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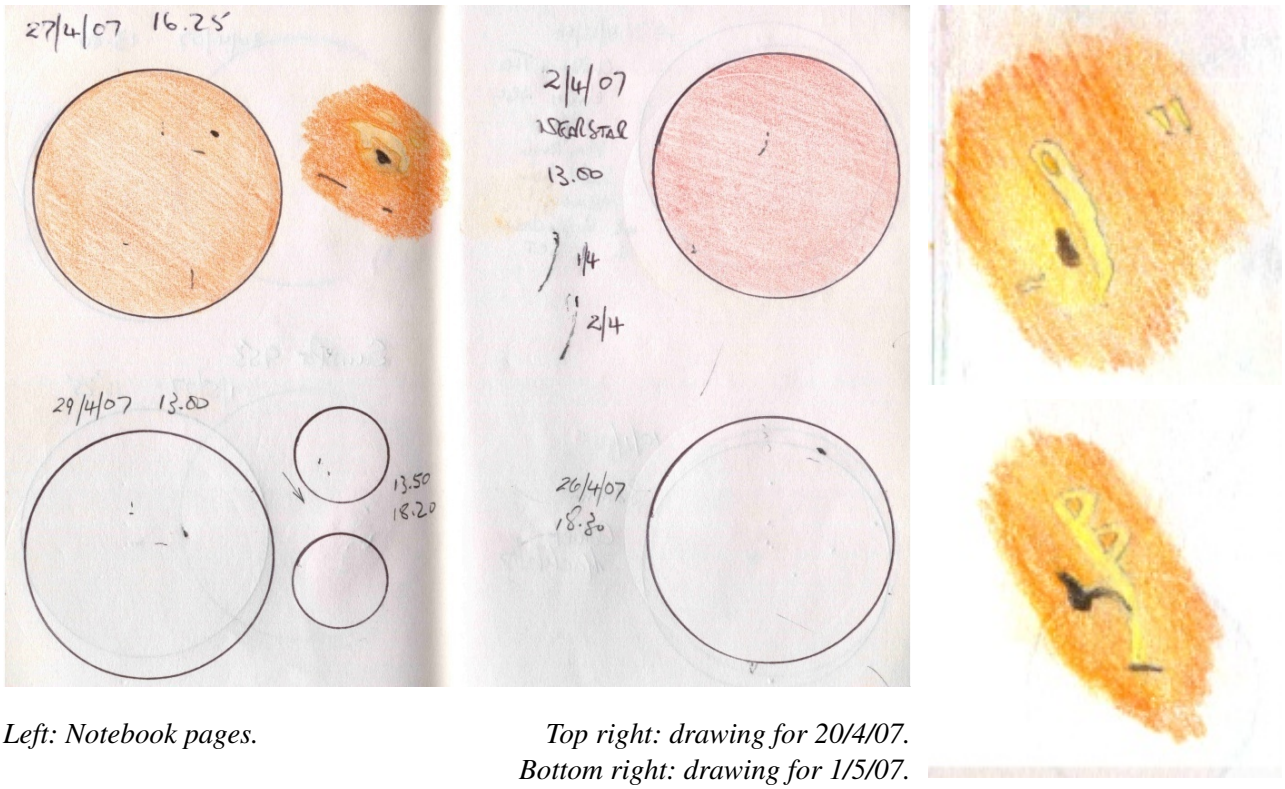
Many observed the total eclipse of the Moon on 2007-03-03.
This picture was taken by Martin Allan, using approximately 5 s exposure.



Left: Notebook pages.

Top right: drawing for 20/4/07.
Bottom right: drawing for 1/5/07.

Solar observing

I recently had the use of the Society's Coronado NearStar solar telescope and, during an unusually good spell of weather, took the opportunity of observing more or less daily. Despite this being an intense period of minimum solar activity (see http://www.spaceweather.com, April 28th, 2007 archive and later in this article), I was fortunate in being able to follow active area 953 as it developed. This is not intended as a complete guide to solar observing – I'm just beginning myself – merely a taster based on personal experience which may hopefully encourage some of you to make use of the summer months to explore the Sun in some detail.

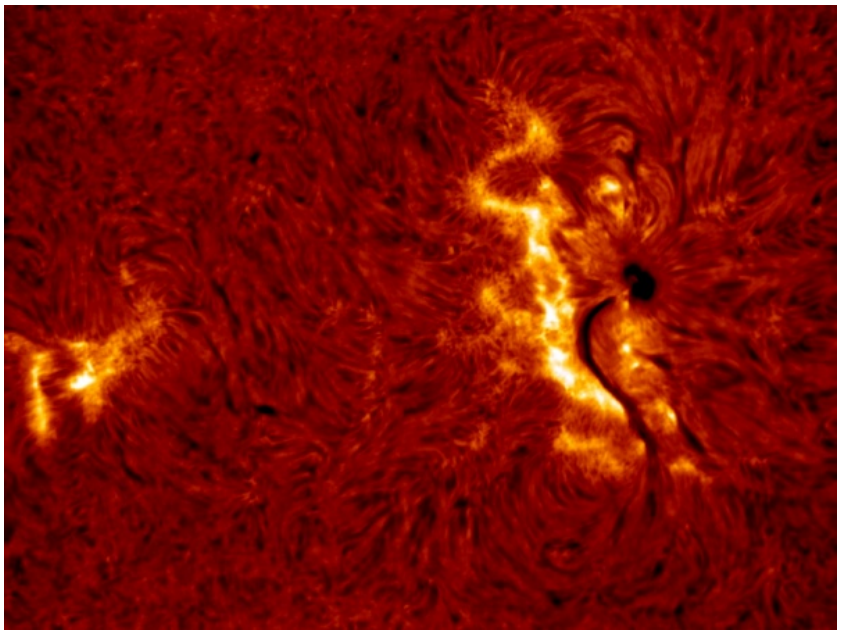
Before I proceed, however, lets get the necessary out of the way:

> WARNING – Never look directly at the Sun with the unaided eye or through any optical instrument without the use of specialist filters expressly for that purpose, ensuring that any such filter is undamaged in any way. Blindness or permanent damage will result. The only safe way of observing the Sun is by projection. Never leave any instrument pointed at the Sun unattended. Always supervise children and the general public when they are near solar observing equipment.

There are various options for solar observing nowadays, but some people will always be uncomfortable with direct optical viewing, regardless of the filtering employed. Eyepiece projection onto a piece of white card is a safe method and if the card is secured in a box to provide some shade, drawings may be made directly onto templates. Of course, with such incredible Internet resources, you don't need to do any direct observing. You could follow the ever-changing Sun online – regardless of the British weather. Various web sites have been mentioned in this article and I have also collected these for reference at the end.

I first started following sunspot 953 on the 27th April, 2007 and made sketches in my observing notebook.

It was fascinating to see the active area develop over the space of a few days. Sketching at the eyepiece is a great aid to improving your observing skills. If you are able to put down any detail on paper, it means that you have really studied the object in question – not just glanced casually through the eyepiece, or at a photograph. Like any form of sketching, drawing at the telescope takes practice, but anyone can do it. These sketches were done in a few minutes with the dual



Top: Whole disc image of the Sun. Courtesy of SOHO/MDI.

Left: Hα image taken by Gary Palmer.

purpose of recording the changes from day to day and having a record to look back at.

Active area 953 was also captured in amazing detail by Gary Palmer of Los Angeles, California, using a Coronado double stack 90 Hydrogen-alpha scope and an SBIG ST-2000XM camera. Many thanks to Gary for allowing the use of this image. Hopefully, my sketch on the same day bears some resemblance to this image! It is also well worth having a look at his impressive solar movies at http://www.thesuninmotion.com.

The Society's NearStar is filtered at the objective end with an energy rejection filter which cuts out all the potentially harmful radiation in the infrared and ultraviolet. It is further filtered at the eyepiece end with a narrow bandpass filter to let through hydrogen alpha – Hα. Hα radiation has a wavelength of 656.3 nm and corresponds to a temperature of around 10,000 K which occurs in the chromosphere – the layer above the visible 'surface' of the Sun known as the photosphere. As this wavelength is within the visible part of the spectrum, it allows us to see activity in the chromosphere as well as several features in the photoshere below. It is also possible to fine-tune the wavelength via the small thumb-screw on the diagonal which helps bring out details of particular features. Various features can be observed in Hα. Prominences – vast arches and sheets of plasma being thrown outward from the edges of the solar disc. Filaments – dark lines on the face of the Sun – are actually prominences seen face-on against the bright solar disc. Plages are bright areas usually seen near sunspots (such as 953) and may actually be seen in areas of potential sunspot formation. It is also possible to see through to photosphere features such as sunspots and granulation – lozenge-shaped tops of convection cells which are constantly reforming over periods of around ten minutes.

I also followed its progress on the excellent web site http://www.spaceweather.com. A quick glance at the home page will show you whether or not there are any active areas on the Sun. The Spaceweather main page uses a whole disc image like this one from the SOHO/MDI consortium. SOHO or 'Solar and Heliospheric Observatory' is a 3-axis stabilised spacecraft that constantly faces the Sun. It orbits around the 1st Lagrangian point (L1) at a distance of around 1.5 million kilometres where the combined gravity of Sun and Earth keep SOHO in an orbit locked to the Sun-Earth line. It carries 12 instruments which observe at various wavelengths. The results can be seen (almost real-time) at their website http://sohowww.nascom.nasa.gov. Spaceweather also indicates the likelihood of solar flares and resultant auroral activity. If there is a possibility of auroral activity – check out the Aurorawatch website at http://www.dcs.lancs.ac.uk/iono/aurorawatch.

The '953' refers to an 'active area' and this may contain more than one sunspot. The numbering was started on January 5th, 1972. However, as it is limited to 4 digits, when 10,000 was reached in June, 2002, it rolled over to start again at 0000. So although this active region is referred to as 953, it is actually 10,953 since records began. This is not to be confused with the daily 'sunspot number', which is a calculated

value indicating the current level of solar activity.

Because the Sun is not a solid body, it exhibits differential rotation about its axis. The period of rotation at the equator is approximately 27 days, but this increases to around 40 days at the poles. This differential motion causes a distortion in the Sun's magnetic field. This twisting, together with the effect of convection currents, produces tubes of magnetic field lines arching in and out of the photosphere – the visible 'surface' of the Sun. These regions prevent the flow of heat by convection from the lower levels and so a cooler, darker area is seen as a sunspot. The darkest central area, or 'umbra' is the coolest part – as much as 2000 K cooler than the surrounding photosphere. The lines of magnetic flux are also at their most concentrated here. In the lighter 'penumbra', the flux lines are becoming weaker and more horizontal. The longer term effects of this differential motion also apparently accounts for the solar cycle, which has been observed and recorded for around 200 years. This equates to a periodic increase and decrease in solar activity over approximately 11 years. When the Sun is at its most active, there are a greater number of sunspots. The last maximum was in 2000, so we should have passed the minimum by now. However, it has been agreed by a panel of experts that the predicted minimum will be March 2008, give or take 6 months. There was also some uncertainty as to when the next solar maximum would occur. Some believe there will be an intense maximum in 2011; others favour a less intense maximum in 2012. See the Spaceweather archive for the 28th April at http://www.spaceweather.com.

Basic discs labelled with NSEW can be used for drawing observed solar detail or for drawing directly over a projected image. You do, however, have to take into account the apparent tilt of the Sun's axis as the day progresses (unless you are using a correctly set up equatorial mount). At midday, the celestial North-South axis is vertical; but at the start and end of the day, it will appear tilted from the vertical as the Sun proceeds around the curve of the celestial equator. A drift method can be employed to determine the East-West axis. With the telescope fixed and the drive (if you have one) switched off, allow the spot to drift across the eyepiece or across the template if you are projecting. Rotate the image until the spot travels along the East-West line. Remember to check the orientation regularly if you are observing over a period of time – it doesn't take long for the Sun to travel across the sky. Just as the Earth's axis is inclined to the ecliptic by just over 23°, the Sun's equator is inclined to the orbital plane of the Earth by just over 7°. The combined effect of these inclinations causes an apparent wobble of the solar sphere over the space of a year, as we complete an orbit around it. This is explained in more detail on Peter Meadows' website http://www.petermeadows.com together with an excellent animation on the 'Sun from Earth' page. You can also download his freeware program 'Helio' which provides an ephemeris for your location, together with aids for drawing and recording sunspot activity. For recording more detailed positional information of sunspot groups, you can use Stonyhurst discs or Zürich grids. These are templates with lines of latitude and longitude which take into account the foreshortening effect near the limbs. It is quite easy to forget – especially in a telescopic view – that you are looking at a sphere rather than a flat two-dimensional disc. Stonyhurst discs in various sizes and formats can be downloaded from Peter's website.

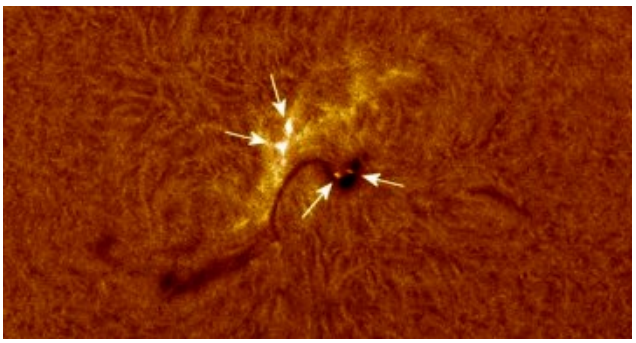


Image taken by P.-M. Hedén.

One interesting phenomenon, and new to me, which cropped up during the study of sunspot 953 was that of the so-called Ellerman Bombs. Examples in active region 953 can be seen arrowed in this image by P.-M. Hedén of Sweden. It was taken using a Canon Digital Rebel XT through an Orion 80ED with SolarMax60 filter. Many thanks to him for allowing its inclusion in this article. Please also take the time to visit his website at http://www.clearskies.se where you will find an excellent collection of images. Of particular interest to a number of our members will be some stunning noctilucent clouds and aurorae.

In 1904, Ferdinand Ellerman joined George Ellery Hale (with whom he had previously worked at Yerkes Observatory) on Mount Wilson. They began a program of observing using a 12" solar telescope previously used on a Yerkes eclipse expedition in 1900.

In 1915, whilst observing in the Hα band, Ellerman reported a phenomenon 'so extraordinary it hardly seemed real'. It appeared to be something in the nature of an explosion, lasting only a few minutes, and he adopted the name 'hydrogen bomb'. See http://adsabs.harvard.edu for his original article – Solar Hydrogen "bombs". They are now commonly known as Ellerman Bombs (Ebs), but may also be referred to as micro-flares or moustaches – due to their spectral profile extending either side of the Hα line. They are most likely to occur in areas of flux emergence and strong magnetic fields, for example in the vicinity of the penumbra around isolated sunspots – such as 953. The average life-span is thought to be around 10-14 minutes and if you should see one – keep watching, because they are likely to recur in the same area.

As I said earlier, this is not intended as a complete guide to solar observing – I've merely scratched the surface of a very complex and fascinating subject. So, whatever your preferred method, get out there and do some active observing of our closest star.

Websites and books:

- http://www.spaceweather.com
- http://www.thesuninmotion.com
- http://www.petermeadows.com
- http://www.clearskies.se
- http://sohowww.nascom.nasa.gov
- http://articles.adsabs.harvard.edu
- http://www.solarmonitor.org
- http://www.dcs.lancs.ac.uk/iono/aurorawatch
- http://eo.ucar.edu/staff/dward/sao/solar/

- Chris Kitchin, 2002, *Solar observing techniques*, Springer, ISBN 978-1-85233-035-4
- Pam Spence, 2004, *Sun observer's guide*, Philip's, ISBN 0-540-08393-3

Ken Thomas

More on cooling the Earth

In *Journals* 48 and 51, I wrote about proposals to combat global warming by reducing insolation, so giving us more time to try to control greenhouse gas emissions.

I am not alone in believing that radiative forcing from the greenhouse gases emitted as a result of burning fossil fuels, and the associated positive feedbacks, will continue unabated, and/or because it is already too late to stop the forcing or because sufficient action will not be taken in time. Therefore, it is urgent to find other ways to cool the Earth before the results of 'global heating' (James Lovelock's appropriate term) lead to the collapse of civilisation.

Evidently, some scientists agree and have suggested various ways to cool the planet. Many of them met in November 2006 at a seminar organised by NASA and the Carnegie Institution at its Stanford (CA) station. A British newspaper described two of the geo-engineering methods discussed, a giant mirror in space and reflective dust pumped into the atmosphere, 'as a last-ditch way to halt global warming' (1). It reported that the US lobbied for such a strategy to be recommended by the Intergovernmental Panel on Climate Change (IPCC). The US wanted recognition of direct cooling methods. The US response stated: "Modifying solar radiance may be an important strategy if mitigation of emissions fails. Doing the R&D to estimate the consequences of applying such a strategy is important insurance that should be taken out. This is a very important possibility that should be considered."

The article noted that scientists have previously estimated that reflecting less than 1 % of sunlight back into space could compensate for the warming generated by all greenhouse gases emitted since the industrial revolution. Besides a giant space mirror, possible techniques include launching thousands of tiny, shiny balloons, or pumping microscopic sulphate droplets into the high atmosphere to mimic the cooling effects of a volcanic eruption. In reply, the IPCC said that such ideas were "speculative, uncosted and with po-

tential unknown side effects". (2) (This view has been repeated in the IPCC's *Fourth Assessment Report Climate Change 2007:* Mitigation of Climate Change – Summary for Policymakers. Evidently, the US view did not prevail.)

A recent newspaper article (3) reviewed more of the proposed methods and an earlier TV programme featured various proposals for countering global warming (4). One of the methods was Prof. Roger Angel's idea for a shield at the Earth-Sun L1 point. However, instead of one giant shield, he proposed the deployment of millions of small glass discs each about 60 cm in diameter and weighing only 1 g (5).

The US scientists might have had in mind a suggestion by Curtis Struck, a scientist at Iowa State University in Ames. He has suggested reducing insolation by obscuring the Sun with a cloud of dust to orbit around the Earth in the orbit of the Moon at the L4 and L5 points where it is thought the Kordylewski clouds already exist. Either this dust would come from a comet somehow dragged into these positions or from Moon dust fired from the Moon's surface by a mass driver. This would provide Earth shading for decades at least, so giving time for reductions in greenhouse gas emissions to take effect. To sceptics who point out that the shadow of the Moon on the surface of the Earth, at times of solar eclipse, is very small, he pointed out that if the Moon were three times its size, subtending 1.5°, the whole Earth would be in its shadow when the Sun Earth and Moon are all lined up.*) If, as he claims, the proposed dust clouds (roughly spherical and homogeneous) subtended about 10°, they would shade the Earth. (6)

Struck does note some drawbacks, such as the brightening of the night sky as sunlight is reflected off the clouds, an increase in micrometeorites and the devastation of ground and orbit-based astronomy in many wavebands.

Notes and references:

*) Prof. Struck agrees that this is an error and that the Moon would have to be 4.68 times bigger. This note is added with his agreement.

1. David Adam: 'US answer to global warming: smoke and giant mirrors. Washington urges scientists to develop ways to reflect sunlight as "insurance" ', *The Guardian*, 27 January 2007.

2. Climate Change 2001: Mitigation (section 4.7) in *IPCC Third Assessment Report: Climate Change 2001*.

3. Jonathan Leake: 'Sounds crazy but it may save the planet', *The Sunday Times*, 18 March 2007.

4. 'Five ways to save the world', *BBC2*, 19 February 2007.

5. See: http://www.eurekalert.org/pub_releases/2006-11/uoa-ssm110306.php

6. Curtis Struck: 'The Feasibility of Shading the Greenhouse with Dust Clouds at the Stable Lunar Lagrange Points'. *J. of the British Interplanetary Society*, **Vol. 60**, pp. 82-89 (March 2007).

Steuart Campbell

Minor planet (7170) Livesey

Congratulations go to Ron Livesey, who has had an asteroid named after him. It was discovered and named by Robert McNaught (of comet fame) at Siding Spring Observatory in Australia, and its number is 7170.

> 7170 Livesey – Discovered 1987 June 30 by R.H. McNaught at Siding Spring.
> Ron Livesey (b. 1929) has had a major influence on amateur astronomy, particularly in his native Scotland. He has been a key figure in organizing astronomical societies and observational programs, particularly of aurorae. [2]

Minor planets (asteroids, small solar system bodies) with confirmed orbits are given a number, and most are later officially given a name proposed by the discoverer. They are then referred to by using their number in parentheses followed by the name, e.g. (1) Ceres, (7170) Livesey, or (134340) Pluto. The parentheses are often omitted. Until the orbits are confirmed, they are known by provisional names. Livesey has provisional names 1987 MK and 1978 PU4. The

former reflects its discovery in the 13th fortnight (letter M) of the year 1987, the latter designation implies that it had also been spotted in mid 1978.

(7170) Livesey completes an orbit every 4.43 yr, with a mean distance from the Sun of 2.7 AU, an eccentricity of 0.18 and an inclination of 12.5° against the ecliptic. It's diameter is estimated to be 9 km. [2]

(Ron) Livesey was Director of the Aurora Section of the British Astronomical Association for 23 years before he stepped down in 2006. He is a frequent contributor to ASE meetings as well as this Journal, and a keen observer of, for example, nocticulent clouds, Sun, Moon and variable stars (aurorae go without saying).

References:

1. http://en.wikipedia.org/wiki/Meanings_of_asteroid_names_(7001-7500)
2. http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=7170

Horst Meyerdierks, Dave Gavine

Recent observations

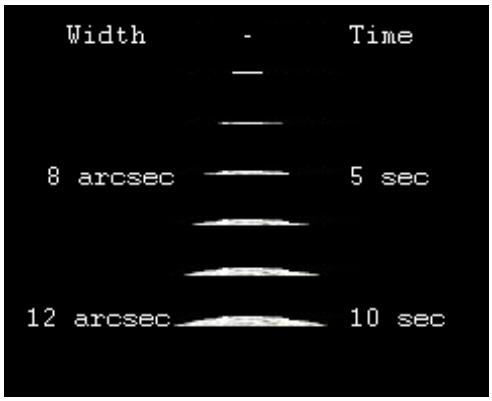
Lunar eclipse

Many observed the total eclipse of the Moon on 2007-03-03. The picture on the front page was taken by Martin Allan, using approximately 5 s exposure.

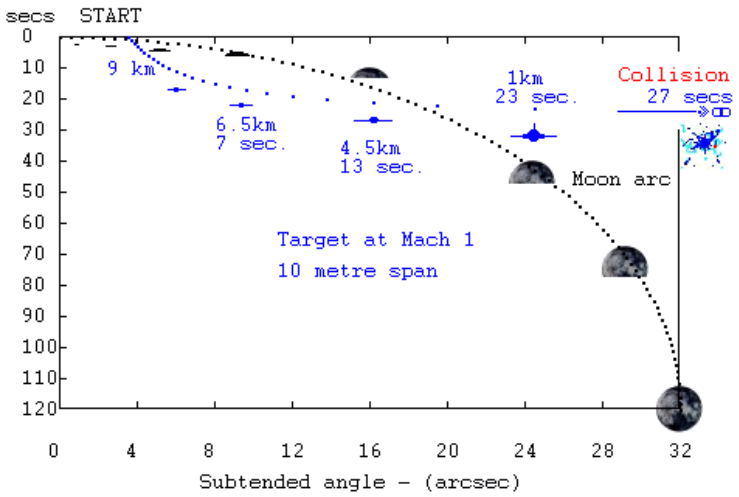
Old and young Moon

Horst Meyerdierks was hoping to take a picture of the Moon on the morning of 2007-04-16, just over a day before New Moon. The season – early autumn – was ideal, as was the latitude only 1° from the tropic of Capricorn. However, he was clouded out on Cerro Paranal. The picture shows the lunar crescent and earth shine one day earlier, taken with a stationary f = 800 mm f/12.6 lens and 2 s exposure.

Frank Howie used the favourable conditions – early spring – to picture the young Moon on the evening of 2007-04-18, from less exotic Morningside. He used a tracking D = 200 mm f/10 Schmidt-Cassegrain telescope.



Top: Figure 1.



Right: Figure 2.

Moonrise

After the last ASE lecture (on erroneous astronomical observations) I mentioned a real event when flying in featureless conditions at night involving the unexpected appearance of the rising Moon edge directly ahead. It took several seconds for this to manifest itself in its recognisable form, and had we entered full cloud at this time both my co-pilot and I would still believe we had seen an unidentified flying object.

This was a long time ago, and I have just done some calculations on it, as much to verify my memory of it, as to draw attention to the possibility of confusing this phenomenon with a dangerous situation.

Even seeing another plane in flight away from airfields is pretty rare. In controlled airspace Air Traffic Control is mandatory, and outside it an Advisory Service is available to all, and will normally keep aircraft miles apart, where they will usually subtend less than a degree or so. But this is *all too little* if they are on a collision course.

First consider the rising Moon, taking the simplest case at a time and latitude where it rises perpendicularly over the horizon to go overhead. The arc appears suddenly and expands rapidly as shown in Fig. 1 (ignoring the resolution jumps). At other latitudes the rise will involve a multiplying cosine component (due account being taken of the earth axis tilt, and if necessary the 5° or so that the plane of the Moon motion differs from the ecliptic. There will also be a sine component giving a translation along the horizon, but unless one aligns a telescope on it, (or there is a reference object in view), this will not be very obvious.

The expansion in Fig. 1 is very rapid (*infinitely* rapid on first appearance) but how does it compare with an aeroplane object? The visual acuity of normal eyes is about 1 minute of arc. This means that at least in principle, you should be able to see a 10 m span aeroplane against a contrasting background at a range of 3600×10, or 36 km. Unfortunately this only applies a) when focussed at infinity, and b) if you are looking in exactly the right direction. It is well known when there is a featureless scene before you, you may be focussed much closer that you think, especially if you have just looked up from the instrument panel. If you are not looking directly at the distant object, peripheral vision comes into play, which is nowhere near as discriminating. You just have to scan around to pick up such a distant object, and by the time you see it, it will probably be down to a quarter of this, so subtending 4 minutes of arc at 9 km.

If the closing speed is Mach 1 (entirely possible if you are seeing a military jet, or are one yourself) you have just under 30 seconds to collision, (half that if you are both doing it); the blue curve in Fig. 2 shows that the subtended-angle expansion is almost at right angles to the Moon curve (in white) at the start, and at least half the Moon has appeared before the plane's expansion begins. As a pilot you have 24 seconds to spot it before it comes within 1 km, at which time there are *only 3 more seconds* to take avoiding action if required. This is why the appearance of the Moon arc in a similarly short time can be disturbing, unless or until you recognise it as just the beginning of its 2 min march to full.

There is nothing to stop you going out and looking for this effect at moonrise on the right night, without having to be in an aeroplane. After all, relative to the Moon you are still travelling at a good fraction of Mach 1, modified only slightly by the Moon's 29

times slower velocity, but with a star background and illuminated foreground it will hardly be the same. The sun too of course, being almost same size, produces the same effect every day, but with an illuminating sky and landscape, not to speak of the visual dangers, it is by no means recommended.

Graham Clarke

Two BAA meetings in Scotland

BAA Variable Star Section met in Edinburgh

On 2007-05-05 the Astronomical Society of Edinburgh hosted the meeting of the Variable Star Section of the British Astronomical Association. The local organiser was our President, Des Loughney, who is also Eclipsing Binary Secretary of the BAA Section. Due to the state of the Calton Hill Observatory, the meeting was held at the Royal Observatory instead.

About 50 people attended, members of the BAA Section as well as members of ASE. After a brief welcome by Dr Andy Longmore on behalf of ROE, proceedings began with a talk by Dr Mike Hawkins, also from the ROE, about "Dark matter – the hidden universe". Although not visible directly, there is a variety of evidence for it, beginning with the flat rotation curves of galaxies to the gravitational lensing by galaxy clusters. Variable star observers might have been particularly interested in microlensing, where the passage of a compact dark matter object in front of a star can briefly enhance the brightness of the star.

There followed an inspiring talk by Stan Waterman, "A study of some GCVS and NSV stars in Cygnus". He has been imaging repeatedly two patches of sky of a few square degrees, naturally finding all sorts of variable stars. "Repeatedly" here means many times per night and for several years now. As Andy Cameron pointed out, the methodology and equipment was not all that different from what they use in the SuperWASP project to find planets.

After a buffet lunch most attendees took the opportunity and joined the tour of the Royal Observatory. Some recounted fond memories in the dome of the 36-inch Cassegrain – the East Tower of the observatory. At the opposite end – both of the site and the history of ROE – we were shown cutting edge technology in the form of the SCUBA 2 sub-millimetre camera that is in the final stages of construction and will be shipped to the James Clerk Maxwell Telescope in Hawaii later this year.

The afternoon programme kicked off with Professor Andrew Cameron of St. Andrews University with his talk "Sizing up extrasolar planets with small telescopes". The SuperWASP cameras are two arrays of off the shelf telephoto lenses with state of the art CCD detectors. Repeated observations return light curves for very many stars, and the challenge is to reduce the data to find the light curves that might betray a planet transiting its star. Typically these would be dips in brightness of 2 to 3 hours' duration and one or two percent depth.

The break for refreshments gave opportunity to study the posters that had been brought along by Section members.

Dr Martin Hendry of Glasgow University then spoke on "Gravitational microlensing – nature's telescope", complementing Dr Hawkins' talk in the morning. His research is into the use of graviational lenses to tell us more not so much about the mass doing the lensing, but about the background object being lensed.

The programme was rounded off by contributions by Melvyn Taylor on binocular observation of variable stars, by John Toone on the international effort to improve comparison star sequences (as drawn into the charts from the BAA, AAVSO etc.), and by Andy Wilson about several aspects of submission, analysis and archival of variable star observations by BAA Section members. Proceedings concluded with the closing remarks by Roger Pickard, Director of the Section.

This was the first meeting of the Variable Star Section in Scotland, and thanks go to Des Loughney and the staff of the ROE Visitor Centre and of the Astronomy Technology Centre for making it happen. And, naturally, to the BAA Section for holding the meeting here and to attendees for coming along.

BAA Out of London Meeting in Glasgow

The British Astronomical Association will hold this year's Out of London Meeting on the weekend of 2007-08-31 to -09-02. This will be hosted by the Astronomical Society of Glasgow. The programme and

cost are shown on the booking form, which you can download in PDF format from the ASG website. Go to http://www.astronomicalsocietyofglasgow.org.uk and follow the hyperlink "News".

The meeting begins on the Friday evening, 2007-08-31, with a Civic Reception and talks by Professor John Brown, Astronomer Royal for Scotland, and by Dr David Clarke. The main programme takes place on Saturday, 2007-09-01, at Strathclyde University, with a comprehensive line-up of talks on deep sky matters as well as time on the Faulkes Telescope in Hawaii. After dinner there will be an evening visit to Glasgow University's Acre Road Observatory. The meeting concludes on Sunday morning, 2007-09-02, with a visit to Glasgow Science Centre, including a planetarium show.

The local organiser of the meeting is Eric Tomney, who can be reached by email on <baaweekend@myasg.info>. The completed booking form with payment should be sent to the BAA at their London address (given on the form) by 2007-08-10.

References:

- Astronomical Society of Glasgow, http://www.astronomicalsocietyofglasgow.org.uk
- British Astronomical Association, http://www.britastro.org/baa/

Horst Meyerdierks

Glen Lyon weekend 16-18 March 2007

or light hearted astronomy

Two late arrivals at Meggernie eventually got there just after midnight after attending the Edinburgh society's AGM. The drive up was not too bad – clear spells and rain showers. Quite a few stars as well so there was loads of hope. Even at Killin the skies were clear and so filled us with even more hope. The run over the pass on Ben Lawers was disappointing inasmuch as it was now officially raining! There were a few stars but also there was rain – not good for observing sadly.

Malcolm Gibb, our host, welcomed us and after we disposed of the bedding gear – found ourselves in the kitchen which fast became the 'snug', and some 'sampling' of refreshments took place. Much story-telling was made with even more laughs, when two die-hard observers came in from the cold and informed us that we were wasting time talking as we should be outside observing. This was a blatant lie as the 'polar-aligned' raindrops were clearly visible on his glasses! The hilarity continued until 3-ish according to the clock on the wall ... time for bed.

After an excellent breakfast the place certainly thinned out a great deal – people off out exploring the delights of Aberfeldy. The people who remained were treated to a fine display of how to take a picture of a tea-urn. A very valuable lesson for astro-photography! In actual fact, Danny was showing us how to use the DSLR software – an aid for remote focussing of a digital SLR.

The people who remained were entertained by Ken Thomas who had ASE's solar telescope – he was seen running along a mountain track – solar 'scope in hand – following a break in the cloud! Saturday evening started with a fine meal. Congratulations have to be given to Martin and his team in the kitchen.

Everyone fed and watered, things hotted up for the **Meggernie Mastermind** competition.

Neil Grubb was our question master and the group was split into 4 teams captained by Horst, Bill, Ken and Danny. Some light-hearted complaints were raised about the amount of kids' TV programme questions asked, especially as there were teams with nobody under 40! It was a close-run event with Bill's team snatching defeat by one point! Congratulations to Horst's team for winning the event.

One question remains though: How come Fiona has been on the winning team 3 times in a row now? Hmm something dodgy here methinks! After the quiz we settled down to watch a few DVDs – seeing as the weather wasn't clear enough to get the 'scopes out.

2:20 am and the snow started!
2:30 am and Douglas appeared – thankfully without fangs and a black cloak!!

After another fine breakfast and clearing the place up we dodged snow-showers and got the cars packed up for the trip home. AFA did themselves proud – a great weekend, great food and great company. The AFA weekends are truly well worth attending! Finally – **HOOBLAND**? (you had to be there!)

Iain McEachran

This article is re-printed from the *Scottish Astronomers Group Magazine* (May 2007), with permission by the author. It has in the meantime also been re-printed in *Ad Astra*, the journal of the Association of Falkirk Astronomers. Malcolm Gibb writes in his editorial:

> The annual astronomy weekend at the Scout Outdoor Centre in Glen Lyon took place in March and was attended by 21 persons from Falkirk, Stirling, Edinburgh, Glasgow and Port Glasgow. It was unfortunately not blessed with clear skies apart from about ten minutes on the Saturday, but it was also raining at the time. We had two green laser pointers and two responsible members put on a laser show with Saturn appearing in the finale. Iain McEachran, who is now President of the Astronomical Society of Edinburgh, has written a humorous account of the weekend. Although we didn't see much in the way of clear skies, the DVD films, the hotly contested Meggernie quiz, the visit to the distillery and of course the food, a big thank you to all who participated and helped. We are holding another one this year on 12th to 14th October, so get your name in early, the café with the chocolate cake *will* be open then. (*Ad Astra*, **8.1**, p.2, Spring 2007.)

Forthcoming events

The following events take place at the City Observatory, Calton Hill, Edinburgh. The meetings on Calton Hill are open to the public. Please check the Society web site (http://www.astronomyedinburgh.org) and the answering machine on 0131-556.4365 closer to the time for updates.

2007-07-06	20:00	Dr Suzanne Ramsay Howat, Royal Observatory Edinburgh	A selective history of astronomy
2007-08-03	20:00		Members' night Short presentations by members of the Society
2007-09-07	20:00	*TBD*	*TBD*
2007-09-30	*TBD*		Doors Open Day
2007-10-05	20:00	*TBD*	*TBD*

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The editor of this Journal is
Dr Horst Meyerdierks
71 Cameron Toll Gardens
Edinburgh, EH16 4TF
<editor@astronomyedinburgh.org>