# COFFS HARBOUR ASTRONOMICAL SOCIETY INCORPORATED

## MINUTES AND NOTICE OF MEETING

## MINUTES OF JULY MONTHLY MEETING HELD AT BOAMBEE HALL, MONDAY 1 JULY 2013 AT 7:00pm.

**PRESENT:** 8 members and 3 visitors.

**MEETING OPENED:** 7:01 pm with President, Win Howard in the chair.

**APOLOGIES:** Peter Black

**MINUTES OF LAST MEETING:** adopted as circulated by e-mail.

**BUSINESS ARISING FROM MINUTES:** Nil

**CORRESPONDENCE:**
**IN:** Nil
**OUT**: Nil

**GENERAL BUSINESS:**
1) Members are reminded that our next monthly meeting is also the Annual General Meeting for 2013-14. All positions will be declared vacant and the executive for the coming year will be elected.
2) Win Howard advised the meeting that the rent for Boambee Hall has increased from tonight.

**THE TOPIC:**
Topic was "Asteroids, Comets and Meteors". Camilla began the discussion and was backed up with contributions from other members and visitors, including a handout prepared by Roberto Cornale.

*Following the meeting Camilla emailed the Society a comprehensive set of internet links related to this topic. The text of these links appears at the end of these minutes.*

**TOPIC FOR NEXT MEETING:** "Identifying the main stars" suggested by one of our visitors at the meeting.

**REPORTS FROM MEMBERS:**

1) From Win Howard: the Perseid meteor shower is one of the best meteor showers each year and will be active from late July. The peak is around 12 August and the rate of sightings could be as high as 100 per hour at that time. Meteor showers are notoriously unpredictable and it may not be anywhere near that spectacular. Anyone wanting more detail on this meteor shower could start at http://www.astronomy.com/~/link.aspx?_id=45514932-7cc0-4aa0-b97b-c7cf1d725d4c .

**REPORTS FROM THE PRESIDENT: (this material is collected from the internet each month and presented in an edited form).**

1. The Hubble telescope has been in space for 23 years and is expected to remain in service until sometime between 2020 and 2030. It has been, by far, the most productive observatory in history. Over 11000 scientific papers, based on data from the Hubble, have been published so far and there is a new person gaining a PhD (Doctor of Philosophy) degree, based on Hubble data, every 10 days (on average). There are well over five times the number of proposals for time on the scope as can be accommodated. Many of the projects that Hubble is now being used for were not even thought of when it was launched in 1990. Of course Hubble has its own website at NASA where you can read all about it http://www.nasa.gov/mission_pages/hubble/main/index.html .
2. It is estimated that there are about 13000 unknown asteroids, orbiting near earth, that are big enough to level a country. The Obama administration in USA has recently issued a challenge to amateur astronomers to catalogue every near-earth asteroid that is big enough to cause significant damage if it impacted us. The White house has doubled its allowance for this purpose (from $20M to $40M) in its 2014 budget.
3. More than 10000 asteroids and comets that can pass near earth have now been discovered. The 10000$^{th}$, called asteroid 2013MZ5 was first discovered on the night of 18 June 2013 by the Pan-STARRS-1 telescope at Hawaii.
4. The Herschel telescope was the most powerful telescope ever put into space. It has a 3.5m mirror and operated mainly in the far infrared spectrum. As such it needed to be kept very cool. Its supply of coolant ran out recently and the spacecraft had to be switched off.
5. It is difficult to see what an object looks like when you are inside it. Pictures that we have of our Milky Way galaxy are all made from within and are therefore based on imagination and interpretation rather than fact. A few years ago data from NASA's Spitzer telescope was used to deduce that the Milky Way had only two main spiral arms, each starting at the end of a central bar. Recently a small radio telescope on top of a building in Massachusetts has made an observation that clearly indicates the presence of a third arm. Read more at http://www.cfa.harvard.edu/news/2011/su201121.html .

6. The European Space Agency (ESA) is building a new telescope that will be named the Euclid. Its purpose will be to investigate Dark Matter and Dark Energy and its nickname is the “dark explorer”. It is expected to have a 1.2m telescope and two instruments and will operate in the visible light and near-infrared wavelengths. Cost is planned at 322 million euro initially and about 600 million euro over the period of the mission. Read more at http://www.euclid-ec.org/ and http://www.space.com/16272-euclid-space-telescope-dark-energy-approved.html .
7. Two of the methods used to estimate distances in the universe are Cepheid variable stars and type 1a supernovae. Last October there was a type 1a supernova in the galaxy named NGC 1365 in the constellation of Fornax. The unusual thing about this supernova was that the same galaxy contains a known Cepheid variable. This allows the two methods to be used and compared, probably increasing the understanding and accuracy of both.
8. It seems there is rarely a month goes by without an announcement of exoplanets that could possibly harbour some form of life. This month the 3.6m scope in Chile has referred to another three. The star Gliese 667C (part of a triple star system in Scorpius) has these three planets which are described as “superEarths (more massive than earth but less massive than Uranus or Neptune). It was known that this star had three planets. This study confirms these three and reveals a few more.
9. Recently on television was the film “Contact” apparently about contact with aliens. This film was taken from a book, “Contact” by Carl Sagan which was written largely about a lady, Dr Jill Tarter, who is one of the world authorities on extra-terrestrial life. She was director of SETI for many years until retiring in 2012. The star of the film was Jodie Foster, who spoke at length with Dr Tarter before completing the film.

**CLOSURE AND FUTURE MEETING TIMES:**
The next monthly meeting will be Monday 5 August, again at Boambee Hall at 7:00pm, all members and interested persons are encouraged to attend. As advised earlier this meeting will include the Annual General Meeting.

Meeting closed at 8:54pm.

**VIEWING**
The sky was again full cloud, ruling out any astronomical observation. As the TOPIC next month is basically one that requires visual observation of the sky, we all hope that the clouds part for this event.

Terry GILL
Secretary

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

For those wanting ANY further information on asteroids, comets and meteors: please consult the following links provided by Camilla:-

SpACE OBJECT WATCH LINKS:
http://lunarmeteoritehunters.blogspot.com.au/
a comprehensive meteor watch site with something for everyone. Even has an old movie link. This weeks is the 1953 B grade Sci fi : Cat Women of the Moon
http://www.uni.edu/morgans/astro/course/Notes/section4/new22.html
an in depth site on comets, asteroids, meteors and impacts.
http://www.heavens-above.com/
a site with both facts and a space object tracker with a few links to other sites including the one below which is a programme designed to predict the decay and reentry time of old satellites
http://www.wingar.demon.co.uk/satevo/
http://neo.jpl.nasa.gov/
NASA's Near Earth Object program.
http://www.nasa.gov/mission_pages/asteroids/main/index.html#.UdHEbNiylgg
A specific asteroid and comet watch NASA site
http://www.npr.org/blogs/thetwo-way/2013/06/19/193263299/wanna-be-a-rock-star-nasa-needs-help-tracking-asteroids
an article on joining the asteroid hunt
http://www.space.com/16518-space-junk.html
a good site with data also on comets etc
http://transientsky.wordpress.com/
a site specifically on the transient objects ie meteors, comets, asteroids and fireballs
http://www.amsmeteors.org/articles/
American meteor society
http://en.wikipedia.org/wiki/Asteroid_impact_avoidance
quite an interesting report on just what the threats to earth from falling space objects might be and how we might deal with it.
http://www.huffingtonpost.co.uk/2013/02/25/asteroid-hunting-near-ear_n_2756922.html
An article on the launch of the space surveillance satellite in Feb 2013 which orbits the earth every 100 minutes looking for "threats" such as asteroids.
http://spaceweather.com/flybys/country.php
a satellite tracker site
http://theskylive.com/
Real time data, position and finder charts for Solar System objects

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Michael Worraker also sent in the following with the subject, "60 Billion Alien Planets could support life, Study Suggests":-

Hi Terry thought this may interest the members. http://www.space.com/21800-alien-planets-60-billion-habitable-exoplanets.html .