

Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

November 2016

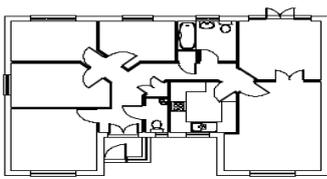


Earth v Asteroid Apophis
Credit: NASA

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This space is available for promoting members' businesses. You can place an advert here for a donation to the group.

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Executive Committee Messages

November 2016

The month of November will start with :-

November 2nd Will be the Wednesday members' meeting

November 5th Will start the Saturday meetings.

Please Note : The Summer season at the cafe is now over and meetings return to 7:30 pm.

2nd November 2016 at 7:30pm

7th December 2016 at 7:30pm

4th January 2017 at 7:30pm

Beginners' Guide to Stargazing Course

We are getting much closer to the 2017 run of the stargazing course in Jan – Feb and have started taking bookings.

The dates and times are :-

DATES : Part 1 25th Jan 2017 ** Basic Stargazing **
Meeting 1st Feb 2017 ** Members' Meeting **
Part 2 8th Feb 2017 ** Intermediate Stargazing **
Part 3 15th Feb 2017 ** Advanced Stargazing **
Part 4 22nd Feb 2017 ** Stellarium Stargazing **
Meeting 1st Mar 2017 ** Members' Meeting **

TIME : Course Starts 7:30pm

LOCATION: West Bay Café, Sea Road, Westgate-on-Sea CT8 8QA

TICKETS : Only £15 for members £20 Non Members

****!!** Advanced booking required **!!****

All those that would like to attend this course (details on the web site) please email ThanetAstronomyGroup@gmail.com to register your interest.

Danny, George, Gill.

Advertisement

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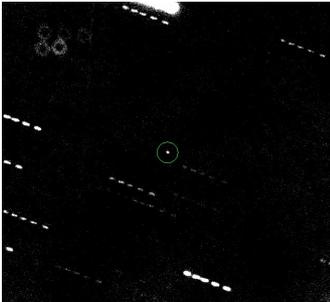
About the Cover Picture



*Earth v Asteroid Apophis
Credit: NASA*

Lets start off with some facts about Apophis and exactly what it is.

In straight forward terms “Apophis” is an Asteroid (a 'small' rocky body orbiting the sun). When I say “small” I mean “small compared to a planet”. Some asteroids are considered minor planets and are measured in hundreds of kilometres across.



Apophis in green circle

99942 Apophis to give it its full name was originally provisionally called 2004 MN₄. The 2004 gives its year of discovery and the MN₄ is its unique identifier. It is one of many near-earth-Asteroids.

Apophis was discovered on 19th June 2004 by Roy A Tucker, David J Tholen and Fabrizio Bernardi at the Kitt Peak National Observatory.

By January 2005 previously unrealised observations (from March 2004) identified on 27th December 2004 were used to refine the computed orbit for Apophis. On June 24th 2005 Apophis got its permanent number 99942 and this made it eligible for naming. Apophis got its name on July 19th 2005. Two of the co-discoverers Roy A Tucker and David J Tholen are reported to be fans of the TV series “Stargate SG-1” and one of the shows persistent villains is the alien named Apophis.



The alien Apophis Stargate SG-1

How big is Apophis ?

Based on what was known at the time of discovery in 2004, (the observed brightness) Apophis's diameter was estimated at 1,480ft (450m). After further observation by NASA's infrared telescope in Hawaii the size was revised to 1,080ft (330m) in 2005.

The mass was listed on NASA's impact risk page as 4×10^{10} kg. The mass is only an estimate but still should be accurate to within a factor of three.

About the Cover Picture

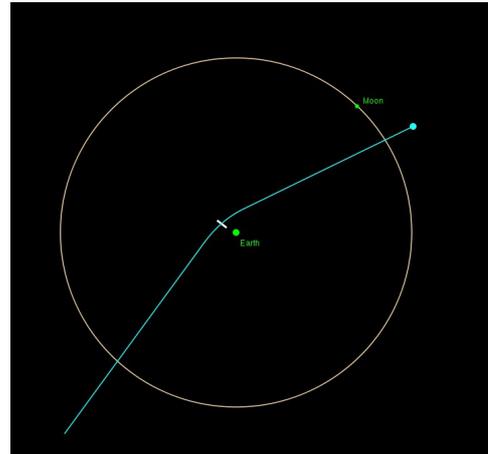
Apophis's close approaches

The first approach, was on 21st December 2004 when Apophis passed Earth at only 8,950,000 miles (14,410,000 km), soon after its discovery on 19th June 2004.

The second approach, calculated by NASA's Automatic Sentry System, will be on 13th April 2029.

This time Apophis will pass between our geosynchronous communication satellites and Earth at no less than 19,400 miles (31,300 km).

During this approach the Earth's gravity will affect Apophis's orbit and pull it from an 'Aten class orbit' to an 'Apollo class orbit'.



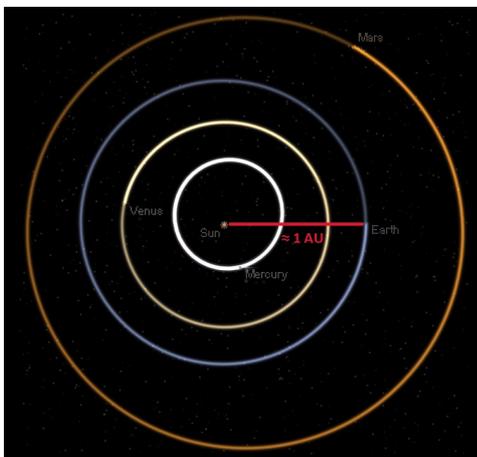
Earth and Moon Approach 13/04/2029
Credit: Marco Polo

<https://commons.wikimedia.org/w/index.php?curid=15991864>

1 AU is the distance between the Earth and the Sun, 93,000,000 miles (150,000,000km)

Credit:

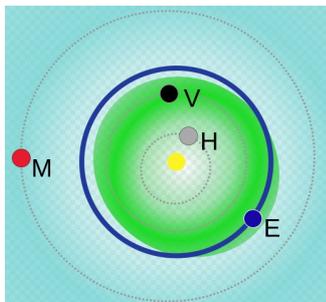
By *Huritisho* - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=44017019>



1 AU

Aten asteroids are a group of near Earth asteroids that have an orbital semi-major-axis less than that of the Earth (< 1AU) but an 'aphelion' (furthest distance from the sun) greater than 0.983 AU.

Apollo asteroids are a group of near Earth asteroids whose orbit crosses that of Earth's. These have an orbital semi-major-axis greater than that of the Earth (> 1AU) but perihelion (nearest distance to the sun) of less than the Earth's aphelion distance (< 1.017 AU).

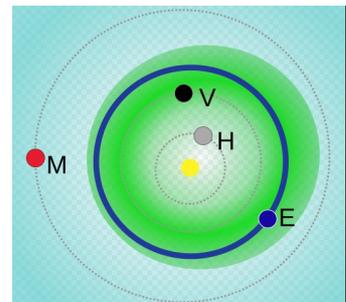


Aten Class Orbit Asteroids

Credit:

Aten By *AndrewBuck* - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=6606003>

Apollo By *AndrewBuck* - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=6605947>



Apollo Class Orbit Asteroids

About the Cover Picture

The **third approach** in late March 2036 will be no closer than 14,292,000 miles (23,000,000km) and will most likely pass at around 34,797,000 miles (56,000,000km).

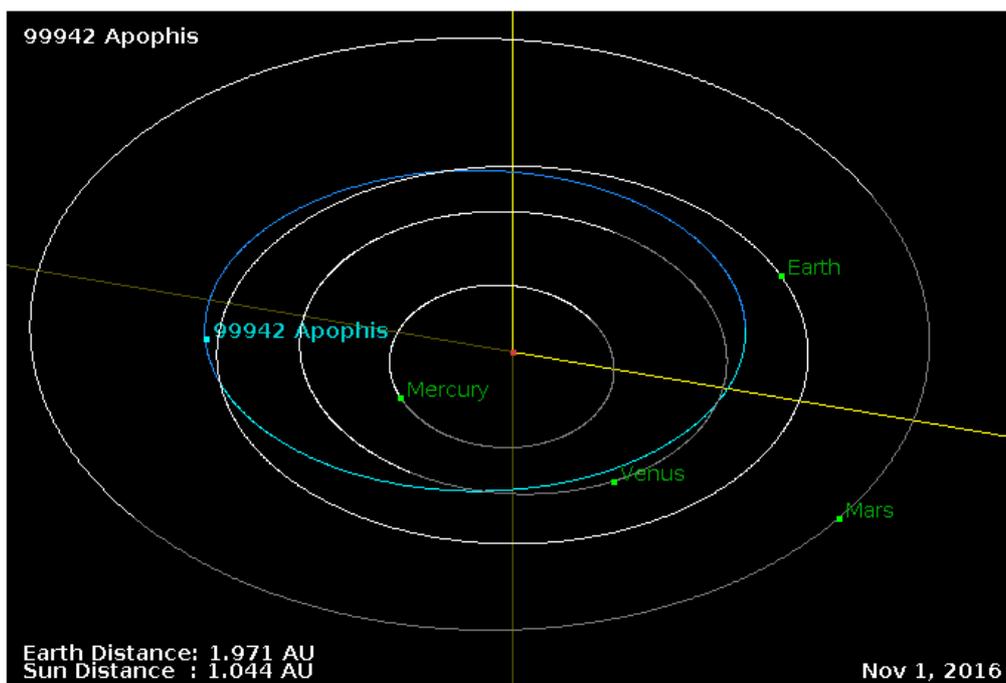
Where is Apophis now ?

For those of you that are of the more pessimistic outlook and would like to keep an eye on things here is a link to the JPL Small-Body Database Browser 99942 Apophis Orbital Diagram simulator page.
<http://ssd.jpl.nasa.gov/sbdb.cgi?sstr=99942;orb=1>

Just click the above link and you will be able to see exactly where Apophis is in relation to the Earth.

Useful controls

- 1.) You can use the ZOOM tool to zoom in a bit to see the inner solar system in more detail.
- 2.) The DATE button will open a window to allow you to enter any date you want to check Apophis' position.
- 3.) The box with '1 Day' in it, sets the step interval and can be set to several steps between 1 hour and 1 year.
- 4.) The following buttons on the screen, have these functions
 - << Continuously runs the simulator backward in steps as defined in 3.) above.
 - < Singularly steps the simulator backward one interval as defined in 3.) above.
 - || Pauses the simulator.
 - > Singularly steps the simulator forward one interval as defined in 3.) above.
 - >> Continuously runs the simulator forward in steps as defined in 3.) above.



99942 Apophis on 1st November 2016

Thanet Astronomy Group Contact Details

Executive Committee

Chairman	Daniel Day	01843 228 904
Treasurer	George Ward	01843 292 640
Secretary	Gill Palmer	07543 942 245

Committee

Volunteers	George Cozens	07970 181 395
Members	Sheila Tomkins	07791 892 057
Newsletter	Janet McBride	01227 364 092
Newsletter	Tracy Howes	07917 710 638
Library	Janet McBride	01227 364 092
Web Site	Danny Day	01843 228 904
JAC & Gill	Gill Palmer	01843 848 064

Co-opted Members

Vice Chair	Sheila Tomkins	07791 892 057
Vice Treasurer	Tracy Howes	07917 710 638
Vice Secretary	Janet Mc Bride	01227 364 092

Members' Meeting Dates and Times

Thanet Astronomy Group

Members' Meetings

Dates and Times

6th January 2016 at 7:30pm

3rd February 2016 at 7:30pm

2nd March 2016 at 7:30pm

6th April 2016 at 7:30pm

4th May 2016 at 7:30pm

1st June 2016 at 8pm

6th July 2016 at 8pm

3rd August 2016 at 8pm

*** 7th September 2016 at 8pm ***

*** Anniversary Three Years at West Bay Cafe Party ***

5th October 2016 at 7:30pm

2nd November 2016 at 7:30pm

Next Meeting

*** 7th December 2016 at 7:30 for 8:00pm ***

*** Christmas Stargazing Quiz and Buffet ***

All Members' meetings will be held at the :-

West Bay Cafe, Sea Road,

Westgate-on-Sea,

Kent.

CT8 8QA

Advertisement

WEST BAY CAFE

Sea Road, Westgate-on-Sea
CT8 8QA

Location :-

This Family Friendly Cafe is situated on the promenade just beside the sandy beach opposite the junction of Sea Road and Rowena Road, Westgate-on-Sea, CT8 8QA.

Access :-

via a flight of steps behind the cafe.

Disabled Access :-

via the main entrance to the bay and a slope at the cafe door.

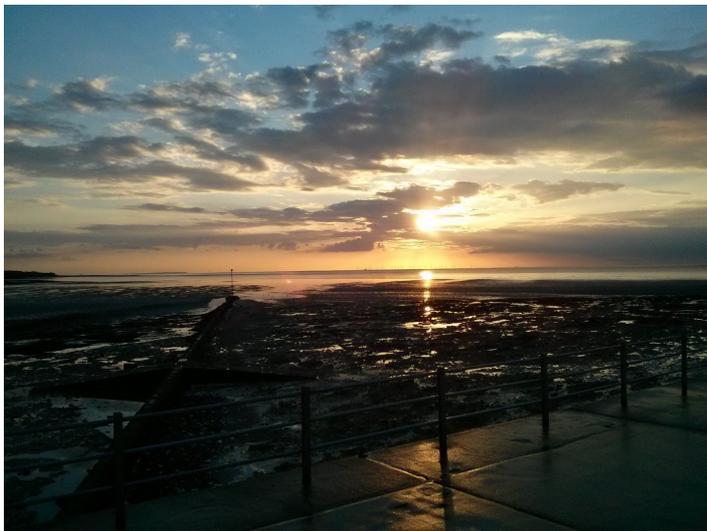
West Bay Cafe run by Alan and Kate has a very friendly atmosphere.



Alan outside the new style West Bay Cafe

There is a wide variety of good food and drinks at very reasonable prices and there are always special offers.

There is seating both inside and outside for those extra hot days.



A Typical Sunset at the West Bay Cafe

The Sunsets at the West Bay Cafe are Spectacular.

With a meal, some friends, and a pint or two.

What more could you ask for!

West Bay Cafe have hosted Thanet Astronomy Group since September 2013.

We would like to say a
HUGE THANK YOU to Alan and Kate
for all the help and support they have shown us over the last year.

Please use this Brilliant Seaside Cafe and Tell Your Friends.

What we did last month

October 2016

Saturday 1st October Public Outreach Meeting

To start the month our first outreach meeting was well attended. One new visitor arrived with a small second-hand Newtonian telescope and was in need of help using it. We went through all the basic essentials of how to set it up and find objects in the sky.

As the telescope was second-hand we also checked the collimation (optical alignment) of the scope and found it to be way out. It is quite common to find that when a new scope is purchased by someone with no experience at all they will find it very hard or almost impossible to find anything in the sky.

The assumption that usually follows is that there is something wrong with the telescope and an adjustment is needed and this results in the collimation being misaligned, making the matter worse. The telescope then usually finds its way onto the second-hand market.

Sunday 2nd October Silver Sunday

Silver Sunday was on the 2nd October 2016 at St. Augustine's in Westgate. This year was very well attended and we had a great response from the members of the public who we met.

We were even able to help identify certain constellations for inquisitive visitors who enjoy looking out from their back gardens at night but were unsure of what they were seeing.

Our new banner took pride of place above our stand and attracted many like minded individuals who were interested in taking up Astronomy as a hobby.

As a result, we now have a few new members to share our enthusiasm at our Thanet Astronomy Group meetings. Many thanks to those Members who came along to help on the day... you are now becoming the experts !



What we did last month

October 2016

Wednesday 5th October Members' Meeting

Our October members' meeting started off with the usual notices, followed by a presentation on the Moon.

The second half of the meeting was a talk on circumpolar constellations and some of the deep sky objects in and around them. This talk was illustrated by Stellarium.

Saturday 8th October Public Outreach Meeting

Today was a dull day with a little drizzle in the air but the visibility was extremely good ! We had the telescopes set up under the cover of the balcony to keep them dry from the intermittent drizzle.

There were several new people that arrived from the Silver Sunday event on the 2nd October (see above) with lots of questions about the group, astronomy and eager to have a look through the telescopes.

Saturday 15th October Public Outreach Meeting

An average day, weather was ok and we had all the telescopes out about - 6 or 7 in total. The new banner is doing well at getting people to "Come and Chat" - so a well worth addition!

Saturday 22th October Public Outreach Meeting

Today was a nice sunny day and there were many people asking the usual questions. There were a couple of families that had just moved into the area and were very interested in what the astronomy group had to offer.

We invited them to come to the Saturday meetings and to our next members' meeting so they could see what the group is about.

A lot of the day was spent looking at the sun while it was out, and there were two small sunspots near the centre to be seen.

Saturday 29th October Public Outreach Meeting

A really nice day, sunny - but again no sun spots. The weather was really good for this time of year but quite misty on the horizon so very little could be seen.

There were so many people we did not get away till 5:30pm.

Many very interested and several were invited to our next members' meeting.

Danny.

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Book review

Hubble Legacy Edition

by Giles Sparrow

Like it or not, Christmas is on the way and with it comes the age old question “What shall I get what’s his name for Christmas”!

Books are always a good stocking filler. There’s something about books, they don’t need to be plugged in, they don’t need batteries. Books, so long as you look after them, will be around long after your pc has conked out. So what better than an Astronomy book!

One in particular is entitled :-

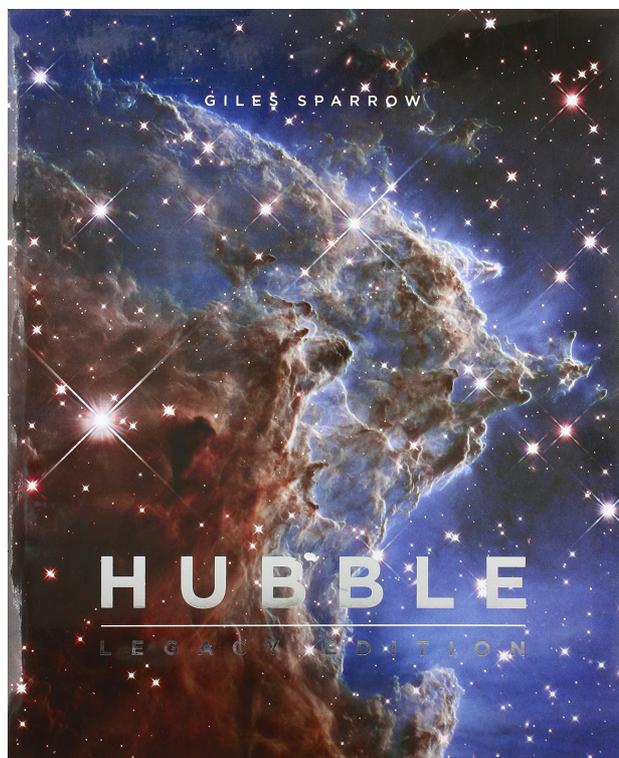
Hubble

Legacy Edition

by Giles Sparrow

ISBN978-1-84866-965-9

priced at £25 but I always say shop around!



It’s 220 pages are packed with both information, and as you would expect, the most beautiful pictures. The great thing about it is its size... It measures 12” by 14”!!! Somewhat bigger than the average book but all the better for displaying the stunning images.

The Hubble Space Telescope, launched 24th April 1990, at a cost of 2.5 billion \$, orbits Earth at a height of 559 kms. It does not have to contend with Earth’s atmosphere when imaging. If you don’t have anyone special enough to buy it for - then treat yourself!

George W.

See :-

https://www.amazon.co.uk/Hubble-Window-Universe-Giles-Sparrow/dp/1848669658/ref=sr_1_1?ie=UTF8&qid=1477840143&sr=8-1&keywords=9781848669659

Amazon £20.40 Hard cover 30.5cm x 36.5cm !!!

What's in the sky this month ?

What to see from Sunday 30th October 2016

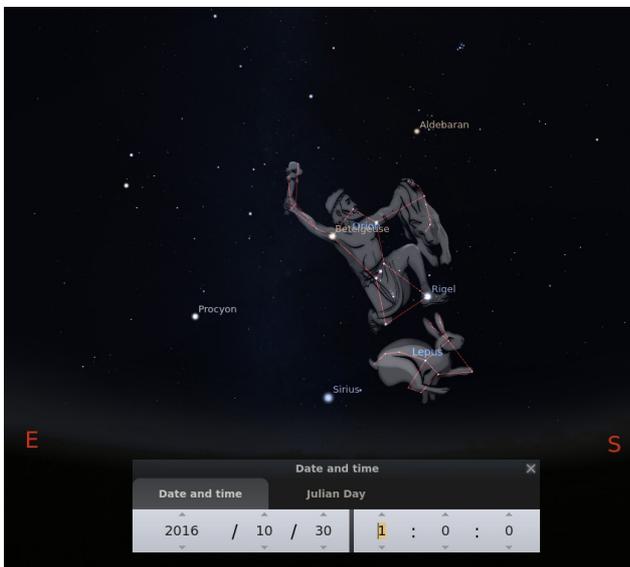
Constellation Lepus

For eight months of the year the constellation Lepus (latin for hare) is only visible from the southern hemisphere but between the months of November and February it becomes visible in the northern hemisphere.

Its creation is attributed to the Roman mathematician and astronomer Ptolemy (90 AD-168 AD.)

Lepus can be found directly below the constellation of Orion. Its brightest star is Alpha Leporis, otherwise known as Arneb, and lies 2200 light years from Earth. The second brightest star is Nihal, and lies 160 light years away from Earth. The rest of the stars are catalogued by number only.

Lepus is also home to 1 Messier object, M79 aka NGC 1904, a globular cluster 41,000 light years away from Earth.



Lepus as seen on 30th October 2016 @ 1:00am



Lepus as seen on 30th November 2016 @ 10:00pm

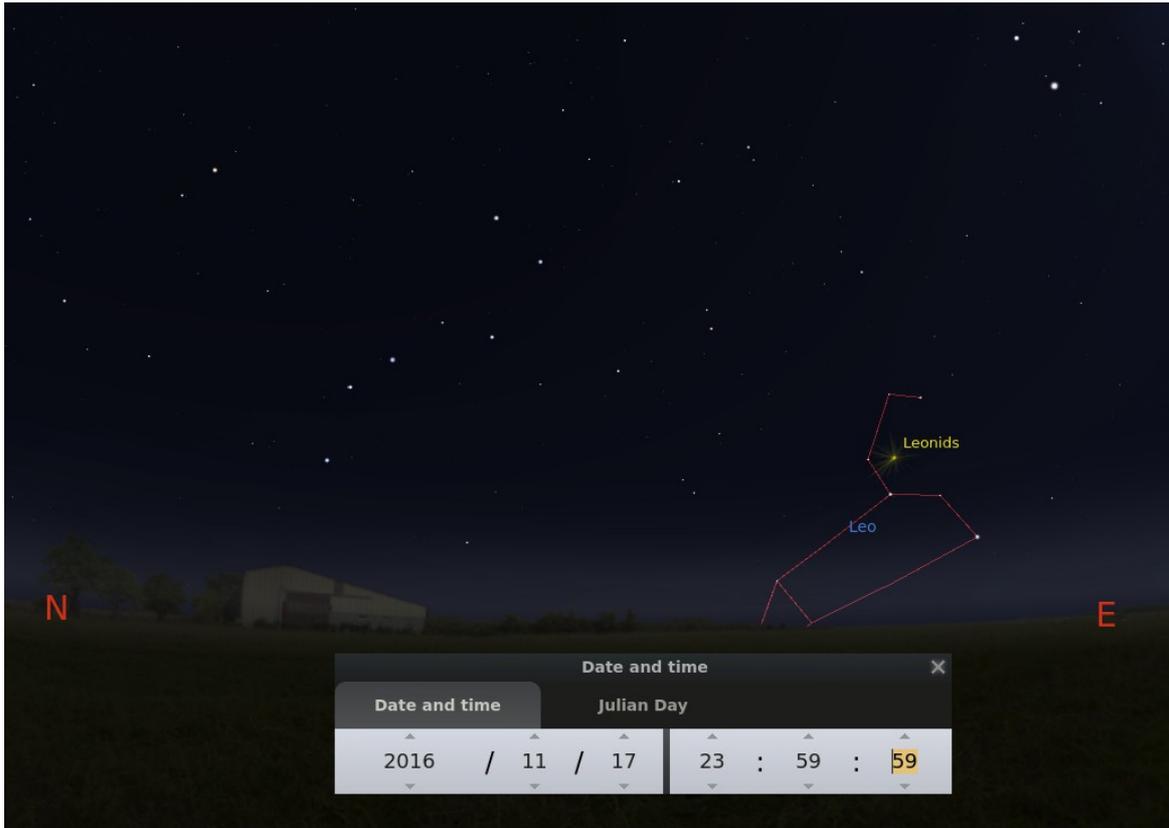
As you can see from the two pictures above - the later in the month you look the earlier Lepus rises above the horizon. On 30th October 2016 you will have to stay up till 1:00am but by the 30th November 2016 you will be able to see Lepus as early as 10:00pm.

What to see mid November 2016

Leonids Meteor Shower.

November is time for the Leonids meteor shower, it originates from the comet 55P/Tempel-Tuttle and emanates, as its name suggests, from the constellation Leo, which unfortunately does not come into view until the early hours of the morning. The meteor shower appears between 5th - 30th November 2016 and peaks on the night of 17th/18th November with a rate of around 15 meteors per hour. Unfortunately the full Moon will make it a little difficult to see them.

What's in the sky this month ?



*The date, time and direction to look for the Leonid Meteors 17th November at midnight
The point at which all the meteors radiate from is marked in yellow (.Leonid).*

Remember all the meteors will radiate out across the sky so face this direction but look at the whole of the sky in front of you.

Did you know ?

If the distance between Earth and the Sun (93 million miles) were scaled down to one inch, then the next nearest star to Earth, (Proxima Centauri 4.2 light years from Earth) would be 4 miles away from us. The Andromeda Galaxy would be 2 million miles from us at the same scale of - 1 inch : 93,000,000 miles.

Contact details

Email ThanetAstronomyGroup@gmail.com

Website www.ThanetAstronomyGroup.com

**Or come and meet us over a cup of tea at
West Bay Cafe, Westgate-on-Sea, CT8 8QA.
Saturday afternoons 1-4pm.**

George Ward / Danny.

Members' Page

Meet the Executive Committee

Daniel Day. (Chairman)

I have been interested in astronomy for as long as I can remember. My earliest memories are as a young child 'escaping' from my bedroom (through the window) after being put to bed. I used to climb out onto the front door porch roof and then climb down the back gate, undoing the bolts I would not be able to reach from the ground, on the way.

I lived at the time in a very short road with only 21 houses right on the edge of a large housing estate. At the end of my road were open fields that went for miles. I would go and lay down in the middle of the field and just stare at the sky for as long as I thought I could get away with.

In those days the light pollution was not as bad as it is today and there were so many stars and each one looked like a blue/white diamond just hanging there in the sky. Some times I used to see streaks flash across the sky but never understood what it all was. It just looked... SO AMAZING!

One cold night I was lucky enough to 'escape' on the night of a major meteor storm, almost certainly the Leonids around 15th - 20th November. I was totally in awe of what I was seeing and completely forgot about the time.

When I came to my senses, I was very cold and it was many hours later. I rushed home expecting to sneak back into bed unnoticed. This was, of course, not the case. At the gate was my mother and a police man and I was in BIG! TROUBLE.

As I grew up and the pressures of life took their toll on my free time and I did what astronomy I could when time allowed. One year, my wife Lorna bought me my first proper telescope a 3" Newtonian reflector. As our children grew up I would take them out with the telescope to look at the stars.

As time moved on, and the children grew up and moved on in their lives, I once again had a little more time and ended up running a local small observatory, which is where I met George W and George C. The location of the observatory proved to be a big disadvantage, both from the lack of sky due to obstructions and local extreme light pollution.

After some time, George W and I decided to start working on an independent astronomy group of our own. One day whilst having lunch at West Bay Cafe and talking to Alan (the owner) about the location problems at the observatory, Alan said "why don't you work from the cafe, that would be good for both of us".

This was the birth of the Saturday afternoon meetings. The idea was to meet at the cafe and gauge the general interest in starting a formal astronomy group. It was at this meeting that over the next months we met many people with an interest in starting a new astronomy group, among them Gill Palmer.

So the stage was set, we had a chairman, treasurer and secretary as well as a small group of interested people and we formally created Thanet Astronomy Group.

Danny.

Did You Know ?

What is a Star diagonal !

This is a very useful accessory for the telescope. Its purpose is to make life more comfortable, especially for your neck, while observing generally, but especially when viewing anything above 45 degrees.

A Star Diagonal is an eyepiece adapter designed at a 90 degree angle and is fitted with either a mirror or a prism. It slots into the eyepiece aperture of your telescope, and your eyepiece then slots into the star diagonal.

Of course, any addition to eyepieces will reduce the light reaching your eye, which always happens when a mirror is introduced.

The other interesting thing is - it will turn the image upside down. If the image is upside down to start with (as in an astronomical telescope), then the star diagonal will turn it the right way up.

When stargazing I make myself as comfortable as possible. As well as keeping warm in winter we also have to contend with windy conditions and dew which can fog either the primary lens or mirror, and - at my age I need all the help I can get!

That's why I looked into the possibility of finding a star diagonal for my finder scope, (yes there are such things). However, this mission was hijacked by Steve and Tracy, who, it has to be said, are much more proficient on the internet than I. (I am told Father Christmas may be early this year...)

The star diagonal will be very useful as I'm presented with the same problem when using the finder scope as I am the telescope. It will certainly make observing less of a problem for me.



<http://www.wexphotographic.com>

£36

Sky-Watcher Basic 6x30 right angle finder scope. Upright image, Left & Right reversed.



<http://www.365astronomy.com>

£52.20

Sky-Watcher Mid range 9x50 right angle finder. Upright image Left & Right reversed.



<http://shop.northernoptics.co.uk/>

£119

Celestron Hi spec 9x50 finder scope With illuminated dual cross hair eyepiece. Fully Corrected image. (for Celestron SCT only)

George W.

Junior Astronomers' Club (JAC & Gill)

October 2016

This month, for a change, the children have been finding out about the myths and stories behind some of our favourite constellations...

We'd like to share them with you in the tradition of Listen with Mother and JACanory!

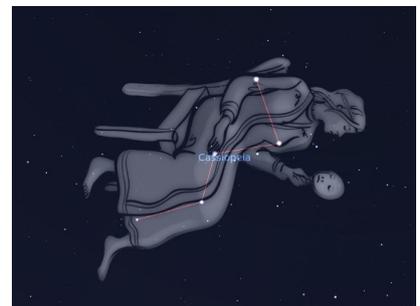
Are you sitting comfortably?

Then I'll begin...



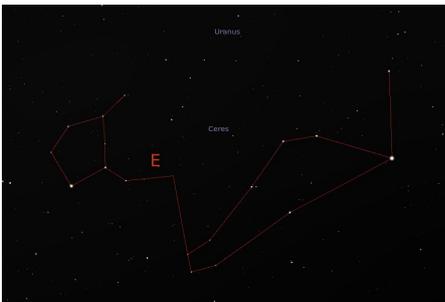
Cassiopeia Constellation

Once upon a time, there was a beautiful Queen called ***Cassiopeia*** who was married to King Cepheus of Ethiopia. They had a lovely daughter called Princess Andromeda. Cepheus was kind and gentle but Cassiopeia was very vain.



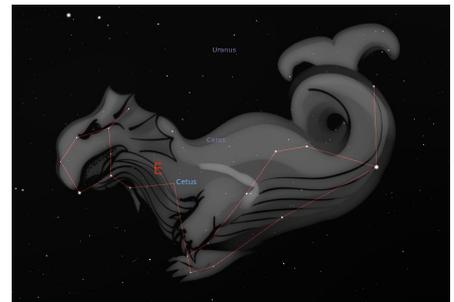
Cassiopeia western art work

One day, Cassiopeia was brushing her long, wavy hair and was boasting that she was more beautiful than the sea nymphs called the Nereids and even Juno, Queen of the Gods. The sea goddesses heard her comments and were very insulted and angry so they went to Neptune, God of the Sea, to complain about her boasting.



Cetus Constellation

Neptune immediately sent a great sea monster, called ***Cetus***, to attack the coast of Ethiopia and demanded that the King and Queen should sacrifice their daughter as punishment for such a claim by a mere mortal.



Cetus western art work



Cepheus Constellation

To prevent further attacks by the sea monster, ***Cepheus*** and Cassiopeia chained their daughter, Andromeda, to a rock as a sacrifice to beg for Neptune's forgiveness.



Cepheus western art work

Junior Astronomers' Club (JAC & Gill)

October 2016



Andromeda Constellation

Just as Cetus was about to eat *Andromeda*, she was saved from the monster's jaws by Perseus.



Andromeda western art work



Perseus Constellation

Perseus was the son of Jupiter. They fell in love and were married soon after and lived happily ever after.

However, it was not a happy ending for Queen Cassiopeia.



Perseus western art work

Neptune placed her in the Heavens away from King Cepheus' house as a punishment and, to humiliate her even further, he placed her seated on her throne with her head pointing towards the North Star Polaris.

Therefore, she has to spend half of every night upside-down for all eternity!

The End

Cassiopeia and Cepheus are two of the five Circumpolar Constellations which can be seen all year round in the Northern Hemisphere. However, they are the only husband and wife couple among all the 88 constellations.

Reach for the stars!

Gill Palmer.

Adult Word Search

ANDROMEDA APOLLO APOPHIS ASTEROID
ATEN GEOSYNCHRONOUS HUBBLE IMPACT
LEONIDS LEPUS METEOR STARDIAGONAL

S A G O O S U L A Z U A L I S
L K N C C U Q H S O M I V A L
M E O D X O F P T F G Q P I I
X Q P Q R N U V E L Q O R T Y
Q P K U B O M Q R T P V Z X U
I T F L S R M A O H C B N K L
T H S E U H Z E I A E K R M A
A E W L X C O S D I N O E L T
M X M B B N G L D A E O M B E
M K A B W Y K C L T T N C Z N
G P E U B S E S E O U U Q O W
C L A H T O Q M I M P A C T H
P E H Y Y E B Y I Y A A O D P
Y K H R S G M D C K K M D P J
S T A R D I A G O N A L F F V

Danny.

Junior Word Search

ANDROMEDA APOLLO APOPHIS
ASTEROID ATEN HUBBLE
IMPACT LEONIDS LEPUS

F A P O P H I S V
W D T C A P M I D
A E L N S A Y I O
P M Z E Y U O S H
O O X T O R P U M
L R Z A E N B E Y
L D D T E B I F L
O N S Q L G M D Q
R A J E Q T U D S

We hope that you find the Adult and Junior word searches interesting and that they inspire you to look up any of the words you don't know absolutely everything about :-)

If you like these please let us know and we will continue to produce them.

We are thinking of adding a crossword as well in future newsletters. If you like this idea please let us know.

Comments please : you all know the email address !

Danny.

Members' For Sale and Wanted

This page is for members to place items for Sale and Wanted adverts.

Please let us know if you have anything you would like on this page.

Email us at : - thanetastronomygroup@gmail.com

Or call Danny 01843 228904 or George 01843 292640

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We will be adding to this list for 2015 and 2016 newsletters when time is available.

The list will be published at the end of the newsletter so you can easily identify where articles were published.

The Index will also be published on the newsletter page of the website.