

VollieNews

NEWSLETTER OF THE POVG - THE PERTH OBSERVATORY VOLUNTEERS' GROUP INC.

Hubble spots rare triple eclipse on Jupiter

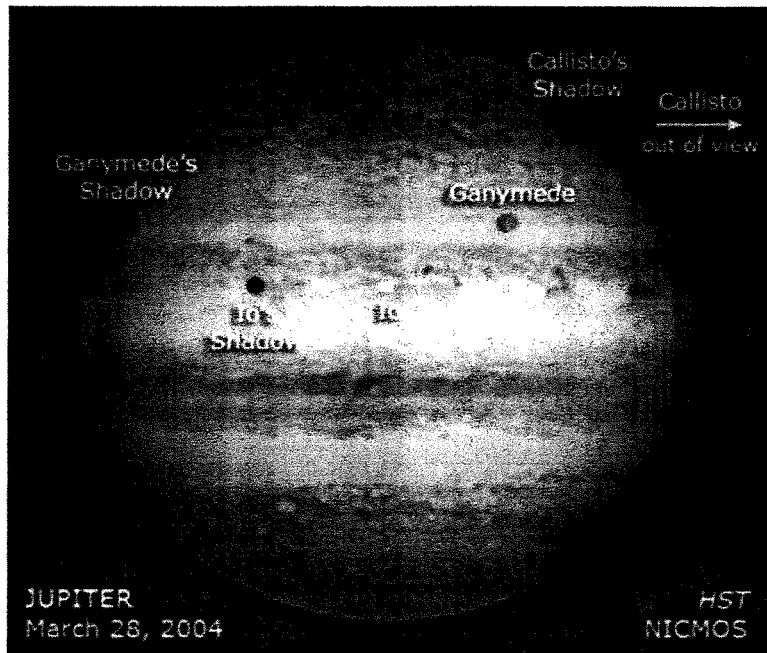
At first glance, Jupiter looks like it has a mild case of the measles. Five spots -- one colored white, one blue, and three black -- are scattered across the upper half of the planet. Closer inspection by NASA's Hubble Space Telescope reveals that these spots are actually a rare alignment of three of Jupiter's largest moons -- Io, Ganymede, and Callisto -- across the planet's face.

In this image, the telltale signatures of this alignment are the shadows [the three black circles] cast by the moons. Io's shadow is located just above center and to the left; Ganymede's on the planet's left edge; and Callisto's near the right edge. Only two of the moons, however, are visible in this image. Io is the white circle in the center of the image, and Ganymede is the blue circle at upper right. Callisto is out of the image and to the right.

On Earth, we witness a solar eclipse when our Moon's shadow sweeps across our planet's face as it passes in front of our Sun. Jupiter, however, has four moons roughly the same size as Earth's Moon. The shadows of three of them occasionally sweep simultaneously across Jupiter. The image was taken March 28, 2004, with Hubble's Near Infrared Camera and Multi-Object Spectrometer.

Seeing three shadows on Jupiter happens only about once or twice a decade. Why is this triple eclipse so unique?

Io, Ganymede, and Callisto orbit Jupiter at different rates. Their shadows likewise cross Jupiter's face at different rates. For example, the outermost moon Callisto orbits the slowest of the three satellites. Callisto's shadow moves across the planet once for every 20 shadow crossings of Io. Add the crossing rate of Ganymede's shadow and the possibility of a triple eclipse becomes even more rare.



Viewing the triple shadows in 2004 was even more special, because two of the moons were crossing Jupiter's face at the same time as the three shadows.

Jupiter appears in pastel colors in this photo because the observation was taken in near-infrared light. Astronomers combined images taken in three near-infrared wavelengths to make this color image. The photo shows sunlight reflected from Jupiter's clouds. In the near infrared, methane gas in Jupiter's atmosphere limits the penetration of sunlight, which causes clouds to appear in different colors depending on their altitude.

Studying clouds in near-infrared light is very useful for scientists studying the layers of clouds that make up Jupiter's atmosphere. Yellow colors indicate high clouds; red colors lower clouds; and blue colors even lower clouds in Jupiter's atmosphere.

The green color near the poles comes from a thin haze very high in the atmosphere. Ganymede's blue color comes from the absorption of water ice on its surface at longer wavelengths. Io's white color is from light reflected off bright sulfur compounds on the satellite's surface.

In viewing this rare alignment, astronomers also tested a new imaging technique. To increase the sharpness of the near-infrared camera images, astronomers speeded up Hubble's tracking system so that Jupiter traveled through the telescope's field of view much faster than normal. This technique allowed scientists to take rapid-fire snapshots of the planet and its moons. They then combined the images into one single picture to show more details of the planet and its moons.

<http://spacelighton.com/news/0411/04jupitereclipse/>

In this issue: POVG's Meeting Minutes | Phases of the Moon
Dates & Times for Vollie Training and Meeting Nights |

Astro News and Events

STAR-VIEWING ACTION

The star-viewing action has been fairly subdued so far, but the pace begins to pick up in December - and January will be frantic. Please let us know your availability for the next couple of months, especially January. Regards, Greg.

OBSERVATORY'S WEBSITE NEEDS AN OVERHAUL

Web sites are an increasingly important part of an organisation's communication and promotion systems. With this in mind the Observatory's website needs an overhaul. Is any vollee interested in helping us with this task?

What I eventually want is a user-friendly site, with a consistent professional (ie astronomical, not expensive) 'look', that serves as a great promotional vehicle for all the Observatory's activities. It will need to conform to 'gov't standards' and templates are required so that updates can be simply (and as often as required) created by staff.

Offers by Friday 29th October please. Thanks, Jamie Biggs.

AURORA HUNTERS

Hi all, I guess I'm directing this at our supremo photographers (whom I won't identify lest I make any unintended omissions and thus cause deep offense), but I'm sure that all who click on the following link and browse the gallery will enjoy the artistry therein. I've got to thank my wife for bringing it to my attention. Cheers, Bevan Oh, so you want the link do you? Try <http://aurorahunter.com>

NUMBER OF NATURAL MOONS

Hi All !! Following a question I had regarding the number of natural moons of planets, the latest update can be found at http://www.ifa.hawaii.edu/%7E/sheppard/satellites/140_natural_moons!! And with Cassini going strong, no doubt there will be a few more before long. Jupiter with 63, most of them retrograde, and Saturn now with 33.

TITAN UP CLOSE

These raw, un-processed images of Saturn's moon Titan were taken by the Cassini spacecraft and transmitted to Earth on October 26. The pictures provide the closest views ever snapped of the hazy moon.

<http://spaceflightnow.com/cassini/041026/tybypix.html>

PETER HUBBLE SPOTS RARE TRIPLE ECLIPSE ON JUPITER

At first glance, Jupiter looks like it has a mild case of the measles. Five spots — one colored white, one blue, and three black — are scattered across the upper half of the planet. Closer inspection by NASA's Hubble Space Telescope reveals that these spots are actually a rare alignment of three of Jupiter's largest moons — Io, Ganymede, and Callisto — across the planet's face.

<http://spaceflightnow.com/news/n041104/jupittriple/>

PIT CHAINS HINT AT RECENT MARSQUAKES ON RED PLANET

Strings of depressions dotting the Martian landscape indicate that seismic activity - marsquakes - may still be reshaping the surface of the planet. These pit chains occur along dilational faults, partially filled or open cavities that served as conduits for past groundwater flow.

<http://spaceflightnow.com/news/n041029/marsquakes/>

NASA'S MARS ROVERS PASS THE 50,000-PICTURE MARK

A view of the sundial-like calibration target on NASA's Mars Exploration Rover Spirit, with a bit of martian terrain in the background, is the 50,000th image from the twin rovers that have been exploring Mars since January.

<http://spaceflightnow.com/mars/meral/041030/pictures.html>

CASSINI'S RADAR SHOWS TITAN'S YOUNG ACTIVE SURFACE

The first radar images of Saturn's moon Titan show a very complex geological surface that may be relatively young. Previously, Titan's surface was hidden behind a veil of thick haze.

<http://spaceflightnow.com/cassini/041029/science.html#RadarImagery>
<http://spaceflightnow.com/cassini/041029/radarstrip.html>

TWO VIEWS OF TITAN'S HAZE

Titan's planet-wide stratospheric haze is observed in Cassini's first close encounter with the shrouded moon. This image shows Titan's night-side backlit by the Sun after the space probe's closest approach to the moon. The haze layer ringing the planet is illuminated because the small particles scatter significant sunlight in the forward direction.

<http://spaceflightnow.com/cassini/041028/titanhaze.html>

GIGANTIC COSMIC CORKSCREW REVEALS NEW DETAILS

Making an extra effort to image a faint, gigantic corkscrew traced by fast protons and electrons shot out from a mysterious

microquasar paid off for a pair of astrophysicists who gained new insights into the beast's innerworkings and also resolved a longstanding dispute over the object's distance.

<http://spaceflightnow.com/news/n041028/corkscrew/>

SCIENTISTS ELATED BY CASSINI'S TITAN OBSERVATIONS

After years of anticipation, the Cassini spacecraft beamed back smog-piercing close-up images of Saturn's moon Titan late Tuesday, revealing a strange, striated landscape that both thrilled - and mystified - planetary scientists.

<http://spaceflightnow.com/cassini/041027/science.html>

EARLY LEONIDS?

The annual Leonid meteor shower normally peaks around the 19th of November. This year, however, there might be an extra, early peak on Nov. 8th when Earth passes close to a 1000-year-old stream of dust from Comet Tempel-Tuttle. The precise location of this old stream is uncertain. Forecasters estimate, tentatively, a meteor rate of 50 to 100 per hour—much less than the great Leonid displays of recent years, but still pleasing. Sky watchers in parts of Europe, Africa and Asia are best-positioned to see the Nov. 8th display—if it happens!

<http://spaceweather.com>

EUROPE'S HIPPARCOS FINDS REBELS WITH A CAUSE

A team of European astronomers has discovered that many stars in the vicinity of the Sun have unusual motions caused by the spiral arms of our galaxy, the Milky Way. According to this research, based on data from ESA's Hipparcos observatory, our stellar neighborhood is the crossroads of streams of stars coming from several directions.

<http://spaceflightnow.com/news/n041020/hipparcos/>

DEEP IMPACT PREPARES FOR DECEMBER LAUNCH

NASA's Deep Impact spacecraft has arrived in Florida to begin final preparations for a launch on December 30. The probe will fire a copper projectile into the surface of comet Tempel 1 next year to create a crater that could be as large as a football field.

POVG Minutes

Perth Observatory Volunteer Group Inc.
Minutes of Meeting, Oct 11th 2004.

Present.

L. Martin. R. Boelin. D. Emrich. J. Biggs. G. Lowe. M. Zengerer. M. Freeman. J. Milner. D. Alderson. T. Beardsmore. V. Smith. K. Kotze. L. Robinson. T. Beston. J. Morris.

Apologies.

E. Walker. B. Harris. A. McNaughton. F. Bilki. M. Haslam. J. Alcroft

Confirmation of Minutes.

It was agreed that the Minutes were a true and correct record. Moved. M. Zengerer. Seconded. T. Beardsmore.

Treasurers Report. In the absence of the Treasurer his written report was tabled by M. Freeman and is attached.

Correspondence.

M. Freeman stated that the Volunteer Group enjoyed a Tax free status and a suggestion had been made that we could take advantage of this situation to encourage the public or Companies to donate to the Observatory. J. Biggs enlarged on the subject and said that there was now a Government Foundation Committee with the power

to invest funds donated to the Observatory, and disburse them as and when required by the Volunteer Group. A board of Trustees would need to be formed to oversee the fund. It was unanimously agreed that the proposal should be investigated further with a report to be made to a future Meeting Astrograph Building

It had been reported that the Dome on top of the Astrograph Building was in need of repair. At a cost of approximately \$5000. It was suggested that we apply to the Lotteries Commission for a grant to enable this work to be done.

M. Freeman gave details of the application which needed to be finalised by November 11th. J. Biggs stated that the Observatory was "Interim Listed" by the Heritage Commission and it was possible that Funds might be available from that source in the future once the Observatory was fully listed. It was unanimously agreed that this matter be further investigated.

Chairman's Report.

J. Biggs gave details of a proposal to initiate a service whereby the Observatory would S.M.S. subscribers joining an "Astronomy Alert Service" of notewor-

thy events in the night sky, the fee would purchase a specific number of calls. Volunteers would enjoy a free entry to the service once it was up and running.

M. Freeman gave a report on the Shoemaker Impact Structure trip which had been thoroughly enjoyed by all the participants, the weather had been fine, and the trip with several Geologists present, had proved very interesting for the Volunteers who attended. He gave details of a lecture entitled "Are we Alone" by Charles Lineweaver and Malcolm Walter at the Alexander Lecture theatre at the U. of W.A. on Monday 18th October, members were welcome to attend.

R. Tanello gave members the details of his "Adopt a Star" plan where members of the public can adopt a Star for a period of 7 years. They get a viewing session, Certificate and Star Chart for a fee which varies according to the Magnitude of the Star selected. He already had 2 orders confirmed with 3 others interested.

There being no further General Business the Meeting closed at 8.10pm
Next Meeting November 8th

PHASES OF THE MOON FOR 2004

New Moon	First Quarter	Full Moon	Last Quarter
Jan 22 05:05	Jan 29 14:03	Jan 7 23:40	Jan 15 12:46
Feb 20 17:18	Feb 28 11:24	Feb 6 16:47	Feb 13 21:40
Mar 21 06:41	Mar 29 07:48	Mar 7 07:14	Mar 14 05:01
Apr 19 21:21	Apr 28 01:32	Apr 5 19:03	Apr 12 11:46
May 19 12:52	May 27 15:57	May 5 04:33	May 11 19:04
Jun 18 04:27	Jun 26 03:08	Jun 3 12:19	Jun 10 04:02
Jul 17 19:24	Jul 25 11:37	Jul 2 19:09	Jul 9 15:33
Aug 16 09:24	Aug 23 18:12	Aug 1 02:05	Aug 8 06:01
Sep 14 22:29	Sep 21 23:53	Aug 30 10:22	Sep 6 23:10
Oct 14 10:48	Oct 21 05:59	Sep 28 21:09	Oct 6 18:12
Nov 12 22:27	Nov 19 13:50	Oct 28 11:07	Nov 5 13:53
Dec 12 09:29	Dec 19 00:40	Nov 27 04:07	Dec 5 08:53
		Dec 26 23:06	

<http://www.wa.gov.au/perthobs/hpc5mn03.htm>

Have you
joined the POV
Newsgroup yet?

If you've got any news,
information or pics post them on the
newsgroup.

To join simply send your email
address to Bevan Harris at:
ngc2070@bigpond.com

To unsubscribe send an email to:
perthobsvolles-unsubscribe@yahoo.com.au

To modify your subscription, visit
the group website at:
<http://au.groups.yahoo.com/mygroups>

Perth Observatory Volunteers' Group

Perth Observatory Staff



2004/05
Volunteer
Training
&
Meeting
nights

Dr Jamie Biggs
Peter Birch
Ralph Martin
Dr Andrew Williams
Rick Tanello
Greg Lowe
Janet Bell
Di Johns
Arie Vermeer
John Pearce
Marc Appelhof

Director and Govt Astronomer
Astronomer
Astronomer
Astronomer
Astronomer Assistant
Astronomer Assistant
Administration Officer
Clerical Officer
Technical manager
Mechanical technician
Maintenance Person/Cleaner

Mike Freeman
Elaine Walker
John Morris
Bevan Harris

POVG VOLUNTEERS

Chairperson
Vice Chairperson
Secretary
Treasurer and newsgroup moderator
(contact: ngc2070@bigpond.com)

Jeff Alcroft

Newsletter Editor
(contact: callides@inet.net.au)
or through newsgroup

Training is important for our volunteers, they enjoy it and we need to support these staff members in return for the assistance they render.

Generally, these training nights are scheduled for 7pm the Monday after the week of Last Quarter.

This list (or a part thereof) is also displayed on the volunteer notice board. Your cooperation is appreciated. Jamie Biggs. Govt Astronomer.

Observatory's Volunteers' List

Jeff Alcroft
Dick Alderson
Trevor Beardsmore
Lyll Bell
Frank Bilki
Tony Beston
Ric Boelen
Eve Cowlshaw
Giuseppe Coletti
David Emrich

Keith Ford
Mike Freeman
Lynda Frewer
Bevan Harris
Mark Haslam
Bert Hollebon
Karen Kotze
Vic Levis
Rob Loney
Andrew MacNaughtan

Len Martin
Jacquie Milner
John Morris
Lloyd Robinson
Sascha Schediwi
Val Semmler
Patricia Turner
Elaine Walker
Sandra Walker
Matthew Zengerer

2004

6 Dec.

2005

10 Jan; 7 Feb; 14 Mar; 4 Apr; 9
May; 30 May; 4 Jul; 1 Aug.



PERTH OBSERVATORY
337 Walnut Road, Bickley WA 6076
<http://www.wa.gov.au/perthobs>

POVG

Perth Observatory Volunteers Group