Cardiff Astronomical Society NEWSLETTER

March - May 2011 Issue 154

A Few Pictures from CAS's Stargazing Live event in support of BBC2's Stargazing Live Campaign.

Photos: Paul Jones

Editor Ian Davies, 52 Heol Nant Castan, Rhiwbina, Cardiff, CF14 6RQ.
Tel. (029) 2062 0501 email Publications.Officer@cardiff-astronomical-society.co.uk

Junior Editor Amanda Peters, 2 Sanquhar Street, Splott, Cardiff. CF24 2EB
Tel. (07993) 102789 email Junior.Representative@cardiff-astronomical-society.co.uk

Editorial Ian Davies

CAS started the year with our phenomenally successful Stargazing Live Event at Dyffryn Gardens. The event ran in of BBC2's series of Stargazing Live programmes. Estimates show that around 500 members of the public attended, I was in the observatory most of the evening with a queue of eager people waiting their turn to see a view of the cresent moon through our 12" Meade LX200 telescope. I only heard good comments from those who attended. More on the event form Dave in his Behind the Scenes on page 3.

For the first time in this issue we are publishing a list of our up coming public events, some of these events are under our own auspices, while others are for other organizations or part of other events, most of these events you can come along to, though in some cases there may be a charge by the hosts to attend. Of course we are always on the lookout for volunteers to help us run the events. If you would like to volunteer to help out at any of these or others in the future contact Dave Powell or Thereas Cooper, their contact details can be found in your handbook. They will always be able to find you something to do to help out.

Of course you will all be coming along to the third Cardiff Astronomy Festival we are running in partnership with the National Museum of Wales Cardiff on the 2nd April won't you!

Wishing you dark skies - Ian.

Publication Dates

The CAS newsletter is published at the first society meeting of September, December, March and June. The deadline for submissions is 4 weeks before the publication date (deadline for Issue 155 is 12th May).

Visit CAS on the web @

Cymdeithas Seryddol Caerdydd
Home Page

http://www.cardiff-astronomical-society.co.uk
General enquiries email info@cardiff-astronomical-society.co.uk
Remember as a CAS member you can use the Members' Area of the web site. You will need you password to access this area. If you don't know your password it is your surname followed by your membership number.

twitter CAS is now on twitter, to follow us, follow **CardiffAS**

Annual General Meeting April 14th.

We need volunteers, so here is how you can go about it

If you wish to apply for committee then complete a nominations form, available from the Secretary or the Members' Area of the web site. The form will need to be supported by not less than two ordinary members, and must be received by the Secretary not less than fourteen days before the date of the AGM.

Behind the Scenes

David Powell

January 8th we were at Dyffryn Gardens for a BBC Stargazing Live event. What a night! The sky remained clear all evening; people bought along portable telescopes, just as well as each one had a long queue as well as the observatory itself.

members of the public waiting patiently for their turn to look through a telescope.

Photo: Paul Jones

Someone said they counted 150 cars, we did not believe it so someone else counted them again and yep, 150 cars, each with an average three people on board.

In fact although we advertised the start time as 7pm they started turning up at 6.10pm.

Marc Delaney presenting one of the three talks.

Photo: Paul Jones

We also included three talks and it was standing room only all night.

On the Thursday before I asked for volunteers to help and you did not disappoint me.

I would like to thank everyone on behalf of the Committee who directed traffic, manned scopes, answered questions, etc etc. Absolutely brilliant.

The BBC produced some star guides for the event. As it turned out we had nowhere near enough of them to go around on the night. But they are available for

download from the BBC web site in both English and Welsh. You can find the English version at:

http://downloads.bbc.co.uk/tv/guides/bbc_stargazing_live_star_guide.pdf

and the Welsh at:

http://downloads.bbc.co.uk/tv/guides/BBC_Stargazing_Live_Star_Guide_WELSH.pdf

There is also a 12 page activity pack containing projects for kids again this can be downloaded from the BBC at:

http://downloads.bbc.co.uk/tv/guides/bbc_stargazing_live_activity_pack.pdf

Members and guests at the CAS Christmas Meal

Photo: Ian Davies

Before Christmas Rosa, as usual, arranged a first class Christmas meal at the Deri Inn. The food was good and the company splendid. WELL DONE Rosa.

Joy of joys, I am delighted to announce I have conned (well begged on my knees really), and it worked Vannita Popli has agreed to join the committee and take on the role as Membership Secretary. Well done Vannita, I will not regret it!

In January we held our first training session on the observatory telescope. The two pupils were Rosa Adams and myself. Teacher for the morning was Ian Davies. As the scope is run via a computer it follows that as with anything to do with

hardware/software its better to do things in the right order. Well as Eric Morecambe once famously said to Andre Previn, “look sunshine I am playing all the right notes, but not necessary in the right order”. Well teacher was not letting us get away with that old chestnut. We had to learn things by route. Now we will have a checklist printed up and pinned up inside so you won't have to go through all this. But until this is done then we need a few volunteers to help get started. It really is not difficult, as anyone who has heard me speak; technology and me do not get on. Not that it’s my fault you understand. Basically it requires doing a set number of small things in the correct order and remembering simple things like the telescope software is American built so when it asks you to punch in the date, it means do it the American way not the British. Well the first few minutes were pretty chaotic. I wanted to slew before I could sync but after the threat of detention, we put our catapults away and began to concentrate. Now we can both do it, it’s easier than I suspected, as long as you stick to the correct order of things. By the way teacher, I have written my 100 lines “must not snigger when teacher is speaking” and will hand them in at the next meeting.

PS Can we have our catapults back please? (Teacher says no, not for a while anyway.)

At our recent committee meeting we discussed various ways to raise money to replace what we spent on the observatory. Big thanks to everyone who has made a donation, large or small we are very grateful. Anyone else who wishes to contribute can do so by contacting me.

We are going to set up on our website another way to pay your subscriptions, soon you will be able to renew using “Paypal”.

Two ideas to raise cash may be of interest to some members - a ”bring and Buy” sale. Anyone who has unused/unwanted eyepieces/books etc etc and what about starting a 100 club. Those who want to put in a set amount and each month/quarter a name is drawn out of the hat. Is there anyone out there who has experience in running such a venture?

What if I could arrange for a very famous person i.e. an astronaut to give a talk, would you be prepared to pay for tickets?.

Suppose we run an extra course, say practical basic Astrophotography, would you be prepared to pay a fee for such a venture?.

What about writing a book on “The History of Welsh Astronomy”, anyone fancy taking this on?.

Ultimately, what’s needed is a dedicated “Fund Raiser” to sit on committee. Don’t all rush at once, but I am serious, so if you can get involved please do so.

You may have your own ideas or would like to comment on what we have suggested, then use the suggestions box or come and have a chat.

SpaceX's Dragon Spacecraft Re-Enters Successfully

SpaceX/NASA

The Dragon spacecraft landed in the Pacific Ocean 3 hours, 19 minutes and 52 seconds after liftoff—less than a minute after SpaceX had predicted and less than one mile from the center of the landing target.

On 8th December 2010 SpaceX became the first commercial company in history to re-enter a spacecraft from low-Earth orbit. SpaceX's Dragon Spacecraft "lands" on Target in the Pacific Ocean, 500 miles Off of the Coast of Southern California.

SpaceX launched its Dragon spacecraft into low-Earth orbit atop a Falcon 9 rocket at 10:43 AM EST from Launch Complex 40 at the Air Force Station at Cape Canaveral.

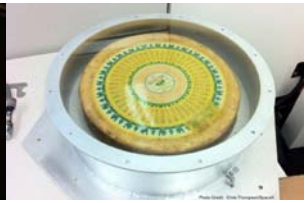
The Falcon 9 launch vehicle carrying the Dragon spacecraft, climbing from the launch pad.

The Dragon spacecraft orbited the Earth at speeds greater than 17,000 miles per hour, re-entered the Earth's atmosphere, and landed in the Pacific Ocean shortly after 2:00 PM EST.

This marks the first time a commercial company has successfully recovered a spacecraft re-entering from low-Earth orbit. It is a feat performed by only six nations or government agencies: the United States, Russia, China, Japan, India, and the European Space Agency.

It is also the first flight under NASA's COTS program to develop commercial supply services to the International Space Station. After the Space Shuttle retires, SpaceX will fly at least 12 missions to carry cargo to and from the International Space Station as part of the Commercial Re-supply Services contract for NASA. The Falcon 9 rocket and Dragon spacecraft were designed to one day carry astronauts; both the COTS and CRS missions will yield valuable flight experience toward this goal.

Oh BTW. The Dragon Spacecraft carried a secret payload, all was revealed the following day.....



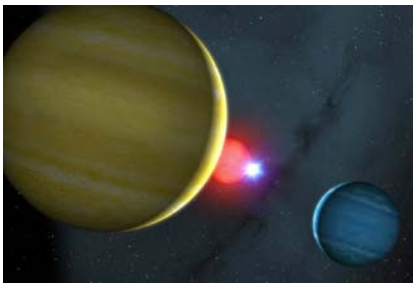
So what was inside the mystery package? Their tribute to Monty Python.

A wheel of cheese.

Exoplanets Survive Their Star's Fiery Death. Or Were They Born From It…?

By Phil Plait, Bad Astronomy

(http://blogs.discovermagazine.com/badastronomy/)



It's kind of amazing that with nearly 500 planets discovered orbiting other stars, we're still finding ones that are really weird. Massive planets orbiting so close to their stars they are practically ploughing through the stellar atmosphere; hot spots on the planet not aligned with their stars; planets orbiting so far out it's a struggle to understand how they got there.

And now we can add the planets NN Serpentis c and d to that list.

Lying about 1500 light years from Earth, NN Ser is a binary star — most stars in the sky are part of multiple systems, so that in itself isn't all that odd. But NN Ser is weird: it's a very dinky red dwarf orbiting very close to a white dwarf. And by very close, I mean really close: they're separated by only 600,000 km (360,000 miles), which isn't much farther apart than the Earth and the Moon!

The planets

I'll get back to the stars in a second. The planets found (named c and d because the two stars are a and b, according to the naming conventions) are Jupiter-scale beasts, with masses of about 6 and 2 times Jupiter's, orbiting the binary stars at a distance of roughly 825 and 450 million km (500 million and 270 million miles).

Those numbers don't seem too odd; lots of planets have been found with similar characteristics. But when you take a closer look at the system…

The stars

Let's go back to the stars. They orbit each other very rapidly: a complete orbit only takes about 3 hours! So those stars are really hauling. As it happens, the orbit is seen almost edge-on from here on Earth, so we literally see the stars pass in front of each other

twice per orbit. That's pretty cool, because it means that over a short time we can watch lots of eclipses and get really good statistics on how long the eclipses last, what the time period is between them, and so on. What the astronomers found is that the period of the eclipses is very slowly changing, and the best explanation is that of the two planets tugging on the stars as they orbit.

This turns out to be an incredibly difficult thing to measure; in fact a possible planet was reported just last year for this system, but the parameters for the planet didn't fit more recent data. These new results for two planets are based on more data and analysis, and look pretty solid to me.

The bizarre history of NN Ser

Where things get really weird is when you look at the stars, or more specifically, the white dwarf. These are dense balls of compressed material left over when a star like the Sun dies. As it ages, a star like this will turn into a red giant, swelling up to hundreds of times its current size, and blow off vast amounts of material. Over tens of thousands of years or more, it loses mass, shedding its outer layers. Eventually, all that's left is the core of the star, a hot compact object we call a white dwarf.

So that one star in NN Ser must have once been a star like the Sun which swelled up, blew off its material, then became a white dwarf. But wait a second… when it was a red giant, it was probably a hundred million kilometers across! But the other star in the system, the red dwarf, is only a few hundred thousand kilometers away. How does that work?

Almost certainly, the red dwarf used to be millions of kilometers or more away from the primary star. When the more massive star turned into a red giant, it would have literally engulfed the dwarf. Through friction, the red dwarf would have spiraled in, getting closer and closer to the core of the star. Eventually, when the bigger star blew off its outer bits, what was left was that white dwarf, and the red dwarf in its current, extremely tight orbit. It sounds incredible, but we've seen this happen before, and may be a relatively common occurrence in the Universe.

But hang on again! What about those two planets? How did this affect them?

Well, that's a bit of a poser. There are two scenarios. One is that they formed along with the stars long ago, and somehow survived this cataclysm. However, this strikes me as pretty unlikely. When the primary star went red giant and started blowing off matter, it was losing mass, and therefore its gravity got weaker. That means its hold on those planets would have become more tenuous, and they would have migrated outwards. This in turn means they would have been much closer to the star in the past. But we know the red dwarf is there, and while it's a dinky star, it's far more massive than a planet. It's very hard to see how planets could be in stable orbits so close to such a massive object. Models show they'd be ejected from the system relatively quickly.

That makes it unlikely they formed with the two stars. That leaves the second scenario: they formed after the primary star turned into a red giant!

That's pretty weird, too. But some models suggest that as the red dwarf spiraled into the core of the red giant, a massive disk of material would form around it. This disk could then be the raw material from which the two planets were formed. That seems fantastic to me as well, but look: we have two planets orbiting a very tight binary star where one is a white dwarf and the other is red dwarf. Something weird must have happened here! The real choice is to pick which is the least bizarre.

The view

Whatever happened, we've got what we've got: two planets orbiting this weird binary. Now imagine you're standing on one of those planets (well, since they're almost certainly gas giants, imagine you're standing on the surface of one of their moons). Look up. What would you see?

From the inner of the two planets, the two stars would be a bit less than a tenth of a degree apart; about 1/5th the width of the full Moon. You'd be able to see them as separate stars. The red dwarf would barely resolve itself as a disk; it wouldn't look like just a dot

in the sky. The star is far less luminous than the Sun, but would still shine about 20 times brighter than the full Moon on Earth. In other words, if it were the only object in the sky you could read by it, and looking at it would make you squint a bit.

The white dwarf, on the other hand, is tiny: only about 30,000 km (roughly 20,000 miles) across. It would be a dot in the sky from that distance. However, it's so hot that it shines more brightly than the Sun does, and from that inner planet would be about half as bright as the Sun appears to us from the Earth. It would be an intense pinprick in the sky, a brilliant dot that would be very painful to look at. In fact, it would drown out the red dwarf completely, shining thousands of times more brightly.

What an incredible sight that would be! If alien life developed on a moon of one of those worlds, the only way they'd know of the existence of the red star would be due to the eclipses. Every 3 hours and 7 minutes, the primary star would suddenly disappear for a few minutes as the bigger but far less massive and bright star blocked it out. At that time, and pretty much only then, would the faint red star be visible at all.

Cultures all over the Earth worshiped the Sun for obvious reasons: bringer of light and heat, we depended and still depend on it. What sort of myths would have arisen had the Sun's light been completely cut off a half dozen times a day?

And I have to wonder what other strange things await us as we discover more planets orbiting other stars. We have a pretty good idea of how stars age and die, but there will always be systems on the edge, ones we'll have a hard time understanding. What new things will we uncover then? And what would the sky look like from those alien worlds?

Walking On 'Mars' ESA

Three crewmembers of the virtual flight to Mars have 'landed' on their destination planet and two of them today took their first steps on the simulated martian terrain. The highlight of the Mars500 mission lasted for one hour and 12 minutes, starting at 13:00 Moscow time.

Diego and Alexandr beginning their 'Marswalk'

This Mars is housed in the Institute of Biomedical Problems in Moscow, on the next storey up the cylindrical modules housing the Mars500 crew. Six men have been already been isolated for more than eight months during the first full-duration simulated flight to Mars.

Three of the crew, Russian Alexandr Smoleevskiy, Italian Diego Urbina and Chinese Wang Yue, entered the lander on 8 February and they ‘landed’ on Mars four days later.

After this first sortie, they will venture twice more onto the surface simulator wearing Russian Orlan spacesuits.

”Europe has for centuries explored Earth, led by people like Columbus and Magellan,” said Diego at the beginning of his three-hour ‘Marswalk’ with Alexandr.

“Today, looking at this red landscape, I can feel how inspiring it will be to look through the eyes of the first human to step foot on Mars.

“I salute all the explorers of tomorrow and wish them godspeed.”

The next sortie, by Alexandr and Yue, will be on 18 February, followed by the last, again by Alexandr and Diego, on 22 February.

Gusev crater

The terrain, about 10 m long and 6 m wide, is covered with reddish sand and is built to resemble the surface at Gusev crater.

Diego and Alexandr with soil samples

Gusev, an old lakebed filled with sediments, is one of the most interesting targets for investigation by robotic explorers and humans. NASA's Spirit rover landed there in 2004 and has shown the crater holds many clues to the planet's wet history.

Soyuz-like living for 16 days

The three Marswalkers will live in their 6.3 x 6.17 m lander for 16 days, eating the type of food carried on Russia's Soyuz spacecraft and enjoying only limited exercise.

The lander will return to orbit on 23 February and dock with the mothership the following day. The hatch between the modules will be opened on 27 February for them to rejoin Romain Charles, Alexey Sitev and Sukhrob Kamolov, who have continued to 'orbit' Mars.

Already a successful mission

"The crew is highly motivated and performing very well," said Jennifer Ngo-Anh, ESA's Mars500 manager.

"The science community is very pleased with the quality of the material but, as this is a long experiment, we have to wait for the results until their 'arrival' at Earth.

"At this point, everything looks very good."

The most difficult but the most interesting part of this psychological study of long flights is still ahead: the crew is now faced with another monotonous 'interplanetary cruise' without a highlight like the Mars landing to look forward to.

They will start their eight month journey back home on 1 March, after loading the lander with rubbish and discarding it, as will likely happen during the first real Mars flight.

Rary And The Missing Penguin.

David Powell

It’s time to put the decorations up. A sentence that fills me with dread. I never look forward to Christmas. It starts too early i.e. August and goes on far too long. If it were left to me I would draw the curtains, bolt the doors, and hide behind the sofa till it was all over. It has always been so, as my too very grown up sons would testify. They did get their own back on me for being miserable. One year in particular they bought a singing Christmas tree, it is hideous. When it senses movement or sound it gives a terrible rendition of “Rocking around the Christmas Tree”. It took a whole week for me to realise what they were up to. Several times an evening they would open the lounge door, announce they were going to bed. Shut the door and the tree would sing. Then minutes later they would put there head round the door asking if I wanted a hot drink, shut the door and away went the tree. Fortunately soon after this they left home, returning only when they had dirty washing or when they needed money. By the way Kevin, I want you to know I never did believe your story about needing money to join a group who met once a week to discuss the question, does the Mona Lisa look slightly enigmatic, very enigmatic, or just plain bored? You went to the pub!.

Anyway I am not the only one who dislikes Christmas. Rary can't stand it. Cats hate change, so sticking a fir tree in the middle of a room is bound to upset even the most balanced of cats, and as the reader will know Rary is anything but evenly balanced.

We were out observing the month before and I did warn him that Christmas was just round the corner. I remember the night well; I had set up a scope and had a very nice view of the Andromeda Galaxy M31. Rary was sitting on the garden fence when I turned the scope to look for the Globular Cluster M15 in the constellation of Pegasus. This beautiful object is just below naked eye visibility but a small pair of binoculars is all that’s needed to pick it up. That got me thinking. Rary was looking up in the general direction of Pegasus and this thought came into mind, cats eyes are supposed

to be super sensitive and work best in low light. Suppose you could graft a pair of cat's a corneas onto the lens/mirror of your telescope, would you see more? I was about to ask Rary but he disappeared.

Anyway Mrs Powell announced the decorations are going up but not to worry as they would all be done by the time I get home from work.

"Lyn, do we have too?"

"Yes we do it's for the grandchild, and remember by the time Santa comes down the chimney we will have another grandchild, so cheer up."

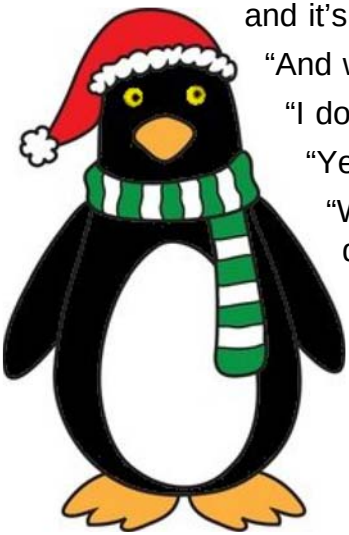
"Well I don't mind putting the tree lights on."

"You must be joking, after last year's fiasco."

"That's right throw that one back in my face."

"Dave did you or did you not throw the tree lights out the door onto the lawn?"

"Well, ok, yes I did. But Lyn I checked every bulb before I put them up, then when they did not work, I took them off, tightened each one again, found one that was loose and put them back, switched on and can you believe only the one bulb lit up, the rest did not and it's then I chucked them onto the lawn"



"And what happened then?"

"I don't remember."

"Yes you do, they all lit up."

"Well at least the lawn looked nice, but I don't know how it happened without being plugged in."

By the time I arrived home Lyn had transformed the house into Santa's Grotto. Yes it all looked nice but my eyes were drawn to the fire grate. On one side stood the hideous singing tree and on the other a Penguin. What is that? I

asked. Oh it’s funny when you press the button it sings “Santa Claus is coming tonight” while tap dancing, Elli will love it. I hated it already.

A couple of days later we had the very bad snow fall. Rary has seen snow before but never in such quantity. He stuck his head through the cat flap had a look and jumped out into six inch of pure snow. He carried on up the garden path as the snow got deeper until only his backside and tail marked the spot where he was. Within minutes he was back in doors where he proceeded to hibernate over the next few days. Rary could be found on a radiator, under a radiator, in the airing cupboard or in front of the fire. In fact he has his uses. If Rary doesen't make use of a certain radiator it needs bleeding. One particular morning Rary wanted to sit/lie in front of the fire. But there was a problem the hearth was occupied by a singing tree and a dancing Penguin. I was just off to work. Rary looked at me looked at the visitors and sniffed the air. He approached the tree gave it a cuff and it fell over before I could do anything it began to sing “Rocking around the Christmas Tree”, Rary took a step back looking very startled regained his composure and jumped on the tree thumping it with his paws then sitting on it. The tree gave up and stopped singing, but the commotion started the Penguin off. Rary approached it, cuffed it twice, it stopped singing, but its legs were still in motion, so he picked it up and shook it like a rag doll. It soon gave up the ghost. I was enjoying this, we left the house together - Rary with the Penguin in his mouth and me with my lunchbox under my arm. I lost sight of the cat but the postman came down the path. “Blimey that cat of yours has killed a Penguin.”

Before I could explain he went on. “Still if he takes it back to Antarctica before he eats it then a lot of people round here will be

happy."

This nasty remark was made because of an event that happened late last summer. Rary was on the window sill asleep in the Sun. The postman came down the path and wrongly assumed that all cats love to have their ears tickled. Well they don't. Or at least Rary doesn't. That is why the postman went back down the path quicker then he came up with a large ginger tom stuck to his ankle. I could only laugh and suggest the postman take up dancing as he appeared to be a quick learner. You know, you put your right leg in, your right leg, out you do the hokey cokey and shake Rary all about. He muttered something about an official complaint from the post office but they must have sent it second-class because nothing has arrived yet.

When I came home Mrs. Powell had cooked dinner and we sat down to eat and make small talk. "How was your day dear?" She said.

"Well" I began only to be interrupted.

"Oh let me tell you what Rary has done." she said. "I came down this morning and found the singing tree broken beyond repair, and the brand new Penguin missing. That cat's a menace. Sorry Dave to interrupt, how was your day?"

"Oh you know as usual it started badly, improved as the day went on, and ended really well. Anyway, what's for afters?"

BAA Winchester Weekend

15th - 17th April 2011

Speakers include Dr Matthew Malek, Chris Lintott, Stuart Eves, Nick James and Peter Meadows. A Lunar Section meeting takes place on Saturday afternoon.

£180 residential weekend (£160 BAA members). £50 Saturday Lunch and Dinner, £35 Saturday Lunch only.

Details from: BAA. Burlington House, Piccadilly, London, W1J 0DU. Telephone: 0207 734 4145

Up-coming CAS Public Events

Stargazing from a Dark Site

5th March 2011 19:00-21:30 Brecon Beacons National Park Visitor Centre

Cost: Adults: £6.00, Children (minimum age 10 years): £4.00. Price includes parking, hot soup and a roll.

Admission by ticket only, contact the Visitor Centre on 01874 623366 to apply.

Details at:- http://www.breconbeacons.org/visit-us/outdoors-activities/guided-walks-activities-and-events/walks-activities-and-events-2011

Cardiff Astronomy Festival

2nd April 2011, 10:00-16:30 National Museum of Wales Cardiff

Free to all

The theme this time is the History of Astronomy. There will be three talks - Clive Ruggles, "Pre Telescopic Astronomy", Prof. Mike Edmunds (in full costume), "Mr Newton" and Prof. Mike Disney, "Hubble to the present". We will also have an array of trade stands in the Museum's main hall.

Easter Weekend at Dyffryn Gardens

22nd to 25th April, 10:00-16:00

Details of our attendence at this event are yet to be finalised. We will probably not be there everyday but will be on site safe solar observing, weather permitting, on one or more of the days. Keep an eye on the website and Enews announcements for details as they become available. Normal Dyffryn Gardens admission charges apply currently Adult £6.50 and Child £2.50.

Safe Solar Viewing

30th July 2011, All Day. Free To All, Parking charges apply.

CAS Lectures March - June

Date	Title	Lecturer
3rd March	Ark in Space.	Dr. Marek Kukula, RGO, London.
17th March	Heavens above through Victorian eyes-Rev T.W.Webb.	Paul Haley, Hereford.
31st March	Comets & their exploration by Spacecraft.	Prof. David Hughes, Sheffield University.
14th April	AGM	Cardiff Astronomical Society
28th April	To Infinity and Beyond	Tom (Rocketman) Roberts, Cardiff Astronomical Society
12th May	Introduction to CCD imaging	Nik Szymanek, West Horndon Essex
26th May	Nautical Astronomy	Tom Carnduff, Cardiff Astronomical Society
9th June	Herschel Space Telescope observations of the Virgo Galaxy Cluster	Dr Jon Davies, Cardiff University

Almanac Compiled by Ian Davies

Sun Rise/Set & Twilight

Date	Astronomical Twilight Begins	Sun Rise	Sun Set	Astronomical Twilight Ends
01st March	05:08	06:59	17:50	19:41
08th March	04:52	06:44	18:03	19:54
15th March	04:36	06:28	18:15	20:07
22nd March	04:18	06:12	18:27	20:21
29th March	03:59	05:56	18:38	20:35
01st April	03:51	05:49	18:43	20:42
08th April	03:31	05:33	18:55	20:58
15th April	03:10	05:18	19:07	21:15
22nd April	02:48	05:03	19:19	21:34
29th April	02:24	04:49	19:30	21:55
01st May	02:17	04:45	19:33	22:01
08th May	01:51	04:33	19:45	22:26
15th May	01:21	04:21	19:56	22:56
22nd May	00:35	04:12	20:06	23:42
29th May	--:--	04:04	20:15	--:--

Meteor Showers

Date	Meteor Shower	RA	DEC	ZHR
12th April	Virginids	14h04m	-9°	5
23rd April	Lyrids	18h08m	+32°	12
29th April	alpha-Scorpiids	16h32m	-24°	5
6th May	eta-Aquarids	22h20m	-1°	35
13th May	alpha-Scorpiids	16h04m	-24°	5

Observers Club Meetings

Date	Day	Time	Venue
25th March	Fri	20:00 - 22:00 GMT	See Note Below
29th April	Fri	20:00 - 22:00 BST	See Note Below
27th May	Fri	20:00 - 22:00 BST	See Note Below

NOTE Castle Height Golf Course has gone into receivership. However presently the grounds are still available for observing, therefore if the weather is suitable we will hold the Observers club meeting in the grounds of the golf course, otherwise we will hold the club meeting in the Black Cock Inn a few hundred yards along the road towards Caerphilly. Should the situation change we will inform you via website announcements.

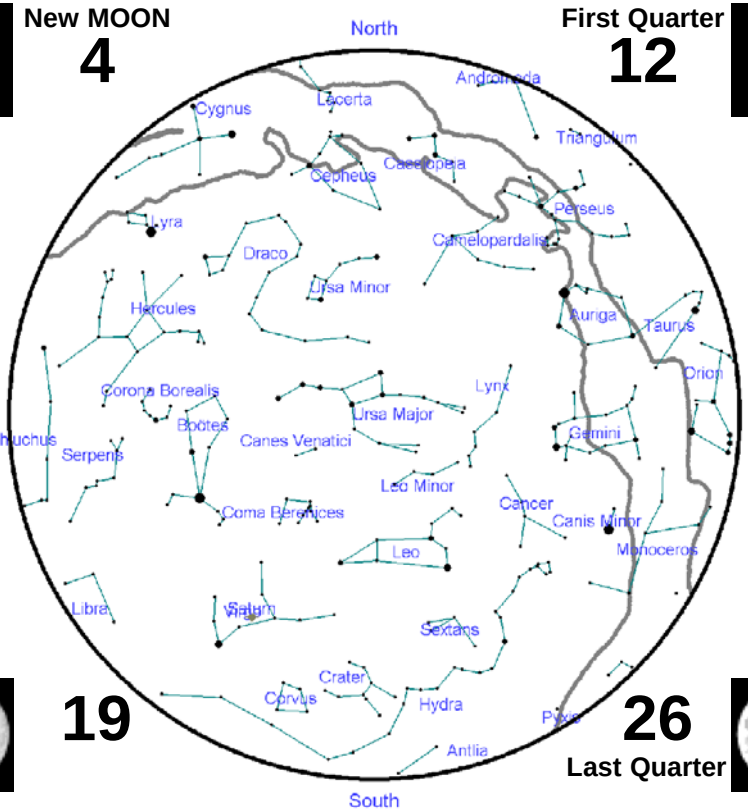
Observing Sessions

Date	Day	Time	Venue
11th or 12th March	Fri or Sat	20:00 - 24:00 BST	Dyffryn Gardens
8th or 9th April	Fri or Sat	20:00 - 24:00 BST	Castle Heights Golf Course
6th or 7th May	Fri or Sat	20:00 - 24:00 BST	Dyffryn Gardens
3rd or 4th June	Fri or Sat	20:00 - 24:00 BST	Castle Heights Golf Course

NOTE Where two dates are given we will attempt to hold the session on the first date, weather permitting, otherwise we will try again on the subsequent date. All dates are subject to weather conditions. For confirmation of any session please check on the CAS Web site or the CAS Observing line 07817 723 883 for more information.

Almanac March

New MOON
4



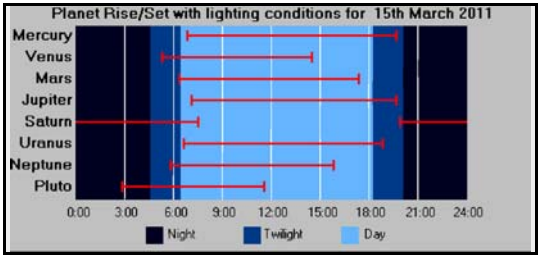
First Quarter
12

19

26

Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Pisces	00h33m53s	+04°23'35"	06:49	19:39	-1.0
Venus	Capricornus	21h11m01s	-16°13'48"	05:15	14:29	-4.0
Mars	Aquarius	23h09m06s	-06°33'36"	06:20	17:19	+1.1
Jupiter	Pisces	00h42m15s	+03°21'27"	07:03	19:42	-2.1
Saturn	Virgo	13h00m49s	-03°33'11"	19:54	07:28	+0.0
Uranus	Pisces	00h01m44s	+00°34'53"	06:37	18:48	+5.9
Neptune	Aquarius	22h13m23s	-11°35'44"	05:51	15:57	+8.0
Pluto (Dwarf)	Sagittarius	18h30m14s	-18°45'16"	02:50	11:37	+15.0



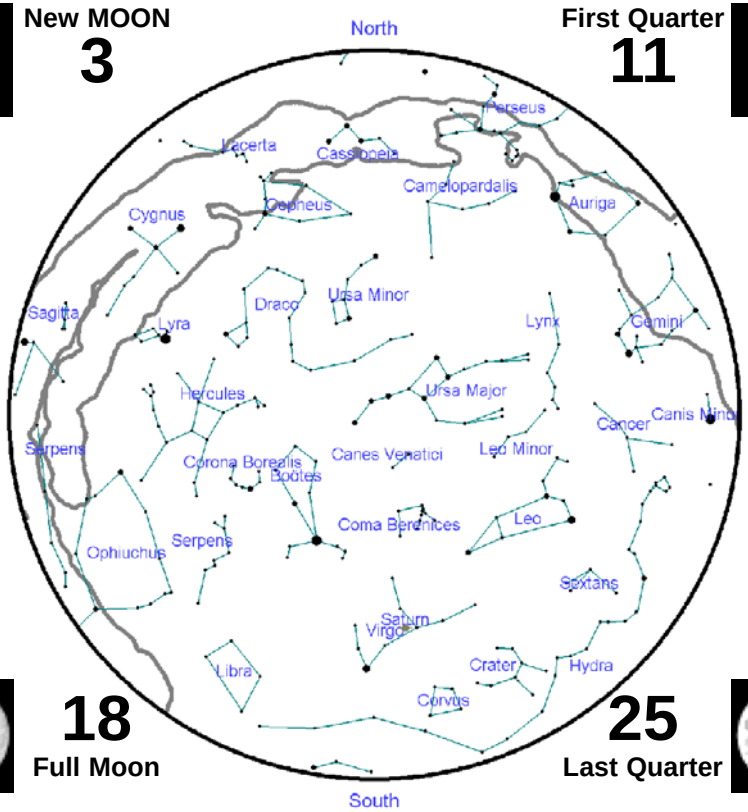
Planet Events

9th Mars at Perihelion (1.30 A.U.).
16th Mercury at Perihelion (0.31 A.U.).
16th Jupiter at Perihelion (4.95 A.U.).
21st Uranus at Conjunction.

The data presented here is for the 15th March, positional data is at 00:00 GMT/UT

Almanac April

New MOON
3

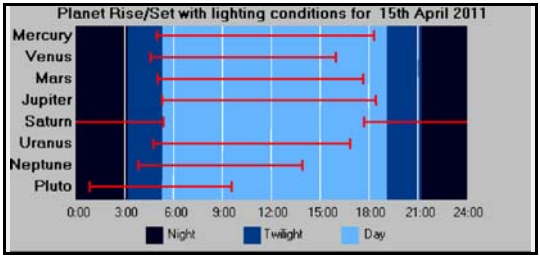


First Quarter
11

18
Full Moon

25
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Pisces	00h56m27s	+07°13'31"	04:56	18:14	+3.8
Venus	Pisces	23h34m47s	-04°13'36"	04:32	15:55	-3.9
Mars	Pisces	00h37m51s	+03°09'20"	04:58	17:35	+1.2
Jupiter	Pisces	01h09m52s	+06°14'58"	05:14	18:23	-2.1
Saturn	Virgo	12h52m11s	-02°37'31"	17:39	05:22	+0.0
Uranus	Pisces	00h08m08s	+00°06'39"	04:43	16:50	+5.9
Neptune	Aquarius	22h13m32s	-11°34'57"	03:49	13:56	+8.0
Pluto (Dwarf)	Sagittarius	18h30m53s	-18°43'28"	00:48	09:35	+15.0



Planet Events

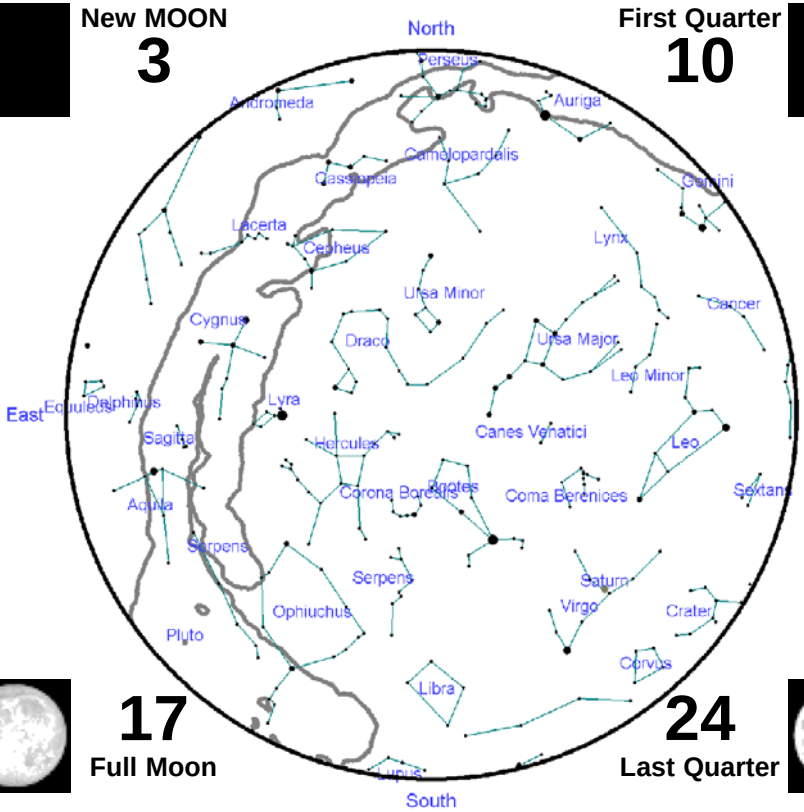
6th Jupiter at Conjunction.
9th mercury at Inferior Conjunction.
18th Venus at Aphelion (0.73 A.U.).
29th Mercury at Aphelion (0.47 A.U.).

The data presented here is for the 15th April, positional data is at 00:00 GMT/UT

Almanac May

New MOON
3

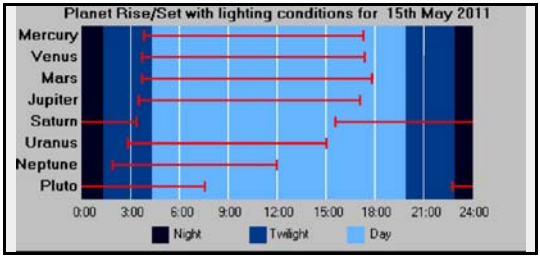
First Quarter
10



17
Full Moon

24
Last Quarter

	Constellation	R.A	Dec	Rises	Sets	Mag.
Mercury	Pisces	01h51m11s	+08°08'15"	03:47	17:16	+0.2
Venus	Pisces	01h49m42s	+09°32'56"	03:39	17:21	-3.9
Mars	Aries	02h03m09s	+11°52'40"	03:39	17:47	+1.3
Jupiter	Pisces	01h36m19s	+08°51'24"	03:29	17:04	-2.1
Saturn	Virgo	12h45m07s	-01°56'40"	15:31	03:20	+0.1
Uranus	Pisces	00h13m26s	+00°40'32"	02:48	15:00	+5.9
Neptune	Aquarius	22h13m40s	-11°34'10"	01:51	11:58	+8.0
Pluto (Dwarf)	Sagittarius	18h29m35s	-18°43'47"	22:49	07:36	+15.0



Planet Events

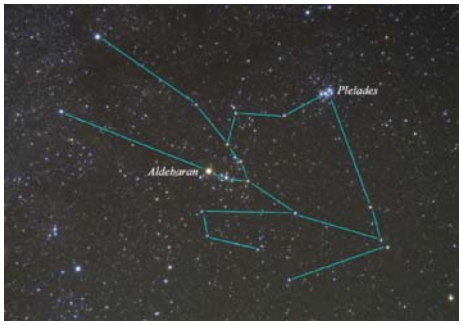
None This Month

The data presented here is for the 15th May, positional data is at 00:00 GMT/UT

The Junior Page

The Hyades and Pleiades

Taurus the Bull contains two well known star clusters, the Hyades and Pleiades. In Greek myth the Hyades and Pleiades were half sisters and the daughters of Atlas.



The Hyades and Pleiades star clusters

Hyades

The Hyades are the V shape of the Bull's head. The cluster is 151 light years from Earth is about 625 million years old and contains from 300 and 400 stars. The bright star Aldebaran is not associated with the cluster and is much closer to Earth at 65 light years. Epsilon Tauri (Ain) has a planet orbiting it.

An impression of Epsilon Tauri

In myth the mother of the Hyades was Aethra They also had a brother called Hyas. When he was killed they wept so much they were placed in the sky and became known as the rainy ones. The rising of the Hyades was said to foretell bad weather. The Romans knew them as Sidus Hyantis the rainy ones. In England the cluster was known as the April Rainers and were associated with April showers.

Pleiades

Another view of the star clusters

This cluster also known as the Seven Sisters, is further away than the Hyades so appears smaller in the sky. It is about 440 lights years from Earth. The stars that make up the cluster are blue and hot and within a nebula. They are about 100 million years old. The cluster is thought to contain about 500 stars.

The Pleiades or Seven sisters were the daughters of Atlas and Pleione. They were used by many cultures as an eye sight test. The more stars you could see the better your eyesight. There have been many names for this star cluster. In Japan they were Subaru, The Vikings knew them as Freya's Hens, the Moari as Matariki, the Babylonians called them MUL.MUL or "star of stars", the Maya as Tzab-ek and the Hen and Chicks in England. There are many other names from all cultures around the world and from all ages.

Many a night I saw the Pleiads, rising thro' the mellow shade,
Glitter like a swarm of fireflies tangled in a silver braid.

Alfred Lord Tennyson Locksley Hall

Two views of the Seven Sisters (The Pleiades) the left hand image shows a sky view and the blue nebulosity. On the right a more mythological view of the Seven Sisters.