No. 526 Registered Charity 271313 November 2016

OASI News

The newsletter of the Orwell Astronomical Society

NGC7635 – The Bubble Nebula

Photo: David Murton

Pictures

David Murton

Taken over Sunday and Monday evenings (9, 10 October). Canon 60Da and Skywatcher 200PDS

The Bubble nebula (cover) is 15x420 seconds.ISO400.

The Elephant's Trunk nebula IC1396 is just 3 frames between the clouds.

Orion nebula taken on Friday night (30 Sept) at Haw Wood Farm caravan site.

A mosaic of two pictures each stacked from 5 frames and were taken using my Canon 60Da camera on a Skywatcher Star Adventurer mount, using an Olympus 200mm lens.

Contents

Society Contact details

Observatory (meeting nights only) 07967 519249

Email queries: info@oasi.org.uk

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

Twitter: @OASIpswich

The OASI Facebook pages are now 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 or emailed directly to those who only receive the e-version of the News.

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, 07967 519249 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

The key to the toilets in the school gym is located in the seating area in the Belvedere room.

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."*?

Articles win points! See page 15.

The full colour version is available from the OASI web site.

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

Committee 2016

Chairman	David Murton	Set overall agenda for OASI, Chair committee meetings, Press and publicity, 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, Visits by outside groups, Observatory tours, Public appreciation of astronomy (jointly with Chairman).
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
	John Wainwright	Equipment curator
	Mike Whybray	Astronomy Workshops, Child protection officer, Orwell Park School Astronomy Club.
	Avtar Nagra	Newbourne Observing Group
	Matt Leeks	Safety & security
Co-opted	Andy Wilshere	Librarian

Society Notices

Contacts

A printed list of Committee and other activity contacts is available from the Secretary or the Observatory. Email links are available in the A4 pdf version of this newsletter.

For general enquiries please email info@oasi.org.uk and your enquiry will be forwarded for action.

Next Committee Meeting

AGM, Saturday 21 January 2017, Museum St Methodist Church Hall, starting 7.30pm (note start is earlier than usual).

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.

Welcome New Members

Rob Herring Martyn Andrews

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.

Download the OASI 2016 year planner from the web site. An A3 printer is advised.

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

Date and 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
Friday 28 Oct – Sunday 30 Oct	Haw Wood Farm Caravan Park, Hinton, Saxmundham. IP17 3QT	www.hawwoodfarm.co.uk	Haw Wood Star Party www.brecklandastro.org.uk/bas-star-parties/
Monday 31 October From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group Workshop on the Millennium Telescope
Friday 4 November	Felixstowe Golf Club	David Murton chairman@oasi.org.uk	Meal + observing
Tuesday 8 November	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Friday 11 November	Methodist Church Hall Black Horse Lane, Ipswich	Pete Richards lectures@oasi.org.uk	Lecture Meting: Steve Hubbard & Malcolm Brown *"Aliens – Are they out there?"*
Monday 14 November From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 19 Nov	Cedarwood School, Kesgrave	David Murton chairman@oasi.org.uk	**Public Observing**
Monday 28 November From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 13 December 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Wednesday 14 Dec	The Newbourne Fox.	Roy Gooding secretary@oasi.org.uk	Christmas Meal. **See page 11**
Monday 19 December From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group Christmas event

Date and Time	Location	Contact	Event
Monday 22 December 06:36	TBA	James Appleton info@oasi.org.uk	Field trip to observe graze of Hipparcos 63099. More info.
2017			
Tuesday 10 January 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Monday 16 January From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 21 January 19:30	Methodist Church Hall Black Horse Lane, Ipswich	Roy Gooding secretary@oasi.org.uk	**The AGM**
Monday 30 January From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 7 February 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Monday 13 February From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Monday 27 February From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Monday 13 March From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 14 March 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Monday 27 March From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Monday 10 April From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Tuesday 11 April 20:00	Orwell Park Observatory	Paul Whiting treasurer@oasi.org.uk	Observatory visit. Booking essential.
Monday 24 April From 19:00	Newbourne Village Hall	Avtar Nagra nog@oasi.org.uk	Newbourne Observing Group
Saturday 29 July	UCS, Ipswich	David Murton chairman@oasi.org.uk	**OASI 50th Anniversary**
21 August	USA	www.greatamericaneclipse.com	Total solar eclipse

Later 2017 NOG dates, up to the end September, are on the website.

Newbourne Observing Group

Avtar Nagra nog@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).

The Newbourne Observing Group (The NOGs) 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.

The car park at Newbourne Village Hall has recently been much enlarged. OASI donated £100 towards this much-needed improvement.

The new carpark at Newbourne Village Hall

Newbourne Observation Group Stargazer's guide

On the first meeting each month Bill Barton 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.

NOG Meetings in 2016

31(W) Oct	14(S) & 28 Nov	19 Dec Christmas meeting

The December Christmas meeting has been put back by a week to avoid the Christmas meal and NOG meeting occurring within 3 days of each other.

NOG Meetings in 2017

6 Jan	30 Jan	13 Feb	27 Feb
13 March	27 March	10 April	24 April
15 May	29 May	12 June	26 June
10 July	24 July	14 Aug	28 Aug
11 Sept	25 Sept		

We open up for all meetings at 7pm. Star Guide (S) and Workshops (W) start at 8pm.

Please check the web site diary for any changes during the year.

Astronomy Workshops

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

Doors open at 7:00pm. **Workshops start at 8:00pm**

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.

31 Oct: David Murton: Assembly and use of the Millennium Telescope – our 482mm Dobsonian. http://www.oasi.org.uk/Telescopes/MT/MT.php

OASI Millennium Telescope - Oct 2010

TBA Andy Gibbs: The Society's Atik Infinity CCD camera

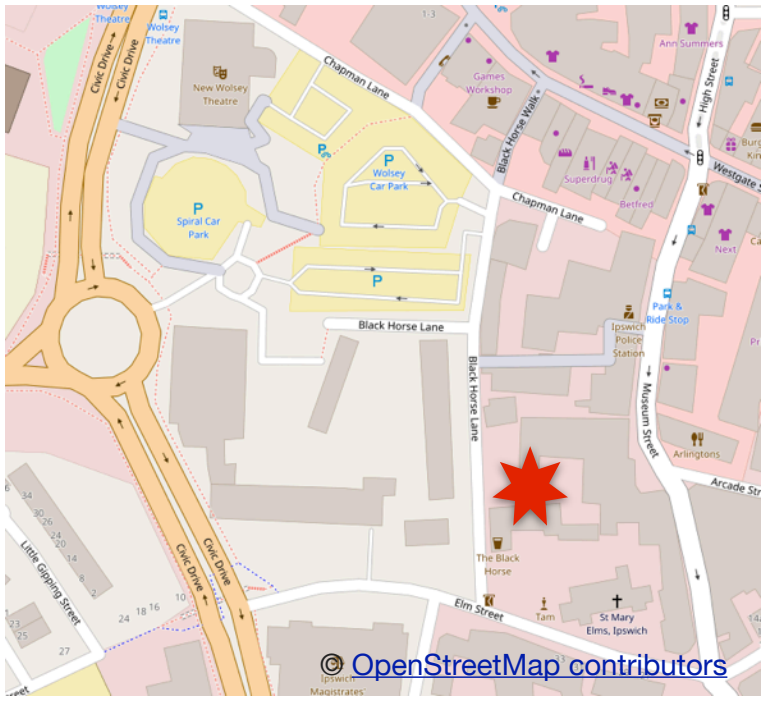
Do you have a subject you could workshop? You could do a short one, or share the effort with a partner. Drop Mike Whybray a line! workshops@oasi.org.uk

Lecture Meetings

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

These take place in Museum Street Methodist Halls, Upstairs room, Black Horse Lane, Ipswich

There is some parking at the venue but if there is no space at the venue you can drive to the end of Black Horse Lane and turn left to find a pay and display car park which charges (at the time of writing) £2 for parking between 6pm and 6am. There is also the spiral car park by the New Wolsey theatre.



November 11:

Steve Hubbard & Malcolm Brown

"Aliens – Are they out there?"

DASH Astro Events – 2016

See http://dash.moonfruit.co.uk for the latest details.

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

Observing sessions:

Nights: 29 Oct, 26 Nov

The 2016 OASI Christmas Meal

Venue: **The Fox Inn, Newbourne www.debeninns.co.uk/fox/**

Date: **Wednesday 14th December**

Time: **20:00**

Deposit **£5** **Balance: £14:95**

Starters

- Pinney's Of Orford Smoked Mackerel & Roasted Beetroot Salad With horseradish dressing
- Roast Pear, Walnut & Stilton Salad with parsnip crisp & cranberry sauce
- Cream Of Winter Vegetable Soup with 'Woodbridge Cake Shop' bread
- Tempura King Prawns with sweet chilli sauce

Main

- Roast Norfolk Turkey with Chestnut stuffing, roast potatoes, 'Proctors' pigs in blankets and gravy
- Fillet Of Cod served with a pesto mash, confit of cherry tomatoes & peppers
- Venison & Wild Mushroom Burger with smoked cheddar, pancetta, served with chips & onion marmalade
- Nut Roast Wellington, served with roast potatoes and a red wine gravy
- Slow Roasted Pork Belly, served with bubble & squeak, creamed celeriac & an Aspall Cyder gravy

Sweet

- Christmas Pudding ** From The Ultimate Plum Pudding company served with a brandy sauce
- Lemon Sponge Pudding
- Chocolate Brownie with peanut butter ice cream
- East Anglian Cheeses with grapes, chutney & oat cakes

**Indicates this dish is Gluten free or a Gluten free alternative is available

Please contact Roy Gooding ASAP with your menu choices and deposit.

I would like to complete all orders and deposit by the beginning of November

secretary@oasi.org.uk **L 01473 462977** **M 07719 621162**

The Night Sky in November

Martin RH

All event times given are for the location of Orwell Park Observatory 52.0096°N, 1.2305°E

Times are in UTC(GMT).

Moon

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

New Moon	1st Quarter	Full Moon	Last Quarter
30 Oct 17:38	07 Nov 19:51	14 Nov 13:52	21 Nov 08:33
29 Nov 12:18			

Sun, Moon and planets

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

Object	Date	Rise	Set	Mag.	Notes
Sun	1	06:51	16:26		
	30	07:40	15:48		
Moon	1	08:12	17:47		Perigee 14 Nov 11:22 Apogee 27 Nov 20:09
	30	08:03	17:00		
Mercury	1	07:12	16:26	-0.7	
	30	09:33	16:28	-0.4	
Venus	1	10:36	17:50	-3.8	
	30	11:10	18:31	-4.1	
Mars	1	13:09	20:43	0.4	
	30	12:05	20:54	0.6	
Jupiter	1	04:11	15:35	-1.5	
	30	02:48	13:51	-1.6	
Saturn	1	10:01	18:03	1.4	
	30	08:24	16:20	1.4	
Uranus	1	15:50	05:13	5.7	Uranus was at opposition on 15 Oct
	30	13:54	03:14	5.8	
Neptune	1	14:41	01:10	7.9	
	30	12:46	23:11	7.9	

Occultations during October 2016

James Appleton

The table lists occultations during the month under favourable circumstances. 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 Nov	23:33:48	D	0.72+	-55	13	6.2	81 Aqr
10 Nov	21:42:35	D	0.81+	-49	33	5.9	24 Psc
12 Nov	19:12:59	D	0.95+	-28	31	4.4	nu Psc

Paul's Astronomy Podcast for November

Paul Whiting FRAS Podcast, November 2016 www.oasi.org.uk/2016_11 _pod.mp3

With this month's podcast we have now completed 5 years and started on year 6 with the 61st such monthly podcast.

David's Radio Broadcast

Now 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).

Bill'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

Visible ISS passes ≥15º max altitude

Martin RH

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

All early morning passes this month.

Times are UTC. Predictions are approximate (data taken on 23 Oct) due to craft adjustments. Check the day before.

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
04 Nov	-1.1	05:32:56	10°	SSW	05:35:37	24°	SSE	05:38:20	10°	E
05 Nov	-0.7	04:41:47	12°	S	04:43:18	16°	SE	04:45:25	10°	ESE
05 Nov	-2.6	06:16:04	10°	WSW	06:19:16	54°	SSE	06:22:28	10°	E
06 Nov	-2.1	05:24:29	15°	SW	05:26:48	39°	SSE	05:29:53	10°	E
07 Nov	-1.6	04:34:23	27°	SSE	04:34:23	27°	SSE	04:37:12	10°	E
07 Nov	-3.2	06:07:17	10°	WSW	06:10:32	74°	S	06:13:48	10°	E
08 Nov	-3	05:16:48	33°	SW	05:18:00	59°	SSE	05:21:15	10°	E
09 Nov	-1.6	04:26:29	32°	ESE	04:26:29	32°	ESE	04:28:37	10°	E
09 Nov	-3.3	05:59:07	14°	W	06:01:49	85°	S	06:05:06	10°	E
10 Nov	-3.4	05:08:44	60°	WSW	05:09:13	78°	S	05:12:30	10°	E
11 Nov	-1.1	04:18:18	26°	E	04:18:18	26°	E	04:19:53	10°	E
11 Nov	-3.4	05:50:56	20°	W	05:53:03	84°	S	05:56:19	10°	E
04 Nov	-1.1	05:32:56	10°	SSW	05:35:37	24°	SSE	05:38:20	10°	E
05 Nov	-0.7	04:41:47	12°	S	04:43:18	16°	SE	04:45:25	10°	ESE
05 Nov	-2.6	06:16:04	10°	WSW	06:19:16	54°	SSE	06:22:28	10°	E
06 Nov	-2.1	05:24:29	15°	SW	05:26:48	39°	SSE	05:29:53	10°	E
07 Nov	-1.6	04:34:23	27°	SSE	04:34:23	27°	SSE	04:37:12	10°	E
07 Nov	-3.2	06:07:17	10°	WSW	06:10:32	74°	S	06:13:48	10°	E
08 Nov	-3	05:16:48	33°	SW	05:18:00	59°	SSE	05:21:15	10°	E
09 Nov	-1.6	04:26:29	32°	ESE	04:26:29	32°	ESE	04:28:37	10°	E
09 Nov	-3.3	05:59:07	14°	W	06:01:49	85°	S	06:05:06	10°	E
10 Nov	-3.4	05:08:44	60°	WSW	05:09:13	78°	S	05:12:30	10°	E
11 Nov	-1.1	04:18:18	26°	E	04:18:18	26°	E	04:19:53	10°	E
11 Nov	-3.4	05:50:56	20°	W	05:53:03	84°	S	05:56:19	10°	E
12 Nov	-3.4	05:00:28	86°	SE	05:00:28	86°	SE	05:03:43	10°	E
13 Nov	-0.6	04:09:58	19°	E	04:09:58	19°	E	04:11:03	10°	E
13 Nov	-3.3	05:42:36	27°	W	05:44:13	70°	SSW	05:47:28	10°	ESE
14 Nov	-2.9	04:52:06	60°	ESE	04:52:06	60°	ESE	04:54:51	10°	E
14 Nov	-2.3	06:24:48	10°	W	06:27:50	36°	SSW	06:30:52	10°	SE
15 Nov	-0.1	04:01:35	15°	E	04:01:35	15°	E	04:02:12	10°	E
15 Nov	-2.9	05:34:13	34°	WSW	05:35:16	50°	SSW	05:38:27	10°	SE

Date	Mag	Start			Highest point			End		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
16 Nov	-2	04:43:44	37°	SE	04:43:44	37°	SE	04:45:54	10°	ESE
16 Nov	-1.6	06:16:22	11°	W	06:18:43	22°	SSW	06:21:19	10°	SSE
17 Nov	-2.3	05:25:55	31°	SW	05:26:12	32°	SSW	05:29:09	10°	SE
18 Nov	-1	04:35:29	21°	SE	04:35:29	21°	SE	04:36:46	10°	SE
19 Nov	-1.3	05:17:45	18°	SSW	05:17:45	18°	SSW	05:19:25	10°	SSE

Iridium flares

Too many to list but see http://heavens-above.com/IridiumFlares.aspx

Another bright satellite: Tiangong-1

The Chinese space station Tiangong-1 is assumed to be out of control and will re-enter the atmosphere at some point in the next couple of years. It is probable that some large pieces will survive re-entry and hit the Earth's surface. It's impossible to say when and where the re-entry will take place, but it's unlikely to be over a populated area.

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

Meteor Showers

Source: BAA Handbook 2016 p97-99

Shower	Limits	Maximum	ZHR at Max	Notes
Taurids	Oct 20 – Nov 30	Nov 5 Nov 12	10	Slow meteors. Double radiant. Broad peak λ_0 =220º – 230º. Sometimes more bright events, as in 2005.
Leonids	Nov 15–20	Nov 17 04^h	207	Very fast meteors, many with persistent trains. Enhanced activity unlikely until late 2020s but observations still important. Unfavourable.

OASI Member of the Year Competition

- Open to any non committee member (at time points earned)
- Runs from 1st September to 31st August each year
- Winner gets a free membership for the following year
- It is the members responsibility to check that they have been credited the points for a particular event

Activity	Points	Activity	Points
Helping at an OASI outreach event	10	Writing a newsletter article (per page)	3
Giving a workshop/monthly sky notes	20/10	Introducing a new member	5

Members' points to date

Adam Honeybell	**10**
Alan Smith	**6**
Andy Gibbs	**23**
Bill Barton	**45**
Joe Startin	**19**
Mike Nicholls	**20**
Mike Norris	**20**
Mike O'Mahoney	**13**
Nicky Richards	**10**
Nigel Evans	**3**
Tina Hammond	**10**

It would be nice to see some new names in the 2016–17 list. Don't be shy.

Come and help at one of our outreach events and earn 10 points. You don't need to be an expert!

Write a short article for the magazine, e.g.

> Bought some new astronomy kit? Tell us about it – successes and pitfalls.

We are all learners.

Martin RH

Outreach events

Martin Richmond-Hardy

> *OASI is a society for anyone interested in astronomy.*
>
> *Members enjoy a wide range of interests in astronomy. They include those with a casual interest, through occasional observers, to dedicated amateurs with specialist skills in visual and photographic observing, constructing telescopes, public education in astronomy and the history of astronomy. We encourage and support the astronomical activities of our members.*
>
> Source: http://www.oasi.org.uk

OASI has over many years been involved in organising a variety of public observing events as part of our commitment to education. Resourcing for these events has proved problematic, mainly due to the number of members prepared to assist, with or without astronomical instruments.

This article looks at the various types of events with which OASI has been involved and aims to help selection of the most effective events within the constraints of OASI resources.

The major challenge and uncertainty, apart from resourcing, is the weather.

Types of observing

Daytime

Daytime events enable easy interaction with visitors who can also be introduced to nighttime observing through displays and experiencing the variety of telescopes, binoculars, astrophotography.

Given suitable weather and astronomical conditions, visitors can experience observing the Sun, Moon and Venus.

Nighttime

Dealing with large groups in the dark brings a number of challenges. Help is needed in meeting & greeting, fitting visitors to telescopes, finding an expert to answer the difficult questions. You don't have to know the answers yourself.

Organisation and hosting

Organised by OASI

Apart from seeking permission to use a particular site or facility, the responsibility for organisation is down to OASI.

- Lecture (if a suitable indoor facility is available)
- Displays & shelter for these.
- Equipment (telescopes, binoculars, projector, screen, etc.)
- Operators
- Helpers (without instruments)
- Action in the event of unsuitable weather (cancel or demonstration and talk)

Hosted by external bodies

(e.g. the Newton Park events, Jimmy's Farm) who may charge the public and operate a booking system.

OASI responsibilities as above but cancellation is unlikely to be an option. Hence a firm commitment of resources (with a contingency) must be obtained well in advance.

Locations

Locations with no wet/cloudy weather accommodation

Many parks, other open public spaces, village fetes, sidewalks[1], pubs,

Locations with lecture or demonstration facilities

Libraries, Christchurch Park (Reg Driver Centre), golf clubs, schools & colleges, church & village halls, pub with function room.

Accommodation at OPS observatory is not suited to large group presentations.

Number of visitors

This can range from a handful (disappointing) to hundreds (challengiing!) and cannot always be predicted. The number of instruments and helpers needs to be planned accordingly.

Cancellation

This can sometimes be done via social media and our web site, through which the event has been advertised.

BUT If the event is a booked and/or paid event, cancellation is not an option.

Similarly, a large scale free event may have attracted visitors via word of mouth, posters and we have no means of contacting these people.

Small pop-up sidewalk events can be cancelled but some people may be disappointed if this has been advertised.

The bottom line: Your Society needs You!

[1] See http://www.sidewalkastronomers.us and https://en.wikipedia.org/wiki/Sidewalk_astronomy

Astronomical Manoeuvres in the Dark or

A Grazing Occultation of 20 Geminorum

James Appleton

A trip to Snape Maltings always generates anticipation and my journey there at half-past four in the morning on 21 October was no exception. The occasion was the graze2 of the magnitude 6.7 star 20 Geminorum. Astronomical circumstances of the event were reasonable, although not outstanding and, given the many successful observations of grazes in recent years by members of OASI, expectations were high.

The alarm clock sounded at 4.00am. Looking out of the bedroom window, I could see in the sky much patchy cloud and an intermittently visible Moon. Clearly, luck would be the primary determinant of whether observations would be possible. Having loaded the car the previous evening, I was able to leave home at 4.15am. Traffic on the road at this hour was very light, enabling speedy progress, and I arrived at the observing site, on a minor road off the B1069, some 1.1km due west of Snape Maltings, at 4.50am.

Alan Smith and Mike O'Mahony were already on site. Alan had surveyed the location some weeks previously, finding a large, flat, sandy area, with a good southern aspect above a line of trees. Unfortunately, rain in recent days had turned the ground swampy, with many large puddles and much mud! Alan and Mike supervised some manoeuvring before I could park on an island of dry land and exit the car without needing Wellington boots.

The sky by now was a lot cloudier, with stars only occasionally visible. We agreed to wait, to see what the weather would do, before setting up our equipment. Shortly after 5.00am fine, misty rain began and, a few minutes later, Martin Cook arrived. We chided him that he had brought the rain. Alas the rain did not stop; instead, at 5.20, it became very heavy and we decided to cancel the event and return home.

By 6.00am, the predicted time of first contact of the graze, I was at home looking at the sky. To my intense frustration, the rain had stopped and the sky was clear and very transparent (the rain having washed out the dust particles). It seemed that we had been unlucky on site: had the rain arrived some 20 minutes earlier, we would not have been troubled by it and would likely have enjoyed a successful observation.

The next graze is of the magnitude 7.7 star Hipparcos 63099 at 6.36am on 22 December – contact me or Alan Smith if you are interested in observing it.

James Appleton

Track shown in the picture.

Details at:

http://www.oasi.org.uk/Occs/Occ_summary_2016.php#Grazes

2 A graze or grazing lunar occultation occurs when the Moon passes in front of a star such that its northern or southern limb only just obscures the latter. A graze is visible from a narrow track across the Earth's surface. If the observer is located on the graze track, he/she may see the star appear to flash off and on as it is obscured and revealed by mountains and valleys on the limb.

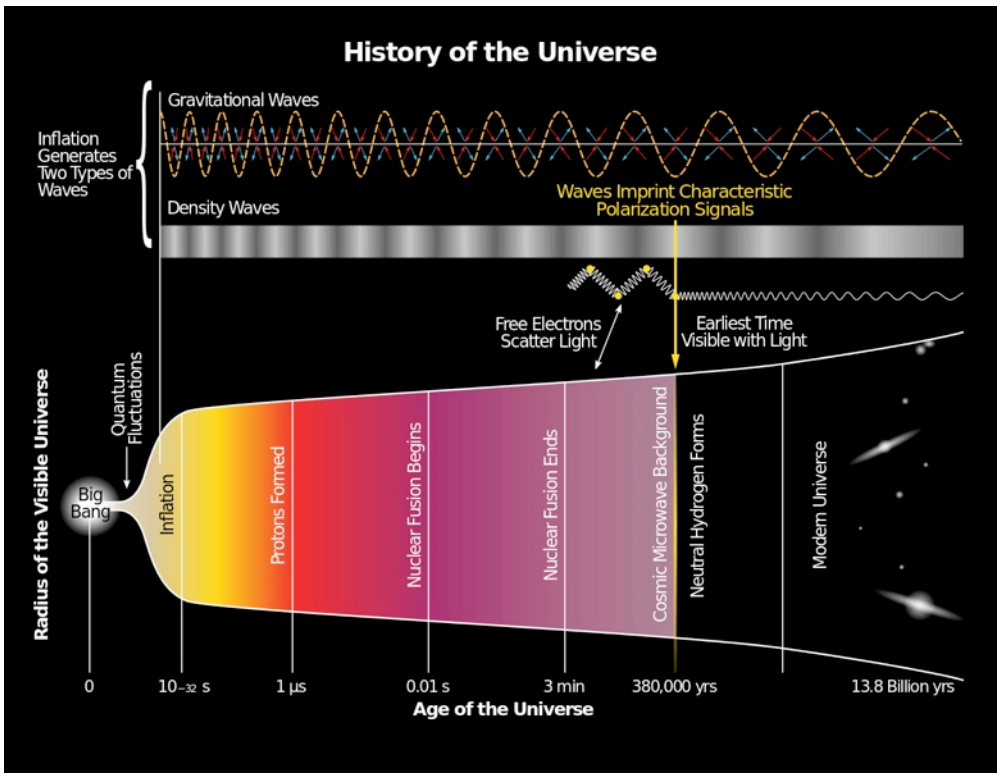
OASI Library

Andy Willshere

Hi, it's the library here.

Instead of bringing you a short synopsis of one of our ancient books, I thought that a brief look at a few key facts and ideas within the evolving universe would make a pleasant break:

The first of these key ideas is **inflation**. This was a concise interval of rapid exponential expansion, which began immediately after the Big Bang. This lasted from t ~ 10^{-36} to 10^{-34} s. Within this miniscule time frame the universe expanded to proportions many times greater than it would have reached via its normal expansion rate. Because of this, much of the material originally close to our area, was moved away from our observable limits. Today it is still expanding.



Source: https://en.wikipedia.org/wiki/Inflation_(cosmology)

The second of these key ideas is one of the main features of quantum theory. This is **Heisenberg's uncertainty principle**. One way of expressing this as a formula is:

$\Delta E \Delta t > h/2\pi$. where *h* is the Plank constant.

The usual interpretation of this principle is that we are unable to perceive the exact energy of a particle and the exact time that the energy is measured. If we wish to ascertain the energy of a given particle to an uncertainty of ΔE, then the time taken for it to be measured has got to be at least Δt. From this we assume that we cannot know both the energy and the time to be more specific. If this is applied to empty space it becomes mind blowing. Have a think for a second of the following. If we acquire a small container and completely empty it of all particles and it is shielded from the outside world. i.e. pretty empty!!! We can assume that the energy density inside the container would be zero. However the Heisenberg uncertainty principle would suggest otherwise. If space were empty of particles it would be sensible to suggest that the energy where this part of space exists at this point in time would be zero, but this violates the principle as we would know the energy exactly at this point. We are therefore directed to consider that even in empty space ΔE could exist for a short period of time (Δt).

The third and final point is the **anthropic principle**. This is the concept that the Universe must be able to give rise to life, and can be segregated into two basic models: the weak and the strong.

The difference between the two is that the weak principle suggests that the initial conditions of the big bang were ideal at that time to allow eventually the materialisation of carbon-based life, whilst the strong principle suggests that the Universe by force of circumstance had the primary conditions to allow carbon based life to emerge.

I hope that you find this a useful break from the book reviews.

Andy

References:

Jones,Mark.H,. Lambourne, Robert.J.A. An Introduction to Galaxies and Cosmology.

Kaufmann, William.J,III. Universe. Fourth edition. This book is held in the OASI library.

Naïve user tackles the Celestron NexStar 8SE

Joe Startin

The graze of 87 Ceti by the Moon early on 20 September 2016 was unobserved by members of the society because of poor conditions. However, I had borrowed the Celestron NexStar 8SE telescope in anticipation, and I did get some practice with it two evenings before.

I downloaded the manual easily enough from the Celestron website. It has 52 pages, but only about 20 of these related to actual use. And some of them can be ignored, as the wedge for polar alignment is absent – we have a strictly Alt-Azimuth, 'Go To' telescope.

The optical tube has an 8 inch reflector, with a focal length of 2032 mm, but because of the Schmidt-Cassegrain configuration it is remarkably compact. It is easy enough to detach from the mount and carry around. Getting the rest of the thing down from the Observatory it was soon evident that the handset was located on the mount only with the help of gravity. If you tape it in, it is easy enough to transport the tripod and mount together, and the whole item easily fitted into the boot of my car.

Use a spirit level to set up the tripod and mount. (The manual says to level the top of the tripod, then to attach the mount. This is not necessary.) Attach the optical tube the right way up, ensuring that the focusing knob is at the bottom. This may seem obvious, but the current location of the finder-scope is confusing. The obvious position for it is occupied by a large lug which can be used when aligning with a StarSense camera. It means the finder-scope is inconveniently low. The optical tube also needs to be clamped near its rear end, otherwise it will foul the base of the mount when observing near the zenith.

I aligned the finder-scope in daylight. You need to be looking precisely down the middle of it to see the red laser dot when it is turned on. It has no magnification, and can be used with both eyes open. Two control screws shift the finder-scope in two directions at 90 degrees (but not in alt-azimuth as the manual implies). It is easy enough to line up the red spot with the view at the centre of the eyepiece.

In retrospect, I should also have gained more familiarity with the handset in daylight. It is useful to know how to control the slew rate, and much of the alignment process can be rehearsed beforehand, even without the optical tube fitted.

I first tried set up using the 'three-star align' mode, where you point and click on any three bright and widely-separated stars. To avoid kneeling in the dirt, I used stars with an altitude less than 30 degrees. After the third star was aligned, the handset crunched the information for a while, and then said 'Match Confirmed'. It had identified the stars used, worked out its own orientation, and started tracking so that what you saw at the centre of the eyepiece followed a particular point in the night sky. (However, the pattern of stars in the field of view will rotate slowly about that point with the passage of time. Not good for most astrophotography.)

Then it was time to try the 'Go To' feature, which is what this kind of telescope is all about. Very easily I was able to get the scope to slew to the Moon, Albireo (near the zenith, so a nightmare to point at by eye), and Uranus. The subjects were not exactly central in my 63x eyepiece, but considering my location had been entered as London, I was impressed. (Despite what the manual says, you do not see your location when you start the alignment, but are sent straight to entering the time. To see your specified location, and change it if you want to, you have to use the 'Back' button immediately.)

I gave 'one-star align' a go from the balcony of the Observatory. I could see Altair, I point-aligned on it, and then did a 'Go To' for Vega. It missed, by about a third of the field of view of the finder-scope. This may not have been a fair test, as I could easily have been half a minute out with the time entry.

All in all, I was sufficiently encouraged to be happy to borrow the scope again at the next suitable opportunity.

Joe Startin © 2016

P.S. For someone thinking of getting their own telescope, there is an interesting discussion of the 8SE versus the smaller 5SE at https://www.youtube.com/watch?v=f7uURzPRiuI . For Moon and planets, where the difference in light-gathering is not so important, the 5SE is claimed to perform just as well.

CalSKY

Martin Richmond-Hardy

The calsky.com website provides a wealth of information and data. You can set you location coordinates and time zone and, for the less experienced (like me), you can set your level of expertise: Learner, Hobby, Astronomer.

The site covers Calendar, Sun, Moon, Planets, comets, asteroids, meteors, deep-sky, satellites and next launches. It's free but welcomes donations if you find the site useful.

Alerts

You can register to receive aurora alerts, good ISS passes and Iridium flares, satellites and ISS transiting the Sun or planets, your detailed daily celestial calendar, or simply get warned of the full Moon by e-mail.

Transits

If you ever wanted to see the ISS cross the front of the Sun or Moon the site provides accurate predictions for these rare events (looking at the Sun requires proper safety equipment). Get a larger chance by traveling to transits taking place within 25 km. Even want to try to catch the ISS occulting a planet or a bright star?

As an example, Tuesday 11 October saw (if you were lucky!) a transit of the Moon by the ISS, visible from the Shotley peninsula. This is what calsky.com provided.

Tuesday 11 October 2016

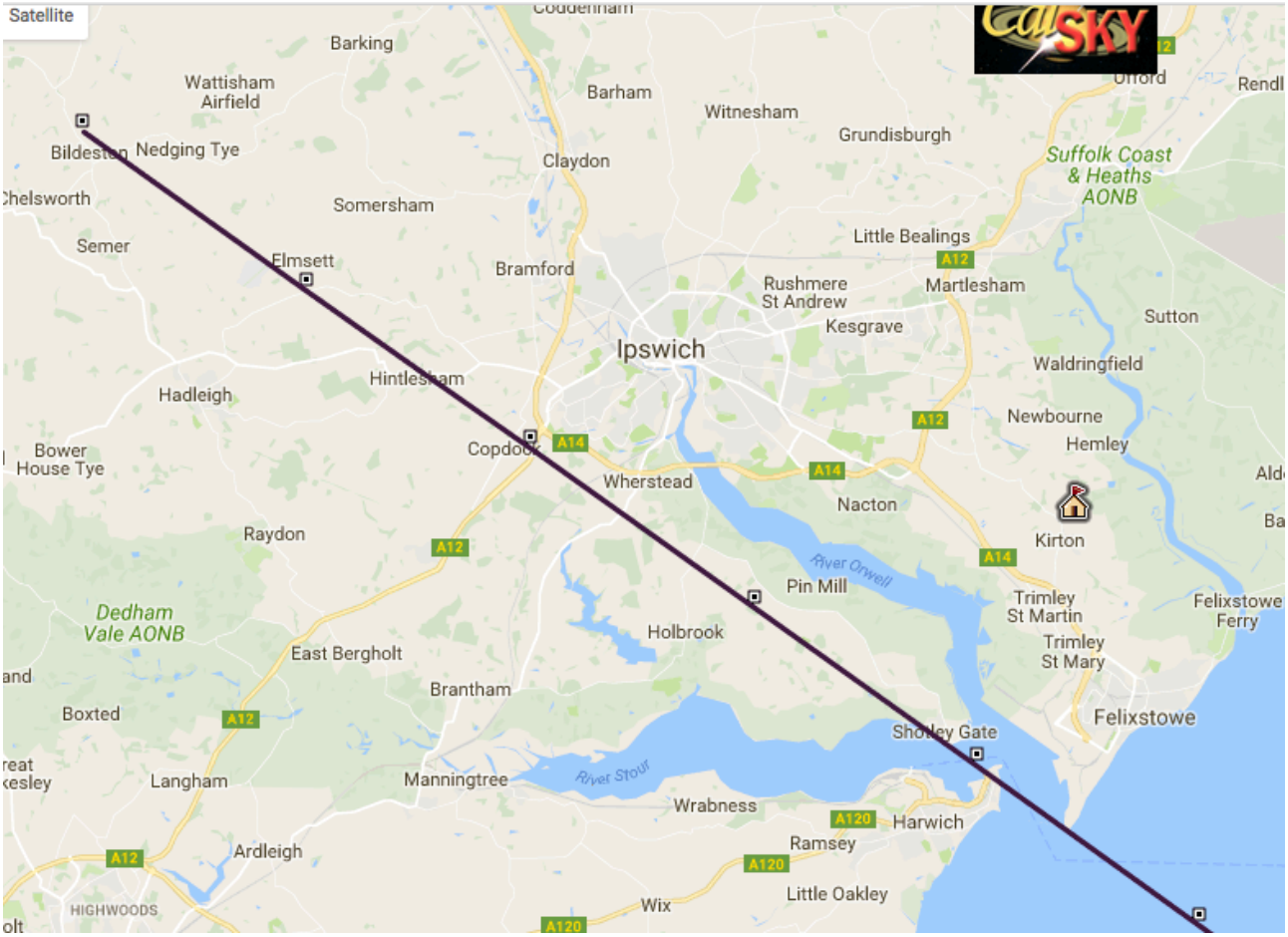
	Observer Site	Home, United Kingdom WGS84: Lon: +1d19m18.52s Lat: +52d00m34.84s Alt: 66m Geoid Alt: 21m All times in GMT or BST (during summer)epos

caltr

21h07m34.27s

ISSCrosses the disk of Moon. Separation=0.221° Position Angle=196.4°, Position angle vertex=195.3°. Transit duration=0.65s
Angular diameter=31.5" size=109.0m x 73.0m x 27.5m
Satellite at Azimuth=181.9° S Altitude= 24.1° Distance=878.7 km (in shadow)
In a clock-face concept, the satellite will seem to move toward 8:29
Angular Velocity=26.4'/s

Centerline, closest point →Map: Longitude= 1°15'40"E Latitude=+51°57'27" (WGS84) Distance=7.13 km Azimuth=215.6° SW Path direction=125.4° SE ground speed=7.867 km/s width=23.1 km max. duration=1.2 s
Sun altitude=-27° Elongation from Sun=122



The ISS transits the Moon

A group of us tried to get the ISS passing across the moon this evening but unfortunately it went behind a cloud 5 seconds before the event. The trials and tribulations if astronomy!

Would you believe that these were taken at 9:30pm by moonlight!

Elsewhere, Nigel Evans made a valiant attempt at a video.

I realised that this would also be visible from my observatory and, most importantly, not be blocked by buildings or trees! I did some preliminary tests with the Canon60Da in video mode 2 nights before.

The weather forecast was pretty grim but, as the evening wore on, there was the promise of gaps in the clouds, so it would be luck as to whether I would see it. With a few minutes to go the sky became quite clear in the south, with a westbound bank of cloud below the Moon

So did I see it? I watched the screen of the back of the camera and saw nothing but, going through the video file...

Yes, there is a moving smudge that has the right characteristics (i.e. it crosses the Moon at the right time and place, from about 4:30 to 7:00 on a clock-face). The chief failing was that the video mode was at 1/60 second, far too long to stop the motion of the ISS.

Ah well there is always next time...

Note to self - highest ISO, shortest Exposure

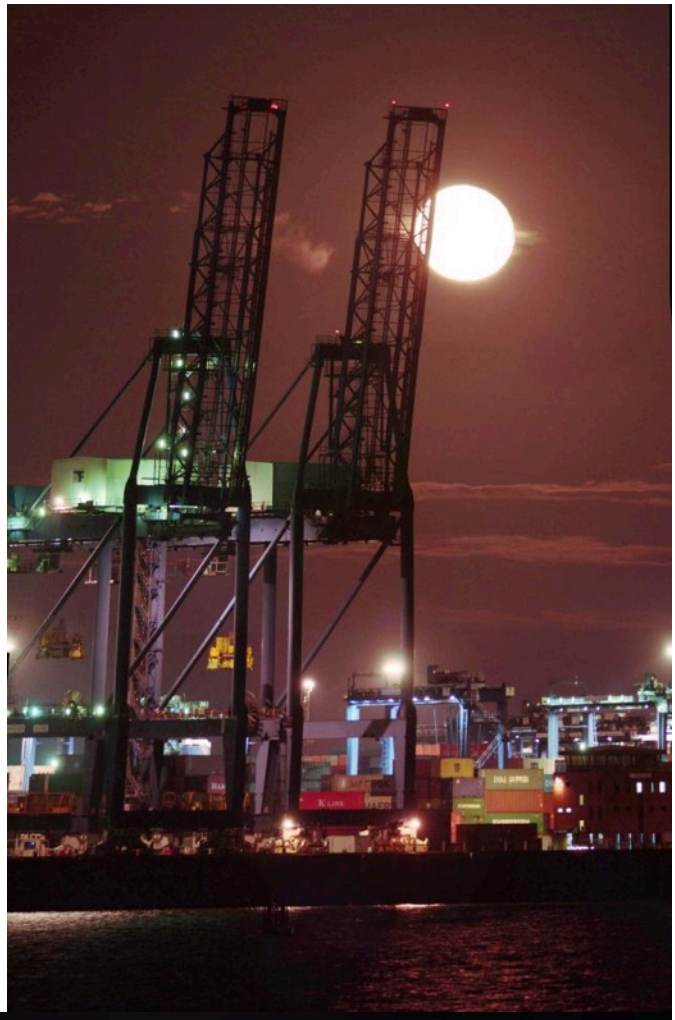
Supermoon

David Murton

Don't you love it when a plan comes to fruition. Months of planning and wasted trips came good last night. The "supermoon" rising over Felixstowe docks. Canon 60Da camera with William Optics 71ED telescope and various lenses.

Also Venus over Parkeston Quay on Sunday evening (16 Oct) when it was cloudy over Felixstowe!

All taken from Shotley.



Haw Wood dark sky

A picture from Haw Wood farm caravan site on Friday evening (25 Oct). Canon 60Da camera and Samyang 14mm lens on Skywatcher Star Adventurer mount. 70 secs at ISO 800.

The Dumb Bell nebula M27

David Murton

M27 : 17x240 seconds at ISO 400. Skywatcher 200PDS and Canon 60Da camera.

M31

Andy Gibbs

I had a go at at imaging M31 last night, M110 and M32 are also visible. (I also attempted M33 and M45). I used my Explore Scientific ED80 Carbon Fibre refractor on a HEQ 5 mount with a 0.7 x reducer/correcter.

Camera used was a Canon 1200d. 5x120 secs light frames 5x120 secs dark frames.

Processed in Deep Sky Stacker and Photoshop Elements 11.