

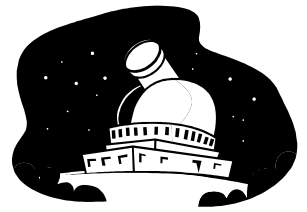


SKYWATCHER

THE NEWS LETTER OF THE GUILDFORD

ASTRONOMICAL SOCIETY

<http://www.guildfordas.org/>



FROM THE EDITOR.....

Well here we are again, Christmas just round the corner, so that means it gets dark early, which is really great for us!

Last month we had Jerry Stone and his talk about **“The Day they Launched a Woodpecker”**.

Jerry also talked about “UK for Aurora” if any one would like to find out more here is his web site to look at

<http://www.geocities.com/uk4aurora>

Tonight we have Chris Lintott, who those of you who don't know, helps present “The Sky at Night” with Sir Patrick Moore, Chris topic for tonight is called **“Cosmology for the Terrified ”!**

Well with those points out of the way there is not much else to report, other than that as from now, there will only be **20 copies** of Skywatcher available due to many copies being left over and then going in the bin!

Clear skies to you all!!

Neil Ross
Editor

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CfDS Contact Details

For more information and literature about the **BAA Campaign for Dark Skies**, please do not hesitate to contact us. You can contact either the co-ordinator **Bob Mizon** via **post or email...**



info  [dark-skies.org](mailto:info@dark-skies.org)



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Forthcoming Meetings

Tonight's Meeting

Chris Lintott, UCL

“Cosmology for the Terrified”

December 1st

Dr Ian Crawford, UCL

“ The scientific case for a return to manned lunar exploration”

Photos Taken by Mr Chris Hopper



Here are some of the images that he has taken through the Meade LX200 with his Nikon 4500 digital camera.

There are more, but did not want to make them too small, but if you would like to see the rest, I'm going to see the web master and with Chris's permission will get them on the web site.

Scientists studying the ground beneath Mars rovers

CALIFORNIA INSTITUTE OF TECHNOLOGY NEWS RELEASE

Posted: October 21, 2005

When it comes to longevity, the Spirit and Opportunity rovers on Mars are giving some real competition to the pink bunny from those battery advertisements. The two rovers in a couple of months will celebrate their second anniversary on the red planet, even though their original missions were only 90 days.

With no end to the rover missions in sight, NASA has selected a planetary scientist at the California Institute of Technology to see if he and his team can learn new things about the ground the rovers are currently rolling on. With any luck, the researchers will uncover further evidence about water or water vapor once present on the planet's surface.

Oded Aharonson, assistant professor of planetary science at Caltech, was chosen as part of the Mars Exploration Rover Participating Scientist Program. Aharonson and seven other investigators have been selected from 35 applicants. According to NASA, the eight successful proposals were chosen on the basis of merit, relevance, and cost-effectiveness. Aharonson and the seven other finalists will become official members of the Mars Exploration Rovers science team, according to Michael Meyer, lead scientist for the Mars Exploration Program.

"Spirit and Opportunity have exceeded all expectations for their longevity on Mars, and both rovers are in good position to continue providing even more great science," said Meyer. "Because of this, we want to add to the rover team that collectively chooses how to use the rover's science instruments each day."

Aharonson's proposal is formally titled "Soil Structure and Stratification as Indicators of Aqueous Transport at the MER Landing Sites." In nontechnical talk, that means the researchers will be using the rovers to look at Martian dirt and rocks to see if liquid water has ever altered them.

The search for evidence of running water on Mars has been a "Holy Grail" for the entire exploratory program. Although the details of how life originally evolved are still largely conjectural, experts think that liquid water is required for the sort of chemistry thought to be conducive to the emergence of life as we know it.

Although there is no liquid water on the Martian surface at present, Opportunity has found geological evidence that water formerly flowed there. Thus, Aharonson will be looking for the telltale signatures of ancient as well as more recent aqueous transport and alteration.

"My experiments would normally take a couple of weeks, but it's not clear exactly how much time we'll devote to them," Aharonson said. "If we find something interesting, it could be much longer. But we might also cut the time shorter if, for example, we come upon an interesting rock we want to look at more closely."

Aharonson will work with a new Caltech faculty member, John Grotzinger, who comes from MIT as the Fletcher Jones Professor of Geology and is already a member of the rovers' science team. In addition, Caltech postdoctoral researcher Deanne Rogers will be involved in the research.

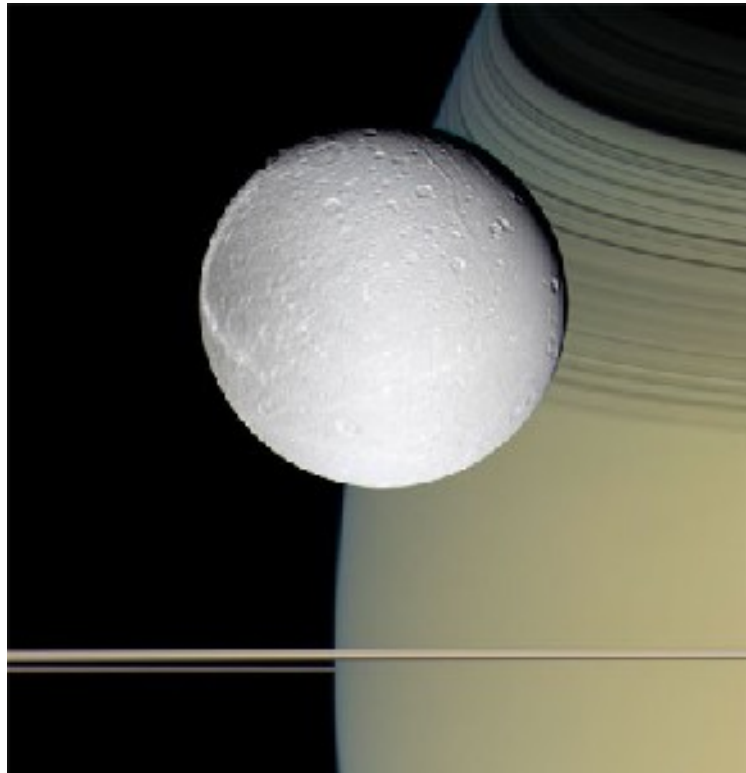
Spirit and Opportunity have been exploring sites on opposite sides of Mars since January 2004. They have found geological evidence of ancient environmental conditions that were wet and possibly habitable. They completed their primary missions three months later and are currently in the third extension of these missions. NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, manages the Mars Exploration Rover project for NASA's Science Mission Directorate.

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Ringside with Dione

CASSINI PHOTO RELEASE

Posted: October 18, 2005



Credit: NASA/JPL/Space Science Institute

Sitting in the tranquility of space is the pale moon Dione, looking as if it's posing for a painter. The moon is set against the stunning backdrop of Saturn, adorned in gold and draped with hues of blue.

During the Cassini spacecraft's only close flyby of the grayish moon, on Oct. 11, 2005, the spacecraft came within 500 kilometers (310 miles) of the surface.

Like most of its counterparts in the Saturnian system, Dione shows a heavily cratered surface. It has a signature style all its own that includes streaky terrains dominating one whole side of the moon. The fine latitudinal streaks appear to crosscut everything and appear to be the youngest feature type in this region of Dione. These striking cracks and fractures are caused by tectonic activity.

"Dione seems to be an older sibling of Enceladus," said Dr. Bonnie Buratti, scientist on the Cassini visual and infrared mapping spectrometer team at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "We think that the cracked features of Dione may be the older version of the tiger stripes on Enceladus. Enceladus is the up-and-coming moon, complete with a recently active history, while Dione is the older, more mature moon." The Cassini infrared spectrometer team is working on compositional maps of the moon's surface.

Multiple generations of fractures are visible on Dione. Numerous fine, roughly parallel grooves run across the terrain and are interrupted by the larger, irregular, bright fractures. In several places, fractures postdate some deposits in the bottoms of craters.

The Cassini ultraviolet imaging spectrograph team reports the detection of water ice on the surface of Dione and also finds striking brightness variations across the surface. This could be the result of cracks and fractures in the ice. "The ice in the fractures appears to be different than in the surrounding terrain. This may be due to the grain size variations," said Dr. Amanda Hendrix, Cassini scientist at JPL.

As on other Saturnian moons, rockslides on Dione may reveal cleaner ice, while the darker materials accumulate in areas of lower topography, such as crater floors and the bases of scarps.

Scientists on the Cassini fields and particles instruments note that early results do not support the presence of an atmosphere. Dione orbits Saturn within the broad, tenuous E-ring. Hence, scientists will be looking to see if Dione, like Enceladus, is a source of material in the E-ring. They also seek to learn whether the E-ring is affecting Dione's surface. Over the coming months, scientists will begin to piece together a more detailed story of Dione.

Following the rendezvous with Dione, Cassini captured its best views ever of the tiny moon Telesto. "Telesto was too small in Voyager images to see detail on the surface. Cassini has given us the best views of the potato-shaped chunk of ice," said Dr. Candice Hansen, Cassini scientist at JPL. Early results indicate the entire moon, roughly 24 kilometers across (15 miles), is ice.

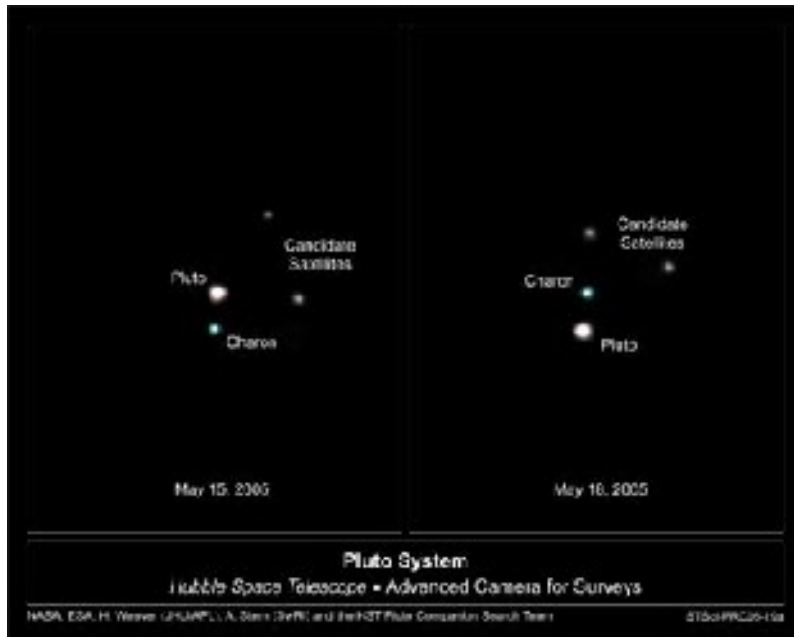
Next up for Cassini, on Oct. 28, is a close pass of Titan, Saturn's largest moon. During this pass Cassini's powerful radar will be pointed to image the Huygens probe landing site and surrounding terrain

Hubble reveals possible new moons orbiting around Pluto

NASA NEWS RELEASE

Posted: October 31, 2005

Using NASA's Hubble Space Telescope to probe the ninth planet in our solar system, astronomers discovered that Pluto may have not one, but three moons. If confirmed, the discovery of the two new moons could offer insights into the nature and evolution of the Pluto system, Kuiper Belt Objects with satellite systems, and the early Kuiper Belt. The Kuiper Belt is a vast region of icy, rocky bodies beyond Neptune's orbit.



These Hubble images reveal Pluto, its large moon Charon, and the planet's two new candidate satellites. Between May 15 and May 18, 2005, Charon, and the putative moons, provisionally designated P1 and P2, all appear to rotate counterclockwise around Pluto. P1 and P2 are thousands of times less bright than Pluto and Charon. The enhanced-color images of Pluto and Charon were constructed by combining short exposure images taken in filters near 475 nanometers (blue) and 555 nanometers (green-yellow). The images of the new satellites were made from longer exposures taken in a single filter centered near 606 nanometers (yellow), so no color information is available for them. Credit: NASA, ESA, H. Weaver (JHU/APL), A. Stern (SwRI), and the Hubble Space Telescope Pluto Companion Search Team

"If, as our new Hubble images indicate, Pluto has not one, but two or three moons, it will become the first body in the Kuiper Belt known to have more than one satellite," said Hal Weaver of the Johns Hopkins Applied Physics Laboratory, Laurel, Md. He is co-leader of the team that made the discovery.

Pluto was discovered in 1930. Charon, Pluto's only confirmed moon, was discovered by ground-based observers in 1978. The planet resides 3 billion miles from the sun in the heart of the Kuiper Belt.

"Our result suggests that other bodies in the Kuiper Belt may have more than one moon. It also means that planetary scientists will have to take these new moons into account when modeling the formation of the Pluto system," said Alan Stern of the Southwest Research Institute in Boulder, Colo. Stern is co-leader of the research team.

The candidate moons, provisionally designated S/2005 P1 and S/2005 P2, were observed to be approximately 27,000 miles (44,000 kilometers) away from Pluto. The objects are roughly two to three times as far from Pluto as Charon.

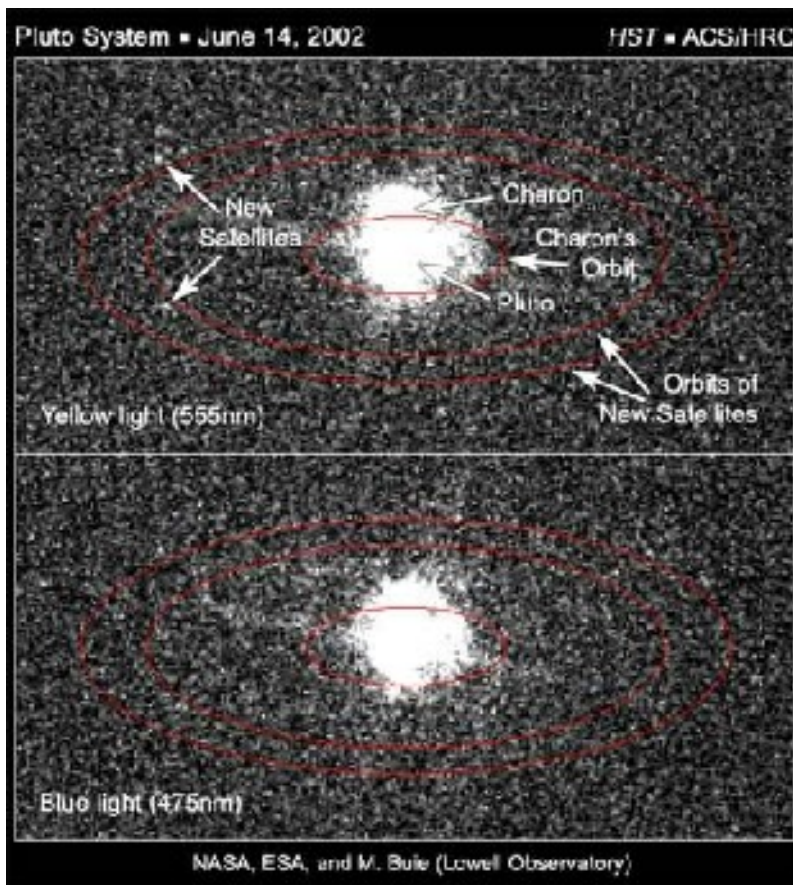


This illustration shows the Pluto system from the surface of one of the candidate moons. The other members of the Pluto system are just above the putative moon's surface. Pluto is the large disk at center, right. Charon, the system's only confirmed moon, is the smaller disk to the right of Pluto. The other candidate moon is the bright dot on Pluto's far left. Credit: NASA, ESA and G. Bacon (STScI)

The team plans to make follow-up Hubble observations in February to confirm that the newly discovered objects are truly Pluto's moons. Only after confirmation will the International Astronomical Union consider names for S/2005 P1 and S/2005 P2.

The Hubble telescope's Advanced Camera for Surveys observed the two new candidate moons on May 15, 2005. "The new satellite candidates are roughly 5,000 times fainter than Pluto, but they really stood out in these Hubble images," said Max Mutchler of the Space Telescope Science Institute and the first team member to identify the satellites. Three days later, Hubble looked at Pluto again. The two objects were still there and appeared to be moving in orbit around Pluto.

"A re-examination of Hubble images taken on June 14, 2002 has essentially confirmed the presence of both P1 and P2 near the predicted locations based on the 2005 Hubble observations," said Marc Buie of Lowell Observatory, Flagstaff, Ariz., another member of the research team.



Hubble images taken with the ACS/HRC on June 14th, 2002, reveals two objects that are consistent with the expected locations of the newly-discovered satellites. One image (top) was taken in yellow light (555 nm) and the other (bottom) was taken in blue light (475 nm). The ellipse shows the orbital path of the new satellites derived from the May 2005 Hubble observations. The satellites should lie somewhere along this ellipse and, indeed, there are two objects along the predicted path, thus confirming the 2005 observations. Credit: NASA, ESA, and M. Buie (Lowell Observatory)

The team looked long and hard for other potential moons around Pluto. "These Hubble images represent the most sensitive search yet for objects around Pluto," said team member Andrew Steffl of the Southwest Research Institute, "and it is unlikely that there are any other moons larger than about 10 miles across in the Pluto system."

The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency. The Space Telescope Science Institute in Baltimore conducts Hubble science operations. The Institute is operated for NASA by the Association of Universities for Research in Astronomy, Inc., Washington, under contract with Goddard.

The other team members for this observation are: William J. Merline, John R. Spencer, Eliot Y. Young, and Leslie A. Young, Southwest Research Institute.

Moon

New	2 nd Nov (1 st Dec)	1 st Qtr	9 th	Full	16 th	Last Qtr	23 rd
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Planets:

Venus	Brilliant object, very low in early evening throughout Nov, Mag -4.5. It presents a 50% phase at start of month at 24 arc seconds, increasing in size to 35" by end of month and showing a 32% crescent.
Mars	Dominant in the night sky, starting the month at Mag -2.3, but fading to -1.8 as it draws away. At opposition on 7 th with a 20" disc
Saturn	A morning object in Cancer at Mag +0.3, improves as the month draws on, rising by 23.00 at the end of the month.
Uranus	Mag 5.8, low in Aquarius, early evening.
Neptune	Mag 7.9, in Capricornus, another early evening object but getting lost in the twilight by the end of the month.

Highspots:

3rd Taurids first peak, favourable Moon, 10 per hour

5th Venus & Moon only 2° apart

13th Taurids second peak, unfavourable Moon, 10 per hour

15th Mars & Moon only 2° apart

17th Leonids unfavourable Moon, 20 per hour

21st α Monocerotids unfavourable Moon but possible outburst

22nd Good grouping of Saturn, Moon and Praesepe

Sources:

FAS Astro Calendar 2004/2005, Astronomy Now (Nov), Sky at Night Magazine (Nov),

SPA Popular Astronomy (October - December)

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21 February 2005

Title	Author	Author	Publisher	Year of Publication	Date Purchased	Cost £	ISSBN Number
BOOKS							
The Mariner 6 and 7 pictures of mars	Stewart A.	Collins		1971			
The Backyard Astronomers Guide		Dickinson & Dyer					
Surface of the moon: Its structure and origin	V.A.	Firsoff		1961			
Government Support for Beagle 2.		House of Commons Science & Technology Committee		Nov 04			
Frozen star, of Pulsars, black holes and the fate of stars	George	Greenstein		1984			
Observing the Universe (A new Scientist Guide)	Nigel	Henbest (editor)		1984			
100 billion suns, the birth, life and death of the stars	Rudolf	Kippenhahn		1983			
Skywatching	David	Levy					
The Universe		Life Nature Library		1970			
Larousse Encyclopedia of Astronomy		Larousse		1966			
The Modern Universe	Raymond A. Lyttle	Lyttleton		1957			
1973 Year Book of Astronomy	Patrick	Moore		1973			
1975 Year Book of Astronomy	Patrick	Moore		1975			
1976 Year Book of Astronomy	Patrick	Moore		1976			
1979 Year Book of Astronomy	Patrick	Moore		1979			
1980 Year Book of Astronomy	Patrick	Moore		1980			
1982 Year Book of Astronomy	Patrick	Moore		1982			
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1996 Year Book of Astronomy	Patrick	Moore		1996			
1997 Year Book of Astronomy	Patrick	Moore		1997			
A textbook of Astronomy, Facts and feats	Patrick	Moore		1979			
Earth Satellite, The new satellite projects explained	Patrick	Moore		1955			
Moon Flight atlas	Patrick	Moore		1970			
Travellers in Space and time	Patrick	Moore		1983			
1989 Year Book of Astronomy	Patrick	Moore		1989			
Guide to Astronomy	James	Muirden		1972			
Analysis of Apollo 10 photography and visual observations		NASA		1971			
ATLAS of surveyor 5 Television data		NASA		1974			
Guide to Lunar Orbiter Photographs		NASA		1970			
The Moon as viewed by lunar orbiter		NASA		1970			
Answer book of astronomy	Iain	Nicholson		1975			
Lonely Hearts of the Universe	Dennis	Overbye		1991	Oct 04	gift	
Concise Encyclopedia of Astronomy	A. and H.	Wigert & Zimmermann					
ITALY in Space before and after SIRIO				1978			
Moon, Mars and Venus. A concise guide in colour				1976			
Messier Objects: A Beginner's Guide	Kathy & Sue	Machin & Wheatley	Astronomical Leagu	1997	6 Feb 2004	£5.00	none
Turn Left at Orion: 100 objects to see in a small telescope	Guy & Dan	Consolmagno & Davis	Cambridge UP	2000 3rd ed	6 Feb 2004	£15.00	0-521-78190-6
Caldwell Card	Sky & Telescope	Sky & Telescope	Sky & Telescope	2001	6 Feb 2004	£3.00	not applicable
Messier Card	Sky & Telescope	Sky & Telescope	Sky & Telescope	2003	6 Feb 2004	£3.00	not applicable
Astronomy Encyclopedia	Gen: Patrick Moore		Phillip's	2002	6 Feb 2004	£30.00	0-540-07863-8
Moonwatch			Phillip's	2003	6 Feb 2004	£12.99	0-540-08543-X
Webb Society Deep-Sky Observer's Handbook - Star Atlas (#1)	Webb Society		Webb Society	2002	6 Feb 2004	£15.00	0-904824-05-5
Webb Society Deep-Sky Observer's Handbook - Star Atlas (#2)	Webb Society		Webb Society	2002	6 Feb 2004	£15.00	0-904824-05-5
Phillips Planisphere 10" Lat 51.5° North	Springer Verlag						
Observational Astronomy: A Plan for the Beginner	S J	Lubbock	Fed of Astro Soc	1987 rev 2001	4 Feb 2005	£2.20	
Exploring Mars: An Astronomy Now Guide	Neil	English	Pole Star Publicatio	2004	4 Feb 2005	£8.99	

If interested in any of the above books please speak to Matthew Mallinson