FOXTON BEACH
ASTRONOMICAL SOCIETY

www.fbas.org.nz

International Observe the Moon Night!
September 18th 2010

NEWSLETTER
September
2010

FOXTON BEACH ASTRONOMICAL SOCIETY
List of Officers 2010-2011

President:	Stephen Chadwick	Ph 329-9458
Vice President:	Ian Cooper	Ph 329-7829
Secretary:	Tina Hills	Ph 368-6926
Treasurer:	Simon Hills	Ph 368-6926

SUBS ARE NOW DUE

$30 – Waged or $15 - Unwaged

Please pay Simon or send cheque to 6A York Street, Levin

We welcome contributions from any members - observing reports, photos, news, links to interesting websites, just about anything astronomical will be considered. Please have your contributions in by the 21st of the month. Address any newsletter contributions to Stephen Chadwick at stevechads@hotmail.com or post to 628 Himatangi Beach Road, RD11 Foxton. We cannot guarantee everything will be included, but we will do our best.

NEXT MEETING

General Meeting

"Wonders of the Solar System"

THURSDAY September 2nd 2010 at 7.30 pm

at the Foxton Beach School staff rooms, Carthew Terrace, Foxton Beach.

Tea, coffee and biscuits are now available at all meetings at a nominal charge of 50c

We are a Registered Charity. All donations over $5.00 can be used to claim a Tax refund.

Minutes of the General Meeting held on 5th August 2010

Present: 9 Members **Guests** 2 **Apologies**: 5

Minutes were read and agreed to be accurate

Matters arising from previous meeting

- Dob now has new silver mirror, collimated by Ian, the finder scope is in position and ready to use.
- The council are still looking into the shielding on the Street light outside the school.

Correspondence

The following newsletters have been received and are now available to loan from the library

- Te Patiki – July 2010
- Aurora & Solar Section newsletter No 238 – July 2010
- Tauranga Newsletter 3 copies all now available in library

Yearly affiliation subscription to RASNZ has now been paid

General Business

- Reminder to members that subscriptions can still be paid
- Foxton Spring Fling is on the 4th September – all members welcome, bring your scope or just turn up support the club. Club will be in usual site outside shop front opposite road to Mitre 10
- Gordon has agreed to contact Daryl owner of shop to confirm usual site.
- Prospective visit to Stonehenge Aotearoa moved by Gordon and seconded by Glen, carried by members.

Meeting closed 7:40pm

This was followed by a talk by Steve Chadwick on building the Sand Dune Observatory. This was informative and proved food for thought for everyone interested in building their own observatory.

This was followed by a brief viewing before clouds came in.

Foxton Spring Fling

The annual Foxton Spring Fling will take place on Saturday September 4th. Once again FBAS will have a presence there. We need volunteers to man our 'patch'. Please bring your telescope. It is always a good opportunity to let the local public know that we are here.

If you are willing to help then please let one of the committee members know or say your intention on the FBAS discussion forum.

Bring Your Scopes

This is an invitation to all society members and visitors to bring along your telescopes to the next general meeting on September 2nd.

If the weather is good we can set the scopes up next to the observatory and begin to get to know the telescopes that we have in the society. For those less confident it will be a good chance to expand your knowledge of your own instrument thus making use of it in the future less daunting.

Maybe your finder scope has been knocked out of position and so you are finding it difficult to use. Telescope doctors will be on hand to iron out any potential problems.

Remember, the school is now a much darker site! Thanks to the headmistress and caretaker of the Foxton Beach School, we are now able to hold our meetings with the spotlights off. At the last meeting we were amazed at how dark the sky actually was above the school – the Milky Way and the Magallenic Clouds could easily be seen.

Get Behind International Observe the Moon Night!

Hi folks. Well, the very first International Observe the Moon Night (InOMN) is coming up on September 18, and already it is attracting significant worldwide attention. I already have plans underway to do something very special at the Levin Adventure Park on the night and would like, well actually, *need* your help!

International Observe the Moon Night (InOMN) follows on the great success of lunar missions in 2009. NASA's Lunar Reconnaissance Orbiter (LRO) has already sent back more close-up images and digital data in its first year orbiting the Moon than any other planetary mission in history. In an unprecedented search for water below the Moon's surface, Lunar CRater Observation and Sensing Satellite (LCROSS) crashed into the Moon□s south polar region with the world watching.

InOMN builds on NASA's first celebration of these historic missions during the International Year of Astronomy 2009. Now, Astronomers Without Borders (AWB) is partnering with NASA missions and centres, along with other institutions, to bring the excitement of observing and learning about Earth's closest neighbour in space to the worldwide public putting the "International" into InOMN.

You can read more about InOMN at:
www.astronomerswithoutborders.org/projects/intlobserve-moon-night.html and http://observethemoonnight.org/ but we need to get moving on planning the best public outreach event we possibly can.

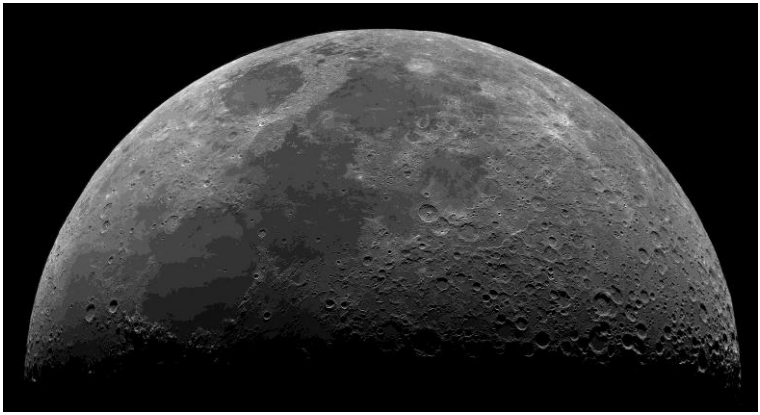
The Plan

The basic plan is to have a static display (in the Levin Adventure Park cafeteria) of lunar image contribute) along with some information about the

Moon and some of its interesting craters/features. I think it would be great if there were some informative video podcasts and lunar videos playing on a screen or TV in there too (I have access to some quite good ones from the Ask an Astronomer podcast series). These could possibly be "looped" to replay them so people could come in and out as they please rather than be forced to watch at a set time.

Of course, we will want a number of telescopes set up outside pointing at the Moon. It would be great to have a variety of views, including some with Barlows could be zoomed in on some of the more interesting craters.

In addition to this, there is a push (from NASA) to have live video of the Moon streamed to the internet from all around the world! I have done some testing of this and have successfully set up my 10" Newtonian on a NEQ6 tracking mount with an Imaging Source astronomy camera attached and streaming the video live to UStream TV. You can check out my first test video at http://www.ustream.tv/recorded/9177149 . Buoyed by that success, I've purchased a Vodafone "Vodem" stick that will allow me to stream live video from the event to the world. I'll be using UStream Producer software to allow me to switch between the Moon video source and a webcam showing the event, and can even mix in other recorded video taken on the night.



That's cool Mike, but what do you need us to do?

Well, I'm pleased you asked! There are a number of things still to be done before the event, and we'll need plenty of volunteers on the night.

- First of all, we need to get the word out that we're holding this event! If no-one knows about it, well, there's not much point really, is there?!!! I

have put together an A4-size flier for putting on notice boards around Levin and Foxton areas (libraries, supermarkets, malls, shop windows etc). It's remarkably similar to the one I did for Global Astronomy Month in April (funny that!). I'll try and get that into a smaller handout size version too that we can give to unsuspecting members of the public mall entrances are a great place to set up a telescope and draw attention whilst you slip people some advertising! So, I need some **volunteers to distribute our flier around Levin and Foxton please!**

- Also, for our static display, we need some free-standing displays (the type you can pin or tack things to). **Does anyone know where we can source these (preferably for free!)?**
- We also need either a projector or good sized TV for playing some Moon-related videos. We could probably project onto a wall down there if need be, but a screen would probably be preferable.

I'll be writing a media release to go to local papers, radio and schools shortly. I'll also try and get our fliers printed off this coming week, as well as some images and lunar information for the static display.

On the night:-

- We'll need people to help out with the set-up in the cafeteria. I think we should aim for a 7pm start for the event, so we should probably start setting up around 5:30pm. **Please put your hand up if you can help with this.**
- **Volunteers with telescopes.** Brush up on your Moon knowledge and be prepared to answer questions from the public. We probably want about half a dozen telescopes pointed at the Moon. My own telescope will be set up with the camera and laptop attached, so people can view live video in small groups. I'll try and set this up facing away from the other telescopes so I don't blind you all!
- **One or two volunteers to look after the static display area and video projection/TV.** You'll also need to be available for questions from the public who will be looking around the display, so brush up on a bit of Moon knowledge if you need to!
- **Volunteers to pack up (and clean up!) the cafeteria.** It will be important that we get this done as quickly as possible, as we will no doubt have to arrange a fixed time with the Council to lock up. I would envisage that we would start packing up this area around 9:30pm, out by 10pm, but that is just a guess at this stage.
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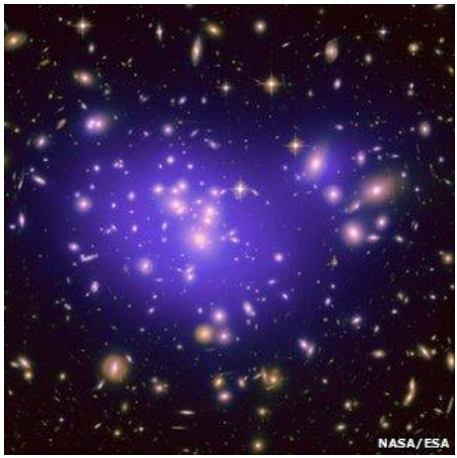
Please everyone, get behind this and let me know in what ways you can help! Email me at mmjr@xtra.co.nz or call me on (06)367-9838 or (021)100-7170. Regards, Mike White

Fate of Universe Revealed by Galactic Lens

A "galactic lens" has revealed that the Universe will probably expand forever. Astronomers used the way that light from distant stars was distorted by a huge galactic cluster known as Abell 1689 to work out the amount of dark energy in the cosmos.

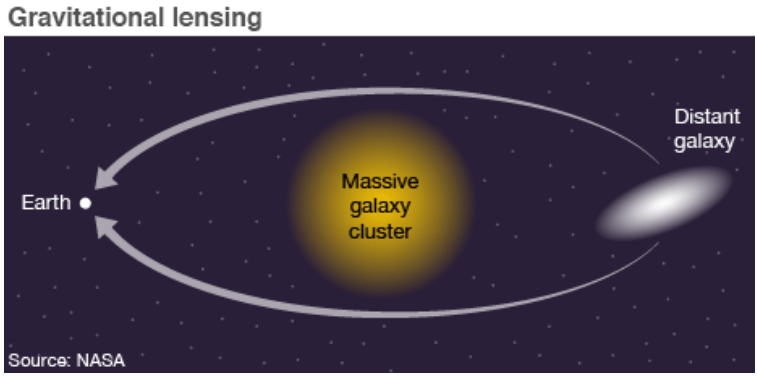


The huge galactic cluster known as Abell 1689 acted as a cosmic magnifying glass

Dark energy is a mysterious force that speeds up the expansion of the Universe. Understanding the distribution of this force revealed that the likely fate of the Universe was to keep on expanding. It will eventually become a cold, dead wasteland, researchers say.

The study, conducted by an international team led by Professor Eric Jullo of NASA's Jet Propulsion Laboratory in California, is published in the journal Science.

Dark energy makes up three-quarters of our Universe but is totally invisible. We only know it exists because of its effect on the expansion of the Universe. To work out how dark energy is spread through space, astronomers used the Hubble Space Telescope to observe the way that light from distant stars was distorted around Abell 1689, a nearby cluster of galaxies.



Light bends around massive galaxy clusters, allowing distant objects to be seen

Abell 1689, found in the constellation of Virgo, is one of the biggest galactic clusters known to science. Because of its huge mass, the cluster acts as a cosmic magnifying glass, causing light to bend around it. The way in which light is distorted by this cosmic lens depends on three factors: how far away the distant object is; the mass of Abell 1689; and the distribution of dark energy.

The astronomers were able to measure the first two variables using the European Southern Observatory's Very Large Telescope, enabling them to calculate this crucial third factor.

Knowing the distribution of dark energy tells astronomers that the Universe will continue to get bigger indefinitely. Eventually it will become a cold, dead wasteland with a temperature approaching what scientist's term "absolute zero".

Professor Priyamvada Natarajan of Yale University, a leading cosmologist and co-author of this study, said that the findings finally proved "exactly what the fate of the Universe will be".

(BBC, Howard Falcon-Lang)

Grus

The Crane

Just North of **Tucana** and **Indus** is a brighter group with a genuine bird look, but **Grus**, apart from some nice **doubles**, and a **variable**, has no other objects of note.

Stellar Table

Bayer	name, etc.	Magnitude(s)	Spectra	Distance (ly)	separation
α	Alnair	1.76	B5	57	
β	Al Dhanab	2.20	M3	108	
γ		3.2	B8	251	
δ(δ1,δ2)		4.0, 4.3 (10)	G5, M0	136, 552	60"
ε		3.7	A2	74	
ζ		4.2	G5	84	
θ		4.4	F5	192	
ι		4.1	K0	139	
μ(μ1, μ2)		4.9, 5.2	G0, G5	362, 326	LOS
π(π1,π2)	**π1** variable	5.8(5.4 - 6.7) 6.60	F0,O0	121	period 150 d

Bayer added The Crane in 1603, and the bright star **Alnair** makes it easy to pick out. There are two (line of sight) **doubles** worth a look with binoculars or small scope.

Cultural Perspective

Of the fifteen species of **crane** found worldwide, few venture into the Pacific, and none to South America. **New Zealand** has one **rare vagrant**, the ***Brolga*** (**Grus rubicundus**), which has only been seen twice, so don't see it without your camera! Like all cranes, it is a graceful dancer and high flying trumpeter – the Paris Hilton of the bird world!

(*Douglas Jackson*)

Astronomers Bag Biggest Ever Find of Exoplanets

PARIS (AFP) - European astronomers on Tuesday said they had found a distant star orbited by at least five planets in the biggest discovery of so-called exoplanets since the first was logged 15 years ago.

The star is similar to our Sun and its planetary lineup has an intriguing parallel with own Solar System, although no clue has so far been found to suggest it could be a home from home, they said. The star they studied, HD 10180, is located 127 light years away in the southern constellation of Hydrus, the male water snake, the European Southern Observatory (ESO) said in a press release.

The planets were detected over six years using the world's most powerful spectograph, an instrument to capture and analyse light signatures, at ESO's telescope at La Silla, Chile. The method consists of observing a star and seeing how the light that reaches Earth "wobbles" as a result of the gravitational pull of a passing planet. The tiny fluctuation in light can then be used as a telltale to calculate the mass of the transiting planet.

The five detected planets are big, being the size of Neptune, although they orbit at a far closer range than our own gas giant, with a "year" ranging from between six and 600 days. The astronomers also found tantalising evidence that two other candidate planets are out there.

One would be a very large planet, the size of our Saturn, orbiting in 2,200 days. The other would be 1.4 times the mass of Earth, making it the smallest exoplanet yet to be discovered. It orbits HD 10180 at a scorchingly close range, taking a mere 1.18 Earth days to zip around the star.

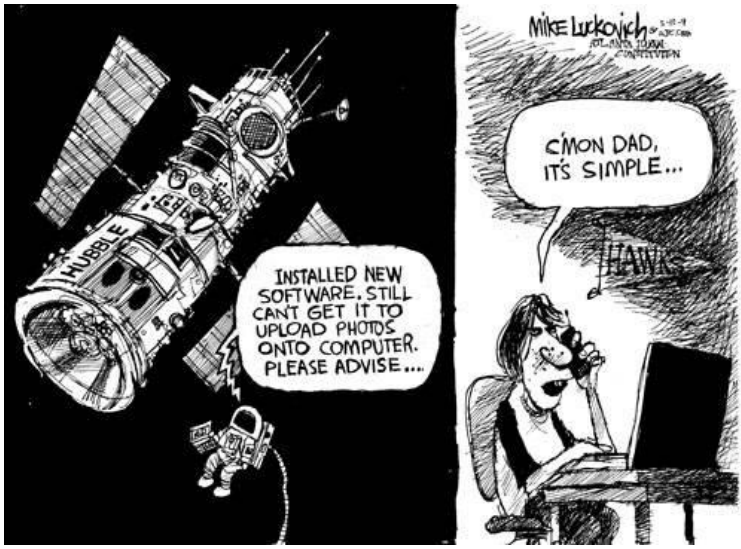
If confirmed, that would bring the distant star system to seven planets, compared with eight in our own Solar System. A total of 402 stars with planets have been logged since the first was detected in 1995, according to NASA's Jet Propulsion Laboratory (JPL). The tally of exoplanets stands at 472.

None, though, is even remotely similar to Earth, which is rocky and inhabits the famous "Goldilocks zone" where the temperature is just right to enable water, the stuff of life, to exist in liquid form.

ESO astronomer Christophe Lovis said knowledge was progressing fast. "We are now entering a new era in exoplanet research -- the study of complex planetary systems and not just of individual planets.

"Studies of planetary motions in the new system reveal complex gravitational interactions between the planets and give us insights into the long-term evolution of the system."

(Submitted by Simon Hills)



The Harry Williams Astrophotography Competition

The Harry Williams astrophotography competition is held annually by the Auckland Astronomical Society. There are three categories:

Solar system
Deep sky
Miscellaneous (wide field views, star trails, star parties etc.)

The entry form and entry details are now online and can be downloaded from the Auckland Astronomical Society website: www.astronomy.org.nz. Entries close September 19th, 2010.

Astronomers Discover the Moon is Shrinking

Increasing numbers of cracks have begun to appear on the Moon. Freshly discovered scars on the face of the Moon reveal that this rocky satellite is shrinking at a relatively rapid pace. Surface faulting that reflects significant contraction in the Moon's recent geological past, but note “recent”, as used here, means within a billion years!

A high level of detail, observed from spacecraft, reveals 14 lunar landforms known as lobate scarps, similar to thrust faults on Earth that result from the movements of our tectonic plates. Current wisdom says the Moon does not have tectonic plates, so scientists are looking for another explanation for these cracks, such as shrinkage.

Half of the located scarps are at high latitudes (±60°), proving that they are globally distributed and not clustered near the equator as previously thought. These factors indicate recent contraction of the whole Moon, likely due to cooling of the lunar interior.

Lobate scarps occur when the surface of the body is compressed, that is a part of the surface is pushed into a smaller area, causing it to fold and fracture. In the absence of significant tectonics on the Moon, the researchers believe this is due to cooling of the lunar core. As the core of the Moon cooled it shrank, applying surface stress to the brittle lunar crust causing it to crack. Think of an apple shrinking as it dries; the skin crinkles and may split.

On relatively small planetary bodies, like Mercury, the Moon, and possibly some of the icy satellites, it's long been thought that the original cooling of the body very early in its history could cause a global contraction in the size of the body. This is just to do with the volume decreasing as the temperature decreases. However, in the case of the Moon, this faulting appears to be still occurring.

Through analysis of the scarps' interaction with other nearby surface features of known age, including craters, it has been inferred that ***the Moon has contracted radially by 100 m in the past 1 billion years***. This is in keeping with the crisp, un-degraded appearance of the scarps, which is the strongest evidence of their young age.

The features called lunar lobate scarps are not seen in the lunar maria, which are vast basaltic plains formed when huge early craters were filled in with volcanic material from the (then) molten interior. The scarps are relatively small structures, less than 100 m, unlike those found on Mercury and Mars But they suggest the Moon is still geologically active, and that new things can be found by careful observation.

An amateur can no doubt observe the Moon on a regular basis, but most observers like to look for novel or important stuff. This idea that the Moon is shrinking and consequently producing features on its surface like these cracks gives an amateur something to look for that has both of these attributes.

The View from the Sand Dune Observatory

The Prawn Nebula (IC4628)

South of Antares, in the tail of the nebula-rich constellation Scorpius, lies emission nebula IC 4628. Nearby hot, massive stars, millions of years young, radiate the nebula with invisible ultraviolet light, stripping electrons from atoms. The electrons eventually recombine with the atoms to produce the visible nebular glow. At an estimated distance of 6,000 light-years, the region shown is about 250 light-years across. The nebula is also catalogued as Gum 56 for Australian astronomer Colin Stanley Gum, but seafood-loving astronomers might know this cosmic cloud as The Prawn Nebula.

(Image by Stephen Chadwick)

Calendar of Events

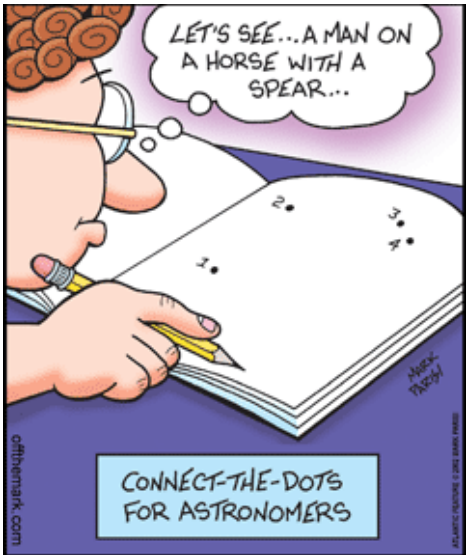
Here is a provisional list of upcoming events:

September 2nd: Monthly Meeting
"Wonders of the Solar System" (DVD)

September 4th: Foxton Spring Fling

September 18th: International Observe the Moon Night
Levin Adventure Park (Start setting up at 5.30pm; event begins at 7.30pm).

October 7th: Monthly Meeting
TBA



If undelivered please return to:

Foxton Beach Astronomical Society
c/o 6A York Street, Levin 5510

Nelson Bartlett Observatory *(Photo by W Marshall)*

THE FOXTON BEACH ASTRONOMICAL SOCIETY
NELSON BARTLETT OBSERVATORY
FOXTON BEACH SCHOOL STAFF ROOMS
CARTHEW TERRACE
FOXTON BEACH