



WAS NEWS

Monthly Newsletter of the Worthing Astronomical Society
www.was.org.uk



Number 189

September 2005

ALMANAC

All times U.T.

September / October

LUNAR

September	Date	Time	Rise	Set
First Quarter	11 th	11.37	14.47	21.15
Full Moon	18 th	02.01	18.23	05.52
Last Quarter	25 th	06.41	21.32	15.07
October				
New moon	3 rd	10.28	05.56	17.32
First Quarter	10 th	19.01	14.42	21.20
Full Moon	17 th	12.14	16.54	06.16
Last Quarter	25 th	01.17	22.47	14.41

EARTH

September	Sunrise	Sunset
11 th	05.29	18.24
18 th	05.40	18.08
25 th	05.51	17.52
October		
3 rd	06.04	17.33
10 th	06.16	17.18
17 th	06.28	17.03
25 th	06.42	16.46

PLANETS

(As at September 25th.)

Constellation	Rises	Sets	Mag.
Mercury Virgo	06024	18.07	-1.0
Unfavourable, superior conjunction on 18 th			
Venus Libra	10.07	19.04	-4.1
Evening object in the west			
Mars Taurus	19.40	10.37	-1.6
Bright in the south east			
Jupiter Virgo	07.50	18.35	-1.7
Unfavourable			
Saturn Cancer	00.49	16.09	+0.3
Morning object			
Uranus Aquarius	17.06	03.42	+5.7
At opposition on Sept. 1 st			
Neptune Capricornus	16.15	01.35	+7.9
Evening object in the south			
Pluto Serpens cauda	12.26	21.54	+13.9
Evening object in the southwest			

PHENOMENA

Day	Hour	September
18 th	03	Mercury in superior conjunction
22 nd	04	Mars 6° S. of moon
28 th	08	Saturn 4° S. of moon
October		
1 st	22	Mars at stationary point
3 rd	10	Annular eclipse of Sun
4 th	11	Mercury 0° 8 N. of moon
4 th	15	Jupiter 2° N. of moon
5 th	22	Jupiter 1° N. of Mercury
7 th	06	Venus 1° N. of moon
17 th	12	Partial eclipse of moon
19 th	11	Mars 5° S. of moon

Minima of Algol

September	2 nd	00.54	4 th	21.48	19 th	05.48	22 nd	02.30
	24 th	23.24	27 th	20.12				

October	04.18	15 th	01.06	17 th	21.54
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Lunar Occultation's

Times as at Old W.A.S. Observatory

Date	U.T.	S.A.O. No	Mag	Phase
Sept	h. m. s.			
15 th	20.04.48	164593	4.8	Diss
15 th	22.52.18	164657	7.5	Diss
15 th	23.06.47	164674	7.5	Diss
21 st	23.28.07	93309	7.7	Reapp
22 nd	00.01.07	75758	8.5	Reapp
22 nd	00.26.50	75780	9.2	Reapp
22 nd	00.36.47	75781	8.9	Reapp
22 nd	23.51.50	76425	5.7	Reapp
24 th	00.21.23	76904	8.3	Reapp
24 th	00.25.20	76903	6.9	Reapp
24 th	23.39.19	77724	7.3	Reapp
Oct				
12 th	19.45.07	190252	7.1	Diss
12 th	20.15.16	190272	9.1	Diss
12 th	20.40.51	190295	5.5	Diss
12 th	21.29.53	190311	9.0	Diss
14 th	22.11.41	146603	8.8	Diss
14 th	22.28.05	146613	8.6	Diss
14 th	22.54.58	146612	5.1	Diss

The list above is a selection of about 18 % of the more easily observed events

Dave Wells

Editors Note

I saw the summer this year, albeit through a baby induced sleep deprived haze, but see it I did!! And I am told it wasn't too bad.

But that as they say is that. We can now get on with the very British complaints about the weather, shortening days and the damp.

What's all this got to do with Astronomy I hear you cry, - well longer nights and darker skies for one thing, so get those duffel coats out, fill that thermos, set up that deckchair and.....enjoy.

Rob

Dates for your Diary

40th Anniversary Evening at the Chichester Planetarium

Nick Quinn

As part of the 40th anniversary celebrations, the committee have arranged a visit to the South Downs Planetarium in Chichester. This will take place on Saturday 22nd October from 7.00pm, with John Mason starting his 1 hour presentation at 7.30pm. Afterwards, there will be a speech by the President, a buffet including a birthday cake, and champagne!

The planetarium holds just over 90 people so this will be the maximum number of tickets sold. In the event of over-subscription members will take priority over non-members. Tickets are available from the Treasurer at 12 pounds each. Please make cheques payable to 'Worthing Astronomical Society'.

Tickets can be ordered for collection at the October meeting, or if you wish to have them posted, please include a SAE. The closing date for orders is the 21st September. You will have to make your own way to Chichester, but the Planetarium is very close to the station, and we hope to be able to arrange car-sharing.

If you require any further information then please ask any member of the committee.

Birmingham & Midland Institute Lecture

The President of the BMI, The Very Rev. Peter Berry, DD, The Chairman of Iqbal Academy (UK), Professor Saeed A Durrani, DSc, SI, and Professor Peter Willmore, Past President of the BMI and Professor of Space Research at the University of Birmingham have much pleasure in inviting you to a Lecture, forming a part of the President's Autumn Lectures 2005 at the BMI, entitled: *The Golden Age of Islamic Astronomy : Baghdad, Damascus, Cordoba, Samarkand (AD 800 - 1400)* to be given by Dr Allan Chapman Fellow of Wadham College, Oxford, and Hon. President of the Society for the History of Astronomy in the presence, as Chief Guest of Honour, of Lord Nazir-Ahmed of Rotherham on Saturday 1 October 2005, at 3.30 pm, at the Birmingham & Midland Institute (BMI) 9 Margaret Street, Birmingham B3 3BS

Tea and refreshments will be served. All are cordially welcome.

Astronomy Events At The BA Festival Of Science 2005

The BA Festival of Science will take place in Dublin from 3-10 September, bringing over 300 of the UK and Ireland's top scientists and engineers to discuss the latest developments in science with the public. There will be a number of events on Astronomy...

As 2005 is Einstein Year it is unsurprising that the illustrious scientist makes a strong showing in the Festival programme. 'Einstein's Legacy' covers cutting edge research that has led from the three papers that Einstein published in his momentous year, 1905: on Brownian motion (which has applications for nanotechnology), the photoelectric effect (for quantum optics) and special relativity (for high energy physics).

As part of the event 'Einstein and Astronomy', Professor Jocelyn Bell Burnell, will explore how Einstein's general theory of relativity has shaped the field of astronomy in the 20th century. She will be joined by other distinguished researchers looking at topics ranging from the work of Arthur Eddington to pulsars, gravitational lensing and gravity waves.

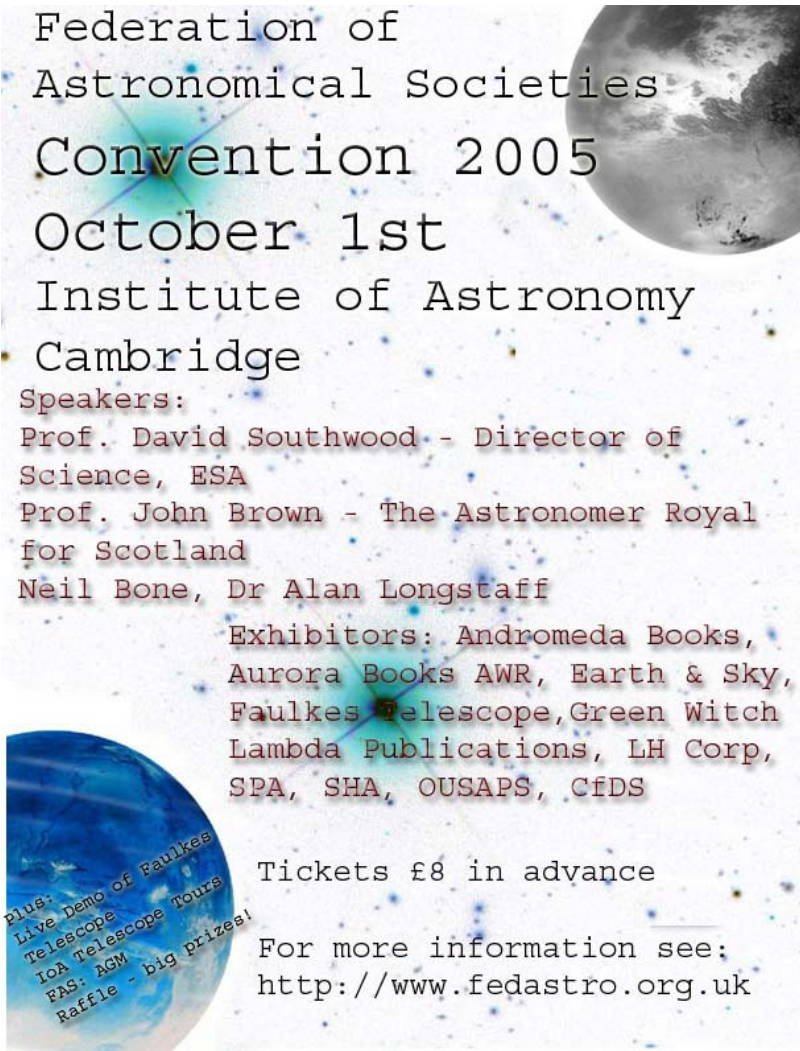
In 'Sun, Moon and Meteorites: quest for our origins' a meteorite expert, an astronomer and a geologist combine their knowledge to reconstruct those events long, long ago, that marked the birth and early history of the Solar System.

Currently three satellites and two rovers send geological data from Mars to Earth. In 'Water on Mars' Dr Mary Bourke from the Planetary Science Institute, will question what are these new views of Mars telling us about this old, cold, and dry planet?

Dr Robert Walsh, University of Central Lancashire, is the prize winner of this year's BA Lord Kelvin Award Lecture. His lecture 'Living with a star - a new encounter with our dynamic sun' will include the use of high resolution images and movies from the international Solar and Heliospheric Observatory (SOHO) to take attendees on a journey from the centre of the Sun, through various layers of the star and then on towards Earth.

For further information on the BA Festival of Science, visit www.the.ba.net/festivalofscience.

FAS Convection 2005



Federation of
Astronomical Societies
Convention 2005
October 1st
Institute of Astronomy
Cambridge

Speakers:

Prof. David Southwood - Director of
Science, ESA

Prof. John Brown - The Astronomer Royal
for Scotland

Neil Bone, Dr Alan Longstaff

Exhibitors: Andromeda Books,
Aurora Books AWR, Earth & Sky,
Faulkes Telescope, Green Witch
Lambda Publications, LH Corp,
SPA, SHA, OUSAPS, CfDS

Tickets £8 in advance

For more information see:
<http://www.fedastro.org.uk>

plus:
Live Demo of Faulkes
Telescope
IOA Telescope Tours
FAS: AGM
Raffle - big prizes!

Reports

July Lecture Reviewed - Report by Janet Young

Wish You Were Here Astronomy

Lillian Hobbs, Southampton Astronomical Society

Lillian's talk was based upon her travels of astronomical tours. Showing slides of where she had been to, she started off with some from Kennedy Space Centre. Showing slides she gave a description of the tour one receives on a visit there, mentioning some of the sights a visitor can be expected to see including having lunch with an astronaut! She had been able to see a shuttle launch, explaining how allusive this can be as the flights can be aborted at the last minute and not always flown immediately afterwards.

From there she then went onto Washington DC saying that it is worth a visit for many of the museums there are free entry. The main one being of course the Smithsonian Air and Space Museum and showed a short video of her time there.

NASA Goddard Space Centre and Edwards Air Force Base are now closed to visitors and have been since 9/11. She had been fortunate to visit Edwards before that time and again showed a short video of planes, X-15, a B-52, a Stealth bomber and recommended quite highly the gift shop there!

JPL at Pasadena was a recommendation as there is always something going on there and the JPL tour is worth the while. She also suggested that Pasadena was good place to stay for anyone wishing to visit the east coast observatories.

From there she went to Mount Wilson and again showed a video, this time of the narrow, steep road that leads to the observatory. Apparently it takes some nerve to drive up here as there is a sheer drop at the sides. The video showed all the well-known domes of Mount Wilson.

Of course next on the list was Palomar and to get to the top there and back one needs a full tank of petrol. The observatory is located in an area where rattlesnakes abound! The only telescope that a visitor gets to see is the famous 200-inch and apparently the videos showing in the visitors expiation were of none other than our Patrick Moore!

Meteor Crater was next. Small museum, very windy and recommended the guided tour.

From there she went onto Flagstaff which was covered in deep snow. Warm clothes are recommended as it's so cold there; the Clarke Telescope that discovered Pluto is on show to visitors as are others. The museum contains old observations of Percival Lowell.

Although not strictly astronomical she included slides of Monument Valley and the Grand Canyon as they are features not to be missed if one is in the area and able to visit them.

Kitt Peak was next on the tour and apparently one can observe there in the evening for a fee but entry to see the observatory itself is free. Takes up most of a day and you can see all the scopes.

One hour from Tucson is the Titan Missile Museum where they filmed Star Trek First Contact. There are underground chambers where one can tour.

While in Tucson she visited the local astronomy group who made her very welcome and is a very good society! From there she went to New Mexico and visited the White Sands area. The whole area is an exhibit area, even down to the water tanks being decorated with space themed stuff by a local enthusiast! There is a V2 remnant and even the car park has missiles in it!

Close by is the famous Roswell which according to Lilian was 'just OK'. There is of course a UFO Museum but the city museum was more interesting as it contained a reconstruction of Robert Goddard's workshop and had many of his rockets on display there.

Imalgardo had a small space museum that contained a shuttle simulator. Is a base for Stealth bombers. Had a rocket, various bits and pieces and even a Lunar Rover but this one had real tyres as it was used for training the astronauts. In the parking lot there was a mobile observatory with a 16" scope.

Then on Las Vegas but for astronomy interest don't bother!

Lilian then took us to Australia showing pictures of Sydney Observatory close by the harbour and who do observing evenings.

Perth Observatory had a small museum and again she showed a video of the telescopes there. She was fortunate to be given a private tour and was amused to see that one of the domes contained nothing more than a Celestron 14 complete with a high-tech plastic bag for a cover.

She then went onto Birr in Ireland where the annual Whirlpool Star Party is held. It has an excellent museum and of course the Birr 72" reflector on display.

She brought the talk to a close by showing both videos and slides of solar eclipses, showing last of all her video taken of the Total Eclipse in Australia in 2002.

WAS Barbecue 14th August 2005

Janet Young

The annual WAS barbecue scheduled for the 13th August 2005 had to be postponed for twenty fours because of the weather.

Fortunately the Sunday proved to be sunny, though because of the change in day, several members were unable to attend and numbers were somewhat reduced. The sky remained clear and when darkness fell, we were able to see several satellites and a Persid meteor or two were seen.

Thanks to Colin Knappitt for letting us invade his premises, to Christa and Linda Storey for providing the wonderful spread and to Dave Storey for doing the cooking.

Notices

Astro Electronic Imaging Instructor

Graham Boots

We have a member who is fairly experienced in Astro electronic imaging who is willing to answer questions and if required give instruction to those who share his interest but who are in need of some level of assistance.

If you are in need of this kind of help please telephone Ed Sampson on 01903 503390 or myself if you need further information on 01903 505346.

Sky and Telescope

Nick Quinn

Society members can subscribe to the American astronomy magazine, Sky and Telescope, at a reduced rate. For 49 US dollars (about £27) you can have the magazine delivered directly to your door every month for a year.

The cost at the newsagents is £35.40 for 12 issues. If you would like to subscribe, or want more information, then please contact Nick Quinn (01903 814090).

If you do not wish to subscribe personally, but would still like to see the magazine, you may join the circulation list to receive the society's copy. Please contact Graham Boots for more information.

First Aiders Wanted

Any members who are qualified First Aiders, who are fairly regular attendees of society events, in particular, monthly meetings and who are willing to volunteer their services to WAS can they please contact any committee member.

I didn't pay anyone anything for the next article - Ed

Contributions to WAS NEWS

Graham Boots

Rob Davis the editor of WAS News does a really magnificent job in regularly producing WAS News each month except August. Often he needs to use material from outside the society to fill the pages and this brings to our attention worth while items such as up to date breaking news on space exploration and what is available to watch by way of astronomical TV programmes being broadcast soon.

Rob also needs a constant supply of contributions from members to make WAS News a personal and meaningful society publication. If you have had an experience that was comical or outstanding in connection with anything to do with astronomy then I am sure members would like to read about it. It does not need to be recent; it could be something that happened many years ago. It does not have to be cutting edge astronomical research either. Rob accepts material not only by email but by post as well, his contact details are on the back page of every edition. I would like to see any sort of contributions from members who do not normally submit any material as this would add variety.

Photographs are produced only in black and white except in the email version which does reproduce colour images.

I would take this opportunity of thanking Rob for all his hard work in being editor for what has become many years now. Also we must thank Graham Darlington who photocopies free of charge the copies you collect at society monthly meetings or have posted to you if you are not present. Thanks also go to Robert Kasproicz who sends out the posted copies to members not present at monthly meetings.

As far as I know Rob accepts everything he receives for publication so there is nothing to worry about.

Share your astronomical experiences or views with us.
Make you points known to members.
Have you any thoughts or theories you want to express in WAS News?
What have you observed lately?

Our society news letter is as good as we make it.

Members at the new Observatory Location

Graham Boots

The society's observatory should be finally relocated and operational again by October 2005.

The operation of the observatory will be very different from when it was at the Goring site. In exchange for a dark site and much improved night sky observing conditions we will now be sharing the observatory with a school and working to form a partnership encouraging the pupils in the science of astronomy.

To introduce the observatory to the pupils I intend to stage an exhibition at the school around the beginning of the new school year this coming autumn. The exhibition will consist of four display boards showing images by members all taken since the year 2000. I have also offered a series of slide shows at the school at the same time.

It will also be necessary to train teachers in the use of the observatory and telescope so that they can show pupils celestial objects in the night sky. The observatory holds only a small group at a time so this type of observing will be ongoing for I hope very many years. There are 270 mixed pupils ages 8 to 13 at this school.

Because the observatory occupies a site on school grounds it is necessary for checks to be carried out by the Criminal Records Bureau upon all persons on site. In our case members form two categories, those in direct contact with children and those just using the observatory not in the company of any pupil.

Those members who intend to be in direct contact with pupils will need a Criminal Records Bureau check and once the members in this category are known I will obtain from the school the appropriate number of application forms for completion and return to myself. Those members in the non pupil contact category will just be required to complete a signed declaration form so once again I need to know those members who will fall in this category so as to obtain the appropriate number of forms.

Both types of forms when completed should be returned to me in a sealed envelope for onward transmission.

All members are classed as 'Volunteers' so there is no financial cost involved to us or the school.

All members attending the observatory will be issued with society identification cards which must be carried at all times when at the observatory.

I am sorry this action is necessary but events in recent years speak for themselves.

Will those members who wish to use or attend observatory events please make themselves known to me and in what category you should be placed.

The reopening of the observatory should coincide with the opposition of Mars on the 7th November 2005 when it will be higher in the sky for northern hemisphere observers and showing only a slightly smaller disk than the very favourable opposition of 2003.

The mirrors of the Newtonian telescope are currently being realuminized and the future for observing members and pupils alike should present us with an exciting future away from light pollution at a safe dark site.

Articles

Messier Objects - Continued

Janet Young

The Messier Objects are so called because they were a list of fuzzy objects in the night sky compiled by Charles Messier (1730-1817) a French comet hunter. While hunting for comets he kept finding these faint and fuzzy objects, so decided to compile a catalogue of them to avoid them being mistaken for comets. He listed them as M or Messier followed by a number. Charles Messier did discover several comets, but it is for the Messier catalogue he is best remembered.

M19

Constellation: Ophiuchus

RA 17 02

Dec -26 16

Distance: 28,000 light years

Type: Globular Cluster

NGC 6273

A rich and dense and most oblate known Globular Cluster. Was one of Charles Messier's original discoveries, finding it on June 5th 1764.

M20

Constellation: Sagittarius

RA 18 02

Dec -23 02

Distance: 5,200 light years

Type: Red Emission Nebula

NGC 6514

Known by its more common name of the Trifid Nebula. Discovered in 1764 and is another of Messier's original objects. Is a popular object for photography.

M21

Constellation: Sagittarius

RA 18 04

Dec -22 30

Distance: 4,250 light years

Type: Open Cluster

NGC 6531

Small star cluster discovered by Messier in 1764. Has a strong concentration in the centre.

Telescope Demonstration Evening

Graham Boots

On the evening of 23rd June 2005 member Paul Farmer invited a few of his customers to show off a range of telescopes, binoculars and accessories in the back garden of his home in East Worthing. Making this a social occasion he also provided a bar-b-q

For just over a year now Paul has operated the Sussex Astronomy Centre in Goring where he is an Official Meade Advanced Product Dealer, one of only 10 in the UK which means he can now offer lower prices and provide a better after sales service. He also stocks the latest range of Celestron telescopes known as CPS which features the latest range of observing aids including the global position system.

The evening began with a clear sky with a promising forecast. The largest instrument on display was 25 cms Meade 200 LX Classic f 10 Schmidt/Cassegrain. This was mounted on a heavy duty tripod. Ed Sampson made a very slight adjustment to the alignment of the optics and we were able to see an excellent image of Jupiter with its four Galilean moons. The smallest telescope on display was a 80 mm Skywatcher f 5 refractor which at £99 comes with a table top tripod, I found focussing a lengthy process with this particular model.

Particularly impressive was a 150 mm f5 Skywatcher refractor which is the largest refractor I have ever looked through. The object glass is an achromatic doublet which is

designed to correct for false colour. Once again albeit in summer twilight sky Jupiter appeared sharp.

There was a very wide range of accessories on display. The 2 inch diameter Meade QX eyepieces give very large eye relief and as a result are easy to use. The Meade 5000 series 32 mm provides an apparent field of view of 60 degrees while the 4000 series 26 mm and 32 mm give an apparent field of view of 70 degrees. All sorts of 2 inch filters were also on display such as infra red blocking, ultra high contrast and Oxygen III.

The standard fitting of eyepieces and filters these days are 1 1/4 inches diameter and can be quite costly in their own right but when you are talking of the 2 inch range the cost can rise sharply but there are a few exceptions to be found in the QX range.

By 11 30 p.m. the sky clouded over and brought observing to an end however it was an enjoyable evening where those with a common interest were able to share their views and learn from one another. Thanks Paul.

WAS Ad

Sussex Astronomy Centre

For all your astronomy needs
Meade, Celestron, SkyWatcher, Tal Telescopes
Large range of accessories, software, books etc
16 Mulberry Lane
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Worthing, West Sussex.
Telephone 01903-247317
Email worthingastronomy@tiscali.co.uk
Web Site. www.sussex-astronomy-centre.co.uk
Ask for Paul Farmer (Club Member)

What's on the Box

Wednesday 14th September 2005



21.00 – 22.00 Space Race

Race for Rockets. Four-part docudrama series revealing the untold true story behind the Cold War race to put man into space. It begins in the collapse of war-torn Germany, as Soviet and American intelligence become locked in a deadly race to capture Wernher von Braun, the Nazi scientist behind Hitler's terror weapon, the V-2 rocket. Von Braun's dream is to travel beyond the moon but he has a rival, released from Stalin's Gulag in order to win at any cost. (First of four programmes).

Saturday 17th September 2005



22.50 – 23.50 The Sky at Night

The world of astronomy with Patrick Moore.

23.50 - 00.40 Space Odyssey: The Robot Pioneers

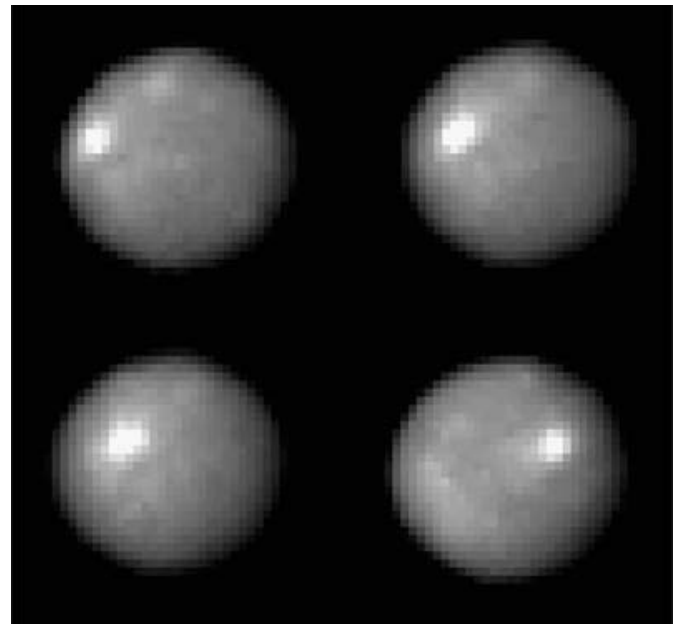
A documentary that looks at the history of space exploration and which reveals the science behind the series. It tells the story of the human ingenuity that has dispatched robotic missions to all the planets except Pluto. Thanks to the engineers and the metal limbs of these mechanical explorers, the series was able to portray the gruelling reality of a human expedition to the planets.

WAS News News

Asteroid may be embryonic planet harbouring water ice

NASA/JPL News Release

Observations of 1 Ceres, the largest known asteroid, have revealed that the object may be a "mini planet," and may contain large amounts of pure water ice beneath its surface.



Hubble took these images of the asteroid 1 Ceres over a 2-hour and 20-minute span, the time it takes the Texas-sized object to complete one quarter of a rotation. The bright spot that appears in each image is a mystery. It is brighter than its surroundings. Yet it is still very dark, reflecting only a small portion of the sunlight that shines on it. Credit: NASA, ESA, J. Parker (Southwest Research Institute), P. Thomas (Cornell University), and L. McFadden (University of Maryland, College Park) Download larger image

The observations by NASA's Hubble Space Telescope also show that Ceres shares characteristics of the rocky, terrestrial planets like Earth. Ceres' shape is almost round like Earth's, suggesting that the asteroid may have a "differentiated interior," with a rocky inner core and a thin, dusty outer crust.

"Ceres is an embryonic planet," said Lucy A. McFadden of the Department of Astronomy at the University of Maryland, College Park and a member of the team that made the observations. "Gravitational perturbations from Jupiter billions of years ago prevented Ceres from accreting more material to become a full-fledged planet."

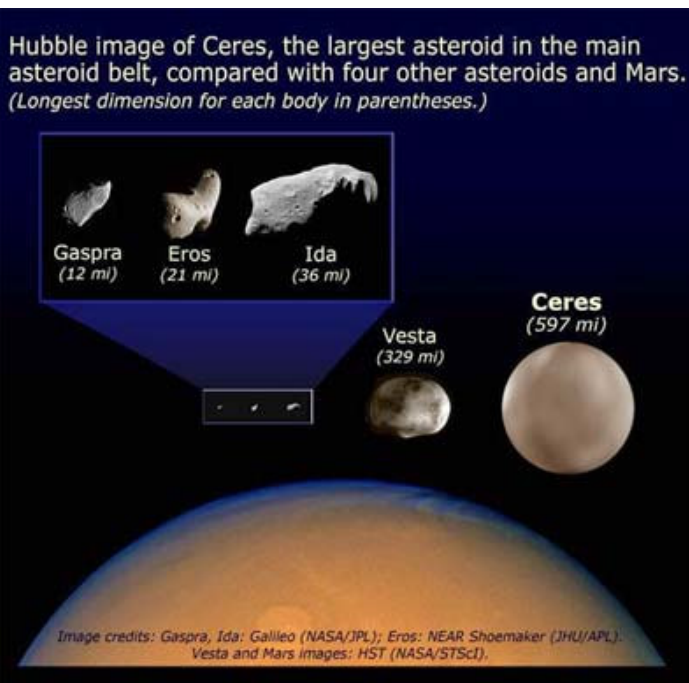
The finding will appear Sept. 8 in a letter to the journal Nature. The paper is led by Peter C. Thomas of the Center for Radiophysics and Space Research at Cornell University in Ithaca, N.Y., and also includes project leader Joel William Parker of the Department of Space Studies at Southwest Research Institute in Boulder, Colo.

Ceres is approximately 580 miles (930 kilometers) across, about the size of Texas. It resides with tens of thousands of other asteroids in the main asteroid belt. Located between Mars and Jupiter, the asteroid belt probably represents primitive pieces of the solar system that never managed to accumulate into a genuine planet. Ceres comprises 25 percent of the asteroid belt's total mass. However, Pluto, our solar system's smallest planet, is 14 times more massive than Ceres.

of Ceres. From those snapshots, the astronomers determined that the asteroid has a nearly round body. The diameter at its equator is wider than at its poles. Computer models show that a nearly round object like Ceres has a differentiated interior, with denser material at the core and lighter minerals near the surface. All terrestrial planets have differentiated interiors. Asteroids much smaller than Ceres have not been found to have such interiors.

The astronomers suspect that water ice may be buried under the asteroid's crust because the density of Ceres is less than that of the Earth's crust, and because the surface bears spectral evidence of water-bearing minerals. They estimate that if Ceres were composed of 25 percent water, it may have more water than all the fresh water on Earth. Ceres' water, unlike Earth's, would be in the form of water ice and located in the mantle, which wraps around the asteroid's solid core.

Besides being the largest asteroid, Ceres also was the first asteroid to be discovered. Sicilian astronomer Father Giuseppe Piazzi spotted the object in 1801. Piazzi was looking for suspected planets in a large gap between the orbits of Mars and Jupiter. As more such objects were found in the same region, they became known as "asteroids" or "minor planets."



Hubble image of Ceres, the largest asteroid in the main asteroid belt, compared with four other asteroids (Gaspra, Eros, Ida and Vesta) and Mars. Credit: NASA, ESA, and A. Feild (STScI) Download larger image

The astronomers used Hubble's Advanced Camera for Surveys to study Ceres for nine hours, the time it takes the asteroid to complete a rotation. Hubble snapped 267 images

WAS News
always has

Space

for your contribution.....

Diary

14th September 2005 40th Anniversary Lecture
September 1965 – 2005. Black Holes & White Rabbits
(physics & magic) - Professor John C. Brown
Astronomer Royal for Scotland Dept., of Physics &
Astronomy Glasgow University

12th October 2005 Member's Contributions Inc The
Super String Theory - David Storey.

9th November 2005 Universe in 4D- Cosmic Light
Show - Dr. Christopher Baddiley Infrared Physicist
Worcester

14th December 2005 Adventures with a Small
Telescope - Neil Bone Meteor Section Director of the
British Astronomical Association

All Meetings (**bold**) are held on the second Wednesday of every month unless otherwise stated, at Heene Church Rooms, Worthing at 7.30 p.m. Meetings include the latest astronomical work, reports and, photographs by members. For further information find us on the Internet at www.was.org.uk or email: chairman@was.org.uk

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Contributions & Correspondence for the **October** issue of WAS NEWS should be with the Editor by **October 1st**. All material for inclusion should be sent to the Editor.

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