Welcome to 2009/10 Season!

Welcome to the start of a new RAS season, whether your a returning member or a new one! We hope you'll enjoy our talks and the chance to chat and learn from our own set of experts.
This is RAS's electronic monthly bulletin (eBullletin) which hopes to give you a flavour of what's going on in the Forum and also informs you about the upcoming talks. At the end of this document you will find the listing for this seasons talks as well as details of Reading Astronomical Society.

Amazing new images from the recently repaired/updated Hubble Space Telescope:
This image of the Abell 370 cluster of galaxies shows the effects of gravitational lensing as predicted in Einstein's General Theory of Relativity!

Gravitational Lensing in Galaxy Cluster Abell 370

The Hubble Space Telescope's newly repaired Advanced Camera for Surveys (ACS) has peered nearly 5 billion light-years away to resolve intricate details in the galaxy cluster Abell 370.

Abell 370 is one of the very first galaxy clusters where astronomers observed the phenomenon of gravitational lensing, where the warping of space by the cluster's gravitational field distorts the light from galaxies lying far behind it. This is manifested as arcs and streaks in the picture, which are the stretched images of background galaxies.

Gravitational lensing proves a vital tool for astronomers when measuring the dark matter distribution in massive clusters, since the mass distribution can be reconstructed from its gravitational effects.
(text © NASA)

THIS MONTHS TALK

September 19th

SOPHISTICATED SMALL SATELLITES FROM SURREY

Dr Stuart Eves (Surrey Satellite Technology Ltd)

A light-hearted look at current and future missions using small satellites, activities at SSTL and space sciences.

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Dr Stuart Eves is responsible for military business at Surrey Satellite Technology Limited (SSTL) in Guildford. He spent 16 years with the UK Ministry Of Defence, in various space-related posts, before joining SSTL in January 2004.

During his time with the MOD, Stuart initiated the TopSat satellite programme, which is currently conducting its Earth-observation mission. TopSat established a new world record for "resolution per mass of satellite", and has now been operating on-orbit for more than twice its design lifetime. Indeed the mission has been so successful that the engineering model of the satellite now forms part of the recently re-vamped space gallery at the Science Museum in London.

Stuart has an MSc in Astrophysics, a PhD in constellation design, and has been a fellow of the Royal Astronomical Society for more than 15 years. He takes an active interest in all things space, and over the past 18 months has been involved in media stories as diverse as:- William Herschel's observations of the Rings of Uranus; a space experiment competition for UK schools; the Chinese and US ASAT missile tests; a novel scientific theory involving eclipses and ultrasound; and the possibility of detecting earthquake precursor signals from space.

The following is taken from the SSTL website at http://www.sstl.co.uk/

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SSTL's facilities are located on three sites in south east England and provide all the facilities necessary for the company's vertically integrated operation - from satellite and payload design, through to manufacturing, test and post-launch operations.

Headquarters, Tycho House is located on the Surrey Research Park in Guildford and accommodates the company's mission analysis, engineering, project management, operations and administration teams. The site also includes a full suite of design laboratories.

Surrey Satellite Technology Limited (SSTL) has been sending small satellites into space longer, more successfully and more economically than anyone else in the world.

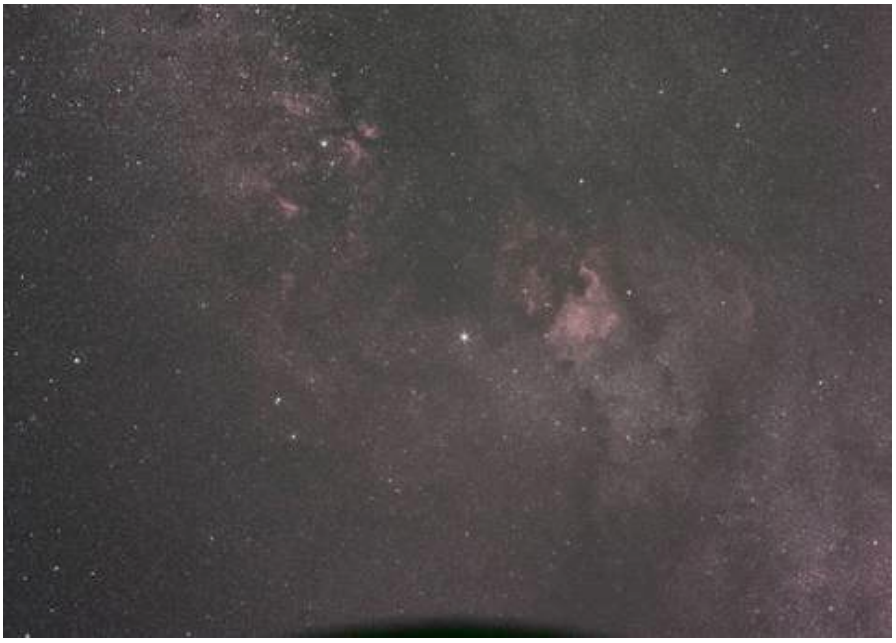
We have built our reputation as the world's premier provider of small satellite missions over 28 years. We launched our first satellite in partnership with NASA in 1981. Since then our global business has reached across five continents. We have launched 34 satellites - more than anyone else in the small satellite industry.

We specialise in designing, building and launching small satellites quickly and cost-effectively, making space accessible and affordable.

We can build and launch a satellite for any payload under 1,000 kilograms. Every SSTL customer will be offered a spacecraft solution designed for their needs. In fact, we believe that we are at our best when given the flexibility to advise customers on a complete solution. Whilst we mostly supply both the satellite and payload for our customers, we also undertake to integrate a customer supplied payload within an SSTL-built platform.

From the Forum

http://tech.groups.yahoo.com/group/readingastro/



A very nice wide field image taken by Alun Halsey showing the Milky Way in the Cygnus region...N.America nebula is very obvious...what other objects can you spot??! This shows that even in pretty (sic) light polluted areas using a CLS filter can allow you to photograph the Milky Way.

Peter Tickner went a bit Jupiter mad recently, taking lots of images using his large 12inch SCT. BProbably inspired by an amateur astronomer in Australia being the first to capture an image of a new impact site on Jupiter in July this year. Below is one of Peter's images, this one showing a transit Io.

Other topics raised on the Forum were the observation of strange orange lights in the sky...probably Chinese Lanterns, and the use of Laser collimators.

Jupiter is the fifth planet from the Sun and the largest planet within the Solar System.[12] It is a gas giant with a mass slightly less than one-thousandth that of the Sun but is two and a half times the mass of all of the other planets in our Solar System combined. Jupiter is classified as a gas giant along with Saturn, Uranus and Neptune. Together, these four planets are sometimes referred to as the Jovian planets.

The planet was known by astronomers of ancient times and was associated with the mythology and religious beliefs of many cultures. The Romans named the planet after the Roman god Jupiter.[13] When viewed from Earth, Jupiter can reach an apparent magnitude of -2.8, making it on average the third-brightest object in the night sky after the Moon and Venus. (Mars can briefly exceed Jupiter's brightness at certain points in its orbit.)

Jupiter is primarily composed of hydrogen with a quarter of its mass being helium; it may also have a rocky core of heavier elements. Because of its rapid rotation, Jupiter's shape is that of an oblate spheroid (it possesses a slight but noticeable bulge around the equator). The outer atmosphere is visibly segregated into several bands at different latitudes, resulting in turbulence and storms along their interacting boundaries. A prominent result is the Great Red Spot, a giant storm that is known to have existed since at least the 17th century when it was first seen by telescope. Surrounding the planet is a faint planetary ring system and a powerful magnetosphere. There are also at least 63 moons, including the four large moons called the Galilean moons that were first discovered by Galileo Galilei in 1610. Ganymede, the largest of these moons, has a diameter greater than that of the planet Mercury.

(from Wikipedia-Ed)

Astronomy Basics

This is a friendly informal meeting hosted and presented by Gerry Bond. Its a great way for beginners and more experienced astronomers to learn some of the history and fundamentals of astronomy!
All meetings start at 7.00pm in the Loddon room of Dinton Pastures during 2009/10.(Info on Dinton Pastures see: http://www.wokingham.gov.uk/leisure/parks/country-parks/dinton/
Please suggest astronomy topics which intrigue or baffle and Gerry will endeavor to put them in the programme.

Next Meeting: 26 Sep. 2009

Astronomy bits and pieces for beginners. There will be a few first timers and we take this opportunity to introduce them to the night sky.

Moon phase this month:

new moon	first quarter	full moon	last quarter
September 18th	September 26th	September 4th	September 12th

Moon Phases:

New Moon - The Moon's unilluminated side is facing the Earth. The Moon is not visible (except during a solar eclipse).

Waxing Crescent - The Moon appears to be partly but less than one-half illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is increasing.

First Quarter - One-half of the Moon appears to be illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is increasing.

Waxing Gibbous - The Moon appears to be more than one-half but not fully illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is increasing.

Full Moon - The Moon's illuminated side is facing the Earth. The Moon appears to be completely illuminated by direct sunlight.

Waning Gibbous - The Moon appears to be more than one-half but not fully illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is decreasing.

Last Quarter - One-half of the Moon appears to be illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is decreasing.

Waning Crescent - The Moon appears to be partly but less than one-half illuminated by direct sunlight. The fraction of the Moon's disk that is illuminated is decreasing.

READING ASTRONOMICAL SOCIETY

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Main Meetings (Programme is given on next page)
2009 - 2010 Session
These are held on the third Saturday of each month between September and June. The venue is St Peter's Church Hall, Church Road, Earley, just off the A329 Wokingham Road. Parking is available in the hall car park and the adjacent school playground. Meetings start at 7pm with a few short announcements, followed by the main speaker and breaking for refreshments around 8:30. The second half runs from 9pm to approx 9:45pm and consists of members' contributions.

Society Website Webmaster – John Talbot john.talbot@readingastro.org.uk

Discussion Groups
http://www.readingastro.org.uk
http://tech.groups.yahoo.com/group/readingastro/
RAST AR
The Society's magazine. Please send in articles for publication to the editor at rastar@readingastro.org.uk
Library – Kenelm England Books, DVDs, videos and telescopes are available for loan to members at meetings.
Basic Astronomy Section
Meeting at Dinton Pastures Country Park on the fourth Saturday of each month between September and June (December is the third Saturday), from 7.00pm until 9.00pm. All ages are welcome. Talks are aimed at a level that non-astronomers will understand. Please contact us before attending any meeting for the first time as the programme dates are subject to change:
Organiser: Gerry Bond gerry.bond@readingastro.org.uk
Public Observing Weekends - Dinton Pastures Country Park
Public observing sessions will be held at Dinton Pastures Country Park from 7pm onwards on 23rd/24th October 2009 and 12th/13th March 2010. Details from Gerry Bond gerry.bond@readingastro.org.uk
Society Observing Sessions
Society observing sessions will be held on selected dates, which are announced at meetings and via the discussion groups. Contact the observing co-ordinator, Alun Halsey, for more details.
Advice on Observing and Telescopes
Alun Halsey
Honorary members
G.W.Amery, A Elliott, D.M.Ratcliffe, A.Thomas, J.Trott, J.Wrigley, M.Wrigley
Registered Charity no 1076390. Trustees: A.Chadwick, V.Coney, C.Menmuir, J.Talbot

2009/10 Meeting Calendar

September 19th
SOPHISTICATED SMALL SATELLITES FROM SURREY
Dr Stuart Eves (Surrey Satellite Technology Ltd)
A light-hearted look at current and future missions using small satellites, activities at SSTL and space sciences.

October 17th
END IN FIRE – THE ULTIMATE FATE OF THE EARTH
Dr Robert Smith (Surrey University)
Millions of years into the future, what will happen to the Solar System and our Earth?

October 23rd/24th
PUBLIC OBSERVING WEEKEND AT DINTON PASTURES

November 21st
ASTRONOMY FROM NEW ZEALAND – OR WHAT I DID ON MY HOLIDAYS
Bob Dryden (Abingdon AS)
Bob recounts his experiences of observing in New Zealand

December 19th (NOTE 3rd Saturday)
SOLAR IMAGING
Nick Howes (Wessex AS)
Three sides to the sun – Practical aspects of imaging our nearest Star.
Followed by the RAS "Christmas Special"

January 16th
THE LUNAR '100'
Dr Lilian Hobbs(Southampton AS)
Discover how to observe Charles Wood's 100 lunar objects using a small telescope. Lilian is author of the ETX & LX90-AF guides.

February 20th
POINTING A TELESCOPE
Pat Wallace (Rutherford Appleton Laboratory)
What a telescope control computer is doing when it points the telescope accurately at an astronomical target

March 12th/13th
PUBLIC OBSERVING WEEKEND AT DINTON PASTURES

March 20th
CATACLYSMIC VARIABLES
Darren Baskill (University of Sussex)
Understanding how, every few months, some stars dramatically increase in brightness within just a few hours.

April 17th
THE SUN KINGS
Stuart Clark (University of Hertfordshire)
"The Unexpected Tragedy of Richard Carrington, and the Tale of How Modern Astronomy Began".

May 15th
IMAGING THE MOON
Bruce Kingsley (BAA Lunar Photographic Section)
An overview of imaging techniques, including many images and video, encouraging observation of our Moon.

June 19th
Kenelm England (reading AS) Continuing the theme celebrating important and interesting astronomical centenaries.
Followed by 39th Annual General Meeting