Astronomy
La Société Guernesiaise

Sagittarius

The Newsletter of the Astronomy Section of La Société Guernesiaise

2022

Forthcoming Events

We hope to run a stargazing course in October/November, but we have not yet confirmed the details. Please follow our Eventbrite page and check out our website for updates.

Public Open Days

We will be running public open evenings during 2022, on the **2nd, 9th, 16th and 23rd of September.**

We will also be running more daytime solar open days, which due to the nature of the event will be advertised only a few days before they take place. It is likely there will also be a Halloween themed event in October as there has been in previous years. Our events will be announced via the media, on the Astronomy Section website, www.astronomy.org.gg, and on the Section's Facebook pages.

Contents

David le Conte Astronomical Observatory
Rue du Lorier, St Peter's, Guernsey
Tel: 264252
www.astronomy.org.gg

Material for, and enquiries about Sagittarius should be sent to the Editor: tharvey303@gmail.com

La Société Guernesiaise
Candie Gardens, St Peter Port, Guernsey GY1 1UG.
Tel: 725093
www.societe.org.gg

Astronomy Section Officers, 2022

Secretary	Jean Dean
Hon. Treasurer	Jill Barnicoat
Membership	Anthony Nel
Editor	Tom Harvey
Group visits	Jill Barnicoat
Equipment mtce.	Allan Phillips
Research	Jason Hill
IT/Website	Owain Catton

Introduction from the Editor

Welcome to the 2022 edition of the Sagittarius newsletter! I hope you enjoy reading the articles and updates from our Officers and members. 2022 is shaping up to be an exciting year for the Astronomy Section. Personally, I'm especially excited to see the completion of the new observatory building, which will allow us to run open evenings for the public again. We hope to welcome members back to the observatory as soon as the pandemic situation and on-going construction allow. When the decision is made to re-open, details of the bi-monthy meeting dates will be circulated by email and on our social media.

I'm always looking for contributions to the next edition of Sagittarius, so please email me if you would like to get involved by writing an article or submitting a picture you have taken. I hope you all have a safe and pleasant 2022, and that we will be able to meet in person again soon.
Thomas Harvey

Secretary's Report 2022

It is fair to say that 2021 has not been a typical year as Covid restrictions have again impacted our activities. In addition, the closure of our telescope building in late 2020 due to structural issues has continued into 2021 which has been a great loss to the Section; there is an update on this below. Very much on the plus side - our membership has grown to nearly 80 and I would like to welcome all the new members. We have met some of you through our beginners' evenings when we have had the Celestron set up for viewing. In addition, it has been great to see an increasing number of members bring their telescopes up to the observatory on members' events. We have had some lovely clear skies with the Milky Way shining overhead and the planets Mars, Jupiter, Saturn, and Venus looking resplendent in the night sky. Below, beginners may find general information about meetings, the use of facilities and equipment.

It is with sadness I have to report the passing of the Astronomy Section founding member Dr David Falla, on 20th July 2021. There is a tribute to David by Frank Dowding in this edition of Sagittarius. Another member, Frank Sealey, passed away on 16th May 2021. Frank acted jointly with Geoff Falla as the maintenance and facilities officer between 2009 to 2012.

The Annual Business Meeting was held via Microsoft Teams on the 18th of January. There have been some changes to the astronomy committee. Peter Langford has stepped down as Honorary Treasurer. Peter is one of the longest-standing committee members, serving as Treasurer for 27 years! He has also been Editor of Sagittarius between 1999 and 2003, Secretary in 2016, and Membership Secretary 2019-2021. I would like to thank Peter for his sterling work over nearly three decades. Clive Stubbings has resigned from being the librarian. I would like to thank Clive for his work over the last two years. Elaine Mahy, who was our Public Relations Officer, found that she did not have sufficient time available year-round to take on this responsibility, so has stepped down. I would like to thank Elaine for her stargazing articles in the Guernsey Press, which I am sure has resulted in new members. Anthony Nel is going to take responsibility for writing four quarterly stargazing articles for the press. Jill Barnicoat will take over as Honorary Treasurer and Anthony Nel as Membership Secretary. The following posts remain unchanged: Jean Dean – Secretary, Owain

Catton – IT/Website, Allan Phillips – Equipment Officer, Thomas Harvey – Sagittarius Editor, Jill Barnicoat – Group Activities and Jason Hill – Research.

I would like to congratulate some of our ex-junior members for gaining their degrees in 2021. Thomas Harvey is studying a 4-year Astronomy with Physics BSc/MSc at the University of Southampton and is currently completing his final year for his Masters at Harvard University looking at the interactions between galaxies and their central supermassive black holes. Anthony Nel achieved his BEng in Computer Science at the University of York and will shortly be working for JP Morgan in Bournemouth programming their payment systems. Pieter Durman has a BSc in Natural Sciences from the University of Cambridge and is currently studying for his MSc in biochemistry and molecular biology. Kieran Phillips has completed his degree in Digital Media Design at Plymouth University and hopes to work in web design or cyber security. Grainne Wrigley gained a BSc in Physics with Astronomy at the University of Surrey and is now Communications Officer for a department of the Economic and Social Research Council (ESRC). Sad as it is to lose them from our regular meetings, we wish them the very best in their future careers.

I am pleased to report that La Société Guernesiaise is now affiliated with the Youth Commission in Guernsey. I will let Jill Barnicoat discuss this in more detail; a great initiative, this will allow the Astronomy Section to engage with more young people within the island, particularly during the school holidays.

Update on the Telescope Building

The timber telescope building has served the Astronomy Section well for over a quarter of a century. However, being timber, it eventually succumbed to significant deterioration and the decision was made to close it after the summer open evenings in 2020 as it was becoming structurally unsafe. The intention was to replace the rotten timbers, but once we started to look closer it became apparent that it would be better to replace the whole structure, particularly as we now have a ten-year lease in place.

A new building design was based around the old structure but 600mm longer and wider. A slightly larger building will allow dual usage – observing when clear, and as an extra classroom space for school visits when cloudy as our meeting room is quite small. We were very grateful to receive from La Société Guernesiaise the sum of £15,000 towards the project." We appointed Crocker Build to construct the building. It is well on the way to being finished; Crocker Build provided a wind-and-watertight structure which members are now finishing off. I would like to thank Damien Crocker for supporting us in this project, providing materials at cost, and fitting in our build during a very busy time for the construction industry. In addition, Norman Piette supported us with discounted materials. We will have an excellent roll-off roof observatory building/extra classroom that will last us many decades.

I would like to thank members Jill Barnicoat, Anthony Nel, Owain Catton, Allan Phillips, Stephanie Rice, Richard Sweet, Kieran Phillips for helping to finish the telescope building and all those who helped with the demolition on the 3rd October last year.

We hope to have the work finished by Easter when we will have an official opening and will be naming the observatory the "David Le Conte Astronomical Observatory", to honour David. It will also coincide with the Astronomy Section celebrating being 50 years old.

Please can you help?

We are looking for a new steel cabinet (460mm deep x 900mm wide x 1800mm high – or thereabouts, but ideally no less than 450mm deep) to go inside the telescope building to house the computer and eyepieces. In addition, we are also looking for a large (50"+) HD flat screen monitor to hang on the wall for giving presentations to school children. If anyone knows of a potential source for either of these items, please could you let me know? If someone or a company were to gift us either item then we would put a plaque on the wall to acknowledge their generosity.

Membership Dues Update

During the ABM the committee agreed to increase the yearly membership costs to £10. This is to reflect the increased costs in maintaining the site. Multi-year memberships purchased through the Societe website will be honoured. Please direct any queries to the membership secretary Anthony Nel. An email with renewal details will be sent out shortly, as we are currently in the process of updating the bank details for the new treasurer.

Please note that any current members who wish to renew their membership for 2022 are advised to do so by the 20th of March. As after this date the details of any lapsed-members will be removed from our system in accordance with general data protection legislation. Due to this, any members who wish to renew their membership past this date, will have to complete the registration process as a new member. Members are also reminded they must also renew their La Société Guernesiaise membership in addition to their Astronomy Section membership.

50 years of Astronomy in Guernsey

The Astronomy Section was formed by David Falla, Geoff Falla, and Frank Dowding in 1972 which makes it 50 years old this year. To commemorate half a century of astronomy in Guernsey we will be hosting a series of public open events throughout the year. We would like to widen the celebration by looking at 50 years of achievements within astronomy and astrophysics, doing a series of short talks at the open events. We might also do some short articles for the Guernsey Press. If you would like to do a short talk or write a short article, please contact me. Examples of topics could be "From Skylab to the International Space Station", "Cassini", "Juno", "Exploring Mars", "Exoplanet Discoveries", "Discovering Frozen Ocean Worlds", "Space Telescopes" or anything else that interests you in astronomy.

If you would like to find out more about the history of the Astronomy Section you will find a summary here: http://www.astronomy.org.gg/more/articles/observatory-construction

Open Evenings and Courses

As the planets are rising later in the year our open evenings will be on the 2nd, 9th, 16th, and 23rd September. We may also run another open evening during December. We plan to hold two solar open days, one in May and the other in July, dates will be released nearer the time.

We hope to run an Introduction to Stargazing Course and Solar System Course for adults, the dates for these have yet to be decided. We will also run some children's courses in the summer holidays

in conjunction with the Youth Commission. Details for all of these will be released on our website and Facebook page, or you can follow us on Eventbrite (https://www.eventbrite.co.uk/o/la-societe-guernesiaise-astronomy-section-31040695447).

If members (including new members) wish to help out on any of these events, please contact me or Jill Barnicoat (Astronomy.Activities@Societe.org.gg).

Enhanced Site Security

The observatory site is quite isolated and we have a lot of expensive equipment. As we are currently replacing the telescope building now is an ideal time to review our general security. Two new digital locks will be fitted to the telescope building and meeting room.

A register will be kept of members who attend organised club nights and events. This is in part as a precautionary measure for Covid as our meeting room is very small and unventilated. In addition, when applying for grants for equipment we get asked how many members attend regularly, so will be better placed to answer this more accurately.

Members authorised to use the facility out of normal club activities will be required to log in with their name, arrival and departure times. This is for security so we know who is on the premises should anything occur, and again it gives an indication of the use of the facility when applying for funding.

There is also an equipment log so we can track equipment usage. It will allow people to make a note if they think something is not working, so we can then look at it and fix any issues promptly. If you do think something is not working you can also contact Allan Phillips who is the Equipment Officer.

General Information for New members

As a club we meet every other Tuesday evening from 8.30 pm onwards, so please come along and join in with activities which are listed on our website (www.astronomy.org.gg/events) and our members-only Facebook group (www.facebook.com/groups/557188241419877).

Typically, once a month on a Tuesday night there is a talk which can be on a range of astronomical topics suitable for novice and more advanced astronomers. Please see our website for up-to-date details.

Please note: Currently, the meeting room is closed and regular meetings suspended as we are storing building materials and tools in the meeting room. We hope to resume normal Tuesday meetings around Easter time. When we have a definite date members will be sent an email with club-night dates and details of talks.

Beginners' Nights

We will resume these once the telescope building is operational. We invite all beginners to attend informal gatherings on clear nights to view through our telescopes. We also encourage new members with their telescopes to come along and meet like-minded enthusiasts. These nights are

organised at short notice to ensure clear skies and Jill Barnicoat will contact you with dates and times.

Once we get to know you, we are happy to let you have access to the facility if you want to bring your telescope up on occasion. The site is dark, with plenty of parking and a warm meeting room with a small kitchen area for hot drinks

Telescopes

We have a selection of manual telescopes that we are happy to lend out to new members to use on-site or take home if you wish. If you would like to borrow one, please let me, Owain Catton, or Allan Phillips know.

There is also the opportunity to learn how to use a modern, computerised GOTO telescope. It is a Celestron Nexstar SE 8" SCT. There is no formal structure to the training, it will depend on the individual's progress. But once qualified, members may use the telescope whenever they wish and will be given unrestricted access to the facility. All we ask in return is that you attend club nights on a semi-regular basis, assist with maintenance of the facility, and organised events - including (when feeling confident enough) manning the telescope on open events. We are a charity and rely on public events to raise sufficient funds to cover annual maintenance costs so members' help is very much appreciated. It is also rewarding, particularly seeing the public's reaction when they see Saturn or Jupiter for the first time or see the craters on the Moon. Members do as much of the maintenance as possible, such as painting and gardening which keep the costs down.

Skywatcher Dobsonian Telescope Update

We hope to have the replacement altitude assembly for the Dobsonian within the next two weeks. It has been a long wait to get a replacement part from China and we look forward to finally using the telescope.

Jean Dean

Secretary

Astronomical Events in 2022

Planets

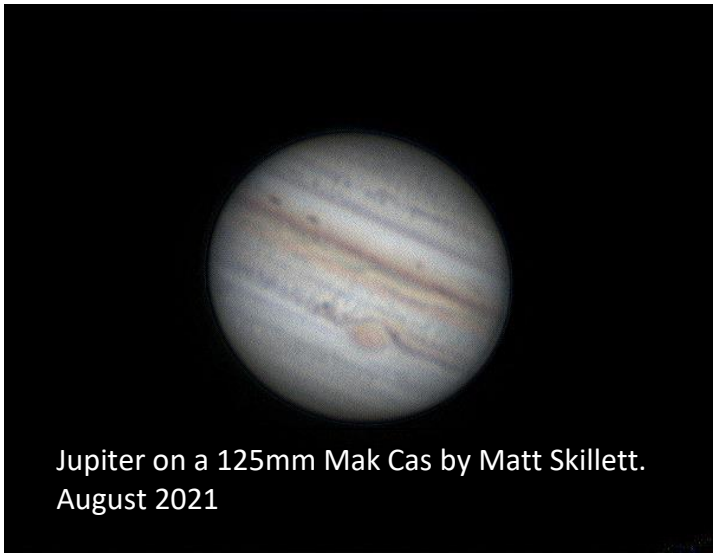
For up-to-date information on the planets and the night sky, please see our website: www.astronomy.org.gg/do-and-see/months-sky There is a wealth of information about the month's events, the astronomy forecast, the sunrise/set times and the moon phases. We have also added graphs showing the visibility of the planets from Guernsey throughout the year.

Mercury will be visible in the periods around its greatest elongations:

Date	Elongation	Direction	Time
7 January	19.2º Eastern	Low in West	After sunset
16 Feb	26.3º Western	Low in East	Before sunrise
29 April	20.6º Eastern	Low in West	After sunset
16 June	23.2º Western	Low in East	Before sunrise
27 August	27.3º Eastern	Low in West	After sunset
08 October	18.0º Western	Low in East	Before sunrise
21 December	20.1º Eastern	Low in West	After sunset

Jupiter is a bright evening object during January and February, before being lost in the twilight in the spring. It reaches solar conjunction on the 5th March, and is no longer visible. In April and May Jupiter becomes a morning planet, rising before dawn. By August Jupiter is visible high in the sky at the midnight – see the chart on the next page. It reaches its highest altitude at the end of September, as it rises earlier towards the end of the year, becoming a bright evening planet.

Mars is an early morning object during the first few months of the year, rising a few hours before the Sun in the East. It brightens throughout this period, and reaches a close conjunction of 19 arcminutes (0.3 degrees) from Saturn on April 5th. Mars rises earlier in the evening throughout the year, reaching a peak of over 60 degrees above the horizon towards the end of the year. It reaches opposition on the 8th December, and is occulted by the Moon the same day.

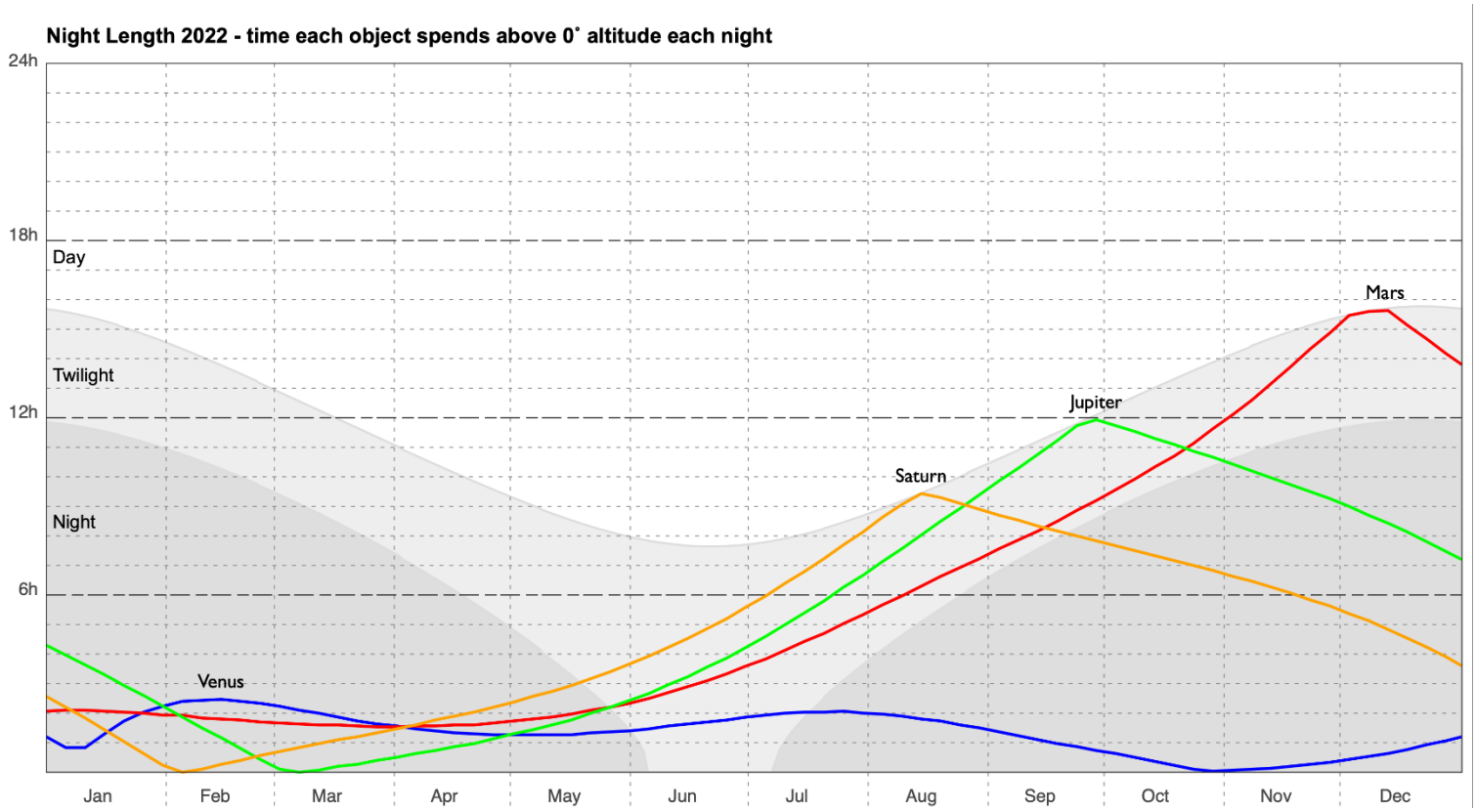


Jupiter on a 125mm Mak Cas by Matt Skillett. August 2021

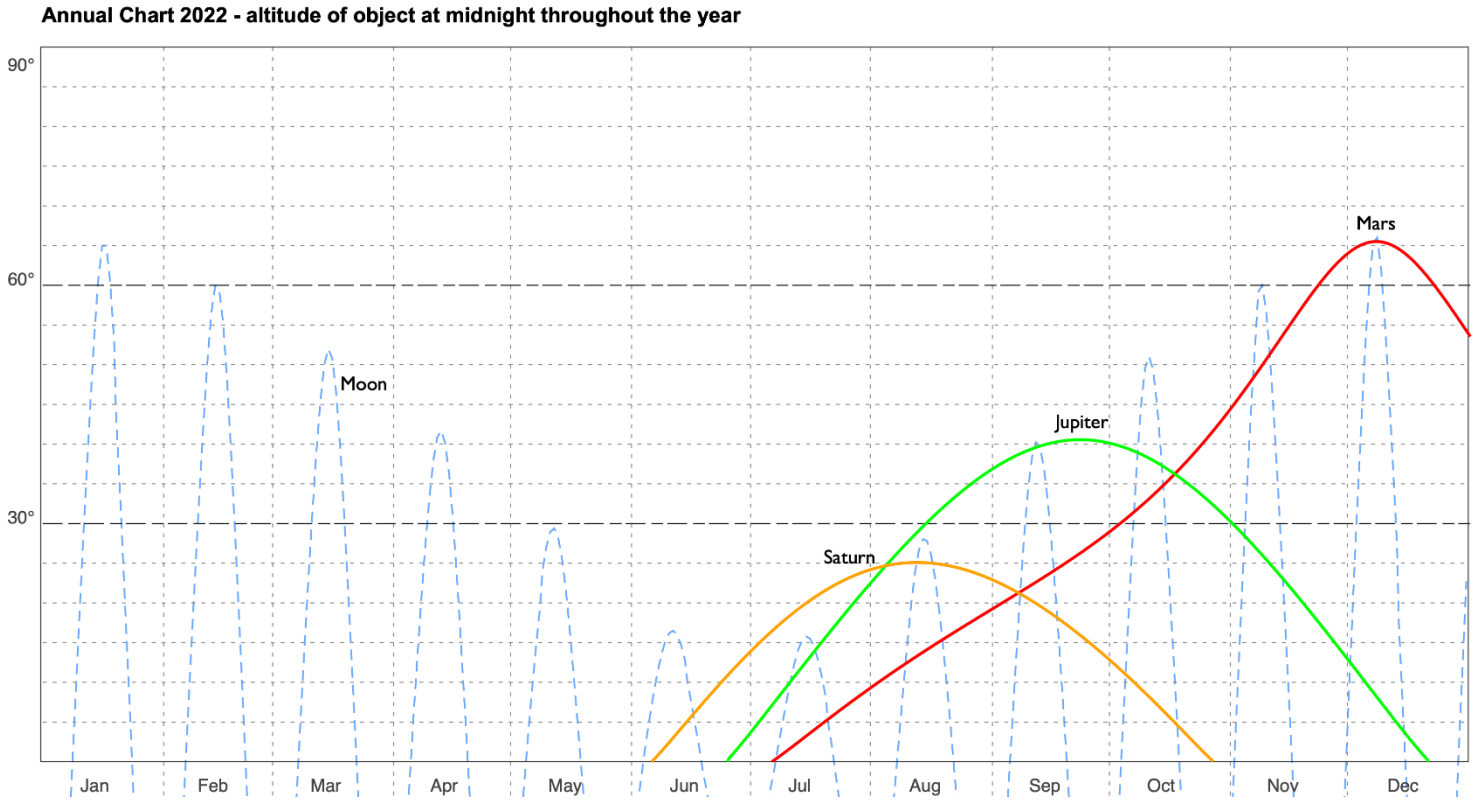
When Jupiter is visible we will have good views of the four Galilean moons, atmospheric bands on the planet's disc, and the Great Red Spot. Transit, shadow and occultation events involving Jupiter's moons can be found online. They can also be found in the 2022 BAA Handbook. They can be simulated on software such as StarryNight and some of the many astronomy apps, some of which also gives the transit times of the Great Red Spot.

Saturn is poorly positioned for viewing during the first few months of the year. By the end of March is is a brightening morning object, but not reaching very high in the sky. It brightens throughout the summer, peaking around August and reaching around 25 degrees above the horizon. Like Jupiter, it

becomes an evening planet in the autumn, and will be better placed for viewing. By the end of the year it will only be visible in the early evening.



The chart above shows the number of hours the bright planets spend above the horizon each night throughout 2022.



The chart above shows the height of each object above the horizon at midnight each day throughout 2022.

Phases of the Moon

New Moon	First Quarter	Full Moon	Last Quarter
Jan. 2	Jan. 9	Jan. 17	Jan. 25
Feb.1	Feb 8.	Feb. 16	Feb. 23
Mar. 2	Mar. 10	Mar. 18	Mar. 25
Apr. 1	Apr. 9	Apr. 16	Apr. 23
Apr. 30	May 9	May 16	May 22
May 30	June 7	June 14	June 21
June 29	July 7	July 13	July 20
July 28	Aug. 5	Aug. 12	Aug. 19
Aug. 27	Sept. 3	Sept. 10	Sept. 17
Sept. 25	Oct. 3	Oct. 9	Oct. 17
Oct. 25	Nov. 1	Nov. 8	Nov. 16
Nov. 23	Nov. 30	Dec. 8	Dec. 16
Dec. 23	Dec. 30		

Supermoons

So-called 'supermoons' occur when the Full Moon happens to coincide with the Moon's closest approach to Earth ('perigee'), and therefore appear larger than usual. In 2021 there will be three such moons: on June 14, July 13 and August 12.

Dwarf planets and asteroids

Pluto will reach opposition on the 20th of July, at magnitude 14.9, around midnight in the South. It will appear star-like and requires a telescope to observe. The other three dwarf planets (Eris, Makemake and Haumea) are too faint to be seen in most amateur telescopes.

Ceres, the largest asteroid in the Asteroid Belt, will reach perihelion (closest approach to the Sun) on December 11th visible in the South in the morning.

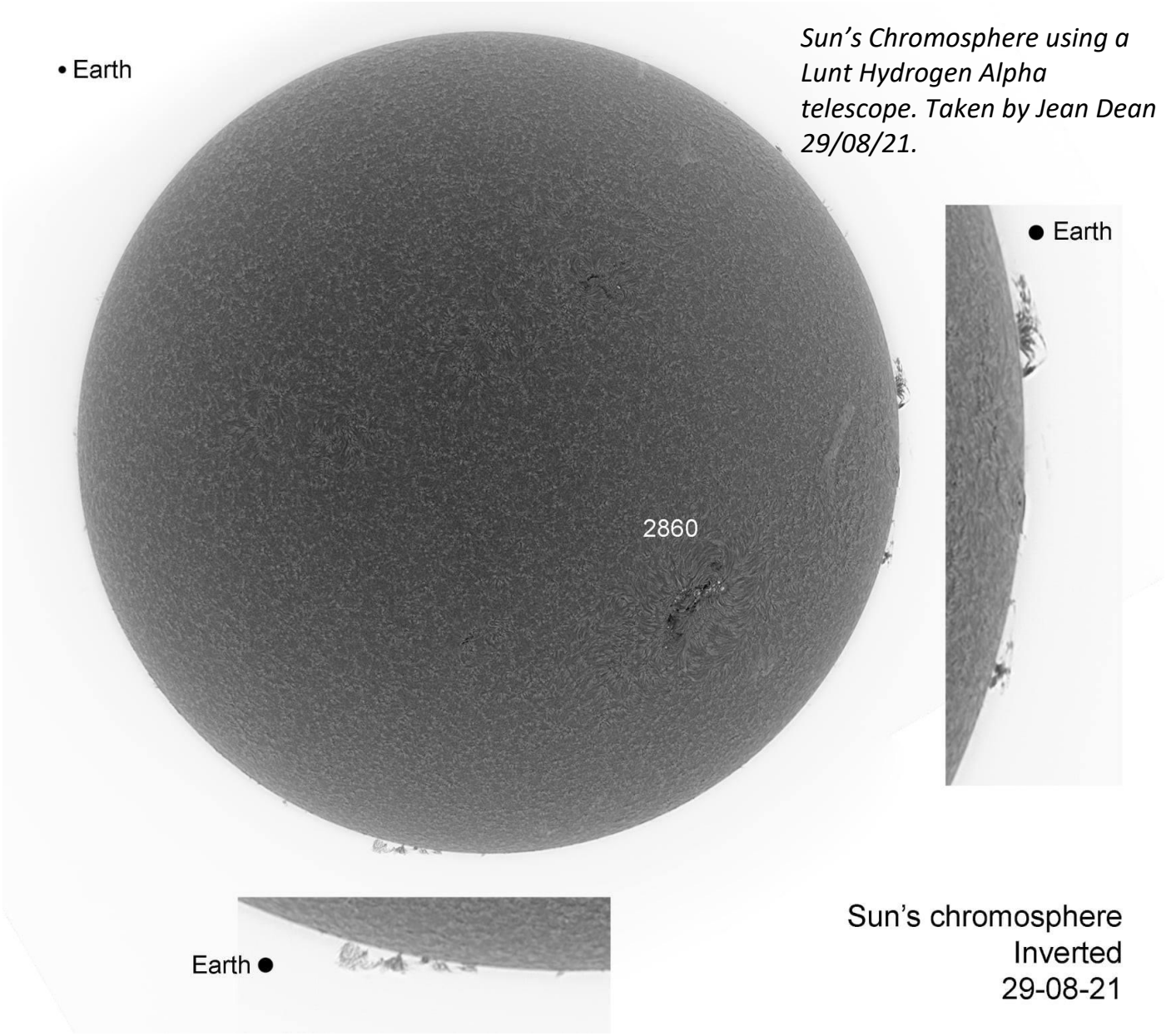
Vesta, one of the largest asteroids in the Asteroid Belt, will reach opposition on the 23rd August, around midnight, in the SSW, at an altitude of 20 degrees. It should be visible as a reddish dot in a small telescope.

Eclipses

There is a partial solar eclipse on Tuesday 25th October which is visible from Guernsey, with around 9% coverage. It will start around 09:00 am and finish by 13:00 UTC. None of the total or partial lunar eclipses will be visible from Guernsey.

Occultations

There are 3 lunar occultations of Mars, and one of Venus, in 2022. One occultation of Mars is visible from Guernsey, on the 8th December 2022. It starts at 05:01 am GMT and ends at 06:02 am GMT in the western sky at an altitude of 28°.



Sun's Chromosphere using a Lunt Hydrogen Alpha telescope. Taken by Jean Dean 29/08/21.

Lunar conjunctions

The best conjunctions (<3°) of the Moon and the bright planets, with their positions and separations are:

29 Jan	Mars	South-east in morning	2°24'
24 May	Mars	East in early morning	2°28’
25 May	Jupiter	low in east in early morning	2°53’
27 May	Venus	very low in east in morning	0°10’
21 June	Jupiter	Around midnight in the south-east	2°26’
22 June	Mars	Early morning in the east	0°51’
26 June	Venus	Early morning in the east	2°35’
19 July	Jupiter	High in south around midnight	1°58’
21 July	Mars	South east in early morning	0°58’
15 Aug	Jupiter	Low in eastern sky early morning	1°39’
11 Sep	Jupiter	Low in south-east early morning	1°36’
08 Oct	Jupiter	Evening in the east	1°50’
08 Dec	Mars	Morning in the west	0°32’

Planetary conjunctions

There aren't many good conjunctions this year, but the best, with their positions and separations, are:

04 April	Saturn and Mars	Not visible at daytime conjunction-close at dusk in S	0°19'
30 April	Venus and Jupiter	Not visible at daytime conjunction-close at dusk in SW	0°14'
29 May	Jupiter and Mars	Conjunction at midnight in east	0°38'

Meteors

The Quadrantids will peak on the night of 03/04 January, with about 50 per hour. The shower is expected to peak around 22:00 on the 3rd, but meteors should be visible a few days either side of the peak. This should be a good show if the weather is clear, as it is near the new moon. The Perseids will peak early morning of the 14th August, with some 100 per hour, but the moon will only be two days past full preventing many of them from being seen. The richest annual shower, the Geminids**,** will peak on the night of 14 December, but the last quarter Moon will limit the number of comets seen. There is a large separation between the radiant and the moon (which will only be around 17° at its highest), so if you can conceal the moon from view up to 100 meteors an hour might be visible.

There are, of course, minor meteor showers during the year, and sporadics may be seen at any time. For shower details see the 2022 BAA Handbook.

Comets

Detailed comet predictions for 2022 are available on the website of the British Astronomical Association's Comet Section: http://www.ast.cam.ac.uk/~jds/preds21.pdf. Also check the Heavens-Above website (heavens-above.com) for star charts showing comet positions, and use programs such as StarryNight for detailed location charts.

Equinoxes and solstices

The following are the dates and times of the equinoxes and solstices in 2022:

Vernal Equinox	20 March	15.27 UTC
Summer Solstice	21 June	10.08 BST
Autumnal Equinox	23 September	01:58 BST
Winter Solstice	21 December	21:43 UTC

Satellites

The International Space Station (ISS) is regularly visible from Guernsey, looking like a very bright star crossing our skies from west to east. With the decommissioning of Iridium satellites flashes from them are now quite rare. Many other, fainter, satellites appear every night. Details of the times and directions of visibility (together with sky charts and much more) can be obtained from www.heavens-above.com, linked from our webpage www.astronomy.org.gg/more/iss.

References

Stellarium software
General: http://www.seasky.org/astronomy/astronomy-calendar-2021.html
http://astropixels.com/ephemeris/astrocal/astrocal2021gmt.html
http://www.timeanddate.com/
https://www.calendar-12.com/moon_phases/2021
https://www.nakedeyeplanets.com/
https://in-the-sky.org/
Equinoxes, etc: https://www.weather.gov/media/ind/seasons.pdf

Thomas Harvey

Calendar of Astronomical Events 2022

Month	Date	Time	Event
January	03/04	All night	Quadrantid meteor shower (favourable)
January	04	6:52 am	Earth at perihelion (91, 406, 842 miles)
April	22/23	All night	Lyrids Meteor Shower
April	30		Partial solar eclipse – not visible from UK
May	6/7	All night	Eta Aquarids Meteor Shower
May	16	04:00 UTC	Total lunar eclipse – partial from Guernsey
June	14	All night	Supermoon
June	21	05:06 UTC	June Solstice
July	04	23:27 BST	Earth at aphelion (94, 509,598 miles)
July	13		Supermoon
July	28/29	All night	Delta Aquarids Meteor Shower
August	12		Supermoon
August	12/13	All night	Perseids Meteor Shower
August	14		Saturn at opposition
September	16		Neptune at opposition
September	23		September Equinox
September	26		Jupiter at opposition
October	7	All night	Draconids Meteor Shower
October	25	10:03 UTC	Partial solar eclipse – not visible from UK
November	8	11:02 UTC	Total lunar eclipse – Not visible from UK
November	9		Uranus at opposition
November	17/18	All night	Leonids Meteor Shower
December	8		Mars Opposition
December	13/14	All night	Geminids Meteor Shower
December	21		Winter solstice

The Astronomy Section would again like to thank Crocker Build for their extensive help and support during the construction of the new observatory building.

A Tribute to Dr David Falla F.R.A.S

David Falla died July 20th 2021. David was the man who started the Société Guernesiaise Astronomy section in January 1972. I first met David one evening at the Guille Allez Library where he had arranged a room for about a dozen people including myself. We had all answered a letter that David had placed in the Guernsey Press asking for anyone interested in the idea of starting an astronomy section in Guernsey. His letter went on to say that it would not only involve viewing sessions but also to include discussions on space science. This appealed to me as my interest in astronomy had started while in my last year at School, when the Headmaster during assembly, had talked to us about a possible way the Solar system had formed. I had found that quite fascinating. I was now 34 years old and I said to my Wife Val 'I quite like the sound of this' and Val said 'You must go'.

So I walked into this room at Guille Allez, not knowing anyone but everyone talking and saying hello. I did not know who was Dr David Falla until this man said 'Thank you all for coming, shall we get started'. We all sat around a large table and waited. You see, I did not know what to expect at this meeting. The newspaper letter had been signed by Dr David Falla F.R.A.S. The moon landings had taken place a couple of years earlier, my knowledge of astronomy was limited to knowing something about the Solar system and NASA was my favourite word.
Then as David Falla introduced himself as David and started talking, I sensed a sigh of relief. This man was talking so quietly and saying all the things I wanted to hear. Things like 'I don't expect you

to all be space experts, just an interest is all I need'. As the evening went on, I could see that everyone was like me. Here was a man that was clearly knowledgeable but was answering questions in a quiet voice and I had the distinct impression that anyone could ask him a question on anything, knowing it would be answered in the same manner whether it was easy or difficult. David went on to say that as he was a lecturer in Physics at Aberystwyth University, he could only be in Guernsey during university holidays.

He also said he hoped we would be members of La Société Guernesiaise one day as it was a Société member that had suggested the idea. We became members a few months later. It was during this meeting that we all met David's brother Geoff and I have forgotten exactly how it happened but Geoff and I agreed, with the rest of the room, that the two of us would liaise with David when he was not in Guernsey. To this end we exchanged our telephone numbers with everyone. The meeting ended with a date to meet again this time at the Duke of Richmond Hotel where David had secured a meeting room to give a talk and slide show on his next visit.

So this was my introduction to Dr David Falla F.R.A.S. The next meeting at the O.G.H. went very well. Geoff and I phoned everyone to confirm the date and time. I think Geoff arranged for the projector and David gave a talk. During the meeting a second get together date was discussed for a few days later, as David said he had arranged for a 5" Newtonian telescope for the use by our group on a permanent loan.

The next few years fell into a pattern. Geoff and I took it in turns to keep the telescope at our houses and on a clear night we would ring all the members to meet at a chosen venue and have a viewing session. During term time I would keep David informed and he would tell Geoff and me of his plans for his next visit. Each visit would be several meetings when David would give a talk or provide a film show and as time went on others gave talks with David's encouragement. Meanwhile numbers were increasing as word got around that an astronomy group was in Guernsey.

David kept in close contact with La Société and always gave Geoff and I copies of his correspondence with them. Then in 1980 David le Conte joined the astronomy section. David Falla and David Le Conte, due to their backgrounds, became very good friends to the point where David Falla continued to be secretary while David Le Conte led the group in David Falla's absence. In 1982, David Falla told Geoff and me that it made very good sense for him to hand over the secretaryship to David Le Conte as he said 'It is good to have a secretary living in Guernsey and here was a man he knew could take it forward.

It was only later by talking to David Le Conte that I knew something of David Falla's considerable early background. It was the occasion of our astronomy section 40th anniversary. I was secretary and I introduced Dr David Falla as one of our speakers. It was David le Conte that furnished me with the introduction details.

On leaving Elizabeth College David Falla attended Bristol University where he achieved a degree and PhD in Physics. He held research posts at Manchester University and Queen Mary College London. He was invited to work at CERN in Geneva and the Rutherford Laboratories at Cambridge. While at London he obtained a Science teaching fellowship and was appointed Physics lecturer at Aberystwyth University of Wales. David became a member of the Institute of Physics and a Fellow

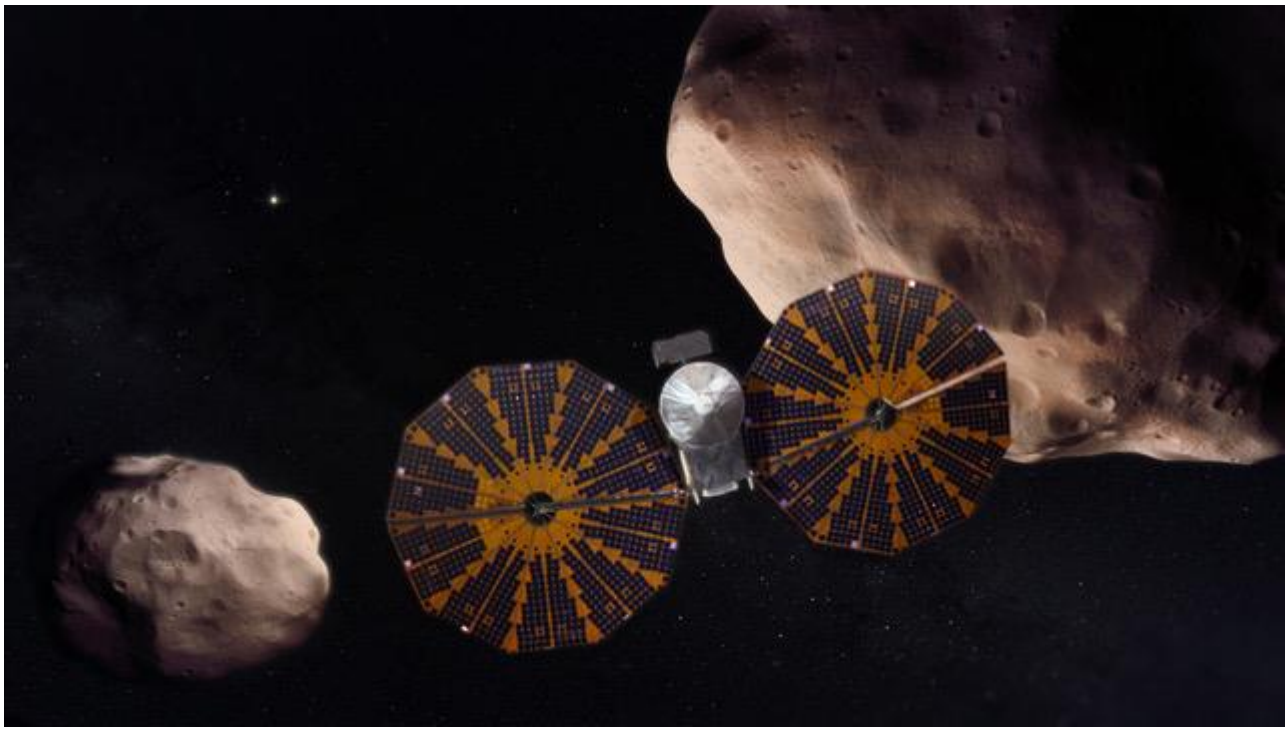
of the Royal Astronomical Society. He had many published scientific papers including 'Light Echoes' and 'Particle physics as applied to astronomy'.

David Falla continued his Physics lectures and was a regular visitor to Guernsey and always visited our observatory, until he suffered a stroke around ten years ago. It did not affect his mind but seriously curtailed his travelling. Dr David Falla died July 20th 2021 but those of us who remember his voice never being raised and his quiet way of explaining things, will never forget him.

Frank Dowding BSc
Founder member of the Astronomy Section.

NASA: The Lucy Mission

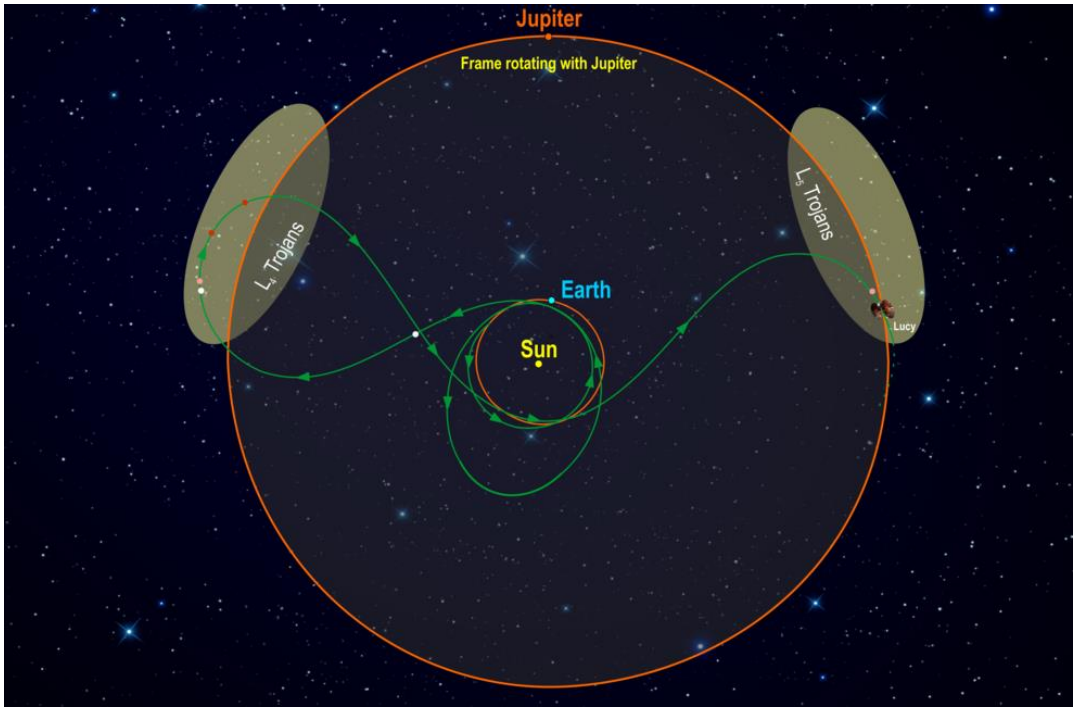
Recently, an exciting NASA initiative has been to launch the Lucy Mission on a 12-year journey to study a total of 8 ancient Trojan asteroids: one main orbit asteroid and seven Trojans i.e those which are small bodes, space rocks, remnants of our early Solar System. They share Jupiter's orbit around the Sun – one group leading ahead and one behind. Lucy's principal investigator from Southwest Research institute (SwRI) in Boulder, Colorado, said in 2017 that these asteroids are '…remnants of the primordial material that formed the outer planets…' The live launch of the Lucy Mission took place on October 16th, 2021. EDT 5:34 a.m. on a United Launch Alliance Atlas V 401 rocket from Space Launch Complex-41 on Cape Canaveral Space Force: https://www.youtube.com/watch?v=i432VG_CKLQ



Artist's impression: NASA's Goddard Space Flight Center/Conceptual Image Lab/Adriana Gutierrez

Image Credit: NASA/Goddard Space Flight Center Conceptual Image Lab

Currently, Lucy is on its way to the Trojans. Its launch from Earth placed Lucy on a trajectory that will bring it past Earth twice — in 2022 and then 2024 — so the spacecraft can use this planet's gravity to hurl itself toward the Trojans. It will take Lucy more than two years after this first flyby to reach the first of its Trojan asteroid targets. The Lucy spacecraft mission finances at a US$981 million.



Image, Information Credits: Southwest Research Institute

This diagram illustrates Lucy's orbital path. The spacecraft's path (green) is shown in a frame of reference where Jupiter remains stationary, giving the trajectory its pretzel-like shape. After launch in October 2021, Lucy has two close Earth flybys before encountering its Trojan targets. In the L4 cloud Lucy will fly by (3548) Eurybates (white) and its satellite, (15094) Polymele (pink), (11351) Leucus (red), and (21900) Orus (red) from 2027-2028. After diving past Earth again Lucy will visit the L5 cloud and encounter the (617) Patroclus-Menoetius binary (pink) in 2033. As a bonus, in 2025 on the way to the L4, Lucy flies by a small Main Belt asteroid, (52246) Donaldjohanson (white), named for the discoverer of the Lucy fossil. After flying by the Patroclus-Menoetius binary in 2033, Lucy will continue cycling between the two Trojan clouds every six years.

Why is it called the Lucy mission? The mission name 'Lucy' is a reference to the 3.2-million-year-old australopithecine skeleton discovered in 1974, which revealed secrets of human evolution. The NASA team hopes that the robotic Lucy does the same for the solar system's evolution; prehistory is a recurring theme among the mission's scientists.

Design: David Dezell Turner, Lucy Asteroid Ambassador

As an observatory, we will continue to be tracking this and other missions. To support and offer to our members and visitors current global scientific research in such ventures.

Resources. Information: www.nasa.gov/mission_pages/lucy/news/index
Wikipedia: Lucy (spacecraft)
For details and latest news on NASA's Lucy mission, visit https://lucy.swri.edu

Jill Barnicoat

Science Fiction to Science Fact

Often in science the theory is far ahead of the practical applications of the science. In this article I will be describing some concepts which appeared in science fiction before they were invented or at least theorised to be possible in the future within the confines of known physics.

In 1977 the Star Wars movie, later titled A New Hope, was released in cinemas for the first time. The movie broke ground in special effects and became a cultural phenomenon. One of the iconic elements in the first movie, is the planet Tatooine, which orbits around two stars in what is known as a circumbinary star system. At the time it wasn't known if star systems such as this could exist, as it predated the discovery of even the first exoplanets in 1992, with the first circumbinary star system around a main sequence star being discovered in 2005 having a Jupiter-like planet orbiting around a sunlike star and a brown dwarf.

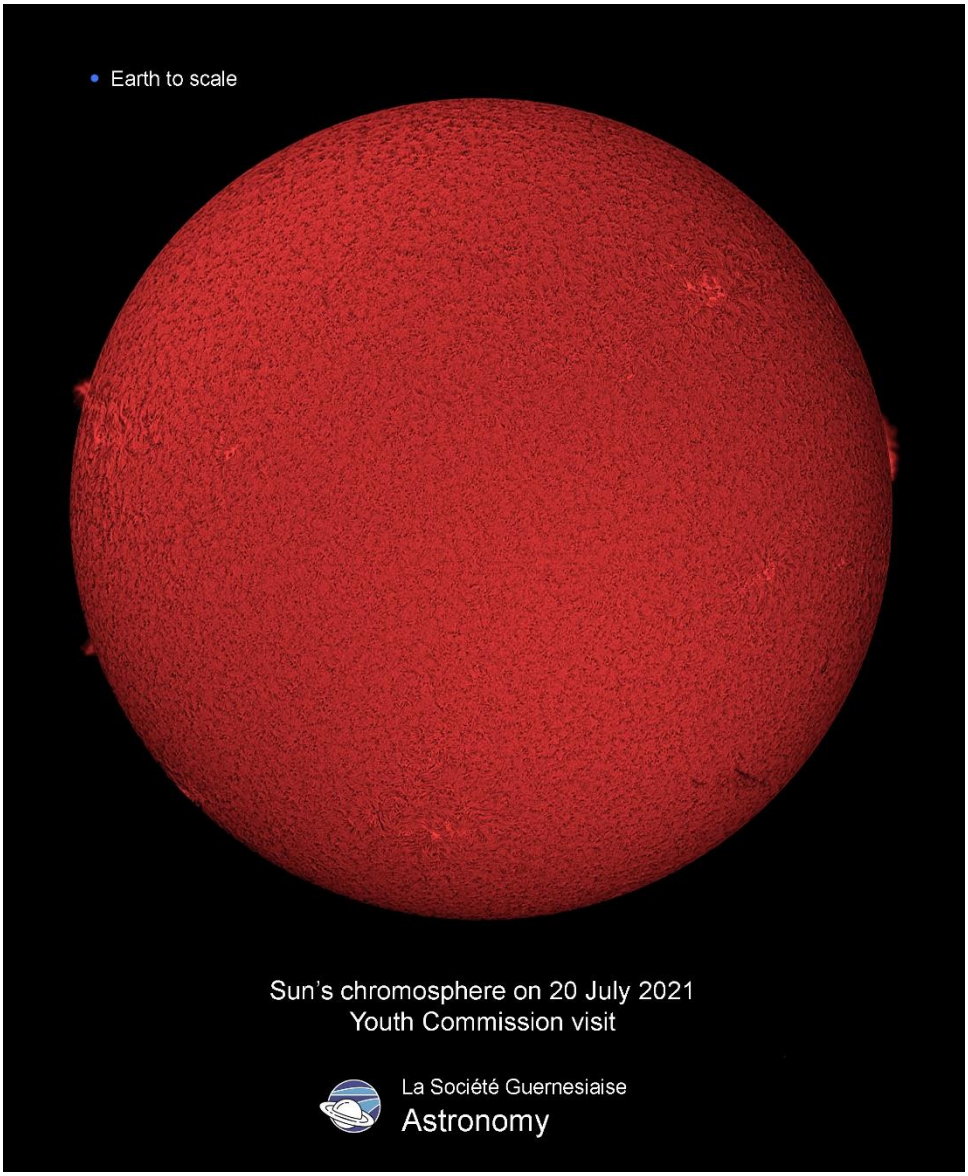
Another popular piece of science fiction which predated a conceptual idea in science is the warp drive, a device that would bend space around a vehicle to achieve faster than light travel. Although introduced in literature beforehand the warp drive was popularised by the tv series Star Trek. In 1994 theoretical physicist Miguel Alcubierre proposed that if matter with a negative energy density could be created and harnessed, it would be possible to warp space in a way to allow faster than light travel in a similar way to the warp drive shown in Star Trek. Although it is unknown if the creation of matter with a negative energy density is possible, as our understanding of physics evolves it is possible the physics used to suggest the viability of this may be disproven.

A practical piece of equipment which was predicted in science fiction long before it was put into practice was the solar sail. A solar sail is like its name suggests a sail, that instead of using wind for propulsion uses the energy of the sun, using the momentum of photons coming from the sun to achieve acceleration. Jules Verne's science fiction book, From the Earth to the Moon published in 1865, recognised the possibility that in the future a spacecraft could be propelled by light. Almost 150 years later in 2010 the first spacecraft using a solar sail as its main propulsion was successful.

Anthony Nel

Group Activities at the Observatory

Like so many other groups, it has been an unusual year, with Covid restrictions, and for us, a complete rebuilding of the Meade telescope building, which is currently ongoing. However, during the Summer, following a visit to the Youth Commission earlier, and who we subsequently hosted at the observatory, for them to be appraised of our facilities and our shared interest, Jean Dean and Anthony Nel, delivered a 4-week intensive programme on the Solar System, to an enthusiastic group of their 11–14 year olds. Further, we ran a one day introduction to solar observation during the day for 12 students as part of their playscheme for 8-11 year olds.



Senior community youth worker from the Commission Blair Howitt told the GP: 'It's a collaboration we've never done before so it's very exciting.' We anticipate further gatherings to enhance scientific knowledge of our Universe, young attendees becoming knowledgeable in the use of modern, computerised GOTO equipment with telescopic observations when the skies are clear, combining theory and practical courses.

(Photo: courtesy of the Youth Commission)

A solar day was run in the Spring at the observatory and we observed the partial solar eclipse in June. Subsequently, training in solar telescopes was given to La Société Guernesiaise education leaders Becky Ogier and Sarah Allez, as part of their outreach for junior members, and they will be visiting schools demonstrating the equipment; the Grammar School being the first enquiry we have forwarded for the New Year.

Outdoor evening sessions began in early Autumn, as the skies became darker, encouraging new members and those with their own telescopes to take advantage of support 'in the field' with observatory members offering advice and guidance. A popular event, as with regular practise, equipment managed and questions answered, confidence at home is acquired.
(Please note: For regular gatherings there is an honesty box in the kitchen area when making teas and coffees etc. A list is placed on the fridge.)

With many groups of young people as welcome visitors, those with the responsibility of meeting and organising children to our site, are formally undergoing training with The Islands Safeguarding Children Partnership Levels 1 and 2, and undergoing Advanced DBS checks. We are committed to the safety and well-being of our visitors at all times.

Once the observatory site is re-opened, we look forward to resuming our outreach programme to all. To foster understanding of the universe through scientific presentations, telescopic observations, and discussion, whilst following current global news of space missions and new discoveries.
Jill Barnicoat

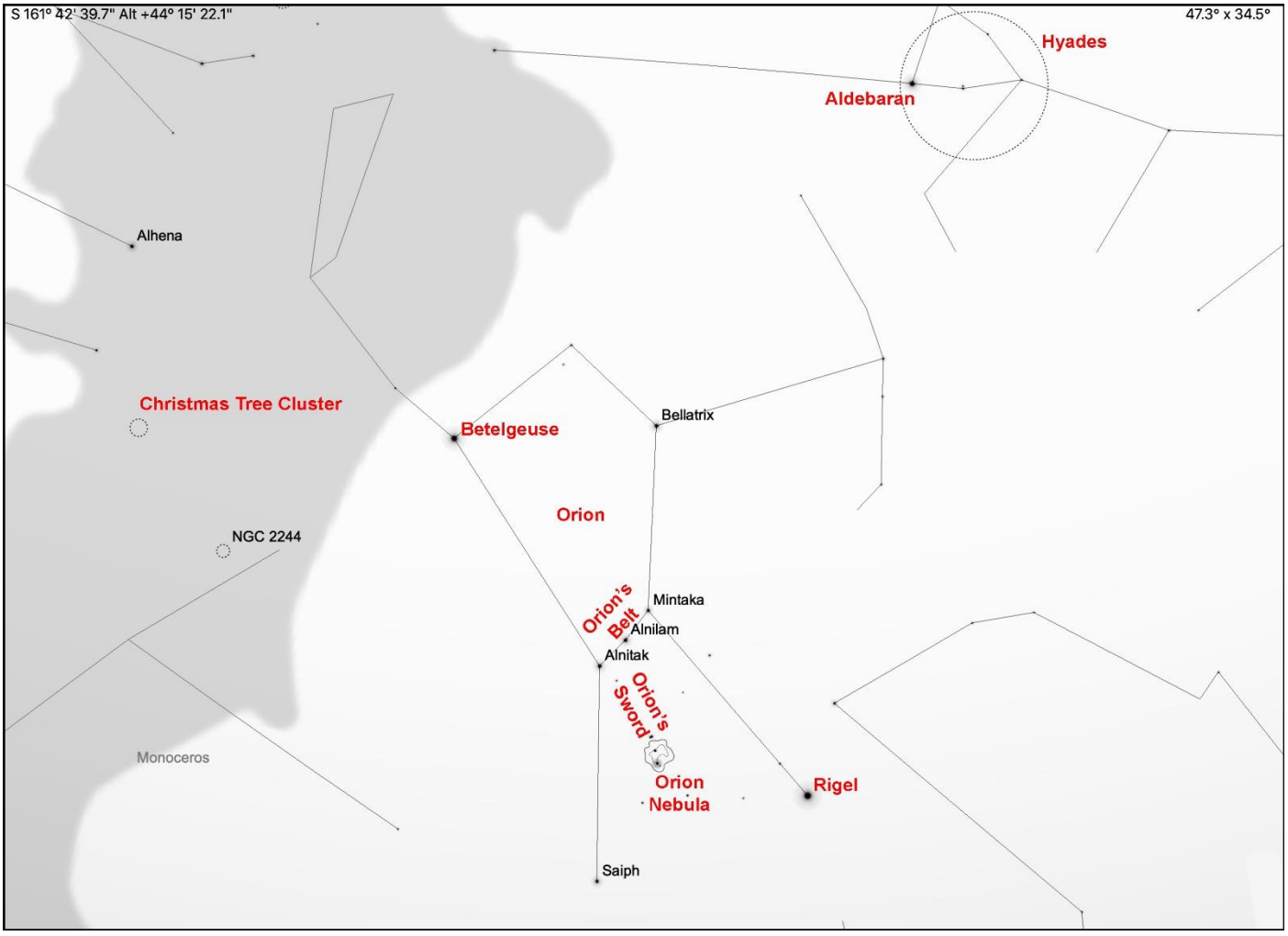
Winter Stargazing

With long winter nights now is an ideal time to wrap up warm and do some stargazing. Once outside it takes about 20 minutes for your eyes to fully adapt to the darkness, so avoid a white light torch, but a red light can be quite useful. If you are using a phone or tablet app, such as Sky Safari, Celestron Sky Portal or Stellarium make sure you dim the screen and set it to red light mode.

Winter Asterisms and Constellations

The Plough is easy to find, it is circumpolar so it is always in the night sky. It looks like an old fashioned plough, or a ladle with a bucket shaped end. An imaginary line drawn between the two stars on the end of the bucket, Merak and Dubhe, points to Polaris, the pole star which marks the celestial north pole.

Cassiopeia is also circumpolar and makes a distinctive “W” (or “M”) shape. It sits roughly opposite the Plough. Orion, the hunter, is a splendid winter constellation and full of riches. The top left star



of this constellation is Betelgeuse, a red supergiant star, a thousand times bigger than the Sun. Although only some 10 million years old, it is expected to end its life in about 100,000 years in a spectacular supernova explosion. At the bottom right of Orion is Rigel, a blue-white supergiant star, 21 times more massive than the Sun. The three middle stars, Alnitak, Alnilam and Mintaka form a line and make up the hunter’s belt. In the sword, hanging from the belt, is the superb Orion Nebula

which is clearly visible with binoculars. It is a huge cloud of hydrogen gas and dust, and a stellar nursery where new stars are being formed. At the centre sits the Trapezium open star cluster, named after their trapezoidal alignment, which is a collection of massive stars that were born together within the stellar nursery.

Auriga, the charioteer, is an irregular pentagon shape with Capella, the sixth bright star in the night sky forming one of the corners. During winter this constellation is almost directly overhead.

Gemini, the twins, is a zodiac constellation and it makes a fine sight in the night sky. The two brightest stars are Castor and Pollux, the latter being the brightest of the two. Castor is a multiple star system; its two brightest components (one orange and the other blue) make a lovely sight in a telescope.

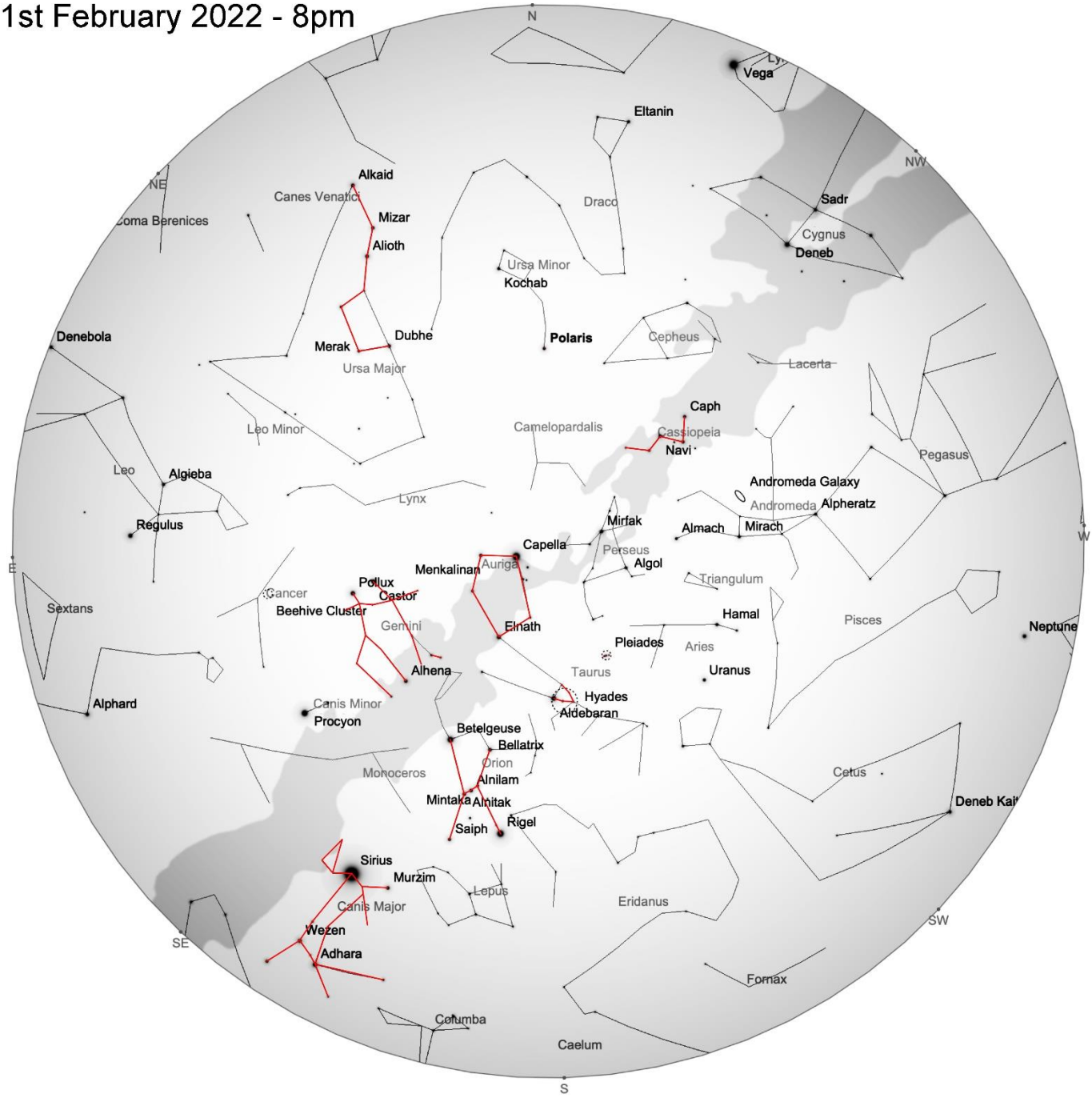
Canis Major, the greater dog, sits low on the horizon and contains Sirius, the brightest star in the night sky. Sirius is a binary star which comprises a main-sequence star Sirius A and a faint white-dwarf companion called Sirius B, colloquially they are known as the dog star and pup.

Open Star Clusters
There are several notable open clusters. The most stunning is the Pleiades where the brightest stars are named after seven sisters and their parents from Greek mythology. It forms a magnificent cluster of bright blue/white stars which are illuminating the interstellar dust that currently surrounds them, creating reflection nebulosity. In Taurus the Hyades spans ten light years and forms a distinctive "V" shaped cluster and includes a prominent red/orange star named Aldebaran. There is also the Double Cluster in Perseus which comprises two relatively young star clusters close together, the Beehive Cluster in the constellation of Cancer which is relatively near to Earth at only 577 light years away, the lovely Christmas Tree Cluster in Monoceros, and the Pinwheel Cluster in Auriga which resembles a mini-Pleiades configuration.

Galaxies
The Andromeda Galaxy is a classic spiral galaxy and the most distant object visible with the naked eye at 2.5 million light years away (one "light year" is about 5.9 thousand billion miles). Another prominent spiral galaxy is Bode's Galaxy which is much further away at 12 million light years and is fainter so you will need binoculars or a telescope to see it.

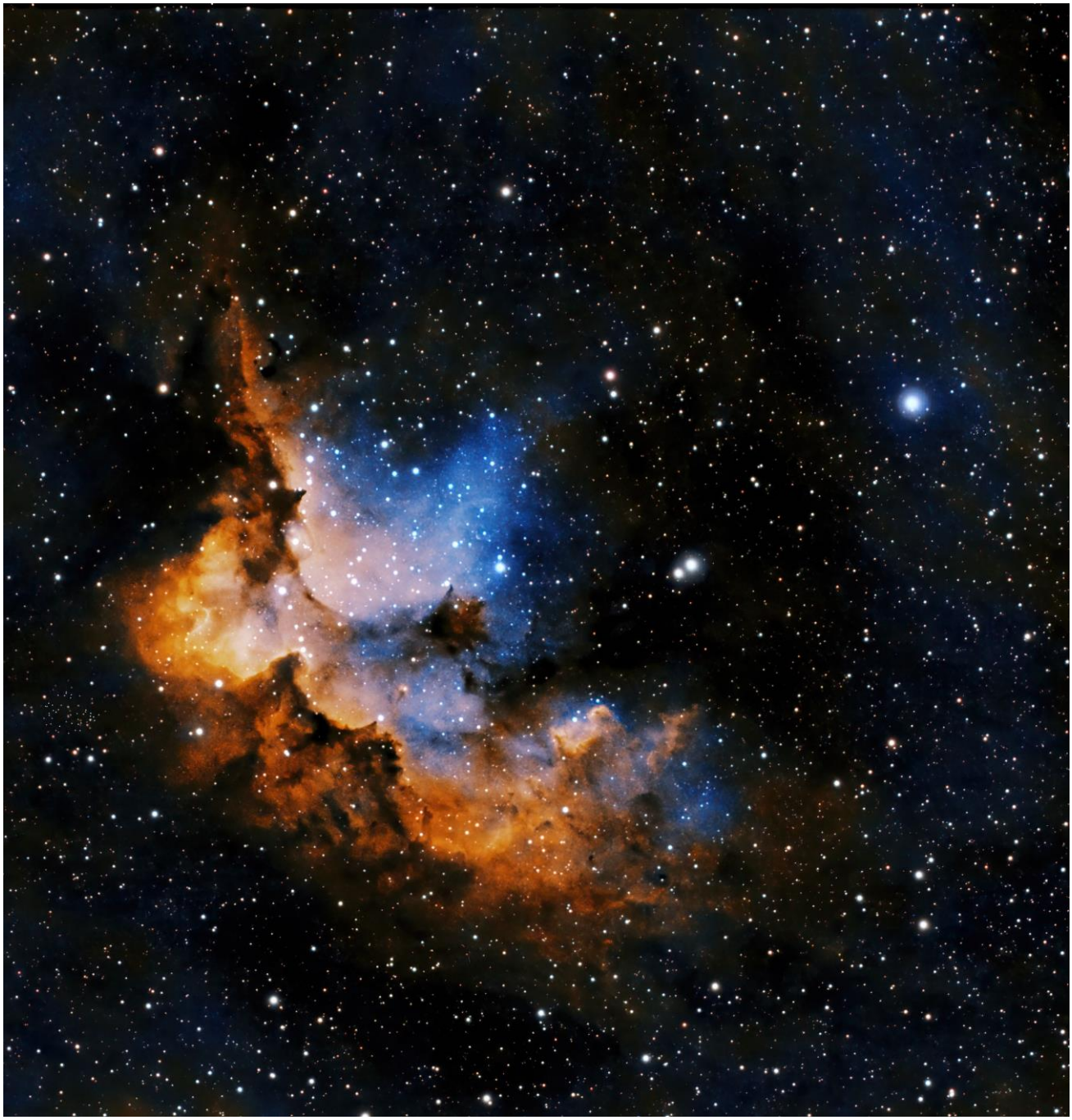
Jean Dean

1st February 2022 - 8pm



Clockwise, starting top left: Orion Nebula, The Pleiades, Bode's Galaxy, Andromeda Galaxy and Cone Nebula with the Christmas Tree Cluster.
Image Credits: J.M. Dean

The Wizard Nebula



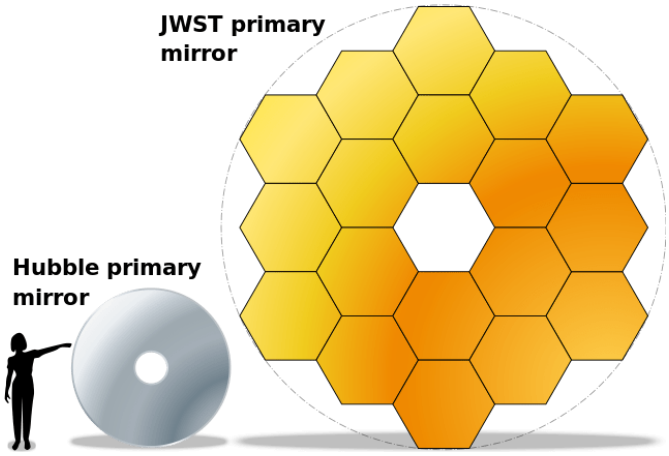
The Wizard Nebula (NGC 7380) was discovered by the German astronomer Caroline Herschel in 1787. Her brother William Herschel included it in his catalogue as H VIII.77. The estimated age of the cluster is 4 million years.

The Wizard Nebula is located in the constellation of Cepheus. It gets its name from the wizard with a tall cap like appearance within the structure of the nebula. NGC 7380 is located 7000 light years from Earth. It's a combination of interstellar gas and dust with an embedded open star cluster.
I took this image over three nights in September 2021, using a Explore Scientific 127mm carbon fibre triplet refractor, the camera was a ZWO ASI533 cooled CMOS camera with an Optolong L-eXtreme

dual narrowband filter for one shot colour (OSC) cameras. The gases comprising this nebula are strong in the H-alpha (Ha) and Oxygen III (OIII) emission lines which makes using a narrowband filter important in order capture the details.
The image is made up of 103 x 300 second light frames. Calibration frames included were darks, flats and dark flats. Stacked w/Deep Sky Stacker and post processed using Pixinsight using the Hubble palette technique.

Allan Phillips

James Webb Space Telescope: Peering into the Past



25th December, 2021: For many astronomers, the well-known celebration was overshadowed by an event scientists have been waiting over a decade for; the launch of the James Webb Space Telescope from French Guiana. Years behind schedule and billions over budget, the long anticipated next-generation observatory finally took to the skies at 12:25 GMT on Christmas Day.
It had to be packed into the nosecone at the top of the Ariane 5 rocket for launch, but the James Webb has now successfully unfurled its complex sunshield and opened its 6.5 metre primary mirror. NASA scientists estimated during the process there were 344 single points of failure, i.e. if even one of deployment bolts failed to separate, then the telescope would be useless. Watching these milestones pass by without any hitches in the last few weeks is a testament to the design and engineering behind the mission, but it hasn't made it any less nerve-racking to watch!

The most fraught parts of the JWST launch is behind us, but there are still many months of configuration and testing before James Webb will start its science mission. The 9 individual mirror segments, individually moved and flexed to focus light onto the cameras, must each be aligned, and the complex spectrometers and detectors must be tested and cooled to their operating temperature just above absolute zero.

When this process is complete the science program will begin. Last year the James Webb team began accepting community proposals for Cycle 1; the science goals for the first year of the mission. The competition was intense, with an incredible number of anonymous proposals submitted, which were then reviewed, ranked, and selected by a committee. The successful proposals have broad science goals ranging from the study of the solar system, to exoplanets, the Milky Way, our local group of galaxies, and the study of the most distant and active galaxies. One goal I'm particularly interested in is the observation of the formation of the earliest galaxies and their supermassive black holes. We still don't understand the relationship between galaxy evolution and the role of the central black hole, or how these black holes gained so much mass so quickly.

James Webb will also look at small, dim brown dwarf stars and young systems where planets are forming. These systems would have been too faint and obscured by gas and dust for a visible light telescope like Hubble to observe. This will help us understand how exactly how planets and stars form. James Webb will also help us understand the universe on the grandest scales, by looking back 13.5 billion years, only 100 to 200 million years after the Big Bang. It will help us understand the "Epoch of Reionisation", which is when the neutral hydrogen was split back into separate protons and electrons by energetic photons from the earliest stars, marking the end of the "Dark Ages". We might also see these early stars die in supernovae, and collapse into the earliest black holes.

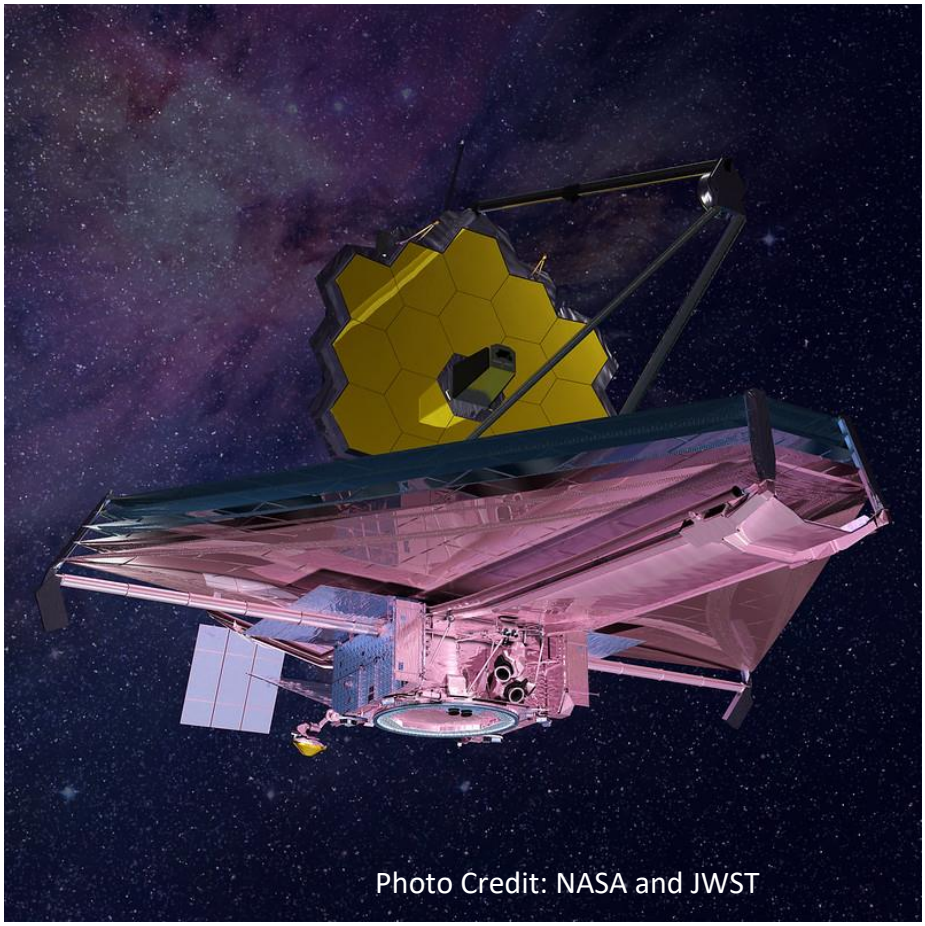


Photo Credit: NASA and JWST

The observations we expect to make with JWST are incredibly exciting, but with any astronomical missions it is the things you discover that you weren't expecting at all that can completely change our understanding of the Universe and our place in it. JWST has the fuel to operate for well over a decade, so fingers crossed it can make some incredible discoveries during that time.

You can read about all the approved science missions here: https://www.stsci.edu/jwst/science-execution/approved-programs/cycle-1-go

Thomas Harvey