



The Newsletter

of the



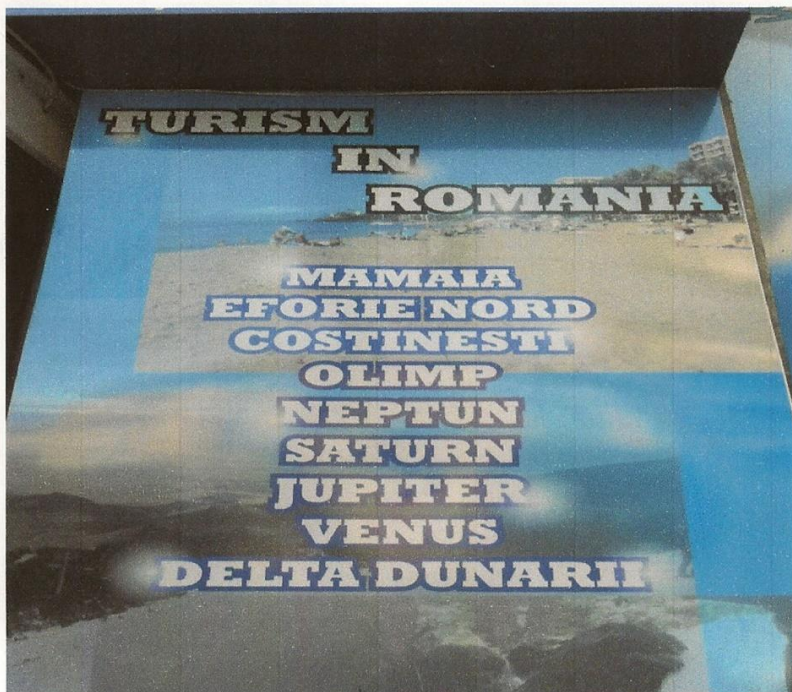
Orwell Astronomical Society (Ipswich)

2012
JAUARY

Registered charity no. 271313

www.oasi.org.uk

No 470



An overly ambitious travel agent?
Photograph taken in Bucharest, Romania.
By Tina Hammond.

Society News (Roy Gooding)

1 Annual General Meeting Saturday 14th January 2012

All members are invited to attend the AGM

Start time 20:00 Venue: Methodist Church Hall.

2 Access into the School Grounds and Observatory Tower

Please use the third gate into the school grounds, this is the gate behind the Gym. If the Black door entrance at the base of the observatory tower is locked, you will have to phone someone in the observatory to let you in. My mobile number is [REDACTED]. (Roy Gooding) alternatively the Observatory mobile is [REDACTED] during meeting hours.

3 Welcome to New Members

Rachel Smith

Rojer Barnes

4 Events Programme for 2012

This provisional event list will be updated through out the year

Meeting	Venue	Date
AGM	Methodist Church Hall.	Saturday 14 th January 20:00 start
BBC Stargazer meeting	Christchurch Park Bolton Lane gate	Monday 16 th January 18:00 to 21:00

5 Observational Out Reach Meetings 2012

Winter Star Party: Christchurch Park

Meeting	Venue	Date
Winter Star Party 1 st option	Christchurch Park On top of the hill	Saturday 28 th January 19:00 to 21:00
Winter Star Party 2 nd option if 1 st is cloudy	Christchurch Park On top of the hill	Saturday 25 th February 19:00 to 21:00
Winter Star Party 3 rd option if 2 nd is cloudy	Christchurch Park On top of the hill	Saturday 31 st March February 20:00 to 22:00 (the clocks will have changed)

Directions

What entrance should we use	Meet at the Westerfield Road entrance at about 18:30. The park ranges will be at the entrance
Set up time.	If you plan to bring a telescope, and arrive at about 18:30. This will give you about 30 minutes to set up. If you would like to come along just to help, please do so. It may be useful to have your membership card to show the Park Rangers. The park gates will be closed at 19:30 and will not be re-opened until the end
Observing Location	On the hill
Start time	19:00 (20:00 for option 3)
End time	21:00 (22:00 for option 3) May be earlier if visitors have all left

If you are able to help either with or without a telescope please meet at the Westerfield Road entrance at 18:30

Spring Star Party: Chantry Park

Directions:

- Enter Chantry Park from the Hadleigh road entrance. It is the drive way to the Sue Rider home.
- This drive does not have any gates so access is always open
- At the top of the drive take the left hand road. There are about 3 speed humps along here.
At the end of this road, which is about 200 yards long, there is a parking area.

Meeting	Venue	Date
Spring Star Party 1 st Option	Chantry Park	Saturday 21 st April 20:00 to 22:00
Spring Star Party 2 nd option if 1 st is cloudy	Chantry Park	Saturday 28 th April 20:00 to 22:00

Astronomy in the Park: Spring Event

Meeting	Venue	Date
Astronomy in the Park "Observing the sun" 1 st option	Christchurch Park Reg Driver Centre	Saturday / Sunday 19 ^h / 20 th May 11:00 to 16:00
Astronomy in the Park "Observing the sun" 2 nd option if 1 st is cloudy	Christchurch Park Reg Driver Centre	Saturday / Sunday 26 th / 27 th May 11:00 to 16:00

BBC Stargazer 16th January
(Roy Gooding)

The BBC will be running a second series of Stargazer programmes this month, starting on Monday 16th January. Across the UK, there will be a number of astronomical events that will be run in conjunction with the programme. We have been asked to take part. The event will be run under the auspices of the BBC and will be in Christchurch Park.. Sam Pollard and his staff at Christchurch Park will be looking after the logistics of managing the visitors, we will be playing our usual part of hosting the astronomy. The meeting will be included on the BBC Stargazer's web site, under the list of national events, Viewers will be encouraged to look up events being run in their area and to go along. I believe the programme dose not got out until 20:00, so we may be busiest after this time.

I attended a meeting in the Reg Driver centre on Thursday 24th November with Sam Pollard and Madeleine Forrester from the BBC. There will be probably be no camera teams on the park, as the main East Anglian event will be at Wicken Fen in Cambridgeshire, but I believe that BBC Radio Suffolk may get involved some how. They should be informed by internal BBC routes.

The event will centre around the Reg Driver Centre, and possible in the entrance hall of the Mansion, Sam is investigating the possibility of hiring a mobile planetarium for use in the Mansion. Paul Whiting has volunteered to give some talks and hold an OASI exhibition in the centre.

The Bolton Lane entrance will be in use for the event, as this next to the visitors centre and near to the mansion. The event will be starting around 18:00 and go onto about 21:00.

Our principle part in the event will be to provide telescopes. If the weather is good with clear skies we will be using our normal observing site on top of the hill. If the ground conditions are hazardous with snow and ice we will erect our telescopes around the visitors centre. In these conditions it is not advisable to expect the visitors to have to walk up the hill from the Bolton Lane gate. As many members will be unable get to the park by 18:00, and have there equipment set up. I proposed that we may be able to get up and running by about 19:00 or shortly after. This is the time we would be starting our Out Reach Star Parties. If it is clear we may be getting a large number of visitors, so I would like to request members to bring along their telescopes. If you do not have a telescope you can still play an important part as meeter's, and greeters, especially if we are busy.

4

Night Sky (January)

All times GMT))

Moon

1 st Quarter	Full Moon	3 rd Quarter	New Moon	1 st Quarter
1st	9 th	16th	23rd	31st

Object	Date			Mag	Notes
		Rise	Set		
Sun	1	08:04	15:54		
	31	07:38	16:40		
Mercury	1	06:33	14:30	-0.3	This month Mercury is low down in the pre-dawn south east sky.
	31	07:43	16:01		
Venus	1	09:59	18:48	-3.9	Venus is now becoming more prominent in the early evening sky after sunset .
	31	09:02	20:24		
Mars	1	22:03	11:20	-0.3	Mars is presently on Leo.. Observations in the evening sky improves through out the month.
	31	20:16	09:31		
Jupiter	1	12:09	02:09	-2.5	Jupiter is still well placed for observation until the early hours of the morning .
	31	10:15	00:23		
Saturn	1	01:45	12:21	1.0	Saturn is visible after midnight.
	31	23:49	10:26		
Uranus	1	11:16	023:18	5.8	Uranus is an evening object in Pisces
	31	09:19	21:25		
Neptune	1	10:20	20:15	7.9	Neptune remains an evening object, in Aquarius
	31	08:24	18:23		

Meteor Showers

Shower	Maximum	Limits	ZHR
Quadrantids	4 th January 06:00	1 st to 6 th January	80?

Source BAA Handbook

OCCULTATIONS DURING JANUARY

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

Date	Time (UT)	D / R	Lunar Phase	Sun Alt (d)	Star Alt (d)	Mag	Star
04 Jan	20:43:46	D	0.81+	-43	58	6.9	Hip 15555
04 Jan	23:04:28	D	0.82+	-59	45	6.8	ZC 489
06 Jan	00:26:12	D	0.89+	-60	42	5.6	51 Tau
06 Jan	01:26:28	D	0.89+	-56	34	5.3	56 Tau
06 Jan	03:38:58	D	0.90+	-39	14	7.1	Hip 20557

James Appleton

If you would like to stand for the committee for 2012 please return this form to Roy Gooding 2 weeks before the the AGM. There about 4 /5 committee meetings in the year. Every committee member is given responsibility.

**All that is needed is your name, a proposer and a seconder.
Existing members who wish to remain on the committee for 2012 need not reapply**

Name - _____

Proposer _____

Seconder _____

LUNAR OCCULTATIONS DURING 2012

2012 promises to be a good year for observers of lunar occultations! During the year, there are over 600 lunar occultations potentially observable from East Anglia, although many involve faint stars. On 01 April, the track of a grazing occultation of a star crosses the region close to Orwell Park and, just two and a half months later, the track of a grazing occultation of Jupiter and the Galilean satellites crosses North Norfolk.

This article summarises the circumstances of the best occultations during the year. It provides details for the location of Orwell Park Observatory; however, differences will in general be negligible for locations throughout East Anglia.

OCCULTATION PREDICTIONS

The motion of the Moon through the heavens is constrained to the zone within $\pm 6.75^\circ$ of the ecliptic and this band therefore defines the area within which to search for lunar occultations. I use a suite of computer software to undertake the search. It is based loosely on the algorithm *Occult in Astronomy On The Personal Computer*, 2nd edition by O. Montenbruck and T. Pfleger, Springer-Verlag, 1994. It models the motion of the Moon and planets in detail and calculates the precise time at which the lunar limb appears to occupy the same position in the sky as a star or planet. I use the NASA Jet Propulsion Laboratories' ephemeris DE-405 to provide the position of the Moon and planets and the Hipparcos, Tycho2, PPM and XZ94F catalogues to provide stellar positions. DE-405 and Hipparcos/Tycho2 represent the most accurate sources of astrometric data currently available. The PPM and XZ94F catalogues provide coverage in areas of the sky that Hipparcos/Tycho2 do not cover in depth. The software uses IOTA's electronic Watts charts to calculate timing corrections due to features on the lunar limb. Once the time of an occultation event is known, the software runs additional algorithms to calculate full observational details, and discards events which occur under unfavourable circumstances.

OCCULTATIONS OF BRIGHT STARS

Table 1 lists occultation events during 2012, of stars down to magnitude 5.5, where the circumstances are favourable. These events should be readily visible in small telescopes or binoculars.

The first two columns of table 1 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 D and/or R 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 implies that the sun is below the horizon.) Columns seven and eight provide the star's magnitude and catalogue number.

Date	Time (UT)	D / R	Lunar Phase	Sun Alt (°)	Star Alt (°)	Mag	Star
06 Jan	01:26:28	D	0.89+	-56	34	5.3	56 Tau
05 Mar	23:25:17	D	0.92+	-43	46	4.3	α Cnc
06 Mar	04:18:44	D	0.93+	-21	6	5.2	κ Cnc
02 Apr	23:33:38	D	0.81+	-32	34	5.4	Ω Leo
25 Apr	20:32:53	D	0.17+	-12	23	3.0	ζ Tau
	20:47:50	R		-13	21		
29 Apr	22:52:18	D	0.55+	-22	23	5.2	κ Cnc
13 May	02:38:44	D	0.48-	-11	13	5.1	46 Cap
26 Sep	21:32:23	D	0.89+	-32	29	5.1	46 Cap
07 Oct	01:41:35	D	0.61-	-38	41	4.6	χ^2 Ori
	02:48:27	R		-30	50		
11 Oct	02:38:35	D	0.22-	-32	12	5.4	Ω Leo
	03:34:58	R		-25	21		
07 Nov	01:22:23	D	0.49-	-49	21	5.2	κ Cnc
	02:20:19	R		-42	30		
16 Nov	17:13:50	R	0.11+	-11	8	3.8	μ Sgr
17 Nov	17:05:58	D	0.20+	-10	16	4.9	43 Sgr
	18:06:29	R		-19	11		
26 Dec	18:23:13	D	0.98+	-22	32	5.3	106 Tau
27 Dec	21:24:00	D	1.00+	-49	49	4.6	χ^2 Ori

Table 1. Occultations of stars of magnitude 5.5 or brighter.

OCCULTATION SEASONS

The Moon's orbit is defined by a range of periodicities, both short and long term. The short term periodicities mean that the Moon's path through the sky follows a pattern whereby it almost repeats itself every month. However, the longer term periodicities gradually shift the orbit so that no particular pattern of approximate repetition can last more than a few years. This results in so called "occultation seasons", lasting for months or years, during which particular stars are repeatedly occulted, or repeatedly not occulted.

The effect can be seen in table 1, with each of κ Cnc, Ω Leo, 46 Cap and χ^2 Ori occulted at least twice.

NIGHTS WITH MANY OCCULTATION EVENTS

During the year, the Moon traverses some rich star fields. When this happens, a large number of occultations can occur during a single evening. Table 2 lists all evenings throughout the year when the Moon occults more than 10 stars. The very large numbers of occultations on 25 and 26 April are associated with the passage of the Moon through the rich star fields of the Milky Way in Taurus.

Date	No occs	Date	No occs	Date	No occs	Date	No occs
28 Jan	21	24 Feb	11	25 Feb	11	26 Feb	13
26 Mar	12	27 Mar	11	29 Mar	23	25 Apr	37
26 Apr	45	16 Nov	11	17 Nov	42	15 Dec	11
16 Dec	21	17 Dec	20	18 Dec	12		

Table 2. Evenings with more than 10 occultations.

OCCULTATION OF JUPITER

There has been a dearth of good occultations of planets visible from East Anglia in recent years. The last occultations of a planet observed by members of OASI were of Saturn, on 02 March 2007 and 22 May 2007. (Observing reports are on the OASI web site at <http://www.oasi.org.uk/Observations/Observations.htm> and in the April and July 2007 *Newsletters*.) In the early hours of the morning of 15 July 2012, there will be a lunar occultation of Jupiter. From Orwell Park, event times will be as follows: disappearance 01:57:14; reappearance 02:09:54. Unfortunately, circumstances are not ideal as the altitude of Jupiter will be only 10°. From North Norfolk, the event will be manifest as a graze (details below). The next good occultation of a planet visible from East Anglia after the Jupiter event will not be until 2022, when both Mars and Uranus are occulted.

GRAZING OCCULTATIONS

Grazing occultations of 29 Cnc and of Jupiter and its Galilean satellites cross East Anglia during 2012. Table 3 summarises the circumstances. Figure 1 shows the graze tracks over East Anglia. The graze track of 29 Cnc passes only 7.6 km from Orwell Park and, as the event occurs in the early evening, it offers a very convenient observing opportunity. From Orwell Park, the event will be manifest as an occultation of very short duration. Grazes of Jupiter are rare and the event of 15 July, even though its circumstances are far from ideal (early morning event shortly before dawn, low altitude, northern limb event), will generate much interest. The graze track of Jupiter is approximately 68 km wide and this offers the prospect of finding a location in Norfolk from which to observe a graze of either Io or Europa followed a few minutes later by a graze of Jupiter.

Date	UT	Lunar Phase	Limb	Sun Alt (°)	Occ Alt (°)	Object
01 Apr	19:30	70%+	N	-9	52	29 Cnc, mag 5.9
15 Jul	02:05	16% -	N	-14	10	Jupiter & Galileans

Table 3. Grazing lunar occultations in 2012.

Weather permitting, the usual band of dedicated OASI occultation observers will organise observing trips to observe the grazes in 2012. Please get in touch if you are interested in participating. Google Earth plots of the graze tracks are on the OASI web site http://www.oasi.org.uk/Occultations/Occ_Summary_2011.htm should anyone wish to begin the search for suitable observing sites.



Figure 1. Graze tracks during 2012.

James Appleton

Chairman's Chat

I start off with some exciting news! Following various approaches by the BBC, OASI is supporting a public BBC Stargazing event in Christchurch Park on Monday 16th January 2012. Further details can be found within this Issue and online via the BBC site at:

<http://www.bbc.co.uk/thingstodo/activity/star-party/occurrence/49659>

Get in touch with Roy Gooding if you can help. Also take a look at other events shaping up this year.

On Thursday 8th December 2011, I attended a meeting at the School with Sarah Gibson of English Heritage; also present were Trustees Peregrine Bryant and David Payne, Headmaster Adrian Brown and Bursar Justine Barber. The purpose of the meeting was to assist English Heritage in assessing whether it is feasible to relist the Observatory to Grade II* with the remainder of the school retaining its Grade II listing. I started off by summarising the major steps in the restoration initiative, highlighting the purposes of relisting the observatory with English Heritage and the ballpark figure of £500k for repairs within Peregrine's report.

Sarah advised that, although there are cases where relisting has been successfully applied to part of a building structure, this was unusual; since it appears to be part of a main building structure rather than being wholly self-contained and separate, it might not be possible to relist the observatory on its own without impacting the rest of the school. In which case, English Heritage could recommend the observatory and the school be upgraded at the same time to Grade II*.

David and I took Sarah and Peregrine on a tour of the observatory in order to assess the structure, contents, and demarcation from the

rest of the school. The tour included as a short visit to the Finance office which housed the Mansion's former Turkish baths! Peregrine provided copies of the original McVicar-Anderson architectural drawings of Orwell Park Mansion, David Payne described the dome and telescope operating mechanism and Sarah took notes and photographs. Sarah thoroughly enjoyed the tour but wasn't in a position to provide an answer on relisting the observatory, as it would require further consultation with her Team Leader.

The next step is for English Heritage to draft and approve a Consultation Report with recommendations on relisting which will be presented to the school and other parties. Any advice within the report is subject to strict English Heritage review processes. Expected timescales are towards the end of February 2012, subject to "priority calls" on other buildings identified as being particularly threatened (the observatory does not fall into this category). Once received, the school have 28 days to respond to the report. When approved, English Heritage deliver the Consultation Report to the UK Secretary of State who makes the final decision on relisting, based on recommendations within the report.

It is important to explore all the possibilities of relisting the Observatory with English Heritage and a response based on English Heritage's recommendations will be made by the school as property owners before proceeding any further.

If the relisting application is successful, this will provide the Observatory with added protection and open up additional funding sources for repairs, including English Heritage grants. Another piece of exciting news is a request from Adrian Brown, Headmaster to start an Astronomy Club within the school. I have responded positively on behalf of OASI and a few Committee members have expressed interest. Subject to confirmation, this is

likely to take place on Wednesday evenings from 6:45pm to 7:30pm, just before the start of the regular club night.

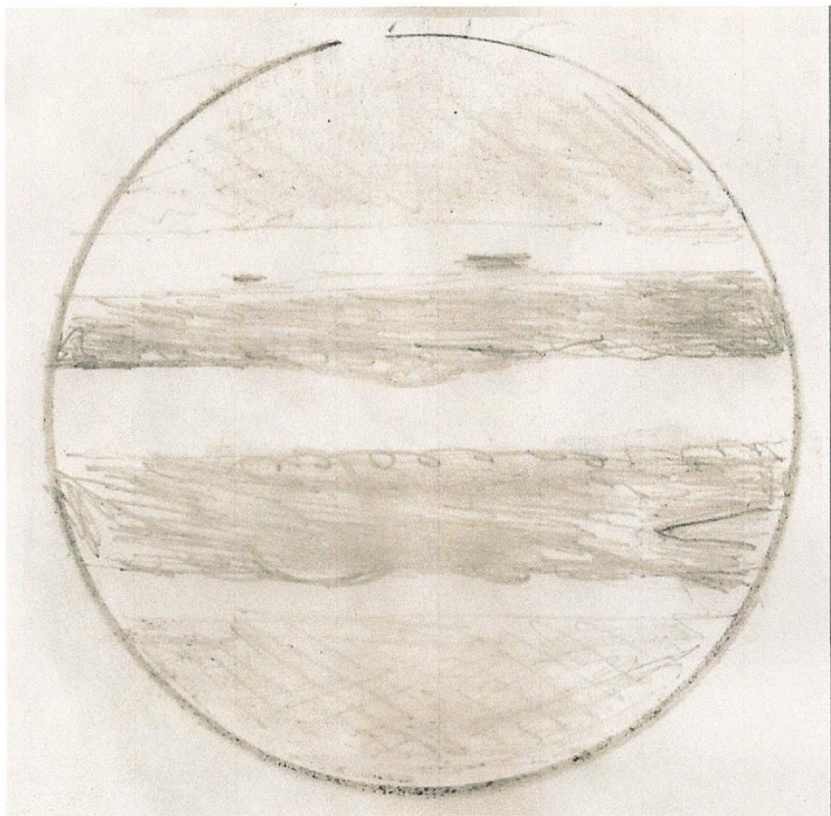
If you would like to help, please get in touch with me. It's early days and work-in-progress, but a successful launch would certainly help the case for funding.

Don't forget the AGM at 8pm, Methodist Church Hall, Blackhorse Lane, Ipswich on Saturday January 14th. All members are welcome and its a great opportunity to raise any issues you may have concerning the running of our Society.

How about a astronomy-related new years resolution? Maybe some astro-imaging or astro-sketching? Here's my attempt at Jupiter from the eyepiece of the Tomline refractor using a Meade 32mm Super-Wide Angle eyepiece at 20:45 UTC on November 23rd. Viewing conditions were clear skies with some mild to moderate atmospheric turbulence.

Finally, a Happy New Year!

Words by Neil Morley.



OASI Committee Contacts & Responsibilities

Neil Morley	Chairman	☎		Chair committee meetings. Represent OASI to external bodies.
Roy Gooding	Secretary	☎		Respond to enquiries. Press & publicity. Open Reach Meetings Open days.
Paul Whiting FRAS	Treasurer	☎		Finance. Visits by outside groups.
James Appleton	Committee	☎		Minutes of committee meetings. Web site.
Bill Barton FRAS	Committee	☎		Safety & security.
Martin Cook	Committee	☎		Membership. Tomline Refractor maintenance.
Tina Hammond	Committee	☎		Librarian.
Peter Richards	Committee	☎		Lecture meetings. Email distribution lists.
Eric Sims	Committee	☎		Newsletter.
John Wainwright	Committee	☎		Equipment curator.
Mike Whybray	Committee	☎		Workshops.

Trustee's

Mr Roy Adams
Mr David Brown
Mr David Payne

Dr Allan Chapman D.Phil MA FRAS

DIARY for JANUARY

STONs Tuesday 17th & 24th	SMALL TELESCOPES OBSERVING NIGHTS AT THE OBSERVATORY Main observing targets: Taurus and Orion ☎ Paddy O'Sullivan [REDACTED] ☎ Gerry Pilling [REDACTED]
Wednesdays From 8.00pm	OBSERVATORY CLUB NIGHTS Observing with the Tomline Refractor and other telescopes if skies are clear. ☎ Martin Cook [REDACTED], mobile [REDACTED] ☎ Roy Gooding [REDACTED], mobile [REDACTED]
Wednesday 11th Doors open 7.30pm Start 7.45pm	OASI WORKSHOP At Nacton Village Hall Measuring the speed of light – the experiments continue ! by Mike Whybray ☎ Mike Whybray [REDACTED]
Thursday 19th January 8:00pm	OBSERVATORY VISITS BY LOCAL COMMUNITY GROUPS 1st Felixstowe Scouts ☎ Paul Whiting FRAS [REDACTED]
Saturday 14th January 8.00pm	DATE FOR A.G.M. Venue: The Methodist Church Hall Blackhorse Lane Ipswich

BBC STARGAZER 16th JANUARY

See article inside

WINTER STAR PARTY : CHRISTCHURCH PARK

1st Option Saturday 28th January 19:00 to 21:00

Meet at Westerfield gate.

Society Contact Details

Observatory tel. no. (meeting nights only): [REDACTED]

Secretary: Roy Gooding [REDACTED] (day) [REDACTED] (evening)

E-mail queries: info@oasi.org.uk

Chairman: Neil Morley [REDACTED]