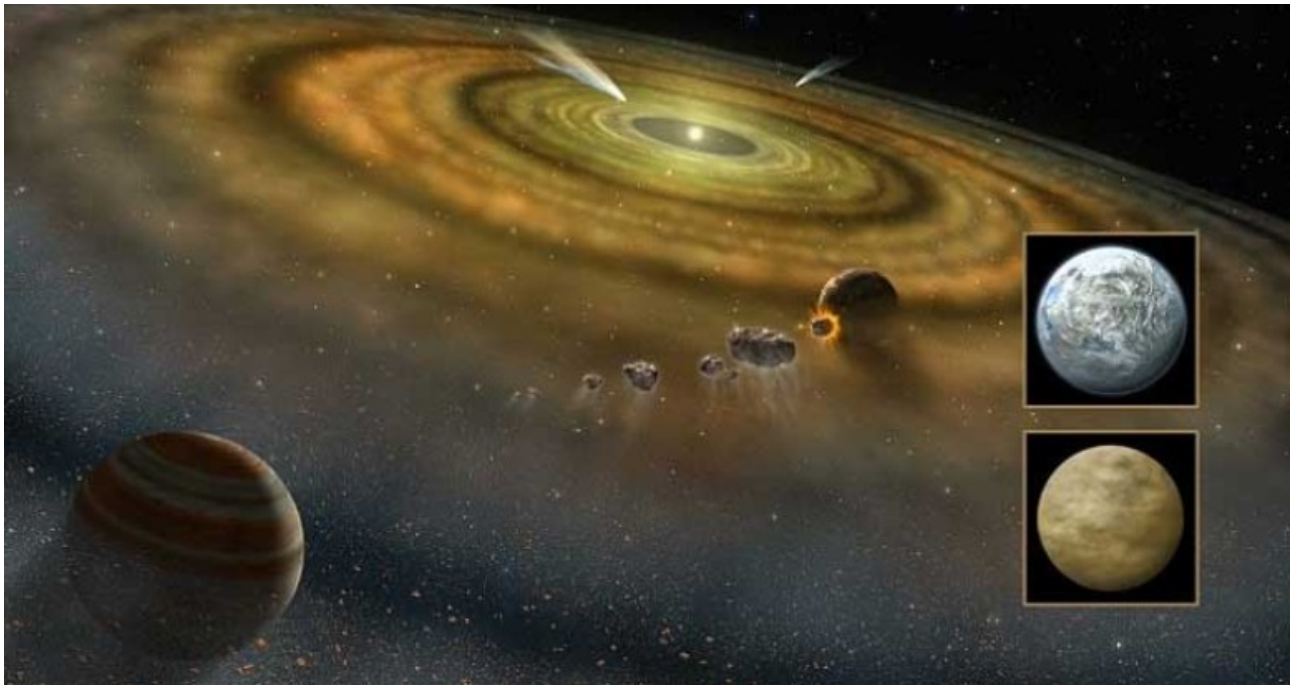
Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

April 2016

Elements required to make planet Earth



This space is reserved for promoting members' businesses.

You can place an advert here for a donation to the group.

Contents

Executive Committee Messages

April 2016

April 2nd Will start the Saturday meetings.

April 6th Wednesdays members' meeting at the cafe.

See the Letter to Members on page 16

Beginners Guide to Stargazing Course

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

Telescope Making Group

This year 2016 we will be starting work on the first of 3 telescopes we hope to make this year.

Note : There is no knowledge or experience needed to join this workshop.

All those that would like to attend the Telescope Making Group Please email ThanetAstronomyGroup@gmail.com to register your interest.

NOTE : Wednesday MAY 4th will be the Thanet Astronomy Group AGM

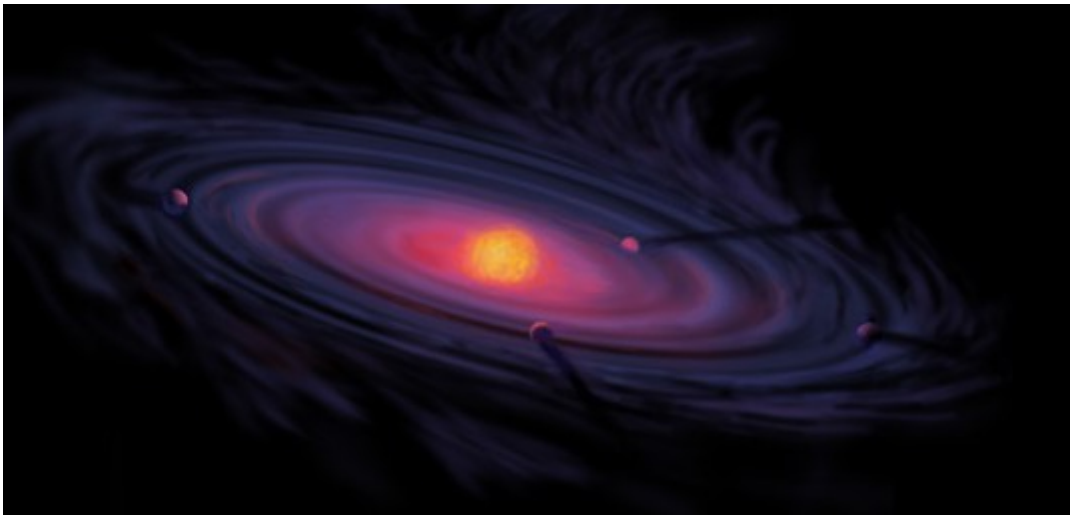
This will be held at the West Bay Cafe at 7:30pm

Danny, George, Gill.

About the Cover Picture

Elements required to make planet Earth

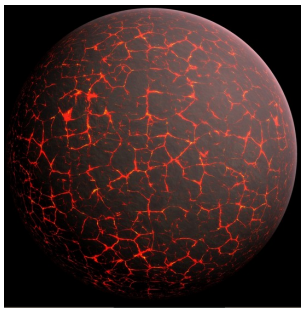
Protoplanetary Disk



Artist's conception of a Protoplanetary Disk. Image Credit: NASA

Our planet started life as a ball of molten rock orbiting in a protoplanetory disk. In the centre of the disk was forming a star which would one day become our Sun.

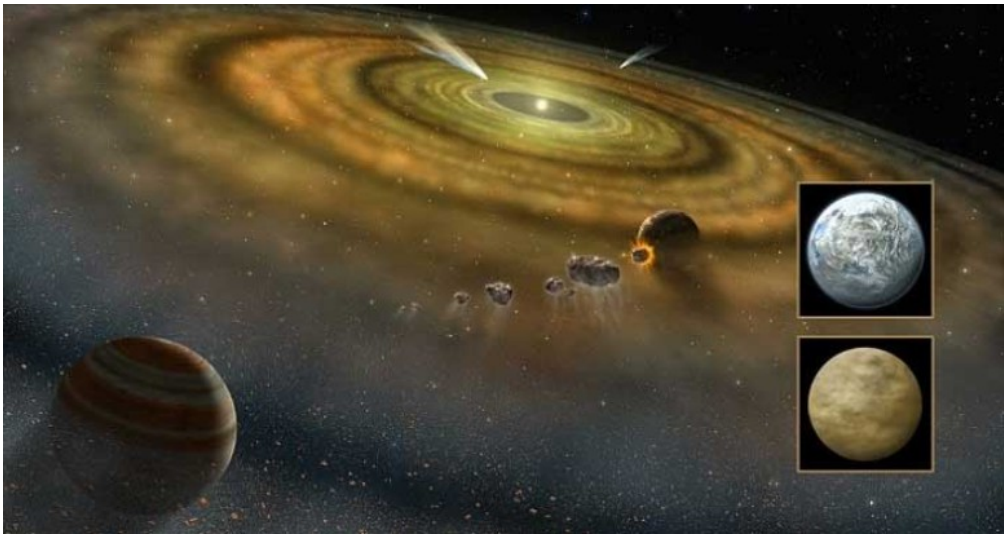
It was not alone. There were other planets being created, absorbing by way of accretion, much of the gases and debris which would in time become the planets of our solar system. But there were many stages to go through before the gasses and debris would develop into the planet Earth that we know today.



Early Earth

Had any of the following not occurred... then we would not be here.

Formation of the Solar System: Birth of Worlds



Artist's conception of the dust and gas surrounding a newly formed planetary system. Image Credit: NASA

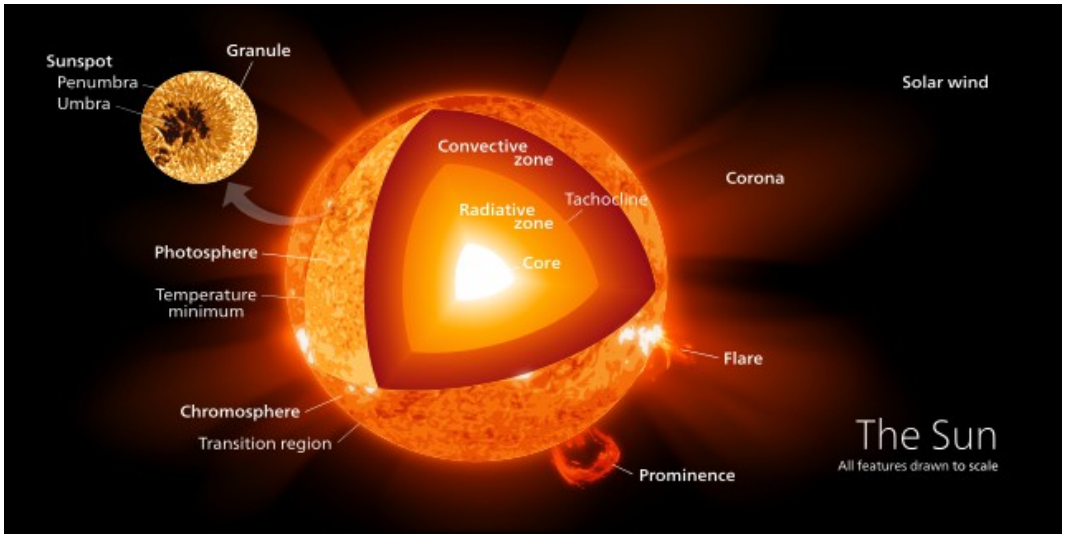
About the Cover Picture

Elements required to make planet Earth

We need a source of light and heat.

We happily find ourselves in what would eventually become our Solar System, and we are orbiting a huge star (our Sun) and fortunately at the right distance for comfort, any closer, too hot; any further away, too cold.

The Sun



By Kelvinsong - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=23371669

We need a Moon.

While our planet was molten rock we were struck by a Mars size object. This resulted in the displacement of a vast amount of debris which in time coalesced and became captured by Earth's gravity and became our Moon.

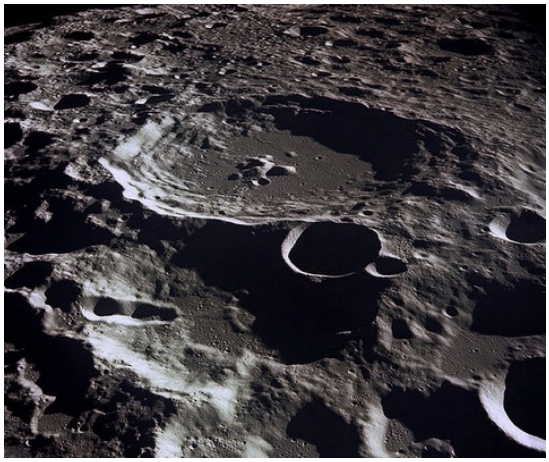
Artist's conception of the giant impact thought to have formed the Moon

Image Credit: NASA/JPL-Caltech

About the Cover Picture

Elements required to make planet Earth

Do we need a Moon?

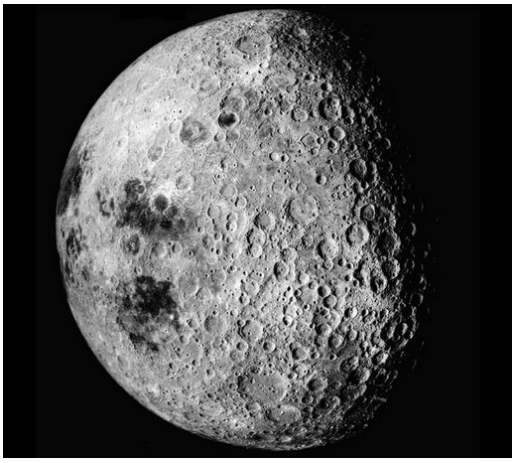


Craters on the far side of the Moon

The Moon as we know is scarred by tens of thousands of craters, these were made by meteors which would almost certainly have hit us had it not been for the Moon. You could say that the Moon was and is our guardian angel.

The Moon's gravity creates a bulge in our oceans which produces tides and it was these tides that were most likely the cause of life in the seas moving onto the land.

At first, only in the tidal margins where life would learn to leave the safety of the sea only until the tide returned and then gradually, in time, evolve to live on the land full time. This would not have happened without the tides and there would be no tides without the Moon.



The Moon picture taken by Apollo 16

Earth needed water.

If life was to develop on our new planet we were going to need water.

It is not known where the water came from but it is thought to have been delivered by asteroids or comets and it would appear to have been just the right amount.

Had the amount been double it would have reduced the land available for habitation.

About the Cover Picture

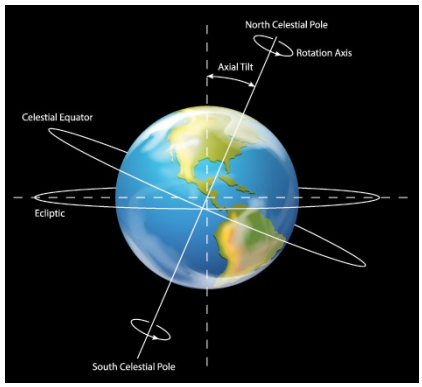
Elements required to make planet Earth

We need seasons.

It is thought that the impact that created the Moon may also have been responsible for Earth's tilt.

This tilt is of great benefit to us as it alters the length of day and temperature through the year.

Without our tilt life on Earth would be very different.



Earth's Tilt

We need oxygen.

Cyanobacteria

It is thought that Earth's oxygen was produced by bacteria.

Cyanobacteria is believed to be responsible for producing most of Earth's oxygen.

The bacteria had been on Earth for about 200 million years before its oxygen production reached the global scale required to produce today's environment.

Prehistoric animals.

We know that some very large animals existed many millions of years ago, we also know that they possibly became extinct as a result of an asteroid hitting Earth. Well whatever the reason they've gone, and we are left wondering could human beings have coexisted with these beasts!!

These are just some of the factors that came together in order that life as we know it became possible on planet Earth.

An asteroid striking Earth at the end of the Cretaceous

George W

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
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

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

Next Meeting

4th May 2016 at 7:30pm

***** Thanet Astronomy Group AGM *****

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

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

*** Christmas Evening Meal and Entertainment ***

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 in March

Wednesday 2rd February Members' Meeting

This members' meeting was a challenge for me [Danny] I wanted to talk about one of the most exciting events in astrophysics to date. The direct detection of these waves was by the Laser Interferometry Gravitational Observatory (LIGO) in the USA. This is leading edge astrophysics and when Albert Einstein first predicted that gravitational waves existed he noted that science would never advance to a point where they could be detected.

My challenge was to extract the fundamental information and present it in an understandable form, hopefully proving that it's the word 'Astrophysics' that is scary and not the subject. I hope I achieved that ???

Saturday 5th March Public Outreach Meeting

A cold day mostly spent inside the cafe with Tea, Coffee, Sausage Sandwiches and the like, discussing all things Astronomy.

Saturday 12th March Public Outreach Meeting

Another cold day however we did get the telescopes out for a while with some of the more hardy members and interested public outside the cafe while the other members met in the warmth of the cafe.

Saturday 19th March Public Outreach Meeting

Today was a strange day we had some light rain to start but then it turned a bit sunny so we set the telescopes up and it soon turned very misty but by then we had quite a few people interested and were busy explaining the telescopes and how to set them up. There were a few people that had previously owned telescopes but had never had any luck finding or seeing anything. This is a very common problem that we have all suffered from when starting out on this hobby.

We spent some time explaining exactly how to overcome these initial problems, if anyone has a telescope and would like help with it, this is exactly the sort of thing this meeting is about.

Saturday 26th March Public Outreach Meeting

This is the start of the Easter holiday season so the beach huts are coming back and our access to deliver the telescopes by car is at an end. The expensive telescopes have to be carried down the flight of steps to the promenade.

The weather was not bad and there were plenty of people wanting to know about what we were doing. JAC &Gill were learning about how to find the Easter Bunny constellation, Lepus!

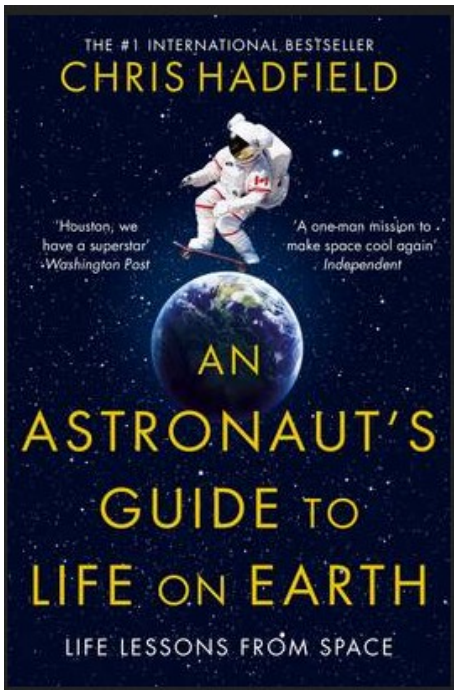
The latter half of the afternoon got a bit cold so we packed up and moved into the cafe to continue in the warm with tea and cakes.

Danny.

Book review

An Astronaut's Guide to Life on Earth

(Life Lessons from Space) by Colonel Chris Hadfield



If any of our Junior Members have aspirations about becoming an astronaut in the future, I would thoroughly recommend taking a leaf out of Chris Hadfield's book first to find out about what they might be letting themselves in for!

It may appear to be a glamorous and exciting job which brings worldwide fame and fortune...but the truth is far from it! Although Chris Hadfield has logged nearly 4000 hours in space and spent 144 days in total aboard the International Space Station...to get that far he has had to spend decades training before being chosen to become an astronaut in 1992!

Chris Hadfield was born on a farm in Ontario and knew from the age of 9 that he wanted to be an astronaut when he watched Neil Armstrong land on the Moon but he also knew how difficult it would be as there were no opportunities for Canadians to train at that time.

In his own words, “I wasn't destined to become an astronaut. I had to become one.” His life choices determined the type of person he was to become even from an early age, even down to the things he ate and the books he read at school.

At 15, Chris won a glider pilot scholarship as a young Air Cadet and from then on, there was no stopping him! By 1990, he had flown more than 70 different kinds of aircraft, trained as a mechanical engineer, flown as a fighter pilot for the Canadian and American forces, trained as a Test Pilot for the USA and explored research work with NASA.

Since being chosen as an astronaut in 1992, he has been CAPCOM (Capsule Communicator) for 25 shuttle launches, Director of NASA operations in Russia, Chief of Robotics at Houston and Chief of ISS operations. Whilst acting as Commander of the ISS, he set a new record for the most scientific experiments in Space and had to oversee an emergency spacewalk. He is also famous for his Twitter feed to share his experiences and images from Space with us here on Earth, particularly his zero gravity rendition of David Bowie's “Space Oddity”!

Having been given this book as a Xmas present and enjoying Chris' inspiring anecdotes and stories of his adventures throughout his life, I was thrilled when he made a guest appearance on Stargazing Live in January with my heroes Professor Brian Cox and Dara O'Briain. Chris' detailed explanations came from first-hand experiences and personal challenges whilst in Space...and on Earth! To me, this helped to reinforce the point of his book i.e. although most of Chris Hadfield's years of training had been on the ground, the short time in Space was invaluable for future astronauts to learn by and also equipped him for living life on Earth in the best way that he can!

As each new generation of explorers goes into Space, they inspire and learn from the past experiences of their fellow astronauts and, in turn, provide new evidence for future generations of Astronauts...and so the circle continues to explore ways to deal with the unknown quantities of life in Space and on Earth...just like our intrepid British Astronaut, Tim Peake, is doing right now!

Who will our next British Astronaut be...it may be you!!!

Gill Palmer

What's in the sky this month

What to see Saturday 9th April at 10:00pm

Globular Clusters (M13)

Constellation (Hercules)

Stars (Vega, Arcturus)

Globular cluster is a name given to a spherical shaped group of stars, usually located on the outer edges of galaxies. The stars in globular clusters are tightly bound together by gravity causing them to be more dense toward the centre, with up to a million stars in each cluster. 'Globular' derives from the Latin word '*globulus',* meaning a small sphere.

The galaxy we live in, the Milky Way, has more than 150 globular clusters and it is believed that our neighbour, the Andromeda Galaxy, is home to more than 500. Globular Clusters are thought to have formed between 13 and 15 billion years ago, and thus contain some of the oldest stars in the Galaxies.

The globular cluster M13 can be seen in the 'keystone asterism' of the constellation Hercules. It is said to be visible by the naked eye. I think you need both, very good eyesight and low light pollution to achieve this. Binoculars may help if you can keep them steady enough to find M13 but the best way is to observe it with a telescope.

At about 10:00pm, looking a little to the left of East, you should be able to find the constellation Hercules between the two bright stars, **Vega** on the left and **Arcturus** on the right (see Picture 1 Hercules). Look at the four keystone stars forming the square in the middle of the constellation Hercules (see Picture 2 The Keystone).

Picture 1 Hercules

Picture 2 The Keystone

Picture 3 Keystone & M13

Look at the upper right side of the square, and about 1/3rd of the way down that side indicated by the blue corner markers, this is where M13 is located (see Picture 3 Keystone & M13). Picture 4 shows a close up view of the Globular Cluster M13.

The M13 is around 145 light years across and its distance from our planet Earth is about 25,100 light years. Just to remind you, a light year is the distance light travels at 186,282 miles per second (299,792 km per second) in one year. That's 5,878,612,843,200 miles or 9,460,716,019,200 km.

Globular Clusters are well worth trying to see as they are things of great beauty. There are 29 of them included in the Messier catalogue. Many theories abound but it is not known how they formed.

Picture 4 M13

George Ward / Danny

Member's Page

1, Mellanby
Close
Birchington
Kent. CT7 0BZ
2nd April 2016

Dear Member,

We would like to inform you well in advance that the Thanet Astronomy Group AGM will be held on Wednesday 4th May 2016 at West Bay Cafe at 7.30pm.

We would also like to remind you that Membership Renewal is due from 6th April 2016. Should you wish to renew for 2016-17, we would appreciate any updated contact information to be submitted with the renewal as there have been times when contacting members has been difficult in the past, particularly when arranging viewing sessions at short notice.

As we are now in the position to provide photo membership badges, we would appreciate a recent, small, passport sized photo being submitted with your renewal. This will help everyone to identify members at meetings, particularly the new members, and is also for the purpose of providing discounts for Thanet Astronomy Group Members at any businesses we may have arrangements with.

However, this will only be done if ALL members provide a photo, so your co-operation in this matter is much appreciated. Our thanks to the few members who have previously submitted photos in the past. This will now be an annual requirement to benefit ALL members.

We welcome all comments to help us to continue to make our Group a success and for the smooth running of all our activities.

We hope you are continuing to find this amazing hobby as fascinating as we find it.
and wish for clear skies in the future!

Yours faithfully,

Gill Palmer

(Secretary of Thanet Astronomy Group)

Name.....
Address.....
….....
Home Phone.....
Mobile Phone.....
Email.....
Date.....Recent photo submitted Yes [ ] (Please tick)

Please return to Gill Palmer at the address above by the end of April 2016

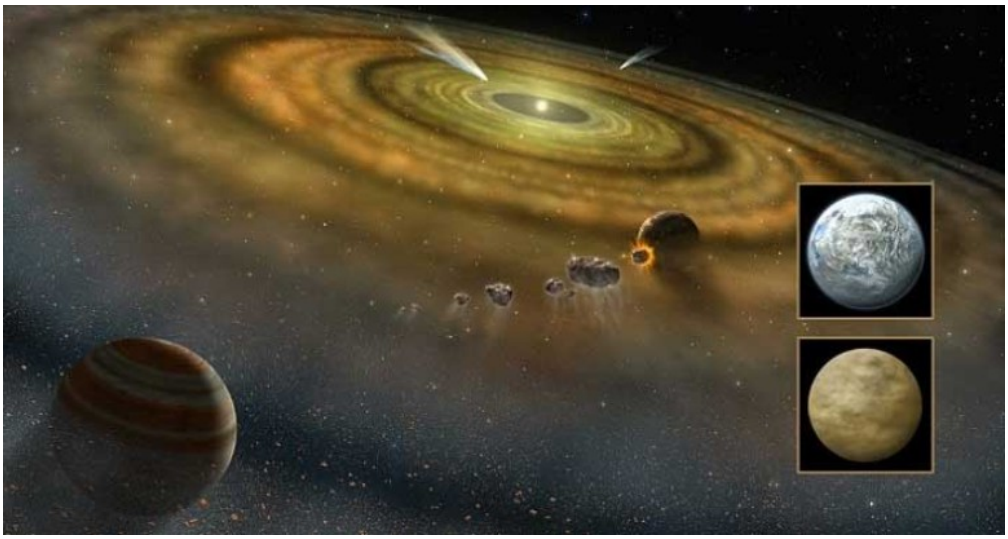
Gill P.

Did You Know ?

Accretion

Accretion is the process of particles of dust, rock and gases in an accretion disk in space accumulating into a massive object. This accretion is caused by gravity attracting the particles towards each other. Most objects such as galaxies, stars and planets were formed in this way.

Accretion Disk with forming planets



Artist's conception of the dust and gas surrounding a newly formed planetary system. Image Credit: NASA

Our Solar System is believed to have started as a huge cloud of dust and gasses. At some point the gravity from a 'near by' object caused the cloud to start spinning. In time this resulted in the cloud spinning down into a flat disk (an Accretion Disk).

This disk of matter was swirling around a massive, glowing centre where our Sun was beginning to form.

As the material in the disk moved around particles of dust collided and began to stick together forming rocks and in time these collisions formed larger boulders that in the end combined to become the planets of our Solar System.

We can see evidence of this process in the past on the surface of our Moon in the form of craters. We can also see this evidence today, on Earth, in the form of meteors and small asteroids that collided with Earth as shooting stars.

Accretion ***is*** the process that forms worlds and Solar Systems.

Danny.

JAC and Gill's

Did you know...more fascinating facts about Tim Peake!

By the time you read this latest news article, Tim Peake will have spent 16 weeks already aboard the International Space Station!

Here is a brief diary of his amazing activities so far during this 6 month mission named Principia after Isaac Newton's text on physics "Principia Mathematica".

TIM PEAKE Credit : NASA/Robert Markowitz -

https://www.flickr.com/photos/nasa2explore/18306699143/

Launch Credit: NASA/Joel Kowsky

Diary

15th December 2015

Tim Peake was launched into space at 11.03 GMT from Baikonur in Kazakhstan. He made 4 orbits around our Earth then docked with the ISS at 17.33 GMT. After a patient wait (and a weightless wait) the hatch finally opened at 19.58 GMT and Tim floated aboard!

25th December 2015

Tim spent his first Christmas in space with a 2 foot Christmas tree and velcro on his cutlery to stop it from floating away while he ate his Christmas dinner of irradiated turkey, dehydrated mashed potatoes and processed vegetables!!!

26th December 2015

Back to his 40 hour a week work routine running science experiments and maintaining the ISS with his colleagues!

8th January 2016

Tim had his first talk with a school in Britain using the Amateur Radio on the International Space Station (ARISS) project. The lucky pupils were from Sandringham School in St. Albans, Hertfordshire.

Junior Astronomers' Club (JAC & Gill)

JAC and Gill's

15th January 2016

Tim made his first Spacewalk outside the ISS for 6 hours to replace a failed voltage regulator to restore the ISS to full power.

Tim Peake prepares for his space walk Credit: ESA/NASA

29th January 2016

Tim sent a message to UK Schools to invite them to take part in a Rocket Science experiment.

Pupils have been asked to become Space Biologists by growing seeds which have been up in space for 6 months and comparing them to seeds which have stayed on Earth to see if there are any differences. This is being jointly organised between the UK Space Agency and the Royal Horticultural Society.

2nd February 2016

Tim linked up live with classes from all over the UK to present a Cosmic Classroom event. He showed pupils some simple science activities which they could follow up in their own classrooms...290,000 children took part!

3rd February 2016

Tim switched on the first of two Astro Pi computers. The first is called Ed and is running student experiments in space.

Astro Pi flight case. Credits: Raspberry Pi

11th February 2016

Tim was present at a world first when ARISS not only linked up radio contact to a school but they were able to use a video link to see the inside of the ISS!

15th February 2016

The second Astro Pi computer called Izzy was switched on and will be taking infrared pictures of the Earth.

JAC and Gill's

16th February 2016

Tim sets a 400km challenge for UK students, which is the distance from space to Earth. He exercises for 2 hours every day in the ISS gym and 8000 children are already taking part to join him in the challenge!

2nd March 2016

2kg of Rocket seeds returned to Earth in the Soyuz capsule bringing home Mikhail Kornienko, Sergey Volkov and Scott Kelly after 6 months in space. Scott and his twin brother Mark are now undergoing scientific studies to compare any genetic differences between the twins while they have been apart.

Tim Peake with the Rocket seeds *Credits: ESA/NASA*

3rd March 2016

Tim sent a message to MPs and Ministers at the Parliamentary Voice of the Future 2016 event which aims to inspire young scientists and engineers.

9th March 2016

Tim had a live interview with ITV's "This Morning" programme.

10th March 2016

Tim was honoured to have been involved with the 1000th organised Amateur Radio link up with the ISS (ARISS)

Watch this space for more information on ARISS linking with a local school in our area soon!

Tim is also planning to be the first man to run the London Marathon in orbit around our Earth!

He is already in training for the 26.2 mile marathon on 24th April 2016 on the ISS treadmill.

He intends to start at 10.00 GMT and will be able to see and run through the streets of London using a HD video to authenticate the experience!

GOOD LUCK TIM from everyone at JAC and Gill!

He really has reached for the Stars ...and made it!

Gill Palmer.

Adult Word Search

ACCRETION	**ARCTURUS**	**ASTRONAUT**	**CYANOBACTERIA**
ELEMENTS	**GALAXIES**	**GLOBULAR**	**HERCULES**
KEYSTONE	**MEMBERSHIP**	**PROTOPLANETARY**	**SPACEWALK**

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

Danny.

Junior Word Search

ASTRONAUT	EARTH	GALAXIES
MARS	MOON	ORBIT
PLANET	SPACEWALK	TIMPEAKE

S Y R U J Z S P T

Q G V S F W P U I

S E I X A L A G M

M A R S A N C O P

X E L N O V E R E

U W E R M A W B A

Q T T O R Z A I K

L S O T M G L T E

A N H V N M K E 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

For Sale

10 Hardback and 5 paperback Kathy Reichs books

10 Hardback and 2 paperback Karin Slaughter books

22 Hardback and 1 paperback Clive Cussler books

£1 Per Hardback

50p Per Paperback

99% Mint Condition

Call Sheila on – 07791892057