



OASI News

The newsletter of Orwell Astronomical Society (Ipswich)



Sunspot detail using the magnify button on the SeeStar,
27th March 2024 by Paul Whiting

Trustees:

Mr Roy Adams Mr Neil Morley Mr David Payne

Honorary President:

Dr Allan Chapman D. Phil MA FRAS

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Society Notices

Dear Members,

The nights are getting shorter, but there should still be some good observing opportunities, as we enter “Galaxy Season”. If the cloud does eventually disappear, please let us know what you have managed to observe or image.

Looking forward to the Summer, we will be holding our annual Picnic at Newbourne Village Hall on the afternoon and evening of Saturday 20th July. This popular event is open to all OASI members and their families.

I hope to see you at our meetings in the coming month.

Clear Skies!

Andy Gibbs, Chairman.

Committee 2024

Chairman	Andy Gibbs	Set overall agenda for OASI, Chair committee meetings, Press and publicity
Secretary	Roy Gooding	Outreach meetings (jointly with Chairman), observatory decoration
Treasurer	Paul Whiting	Finance, Supervision of applications for grants. Visits by outside groups, Observatory tours, public appreciation of astronomy, Outreach activities
Committee	James Appleton	Committee meeting minutes, Web site
	Martin Cook	Membership, Tomline refractor maintenance & user testing
	Matt Leeks	Safety & security
	Peter Richards	Lecture meetings
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club
	Andy Willshere	Librarian
	Adam Honeybell	Newsletter
	Paul Whiting	OASI @ Newbourne

Committee Meeting

The next Committee Meeting will be on Friday 31st May at 8:00pm via Zoom. All members welcome.

New members

No new members this month

Society Contact details

Website:	https://www.oasi.org.uk
Events:	https://www.oasi.org.uk/Events/Events.php
Email queries:	info@oasi.org.uk
Submissions for Newsletter:	news@oasi.org.uk
Members-only message board:	https://groups.io/g/OASI
Observatory (meeting nights only):	☎ 07960 083714

Social Media

For other astronomy news and astro pictures try our socials:

Facebook:	https://www.facebook.com/groups/445056098989371
X (formerly twitter) feed:	https://twitter.com/OASlpswich (access to account needs to be renewed)
YouTube:	https://www.youtube.com/@orwellastronomical425

Articles for OASI News

News, pictures and articles for this newsletter are always welcome.

Please send tables as separate files in one of these formats (Excel, .csv, OpenOffice)

If you don't feel up to writing a major article, perhaps you might write a short note for OASI News along the lines of "This month I have mostly been observing/constructing/mending/reading/etc."

Please send material for the OASI web site and newsletter e.g., observations, notices of events, general interest articles, to news@oasi.org.uk

The CLOSING date is the **15th** day of the month (i.e. 15th April).

The Newsletter archive is at www.oasi.org.uk/NL/NL_form.shtml

Authors, please note that your articles will be publicly available worldwide!

Reproducing articles from OASI News

If you plan to reproduce an article exactly as per OASI News then please contact the Editor – otherwise, as a matter of courtesy, please seek permission from and credit the original source/author. You may not reproduce articles for profit or other commercial purpose.

Visiting

We have regular meetings on the 2nd and 4th Monday of the month at **Newbourne Village Hall**, and every Wednesday at **Orwell Park**. Night sky observing will usually take place when the skies are clear.

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:00 Orwell Park Observatory, Nacton	Martin Cook Roy Gooding	Observatory open
Monday 1 st April from 19:30 Newbourne Village Hall	Paul Whiting	OASI@Newbourne Beginners and new members welcome Sky Notes & talk
Monday 8 th April from 19:30 Orwell Park Observatory, Nacton	Paul Whiting	Taster evening . Places must be booked in advance by email: tour@oasi.org.uk .
Thursday 18 th April 20:00 Zoom	Paul Whiting	Monthly Zoom Meeting
Monday 22 Apr 2024 19:30 Newbourne Village Hall	Paul Whiting	Newbourne meeting - beginners and new members welcome! Sky Notes by Bill Barton, FRAS.

OASI @ Orwell Park

There are regular meetings every Wednesday evening from 8pm. Access is controlled by a gate and a fob. The entrance is gate 2 is on Church Road, What3Words is [tour.fuse.banks](https://www.what3words.com/?w3w=tour.fuse.banks)

Access into the School Grounds and Observatory Tower

The route is as follows:

- Enter through gate 2 (gate 1 being the main gate) and park inside as per the attached map.
- Enter the school through the double black doors as indicated on the map. A key fob will be required to open the door.
- Continue straight through the next two sets of double doors.
- Turn left at the end of the short corridor then immediately right.
- Pass through the single door and on your left you will find the staircase leading to the observatory.
- On no account must you deviate from this route.



When leaving the observatory use the same route but in reverse. Please keep noise to a minimum as there are staff quarters nearby.

OASI @ Newbourne

newbourne@oasi.org.uk

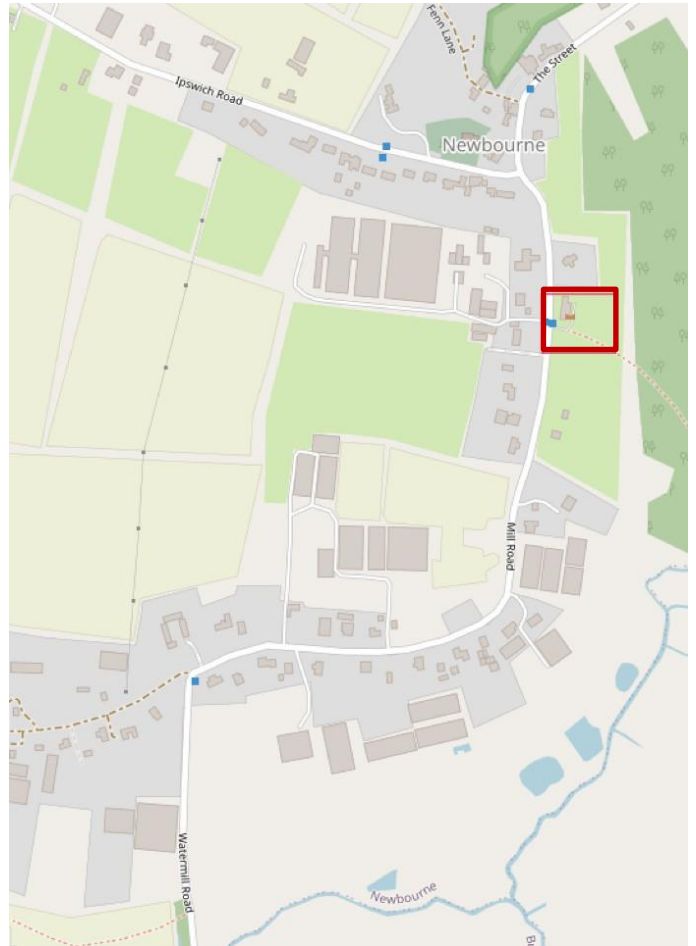
We meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays from 19:30.

What3Words [scars.atlas.printing](https://www.what3words.com/scars.atlas.printing)

Visitors are welcome but we do ask you to join the Society after two visits.

<http://www.oasi.org.uk/OASI/Membership.php>

Newbourne dates for 2024		
April	01 [#]	22 (S)
May	06 [#]	27 (A/S)
June	10	24 (S)
July	08	22 (A/S)
August	12	26 (S)
September	09	23 (A/S)
October	14	28 (S)
November	11	25 (A/S)
December	09 (Q)	



We open up for all meetings at 7:30pm.

Astro News (A) / Star Guide (S) at 7:45pm followed by any Talks (T), Workshops (W) and occasional Quiz (Q).

indicates a change to the normal monthly pattern.

Forthcoming Outreach Programmes 2024

All members are welcome to come along and help out at these events – you don't need to be an expert in the subject. Just respond to the email call for help prior to the event.

Please note that not all events are open to the public.

<i>Saturday May 4th from 19:00 TBC</i>	<i>Star Party at Hallowtrees Scouting Centre, Nacton</i>
<i>Sunday Jun 16th</i>	<i>Solar Party at ESWR Radio Rally, Kirton Sports Ground</i>
<i>Saturday Jun 22nd</i>	<i>Solar observing, Mendlesham Village Fete</i>
<i>Friday 26th – Sunday 28th July</i>	<i>Latitude (to be invited)</i>
<i>Sunday Aug 25th</i>	<i>Solar Party at Bawdsey Radar Museum, Bawdsey Setup 10:00</i>
<i>Friday October 25th & Saturday October 26th</i>	<i>Observatory Open Evenings</i>

OASI and BAA Events

For the latest event details, please check our website and social media.

BAA news & webinars

For full details of all meetings or cancellations, please go to <https://britastro.org/events/future-events>

Friday-Sunday 12-14th Apr BAA Winchester Weekend
Venue: Sparsholt College, Winchester

Saturday 11th 2024 May BAA Spring Meeting, Greenock

Saturday 18th May 2024 10:00-17:00 Historic Section Meeting, Ipswich
Venue: Museum Street Methodist Church, Ipswich (tbc)

Wednesday 5th June 2024 17:30-20:00 BAA Meeting & George Alcock Lecture
Venue: INSTITUTE OF PHYSICS, 37 Caledonian Road, London, N1 9BU

September (dates tba) BAA Autumn Meeting
Venue: Rutherford Appleton Laboratory

Wednesday 30th October 2024 17:30-20:00 BAA Meeting & AGM
Venue: INSTITUTE OF PHYSICS, 37 Caledonian Road, London, N1 9BU

The BAA Radio Astronomy Section

The BAA Radio Astronomy Section have been enjoying talks, seminars and tutorials via Zoom and these are available on the BAA YouTube channel <https://www.youtube.com/user/britishastronomical/playlists>.

-

Answer to February / March I Q teaser:

This problem is slightly more convoluted than normal.

Generation Z would have no problems with this?

5 rows of letters and numbers. Change the letters into numbers to solve? situated at the middle of the block.

In science 'Z' is the symbol for the atomic number of an element

B = Boron =5

C=Carbon =6

N = 7 and F=9

3 C(6) 12 16 4

7 41 26 8 B(5)

4 18 ? 16 C(6)

N(7) 21 34 23 8

4 F(9) 13 27 9

The inside three numbers of each row are added. The first number of this addition is placed as the first number of the line, the second number at the end of the line. Hence line 1 = $6+12+16 = 34$.

Therefore ' ? ' at line 3 =12.

April question:

W = 19

R = 9

Q =7

P = 5

Y = ?

The Night Sky in April

All event times are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E. Times are **GMT** unless otherwise stated.

Sun, Moon and planets

Sources: <http://heavens-above.com/PlanetSummary.aspx> <http://heavens-above.com/moon.aspx>

April 2024

Object	Date	Rise	Set	Mag.	Notes
Sun ☉	1	06:40	17:36		
	31	05:31	18:28		
Moon ☾	1	-	08:19		Last Quarter: 02 April 03:15 Perigee: 07 April 17:52 New Moon: 08 April 18:21 First Quarter: 15 April 19:13
	31	00:59	07:38		Apogee: 20 April 02:11 Full Moon: 23 April 23:49
Mercury ☿	1	05:39	19:58	1.5	
	30	04:02	16:47	1.3	
Venus ♀	1	05:16	16:42	-3.8	
	30	04:21	18:13	-3.8	
Mars ♂	1	04:44	14:58	1.2	
	30	03:28	15:13	1.1	
Jupiter ♃	1	06:47	21:39	-1.9	
	30	05:08	20:22	-1.9	
Saturn ♄	1	04:58	15:32	1.1	
	30	03:09	13:55	1.2	
Uranus ♅	1	06:51	22:01	5.8	
	30	05:01	20:15	5.8	
Neptune ♆	1	05:19	16:55	8	
	30	03:26	15:07	7.9	

Occultations during April 2024

https://iota-es.de/moon/grazing_descrx101.html and
<http://www.lunar-occultations.com/iota/bstar/bstar.htm>

Observers are encouraged to download and install the [Occult](#) software program [Windows only] to generate predictions for their own particular site coordinates.

Meteor showers during April 2024

Shower	Normal limits	Maximum	ZHR at Max	Notes
Lyrids	14/04/24 – 30/04/24	22/04/24	18	Bright fast meteors, some with trains. Associated with Comet Thatcher

See also <https://www.rmg.co.uk/stories/topics/meteor-shower-guide>

For radio observation, use reflections from Graves Radar on 143.049MHz or the Brams transmitter in Belgium on 49.97MHz and UK GB3MBA on 50.408MHz <https://www.ukmeteorbeacon.org/Home>

See also https://www.popastro.com/main_spa1/meteor/radio-meteor-observing-2020/.

Comets

Source : <https://heavens-above.com/Comets.aspx> on 01/04/24.

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Constellation
12P Pons-Brooks	4.7	2024-Apr-01	28°	Aries
13P Olbers	10	2024-Mar-30	45°	Taurus
C/2021 S3 PANSTARRS	10.5	2024-Mar-31	78°	Vulpecula
C/2023 A3 Tsuchinshan-ATLAS	11.2	2024-Mar-31	153°	Virgo
62P Tsuchinshan	11.4	2024-Apr-01	163°	Virgo
144P Kushida	12.9	2024-Mar-31	95°	Gemini
29P Schwassmann-Wachmann 1	13.2	2024-Mar-29	107°	Cancer
C/2022 E2 ATLAS	13.9	2024-Mar-30	91°	Gemini
C/2021 G2 Atlas	14.3	2024-Mar-31	147°	Hydra
C/2017 K2 PANSTARRS	14.7	2024-Mar-31	66°	Orion
226P Pigott-LINEAR-Kowalski	15.1	2024-Mar-09	43°	Perseus
32P Comas Sola	15.4	2024-Mar-13	63°	Taurus
227P Catalina-LINEAR	15.4	2024-Mar-29	109°	Cancer
207P NEAT	15.8	2024-Mar-31	136°	Sextans

Visible ISS passes >30° max altitude for April 2024

Source: <http://heavens-above.com/PassSummary.aspx?satid=25544>

Times are **GMT**.

Predictions are approximate (01/04/24) due to craft adjustments. Check the day before.

Date	Brightness (mag)	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
07-Apr	-3.9	19:01:31	10°	NNW	19:04:51	70°	NE	19:06:10	33°	SE
12-Apr	-2.3	05:00:16	10°	SSW	05:03:23	36°	SE	05:06:29	10°	ENE
14-Apr	-3.1	05:01:49	29°	W	05:02:46	35°	NW	05:05:50	10°	NNE

Bill Barton's Radio Broadcast

ICRFM (Ipswich Community Radio) 105.7 MHz at about 08:25 in the morning of the first Wednesday of each month. I aim to cover what there is to see in the sky and then a little bit on something topical. ICRFM is also available to listen to over the Internet and there is a listen again option on their website. <http://www.icrfm.com>

Artemis II by Andy Willshere

Short article from the library.

Having accomplished Artemis I satisfactorily, NASA has progressed to the next stage of sending humans out into space, with at some point going to destinations such as Mars and beyond.

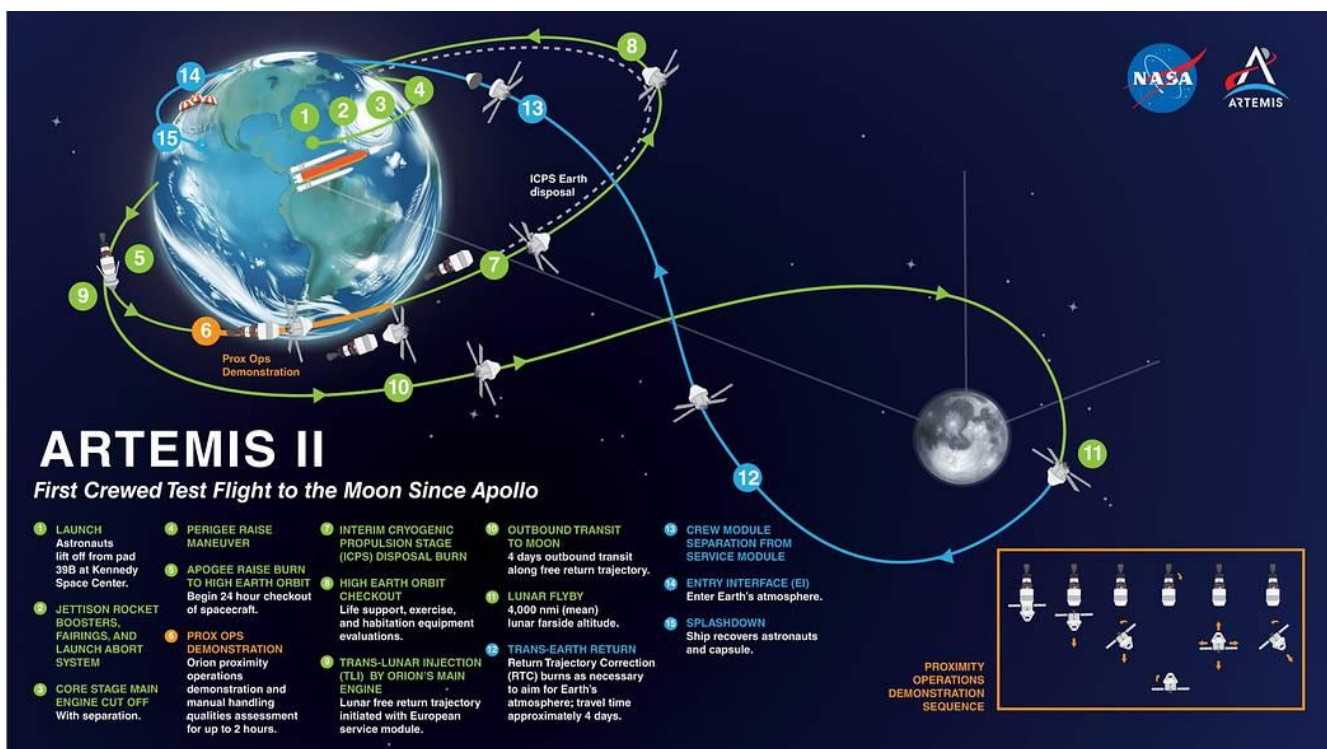
Artemis I was an uncrewed Orion spacecraft launched on a Space Launch System (SLS) rocket from launch complex 39B at NASA's Kennedy Space Centre, Florida. This is the only rocket that is capable of transporting Orion, astronauts, and goods to the Moon in a single journey. The excursion took it thousands of miles past the moon for a period of three weeks and four days. During this time, it had travelled 1.4 million miles.

Launch date 16 November 2022, with splash down 11 December 2022, with a re-entry speed of Mach 32.

Artemis II is now the next stage of NASA's adventure into space missions. This will incorporate a four-person flight crew for a period of about 10 days (3 male, 1 female), and will launch no earlier than September 2025. It will also be a trial to demonstrate NASA's technical potential with not only the SLS and the Orion spacecraft but with its first tranche of astronauts. Using a crewed craft will enable NASA to verify all operating systems and for the crew to gain expertise at controlling procedures. It will also provide more data about how humans react to space. All information obtained will be required for future missions to Mars and perhaps beyond.

A Block 1 configuration of the SLS rocket will launch the four astronauts from the NASA space centre in Florida. This configuration employs the core stage with four RS-25 engines, which are capable of propelling 27 metric tons along

trajectories beyond the Moon. The first three Artemis missions will use this configuration. Once into space, service module panels, launch abort system and booster modules are discarded, followed by the core stage engines cutting off and also detaching. Orion and the Interim Cryogenic Propulsion stage (ICPS) then orbit Earth twice. This manoeuvre is put into operation close to home in case there is a spacecraft malfunction, which will allow base specialists to try to alleviate the problems in nearly real time. During the primary orbit, which will take about 90 minutes, the ICPS will be fired to perpetuate Orion's trajectory. This will take about 90 minutes. The propulsion stage will then push Orion into a high-Earth course. This will increase the craft's speed, which it will need for the voyage to the Moon. This section will take about 23.5 hours to accomplish. Once this latter stage has been completed, Orion will detach from the ICPS, which will be used as a target for proximity drills. Part of this test will require the pilot to take control of Orion manually. Onboard cameras will be used to assist in this endeavour. Experience of performing these tasks are better practised during space flight, especially when Artemis III comes onto



the scene, when docking and undocking procedures will be needed.

Picture credit: NASA.

At this point in the trip the astronauts will remove survival suits, which will not be put back on until either an emergency or re-entry to Earth. They will now start testing more systems particularly air generating and the CO2 scrubbing systems. It is also essential that communication and navigating systems are performing correctly. When Orion is heading towards the Moon and around it, the Deep Space communications network will become operational. Throughout the trip, astronauts will continue to appraise systems and practise drills. One of the main facets to test is how well Orion's systems react to the crew during exercise and sleep periods. The results of this part of data acquisition will be used by other astronauts during future flights.

Assuming that all checks are within normal limits, it will be down to Orion to propel the craft using what is called the translunar injection (TLI) burn en route to the Moon. This part of the exercise will take about four days, which

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culminates with a fly around and beyond the far side of the Moon of 4,600 miles.

Returning to Earth from Orion's trajectory will take about another 4 days and entail employing the Earth-Moon gravity field for assistance. External propulsion required from Orion will be negligible.

Artemis III is planned for 2026 and will take with it the data obtained from the previous two Artemis missions. This will land humans on the Moon again. NASA are planning that two humans, one male, one female will descend to the Moon's surface, near the lunar South Pole. Space X has been chosen to supply the transportation system, which will take the astronauts from a lunar orbiting Orion to the Moon's surface and the reverse trip. It is estimated that the two crew will spend about 6.5 days on the Moon.

References:

[Artemis II - NASA](#)

[Artemis II Map - NASA](#)

[Artemis III: NASA's First Human Mission to the Lunar South Pole - NASA](#)

[Artemis program - Wikipedia](#)

Andy Willshire

Hunting for Quasars



NGC5394 & NGC5395 also known as the Heron Galaxy

As regular readers will know from previous pictures submitted to the Society Newsletter, when the sky is clear I can be deep sky imaging or during the day, solar imaging. To me the challenge has always been to acquire the best image I can using the equipment I have available and that is where it ends. In other words, I have been guilty of taking an image, sitting back and reflecting on how 'pretty' it is or beating myself up over artefacts. Never have I really explored the data in front of me.

In the past I may have annotated my pictures with labels showing what the target object is, names of stars and possibly other galaxies in the field of view but I have never gone beyond that because PixInsight didn't really allow you to show much else. Until now.

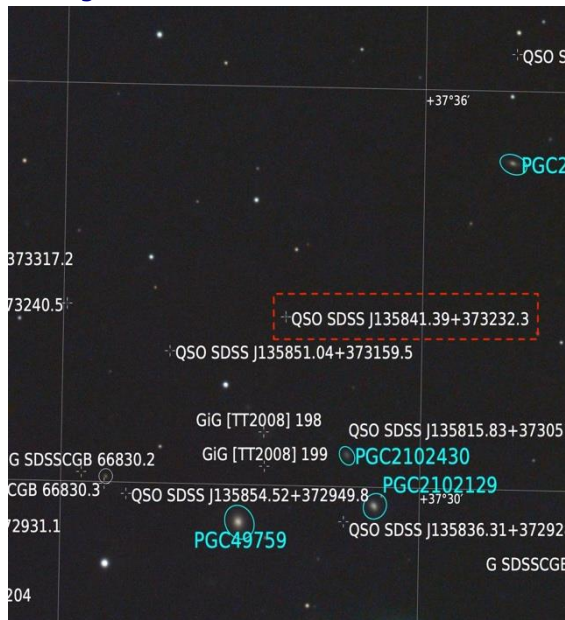
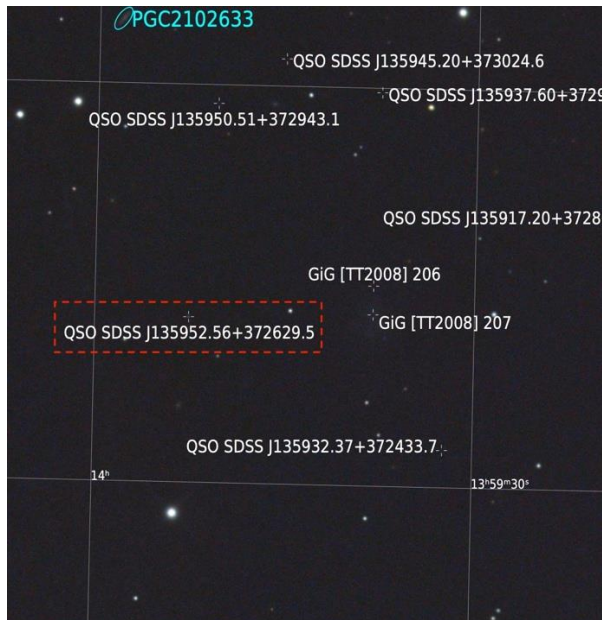
I have come across a script called TypeCat created by Hartmut Bornemann and available at http://www.skypixels.at/pixinsight_scripts.html. This can be downloaded into PixInsight and for any PixInsight users in the Society who wish to explore this full instructions on how to add the script are available using this link. The script goes beyond the basic classifications and will reveal the location of a much wider range of stellar objects if they are in your image. So, let's go looking for quasars!

Above is an image of the interacting galaxies NGC5394 & NGC5395 which I captured in April 2021. The same image is then annotated using the script and in this I chose to view Supernovae (SN), Galaxies (G), Galaxies in Galaxies (GiG) and quasars (QSO). Although not visible there is in fact a Supernova labelled in NGC5395.



Turning our attention to the quasars, there are some that have been labelled but the quasar is not visible and others where we can actually see the quasar in the cross hairs of the label.

For example, take the three cropped images below of SDSS J135952.56+372629.5, SDSS J135841.39+373232.3 and SDSS J135713.16+373400.3. In all three cropped images the quasar can be seen.



Now, wouldn't it be great if we could get an estimate as to how far away these three quasars are.

Using SIMBAD: Query by Identifiers portal (<https://simbad.u-strasbg.fr/simbad/sim-fid>) we can obtain their redshift measurement (z). These are 1.750386, 2.33832 and 0.8910 respectively.

Inputting these redshifts into a Cosmology Calculator created by Ned Wright (<https://www.astro.ucla.edu/~wright/CosmoCalc.html>) we get approximate distances of;

SDSS J135952.56+372629.5 = 15.9 billion light years (bly).

SDSS J135841.39+373232.3 = 18.7 bly.

SDSS J135713.16+373400.3 = 10 bly.

Now according to popular science, the 'Big Bang' only occurred 13.8 billion years ago so how can these objects be further away? The simple answer is expansion of the Universe. A brief explanation can be found here;

<https://www.forbes.com/sites/startswithabang/2019/02/26/how-did-the-universe-expand-to-46-billion-light-years-in-just-13-8-billion-years/?sh=6efbaf4a5c04>

Now, these are vast distances and so I have sense tested the red shift calculator by measuring the distance to a much closer object in the image, NGC 5395.

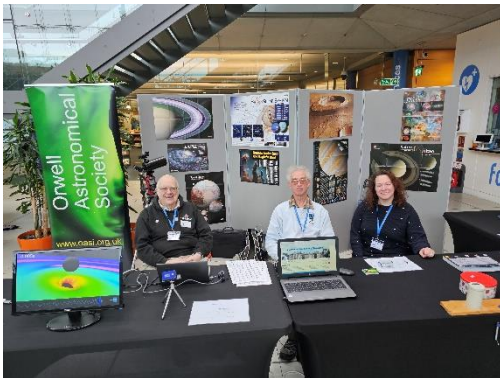
According to Wikipedia this galaxy has a distance of 54 million parsecs. There are approximately 3.26 light years to one parsec and so multiplying this by 3.26 gives us an approximate distance of 176 million light years.

SIMBAD reports a redshift (z) of 0.01158 and a distance of between 50 and 54 million parsecs. Using the redshift of 0.01158 in the Cosmology calculator produces a distance of 162 million light years or 49.7 million parsecs for NGC 5395.

So, I now need to amend my record for the furthest object I have seen to 18.7 billion light years. Not bad for an 8-inch telescope and 9 hours of exposure time!

For estimated distances to where you live, please add on a small fraction of a second.

Norwich Science Festival



Roy Gooding, Paul Whiting, FRAS and Christina Nunn manned the OASI stand on Science Day, 22 February 2024, at Norwich Science Festival. The stand attracted much interest from members of the public.

Space Invaderz



Figure 1 Purpose built props

Fresh Air Events' Adventure 2024: "SPACE INVADERZ!", was held Saturday 24 and Sunday 25 February 2024 at Suffolk Aviation Heritage Museum, Martlesham Heath. The event was targeted towards children. OASI provided support by way of talks and telescopes to show visitors the night sky.

On Saturday evening, members of OASI began arriving at 17:00 to set up telescopes on hard standing (conveniently very close to the burger van!)

Visitors started arriving before the

allotted time and were able to view the night sky through the telescopes before the programme of talks and other activities began. Although the sky was very clear and transparent, it was the night of full moon, which meant that only the brighter objects in the night sky were visible. In addition, the atmosphere was damp, and many of the telescope operators struggled to keep their optics free of dew. Nevertheless, most visitors were very happy with their view through the telescopes.



Figure 2 Setting up before opening



Figure 3 Olaf talking about the speed of light

Approximately 70 visitors attended. The scheduling system worked well, and provided a steady stream of visitors throughout the evening, without any activity being swamped. Members of OASI presented three rounds of talks on the solar system.

Sunday night was less cold but the sky was completely overcast. Despite this, there was a surprisingly good turn out, amounting to perhaps 35 visitors. Members of OASI

set up six telescopes indoors to act as focal points and stimulate conversation with visitors, and displayed screen shots of planetary images, indicating what would have been visible had the sky been clear. Several visitors arranged to visit Orwell Park

Observatory at a later date. Only one round of talks provide necessary, rather than the three of the previous evening.

All-in-all, the event was a great success. We look forward to a re-run next year, on a date without a full moon!

Members of OASI who supporting the event: Carl Baldwin, Bill Barton, FRAS, Martin Cook, Andy Gibbs, Adam Honeybell, Olaf Kirchner, John Wainwright, Paul Whiting, FRAS, Mike Whybray.

Images taken by Bill Barton, FRAS, Martin Cook and Adam Honeybell.



Figure 4 A celestial bowling alley



Figure 8 The radio towers by moonlight



Figure 7 Visitors looking through the scopes



Figure 5 Paul talking about the solar system



Figure 6 Paul in a "time machine" which looked rather like the Timelash from Doctor Who