

IO – April 2005

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www.eugeneastro.org

Eugene Astronomical Society, Annual Club Dues \$25, President: AC Illig, Treasurer: Roscco Wright, Secretary Alicia McGraw
 Guy Prouty (guyprouty@msn.com 463-7641, Richard Boyd (BOD Members); IO editor, Sam Pitts, sampitts@comcast.net 688-7330:
Io (EYE-oh) is nearest to Jupiter and fastest orbiting of the four Galilean moons

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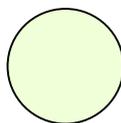
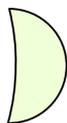
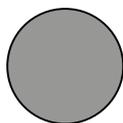


Monday- April 4th MEETING EUGENE ASTRONOMICAL SOCIETY At The Science Factory Planetarium

The meeting will begin at **7:00 PM** in the Planetarium. Come early and help others learn about their scopes. Those of you, who are new or not sure about your equipment, show up early and some of our members will assist you in understanding your equipment better. If you are planning on getting a scope please come out and ask questions, we're glad to assist you in making a good solid choice to maximize your viewing pleasure.

The Science Factory is at 2300 Leo Harris Parkway, behind Autzen Stadium.

Check EAS WEB site for up to the minute Information



April 8	April 16	April 24	April 1 & 30*
New Moon	First Quarter	Full Moon	Last Quarter
Sunset: 7:48 PM	Sunset: 7:58 PM	Sunset: 8:09 PM	Sunset: 8:15 PM
Sunrise 6:41 AM	Sunrise 6:27 AM	Sunrise 6:12 AM	Sunrise 6:05 AM
Jupiter Rise 7:05 PM	Jupiter Rise 6:29 PM	Jupiter Rise 5:52 PM	Jupiter Rise 5:26 PM
Mars Rise 4:20 M	Mars Rise 4:04 AM	Mars Rise 3:48 AM	Mars Rise 3:36 AM
Uranus Rise 5:20 AM	Uranus Rise 4:49 AM	Uranus Rise 4:18 AM	Uranus Rise 3:55 AM
Mercury Rise 6:03 AM	Mercury Rise 5:42 AM	Mercury Rise 5:27 AM	Mercury Rise 5:19 AM

All times are for Eugene, Oregon Latitude 44° 3' 8" Longitude 123° 5' 8" * Info for 4/30/05

Sunday **April 3rd** Daylight Savings Time Begins

Magazine subscriptions go to Richard Boyd: checkerkit@comcast.net

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<http://lists.cmc.net/cgi-bin/mailman/listinfo/eugeneastro>



What's Out This Month

April brings in the Springtime constellations. The sun sets late and rises early. Here in Eugene Oregon, our night times are being cut shorter & shorter by each passing day. Straight over head at twilight is Cancer the Crab & Leo the Lion followed closely by Virgo the Virgin. The many galaxies that are associated with Leo & Virgo are readily visible. M 81 & M82 galaxies in Ursa Major are also in a good position for viewing.

Cancer is home to M44 a great open cluster. It is named the crab from Roman Mythology, when the Goddess Hera sent a crab to distract Hercules (son of Zeus) while fighting the monster Hydra. The crab nipped Hercules who then killed it by stepping on it. Hera placed the crab in the sky but neglected to give it any bright stars because it had failed in defeating Hercules.

Jupiter reaches opposition on April 2nd, making its closet approach to earth for the year. Jupiter is now at it's brightest at 1 2.5 magnitude and 44.2 arc seconds in size. This is the time to use your Webcams and other cameras for images of Jupiter. Especially on April 6 & 7, Europa will cast a nice shadow on Jupiter in the late evening of April 6th and ends around 1:30 AM on the 7th. The Lyrids meteor show peaks around the 22, with possibilities of 20 or more per hour from a dark sky site.

Sam

Jupiter's Red Spot Centered PST

04/01	04:41	00:00		04/16	03:02	22:54
04/02	01:32	20:23		04/17	18:45	00:00
04/03	07:19	17:15		04/18	04:41	00:00
04/04	03:10	23:01		04/19	00:32	20:23
04/05	00:00	18:53		04/20	06:19	00:00
04/06	04:48	23:39		04/21	02:10	22:01
04/07	20:31	00:00		04/22	07:57	17:52
04/08	06:26	00:00		04/23	03:48	23:39
04/09	02:17	22:08		04/24	19:30	00:00
04/10	18:00	00:00		04/25	05:26	00:00
04/11	03:55	23:46		04/26	01:17	21:09
04/12	19:38	09:42		04/27	07:04	17:00
04/13	05:33	00:00		04/28	02:55	22:47
04/14	01:24	21:16		04/29	07:42	18:38
04/15	07:11	17:07		04/30	05:34	00:00

Transits of Jupiter's Moons



04/01	20:55	Io	Shadow Begins
	20:57	Io	Transit Begins
	23:07	Io	Transit Ends
04/06	22:38	Europa	Transit Begins
	23:47	Europa	Shadow Begins
04/07	01:29	Europa	Shadow Ends
	01:16	Europa	Transit Ends
	05:20	Io	Shadow Begins
04/08	23:49	Io	Shadow Ends
	23:41	Io	Transit Begins
04/09	01:52	Io	Transit Ends
04/10	18:07	Io	Transit Begins
	20:17	Io	Transit Ends
04/11	19:00	Ganymede	Transit Begins
	21:21	Ganymede	Transit Ends
	22:19	Ganymede	Shadow Ends
04/14	00:54	Europa	Transit Begins
	01:23	Europa	Shadow Begins
	04:05	Europa	Shadow Ends
	03:32	Europa	Transit Ends
04/16	01:25	Io	Transit Begins
	01:43	Io	Shadow Begins
	03:36	Io	Transit Ends
04/17	19:51	Io	Transit Begins
	22:02	Io	Transit Ends
	22:23	Io	Shadow Ends
04/18	22:17	Ganymede	Transit Begins
	23:41	Ganymede	Shadow Begins
04/19	00:40	Ganymede	Transit Ends
04/21	04:00	Europa	Shadow Begins
	03:10	Europa	Transit Begins
	05:48	Europa	Transit Ends
04/23	03:09	Io	Transit Begins
	05:20	Io	Transit Ends
04/24	20:00	Europa	Shadow Ends
03/27	05:54	Europa	Shadow Begins
04/26	01:35	Ganymede	Transit Begins
	04:01	Ganymede	Transit Ends
04/30	05:31	Io	Shadow Begins
	04:55	Io	Transit Begins

Shadows cast on Jupiter's disk by Transit of its moons may Begin up to an hour or more before Transit Begins. The shadow usually ends before Transit Ends. Begin observing before Times listed. Actual times of events will vary depending on your precise location within time zones. Shadows start before transits and usually end before transits are over. Use your web cams and digital cameras to capture these inspiring events. If you have never witnessed a transit you are missing a special event.

NASA's Twin Mars Rovers Continue Exploration



NASA's Spirit rover found a new class of water-affected rock, while its twin, Opportunity, finished inspecting its own heat shield and set a new martian driving record. The rovers successfully completed their three-month primary missions in April 2004 and are working on extended exploration missions.

"This is probably the most interesting and important rock Spirit has examined," said Dr. Steve Squyres of Cornell University, Ithaca, N.Y., principal investigator for the rovers. The rock, dubbed "Peace," is an exposure of bedrock in the Columbia Hills. The hills are in Gusev Crater, where Spirit landed 13 months ago. "This may be what the bones of this mountain are really made of. It gives us even more compelling evidence for water playing a major role for altering the rocks here," Squyres added.

Image Right: *The rock at the center of this image from NASA's Mars Exploration Rover Spirit is informally named "Peace" and is richer in sulfate salt than any rock previously examined by Spirit. The exposed portion of Peace is about one-third of a meter (one foot) long. The rock's composition suggests possible effects of water. Spirit's panoramic camera took the image through a 430-nanometer filter during the rover's 369th martian day, on Jan. 5, 2005. Image credit: NASA/JPL/Cornell.*



Peace contains more sulfate salt than any other rock Spirit has examined. Dr. Ralf Gellert, of Max-Planck-Institut für Chemie, Mainz, Germany, said, "Usually when we have seen high levels of sulfur in rocks at Gusev, it has been at the very surface. The unusual thing about this rock is that deep inside, the sulfur is still very high. The sulfur enrichment at the surface is correlated with the amount of magnesium, which points to magnesium sulfate."

Observations by Spirit show the rock contains significant amounts of the minerals olivine, pyroxene and magnetite, all of which are common in some types of volcanic rock. The rock's texture appears to be sand-size grains coated with a material loosely binding the rock together. Spirit's rock abrasion tool dug about 1 centimeter deep (0.4 inch) in two hours.

"It looks as if you took volcanic rocks that were ground into little grains, and then formed a layered rock with them cemented together by a substantial quantity of magnesium-sulfate salt," Squyres said. "Where did the salt come from? We have two working hypotheses we want to check by examining more rocks. It could come from liquid water with magnesium sulfate salt dissolved in it, percolating through the rock, then evaporating and leaving the salt behind. Or it could come from weathering by dilute sulfuric acid reacting with magnesium-rich minerals that were already in the rock. Either case involves water."

Opportunity used its microscopic imager to examine a cross section of the heat shield that protected the spacecraft as it slammed into Mars' atmosphere. This is the first time experts have been able to examine a heat shield after it entered another planet's atmosphere. Engineers expect the findings to aid design for future missions.

"We've identified each broken piece of the heat shield. We know there's a lot of data there, but we still need to analyze it," said Ethiraj Venkatapathy of NASA's Ames Research Center, Moffett Field, Calif.

Christine Szalai, a spacecraft engineer at NASA's Jet Propulsion Laboratory, Pasadena, Calif., said, "We are examining the images to determine the depth of charring in the heat shield material. In the initial look, we didn't see any surprises. We will be working for the next few months to analyze the performance of the heat shield."

Continued from Page #4

Twin Mars Rovers Continued:

"The terrain we're crossing is so flat we can see a long way ahead," said JPL rover planner Frank Hartman, who teamed with Jeff Biesiadecki to plot the drive. "Opportunity has paused for some trenching. Since leaving the heat shield, Opportunity has been traveling south to explore new sites. The rover set a single-day martian driving record, covering 154.65 meters (507.4 feet) on Jan. 28. Two days later, it drove even farther, 156.55 meters (513.6 feet). The first 90 meters (295 feet) of each drive were performed in blind-drive mode, following a route planners created from stereo images from the rover and maps created from orbital imagery. The rest was autonomous driving, with the rover choosing its own route to avoid any hazards it perceived in stereo images taken along the way.

but in a few days we'll put the pedal to the metal again."

JPL, a division of the California Institute of Technology in Pasadena, has managed NASA's Mars Exploration Rover project since it began in 2000.

Images and additional information about the rovers and their discoveries are available on the Internet at http://www.nasa.gov/vision/universe/solarsystem/mer_main.html and <http://marsrovers.jpl.nasa.gov/home/index.html>. For information about NASA and agency programs on the Internet, visit <http://www.nasa.gov>.

Astronomy Day April 16, 2005

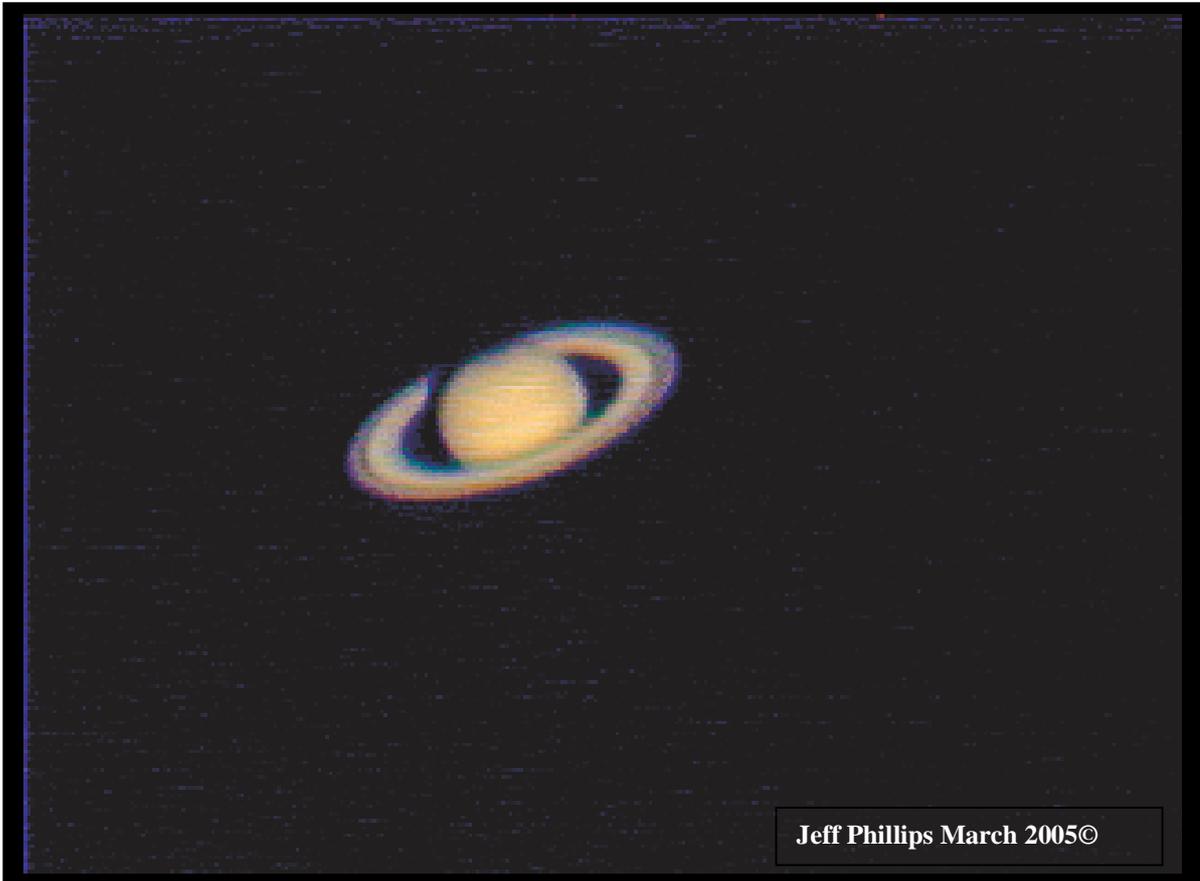
EAS will need as many members as possible to help with Astronomy Day.

Bring your telescopes early Saturday Morning to set-up, 9:00AM to 11:00 AM at the Science Factory. You will be responsible for the setup and policing of your own equipment. The Doors will open at 12:00 Noon and program will run to 5:00 PM. We also need help setting up on Friday the 15th, starting at 5:00 PM.

Bring your photographs and image to be displayed in various galleries for the public to enjoy. EAS members are encouraged to contact A.C. Illig at 342-2159 to participate and help. It will be a fun day for all

There will be many prizes available to the public including an 8" telescope. A star party will take place in the evening if the weather cooperates. Solar viewing and telescope demonstrations are planned throughout the event.

DICK PUGH Field Scientist Cascade Meteorite Laboratory of Portland State University will be there. He will give talks and have a wonderful display of "ROCKS from SPACE". Bring in rocks you think may be meteorite for him to examine. Several vendors will have Telescopes and accessories for sale at show prices.



EAS member Jeff Phillips took advantage of the recently clear skies to capture this great shot of Saturn. Jeff used a Celestron C8 (Ultima 2000), an Ultima Barlow, and an Alaris WeeCam. The Alaris is an incredibly cheap web-cam. "I simply removed the lens from the web-cam and clamped it on top of the Barlow with an Orion steadypix camera holder".

"I used the moon for a focusing target, and to align my finder scope. The field of view with the web-cam and Barlow is about equal to the size of Mare Crisium, so finding and focusing the target are nearly the hardest part of the process."

He used Registax to align and stack the best 140 images from an AVI of about 450.

This pic is a tribute to a free software program named RegiStax, written by an amateur from Holland.

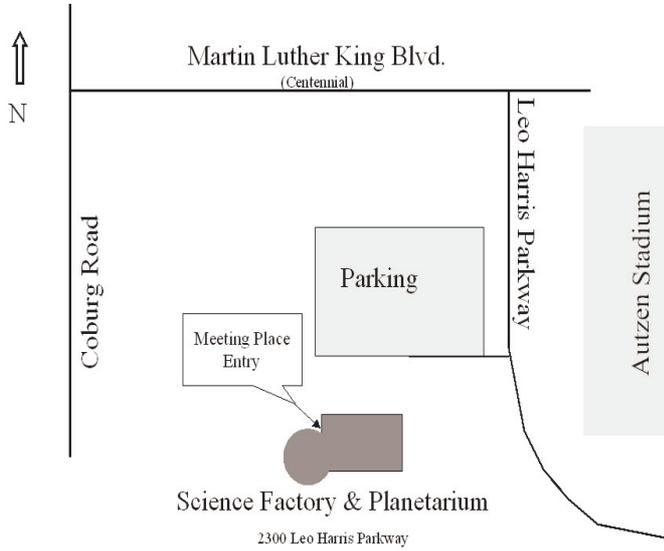
Only for Astronomers:

From: *Teresa May (may@cyberstation.net)*

During this years total lunar eclipse, I set my 35mm camera up on a tripod so that I could snap a few pictures of the moon. Although we didn't get to see the whole eclipse (clouds moved in) I was happy to think that we would at least have a small momento of the part we did get to see...

A couple of weeks later I decided to use up the rest of that film roll so that I could get it developed and see how my moon pictures had turned out. I went out into the yard and took pictures of the flowers, the garden and my kids to 'burn up' the remaining film. It took a LOT of pictures - TOO MANY PICTURES. "Rewinding" the film and opening up the camera to see what the problem was, I found that I had forgotten to put film in! (I'm not normally this stupid - I've had this camera for several years, and that was the first time I had ever done that...but what bad timing!)

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No Respectable Astronomer Should Be Without
CLOUD FILTERS
Not Available in Stores

For those wonderful viewing nights
and public star parties
when those irritating clouds just won't go away!

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Graphic Created by Andy Oliver, www.saaaa.org



Sam Pitts March 2005 ©

Fellow EAS member going deep into Virgo