts and fleece jackets in sizes from XS to 3XL. The logos are embroidered rather than printed.

Adults
Polo shirt £17.50
Sweatshirt £26.50
Fleece jacket £30

Children
Polo shirt £15
Sweatshirt £21
Fleece jacket £24
Prices include VAT

Super warm 'beanie' hats £12.50

Order forms are on the website.

Officers
Chairman,: Paul Fellows,
chairman@cambridgeastronomicalassociation.com
Vice Chairman: Jonathan Clough,
vice-chairman@cambridgeastronomicalassociation.com
Treasurer: Mickey Pallett,
treasurer@cambridgeastronomicalassociation.com
Secretary: Stacy Thornton
secretary@cambridgeastronomicalassociation.com

Committee Members
Young Astronomers Coordinator:
chairman@cambridgeastronomicalassociation.com
Events
events@cambridgeastronomicalassociation.com
Webmaster:
webmaster@cambridgeastronomicalassociation.com
Librarian:
library@cambridgeastronomicalassociation.com
Observing:
observing@cambridgeastronomicalassociation.com
Newsletter Editor: David Davies,
editor@cambridgeastronomicalassociation.com

Capella Newsletter
Members should email stories for inclusion to David Davies, editor@cambridgeastronomicalassociation.com
Please send article contributions as standard Word files or text and images as .jpgs wherever possible. Please attach the images separately from the text.