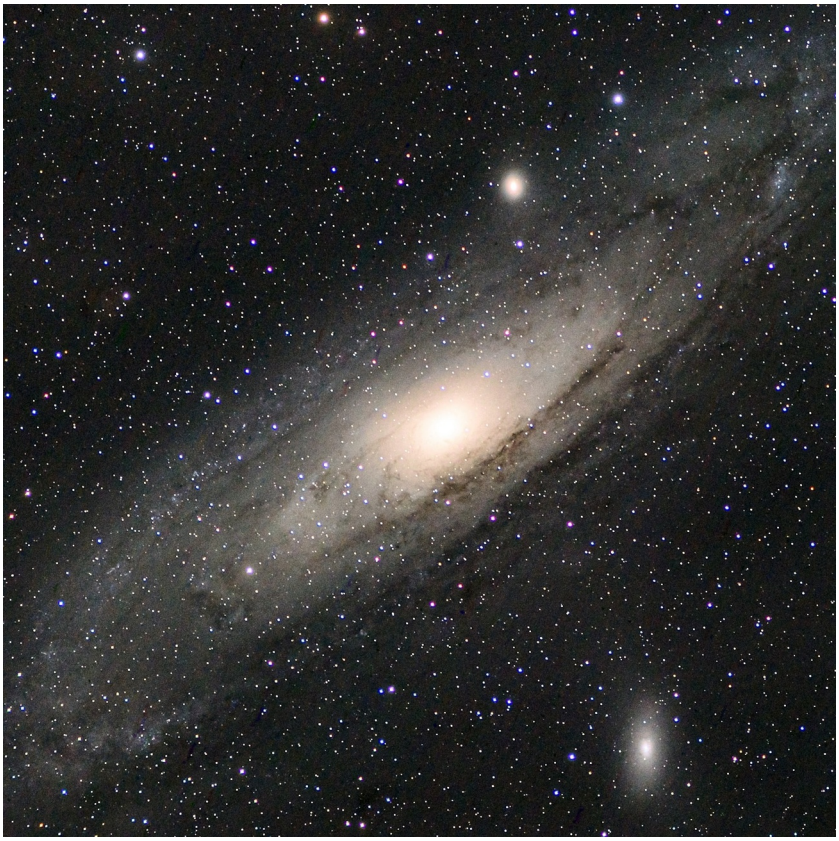
No. 574 Registered Charity 271313 February 2021

OASI News

The newsletter of the Orwell Astronomical Society



M32, M31 (NGC224) and M110

Photo by Stephen Olley

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Society Notices

Dear Members,

We have moved to using a Zoom Pro account. If you would like to join in, email Paul Whiting, treasurer@oasi.org.uk

In the coming months, we will be guided by advice from the Government and Public Health England, as to when we can resume some of our activities. These are likely to be very limited at first, the Committee will decide what could be done, with the health and safety of everybody being the highest priority.

I would like to wish everybody clear skies, stay safe and I hope to see you soon.

Andy Gibbs, Chairman

Society Contact details

Email queries: info@oasi.org.uk

Facebook: Orwell Astronomical

Twitter: @OASIpswich

YouTube https://www.youtube.com/channel/UCHgxe3QAeRVWf7vkjKkCl2Q

Members-only message board

https://groups.io/g/OASI

Observatory (meeting nights only)
07960 083714

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

Access into the School Grounds and Observatory Tower

The Observatory is closed.

Articles for OASI News

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

Please submit your articles in any of the following formats:–

Text:	txt, rtf, rtfd, doc, docx, odt, Pages, pdf
Spreadsheets:	xls, xlsx, OpenOffice/LibreOffice, Numbers
Images: tiff, png, jpg	Please send tables as separate files in one of the above formats.

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."?

Newsletter archive www.oasi.org.uk/NL/NL_form.shtml

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

Reproducing articles from OASI News

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Committee 2021

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 FRAS	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, Email distribution lists
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club.
	Andy Wilshere	Librarian
	Avtar Nagra	OASI @ Newbourne
Assistants	Martin Richmond-Hardy	Newsletter, OASI @ Newbourne

Committee Meeting

This will be held via Zoom on Friday 5 February. Please Contact Paul Whiting for Zoom connection details.

The AGM

This was held via Zoom on Saturday 16th Jan 2021 8pm.

OASI and BAA Events

Please note that the listed events may change depending on the progress of the pandemic. For the latest event details, please see www.oasi.org.uk/Events/Events.php

There's a Google Calendar on the OASI web site with the latest dates (and corrections!). If you want to easily add OASI Events to your own computer/phone/tablet calendar application click this button on the website Events page (bottom right of the calendar) or use this address to access this calendar from other calendar applications.

https://calendar.google.com/calendar/ical/1jhs9db71ncki4sojo7092vfvc%40group.calendar.google.com/public/basic.ics

For other astronomy news and astro pictures try our

Twitter feed https://twitter.com/OASIpswich

Facebook page https://www.facebook.com/pages/Orwell-Astronomical/158256464287623

Date, Time & Location	Contact	Event
Weekly, every Wednesday, from 20:00	Martin Cook, Roy Gooding	OBSERVATORY CLOSED Meet via Zoom.
Monday 8 February login 19:30 talk 20:00	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom Talk by Prof. John Zarnecki (recorded) "Spacecraft I've known and loved"
Friday 19 February login 19:45 talk 20:00	Paul Whiting treasurer@oasi.org.uk	"From Big Bang to Periodic Table" a talk by Dr Richard Miller
Monday 22 February login 19:30 Bill 19:45	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom Sky Notes with Bill Barton followed by a Beginner's Q&A Session
Monday 8 March login 19:30 talk 20:00	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom "The Milankovitch Cycles" a talk by Peter Richards
Monday 22 March login 19:30 Bill 19:45 talk 20:0	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom Sky Notes with Bill Barton followed by "Video Meteor Detection" (recorded)
Monday 12 April login 19:30 talk 20:00	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom "Exploring the Dark Universe with XENON" a talk by Prof Marc Schumann (recorded)
Monday 26 April login 19:30 talk 20:00	Paul Whiting treasurer@oasi.org.uk	OASI@Newbourne Zoom "The Weirdest Stars in the Universe" a talk by Dr Emily Levesque (recorded)

Meetings via Zoom

Paul Whiting has set up an OASI account on Zoom Pro which allows us to accommodate more participants.. To join, please first contact Paul, treasurer@oasi.org.uk – OASI members only. Be sure to install the latest version of Zoom – there's no need to set up an account. Go to https://zoom.us/join and enter the meeting ID or personal link name. You will have received a link from the meeting organiser.

We meet on Wednesday evenings from 20:00 and on Newbourne evenings (see below) from 19:30.

OASI @ Newbourne

Martin Richmond-Hardy newbourne@oasi.org.uk

We normally meet at Newbourne Village Hall, Mill Lane, IP12 4NP on the 2nd and 4th Mondays (with a few exceptions). BUT In view of the COVID-19 situation **all meetings at Newbourne are suspended.** If OASI members would like to meet up via Zoom on those evenings, please first contact Paul Whiting with your email address to receive an invitation. Members only, please. Subsequent meetings will be assessed in line with the current Government Guidelines in place at the time. Thank you for your understanding.

Feb 8 (T)	Feb 22 (S, W)	Mar 8	Mar 22 (S, T)
April 12 (T)	April 26 (S, T)		

We open up for all meetings at 7:30pm. Star Guide (S) at 7:45pm followed by any Talks (T), Workshops (W) and the occasional Quiz (Q).

Stargazer's Guide

On the last meeting each month, at 19:45, Bill Barton FRAS will give a short presentation of what can be viewed in the following 4 weeks plus a reminder of OASI events. During the COVID-19 isolation period these will be available on our website.

Astronomy Workshops/Informal talks

Meetings will depend on COVID-19 situation. Talks will be via Zoom during lock-down.

Contact Mike Whybray Monday meetings start at 7:30pm. Workshops / Talks start at 8pm

If you are a new OASI member, or haven't been to one of these informal workshops before, they are a mixture of events of different characters including beginners talks, interactive workshops, films, etc., suitable for all. They are also a chance to chat with other members over a cup of tea and a biscuit, in a venue rather warmer than the observatory dome on a winter's night!

- Monday February 8th – OASI@Newbourne Zoom
  "Spacecraft I've known and loved" a talk by Prof. John Zarnecki (recorded)
- Monday February 22nd – OASI@Newbourne Zoom
  Sky Notes with Bill Barton followed by a Beginner's Q&A Session
- Monday March 8th "The Milankovitch Cycles" a talk by Peter Richards
- Monday March 22nd – OASI@Newbourne Zoom
  Sky Notes with Bill Barton followed by "Video Meteor Detection" (recorded)
- Monday April 12th - OASI@Newbourne Zoom
  "Exploring the Dark Universe with XENON" a talk by Prof Marc Schumann (recorded)
- Monday April 26th - OASI@Newbourne Zoom
  "The Weirdest Stars in the Universe" a talk by Dr Emily Levesque (recorded)

All meetings are via Zoom. The OASI@Newbourne events are via the usual meeting ID. Contact Paul Whiting if you can't find the details.

Do you have a subject you could workshop/talk? You could do a short one, or share the effort with a partner. Drop Mike Whybray a line! workshops@oasi.org.uk

Lectures – via Zoom

Contact: Peter Richards lectures@oasi.org.uk

We are arranging an exciting and interesting set of online lectures by guest speakers for this year

The start time for all talks will be 8pm and, as usual, the talks will be held on Friday evenings.

All meetings are currently via Zoom. Contact Paul Whiting if you can't find the details.

Other local astronomy society meetings

Athaneum Astro Society

www.3a.org.uk/index.htm

Meetings suspended during the Covid-19 situation.

We normally meet fortnightly on Thursdays, from 7.30pm, at our dark-sky site in the Walled Garden at Nowton Park, just outside Bury St Edmunds. If you're planning on joining us for the first time, please contact us in advance, just to make sure the meeting is going ahead. We recommend that you wear warm clothing (even summer nights can be chilly, especially when the skies are clear!) and bring a flask, or insulated mug, for a warm drink. We have tea and coffee-making facilities on-site. Events are listed here http://www.3a.org.uk/events.htm

LYRA Lowestoft & Yarmouth Regional Astronomers

www.lyra-astro.co.uk

Due to current Corona Virus outbreak all LYRA meetings are cancelled until further notice.

DASH Astro

Darsham And Surrounding Hamlets http://dash-astro.co.uk

Meetings are normally held at New Darsham Village Hall and all DASH Astro observing sessions will take place at Westleton Common. ASOG observing sessions and locations may be arranged at the time of observation. Unless stated all group meetings will take place from 7:30 pm. on Sundays.

Meetings will be assessed in line with the current Government Guidelines in place at the time.

BAA news & webinars

For full details of all meetings or cancellations, please go to https://britastro.org/meetings/2021.

2021

Saturday, 20 February	Solar Section Webinar
Saturday, 06 March	Deep Sky Section Annual Meeting - Webinar
Wednesday, 31 March	Special General Meeting and BAA Meeting
Saturday, 10 April	BAA Winchester Webinar
Wednesday, 27 October	BAA Annual General Meeting and BAA Meeting,
Saturday, 04 December	BAA Christmas Meeting

From the interweb

'Galaxy-sized' observatory sees potential hints of gravitational waves

https://www.colorado.edu/today/2021/01/11/gravitational-waves

NASA reports contacts Voyager 2 at 11.6 Billion miles from Earth using its upgraded deep space station!

https://scitechdaily.com/nasa-contacts-voyager-2-11-6-billion-miles-from-earth-using-upgraded-deep-space-station/

Energy from solar wind favours the north

https://www.esa.int/Applications/Observing_the_Earth/Swarm/Energy_from_solar_wind_favours_the_north

Astronomy Photographer of the Year 13 is open for entries!

The world's greatest astrophotography competition is now open for entries!

Please encourage your members to enter up to ten images for a chance to win...

- Cash prizes up to £10,000
- Their image included in our annual publication
- Their image on display in a major exhibition
- A year's supply of BBC Sky at Night Magazines

The Young Competition winner will also receive a Celestron Astromaster 130EQ MD telescope in addition to their cash prize, so encourage under-16s to enter! It's easy to win a free copy of the 2020 publication for your society: just ask your members to enter your society name under 'How did you hear about this competition?' when they register. All societies listed will be entered into a draw to win a copy of Astronomy Photographer of the Year: Collection 9 when the competition closes in March.

Deadline for entries is midday (GMT) on 5 March 2021.

We have had to introduce competition charging this year to defray our costs due to the impact of the pandemic on our finances. Entrants will be charged a £10 fee to enter the competition, with exemptions for the Young Competition and the special prizes. Please note this is per entrant, rather than per entry, so we hope it isn't too onerous. Get in touch at astrophotocomp@rmg.co.uk if you have any questions about the competition.

Best wishes,

Alysia Calderwood Exhibitions Project Manager: Astronomy Photographer of the Year

The Night Sky in February 2021

Martin RH

All event times (GMT/UTC) are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E.

Sun, Moon and planets

Sources: http://heavens-above.com/PlanetSummary.aspx

http://heavens-above.com/moon.aspx

Times UTC

Object	Date	Rise	Set	Mag.	Notes
Sun	1	07:35	16:43		
	28	06:43	17:33		
Moon	1	21:25	09:37		Last quarter 04 February 17:37 New moon 11 February 19:06 First quarter19 February 18:47 Full moon 27 February 08:17
	28	19:05	07:41		
Mercury	1	07:54	17:59	1.2	Inferior conjunction 8 Feb.
	28	05:52	14:57	0.4	
Venus	1	07:12	15:19	-3.8	Aphelion 23 Feb.
	28	06:45	16:44	-3.8	
Mars	1	10:15	01:18	0.4	
	28	09:03	00:59	0.9	
Jupiter	1	07:38	16:17	-1.8	
	28	06:07	15:07	-1.8	
Saturn	1	07:25	15:50	0.6	
	28	05:47	14:21	0.7	
Uranus		10:15	00:37	5.8	
	28	08:30	22:51	5.8	
Neptune	1	08:57	20:00	7.9	
	28	07:12	18:19	8	

Occultations during February 2021

If you would like to know more about lunar occultations, please see:–

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 February 2021

Source: BAA Handbook 2021 p26-27 and https://in-the-sky.org//newsindex.php?feed=meteors

Shower	Normal limits	Maximum	Max RA/ Dec.º	ZHR at Max	Notes
α-Centaurids	28 Jan – 21 Feb	8Feb			Radiant in Centaurus so not visible in UK.

For radio observation, use reflections from Graves radar on 143.050MHz or the Brams transmitter in Belgium on 49.97MHz.

Visible ISS passes ≥15º max altitude

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

Times are UTC. Predictions are approximate (20 Dec) due to craft adjustments. Check the day before.

Date	Bright –ness	Start			Highest point			End		
	(mag)	Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Feb	-3.4	17:51:59	10°	W	17:55:21	63°	SSW	17:58:16	13°	ESE
01 Feb	-1.4	19:29:09	10°	W	19:31:15	20°	SW	19:31:15	20°	SW
02 Feb	-2	18:41:30	10°	W	18:44:28	28°	SSW	18:46:06	19°	SSE
03 Feb	-2.4	17:53:58	10°	W	17:57:08	38°	SSW	18:00:18	10°	SE
04 Feb	-0.9	18:44:02	10°	WSW	18:46:00	15°	SW	18:47:57	10°	S
05 Feb	-1.2	17:56:08	10°	W	17:58:43	20°	SW	18:01:19	10°	SSE
20 Feb	-0.9	06:04:09	10°	S	06:06:23	17°	SE	06:08:38	10°	E
22 Feb	-2.1	06:04:32	10°	SW	06:07:35	32°	SSE	06:10:37	10°	E
23 Feb	-1.7	05:17:28	11°	SSW	05:20:04	23°	SSE	05:22:48	10°	E
24 Feb	-1.4	04:31:58	16°	SSE	04:32:34	17°	SE	04:34:49	10°	E
24 Feb	-3.2	06:05:34	10°	WSW	06:08:52	55°	SSE	06:12:11	10°	E
25 Feb	-2.8	05:19:18	20°	SW	05:21:16	42°	SSE	05:24:29	10°	E
26 Feb	-2.4	04:33:35	31°	SSE	04:33:40	31°	SSE	04:36:43	10°	E
26 Feb	-3.7	06:06:51	10°	WSW	06:10:13	78°	S	06:13:36	10°	E
27 Feb	-1	03:47:48	16°	ESE	03:47:48	16°	ESE	03:48:51	10°	E
27 Feb	-3.6	05:20:45	25°	WSW	05:22:33	67°	SSE	05:25:55	10°	E
28 Feb	-3.4	04:34:55	54°	SSE	04:34:55	54°	SSE	04:38:12	10°	E

Starlink passes

https://heavens-above.com/AllPassesFromLaunch.aspx

For a dynamic 3-D display, see https://heavens-above.com/StarLink.aspx

Comets with magnitude brighter than magnitude 10

Source: https://heavens-above.com/Comets.aspx and BAA Handbook p95.

Click on the comet name for more information (remember to set your location in heavens-above.com).

Comet	Brightness	Location	
		1 February	28 February
C/2020 S3 Erasmus	6.6	Aquarius (near Sun)	
C/2020 R4 ATLAS	9.5	Capricornus (near Sun)	

Astronomy on the radio

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

David Murton's Radio Broadcast

On 1st Tuesday of the month, 2.40pm (note change of time) on the Lesley Dolphin show on BBC Radio Suffolk – now digital (channel 10c) and FM 103.9 (Ipswich), 104.6 (west Suffolk), 95.5 (Lowestoft), 95.9 (Aldeburgh) and the internet. https://www.bbc.co.uk/radiosuffolk

Neutrino and the IceCube

A quick insight into the neutrino – Article from the library

From scientists to amateur astronomers we have an inherent interest in elementary particles. There is one in particular that speeds through the human body in great abundance. As many as a hundred trillion crash through us every second without we assume causing us any problems. They are generated in a myriad of places; the Sun, the Big Bang and supernovas are just a few examples. One of the biggest problems we have in our search for these little beasties is in detecting them, especially as they have no electric charge, but remain neutral, and have the smallest mass of all elementary particles, known today. This is the "*Ghost particle*".

So, what are neutrinos? Existence was assumed in 1930 by Wolfgang Pauli in his explanation of the energy spectrum of beta decay. They are an elementary particle that interacts using the weak subatomic force and gravity. They are classed as leptons and treated precisely the same as electrons when they come into contact with nuclear forces. Leptons are a collection of elementary particles that respond only to the electromagnetic, weak and gravitational force. As well as the electron and positron, a group forms with both the muon and tau and their antiparticles, or antineutrinos. These are differentiated from neutrinos by having an opposite sign lepton number (quantum number) and a right handed chirality. Radioactive decay is the main mechanism by which neutrinos are generated, with processes such as Beta decay and nuclear disintegration, being prime examples. Magnetic fields do not affect them whilst they travel about at almost the speed of light. Our Sun therefore provides most of the neutrinos perceived on Earth.

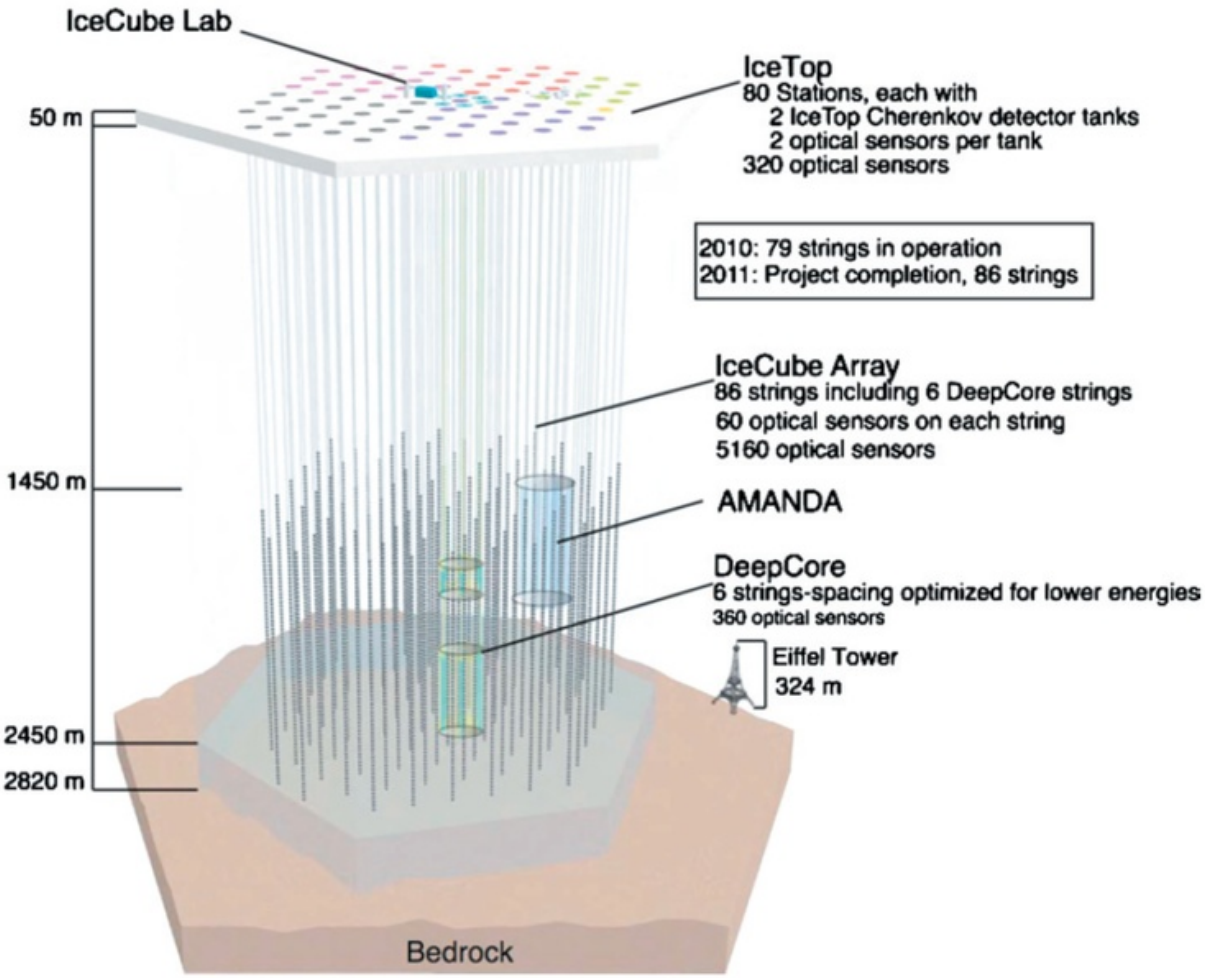
What use are neutrinos? Because of their speed and ability to pass through matter, potentially communications could be a major asset. They may also be of prime interest in understanding dark energy and dark matter, harnessing this information for space travel, and for providing an early warning system for cataclysmic astronomical proceedings.

How can we identify them and find their origin? This has been a major problem for decades, and so several methods have been considered.

(I) Cowans and Reines, two scientists at Los Alamos, New Mexico in 1956, used two containers which they filled with a total of 200 litres of water and 40 kg of cadmium chloride. Antineutrino reactions with protons in the water created positrons and neutrons. Scintillation detectors observed pairs of photons, which after a few nanoseconds a positron annihilation episode occurred producing neutrons. Currently a much larger detector called the KamLAND continues to use comparable techniques to study neutrino fluctuations. It is situated about 1km in a mine underground near Kamioka-cho in Japan. The apparatus contains 1kton of ultra-pure liquid scintillator, which doubles as both neutrino detecting environment and objective.

(ii) Ring-imaging Cherenkov detectors first developed in the 1980's, identify electrical subatomic particles travelling through a water and ice medium, which is surrounded by light sensitive photomultiplier tubes. The incident neutrino produced can indicate energy and direction.

More recently, IceCube and AMANDA (Antarctic Muon and Nuetrino Detector Array) projects have been put into operation. The IceCube neutrino observatory has been built at the Amundsen-Scott South Pole base. It stretches down 1500m into the ice of the South Pole, and is the first gigaton neutrino monitor constructed. It is a collaborative investigation of international scientists. Encircling a kilometre cubed of ice, at a build cost of $279 million USD, the search for neutrinos continues. The base at the South Pole is a versatile experiment that hopes to enlighten the world about many of the immense questions still unanswered in physics. As well as neutrinos, IceCube is investigating cosmic rays, especially where they react with the Earth's atmosphere. There are about 300 physicists from 12 countries performing the experiments, as well as the design and assembly of the detector. The whole system is lead by members of the University of Wisconsin-Madison who are directly responsible for its efficiency and operation. Many support agencies in each cooperating country are making sure that IceCube's scientific experiments succeed. At the South Pole, the ice below the surface at certain depths forces the air bubbles out due to pressure, making the ice very translucent. This provides IceCube with the necessary operational medium as well as being some way into the ice, thus protecting the sensors from radiation. Each of these isolated sensors known as DOM's (digital optical modules) are buried into the ice, within a cubic km. A major problem with DOM's is that once they are placed into the ice they cannot be removed if found faulty, so great care is taken prior to insertion. If electrical problems materialise, the scientists can troubleshoot and update the computer controlled programs.



Picture credit: https://icecube.wisc.edu/

There are 5,160 digital optical modules, each of which has a 10" photomultiplier tube and allied electronics. These are connected to vertical 'strings' frozen into 86 boreholes and arranged over 1km^3 at a depth of 1,450m to 2,450m. The 'strings' are designed to be positioned 125m apart on a hexagonal grid and to hold 60 DOM, which are also 17m vertically separated, all except eight strings at the array centre which were 70 m apart and 7 m vertical. This section exists as the DeepCore sub -detector, looking at neutrino oscillations. It was around 6pm New Zealand time on the 18th December 2010 that the last IceCube string was sunk into the Antarctic ice.

The concept of IceCube, and using the results, has allowed scientists to investigate our cosmos with high-energy neutrinos at the peta electronvolt level, at which most of the universe is translucent ultra power protons. With this in mind, they have turned their sights on the blazar TXS0506+056. This is of the BL Lac type, with a relativistic jet aimed at Earth. The highest energetic neutrino found by IceCube up to now is two Peta electronvolts.

Because of the translucence of the Antarctic ice, it is thought that the spacing between the light sensors could be increased from125m to 250m, providing a greater telescopic area, at a very moderate increase to cost.

References:

https://en.wikipedia.org/wiki/IceCube_Neutrino_Observatory

https://icecube.wisc.edu/

https://arxiv.org/pdf/1901.05366.pdf

Messier 36 and NGC1931

John Hughes

January 12th provided a chance to set up for a few hours and I started to capture Messier 36 in the constellation, Auriga. Auriga is abound with open clusters and nebulosity and offers some great targets for short and long imaging sessions. With Messier 36 I was fortunate that my field of view could also capture NGC1931, a small region of nebulosity to the West of M36 and this image is an HaRGB composite. Unfortunately I had just under 4 hours of image time and whilst I have managed to capture some of the detail in NGC1931, I feel there is more Hα to capture not only in the nebula but also between M36 and NGC1931.

Messier 36 and NGC1931

Data

Hα 12 x 300 s R 30 x 120 s G 27 x 120 s B 30 x 120 s

Equipment

William Optics Z103 refractor

SkyWatcher EQ6R-Pro mount

Acquired using Sequence Generator Pro

ZWO ASI1600mm Pro camera (Gain 139, Offset 30, Temp -10 ℃)

Chroma 1.25" RGB filters and 3nm Hα filter

Processed in PixInsight

Calibration of Images

John Hughes

The following image shows the importance of having good calibration frames in place to remove the issues that can arise with your optics such as vignetting, hot/cold pixels and in this case, column defects in the CCD sensor.

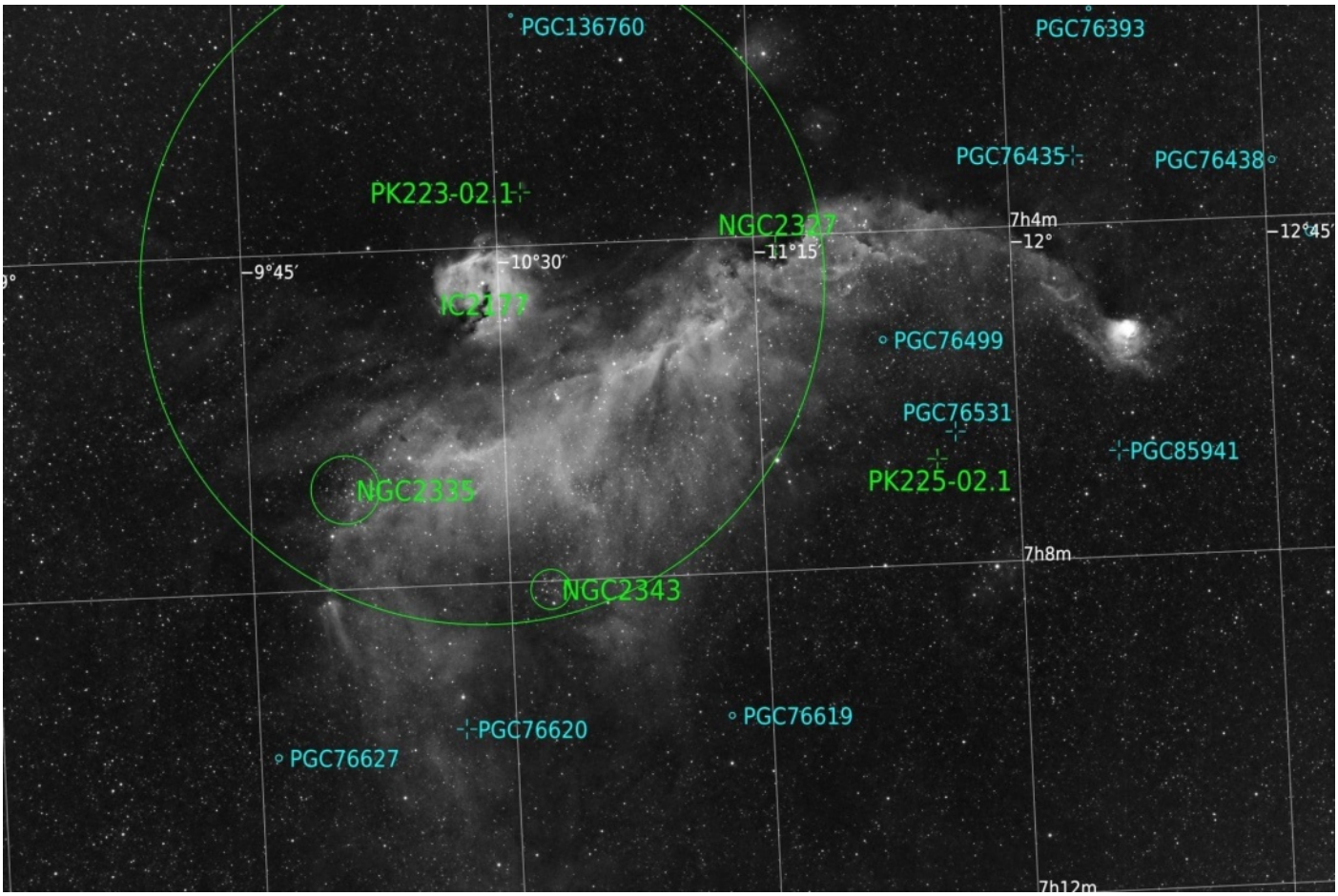
Taken remotely using the iTelescope dark site observatory in Mayhill, New Mexico, the image below captures IC2177, the Seagull Nebula.

An SBIG Universal CCD camera was used to capture IC2177. CCD's are prone to column defects which can impart vertical lines, both light and dark, into your image.

PixInsight has a two scripts that can fix these lines called LinearDefectDetection and LinearDefectSubstraction, however, on this occasion they could only remove some of the more obvious problem areas. Further images will be needed to improve on the detection rate.

Exchanging emails with iTelescope reveals that calibration frames, in particular Bias frames, have not been updated for this camera since April 2020 as physically accessing the site has been restricted due to COVID-19. To be honest, I would have thought that if you can take an image remotely you could also take a Bias frame but it appears that's not the case.

This image captures the Hydrogen Alpha region of IC2177 which is located on the border of the constellations, Canis Major and Monoceros.



Mercury

Martin Cook

Around Polaris

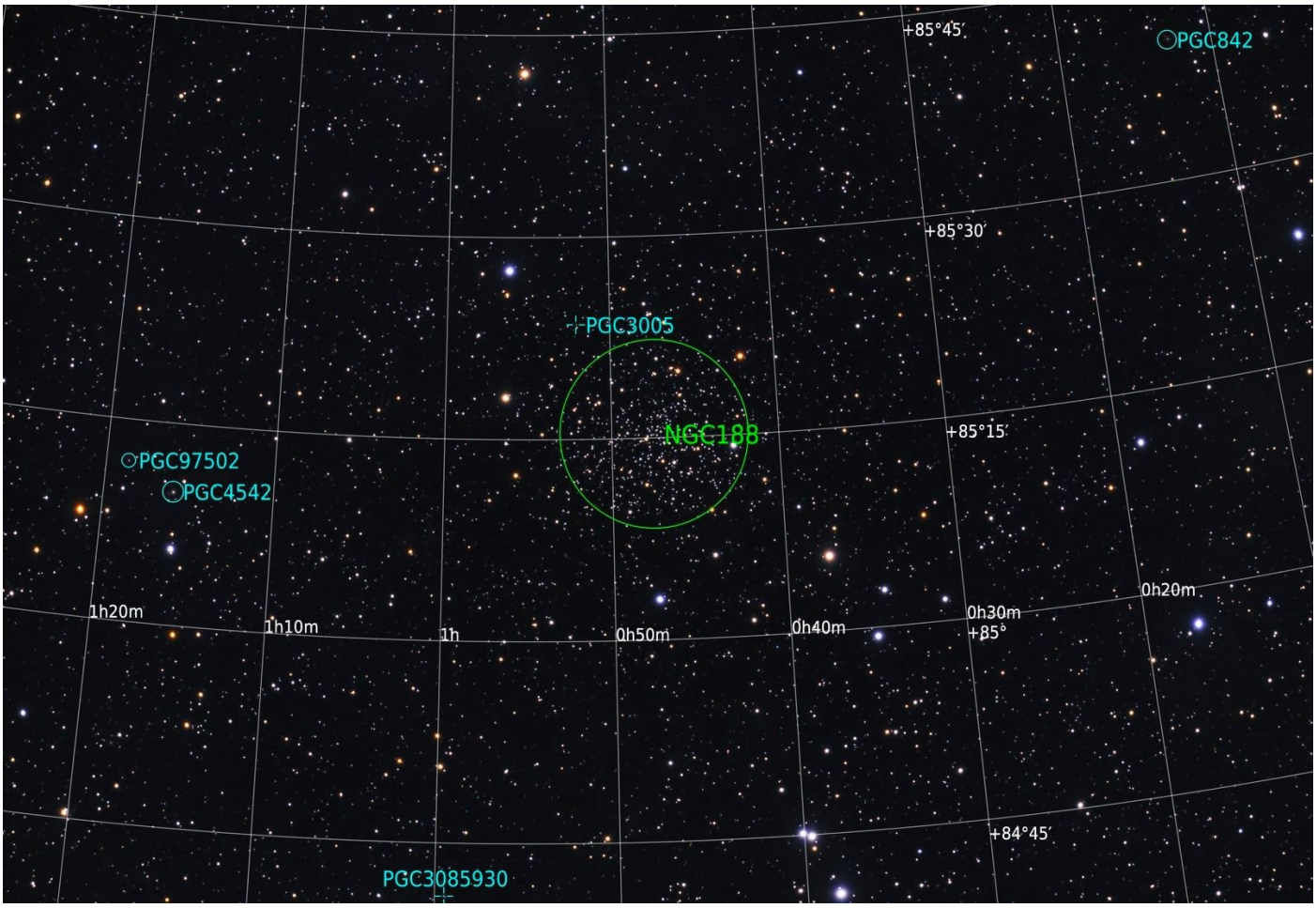
John Hughes

There are three constants when I am imaging; the equipment I am using, a clear night sky and Polaris. One without the others makes the whole night irrelevant. So this got me to thinking about Polaris and what objects of interest are there in and around this region?

Enter NGC188. Located in the constellation Cepheus and only 5° from the north celestial pole it is one of the oldest known open clusters, estimated to be 6-7 billion years of age. Sometimes I find the numbers to be staggering whether it be size, distance or age.

When I sit back and think about objects to photograph especially this time of year, we are lucky to have a plethora of bright nebulae and galaxies to pick from but none are near 9 billion years of age and lucky to have found a position so far above our own galaxy that they can last that long without drifting apart.

So here is NGC188, there's no way it will be on Facebook for 6 billion years but hopefully it will be around for a good few years yet for people to enjoy.



Data

- Luminance 63 x 60 s
- Red 88 x 60 s
- Green 82 x 60 s
- Blue 78 x 60 s

Equipment

- William Optics Z103 refractor
- ZWO ASI1600mm Pro Cool (Gain 139, Offset 30, Sensor Temperature -10°C)
- Chroma 1.25" filters
- Sesto Senso motor focuser
- SkyWatcher EQ6R-Pro mount
- William Optics 50mm guidescope and Lodestar x2 guide camera
- ZWO EFW

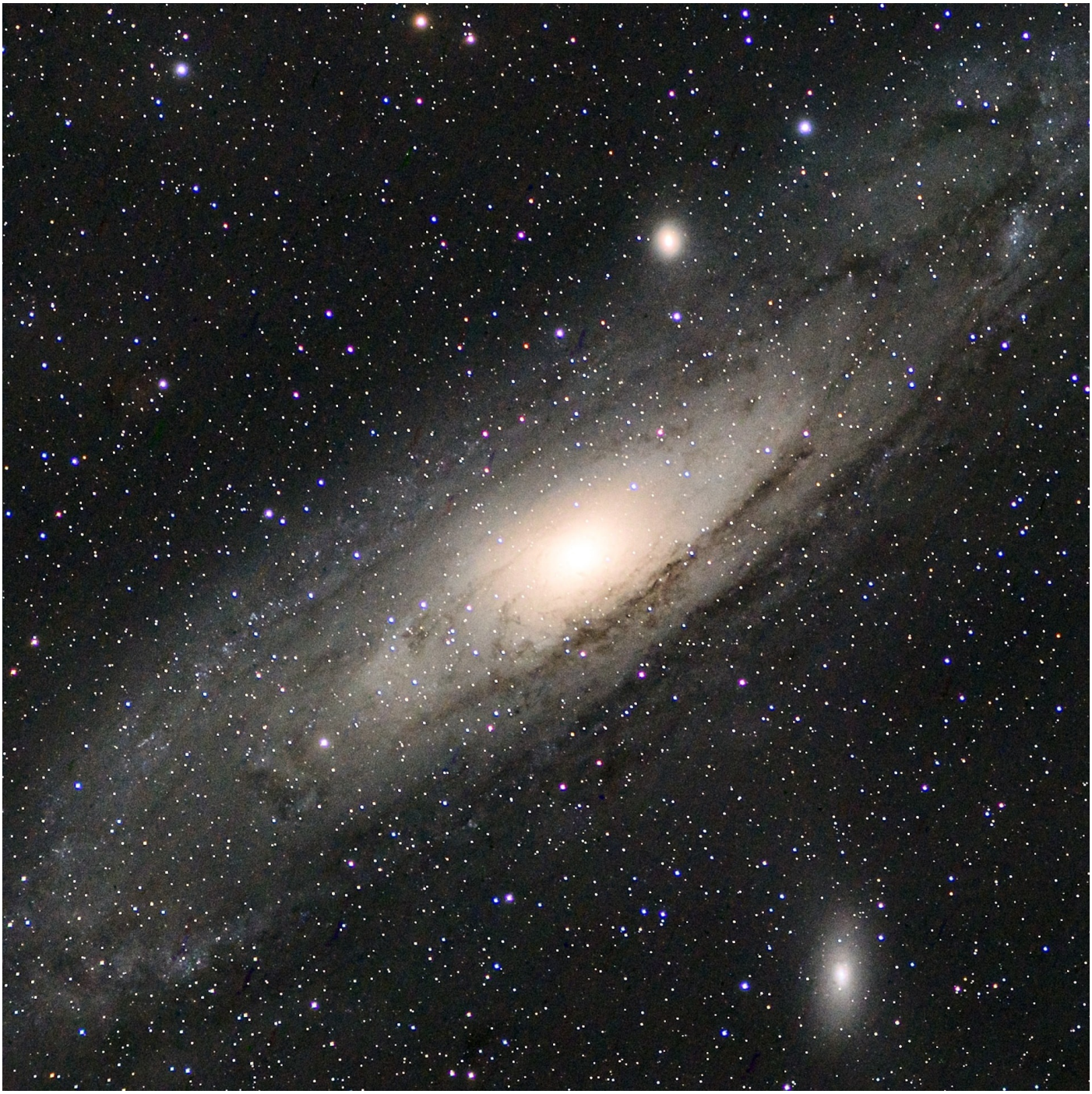
Software

- Image acquisition with Sequence Generator Pro
- Image processed with PixInsight

M31 & M51

Stephen Olley

Couple of images taken over past week from my back garden. Learning how to properly use pulse guiding (via EQMod and PHD2). Starting to get the hang of it...although if we could get a few more cloud free nights over Ipswich it would be helpful



L–R: M32, M31 (NGC224) and M110

M51 Whirlpool galaxy

Footnote: Health & Safety

John Hughes

Careful this astronomy malarkey can be dangerous.

As those in last night's Zoom call will know, I was imaging M106 then at 10pm decided to call it a night but left the scope up and running taking pictures.

Alarm set for 4am to go outside and switch everything off. Alarm went off, I got up, I blacked out, I fell down in the bedroom. As I slowly tumbled to the floor, my head, arms and torso in unison, my left foot decided to stay firmly planted where it was .

Then came the loud crack.

Broken foot.

I would love to say I was out under the stars when a UFO tried to beam me up with a tractor beam insufficient for my size and dropped me half way but I'd be lying.

I broke it getting out of bed!

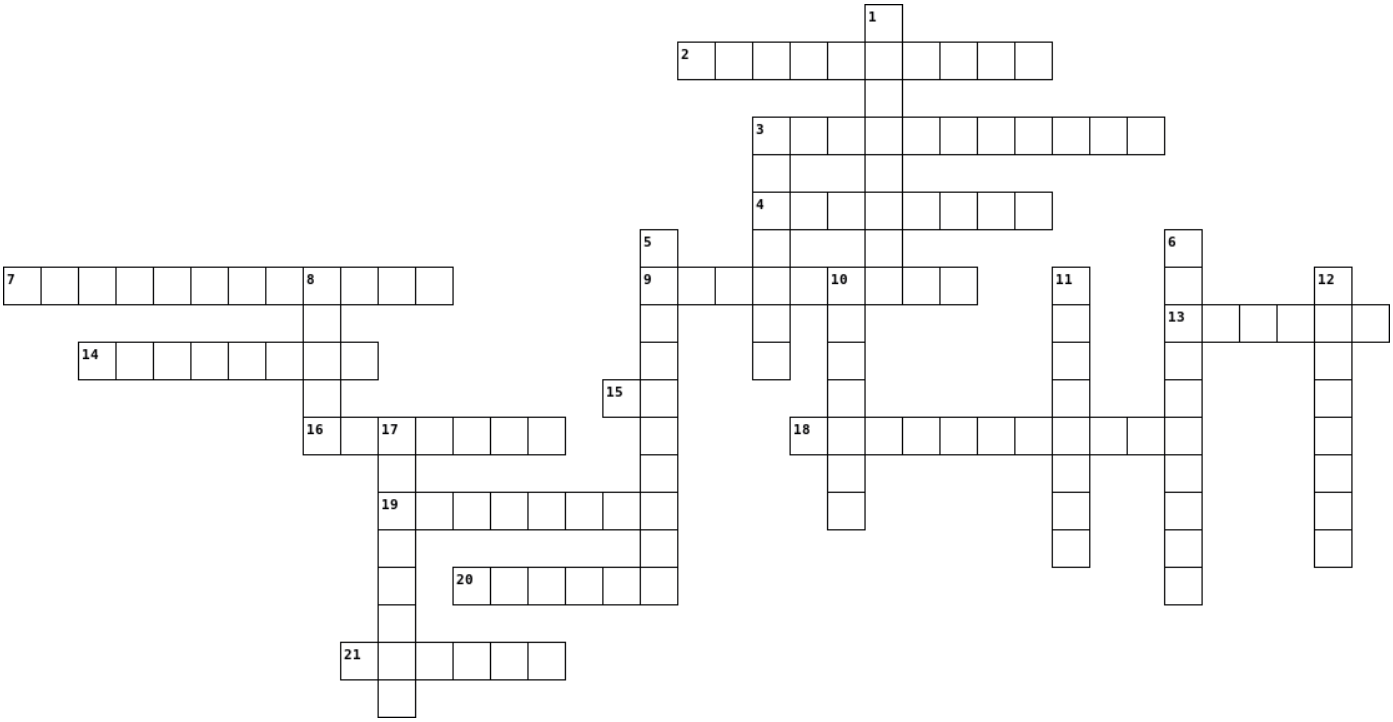
Ed: Get well soon, John!

New Year Quiz Answers

Andy Willshere

1	3 S to the W	3 sheets to the wind
2	4 S on a DB	4 strings on a double bass
3	12 H on the BS	12 - hurricane on the Beaufort scale
4	82 B on a D	83 beds on a dartboard
5	206 B in the HB	206 bones in the human body
6	225 S on a SB	225 squares on a scrabble board
7	39 B of the OT	39 books of the old testament
8	76 T lead the BP	76 trombones lead the big parade
9	1000 Y in a M	1000 years in a millennium
10	2 S to an A	2 sides to an arguement
11	3 G in a HT	3 goals in a hat trick
12	13 P in a RLT	13 players in a rugby league team
13	13 C in a S	13 cards in a suit
14	14 L in a S	14 lines in a sonnet
15	25 Y in a SA	25 years in a silver aniversary
16	8 T on an O	8 tentacles on an octopus
17	4 F on a P	4 faces on a pyramid
18	24 C in PG	24 carates in pure gold
19	21S on a D	21 spots on a die
20	7B for 7B	7 brides for 7 brothers
21	4 G in the B	4 gospels in the Bible
22	4 H of the A	4 horseman of the Apocalypse
23	4 S by V	4 seasons by Vivaldi
24	6S on a CG	6 strings on a classical guitar
25	2 P in a P	2 peas in a pod
26	90 D in a RA	90 degrees in a right angle
27	6 S on the F of A	6 stars on the flag of Australia
28	1852 M in a NM	1852 metres in a nautical mile
29	15 M on a DMC	15 men on a dead mans chest
30	36 BK on a P	36 black keys on a piano
31	225 S on a SB	225 squares on a scrabble board
32	8 N in an O	8 notes in an octave
33	13 L in a BD	13 loaves in a bakers dozen
34	2 Q in a C	2 quavers in a crotchet
35	3 B in a T	3 books in a trilogy
36	3 M in a B	3 men in a boat
37	5 R on the OF	5 rings on the olympic flag
38	6 S on a H	6 sides on a hexagon
39	9 L of a C	9 lives of a cat
40	50 Y for a GW	50 years for a golden wedding
41	39 B in the OT	39 books in the Old testament
42	28 P on a MB	28 properties on a monopoly board
43	57 HV	57 heinz varieties
44	1605 GP	1605 gunpowder plot
45	1815 B of W	1815 battle of waterloo
46	1953 C of QE2	1953 coronation of queen elizabeth 2 (2:06:53)
47	27 B in NT	27 books in new Testament
48	2 M around M:P and D	2 moons around Mars:phobos and deimos
49	88 K on a CP	88 keys on a classical piano
50	1805 B of T	1805 battle of Trafalgar

Crossword



Across

2. distance from one wave peak to another
3. force of gravity acting between earth and moon, keeping moon in near circular path
4. Messier 45
7. start of solar eclipse
9. Tycho's new star?
13. star that emits beams of electromagnetic radiation
14. a small cool star
15. volcanic moon of jupiter
16. traditional name of bright star in Cassiopeia (alpha cas)
18. ? russell diagram
19. increase of radiation wavelength
20. star system combining two stars
21. shooting star

Down

1. sub atomic particle
3. regular variable
5. measuring the stars
6. star exhausted its hydrogen and much bigger than our Sun
8. solid resembling a ring doughnut
10. either proton or neutron
11. small body found between mars and jupiter
12. measuring stellar distances
17. messier 13 cluster