



CAPELLA

CAMBRIDGE ASTRONOMICAL ASSOCIATION

www.caa-cya.org

Newsletter 161. Mar/Apr 2013
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The Pleiades

by Daniel Coe with an Altair Astro 80mm Triplet telescope.

*Atik 314L+ mono camera using Astronomik RGB filters.
70 x 1 minute exposures, across R,G,B and Luminance filters.
Taken in January 2013 at Ely, Cambridgeshire.*

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Chairman's report

I am glad to report the continued health of Association. Our programs of speaker meetings, observing, star parties and young astronomers meetings goes from strength to strength. We could not do this without the valiant efforts of you all to support this with your time and energy to keep the wheels turning - talking of which once again this year we are having a day "in steam" to add to the fun and are planning another one.

Speaker meetings.

We are now have most of the slots for the year filled, apart from July, August and September and are still working on finding interesting speakers and topics for those. The details for the ones we have in place are listed below and will of course be on our website.

Cambridge Young Astronomers

Attendance at the 11+ group seems to have grown, and the younger group is routine over 30 kids but we are still spreading the word to boost the roster for both. So if you know any likely recruits then we need them!

Events and Visits

Three coach-loads of us enjoyed a magnificent day out to London and the R.O.G. with the Imax film, boat trip in glorious weather and of course the exhibits of both the National Maritime Museum and the Royal Observatory – not to mention the Planetarium. Truly a grand day out for all concerned. We did come back with one less than we set off with, and never did find out why, so there is probably a CAA member lurking in the grounds of the ROG as we speak – unless it was you?

Capella

We need your content to fill the pages as ever, but remember that it must be your own work for copyright reasons. Keeping this up-to-date and publishing it on time is one of our key tasks and is a team effort, so perhaps you could help?

Observing

In January we put on a special observing evening with the BBC "Stargazing Live" people turning up en-mass. By some stroke of luck had one of the clearest nights for a very long time. So the 1200 visitors were treated to a really magnificent observing evening. Of course, now they will expect it every time!

Loan telescopes

The two new loan telescopes, the long-focus planetary scope, and the 16" Behemoth Dobsonian are proving to be great additions to the loan telescope program and are booked up well into the future.

Library

We are moving the library of books along, having disposed with some of the rather older titles. The state of astronomical knowledge seems to move ahead very fast so it is important to keep things fresh. Thanks to Kevin for organising all of this. Just make sure you bring your books back.

Website

No major visible changes to the website to report, but behind the scenes we have been tidying up the way it works to make updating things quicker and easier. The email reminder service is now up to about 500 subscribers

Finances

Our treasurer will report in more detail next time, following the AGM, but at this point we have a healthy bank balance almost unchanged from last year. If you could all take advantage of the standing-order based system it will save you a pound, and save Mickey a lot of ink for his quill and shoe leather taking visits to the bank.

My thanks go out to the committee, and all those other members who turn out to help and make the Association such an enjoyable thing to be part of. We could not do it without your tireless support.

Paul Fellows

Institute of Astronomy Open Day

Saturday 23rd March at 14:30



Opening times 2.30 - 6.30pm

Observing 7.00 - 9.00pm (only if clear)

As part of the Science Festival the IoA are opening their doors to the public, and as usual there'll be talks, demonstrations and activities for the children.

More information can be found on their website :-
www.ast.cam.ac.uk/public/science.festival.activities

Of course the CAA will be there too.

This year our youngsters (and not-so-young) activity will be making a model of a Mars rover which scarily follows you around the room! We'd love your help, either to help the children with the model making, or talking to people about the CAA and answering questions. Don't worry, you don't have to be terribly knowledgeable, and we'll soon find someone who can answer that difficult or obscure question. Even if you can only spare 10 minutes to help, that will give someone a break to whizz off for a cuppa.

There will only be observing if it's clear. Again help is needed for setting up our equipment or if you've got a telescope or pair of binoculars please bring them along and help take the strain off the Northumberland and Thorrowgood refractors.

Any queries please contact Brian or Paul.

Speaker Meetings

Unless otherwise stated these meetings are in the Hoyle building of the Institute of Astronomy, Madingley Road, Cambridge. Doors will open at 7.30 pm. and the talks will begin at 8:00 p.m. For security reasons, entry will not be possible after 8:10pm. As usual, the library will be open before and after the lecture and refreshments will be available after the lecture. These meeting are free to members. Non-members are charged £1

Friday 22nd March 2013 :

22nd Michael Penston Lecture

Dr Paul Ruffle

“How I Wonder What You Are: The Birth Life and Death of Stars”

"Twinkle, twinkle, little star, how I wonder what you are!"

How often did we sing that as a child without realising what we were asking?

Well, with the aid of some of the latest astronomical images, the wonder of what stars are is revealed in this talk



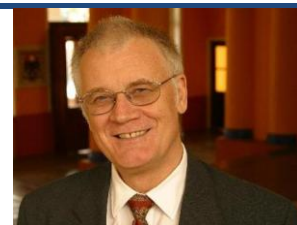
Michael Penston was based here at the Institute of Astronomy. In 1990 he was due to give a talk to the CAA, but had to cancel because of illness. Sadly, Michael died soon afterwards. In March 1991 the CAA held a lecture in memory of Michael, and a collection was made for Cancer Research. By the following year a fund had been set up in his name, administered by the Royal Astronomical Society, to help up-and-coming astronomers establish themselves in their chosen profession. Each year, at the end of the lecture we have asked CAA members to make a donation to this fund.

Friday 19th April 2013

Professor Malcolm MacCallum

“Dark Energy : Real or Illusion?”

The 2011 Nobel Prize for Physics recognized the use of supernovae data in detecting an apparent acceleration of the universe. The simplest explanation for this is some form of 'dark energy' with high negative pressure. The talk will review and compare the observational evidence from which the presence of dark matter, which has a more normal low pressure, and of dark energy is inferred. It will examine the assumptions of the arguments used, and the possible alternative explanations.



CYA Meetings : 7-11 Year Group

Unless otherwise stated, meetings for the 7-11 Group are held in the Hoyle Building at the Institute of Astronomy, Madingley Road from 10am to noon. Free to CYA members; non-members there is a £1.00 fee.

Saturday 23rd February at 10:00 : Orion and Friends

Any time in the early evening on a crisp clear night in late February is a wonderful sight, with the brightest of all the winter constellations, Orion is high up in the south. Not that Orion is alone, with Taurus, Gemini and other bright constellations are to be seen around the Hunter.

There are several interesting objects to be seen in the winter sky and you don't even need a telescope, in fact some objects are better seen in binoculars - like scanning the Milky Way which passes high overhead at the moment, or the Pleiades and the Hyades - both too big to be seen whole in a telescope.

Saturday 30th March at 10:00 : Exoplanets

It's been a while since we've covered planets orbiting other stars and in that time the number of exoplanets has now grown to nearly 900 with more be discovered all the time. Now much smaller planets are also being found, so are there any Earth-like planets out there? There are a number of different ways of detecting these illusive worlds, and we'll be showing you how they're detected, including stars which have several planets orbiting around them.

Saturday 27th April at 10:00 Mercury and Venus

Mercury and Venus are known as the inferior planets (they orbit inside the Earth's orbit), and being closer to the Sun they're a bit on the warm side as you'd expect. They have both been visited by spacecraft and we know a great deal about their surface and their properties, and more probes are planned. Both planets have also been involved in major events during the early solar system that have changed them dramatically.

CYA Meetings : 11+ Year Group

Monday 4th March at 19:15 : The Rocky Planets

We'll be taking a closer look at the four planets nearest to the Sun, and if you don't know which they are - go and stand in a corner and say Mercury, Venus, Earth and Mars 27 times! These rocky planets have had a chequered past and some these events have left their mark on this quartet of planets, from "Why is Mercury so dense?" to "Why does Venus rotate the wrong way?"

Please note this meeting is in the Kavli Building lecture theatre, arrive a few minutes early so we can take you through to the Kavli Institute.

Astronomical Fools

Monday 1st April at 19:15

As it's April fools day we'll be taking a look at various people who have made a complete and utter Wally of themselves, coming up with a dodgy theory, have made a really rash prediction or some other faux pas.

Unless otherwise stated, meetings for the 11+ Group are held in the Hoyle Building at the Institute of Astronomy, Madingley Road from 7.15pm to 8.45pm. Free to CYA members; non-members pay a £1.00 fee.

CAA News

Annual General Meeting

Our AGM will take place on 19th April starting at 7:30 before the speaker meeting gets going at 8pm. These are not lengthy affairs as we strive to keep the formalities to a minimum

The agenda will be

- Apologies for absence
- Minutes of the 2012 AGM
- Matters arising
- Chairman's report (see page 2 of this issue)
- Treasurer's report (in the next edition of Capella)
- Election of Officers
 - *With the passing away of Dr. David Dewhurst, we will be electing a new president.*
- Election of Committee
- AOB

Subscriptions are due.

Subs will be due and reminders will be sent out. Please note, we only send you **one** reminder only. To keep the Association running smoothly, please pay your subs at the end of March. They remain unchanged and as usual they're probably the lowest in the Universe! The majority of members pay by Standing Order mandate, just fill in your bank details on the subs form and our treasurer will do the rest - and it's cheaper too. We try our best to provide entertainment throughout the year for both children and adults at a very modest cost. Our subs rates remain unchanged;

- Standing Order Mandate ... £4
- Ordinary Membership with downloaded newsletter ... £5
- Membership with posted-copy of newsletter... £10

Public Observing

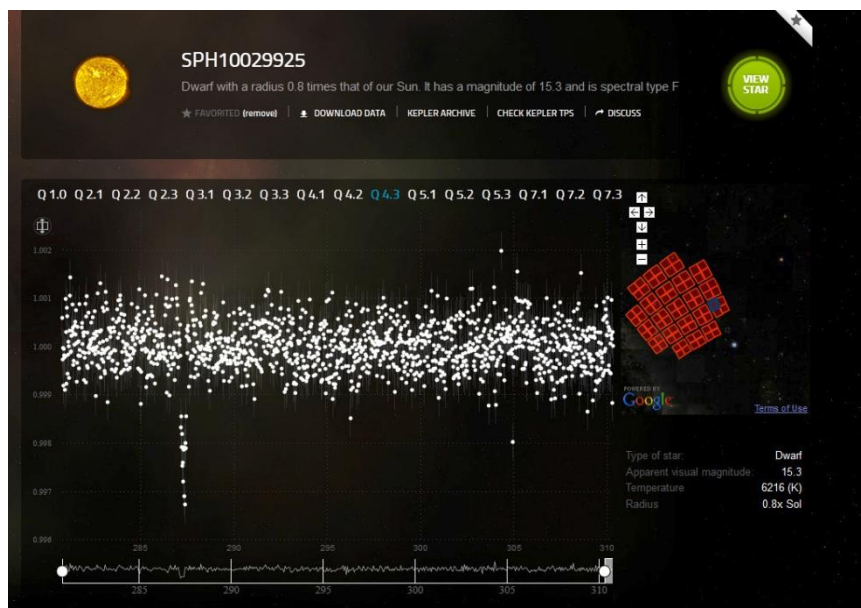
The last session for this year will be on Wednesday 27th March 2013, so you don't have many more chances to come along until we start again in the autumn!

Members Contributions

Discover a planet

You too can get involved in the search for exo-planets orbiting around other stars. The way to do this is to log in to the www.planethunters.org web site and you will be presented with a little bit of training before they let you loose on some real data. What you are looking for is the tell-tale dips in the light-curve from a star. These stars are being continuously monitored by the Kepler space telescope which is staring at a fixed patch of sky just next to the constellation of Cygnus. Electronics on the spacecraft lets it track the brightness of approximately 100,000 stars simultaneously. If any of these stars have planets, then depending upon the orientation of their orbits, there is a chance that they might cross the line of sight from earth to the parent star, and block some of the light as they do so. So, if we see the dips in the light, at regular intervals, then we can infer the existence of planets. Simple... well not quite, because the amount of light that is blocked is only a fraction of a per cent, and stars can be variable in all sorts of interesting ways. As a result the signals are rather noisy and it turns out that the human brain is a better tool for spotting the interesting transits rather than the computer. Hence the professionals are appealing for help for people to look through the vast amounts of data and pull out the planets. This may seem like a daunting thing, but I chose to have a go at it, and it was not long before I found some potential transits. One of these was subsequently confirmed by others, and a series of observations showed that there is a planet about 4.7 times the size of the earth, orbiting its parent star at 1.07 AU in 397.5 days (we found three consecutive transits). The interesting thing is that the star is an F-type and a little hotter than the Sun, so the planet being slightly further away means that it lies in the goldilocks zone. Not too hot, and not too cold. Just right.

Paul Fellows



One of the transits of the planet.

The Pac-Man Nebula : By Paul Beskeen

NGC 281 is sometimes known as the Pac-Man nebula. It can be hard to see why - but just imagine that the brighter part of the nebula above is a circle that makes up the head and the large extended dark nebula is its gaping mouth. It's chomping down towards the star at the bottom of the image.



The large dark nebula (NGC 281A) is a molecular cloud made up predominantly of molecular hydrogen, dust and other gases. New generations of solar systems are being forged within its cold interior. Once these young stars switch on their fusion engines they will irradiate their surroundings - heating up, ionizing and eroding away the remaining dark material from which they formed.

For Sale

Celestron Firstscope 80EQ. - 80mm F/11 Refractor with German equatorial mount (#21086), Starpointer finderscope, 20mm (45x) and 10mm (90x) Kellner eyepieces and 1-.25" diagonal. This is a high end refractor with piggyback mount, adjustable aluminium tripod & accessory tray. As good as new & hardly used! If you're interested buying, please contact Stephanie Norris: norris@northrange.demon.co.uk



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<p>Capella Newsletter Members should send stories for inclusion where possible by email to Paul Fellows or Brian Lister Please make sure that article text contributions are sent as standard Word files and images as .jpg's wherever possible.</p>	<p>Loan Telescopes for hire to members: Administration: Mickey Pallett mickypallett@gmail.com Maintenance: Dave Allen day.vid@hotmail.co.uk</p>
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