Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

January 2015

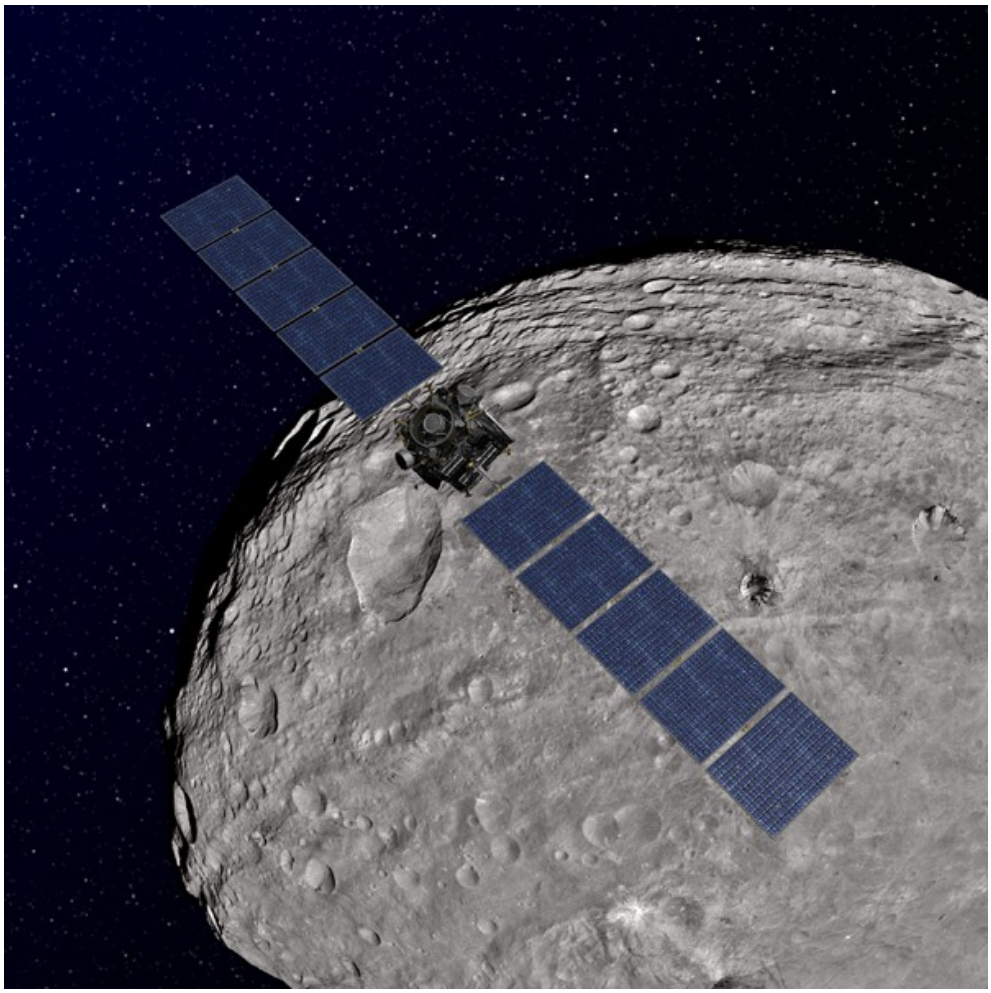

Image credit: NASA/JPL-Caltech

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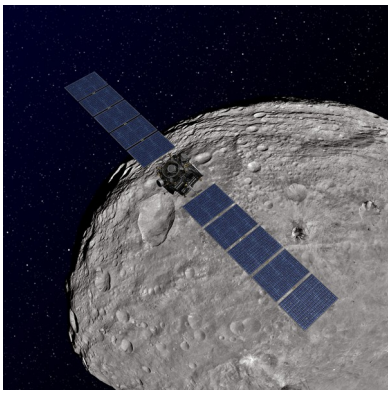
About the Cover Picture



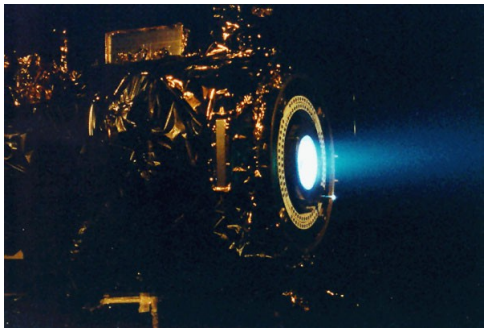
NASA's Dawn spacecraft at the asteroid Vesta.

Image credit: NASA/JPL-Caltech

The NASA Dawn Mission is part of "NASA's Discovery Program". Dawn's mission is to visit and study the protoplanet Vesta and the dwarf planet Ceres, these are the two largest objects in the asteroid belt. It is hoped to answer questions about the formation of the Solar System and to test the new Ion Drive.

Dawn and Delta II Rocket

The mission launched on the 27th Sep 2007 on a Delta II rocket from Cape Canaveral Air Force Station Space Launch Complex 17. The initial launch up to escape velocity was powered by the solid fuel third stage of the Delta rocket (left), then the new Ion Thrusters (right) took over for the rest of the mission. Dawn reached orbit around Vesta on the 16th July 2011.



Ion Propulsion System (Credit:NASA/JPL)

Dawn then spent fourteen months surveying Vesta, until 5th September 2012 when it left on route to the dwarf planet Ceres. At the time of writing Dawn is on schedule to reach orbit of Ceres on 6 March 2015. Ceres is a dwarf planet only 950 kilometres (590 miles) in diameter.

What Exactly is a Dwarf Planet ?

The exact definition of what a dwarf planet is, is defined by the International Astronomical Union (IAU), founded in 1919. It's task is to :- "Promote and safeguard the science of astronomy in all its aspects through international cooperation." Resolution B5 (Definition of a Planet in the Solar System) States :-

A "dwarf planet" is a celestial body that

(a) Is in orbit around the Sun.
(b) Has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape.
(c) Has not cleared the neighbourhood around its orbit.
(d) Is not a satellite.

Dawn will be the first mission to study a dwarf planet from close range. Due to the ever decreasing distance from Ceres, by late January 2015 the pictures from Dawn will be better than any from the Hubble Space Telescope. It is planned for Dawn to orbit Ceres at 4 different altitudes, first 13,500km for a first look. Then at 4,430km for 22 days to obtain a global view, visible light and infrared maps. Then at 1,480km for 2 months to do high altitude mapping and a 3D surface image. Then finally at only 375km for 3 months to acquire data with the gama-ray and neutron detector (GraND).

Danny Day.

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 Bull	07791 892 057
Newsletter	Janet McBride	01227 364 092
Library	Janet McBride	01227 364 092
Web Site	Danny Day	01843 228 904

Thanet Astronomy Group
Member's Meetings
Dates and Times

7th January 2015 at 7.30pm
4th February 2015 at 7.30pm
4th March 2015 at 7.30pm
1st April 2015 at 7.30pm
6th May 2015 at 7.30pm
3rd June 2015 at 8pm
1st July 2015 at 8pm
5th August 2015 at 8pm
2nd September 2015 at 8pm
7th October 2015 at 7.30pm
4th November 2015 at 7.30pm
2nd December 2015 at 7:30pm

All Member's meetings will be held at the :-

West Bay Cafe,
Sea Road,
Westgate-on-Sea,
Kent.
CT8 8QZ

What we did last month

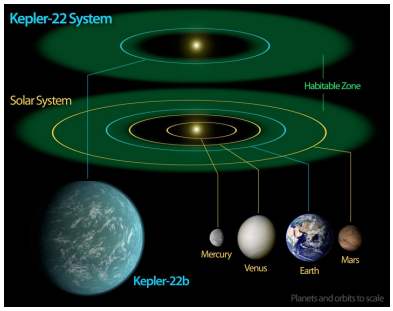
Well December is that time of year where everything winds down for the peaceful Christmas break or on the other hand, the time of year where everything goes totally manic trying to arrange that mythical peaceful Christmas break. :-)

Saturday Outreach

This year we had the usual four Saturday's Outreach meetings on the 6th 13th 20th and 27th. Yes we really were there on the 27th We say we are there every Saturday and that is what we mean. Come rain or sun shine (we have had far more than our share of sun this year) we are there. If its a little wet we are under the balcony. If its really bad we are in the cafe.

Members Meeting (Investigating the constellations - Cygnus)

Decembers Members meeting on the 3rd saw the start of a new series of mini presentations on the constellations. We looked at the constellation of Cygnus and some of the brighter stars that make this constellation easy to to find. We also looked at many of the other interesting objects that can be found in Cygnus. The presentation was very well received with many members commenting on how useful it was. The next constellation we will tackle will be Orion.



The Kepler-22 System in Cygnus

Christmas Roast and Entertainment

The Thanet Astronomy Group Christmas Roast Evening Meal was on the following Saturday 6th. We had been planning this for some months. This year we wanted to make it even better than last year. This time we had professional entertainment in the form of ...

PORTEOUS & ARCHER

(Music & Comedy)

The 3 course roast meal was of course amazing and the whole evening was fantastic.

Our thanks go to Alan and Kate and The West Bay Cafe

for this evening and all the support they have shown us since we started this adventure.

Christmas Raffle

This year we had a fund raising raffle there were loads of donated items and again the Executive Committee and member Steve Ward donated an hour of their time in their respective trades to raise funds. George Ward also donated another session in his personal observatory as a star prize to raise more funds.

The rest of December

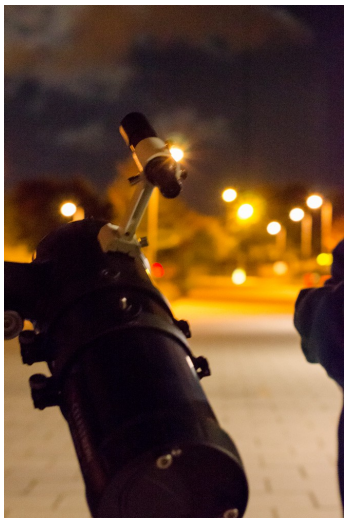
We held a Meteor Viewing Evening (shooting stars) on the night of the 13th Dec, many of the members came and the evening was very successful with over 40 meteors seen between 7pm and 11pm.

Danny Day.

Junior Members Page

Happy New Year to everyone on behalf of all the Junior Members!

I've now had my own telescope for a year and have learnt to set it up and use it by myself, thanks to everyone that helped. When I first started using it by myself at home, I found I couldn't find anything in the sky even using the finder scope.



My Telescope with new finder

Danny suggested I have a play with all the different telescopes and types of finder scope to see which one was the best for me. With one of the finder scopes, I could find things really easily and quickly. My Mum bought one for me! (Thanks Mum!!!)

So Danny removed the old finder and installed the new one, he had to drill two holes in the top of my telescope to fit the mounting bracket. Since then there has been no stopping me!

I mostly use it in my back garden on the decking as there are some trees at the end of my garden which block out the neighbours' lights. I try to get out to look through it at least a couple of times a month, when the sky is clear.

So far, I have seen the craters on the Moon when it is full but it is better to look at it when it is not so full as you can see more details in the shadows.

I've also seen Saturn as a rugby ball but I could only see a little slit through the rings, not like with George Ward's telescope where we can see right through the rings.

Me setting up my telescope to help the Thanet Beavers with their Space Activity Badge

I was lucky enough to have a Stargazing Night at George Ward's home observatory. His telescope is MASSIVE!!! He has got 9.25" diameter Celestron Goto. He showed me Jupiter and four of its moons all in a row, the Andromeda Galaxy, the Nebula M42 in Orion, and the Open Star Cluster Pleiades.

When I looked at the Moon with George's telescope it was like I was a standing on the Moon itself!

When I grow up, I want to be an astronaut and stand on the Moon ...for real!

George Harvey.

Astronomy Calendar 2015
Useful viewing dates for Stargazing

New Moons: The best time of the month to observe faint objects such as galaxies and star clusters, as there is no moonlight to interfere with your viewing.

JANUARY Planets visible this month….Jupiter, Saturn, Mars.

5th Full Moon **20th** New Moon

3rd – 4th Quadrantids Meteor Shower peak.

FEBRUARY Planets visible this month….Jupiter, Mars, Venus.

3rd Full Moon **18th** New Moon

20th– 22nd Conjunction of Venus and Mars - Look to the West just after sunset.

MARCH Planets visible this month….Jupiter, Saturn, Mars, Venus.

5th Full Moon **20th** New Moon

20th March Equinox – Total Solar Eclipse between 9 -10 am

APRIL Planets visible this month….Jupiter, Saturn, Mars, Mercury,

Uranus may also be visible with a powerful telescope.

4th Full Moon – Total Lunar Eclipse **18th** New Moon

21st– 23rd Lyrids Meteor Shower peak

MAY Planets visible this month….Jupiter, Saturn, Mercury, Venus.

4th Full Moon **18th** New Moon

5th – 6th Eta Aquarid Meteor Shower peak

7th Mercury and Venus will be near Pleides at 9pm

23rd Saturn at opposition to the Earth

JUNE Planets visible this month….Jupiter, Saturn, Venus, Mars.

2nd Full Moon **16th** New Moon

21st Summer Solstice – Longest Day / Shortest Night

JULY Planets visible this month….Jupiter, Saturn, Venus.

2nd Full Moon **16th** New Moon **31st** Full Moon

21st– 23rd Aquarids Meteor Shower peak

29th– 30th Capricornids Meteor Shower peak

AUGUST Planets visible this month….Jupiter, Saturn, Mars.

14th Full Moon **29th** New Moon

11th – 13th Perseids Meteor Shower peak

SEPTEMBER Planets visible this month….Jupiter, Saturn, Mars.

13th Full Moon **28th** New Moon

1st Neptune at Opposition to the Earth – 3am

23rd September Equinox

28th Total Lunar Eclipse between 12am - 5am

OCTOBER Planets visible this month….Jupiter, Mars, Venus, Mercury

Uranus may also be visible with a powerful telescope.

13th Full Moon **27th** New Moon

11th Uranus at Opposition to the Earth

8th – 9th Draconids Meteor Shower peak

21st – 22nd Orionids Meteor Shower peak

26th Conjunction of Venus and Jupiter – Look to the East just before sunrise

28th Conjunction of Venus, Jupiter and Mars – Look to the East just before sunrise

NOVEMBER Planets visible this month….Jupiter, Mars, Venus.

11th Full Moon **25th** New Moon

5th – 6th Taurids Meteor Shower peak

16th – 18th Leonids Meteor Shower peak

DECEMBER Planets visible this month….Jupiter, Mars, Venus.

11th Full Moon **25th** New Moon

7th Conjunction of Moon and Venus – Look to the East just before sunrise

13th – 14th Geminids Meteor Shower peak

22nd December Solstice – Shortest Day / Longest Night

22nd – 23rd Ursids Meteor Shower peak

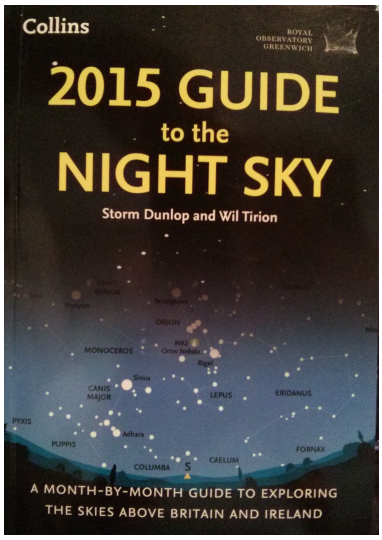
Happy Stargazing!

Book review

2015 GUIDE to the NIGHT SKY

A Month-by-Month Guide to Exploring the Skies Above Britain

Authors : Storm Dunlop and Wil Tirion.
Approved by the Royal Observatory, Greenwich.



I was very pleased when I opened up this Christmas present to find the most recent edition of "A guide to the night sky". Although the previous year's book can tell me about the regular positions for certain constellations throughout the year, each year there are subtle differences relating to what they might be in conjunction with.

This updated edition is a comprehensive month-by-month handbook to the stars and constellations visible from Britain and Ireland in 2015. It is a practical guidebook which is both an easy introduction to astronomy and a useful reference for seasoned stargazers like myself.

It was written and illustrated by astronomical experts Storm Dunlop and Wil Tirion and was approved by the astronomers of the Royal Observatory Greenwich, so I know that all the references made will relate to where I live in the UK but are written in such a way that it makes Stargazing relatively easy.

The content includes practical advice on where to start looking in the skies if you are unsure, easy-to-use star maps for each month with descriptions of what you can expect to see and the positions of the moon and visible planets throughout the year.

There are also detailed descriptions of objects and events you might see in 2015...
if the weather is clear!

Gill has already borrowed it and scanned through the pages with George Ward to create a simple viewing guide for you but there is so much more to discover between the pages! I thoroughly recommend this reasonably priced book and guarantee it will become your Astronomy Bible for the year!

Happy Stargazing in 2015!

George Cozens.

What's in the sky this month

What to see January 10th 2015
Constellation (Orion) **Stars** (Betelguese, Bellatrix, Alnitak, Alnilam, Mintaka, Rigel, Saiph,)
Asterism (The Winter Triangle) **Stars** (Betelguese, Sirius, Procyon)

November to March the constellation **Orion the Hunter** is at its best. There are some 20 prominent stars in this constellation. The brightest and more easily observed stars are the 8 in the main body. The other stars form Orion's right arm with club, and a slain animal in his left hand. These stars are dimmer and difficult to see due to light pollution.

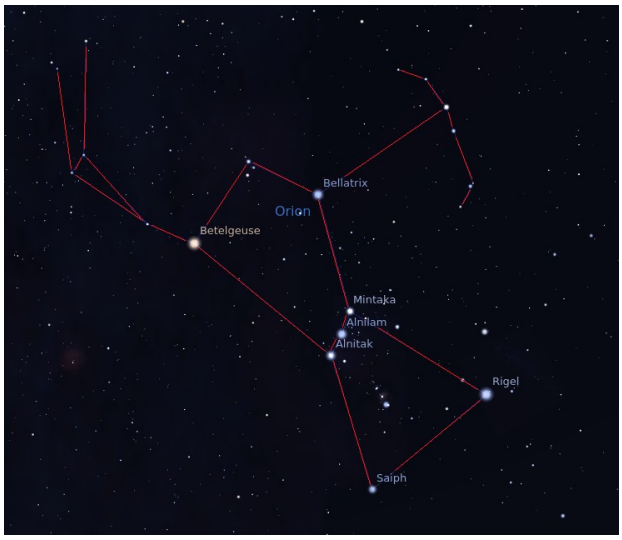
At 8:00pm
Looking South East Az +131° Alt +36° **(see Key below)** you will see the star **Betelguese,** at the top left corner of the constellation of Orion, Betelguese is a Red Super Giant Star at a distance of 498 Light Years and more than 1½ Billion kms in diameter.

Look at Az +140° Alt +36° you will see the star **Bellatrix**, at the top right corner of the constellation of Orion, at a distance of 252 Light Years and 8½ million kms in diameter.

Look at Az +140° Alt +29° you will see the star **Alnitak**, at the first of three stars side by side, forming Orion's belt. **Alnitak** (as above), **Alnilam** (at Az +141° Alt +30°) and **Mintaka** (at Az +141° Alt +31°). Orion's belt is probably one of the more easily recognised groups of stars in this area of sky.

Look at Az +141° Alt +21° you see the star **Saiph**, at the bottom left corner of Orion, this star is 647 Light Years away and nearly 31 million kms in diameter.

Look at Az +149° Alt +25° you see the star **Rigel**, at the bottom right corner of Orion. A Blue/White Super Giant Star, at 863 Light Years away and 108 million kms in diameter.

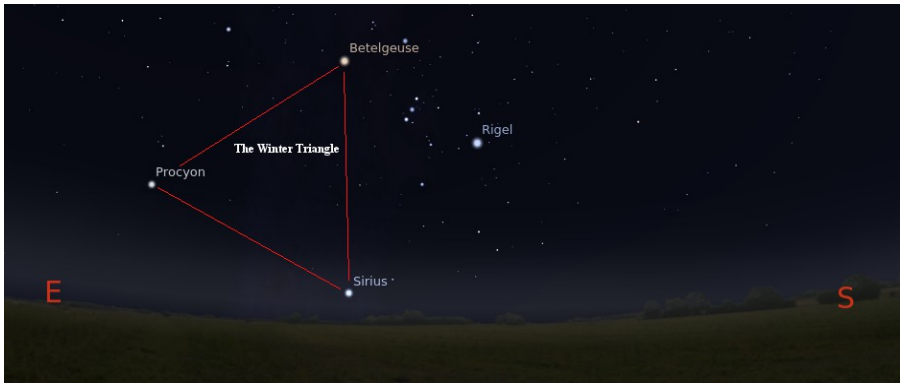


Orion's Stars

The Winter Triangle.
This is not a constellation, but a name given to three stars that form a near perfect triangle.

The 1st star is **Betelguese**, (at Az +131° Alt +36°) then the 2nd star is **Sirius,** (at Az +131° Alt +9°) and finally the 3rd star **Procyon,** (at Az +107° Alt +20°) compleats the triangle.

You know a little about the first star from above. The 2nd star Sirius or (The Dog Star) is the brightest star in the sky and is only 8.6 Light Years away and is 2½ million kms wide. It is the main star of the constellation **Canis Major** and part of a trinary system, (three stars locked in orbit with each other). The 3rd star **Procyon** also in **Canis Minor,** is at a distance of 11 Light Years and about twice the diameter of our Sun.



The Winter Triangle

Key:

Az = Azimuth
This is the compass bearing from north in degrees.
(use your compass)

Alt = Altitude
This is the angle above the horizon in degrees.
(use your protractor)

George Ward.

Thanet Astronomy Group

Lead by the intrepid 4 (they know who they are), it is a great group of very good natured people or should I say friends. Because that is what we have all become.

I do not think you could find a better group of people anywhere.

No matter what question you or the public come up with, there is always someone who will explain (in plain English) just what you want to know. They also help you to find out things for yourself.

Come whatever we meet at West Bay Cafe every Saturday afternoon and the mood is very much like a gathering of mates who can be very serious or just enjoy having a good laugh together, but whatever the mood we learn so very much from eachother.

The whole group are funny, witty, clever and somewhat takers of the micky, but that is what the club (friends) are for.

I for one look forward to Saturdays it is an exellent way to spend a few hours doing something that has become very interesting and informative, but most of all a great source of fun.

We have been going for just over a year and on Saturday the 6th of December we had our first Christmas Evening meal with the club which I must say was a totally great evening.

The food was excellent, the gathering very good and the entertainment was very well done and very funny, a hit. I think all enjoyed the whole event, it was a value for money evening.

Thanks to the Awsome Foursome.

The first of many we hope.

Bernard Levesque.

Telescope Review

Telescope Eye Pieces

This month we are going to talk a little about Eye Pieces. Without the correct eye piece you will not even be able to find what you are looking for (easily) or get the best image possible.

Quality
No matter how good or how big the telescope, with a poor quality eye piece the image will be bad.

Magnification
Magnification in a telescope is controlled by changing the eye piece. If you over do the magnification the image will be bad.

Field of view
The more the magnification, the less the field of view. Less field of view shows you a smaller area of sky and this makes it very hard to identify exactly what you are looking at and thus harder to find what you want to be looking at.

Let's look at how all this works
There are cheap simple (only one lens) eye pieces, that in general are a total waste of money. They are shipped with some of the cheaper telescopes and usually offer magnifications far beyond the capability of the telescope they are shipped with. Quality Eye Pieces can be expensive but are very well worth the extra money when you take into account the image quality they produce.

All eye pieces today are marked with a number, this number is the Focal Length of the Eye Piece in mm, as you know from a previous issue: The Focal length of the Telescope divided by the Focal Length of the eye piece = The Magnification.

So to start with when you are trying to find something in the sky, you need to see as much sky as possible (Biggest Field of View / Lowest Magnification / High Number). This way you are more likely to have the object you are looking for somewhere in the image and just need to centre it or at least be able to see enough sky to recognize what you see and be able to move the telescope in the correct direction to find your goal.

When you have found what you are looking for you can adjust the telescope to centre the object as accurately as possible and then change the eye piece for one that has a Little more magnification and re focus. Don't be tempted to make too big a step or you will lose your object. Work your way up in magnification but again not beyond what the telescope can handle.

Eye Pieces with High Numbers example:

40mm or 25mm are LOW MAGNIFICATION and have a WIDER FIELD OF VIEW

Eye Pieces with Low Numbers example:

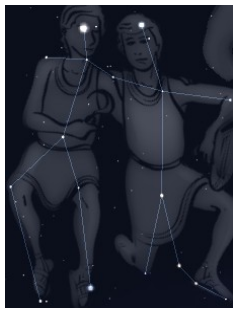
10mm or less are HIGH MAGNIFICATION and have a NARROW FIELD OF VIEW

Basic Eye Piece

Value Eye Piece

Junior Astronomers Club (JAC & Gill)

What a perfect end to the year for JAC and Gill!



JAC and Gill adopted the symbol for the Gemini constellation when they had their first official Stargazing Party during the Easter holidays, so it seemed very appropriate that the highlight of our Stargazing Parties culminated in 20 of us watching the Geminids Meteor Shower on Saturday 13th December at Joss Bay. Although it was very cold, the sky was crystal clear and together we saw the Gemini Constellation and counted over 40 superb shooting stars flying from the east in all directions!!!

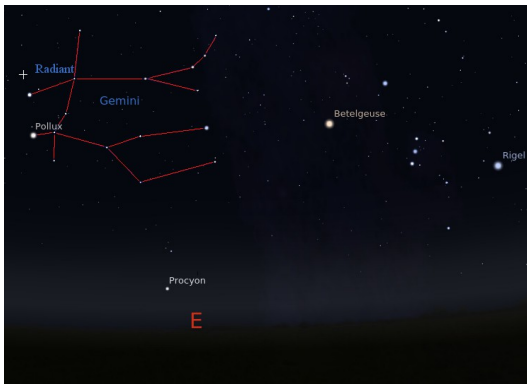
During the year, the Juniors have been learning about the difference between Meteoroids, Meteors and Meteorites. Meteoroids are small rocky or metallic pieces of debris in Space.

Meteoroids vary in size. They can be as small as a grain of sand or as big as one meter wide! When a Meteoroid enters the Earth's atmosphere, it can be travelling between 25,000 and 160,000 mph. It then becomes a Meteor.

Meteors are heated up by the friction of air particles rubbing against them. As the heat is generated, they begin to glow white hot, as they melt away they leave a trail of light. It is only called a Meteorite if a particle actually lands on Earth!

Unlike most other meteor showers which originate from Comets, the Geminid meteors originate from an Asteroid, 3200 Phaethon and are very rocky and gritty, which makes them slightly easier to see.

Meteorite debris lands on our Earth every day! However it usually lands in the sea as over 70% of our earth is covered by water. The largest Meteorite found on Earth was discovered in Namibia, Africa in 1920. It was named Hoba. The meteorite measured 2.7m wide, 2.7m deep, 0.9 m high and weighs 60 tonnes!



The Geminid Meteors orignate from the Radent

The next Meteor Shower is due at the beginning of the New Year. It will be the Quadrantids Meteor Shower which peaks on the 3rd and 4th January 2015.

Reach for the Stars Junior Astronomers!!!

Gill Palmer.

Executive Committee Messages

Your Newsletter

TAG & FAS Newsletter Pages. Go to the Members page and these two new pages will appear in the links on the left under the Members link. You will be able to view, download and print the Newsletters.
The FAS Newsletter is 21 pages of A4
The TAG Newsletter is 16 pages of A4

The Web Site

In the last year our web site has grown from a few obscure pages on the web to a site of over 40 pages, that is growing on a monthly if not weekly basis.
There are now 913 people in Kent alone that read our site. Over 2000 people in England.
Over 3000 people world wide in 84 countries !

Funds

At the last members meeting (those pressent) unanimously decided to continue saving and fund raising for our long term goal of building and equiping our own observatory.

Christmas Message

Thanks for all the help and support that Alan & Kate of the West Bay Cafe have given us throught the year, without them most of what we do would not be possible.

Our thanks also goes out to all the Members, their families and the friends of the group.

(-: Wishing you all Clear Skies :-) and a Happy New Year.

Danny, George, Gill.

Member's 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