No. 552 Registered Charity 271313 **April 2019**

OASI News

The newsletter of the Orwell Astronomical Society

IC 443 Jellyfish Nebula in Gemini.

Photo by Andy Gibbs

Contents

Society Notices

Society Contact details

Observatory (meeting nights only)
NB new number! 07960 083714

Email queries: info@oasi.org.uk

Facebook: https://www.facebook.com/groups/445056098989371/

Twitter: @OASIpswich

The OASI Facebook pages are proving very popular. Several non-members are active contributors.

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

news@oasi.org.uk

Other contact details will be issued to members on a separate printed list.

Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds by the gym.

Areas out of Bounds

Access to the Observatory is **only via the black door** at the foot of the Observatory tower, which leads to the staircase and thence to the spiral staircase up to the Observatory. If the black door is locked, please phone the observatory mobile, **07960 083714** during meeting hours.

Please do NOT explore other routes. When in doubt, ask or call the Observatory mobile.

Remember this is a school and straying into the main part of the school where the pupils reside would cause the society big problems and could see us losing the use of the observatory. Any member found to be anywhere other than the approved access route or the observatory area will face serious sanctions up to and including expulsion from OASI.

Please note that access time for all observatory member nights is after 20:15

Articles for OASI News

News, pictures and articles for this newsletter are always welcome. Please send them to

news@oasi.org.uk

The CLOSING date is the 15th day of the month

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 now 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.

Committee 2018

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

Signing in and out

Please ensure you sign in and out when visiting the Observatory and/or Newbourne. This is for fire safety precautions and also provides an historic record.

Next Committee Meeting

Friday 26 April 2019, 8pm at Museum St Methodist Church rooms, Black Horse Lane.

Editor's Note

Apologies for the absence of a March edition of the News but you may be aware that I was hospitalised mid February following a heart attack. I'm recovering well and many thanks for all your good wishes.

Martin RH

A Message from your New Chairman

Andy Gibbs

Firstly, I would like to say it is an honour to be elected Chairman of the Orwell Astronomical Society, Ipswich. I will endeavour to do the job to the best of my abilities, respecting all the hard work that has been put in over the last 52 years, resulting in the vibrant Society we have today.

For those who do not know me, here is a brief Biography.

My interest in Astronomy began at the early age of 7 or 8. Like many boys born in the 1960's, I wanted to be either an Astronaut or a Train Driver. Unfortunately, I didn't make it as an Astronaut, but I did achieve my other ambition! My interest was further fueled by observing the Moon and Planets through my brother's 3 inch refractor. I also went down the well-trodden path of writing letters to Patrick Moore, (who would always reply). I developed other interests as I got older, but always retained my interest in Astronomy, albeit from an armchair.

In 2006, I bought a Meade ETX. This got me actively observing again, and buying further telescopes and cameras etc! It was around this time that I started to attend the OASI Open Evenings, finally, getting around to joining OASI in 2012. I do regret not joining earlier, as there is a wealth of knowledge to be gained from some very experienced Society members.

I took early retirement, after 38 years of working on the Railway, in September 2018, and this has afforded me more time to enjoy my hobby and to help with running OASI.

That's enough about me. What are my aims during my time as Chairman?

I would like to have a good working relationship with Orwell Park School. We are very lucky to have use of this fine Victorian Observatory, but, as you are aware, the building is in serious need of renovation. Hopefully, we can find a way forward with the school, in getting the most urgent repairs carried out.

Whilst the Observatory, is and will remain at the core of our Society, our meetings at Newbourne are a very important part of our activities. The Society has plans to site a container, enabling us to have a permanent base at Newbourne, to store our large telescopes and equipment. This has been a rather lengthy process, but we hope things will be completed soon, subject to planning objections or exceeding our agreed budget. I would like to thank Mike Whybray for his work on this project so far.

We have a busy outreach programme, which I would like to see retained. The most important being our Open Evenings at Orwell Park, which was successfully re-introduced in 2018. I would like to see a couple more Star Parties introduced during the winter months to compliment our regular Solar events during the Summer, perhaps these could be held in Ipswich Parks?

Of course, outreach events rely on members volunteering to help, and it would be great if we could call on a few more members to join in, it's good fun, and you don't have to be an expert or bring a telescope.

However, OASI would be nothing without its members. If you have any suggestions on what you like the Society to do, or do better, please do not hesitate to contact me or any committee member.

I would like to thank my immediate predecessors in the role of Chairman:

- Paul Whiting, for agreeing to the role of Caretaker Chairman and allowing me to join the committee to "learn the ropes".
- David Murton, for expanding our outreach programme and the hard work he put into organising our 50th Anniversary convention.
- Neil Morley, for extending a warm welcome when I joined the Society and for his continual helpful advice.

A big thank you to all the committee members for the all hard work involved in keeping OASI the active Society we have today.

Finally, I would like to wish everybody all the best for the coming year, with plenty of clear skies!

OASI and BAA Events

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 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

Subscribe to the OASI Yahoo group by emailing oasi-subscribe@yahoogroups.com

Key:

OASI public events *BAA events* *Other events*

Date, Time & Location	Contact	Event
Weekly, every Wednesday, 20:15–22:00 Orwell Park Observatory	Martin Cook, Roy Gooding	General observation (weather permitting) using a variety of telescopes. Entry via the third gate left. NOT the main gate
5–7 April	https://www.britastro.org/node/15405	*BAA Winchester Weekend*
6-7 April	www.starparty.org	*Kelling Heath Spring Star Party*
Monday 8 April from19:00 Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI @ Newbourne.
Tues 9 April Orwell Park Observatory	Paul Whiting, FRAS treasurer@oasi.org.uk	**Public access event. Observatory tour. Booking essential.**
Sat 13 April Set-up 19:00 for 19:30 start Playing field, Case Lane.	Andy Gibbs chairman@oasi.org.uk	**Bentley Star Party. Public access event.** Check website/Twitter/Facebook for cancellation due to weather.
Sat 13 April		*'The Astronomer' magazine Annual General Meeting*

Date, Time & Location	Contact	Event
Monday 22 April from19:00 Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI @ Newbourne. 19:30 Sky notes Bookswap
Friday 26 April Museum St Methodist Church room.	Roy Gooding	OASI Committee meeting
Sat 27 April The Sweyne Park School, Sir Walter Raleigh Drive, Rayleigh, SS6 9BY	https://www.britastro.org/rayleigh2019	*BAA 1-day Spring Meeting : Galaxies*
Monday 6 May from19:00 Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI @ Newbourne.
Sat 18 May Clements Hall, Nunthorpe Road, York, YO23 1BW	https://www.britastro.org/node/15371	*BAA Comet Section meeting*
Monday 27 May from19:00 Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI @ Newbourne. 19:30 Sky notes Bookswap
Wed 29 May 17:30 London W1J 0DU	https://www.britastro.org/node/15407	*BAA Ordinary Meeting & George Alcock Memorial Lecture*
Sat 8 June 10:00 West Berkshire Mencap Centre, Enborne Gate, Newbury, RG14 6AT	https://www.britastro.org/historical2019	*BAA Historical Section meeting*
Sat 8 June 12:00 Kirton Recreation Ground, Back Rd, Kirton	Martin Richmond-Hardy newbourne@oasi.org.uk	**OASI at Kirton Fete. Public event.**

Date, Time & Location	Contact	Event
Sun 9 June 09:00 Kirton Recreation Ground, Back Rd, Kirton	Paul Whiting, FRAS treasurer@oasi.org.uk	**OASI at East Suffolk Wireless Revival. Public event.**
Mon 10 June from19:00 Newbourne Village Hall	Martin Richmond-Hardy newbourne@oasi.org.uk	OASI @ Newbourne.
Sat 22 June 10:00–18:00 RAL, Didcot OX11 0QX	https://www.britastro.org/RAL2019	*BAA Summer meeting*
29 June Newbourne Village Hall	Pete Richards lectures@oasi.org.uk	OASI Summer BBQ. Members and their guests.
Sat 13 July	Pete Richards lectures@oasi.org.uk	OASI at Nacton Fete
Sat 24 Aug 10:00–17:00 9 Margaret St, Birmingham, B3 3BS	https://www.britastro.org/spectro2019	BAA Spectroscopy Software Training Workshop
Mon 26 Aug		NEAS visit to Newbourne and picnic.
Fri 6 Sept		*BAA Autumn Weekend meeting*
Fri 20 Sept 20:00 St Augustine's Church Hall	Peter Richards lectures@oasi.org.uk	Lecture. "Monsters in the Dark: Searching for the Most Massive Galaxies in the Universe." Dr Matthew Bothwell. University of Cambridge.
28-29th Sept	http://las-skycamp.org	*Kelling Heath Autumn Star Party*
Sat 5 Oct		*BAA Back to Basics workshop*
Sat 12 October		*BAA Observers' Workshop*
Fri 18 Oct 20:00	Peter Richards lectures@oasi.org.uk	Lecture. "Pulsars and our understanding of the cosmos" Dr Robert Ferdman. University of East Anglia.
Sun 27 Oct		**Bawdsey Astronomy Day**

Date, Time & Location	Contact	Event
28 Oct–4 Nov		*Haw Wood Autumn Star Party*
Wed 30 Oct		*BAA AGM*
Mon 11 Nov		Transit of Mercury
Fri/Sat 15/16 Nov. Stoneleigh Park, Coventry CV8 2LH	https://www.ukastroshow.com	*International Astronomy Show*
Fri 15 Nov 20:00 St Augustine's Church Hll	Peter Richards lectures@oasi.org.uk	Lecture. "Neighbours - An Introduction to the Local Group". Dr Nick Hewitt. British Astronomical Association.
Sun 17 Nov, 05:30 TBC	James Appleton info@oasi.org.uk	Field trip to observe graze of ZC1128. More info.
Fri 20 Dec 2019, 04:30	James Appleton info@oasi.org.uk	Field trip to observe graze of ZC1840. More info.

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, like December and January).

OASI @ Newbourne is a good place to start for beginners. If you are thinking of buying a scope or binoculars, come and try before you buy and talk to owners about the strengths and weaknesses of particular models. If you've already splashed the cash, bring your new scope along to use or for advice on setting-up and adjustment. All welcome, with or without telescopes. We would like visitors to join OASI to enjoy the full benefits of membership.

There are also **Stargazers' Guide (Sky Notes), Astronomy Workshops and the Book Swap.**

OASI@Newbourne Meetings in 2019

8 April	22 April (S+B)	
6 May[*]	27 May (S+B)	(both Bank Holidays)
10 June	24 June (S+B)	

* NB 13 May is unavailable due to a Parish Council meeting.

We open up for all meetings at 7pm. Star Guide (S) at 7:30pm and Workshops (W) at 7:45pm. B = Book Swap night (see below).

Stargazer's Guide

On the last meeting each month Bill Barton FRAS will give a short presentation of what can be viewed in the following 4 weeks. For armchair stargazers (on those cloudy nights) there is a small branch of the OASI Library held at Newbourne and a copy of the full catalogue.

Astronomy Workshops

Contact Mike Whybray **Location: Newbourne Village Hall IP12 4NP**

Doors open at 7:00pm. **Workshops start at 7:45pm**

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!

Given a clear night, we can make use of the field for a workshop or continue afterwards with some observing – something not possible at the previous venue, Nacton village hall.

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

TBA Martin Cook on Tomline Refractor Training (at the Observatory)

TBA Martin Richmond-Hardy on Siding Spring and Parkes observatories

Astronomy Book Swap

Pete Richards

If you are anything like me you'll have a bookcase or two full of astronomy books and no room for any more but you know the next time you are at an astronomy event you'll be tempted again. OASI will be hosting an astronomy book swap event at Newbourne on a Monday evening help you to clear some space or maybe you can provide a home for someone else's unwanted books.

If you bring any books and they are not taken you will need to take them home again as OASI has no spare storage space for books.

You can take away any books you are interested in but if you have not provided any books yourself you might like to make a small cash donation to OASI.

Any cash donations will help towards running OASI @ Newbourne.

The books can be on any area of astronomy, or space exploration, or related subjects. They can be factual or works of fiction including space related science fiction. As well as books you could bring DVDs on similar subjects, or maybe you have an astronomical jigsaw puzzle you'd like to give away or exchange.

The book swap will be held at Newbourne Village Hall on Monday Star Guide/Workshop nights (a normal OASI @ Newbourne night).

Lecture Meetings

Contact: Peter Richards **lectures@oasi.org.uk**

We have an exciting and interesting set of lectures by guest speakers for the Autumn.

There is a new venue for lectures this year which is:

St Augustine's Church Hall
Bucklesham Road
Ipswich IP3 8TH.

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

OASI Guest Speaker Lectures for 2019

20th September	"Monsters in the Dark: Searching for the Most Massive Galaxies in the Universe." Dr Matthew Bothwell. University of Cambridge.
18th October	“Pulsars and our understanding of the cosmos” Dr Robert Ferdman. University of East Anglia.
15th November	"Neighbours - An Introduction to the Local Group". Dr Nick Hewitt. British Astronomical Association.

Other local astronomy society meetings

Athaneum Astro Soc

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

We 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

LYRA Programme and Local Events 2019 – All talks (unless other wise stated) will commence at 7.30pm in the Coach House Room at Parkhill Hotel, just outside Oulton Village on the B1375 (Oulton Broad to Gt. Yarmouth Road) NR32 5DQ

All Talks £2.50 For Non Members

April 9	The LYRA President’s Lecture Dr Matthew Bothwell, Cambridge Institute of Astronomy
April 23	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7.30pm
May 14	A talk “Hunting Outbursting Young Stars with the HOYS-CAPS Citizen Science Project” by Dr Dirk Froebrich, University of Kent
May 28	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7.30pm
June 11	A talk “The Silver-On-Glass Revolution” by Bob Marriot
June 25	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7.30pm
July 9	A talk “Midsummer madness? – Astronomy versus Pseudoscience, Flying Saucers & Conspiracy Theories” by Mark Shepherd.
July 23	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7.30pm
Aug 13	Summer Social Evening at Parkhill Hotel
Sept 10	TBA
Sept 24	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm
Oct 8	A Talk “Variable Stars – being a Professional-Amateur” by Michael Poxon
Oct 22	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm
Nov 12	TBA
Nov 26	LYRA Observing/Practical night at Barn Car Park, Parkhill Hotel from 7:30pm

DASH Astro

Darsham And Surrounding Hamlets

http://dash-astro.co.uk

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 at WESTLETON VILLAGE HALL from 7:30 pm.

Note these are now on Sundays.

April 07	Dash Observing Session (Sunset 19:37 Moonset 21.59 5.1% Moon)
April 14	Meeting – Bob Greef Title: TBC
May 05	Dash Observing Session (Sunset 20:25 Moonset 20.59 0.5% Moon) Late one?
May 19	Meeting – AGM plus Dave Murton and Linda Gwynn
May 02	Solar Observing - Location TBA
June 16	Solar Observing Outreach - Location Sutton Hoo National Trust
June 23	International SUNday - Location Dunwich Heath
August 10	(Saturday) DASH Summer Social - confirmed. (Members and Guests only)
Sep 08	Meeting –.Dr. Sonali Shukla, Lecturer in Astronomy, Cambridge Univ.
Sep 21&22	Henham Steam Rally. Solar Observing and Displays
Sept 29	Dash Observing Session (Sunset 18:35 Moonset 19:24 1.1% Moon)
Oct 13	Meeting – Dr. Manda Banerji, Inst. of Astronomy, Cambridge Univ.
Oct 23&24	Family Stargazing Evening at Sutton Hoo N.T. Site 6-9pm
Oct 27	Dash Observing Session (Sunset 16:33 Moonset 16.46 0.9% Moon)
Nov 10	Meeting – Steve Hubbard, Ian Lomas & David Gwynn, plus “Q & A Panel” Title TBC
Nov 11	DASH Observing. “Transit of Mercury” start 12:35 ends 16:06 (sunset)
Nov 24	Dash Observing Session (Sunset 15:49 Moonset 15.10 6.7% Moon)
Dec 07	(Saturday) DASH Christmas Social – confirmed. (Members and Guests only)

The Night Sky in April

Martin RH

All event times (**BST** unless otherwise stated) given are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E

Moon

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

New Moon	1st Quarter	Full Moon	Last Quarter
05 April 09:51	12 April 20:06	19 April 12:12	26 April 23:18

Sun, Moon and planets

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

Object	Date	Rise	Set	Mag.	Notes
Sun	Apr 1	06:31	19:28		
	Apr 30	05:28	20:18		
Moon	Apr 1	05:35	15:11		
	Apr 30	04:25	15:09		
Mercury	Apr 1	05:57	16:58	1	Max. western elongation: Apr-11
	Apr 30	05:10	18:03	-0.2	Aphelion: Apr-10
Venus	Apr 1	05:44	16:00	-3.9	Aphelion: Apr-18
	Apr 30	04:53	17:24	-3.8	
Mars	Apr 1	08:11	00:09	1.4	
	Apr 30	07:18	23:56	1.6	
Jupiter	Apr 1	02:02	09:42	-2.1	
	Apr 30	00:06	07:46	-2.3	
Saturn	Apr 1	03:45	11:40	0.6	
	Apr 30	01:53	09:49	0.5	
Uranus	Apr 1	07:14	21:12	5.9	Superior Conjunction: Apr-23
	Apr 30	05:23	19:27	5.9	
Neptune	Apr 1	06:02	16:58	8	
	Apr 30	04:10	15:09	7.9	

Paul's Astronomy Podcast for April

Paul Whiting FRAS Podcast, April 2019 www.oasi.org.uk/2019_04_pod.mp3

Occultations during April 2019

James Appleton

The table lists occultations during the month under favourable circumstances. The data relates to Orwell Park Observatory, but will be similar at nearby locations.

The events should be readily visible in small telescopes or binoculars. The first two columns list the date and time (UT) of the occultation. Column three gives the phenomenon: 'D' denotes a disappearance and 'R' a reappearance. The table lists circumstances of disappearances and reappearances as dictated by the visibility of each phenomenon (determined by altitude, lunar phase, etc). Column four details the lunar phase ('+' for waxing and '-' for waning). Columns five and six give the altitude of the Sun and the star, both in degrees. (A negative solar altitude means that the Sun is below the horizon.) Columns seven and eight provide the star's magnitude and catalogue number.

The data relates to Orwell Park Observatory, but will be similar at nearby locations.

Please note that **times are shown in UTC**.

Date	Time (UT)	D/R	Lunar Phase	Sun Alt(º)	Star Alt(º)	Mag	Star
09 Apr	21:33:00	D	0.20+	-23	14	6.0	ZC718
	22:09:18	R		-26	9		
10 Apr	22:40:45	D	0.30+	-28	14	6.9	Y Tau
13 Apr	20:47:39	D	0.62+	-17	52	6.8	ZC1297
13 Apr	23:16:14	D	0.63+	-28	33	6.8	ZC1312
16 Apr	02:37:14	D	0.85+	-19	13	5.3	53 Leo
19 Apr	03:14:48	D	1.00+	-14	17	5.7	80 Vir

Meteor showers

Source: BAA Handbook 2019 p100-101

Shower	Maximum	Normal limits	ZHR at Max	Notes
April Lyrids	Apr 22d 16h	Apr 14–30	15	Normally rather moderate activity, but fine displays in1803, 1922, 1982. Dusty remnants of comet Thatcher. Unfavourable
η Aquarids	May 6–7	Apr 19 – May 28	40	Fine southern shower, poorly seen from the UK. Fast meteors, many with persistent trains. Good in 2013

Visible ISS passes ≥15º max altitude

Martin RH

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

Times are UTC. Predictions are approximate (23 Jan) due to craft adjustments. Check the day before.

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Apr	-3.7	20:47:29	10°	W	20:50:47	66°	SSW	20:52:30	25°	ESE
01 Apr	-1.1	22:24:22	10°	W	22:25:15	15°	WSW	22:25:15	15°	WSW
02 Apr	-3.7	19:56:45	10°	W	20:00:04	78°	S	20:03:23	10°	ESE
02 Apr	-2.7	21:33:27	10°	W	21:36:25	31°	SSW	21:36:33	31°	SSW
03 Apr	-3.1	20:42:38	10°	W	20:45:48	43°	SSW	20:47:51	19°	SE
04 Apr	-2	21:28:55	10°	W	21:31:14	18°	SW	21:31:57	17°	SSW
05 Apr	-2.1	20:37:51	10°	W	20:40:40	26°	SSW	20:43:19	11°	SSE
07 Apr	-1.2	20:33:28	10°	WSW	20:35:22	14°	SW	20:37:15	10°	S

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, 1.40pm 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

BAA news

BAA meetings in April

BAA Winchester Weekend

Friday, 2019, April 5 - 19:00 at Sparsholt College, Winchester

'The Astronomer' magazine Annual General Meeting

Saturday, 2019, April 13 (All day). Open to all BAA members

One Day Spring Meeting

Saturday, 2019, April 27 - 10:00. One Day Spring Meeting - 'Galaxies'

BAA meetings in May

Comet Section Meeting

Saturday, 2019, May 18 - 10:00

BAA Ordinary Meeting & George Alcock Memorial Lecture

Wednesday, 2019, May 29 - 17:30

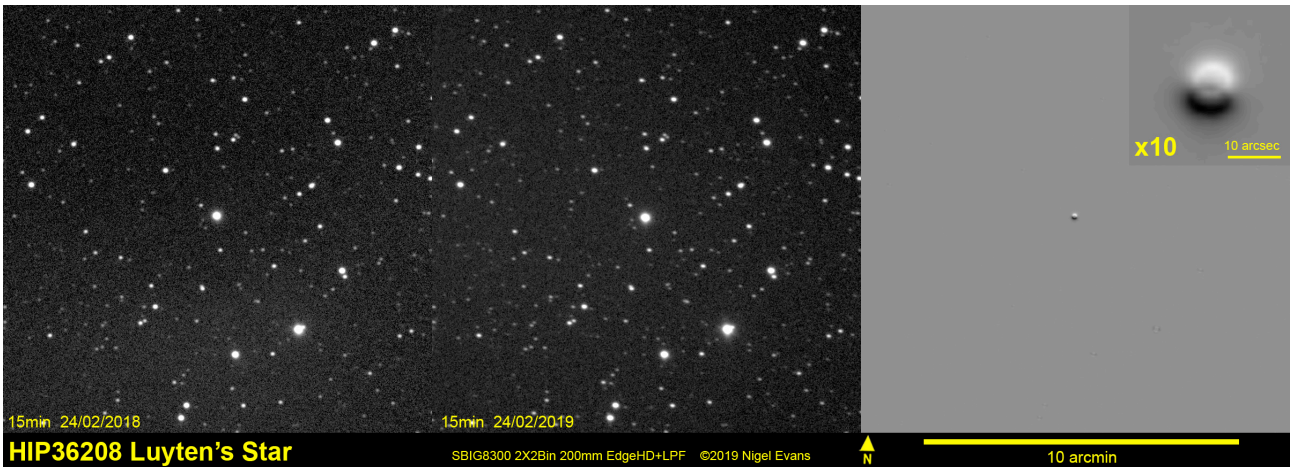
Proper Motion

Nigel Evans

We are familiar with the fact that virtually nothing in the sky is stationary. Although they are far away the stars do move, some more than others, and the movement across the sky is called Proper Motion (PM). The star with the highest Proper Motion is Barnard's Star, with a value of over 10 arc seconds a year. This can readily be detected in amateur telescopes, but it is not the only one.

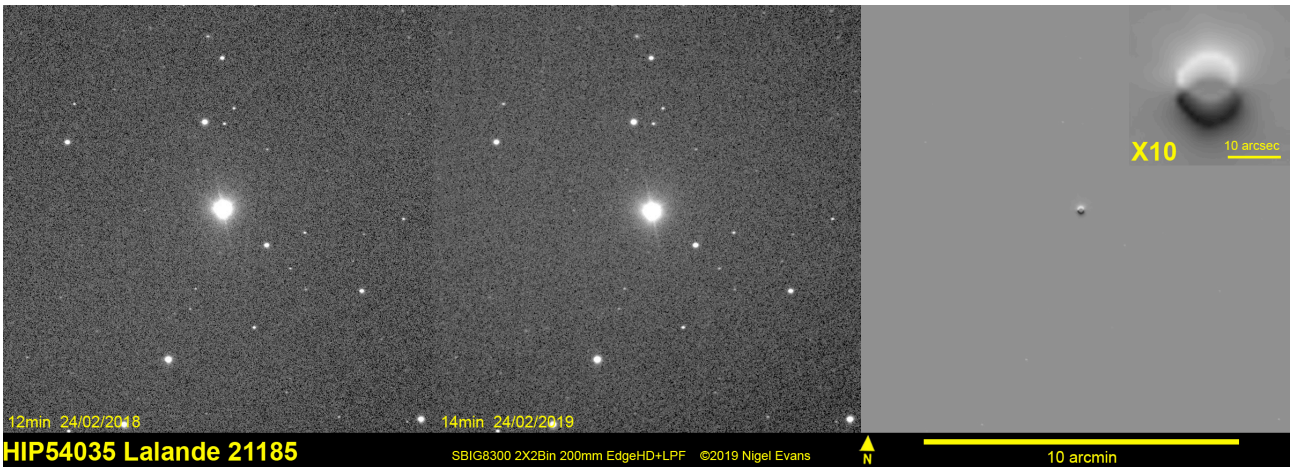
In early 2018 I recorded several of these stars with high Proper Motion, with a view to repeating the exercise at the later date. By good fortune the weather was clear exactly one year later to the day.

In each photo there are two photos, one year apart. Now, it is difficult to see the difference between the two frames, so a third frame has been created by overlaying the two frames, inverting the top frame and changing its transparency to 50%. If nothing has changed then this third frames would be a uniform 50% grey. Any changes are now apparent, but an inset image shows the motion more clearly. In each case the image of the star becomes bloated by overexposure in order to capture the fainter background stars.



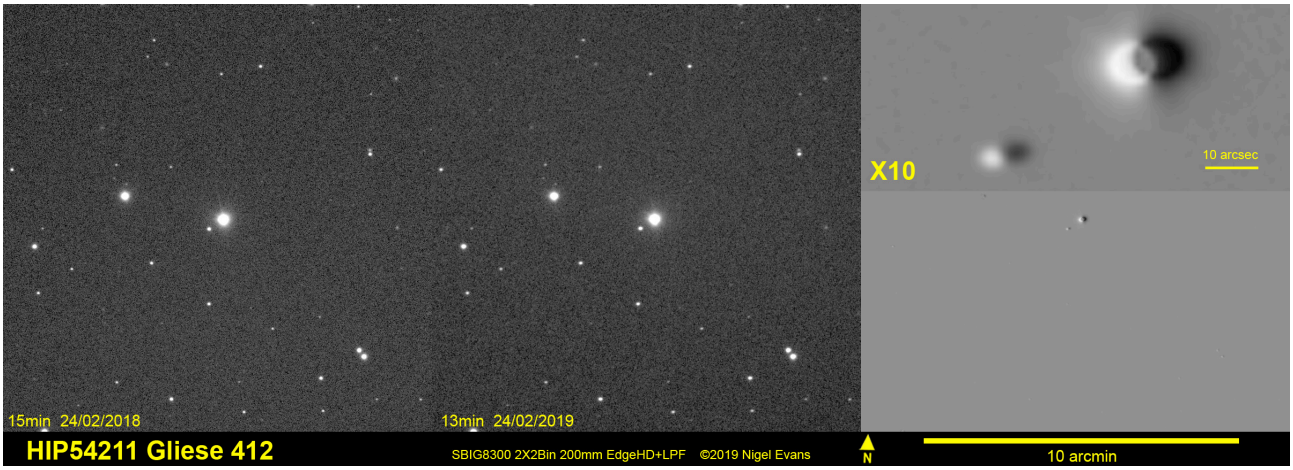
HIP36208 - Luyten's Star in Canis Minor.

Magnitude 9.8 with a PM of 3.7 arc seconds per year. In 2017 two planets were discovered in orbit



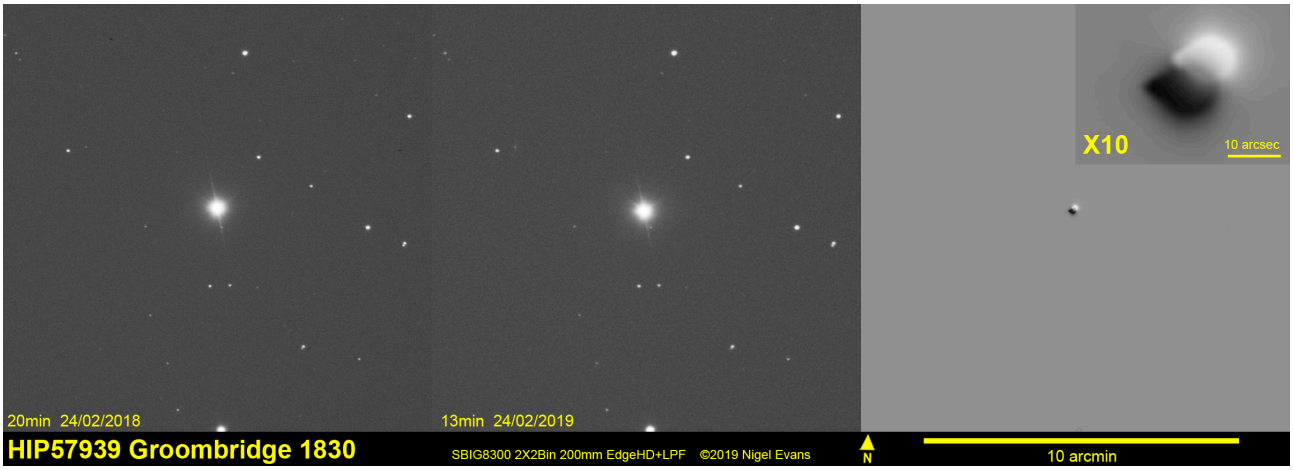
HIP54035 Lalande 21185 in Ursa Major.

Magnitude 7.5 with a PM of 4.8 arc seconds per year.



HIP54211 - Gliese 412 in Ursa Major.

Magnitude 8.7 with a PM of 4.5 arc seconds per year. It was not until I put this image together that I found that Gliese 412 is actually a double star with a Mag 14.5 secondary



HIP57939 Groombridge 1830 in Ursa Major. Magnitude 6.4 with a PM of 7.1 arc seconds per year. When discovered this star became the highest PM of any known star, until superseded by Kapteyn's Star (in Pictor), then again by Barnard's Star (in Ophiuchus) . In this image in particular, poor guiding has given the star a pear-shaped appearance. There is not a second unsolved companion.

Supernova 2019np in NGC3254

Mike Harlow

On 9th January 2019, Japanese astronomer Koichi Itagaki discovered a supernova in the spiral galaxy NGC3254 in Leo Minor at magnitude 16.7. Subsequently named 2019np, it brightened to magnitude13.5 over the next three weeks becoming the brightest supernova visible and hence an excellent target for imaging. Its location above the sickle of Leo, and the wide separation of the supernova from the core of the galaxy, made it both easy to find and easy to identify in images.

Imaging

My first opportunity to observe the supernova came on 4th February. After a rainy day, the sky cleared after sunset but, by the time I had started imaging, it had already started to get misty. By the time I packed up an hour later, there was dense fog and even the end of the garden wasn't visible! That explains the rather weak image in Figure 1.

However my next session on 10th to 11th February was much better. Again, it had been a grey, damp day but this time, when the sky cleared, the humidity was much lower and the sky wasn't just clear but also very transparent. I took another image on 24th February which shows the supernova continuing to fade to about magnitude 14.5 and a month later, on 24th March, it had faded to magnitude16.3.

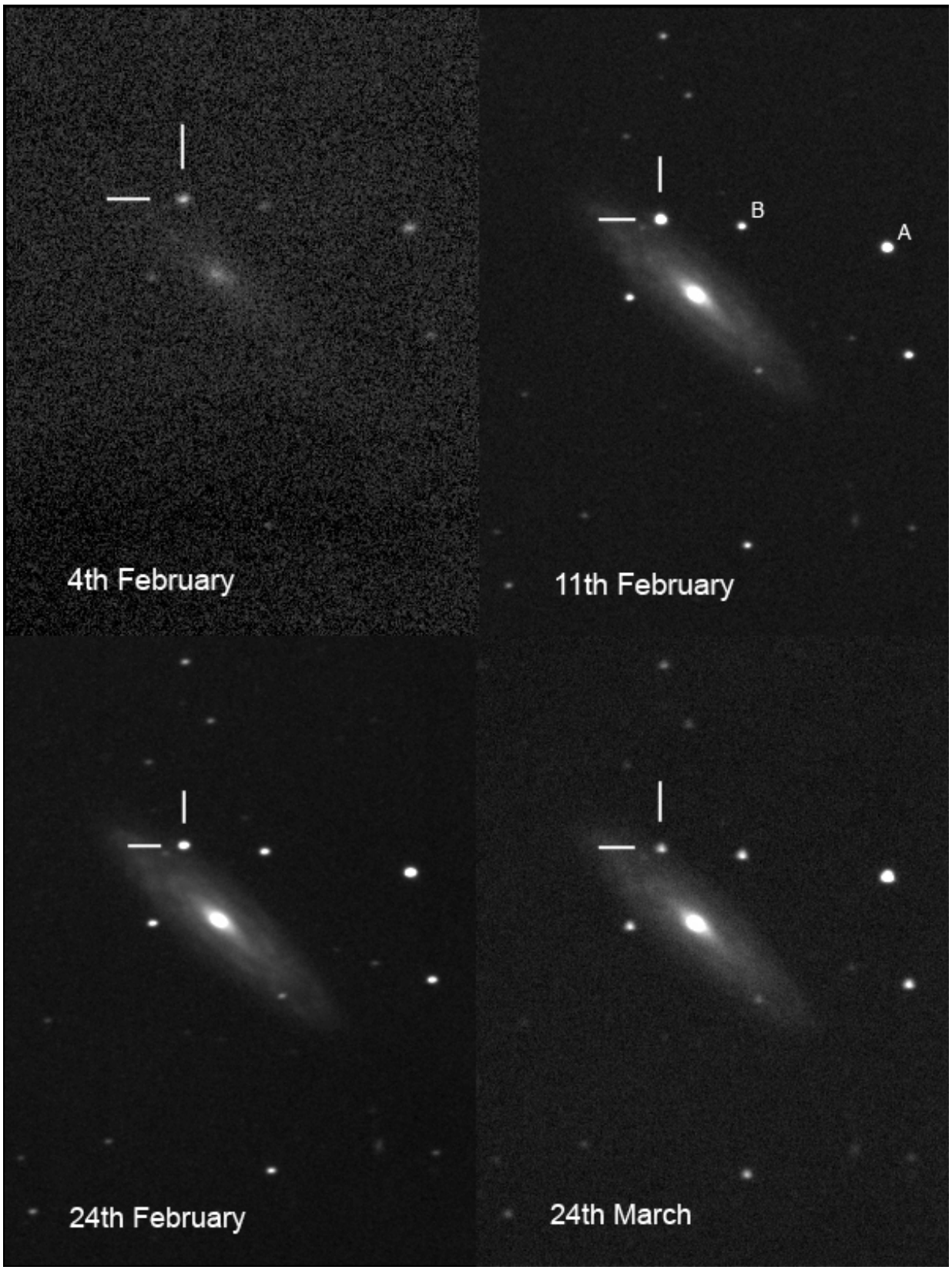


Figure 1. Four images of 2019np in February and March.
Reference stars A and B are magnitude 14.1 and 15.7 respectively.

Light curve

There are two useful web sites that report observations of current supernovae. David Bishop's 'Bright Supernovae' web site [1] has images and magnitude estimates for all objects currently visible. The Zwicky Transient Facility (ZTF) site [2] also has accurate magnitudes. From these two sites, I constructed the light curve in Figure 2. I've also included on the plot a projection of the future magnitude based on the object's classification as Type 1a.

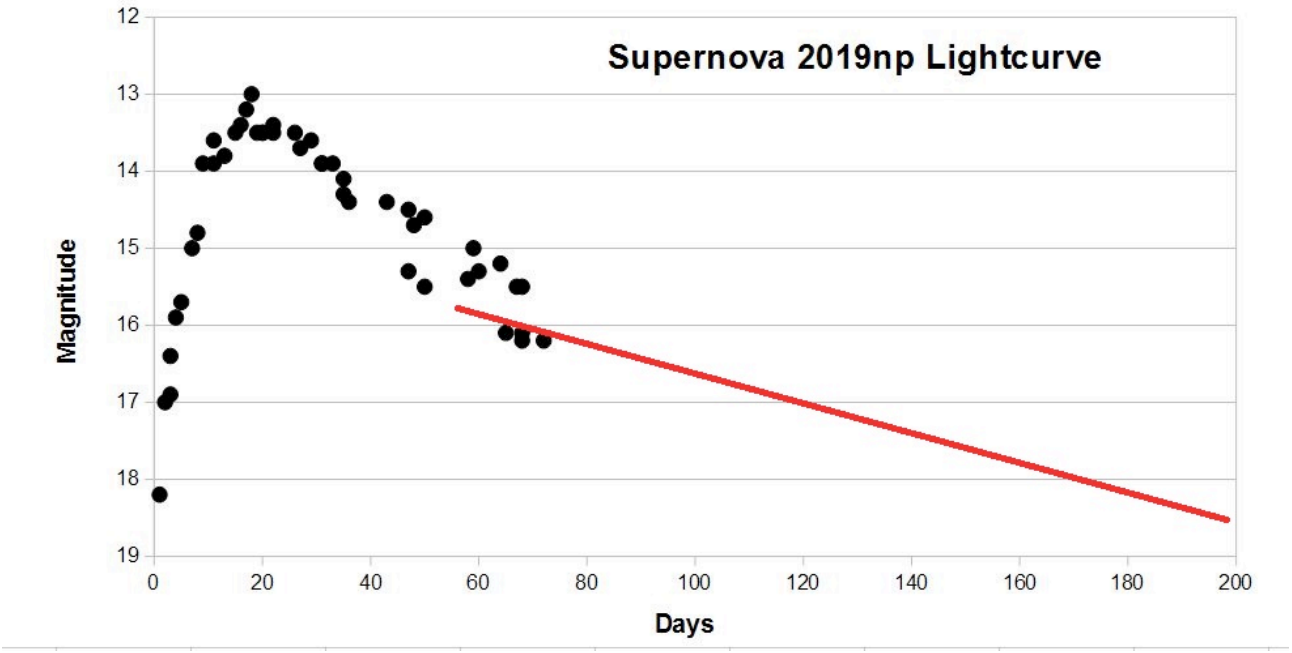


Figure 2. Light curve of 2019np based on observations, black dots, and a projection of future behaviour, the red line. Days are from the date of discovery.

Based on the projection, it should still be possible to image it up to early May, at about mag. 17, when the host galaxy sinks low in the west after sunset. (9th May is day 120 in Figure 2).

Spectrum

Something I've wanted to do for a long time is to get the spectrum of a supernova and 2019np was an ideal object to attempt this on. I am in the process of making a narrow angle objective prism which should make this possible and, although it isn't accurately figured yet, I thought it was worth a try. The prism is 26cm in diameter and has a wedge angle of 3 degrees. Figure 3 shows the prism mounted on the 12 inch telescope.

A small hole in the prism holder allows some light straight through to the mirror to form faint images of stars. These are superimposed on the images containing the spectra and allow for subsequent alignment and stacking to increase the signal to noise for faint objects. The spectral image is shown in Figure 4 from 11th February when the supernova was magnitude 14. [Note the field is inverted compared to images in figure 1.]

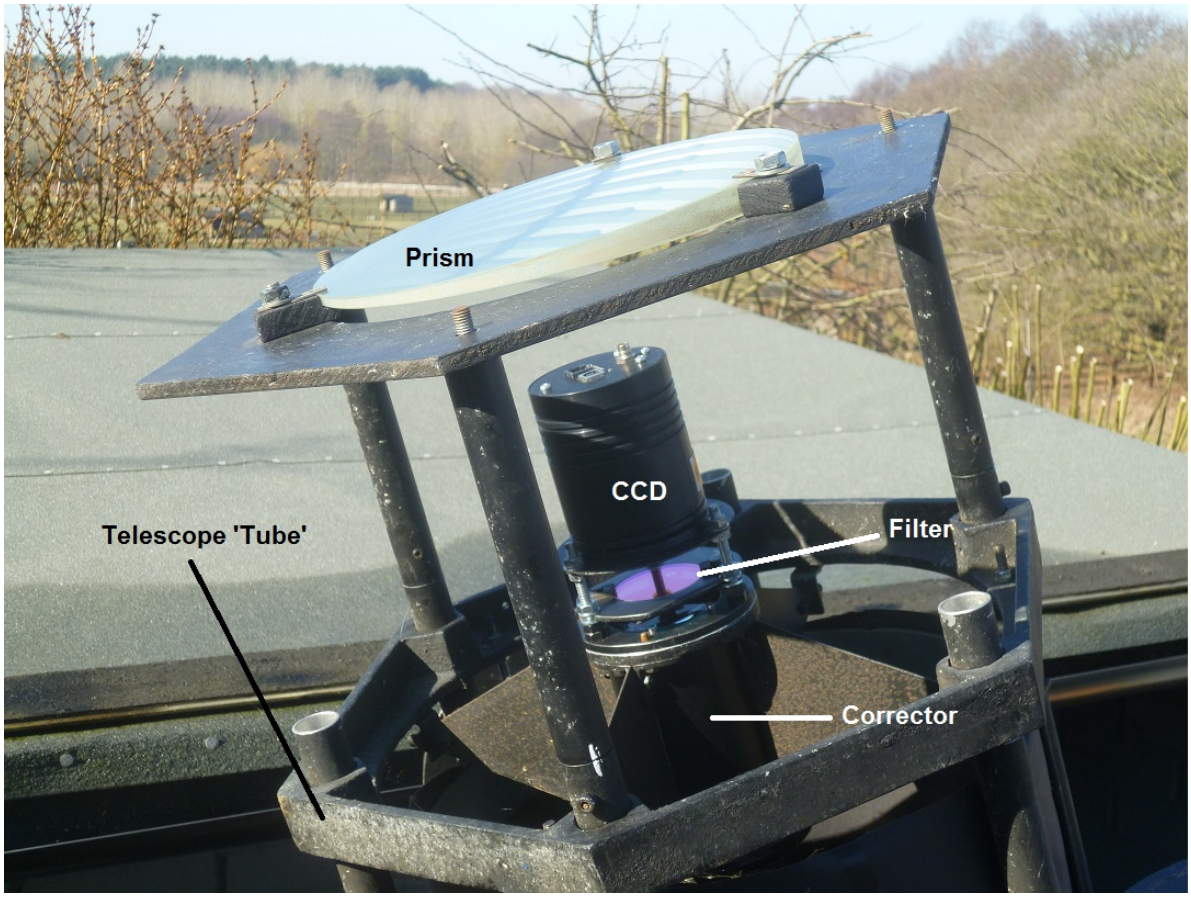


Figure 3. 3 degree objective prism on the 12 inch F/3.6 imaging telescope.

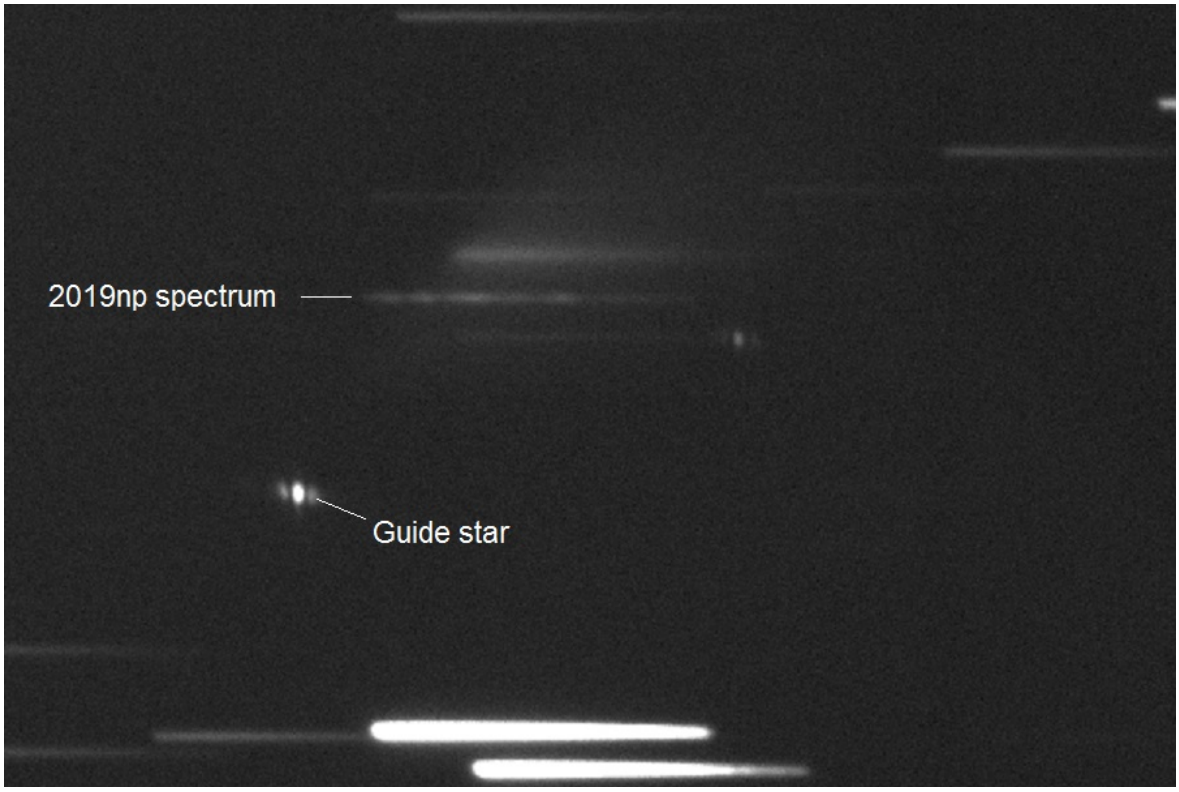


Figure 4. Image of the spectrum of 2019np on 11th February 2019. 30 x 30 second exposures. One of the 'guide' stars is shown.

I haven't had time to produce a calibrated spectrum from the image yet but I'll give an update on the supernova in next month's newsletter. Spectra of the supernova have already appeared on David Bishop's web site [1] and on the ARAS (Astronomical Ring for Access to Spectroscopy) web site [3].

And finally...

The night of 10th February turned in to a marathon imaging session. I had several objects of interest on my list for the night and started imaging at 19:30 on the Sunday night. The supernova was imaged after midnight and I finished off with two hours imaging my pet variable nebula, Gyulbudaghian's nebula, in Cepheus. My last image was taken at 04:45 on Monday morning meaning the telescope was operating for over nine hours. The processed variable nebula image is shown in Figure 5 below.

Figure 5. Gyulbudaghian's nebula on 11th February 2019.

References

1. David Bishop's bright supernova web site: http://www.supernova.thistlethwaites.com/snimages/
2. Zwicky Transient Facility results for this supernova at: https://lasair.roe.ac.uk/object/ZTF19aacgslb/
3. ARAS web site: http://www.astrosurf.com/aras/

Narrowband imaging: IC 443 Jellyfish Nebula in Gemini.

Andy Gibbs

The recent run of clear nights has given me the chance to do some narrowband imaging. I used my Atik One 6.0 monochrome camera with Hydrogen alpha, Sulphur II and Oxygen III filters. The image was then processed using the Hubble Palette.

IC 443 Jellyfish Nebula in Gemini. Image taken on 26-02-19.

Equipment used: Explore Scientific ED80 CF Refractor, Skywatcher HEQ5 Mount, Atik One 6.0 monochrome camera.

5x 600secs Ha, 5x 600secs S II and 5x 600secs O III, plus darks. Processed in Atik Dawn and Photoshop CC.

Bill's Pointless fact of the day: at the end of April Venus will be in the constellation of Cetus (the whale or sea monster), so there aren't thirteen zodiacal constellations there are fourteen.

Report: European Astrofest 2019

Andy Gibbs

Kensington Town Hall, 8th & 9th February 2019.

Once again, it was time to make my annual pilgrimage to London for Astrofest. This year I decided to travel on the Thursday and attend the full conference programmes on the Friday and Saturday.

There was a fascinating programme of talks, highlights included, OASI President, Dr Allan Chapman, presenting his 28th Astrofest talk on Comets, Cosmology and the Big Bang, Simon Porter with new images of the fly-by of Ultima Thule and Dr Brian May with Mission Moon 3-D.

I managed to have a brief chat with Allan Chapman, and he is keen to visit us next year for a Presidential Lecture.

The exhibition area was busy, as usual. There was a number of exclusive show discounts including, Televue eyepieces, Primaluce Lab astrophotography equipment and Lunt solar telescopes.

The programme of talks is listed below:-

Friday

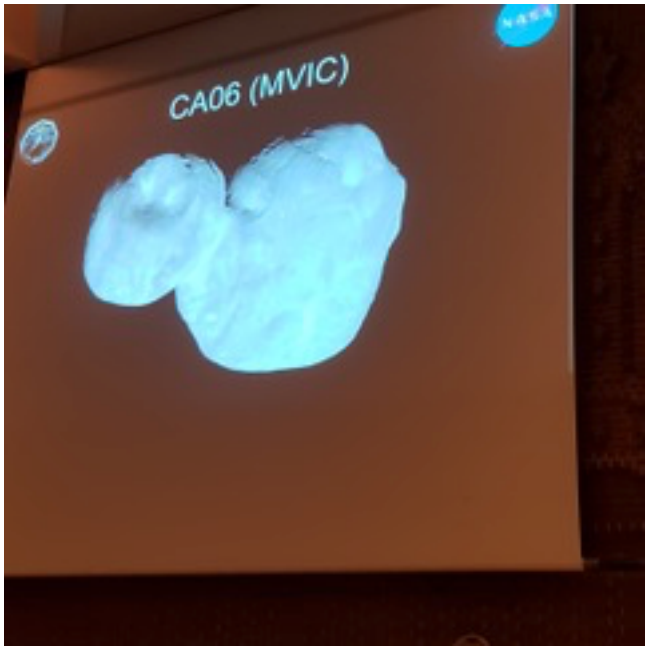
Carolin Crawford	*The next steps in astronomy.*
Paul Davies	*Alien life: What do we look for?*
Chris Done	*Black Holes: Einstein's gravity and rocket science.*
Will Gater	*Taking your first steps in nightscape astrophotography.*
Elizabeth Tasker	*Alien landscapes.*
Manish Patel	*Planetary-scale dust storms on Mars.*
Simon Porter	*The campaign to catch 2014 MU69 'Ultima Thule'.*
David J Eicher and Brian May	*Mission moon 3-D.*

Saturday

David J Eicher	*Galaxies: Inside the Universe's Star Cities.*
Elizabeth Tasker	*Landing on an asteroid: The Hayabusa 2 mission.*
Paul Abel	*Visual observation of the planets.*
Allan Chapman	*Comets, Cosmolgy and the Big Bang: An Astronomical Odyssey across 300 years.*
Suzie Imber	*Mercury: First Rock from the Sun.*
Lucy Hawking	*Big questions, black holes and fond memories.*
Kathy Romer	*The Dark Energy Survey and the beginning of an industrial revolution in cosmology.*
Simon Porter	*New Horizons: The fly-by of 'Ultima Thule'.*

Dr Alan Chapman

Conference Chairs, Dr Stuart Clark and Professor Lucie Green.



Simon Porter from New Horizons mission.

mage 5, PlaneWave Dall-Kirkham astrograph.

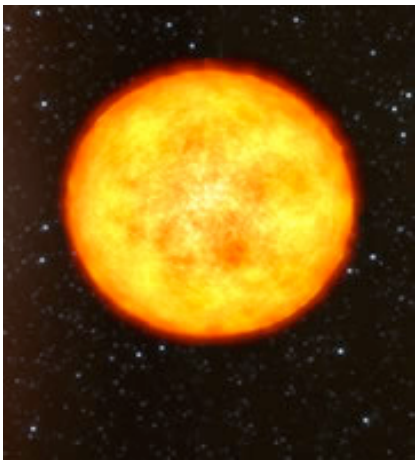
Image 6, Lunt LS80T Ha Solar te lescope

Image 4: 28cm Celestron Rowe-Ackermann astrograph.

A very old star: HE 1523-0901

A short missive from the library, concerning a very old star.

Andy Willshere.



Picture credit: ESO. Artist impression

HE 1509-0901, is a Red Giant star situated in the southern part of the Constellation Libra, in our Milky Way. The star exists at a right ascension of 15h 26' and a declination of - 9^0 11', with an apparent magnitude of 11.1. It is a metal poor star, very scarce in elements heavier than hydrogen and helium. It has an iron content of 11/10,000 of the Sun.(11*10-4).

According to the ESO's (European Southern Observatory: Chile) Very Large Telescope, the age of HE 1509-0901 is approximately 13.2 billion years and is therefore considered as one of the oldest stars in the universe. This age was calculated by using the radioactive decay of elements uranium and thorium alongside information obtained from the neutron capture elements, iridium, europium and osmium. Neutron capture occurs as a nuclear reaction in which atomic nuclei of one or more neutrons end up in a collision and combine to form a heavier nucleus. The star was found in the Hamburg/ESO; HES survey whilst looking for metal poor halo stars, by a group of astronomers headed by Anna Frebel. Initially this survey was designed to look for very bright quasars before using the plates to investigate metal poor stars.

The HES used photographic plates obtained from the ESO Schmidt telescope and its 4^0 prism.

The chemical history of galaxies can be reconstructed by analysing stars which contain the least content of metals. One important measurement is the calculation of ages of the oldest halo objects using ratios of radioactive elements as described above. The half life of uranium and thorium are 4.5 Gyr and 14.00 Gyr respectively. The age of the universe obtained by this method were validated to be similar to those obtained from WMAP data. It is very important to use uranium measurements as often as possible in metal poor stars. The lower carbon and nitrogen quantities are, the better are the chances of acquiring precise uranium profusion. This means that the greater content of carbon in stars the lower the chances of uranium being recorded.

Confirmation of uranium detection in the star was acquired by using the Ultraviolet-Visual Echelle Spectrograph which can be found at the ESO Very Large Telescope, achieving a very high resolving power. Two settings were used to cover the 3860 A line which is where the uranium line is located. The spectrum obtained using this method showed approximately 25 neutron capture elements with robust lines, associated with the r process. (rapid neutron capture).

To verify the age of the star, three types of chronometric processes were used to calculate the profusion of thorium, uranium and r process elements that occur naturally. Different quantity ratios were calculated from the above elements, leading to a group of ages. Weighted averages of all ages calculated, produced a quantitative result. In the case of HE1523-0901, this was 13.2 Gyr. Recent papers written about the star use all three types of chronometric calculations. This greatly enhances the accuracy of the age, as previously only one, or at best two methods were utilised. The age that was designated to HE1523-0901 reveals it was destined to be an early population II star. These stars occupy the stellar halo and bulge, have a mass of about 0.8 solar masses and are 10 to 13 billion years of age. They travel in a random and elliptical motion. Halo stars are found to be metal poor away from the centre.

HE 1523-0901 was formed perhaps just half a billion years after the Big Bang and unlike its peers was not as massive, or fast burning nor having a reduced lifespan, but just became very old. Within its spectrum, some heavy elements such as uranium were found, which are considered to have been acquired by contamination from a binary star due to a supernova event. (Qian and Wasserburg). The profusion of atmospheric chemicals in the atmospheres of metal poor stars

conserve the basic elements from which they were formed. It is due to this that an established method of identifying the Universes early history was promulgated.

References:

- https://www.britannica.com/science/neutron-capture
- https://iopscience.iop.org/article/10.1086/518122/pdf
- Frebel, A., et al. 2006, ApJ, 652, 1585
- The stellar content of the Hamburg/ESO survey·IV. Selection of candidate metal-poor stars
- https://www.researchgate.net/profile/Anna_Frebel/publication/.

Novae

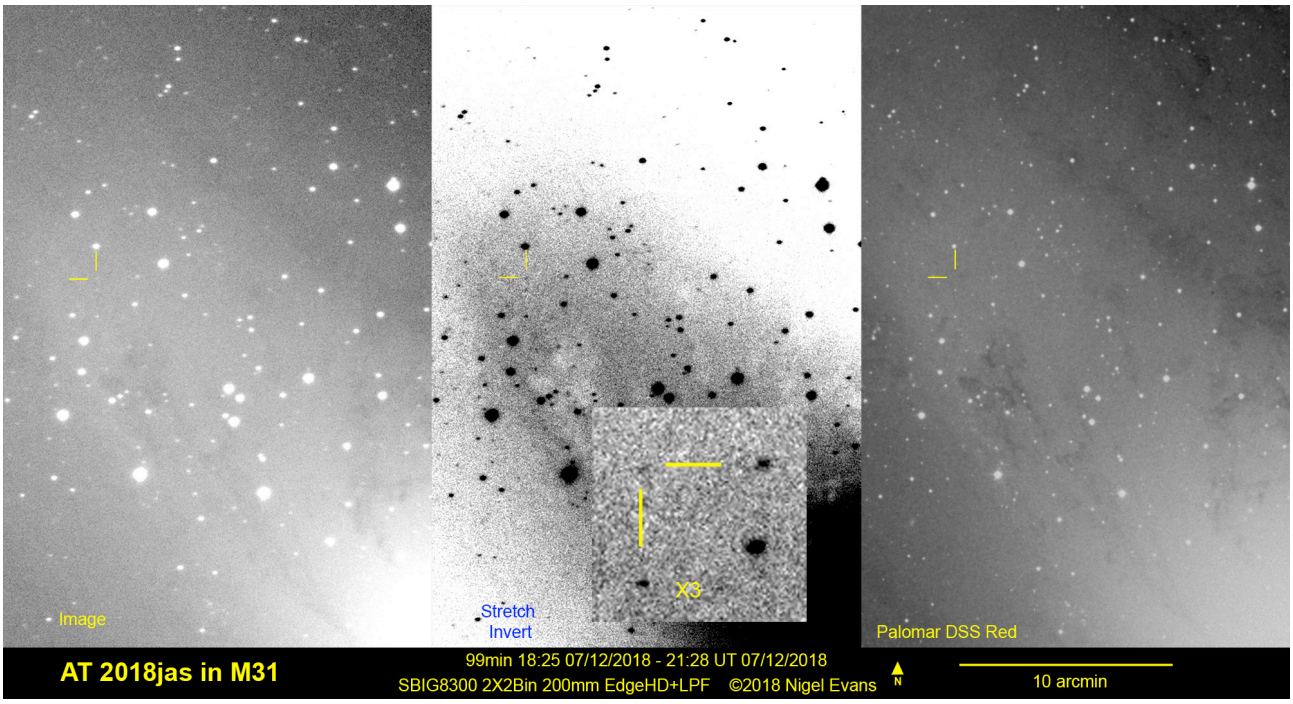
Nigel Evans

M31

A nova was recently reported in M31 https://britastro.org/node/16532

As M31 is virtually overhead at sunset I thought I would give this a go. A fair number of images were lost due to cloud and poor guiding.

Hmm, it really is at the limit of what I can detect, and only know it is a new object because somebody else said so.



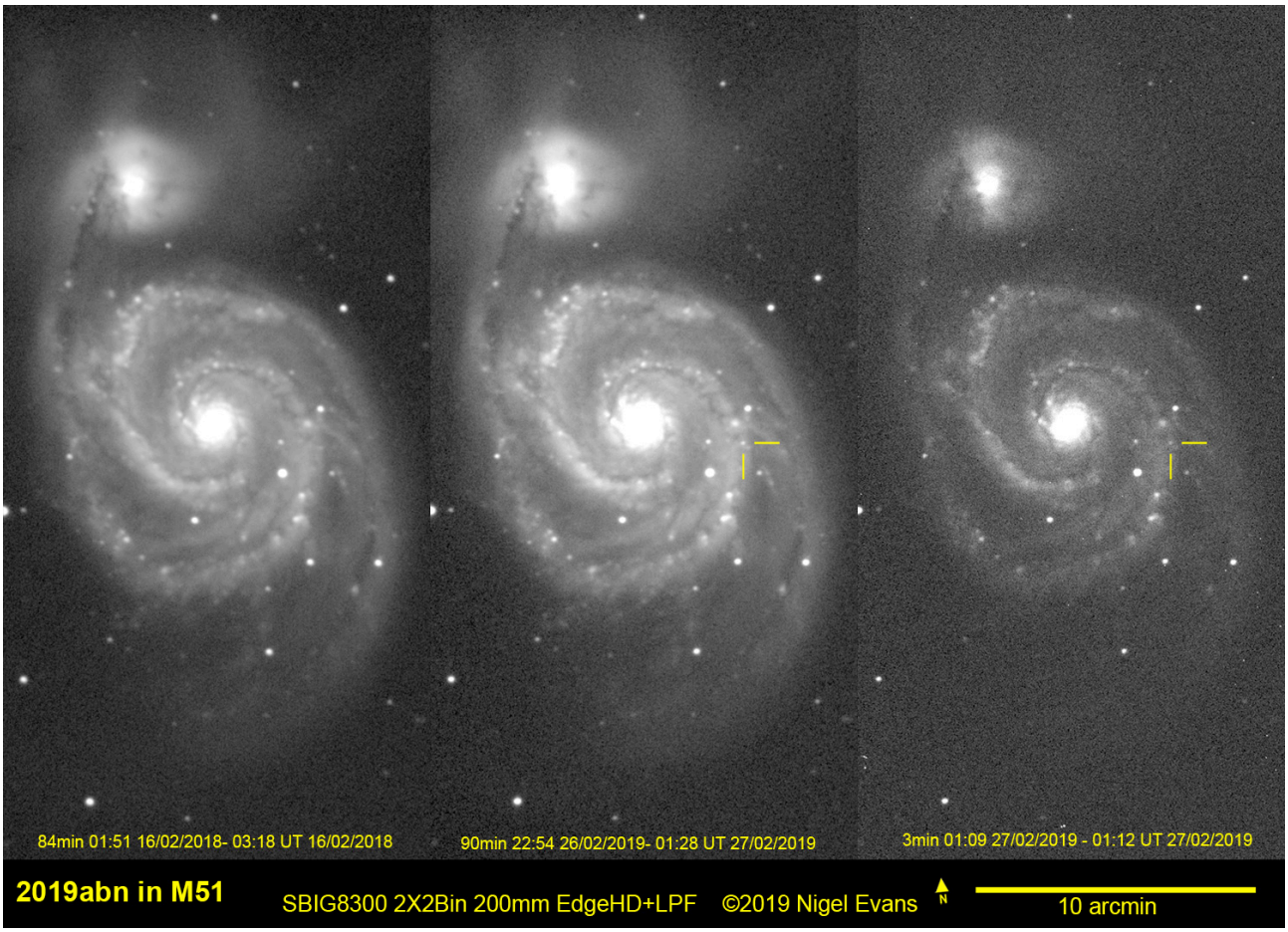
M51

After my recent effort to record a nova in M31 I thought I would try another one in M51:-)

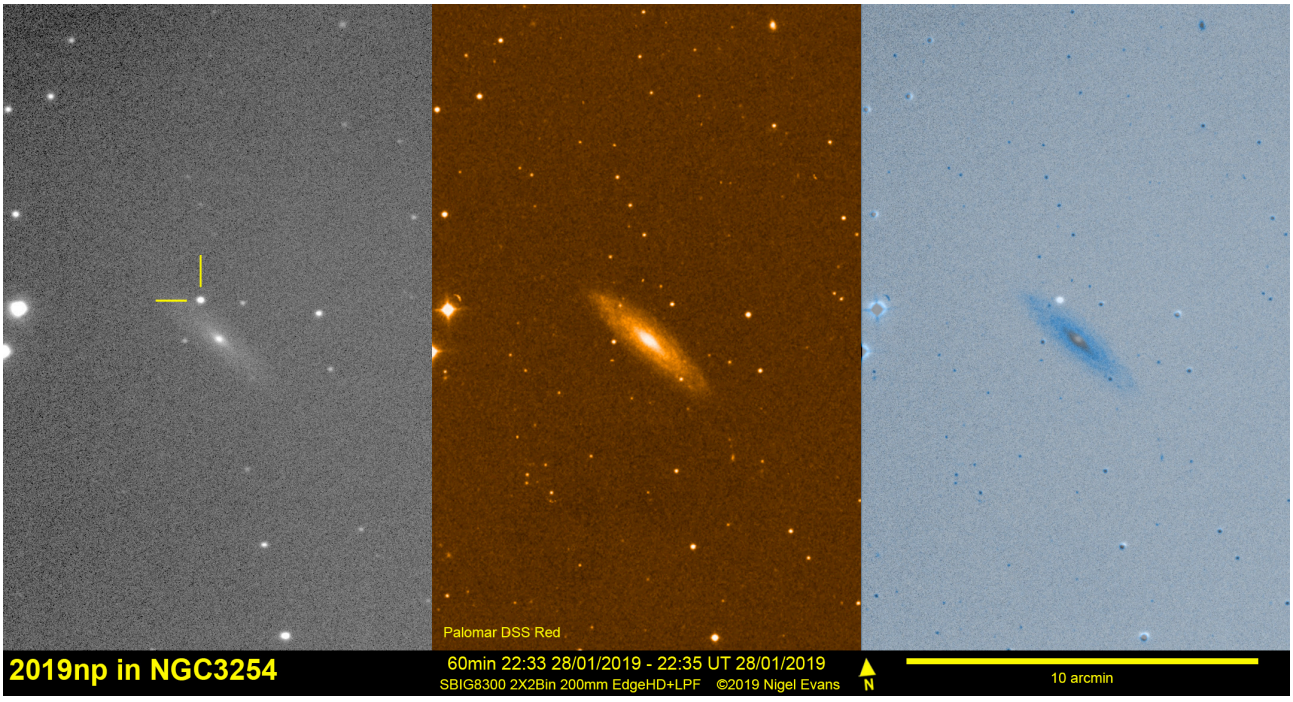
For once I could use my own reference image, rather than going to the Palomar DSS as is normally the case for obscure NGC/UGC galaxies.

AT2019abn http://www.rochesterastronomy.org/supernova.html#2019abn looks like a supernova but is actually a LBV. LBV? LBV is a Luminous Blue Variable which can show sudden massive outbursts in luminosity, mimicking a supernova https://en.wikipedia.org/wiki/

Luminous blue variable . It is currently around Mag 17, so it records well in longer exposures, but is actually seen in a single 3minute sub-frame.



Supernova in NGC3254



Supernova in NGC3254 (Jan 29)