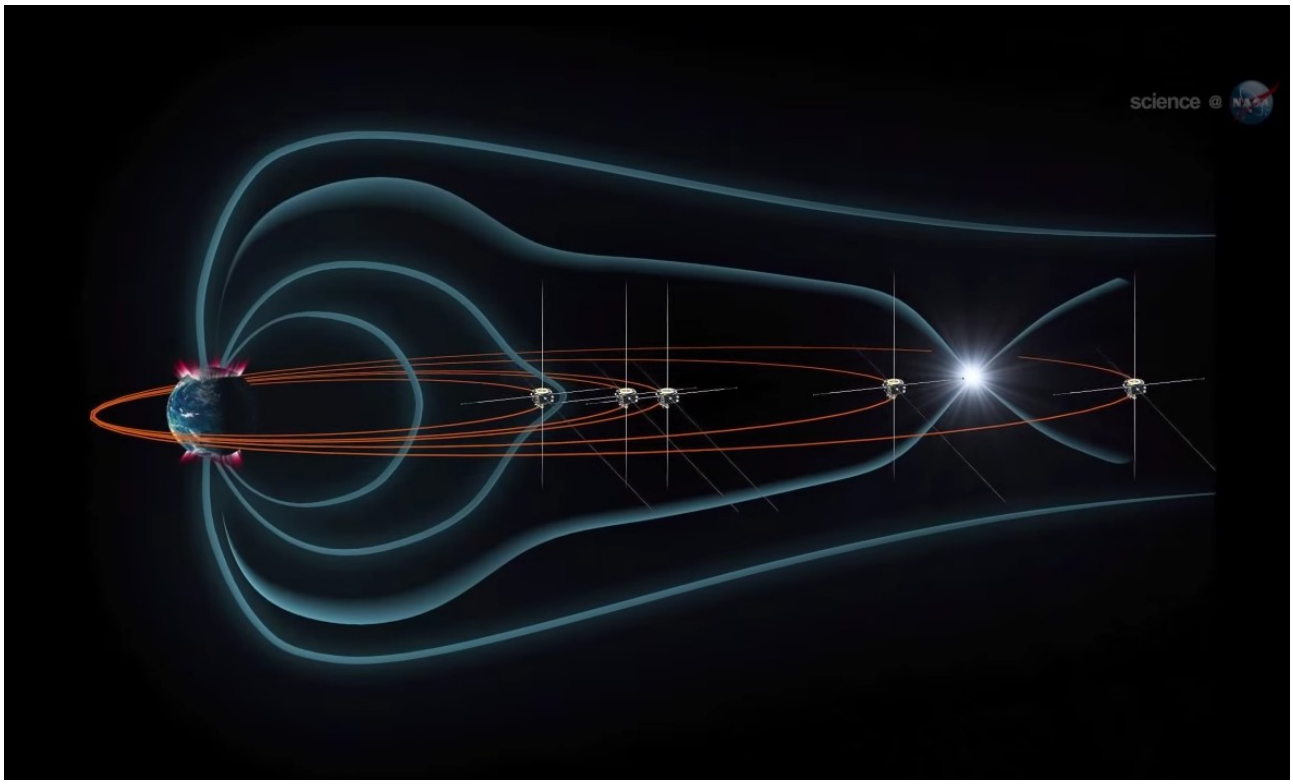
Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

February 2017



Hidden Magnetic Portals Around Earth
Credit : NASA

Contents

Executive Committee Messages

February 2017

The month of February will start with :-

February 1st Will be the Wednesday members' meeting.

February 4th Will start the Saturday meetings.

Notices :-

To All Members …. Please remember to check your email for Stargazing Events !!!

Danny, George, Gill.

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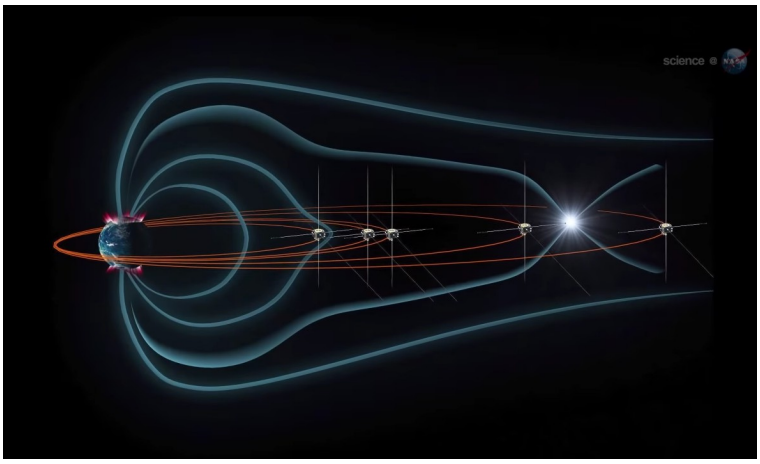
About the Cover Picture



Hidden Magnetic Portals Around Earth
Credit : NASA

Hidden Magnetic Portals Around Earth

Portals

This is the “stuff” of Science Fiction – or is it !!!
A portal is an amazing opening or doorway, that connects one place in space time to another.
A useful portal would allow you to travel in a very short time from here to some distant place, some Very Distant Place !!!

What if they really existed ?

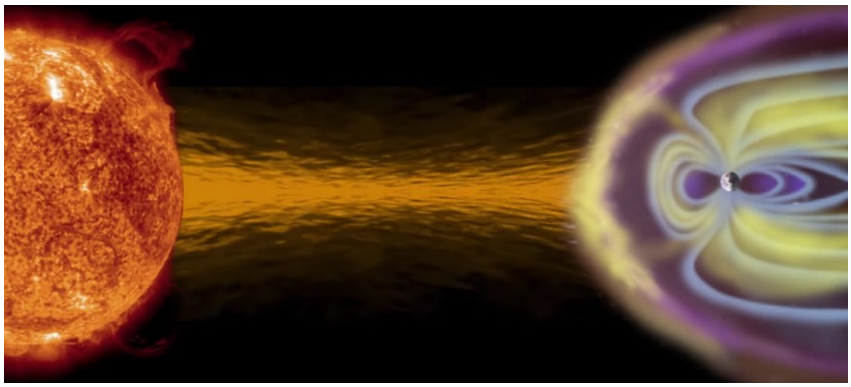
Well according to a NASA web site :-

> “They do, sort of, and a NASA-funded researcher at the University of Iowa has figured out how to find them !”
>
> https://science.nasa.gov/science-news/science-at-nasa/2012/29jun_hiddenportals

Jack Scudder

Plasma physicist Jack Scudder of the University of Iowa, calls them “X-points” or “electron diffusion regions”. He says "They're places where the magnetic field of Earth connects to the magnetic field of the Sun, creating an uninterrupted path leading from our own planet to the sun's atmosphere 93 million miles away."

Personally I am not sure if I would like to get that near to the sun, but the point here is that it may be possible.

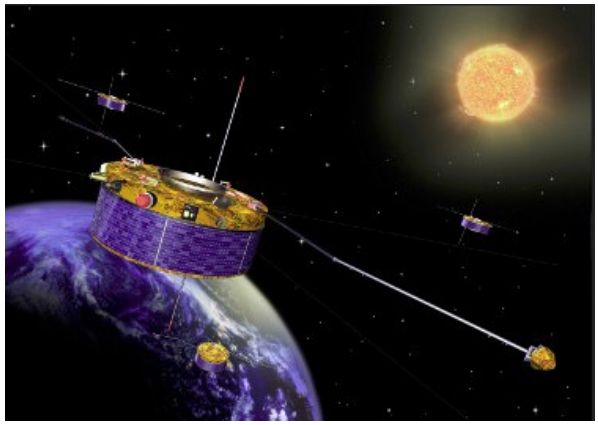


Earth's magnetic field connected to the Sun's magnetic field

About the Cover Picture

Hidden Magnetic Portals Around Earth

These portals have been observed by NASA's THEMIS and ESA's Cluster spacecraft and seen to open and close several times a day.

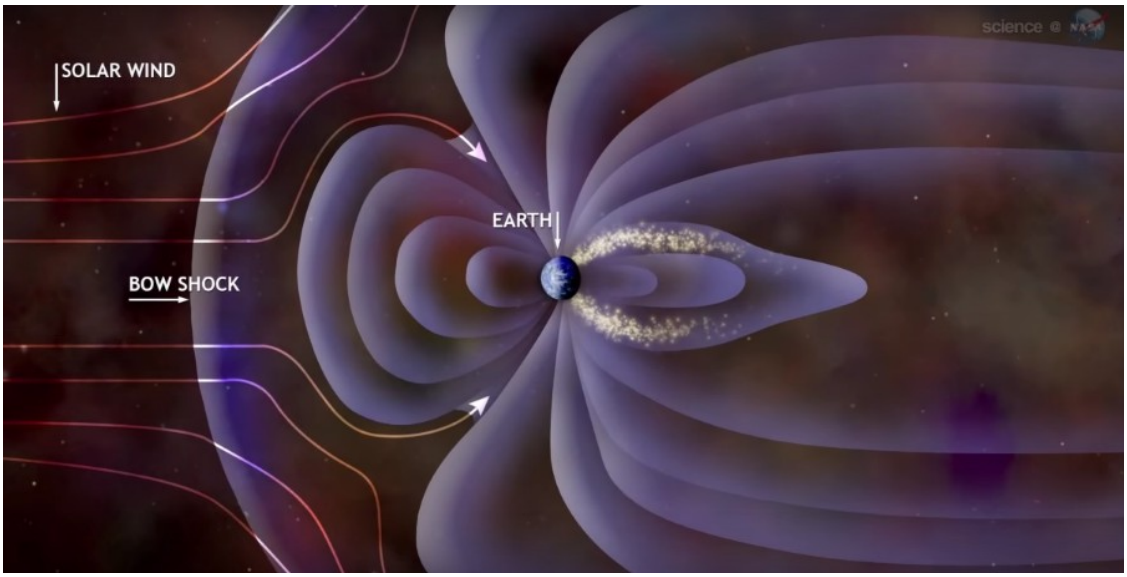


NASA's THEMIS (left) Credit : NASA and ESA's Cluster spacecraft (Right) Credit : ESA

See https://en.wikipedia.org/wiki/Cluster_II_(spacecraft) ESA Cluster Mission

See https://en.wikipedia.org/wiki/THEMIS NASA THEMIS Mission

These portals are usually located tens of thousands of kilometres from Earth, where the Earth's geomagnetic field meets the solar wind (the Bow Shock).



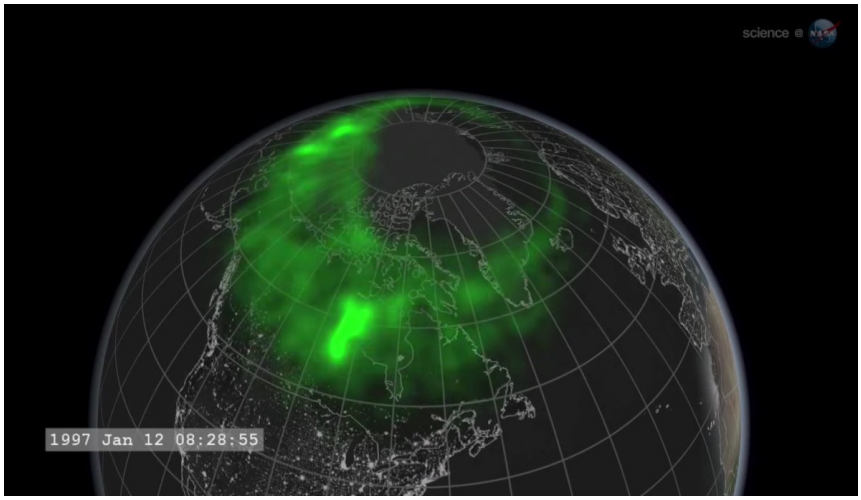
Portal location Credit : NASA

Most of the portals are small and do not sustain for long but some are very much bigger and longer lived.

About the Cover Picture

Hidden Magnetic Portals Around Earth

High energy particles travel through the portals, heat the Earth's upper atmosphere, cause geomagnetic storms and bright polar aurora.



Polar Aurora : Credit NASA

Magnetospheric Multi Scale Mission (MMS)

https://mms.gsfc.nasa.gov/

The NASA MMS mission consists of 4 spacecraft launched in 2014. The spacecraft are spread out in Earth's magnetosphere and have been investigating the connection and disconnection of the Earth's and Sun's magnetic fields (these portals) for a little under two years now.

The problem was finding the portals to study them as they are - invisible - elusive and unstable. It was expected that the MMS mission would spend about a year working out how to find the portals but Jack Scudder worked out that there are sign posts to find the location of the portals.

He looked at data from NASA's Polar spacecraft that orbited Earth and spent years in Earth's magnetosphere over 10 years ago. The Polar spacecraft had some censors very similar to MMS and using Polar data he was able to learn how to detect the portals. With this knowledge any one of the 4 MMS spacecraft could identify a portal's location and pass this onto the other 3 space craft. This allowed MMS to start its mission without the year delay.

MSS Constellation : Credit NASA

Danny.

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

2017

Next Meeting

1st March 2017 at 7:30pm

5th April 2017 at 7:30pm

3rd May 2017 at 7:30pm

7th June 2017 at 8pm

5th July 2017 at 8pm

2rd August 2017 at 8pm

***** 6th September 2017 at 8pm *****

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

4th October 2017 at 7:30pm

1st November 2017 at 7:30pm

***** 6th December 2017 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

January 2017

Wednesday 4th January Members' Meeting

This evening was forecast to be a clear night so we planned to do some star hopping with George Ward in the cafe supported by Stellarium on the big screen. This would help the members know what they were looking at and how to find it in the sky. This was followed by a Stargazing session outside the cafe.

This all worked out very well as the sky remained clear and during the evening everyone got to see many objects.

Venus was clearly seen at the beginning of the evening. At this time it is known as "The Evening Star" and is very clearly visible as the brightest object in the night sky.

We also got to look at Constellations: Cygnus the Swan, Cassiopeia, Pisces, Triangulum, Pegasus and Orion.

We looked at M42 the Orion Nebula, Pleiades (M45 or The Seven Sisters) Thanet Astronomy Groups Logo and the Red Garnet Star in the constellation Cepheus.

Quite a list for one night !!!

Saturday 7th January Public Outreach Meeting

Today was cold, therefore we were mostly in the cafe. We had at least 10 members on hand today to help with the questions.

The JAC & Gill Club was also busy as Charlotte had brought her "Black Hole" to show the other members and Justin found it very interesting indeed.

Saturday 14th January Public Outreach Meeting

Today we had a storm blowing directly inland at the cafe and our meeting coincided with high tide.

Getting to the cafe along the promenade even in a car was a bit risky !

Walking along the prom was totally out of the question. Although some people tried it only a few made it without getting extremely wet.

There was no way we could put any telescopes out as they would just get ruined if not washed away.

The meeting was in the cafe as usual on bad days. In the JAC & Gill club Dacey and Betsy were learning about how the Moon and Sun control the tides.

What we did last month

January 2017

Saturday 21st January Public Outreach Meeting

Today was sunny and cold. We set up the telescopes to look at the sun but there were no sun spots visible today. There were a lot of people around asking questions for such a cold day.

It was very busy at JAC & Gill with 8 children from 1 to 9. They were learning about the planets because their school classes were named after the planets.

Wednesday 25th January Stargazing Course Part 1:

This is the first part of the "Basic Stargazing Course". This part of the course starts off at the very beginning with the comment "You do know you are going to have to look UP!"

Part 1 teaches the basic Do's and Don'ts of stargazing, looks at where you can stargaze, the effect of light pollution, how to look at the Sun safely and at a set of the 6 main types of object you can look at.

We had over 50 people booked on the course this time and it was going to be a tight squeeze. On the night there were a couple of people that could not make it due to illness but we planed to do a quick run through of part one at the Saturday meeting to make sure no one missed out.

The evening went extremely well with everyone having learnt more than expected.

Saturday 28th January Public Outreach Meeting

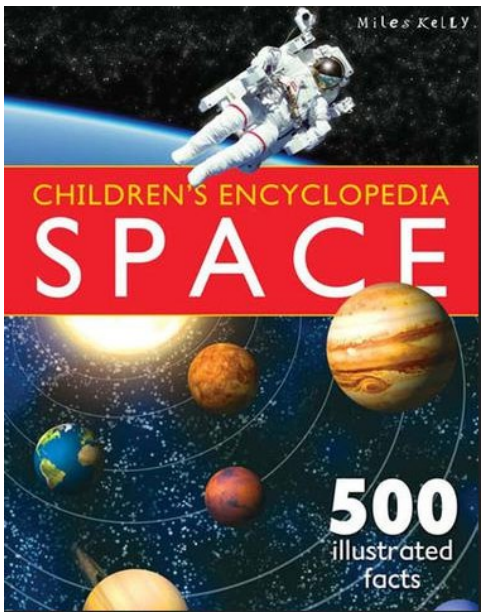
A sunny, and cold day again, however plenty of people and many children came to talk to us. They were all interested in why we were there and asking "what are you looking for" and "can we look through the telescopes". There are always many people interested in what we are doing.

At JAC & Gill 11 children today!!! Dacey one of our regular children was telling the new children about what she had learnt in the year about Tim Peake. One of the children went home and wrote a whole page report for her school homework :-)

Danny.

Book Review

Space by Miles Kelly



This book... is an amazing collection of facts about SPACE. It is aimed at children from about 7+ years.

It's divided into 5 clear sections :-

1) Solar System
2) Stars and Galaxies
3) Astronomy
4) Exploring Space
5) Space Travel

There is also a 3 page contents that breaks down each of the sections, and a comprehensive index at the back of the book.
You should be able to easily find your way to what ever subject you want to learn about.

Each of the 500 illustrated facts are explained very clearly and where 'new' words are used those words are also explained. The illustrations are bright and clearly help your understanding of what is being explained.

In amongst the facts there are several other panels brilliantly designed to grab the child's attention and maintain their interest :-

Quiz Panels
There are many short quiz panels in amongst the facts to drive home the important points in the previous pages. Each panel has the answers upside down at the bottom of the panel.

I Don't Believe It
These panels contain amusing little points that keep the reader engaged with the book.

Fact Files
Every few pages there are fact files that contain all the important facts about the main subject of that section.

Tasks
These panels are a brilliant idea as they introduce a task that the reader can go out and work on. For example “Find a Meteorite”. The panel explains what you need and how to go about the task.

Having read this book I would say it is an amazing book, crampacked with information and is very well written. It is engaging and keeps you interested while you learn. It also has many practical tasks that really bring the subject alive.

A Good Read for parent and child !
Danny.

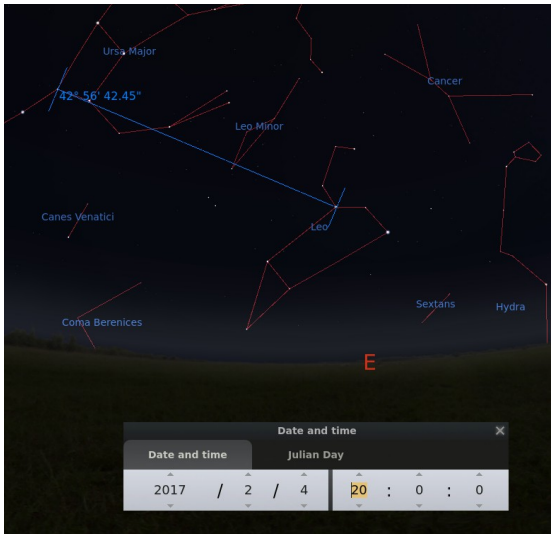
What's in the sky this month ?

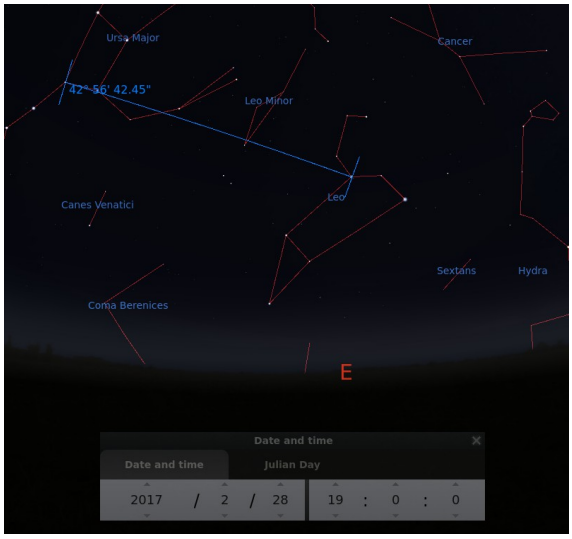
LEO The Lion - February

Now we have the early nights with sunset around 5:00pm at the beginning of the month and only about 5:30 by the start of March, there is no excuse to not get out there and do some Stargazing!
February and March evenings bring with them the constellation of **Leo** into view low in the eastern sky. In early February you will have to wait till about 8:00pm for the whole of Leo to be above the horizon but by March Leo will be clear of the horizon by as early as 6:00pm !!

Star hopping method

To help you find Leo look for the **Plough** asterism in **Ursa Major** (The Great Bear). Then look at the star where the handle joins the pan. This is the star **Megrez.** Draw an imaginary straight line from this star through the star at the bottom of the pan nearest the handle. This is the star **Phad.** Continue the line down and to the right across the sky until you reach the first of two bright stars. This first star is **Algieba** in the constellation of Leo. See the illustrations below and the blue line from Megres in The Plough to Algieba in Leo.





Leo at 8pm on 4th Feb 2017 *Leo at 7pm on 28th Feb 2017*

Now continue the line a little more to the second brighter star. This star is Regulus. also in Leo. Regulus is the brightest and alpha star of Leo. Regulus is just under 80 light years away from Earth and Algieba is about 125 light years from us.
Regulus forms the end of the **Sickle** handle in Leo, another asterism. The **Sickle** forms both the head and front legs of "Leo the Lion". To the left is Leo's body and then his hind quarters, a triangle of stars with the star, **Denebola,** at the far left, 36 light years from Earth. The name, Denebola, is Arabic for " tail of the lion". Then there is **Zosma** aka **Duhr**, "the lions back", and below that, **Chertan.**

George Danny

This page is for the members of the Thanet Astronomy Group to tell us all about anything astronomy related that you have done

It can be a visit to somewhere

A new Constellation you have learnt

A telescope you have or have bought

You might have seen another Galaxy or a Nebula for the first time

… the list is endless …

You can email in your news and include a picture or two if you have any

the address is as usual

ThanetAstronomyGroup@gmail.com

When you talk about something you have done to the other members of the group it inspires them and gives them the confidence to try it out for themselves

We look forward to hearing about what you are doing

Danny.

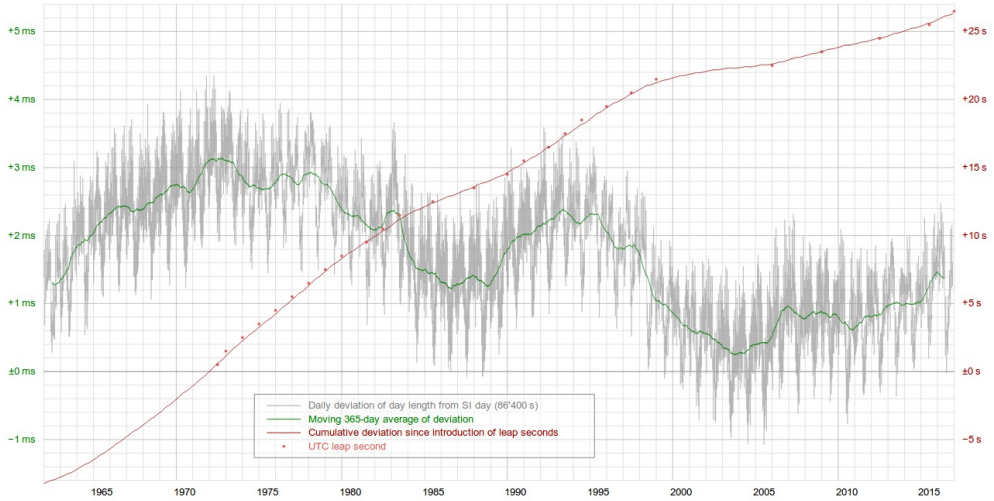
Did You Know ?

Earth's spin is slowing down!

Since 1st January 1960 we have had a new scientific time standard for the world called Coordinated Universal Time or UTC. This time standard is very precisely defined and is used to regulate the world's clocks. It was revised and improved in the 1970s to include "Leap Seconds".

Some of the uses of UTC are :-

World time zones are expressed as, to the west UTC -1 to -12 and to the east UTC +1 to +12
Most of the Internet and World Wide Web use UTC
Aviation, Flight Plans and Air Traffic Control use UTC
Weather Forecasts use UTC
The International Space Station uses UTC
Amateur Radio operators use UTC
Even Tachographs in Large Goods Vehicles (HGV's) use UTC



Deviation of day length from SI based day

Our atomic clocks today are so accurate that from time to time they need to be adjusted to take account of the fact that the rotation of the Earth is slowing down. In 1972 the difference was found to be some 10 seconds.
It now means that a 1 second adjustment is necessary about every 18 months to keep pace, the last adjustment was made December 31st 2016 at 23:59:60 UTC.
The adjustment is known as a leap second.

George W

Junior Astronomers' Club (JAC & Gill)

January 2017

I'm thinking of starting up a new group to add to our Saturday afternoon Thanet Astronomy Group meetings...it's going to be called the JAC and Gill Nursery!!!

Look I found the Earth

We've had so many babies and toddlers coming to visit with their parents and/or grandparents recently, my own Grandson included, who have enjoyed playing with the planets and singing space songs...

Look I found the Sun

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

By definition, a "stellar nursery" is a molecular cloud in the process of forming new stars but have you ever wondered where stars are made?
These hot balls of gas start their lives in what astronomers call a nebula or nebulae (plural) and are basically the nurseries of the Universe.
A nebula is a gigantic cloud of dust and gas, mainly hydrogen and helium gases, and they can be light years across...that's trillions of miles!
Sometimes the dust and gas in these clouds begins to contract, or squash together, and then they get hotter. The denser the cloud gets, the hotter it gets until eventually it gets so dense and hot that it starts to fuse its hydrogen into helium ...beginning its new life as a star.
Nebulae look quite fuzzy in appearance...a bit like fluffy clouds or cotton wool in the sky. They can be a variety of sizes (just like babies and toddlers) and they also come in a range of shapes which can look like anything you care to imagine e.g. horses (the Horsehead Nebula in the constellation of Orion), crabs (the Crab Nebula in the constellation of Taurus) and even a Christmas Tree (in the Orion Arm of the Milky Way).
New stars are being born right now in their stellar nurseries. Star birth can take millions of years but when you look at a star you are seeing how it looked in the past.
The closest star to Earth is our Sun, so when you see the Sun in the sky, it is as it appeared 8.5 minutes ago.

Gill's little stargazer

Luckily, our JAC and Gill Nursery are right here with us in the present and ready to learn about the Universe...is this the birth of a new stellar nursery ?

Reach for the stars!

Gill Palmer.

Adult Word Search

AURORA	**GALAXIES**	**GEOMAGNETIC**
LEO	**MAGNETIC**	**METEORITE**
ORION	**PLEIADES**	**PLOUGH**
PORTALS	**STARGAZING**	**STELLARIUM**

O V Q T S M A M J A R C L M I

S R Q S D T A M R V I Q E E H

B K I L E G E O P T D H O T S

K W X O N I R L E N R O P E L

M Z E E N U X N L D T V F O A

U U T R A Y G A E A I P X R T

G I S E D A I E L P R M E I R

C G B P M M R F B A J I G T O

Z M E O P L O U G H G V U E P

K A E S T A R G A Z I N G M M

M G U A G I K Z Y M M S K I G

P N D P H H S T Q D L Z X P O

E X C S Z X Z Q S K W H E F G

Y X Z I Y R S A E D V K K V A

D G I Z N W Q S G R C T D K D

Danny.

Junior Word Search

AURORA	**LEO**	**MAGNETIC**
METEOR	**ORION**	**PLEIADES**
PLOUGH	**PORTALS**	**STARS**

P I Q D P J U V T

C J H F L G F U O

M A G N E T I C C

P R O R I O N N P

L O S L A T R O P

O R F E D M R R C

U U L M E T E O R

G A W E S R A T S

H B A U O Y S U Q

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

Index to Thanet Astronomy Group Newsletters

Newsletters 2014

Issue 1 October 2014

Issue 2 November 2014

Issue 3 December 2014

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.