

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

12th December 2005

Dr Andrew Norton (Open University):

“Outbursts, Orbits and Oscillations”

No, that's not the Star of Bethlehem you can see in the west after sunset. That's our nearest neighbour planet – Venus. It's so bright because of the reflection of sunlight off the tops of its ever-present white clouds.

But Venus is no twin of the present Earth – it's carbon dioxide-rich atmosphere would roast you to 450°C and crush you to 500 atmospheres before dissolving your remains in concentrated sulphuric acid. Long ago Venus lost any liquid water it had, and so lost its ability to regulate its temperature. The temperatures rose high enough to force CO₂ out of the carbonate rocks to fuel the runaway greenhouse effect.

Mars, visible in the east after sunset, also lost its liquid water for different reasons. Due to its small size, its atmospheric pressure was too low and all the water either boiled away and was lost into space or froze to form ice.

Only on Earth, in between the two other planets, did liquid water remain, to dissolve excess CO₂, form reflective clouds, in a beautiful negative feedback loop, which keeps the climate stable.

Can I take this opportunity to wish all our readers a Merry Christmas, and all the best for the New Year.

THE NIGHT SKY THIS MONTH

by Bob Dryden

Sun: The winter solstice occurs at 18hr 35min on 21st December, which gives us our longest night of the year. After this date, the days are getting longer again although you probably will not notice it for a few weeks. January 2nd also heralds the Earth's closest approach to the Sun in its yearly orbit. We will be a mere 147 million kilometres away (as opposed to 152 million km at our furthest).

The Planets:

Mercury is in the morning sky all this period but as it is still dark when many of you get up, you have chance to step outside and hunt it down. The planet is at greatest elongation on 12th December after which it starts to move back towards the Sun. Unfortunately, Mercury stays fairly low in the south-east, but you should be able to see it if you have binoculars.

Venus is a fantastic sight low in the south west just after sunset. It is still approaching Earth so continues to appear larger and larger. It grows from 46 arc seconds in diameter in early December to a whopping 60 arc seconds by early January. By then, binoculars will easily show the lovely crescent phase of the planet. The bad news is Venus is now starting to move back towards the Sun and the elongation decreases from 36 to just 14 degrees by early January. The evening of 1st January will have a crescent Moon below and to the left of Venus, which will be a very nice sight if it is clear.

Mars is fading now but is still bright enough to attract your attention. Its apparent size though is decreasing rapidly so you need to view it at every opportunity. By mid-January it will be only 10 arc seconds across and the observing window is virtually at an end.

To make up for losing Mars, **Saturn** is now moving into view at a more sociable hour. In early December Saturn reaches a reasonably high altitude by about 10.00pm. By January, it is above the horizon much earlier than that. The rings are starting to close and they are just 18 degrees to our line of sight now (as opposed to 27 degrees a year or so ago). Any small telescope should still give a good view of them though. Around the 19th December, Saturn gains new 'moon' as it passes a 7th magnitude star.

Meteors:

The best meteor shower of the year is arguably the Geminids which is active between 7th and 16th December. The night of maximum activity is December 13th when, under perfect conditions, you can see about 100 meteors an hour. Unfortunately, 2005 will not give you perfect conditions. There is a very bright gibbous Moon above the horizon all

night on the 13th so you will see very few Geminids this year.

The other meteor shower active during this period is the Quadrantids. They can be seen between 1st and 6th January with maximum on the 3rd. Again, a good year could give you up to about 100 meteors an hour, although most of them will only be visible after midnight. However, if you fancy having a look for them this year, conditions are favourable as there will be no Moon to interfere on the morning of the 4th (maximum).

Asteroids:

The asteroid 3 Juno is still on view although it fades slightly from magnitude 7.6 to 8.0. It is just to the right of Orion's belt.

The other bright asteroid on view is 4 Vesta which is in Gemini. This one actually brightens from magnitude 7.0 to 6.3 before fading slightly to 6.5. If you need a guide star to find Vesta, on 23/24th December it is very close to, and just south of, Delta Gemini.

Binoculars are all that you need to see either of these asteroids.

Comets:

Yet again, comet 101P/Chernykh is still on view on the Pisces/Cetus border. It continues to fade (from 10.3 to 10.7) and this is probably your last chance to see it this apparition.

A new comet moves into view as the year ends. Comet E2 2005 McNaught is brightening as it moves north through Capricornus and Aquarius. Hopefully, it will reach 9th magnitude by mid January as it travels through the south-west after sunset.

MOON PHASES:

New: 1st Dec.; First Qtr: 8th Dec.; Full: 15th Dec.; Last Qtr: 23rd Dec.; New: 31st Dec.

Astronomy Adventures

See the Starry Splendour of the Southern Sky

Come to New Zealand and see what a really dark sky looks like. For Astronomy Holidays in New Zealand:

E-mail: astronomy@igrin.co.nz

Website: <http://homepages.igrin.co.nz/astronomy>

MY NEW OBSERVATORY

**by former member Deborah Hambly
in New Zealand**

I trust you will enjoy the following tale about the transport of my reconditioned dome for my soon-to-be-built observatory from the east coast of New Zealand to my new home on the west coast. As the dome is 3.6 metres in diameter, a special freight company was tasked with transporting it. The dome was on the second leg of its journey, being collected from the fibreglass repair shop on Friday night prior to its delivery to me on Saturday morning when my phone rang. The truck, I was informed, had been stopped by the police. According to the police, it was too wide for the roads. However, the transport company told me not to worry, they would still get the dome to me the following day, as they had located a pilot. "A pilot?", I enquired, with thoughts of helicopters landing in the garden running through my mind. "What about room to land with nearby electricity and telephone wires?", I asked. The transport company said they would work around them with the "plane". "I suppose I could inform the newspaper, as this might be an impressive delivery out to the beach, which just might be worthy of some local coverage." The transport man agreed that it would definitely be a big undertaking, but I decided not to call on the reporter, as I wanted to be safe with all council approval before receiving publicity.

I knew that the dome, while large, was in fact rather light, as I would have to arrange for it to be lifted on to the base once it was built. All I could do was continue to cut down an overgrown bush to make a temporary place for the dome near to where the observatory would be built, and wait.



You can imagine my surprise the following morning, when instead of hearing the whirring of helicopter blades, I saw the word "PILOT" strapped to an escort vehicle just ahead of the truck carrying my dome. Once the transport truck reached us the "pilot" was off down to enjoy a morning at the beach, while the truck tried to squeeze into my driveway. The support pillars on its crane (not plane!) were sunk into the ground, and it then lifted and moved the dome, being careful to avoid the electricity wires to its new spot.

CHRISTMAS LIGHTS

by David Birkett, your local CfDS rep.

Every time we line ourselves up for a viewing evening we have fog or rain or just cloud. It makes me question the reason why I pursue this quest for darker skies when there is little to see due to our wonderful climate.

Flying back one night recently from Italy, with a cloudless sky, the view of the earth was fantastic, it was very evident there is still one huge reflection from shielded lights, and there seemed to be plenty of them too, which is encouraging. However most of the shielded lights were over France.

England's coastline looking from Eastbourne west over Brighton and beyond was, despite the light pollution, an enjoyable spectacle. Brighton pier was the largest subscriber to the pollution. However the star of the flight was Venus from 35,000 feet. Looking out to the west I saw this bright light, so bright I forgot that we were flying and tried to think of what building it might be. The light was of a bright headlight quality and with the thin atmosphere at that altitude the light intensity was truly stunning. Maybe we ought to have an observing evening flying above the clouds if it is only to beat them

Last month I mentioned my involvement with Radley College and the light pollution created by their all-weather all-hours practice pitch. I believed my brief was to try to reduce its impact on the surrounding environs. I visited the Bursar one evening in late September and following my explanation for my call, I might add prearranged, I got a very sympathetic audience. As I explained last month there are certain lux levels that are required for each sport, the faster the game the brighter the light required, apparently. 350 lux is the maximum created at Radley. This seemed to be the level that was used then at all evening sessions.

Following my visit and the various suggestions I made that the college might consider, the Bursar has responded by finding that most of the pitch users only need 2/3 of the light available, hockey being the only one requiring the highest level. The first result therefore is that the switching has been changed to allow only 2 out of 3 lamps available per post to be used except for hockey games. Hockey takes place in the Spring term.

The second suggestion was for the reangling of the lights. This however did not achieve anything apart from shifting the light sources into even less desirable positions. However the third action, following an experiment with a hood over one light to reduce side spillage, that all lights will be hooded on the flank facing Big Wood Estate on Sugwoth Lane, resulting in the light sources being masked from that prospect.

Unfortunately there is nothing that can be done with these lights that can currently mask the lights from Kennington Road as it is at a much lower elevation.

Whilst the light source will generally remain evident to some degree at least a reduction of its intensity has been made. I will continue to be in touch with the school as I dare say there will be opportunity later for even more improvement when they consider the replacement of the lights say within the next 5 to 10 years. Running costs may force changes earlier but that is only conjecture and hope on my part.

So with one small advance on one small front I mentioned last time that Bob Mizon noticed a huge light source near the A34 close by Abingdon. I did see this recently, driving back from the Witney direction, and assume it is in Shippon or close. Is it a sports ground or a military installation? I would appreciate some input before making any approaches; the public are a delicate breed. I did not have time to divert to search. [Ed. This is most likely Tilsley Sports Centre. Next time you are blinded travelling south on the A34, remember who to complain to.]

Did you see the article in the Independent newspaper about three weeks ago that featured Bob Mizon and the efforts by the CfDS? Apparently the city council in Rome has decided to cut light levels at 10pm, and again at midnight, to allow its citizens a better view of the stars. [Ed. Remember that it was the Italians who first banned smoking in public places...]

I think we should also look at good lighting as it mentioned in the article, (Bob had been in Kingston-

upon-Hull giving out awards,) and send our praises; maybe next time.

Finally I trust that you will share my view that Christmas lights are fun and should be enjoyed, somehow that the naffer they are the better the result; have you seen the politically correct crescent moon lights in Cowley Road Oxford?

Thanks for listening.

[Ed. For more on the Campaign for Dark Skies and the recent ruling reclassifying light pollution as a statutory nuisance go to <http://www.dark-skies.org> .]

FURTHER DISCUSSION

Don't forget the Society's web site:
www.abingdonastro.org.uk

Our webmaster, Andrew Ramsey, is always on the look-out for members' photographs to put on there. Don't forget you can read back copies of SpaceWatch on the web site too.

You can also find details of our e-mailing list there.

Further discussion also takes place after our meetings over at the Spread Eagle pub in Northcourt Road (the road opposite the Boundary House). All are welcome to join in.

DATES FOR YOUR DIARY

19th December: 8pm. Beginners' Meeting in the Perry Room.

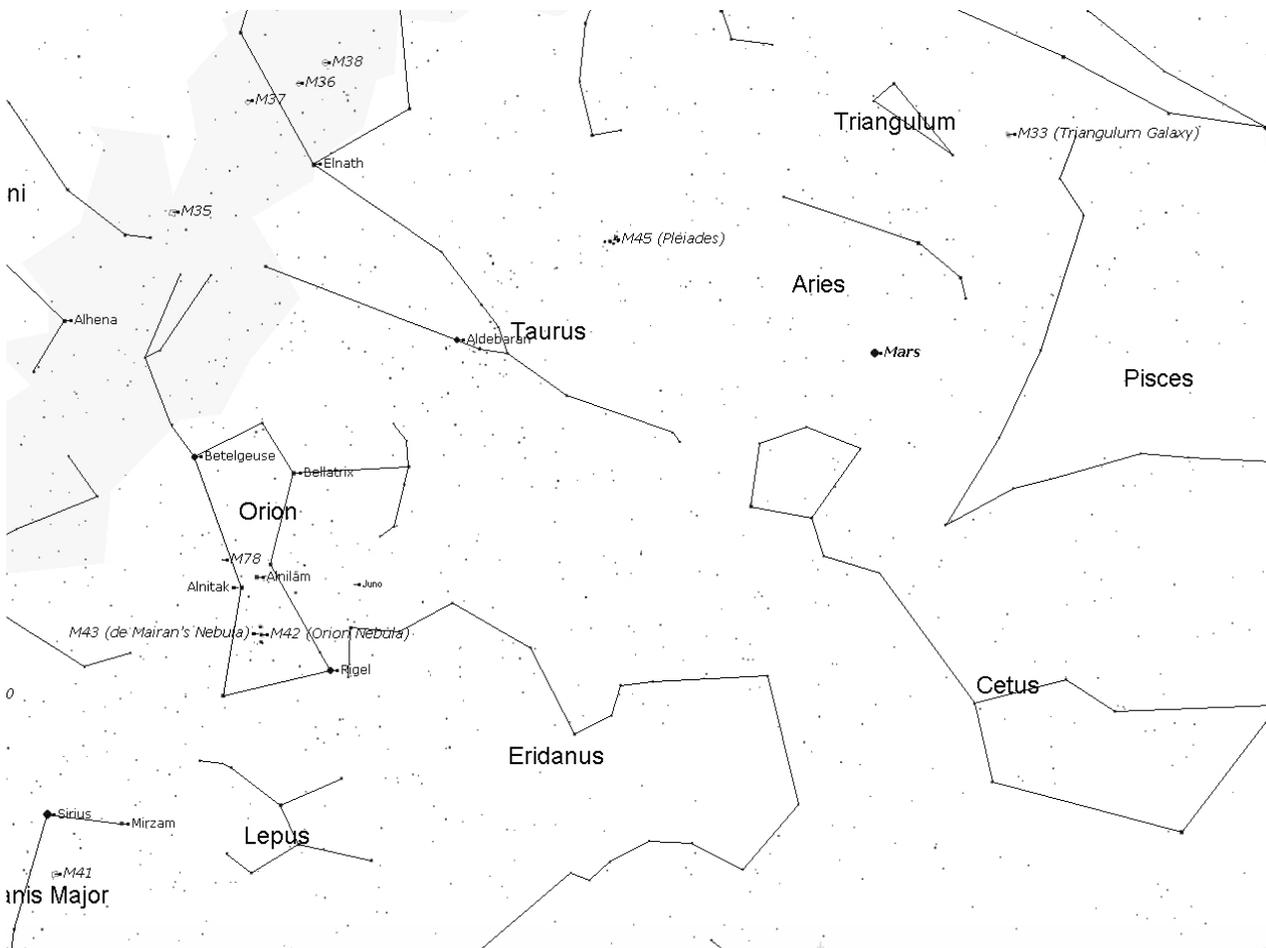
9th January 2006: 8pm. Neil Bone (BAA) "Meteors".

The editor of "SpaceWatch" is Andrew Ramsey, who would very much appreciate your help and contributions. Please send any news, observations, photos, etc. to:

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STAR CHART



Looking south at 10pm next Saturday (17thDecember):