

Spring 2016 Number 11



Kielder Observatory Newsletter

**Northern
Lights put on a
stunning
show!**

NEWS

Art in Space!

SCIENCE

Outreach at UCL

OBSERVING

Highlights for
Apr/May/June

LOOKING SOUTH

How low can you see?



EDITORIAL

The last few months have been quite exciting, starting with a lovely display of mother-of-pearl clouds over the UK, and then the Mother's Day aurora, the strongest seen in the North East for over a decade. You will find some lovely pictures in the Gallery section. Further afield, we have also been greeted with the first detection of gravitational waves, and the possibility of an unseen 9th planet lurking in the Solar System! In this edition, Sam Cornwell introduces Art in Space, Dr Sarah Hutton takes a personal look at Outreach, whilst Robert Williams muses on the merits of tracking camera mounts.

Nigel Metcalfe

Editors: Nigel Metcalfe & Robert Williams

newsletter@kielderobservatory.org

Kielder Observatory Astronomical Society

Registered Charity No: 1153570.

Patron: Sir Arnold Wolfendale 14th Astronomer Royal

Full Membership £75 per annum

Friends of Kielder £25 per annum

Kielder Observatory Astronomical Society is a Charitable Incorporated Organisation.

Its aims are to

- * Promote interest in the science of astronomy to the general public
- * Facilitate education of members of the public in the science of astronomy
- * Maintain an astronomical observatory in Kielder Forest to support the above aims

<http://www.kielderobservatory.org>



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DIRECTOR'S CUT

With the changing seasons we lose a little and we win a little. As the skies get ever lighter the nights become warmer and the threat of snow and frost disappear as we hurtle head long into the summer months.



The deep sky aficionados start to count down the days and weeks towards the return of dark skies, the kind of dark skies that make our observatory so special, however there is much to celebrate and observe during these warm months when the inky black dark skies desert us for a few months. To start it has to be the NLCs the so called Noctilucent Clouds, these beautiful high altitude clouds, full of icy crystals reflecting sunlight around the high atmosphere and revealing the ghostly silver dancing clouds, normally spotted shortly after midnight. Add to that the planet Saturn who is speeding toward the galactic center (not literally) and so is confined to the lower southern skies but is

still observable, displaying its ring system. Jupiter too will hang around, as the planets will deliver a frenzy of observing opportunities. The summer Northumberland skies albeit glowing a pale blue are a haven for astronomy, The bright stars and big bright clusters will be favoured for later in the night and so we will continue our observing programs well into the late summer months.

However we don't have to wait long until the summer skies darken, toward the end of July and around new moon on the 2nd August we will be heralding the return of the summer Milky Way, when this majestic edge on spiral galaxy returns to the skies above the observatory, we will be waiting. What a sight it is, and once more our observatory will start the journey into a new season of observing and delivering our message to all who visit. Hopefully by this time the new observatory will be nearing completion and the offer will be changing with more activities for our guests to enjoy, so once more I want to thank all of our guests volunteers and staff for keeping the dream alive.

Keep looking up.

Gary Fildes (FRAS MSc Hon.Caus.)



KOAS NEWS

TRUSTEE NOTES

The trustees last met on February 22nd at Hoult's Yard, Newcastle. The new Operations Manager, John Holmes, was present and introduced to the trustees.

Planning permission had been received for the new building (observatory plus coffee shop) mentioned in the last newsletter and funding was now being sought. Ideally it would be in place for the Autumn observing season this year.

The treasurer reported that sales were going well, and the income generated had been used to cover the cost of the new decking, wood burning stove, additional landrover and engine generator.

The secretary presented the annual report for the Charity Commission and this was approved. Once again the Friends Membership scheme was discussed - the idea of having a specific goal to which the Friends scheme would contribute was mooted, as was the possibility of discounts at the on-line shop. There was some discussion over expanding the number of trustees and what attributes would be most useful. A list of possible candidates would be brought to the next meeting. KOAS had been approached to

see if they would be interested in participating in the Big PIE (Primary Inspiration through Enterprise) Challenge in March. It was unanimously agreed this would be an ideal project, and further discussion would take place to see how we could best be involved.

The trustees were shown a first draft of the prospectus for the major expansion plans. The final version was expected to be ready within the next few weeks.

Finally, with several new members of staff now working at the Observatory it was hoped to arrange a time and place where the trustees and staff could meet.

The date of the next meeting will be May 16th 2016.

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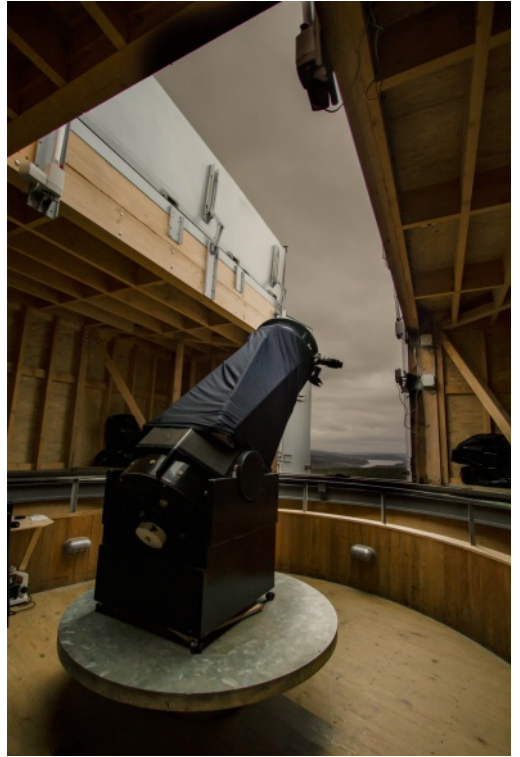


Our new Science Communicator, Becki, wows the crowds!



OBSERVATORY NEWS

In newsletter #9 we reported on the refurbishment of the 20" telescope. Since then, it has been decided to replace the mount entirely and make it into a Dobsonian telescope. No more trouble with the rotating top end ruining the collimation! The mirrors have also been re-coated, and a light shroud fitted to keep out dust and moisture. All the work has now been completed and in early April the telescope was re-installed in the Sir Patrick Moore turret. The long term plan is to have a spare set of mirrors so that re-coating can be done annually without any down-time.



The refurbished 20" back in the Sir Patrick Moore dome.

Space Kids was a great success over the Easter holidays. These events are now listed for half term at the end of May, and will run on Monday 30th May, Wednesday 1st June & Friday 3rd June starting at 4pm. We have also listed the Space Kids events throughout the Summer holidays, they will run on Tuesdays and Thursdays from 26th July through to 1st September. So book now to avoid disappointment!

Our Newcastle events continue - on Sunday May 8th we have an evening entitled "The Aurora", whilst on June 26th we host 'The Big Universe'. Both events at the Vermont Hotel as usual.

'Thought it was a lovely touch having a volunteer who may not know every detail but was willing to learn to progress, Colin's passion made me personally want to see more. Top chap. Keep doing what you're doing. Staff and volunteers were brilliant. The time for me flew by so if it was ok to hang around after the session I would have.'

Katy



OBSERVATORY NEWS



Star trails over Kielder Castle - why not come and try one of our 'Planetarium in the Park' shows at the castle? You can book them through our usual website: <http://www.kielderobservatory.org/events/>

'Planetarium in the Park' at the Kielder Castle continues to be very popular and we intend to run them every Saturday evening from 7pm - 9.30pm throughout the year. We are also running them on Friday evenings throughout the school holidays. They are designed for the whole family to enjoy and start at 7pm with a hot bowl of soup in the Castle Cafe followed by a talk in the classroom and planetarium show, and if the skies are clear we will observe the depths of the universe with one of our large aperture telescopes.

We will also be hosting some events at the Tower Knowe Visitor centre on Kielder Water. Watch out for further details.

* * * *



Space Kids in action: Merida (aged 8) and a very impressive rocket!



OBSERVATORY NEWS

Art in Space - *A Letter from our new Arts Director*

Late in the month of March under the beautiful setting of Kielder Observatory's wondrous dark skies, our founder director, Gary signed into action the 'Art in Space' initiative with our newest member of the team, Sam Cornwell. The aim being the implementation of a new programme of projects inspired through the arts. We caught up with Sam to find out more ...



It is my pleasure to be writing this in the capacity of Art Director of Kielder Observatory. Having been a volunteer for almost two years and seeing our home amongst the stars grow from strength to strength it gives me an enormous sense of pride to know that my new role will help shape the foundations of what promises to

be an exciting transformation of our outlook on the arts.

'Art in Space' is a vision that emerged as my continued involvement with the observatory whilst concentrating on other visual art based work at home. During meetings with Gary, staff, board members



OBSERVATORY NEWS

and volunteers it soon became apparent that these 'ideas' have existed for some time. However, the introduction of a concise programme allows a new entity to take control and develop these projects.

Their application within Kielder Observatory will grow its contribution to the arts and add a new dynamic to the visiting experience.

Progress has already begun at this early stage. For instance a couple of weeks ago we announced an addition to our May calendar of a brand new evening event created specifically for the visual arts community. Also, we've bolstered our increasingly popular astrophotography events with incredible staff acquired content all the while increasing our team's knowledge on astro imaging. One of the more exciting and subversive plans is to put in place an artist residency position

which we hope to achieve by Autumn and we even have some tentative plans for a competition, but for that you'll need to watch this Space.

Art in Space has been met with nothing but enthusiasm by all. The excitement of the plans is still burgeoning and I'll make sure to check back in with you all next time. In the meantime if you have any comments, queries suggestions or questions please don't hesitate to contact me.

Sam

sam@kielderobservatory.org



'We both very much enjoyed our experience at the observatory and two clear nights, what a bonus. All the staff were wonderful, very knowledgeable, as you would expect, but kind with it. They wanted to pass on to us their wonder and enjoyment of the Universe and everything in it.

I must just mention Matt, his enthusiasm is boundless, he is great and obviously loves his job and the opportunities it gives him. I will definitely tell all my friends about the Observatory and encourage them to pay you a visit.

All in all a very memorable Birthday'

Val & Brian



'The Big Universe'

Bringing Kielder Observatory to Newcastle

KIELDER
OBSERVATORY
infinite inspiration



Starring: Gary Fildes,
Director Kielder
Observatory



Kielder Observatory is coming to the Vermont Hotel in Newcastle once again to bring alive the wonders of our universe

The biggest question mankind has ever pondered has to be the origins of our Universe. Tonight Gary will introduce some of the mind boggling concepts science is trying to unravel.

This will be followed by a Q & A session and the Observatory team will be on hand to show you images, talk telescopes as well as astronomy

- Exploring the origins of our Universe
- Physics with Dr Fred
- Telescope Workshop
- Finding and locating objects in the night sky

VENUE: Ball Room at The Vermont Hotel, Newcastle upon Tyne, NE1 1RQ.

DATE: Sunday 26th June 2016 7:00pm – 9.30pm

TICKETS: £16.50

FIND OUT MORE AND BOOK ONLINE:

www.kielderobservatory.org/events/kielder-observatory-comes-to-newcastle/

OR CALL US: 0191 265 5510



SCIENCE SPOT

Outreach and STEM (Science, Technology, Engineering and Mathematics) learning are very important to our aims here at Kielder, so we thought we would ask an old friend of the observatory, Dr Sarah Hutton, for her thoughts on the subject and how University College London go about bringing these concepts to the public ...

During the Summer of 2015, the Physics and Astronomy Department at UCL employed an Outreach Coordinator for the first time, not only to coordinate the outreach and public engagement work being carried out within the department, but also with a specific remit to overhaul the current outreach provision offered by our observatory (UCLO). As a former Physics teacher and an astronomer with a strong outreach background I am aiming to apply my experience to not only improve and expand the current provision but to also ensure that what we do makes a difference to the people we reach out to.

Outreach and Public Engagement are words that get used a lot in academia, but what do they mean, and what do we hope to gain by doing them?



Sarah in action at UCL's Your Universe 2016 festival

Outreach is usually focusing on raising awareness and inspiring children and young adults most commonly through schools and community groups. Public engagement is targeting a wider audience and will cover a larger range of events. Current research shows that if we want to inspire the next generation to become scientists or to be more scientifically literate then just targeting children is not enough we need to encourage their parents and wider family too.



SCIENCE SPOT

In my mind the outreach that we do has three main, broad aims:

1. To inspire the next generation of scientists
2. To remove gender bias from Physical Sciences
3. To make the next generation more scientifically literate

Each of these are important in their own right, but I would argue that point 3 is the one that with direct intervention in schools

and their communities, we have the most power to achieve. It's still all too common in the media to see people admit that they are 'rubbish' at Science and Maths but would never admit to being unable to read. If we can enable the generation still at school to be open-minded about science then even if they do not pursue a career in it, they will be more supportive of their peers that do and when the time comes, will be willing to encourage their



Fun with thermal cameras at Your Universe. We are assured that this is Sarah!



SCIENCE SPOT

children want to follow a STEM based path. 'Science Capital' are the latest buzzwords for the Outreach community and it relates to how science a child is exposed to in their daily lives. Currently, only students who can talk about science at home with their parents consider a career in the sciences (excluding

'Science is for them'.

Over the past year at UCL we have been expanding our outreach and public engagement provisions in order to embed our work more within the communities of the schools that we visit. Our schools partnership is going from strength to



The University of London Observatory at Mill Hill

medicine). The reasons for this are complex and are only just being uncovered as part of a 10-year study into what drives the changing aspirations of students as they move through secondary school. What is currently known is that when students leave primary school they have already decided whether or not

strength with undergraduate students going to give talks at the schools and evening lectures for the students and their families being given by academics from the department. Many of our staff and students have become STEM ambassadors, getting involved with a wide range of events that help promote Physics



SCIENCE SPOT

as a viable career option. The Your Universe festival welcomed nearly 600 students in 2 days, from primary and secondary schools across London to learn more about Astrophysics and Particle Physics. At UCLO we have expanded our schools provision running more school visits, astronomy based workshops, teacher training sessions and STEM networking events. On the public engagement front both Prof. Jon Butterworth and Prof. Raman Prinja have written well received popular science books on CERN and a children's guide to observing the night sky respectively. Other members of the department have been involved with national and local T.V. and radio shows, done Bright Club performances and have hosted stalls at a wide variety of festivals.

The Physics and Astronomy Department at UCL is becoming increasingly proactive

with regards to both Outreach and Public engagement; broadening the range of activities and schemes that we are involved with. In terms of evaluation, we have also initiated long-term studies in our partnership schools so that we can begin to monitor if what we are doing is having an effect on the decisions and aspirations of the students who attend our sessions. Over the next few years we hope to not only work more closely with our school communities, but to also make a genuine difference in their students' lives.

Will we succeed in our goal? Only time will tell!

Sarah

Dr Sarah Hutton is the Outreach Co-ordinator and Ogden Science Officer at the Department of Physics & Astronomy, University College London.

Not been to Kielder yet?

Then why not book one of our events for you or your family?

Advanced booking is essential. Weekend events can fill up several weeks in advance. Please book online at <http://www.kielderobservatory.org/events/> or call us on 0191 265 5510. We can also be contacted at admin@kielderobservatory.org

SPECIAL EVENTS:

Half-term Space Kids on 30th May, June 1st/3rd



NIGHT SKY

APRIL 2016 (times in BST)

Lunar phases

New moon	07/04/2016	12:24
First quarter	14/04/2016	04:59
Full moon	22/04/2016	06:24
Last quarter	30/04/2016	04:29

PLANET SUMMARY

Mercury and Venus are in conjunction with the Sun. Mars and Saturn are morning objects, Jupiter is just passed opposition. Uranus is also in conjunction with the Sun. The Sun – the Sun has been quite active recently, with aurora being seen from Kielder in March. However it is supposed to be winding down in the solar cycle but perhaps these auroral events are a sign that it is giving us one last show - or more – before the number of sunspots begins to decrease.

THE STARS AT 10PM (BST)

North – Ursa Minor, Cepheus, Cassiopeia and Perseus are nicely placed
East – Hercules and Bootes are nicely placed
South – Leo and Virgo are well placed for

viewing – Saturn is easily found within the body of Virgo – near the bright star Spica – alpha Virginis. Cancer is to the top RHS of Leo.

West – Ursa Major is high up with Gemini still visible – but Orion is now setting

METEOR SHOWERS

There is the April Lyrids – active between the 16th and 25th of April – Lyra is visible all night but early morning is best for this shower. The Moon will be near full so it will be difficult to see this shower in 2016.

COMETS

Look out for Comet PanSTARRS 2013 X1, which may be magnitude 7 in April

The Planets 15/04/2016

	Sun	Mercury	Venus	Moon	Mars	Jupiter	Saturn	Uranus
Rise	06:07	06:26	05:56	13:06	00:01	15:49	00:29	06:04
Transit	13:07	14:19	12:18	20:39	04:01	22:33	04:33	12:49
Set	20:09	22:15	18:41	03:29	07:58	05:21	08:32	19:33



NIGHT SKY

MAY 2016 (times in BST)

Lunar phases

New moon	06/05/2016	20:30
First quarter	13/05/2016	18:02
Full moon	21/05/2016	22:15
Last quarter	29/05/2016	13:12

PLANET SUMMARY

The main event this month is the Transit of Mercury on May 9th. From the UK it will be crossing the disc of the Sun from about 11.15am until around 7.23pm – depending in your exact location. Transits of Mercury happen more often than the better known transit of Venus and the sequence is more complicated with ToMs happening only in May, on dates close to the 8th, or in November, on dates close to the 10th (but not in the same year). They recur every 13 or 33 years between May events and 7, 13 or 33 years between November events. The next transit is not until November 2019 but that event will not be optimal from the UK. After that it is 13th November 2032 and then 7th November 2039.

In general this month Mercury and Venus will be near solar conjunction, Mars will be visible for most of the night, as will Saturn. Jupiter will be an evening object and Uranus will be lost in the morning twilight.

THE STARS AT 10PM (BST)

North – The two Bears are nicely placed

East – Bootes and Hercules are nicely placed. Virgo is high up in the sky

South – Leo and Virgo are easily found at this time of year.

West – Gemini is still visible in the early evening once it gets dark.

METEOR SHOWERS

There are no major meteor showers in May.

COMETS

There are no bright comets expected in May 2016

The Planets 15/05/2016

	Sun	Mercury	Venus	Moon	Mars	Jupiter	Saturn	Uranus
Rise	05:06	05:01	05:01	14:12	21:44	13:46	22:23	04:09
Transit	13:04	12:29	12:40	20:52	01:43	20:32	02:28	10:57
Set	21:02	19:56	20:21	02:57	05:36	03:21	06:29	17:44



NIGHT SKY

JUNE 2016 (times in BST)

Lunar phases

New moon	05/06/2016	04:00
First quarter	12/06/2016	09:10
Full moon	20/06/2016	12:02
Last quarter	27/06/2016	19:19

PLANET SUMMARY

Mercury and Venus are in solar conjunction. Mars is visible for 3 hours either side of midnight. Jupiter is an evening object and Saturn is close to opposition and hence visible for all the hours of darkness – limited though they are at this time of the year.

THE STARS AT 10PM (BST)

North – The two Bears are high up with Lyra and Cygnus in the North-east and Auriga and Perseus low in the north-west
East – Bootes and Draco are high up with Hercules, Lyra and Cygnus nicely placed. Ophiuchus is low in the south-east
South – Corona Borealis is high up with Virgo nicely placed and Leo. Scorpio is just starting to rise.

The Planets 15/06/2016

	Sun	Mercury	Venus	Moon	Mars	Jupiter	Saturn	Uranus
Rise	04:38	03:46	04:48	16:18	18:56	11:56	20:10	02:10
Transit	13:08	11:38	13:18	21:40	22:55	18:37	00:17	09:00
Set	21:38	19:33	21:50	02:30	02:58	01:22	04:19	15:50

West – Gemini and Cancer are setting

METEOR SHOWERS

There are no major meteor showers in June.

COMETS

No bright comets are expected in June.

OTHER EVENTS

Keep an eye out for Noctilucent clouds – these are very high [70km+] ice clouds and a best seen during the Summer months

Night Sky credits: Lunar and planetary data sourced from Cybersky 5



A nice sunspot photographed on April 17th: Robert Williams.



ASTRONOMERS' TALES

Photographing the night sky with a portable tracking Camera Mount – a quick look at the options

I have had the use of an AstroTrac for a number of years courtesy of my home town Astronomy Society. Then – about 18 months ago I decided to change my car and as a result I was not able to lug my EQ6 and all of its components up to Kielder. So I went in search of an alternative to keep going with my interest in astro-photography – this was because other members of my own AS were beginning to use the AstroTrac – and I might not have sole use of it when I needed it for – for example the Kielder Spring and Autumn star camps as well as a few trips overseas.

There are currently a number of newly available options that have hit the astronomy equipment shops in the past 12 months or so. SkyWatcher have their Star Adventurer – a mini EQ mount and there are other offerings from the likes of iOptron [the 'Sky Tracker'] and you can also create your own barn-door tracking head too. In May 2014 I went to Tivoli Astro Farm in Namibia and there I had a very brief introduction to the Fornax 51 EQ mount – a hefty piece of engineering

from the Fornax company based in Hungary. For most people if you asked the name of a premier Telescope mount they would never have heard of Fornax nor that Hungary was their home.

I like to do things a little different to the astronomical crowd. When I first thought about a telescope for myself I decided not to go with the 'herd' in the direction of Meade, Celestron or Orion – or some of the other common makes - but instead I decided to go a bit 'Trekky' and bought a Borg 76 Eco – Borg are in fact a Japanese make and their products can rival that better known Japanese brand of premier scopes and mounts in quality. Subsequently when I decided to buy an EQ mount I went for an AWR-EQ6 with stepper-motor drive and the Intelligent handset. So when it came for me to invest in a tracking camera mount I decided to not get my own TT320X – because the years of me using it had shown up a few issues for me – but look for something different. Looking at the Fornax website I spotted references to the Fornax 10 mount and it looked a nicely engineered piece of kit – though more 'chunky' than the sleek well engineered British TT320X. I checked out the specs and stats and it seemed to be comparable to the



ASTRONOMERS' TALES



Mu Cephei taken by the author with the Fornax 10. - a stack of 5 1-min exposures taken with a Canon 60Da plus 100mm lens at f/3.5, ISO2500.

AstroTrac. One mouse click later and my bank account was a little lighter and the F-10 was on its way. When it arrived Patrick's law – as I like to refer to it – kicked in and the weather gods decided that the clouds would prevent me from using it for quite a few months. Anyhow I brought the F-10 to Kielder for the Autumn Star camp 2015 and Spring Star camp 2016 and so I now have a few hours of its use under my belt.

The key to using any camera tracking platform is to have a good Tripod that is easy to polar align. So even with the AstroTrac TT320X you need a solid platform with a sturdy 3-way adjustable head - from the likes of Manfrotto etc. The Fornax 10 version 1 comes with its own

equatorial wedge and is shipped with a rather basic EQ2 tripod. I have to be honest and say that it really lets the kit down.

From our latitudes the polarscope of the version 1 lies very close to the tripod legs and – if you are like me and use vari-focals – its a pain to get your eye in the right place to view through the polarscope. Definitely time for some ATM [not I hasten to add a trip to the bank]. It really needs to have a 'column' added to lift the Fornax head and wedge up and away from the EQ2 tripod. I went down a different route and got hold of a simple metal arm-bracket to move the polarscope away from the tripod leg – and yes I got the idea from the AstroTrac polarscope



ASTRONOMERS' TALES

bracket. I have also invested in a Manfrotto tripod with a 3-way geared head too.

My results are getting better and I'm going to do some more ATM to improve the very basic wedge of the F-10 which sadly is not geared or finely adjustable in 'altitude'. Since I purchased my version 1 of the F-10 it has been 'improved' and re-branded,

by Fornax, as the LightTrack-II which looks more 'sexy' – if that is the right term than the version 1. Anyway you will see my Fornax 10 at future Kielder Star parties and you can take a look at the ATM I have done to it. On the whole I am very pleased with its build quality and it tracks really well – though it can only run for about 2 hours before being 'rewound' – exactly the same as for the AstroTrac TT320X.

In summary:

AstroTrac TT320X

Pros:

Lightweight

Easy to set up

Can use a pier system

Easy to polar align

[with the right tripod]

Really does not need ATM

Cons:

Threaded drive rod can get clogged with debris

Do not clean the thread

BIG problem if you run out of DC power – the drive CANNOT be manually returned to its home position

Fornax 10 v.1

Pros:

Chunky – solid

A bit of a challenge – see cons below

Counterweight system for refractors

Friction Drive very nice

Easy to reset the drive – needs no power

Cons:

A challenge to polar align [with the EQ2 tripod]

Heavier than the TT320X

More cumbersome than the TT320X
ATM – should that be a 'Pro' as well?

Robert Williams



OBSERVERS' SLOT

How far south can you see?

Kielder Observatory lies roughly at a latitude of 55 deg, which means that, in theory, an object with a declination above -35 deg should poke its head above the southern horizon at some time of year. That (just) encompasses the whole Messier catalogue, but in practice, obstructions on the horizon, light pollution, and just atmospheric extinction, mean there are several objects which are difficult if not impossible to see from this far north. During the summer months we are also fighting with the short length of the nights (indeed it never gets truly dark). So here we take a look at those 'difficult' Messier objects which never rise more than 10 degrees above the horizon from the latitude of Kielder. Of course, if you live further south the easier these objects get!

M68 - due south at midnight, April 1st

Messier 68 is an 8th magnitude globular cluster which lies in the constellation of Hydra. At a declination of -27 deg it should rise a respectable 8 deg.

M83 - due south at midnight, April 16th

This is a tricky one. A beautiful face-on spiral galaxy, M83 never rises more than 5

degrees above the horizon from Kielder so is going to be a real challenge. Messier only just managed it visually from Paris.

M4 - due south at midnight, May 28th

Rising to a maximum of about 9 deg, M4 is one of the finest and brightest globular



The impressive spiral galaxy, M83.

Credit: ESO/IDA/Danish 1.5 m/R. Gendler, S. Guisard, C. Thöne

clusters in the sky. It is also one of the nearest. You should have no problem with this one.

M62 - due south at midnight, June 6th

Another very tricky object, rising only 5 deg at best. M62 is another globular cluster, although about 1 magnitude fainter than M4.



OBSERVERS' SLOT



The globular cluster M4 in Scorpio.

Credit: ESO

M19 - due south at midnight, June 7th

M19 is a very similar globular cluster to M62, but 4 degrees further north. So you should have a fighting chance of spotting this one.

M6 - due south at midnight, June 16th

Just about impossible this one (unless you know otherwise!), as it rises only 3 degrees. M6 is an open cluster in Scorpio, whose brightest stars, if seen high in the sky, would be about 6th magnitude.

M7 - due south at midnight, June 20th

If you thought M6 was impossible try M7 - it rises only 0.5 degree, although atmospheric refraction may raise this a

little. Another open cluster in Scorpio, its brightest stars are again around 6th magnitude.

M8 - due south at midnight, June 22nd

I cheat a little here. M8, otherwise known as the Lagoon nebula, is actually at -24.5 deg declination, so slightly above our limit. However, it is such a beautiful object and one of finest nebulae in the sky. You should have no trouble spotting this one.

M28 - due south at midnight, June 27th

Hovering on the 10 degree line, M28 is reasonably bright globular cluster in Sagittarius which should be easy to find.



M7 is delightful star cluster, but you will be lucky to spot it from this far north!

Credit: ESO



OBSERVERS' SLOT

M69 - due south at midnight, June 29th

Back in the murk for this one which rises only 3 degrees. M69 is a faint globular cluster in Sagittarius.

M70 - due south at midnight, July 2nd

Another globular cluster, quite close, and very similar in appearance, to M69 and rising to almost the same altitude.

M54 - due south at midnight, July 5th

Another globular cluster, a similar magnitude to M69 and M70, but a couple

of degrees further north, so easier to see.

Intriguingly, M54 may not actually be a member of our galaxy, but instead may belong to the Sagittarius Dwarf galaxy.

M55 - due south at midnight, July 17th

Another globular cluster, a similar latitude to M54, but about a magnitude brighter.

So why not have a go in the next few months and see how many you can spot? A decent pair of binoculars should do the job ...



The Lagoon Nebula, M8, is a sight not to be missed

Credit: ESO/VPHAS+ team



GALLERY

Back to full size this time! Remember, we would love to display your images here - all the better if they are taken up at Kielder, but it is not essential. Please send them to newsletter@kielderobservatory.org along with a brief description of how and when they were taken.



A 22 deg halo around the moon. More usually seen around the sun, these halos are formed by light refracting off hexagonal ice crystals in the atmosphere. Credit: Carl Richards/KOAS

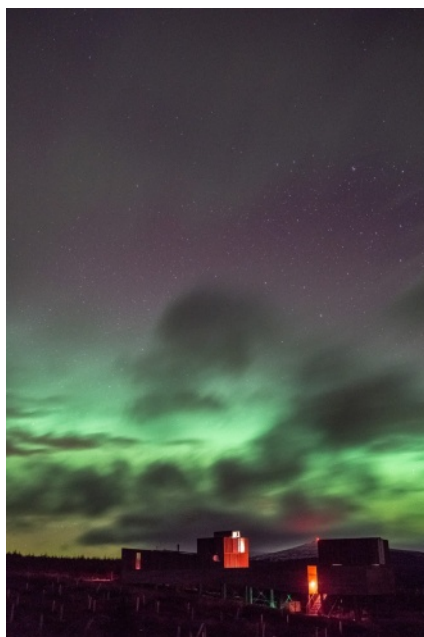


Over Easter, Space Kids were treated to a more conventional rainbow - Sam Cornwell.



GALLERY

The night of March 6th saw the brightest and most spectacular aurora seen over the North East for more than ten years. It was visible from city centres. However, from a truly dark site the view was amazing. Here are four images taken from the observatory:





GALLERY





GALLERY



One more shot of the Mother's Day aurora. This time taken by Robert Williams from the Kielder Spring Star Camp.



Rather lost in the excitement of the aurora, back at the beginning of February the UK was treated to a rare display of nacreous, or mother-of-pearl, clouds. Unlike their Summer cousins, noctilucent clouds, which form much higher in the atmosphere, nacreous clouds are a winter phenomenon, and occur at a height of around 70,000 feet.



GALLERY

Finally something rather unusual. Sue and Ian Mansell visited the Observatory in October and came away with one of our mugs. Roll on to the 9th of March and they, and the mug, were in Tidore, Indonesia, viewing the total eclipse of the sun!



Have you taken a Kielder mug somewhere unusual? If so, send us a photo!

'The Aurora'

Bringing Kielder Observatory to Newcastle



Starring: Gary Fildes,
Director Kielder
Observatory



Seeing Jupiter and it's moons for the first time will stay with us forever... Lucky enough to get a clear night too... Dan, Luke, Hayden and volunteers were great to listen too....hope you guys can resist the commercial pressures... and keep this a community concern Well done.

Paul & Dionne
.....Manchester

Kielder Observatory is coming to the Vermont Hotel in Newcastle once again to bring alive the wonders of our universe

Don't miss your chance to join us to find out more about the extraordinary phenomenon that is the Aurora Borealis. Learn why it appears and how you can search and see it for yourself...

This will be followed by a Q & A session and the Observatory team will be on hand to show you images, talk telescopes as well as astronomy.

- The Aurora
- Physics with Dr Fred
- Telescope workshop
- Finding and locating objects in the night sky

VENUE: Ball Room at The Vermont Hotel, Newcastle upon Tyne, NE1 1RQ.

DATE: Sunday 8th May 2016 7:00pm – 9.30pm

TICKETS: £16.50

FIND OUT MORE AND BOOK ONLINE:

www.kielderobservatory.org/events/kielder-observatory-comes-to-newcastle/

OR CALL US: 0191 265 5510

KOAS: Your Window to the Universe

<http://www.kielderobservatory.org>

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