

## IO – March 2004

[www.eugeneastro.org](http://www.eugeneastro.org)

Eugene Astronomical Society, Annual Club Dues \$25, President: Jean Grendler, School Star Party Coordinator, 683-9382, moegren@msn.com,  
Secretary & Treasurer: Sue Moe, suemoe@worldnet.att.net, Web Master Dave, Nexstar11.com ;  
IO editor, Sam Pitts, sampitts@aol.com: Io (*EYE-oh*) is nearest to Jupiter and fastest orbiting of the four Galilean moons



### MARCH 1, 2004 MEETING EUGENE ASTRONOMICAL SOCIETY North Eugene High School Room #319 at 7:00 PM



**March 1, 2004** - EAS Membership Meeting 7 PM Room 319 North Eugene High School The program will focus on learning to identify constellations and how to locate the deep sky objects inside of them. An overview will be provided and members will give short presentations on various constellations. Members are asked to contact Jean at: moegren@msn.com to volunteer. Starry Night will be available for presenters to use during the meeting. \*Note: "Early Bird" Telescope help is a returning feature of EAS meetings. The public and new EAS members are encouraged to bring scopes for a little bit of help and advice at 6:30pm on meeting nights. Help is contingent on the availability of EAS member volunteers.

# Astronomy Day April 24, 2004

Time to mark the Calendar and Volunteer for this day of fun and education. Eugene Astronomical Society will once again hold this Stellar Day at North Eugene High School. Please contact EAS President Jean Grendler to volunteer. We also need telescope equipment & other astronomy related items for Telescope Alley, contact Sam Pitts. Tracey Stephens is in charge of Solar Viewing, please contact him at this meeting or via the EAS mail list. Dave Cole is in Charge of Vendors. Please contact the appropriate people in charge of various activities to prevent confusions, conflicts and to maintain professionalism for this Event.

Any member who may have inside contacts with any store or vendor should contact Dave Cole, who may already be in contact with the vendor you may know. This is also important with the other persons in charge of a particular part of Astronomy Day. This is shaping up to be another fun event with lots of activities and door prizes to be given away. Next month will have a detailed outline of the Events Planned for Astronomy Day. Please volunteer as soon as possible, it will only work with your support. - Sam

**THE EUGENE ASTRONOMICAL SOCIETY PRESENTS:**  
**SATURDAY  
APRIL 24TH  
2 PM TIL MIDNIGHT**

## ASTRONOMY DAY 2004

**NORTH EUGENE HIGH SCHOOL  
200 SILVER LANE, EUGENE**

AURORA PHOTO BY: JOHN FLINN  
OTHER PHOTOS & DESIGN BY: JEAN GRENDELER



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

**Keep in-touch with Members and Events!**



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The Astronomical League  
The World's Largest Federation of Amateur Astronomers

## Astronomical League Constellation Hunter Club Certificates

Constellation Hunter Club Chair:

Aaron B. Clevenson  
19411 Cluster Oaks Drive  
Humble, TX 77346-2918  
(281) 852-4667



### Introduction:

Welcome to the Astronomical League's Constellation Hunter Club. The Constellation Hunter Club has two certifications and pins: The Northern Skies and the Southern Skies. The purpose of these programs is to provide an orientation to the sky for novice astronomers. They require no special equipment (other than a planisphere and a reference for the brighter star names), and no prior knowledge. The objective is to provide a forum for the novice observer to become more familiar with the constellations and brighter stars, to begin to learn to navigate among the stars, and to provide a solid foundation for moving on to other observation programs such as the Messier Club.

### Rules and Regulations

To qualify for the AL's Constellation Hunter Certificates and pins, you need only be a member of the Astronomical League, either through an affiliated club or as a Member-at-Large, and observe and sketch all of the constellations included on the checklist that you are pursuing. No equipment is required other than a planisphere and reference information of the names of major stars and constellation boundaries. Binoculars, while not required, will give you a deeper look into the star fields that you sketch. You should not include these additional stars and objects on your sketches, but the view will give you an appreciation for all of the things that await you in the other Astronomical League Certification Programs. You should proceed constellation by constellation. For each constellation, you need to provide this data:

- Local date and time.
- Latitude and Longitude of observation.
- Constellation name.
- Sky conditions: transparency, and seeing.
- A sketch of all stars that were visible to the unaided eye, out to the limits of the constellation's boundary. Named stars should be identified on the sketch.
- The sketch should include other objects that are visible within the boundaries of the constellation, including but not limited to: galaxies, open clusters, globular clusters, and nebulas.

You must be a member of the Astronomical League to receive these certificates. If you are not a member now, click [here](#) to view information on membership in our organization.

Upon verification of your observations, your certificate and pin will be forwarded either to you or your society's Awards Co-ordinator, whomever you choose.

### Observing List:

The 38 constellations are listed in alphabetical order. Your observing plan should be based on those constellations that are visible on any particular night. You can generate this list using a planisphere. Information provided on each object is a check box, constellation name, right ascension, and declination. This is a list of all of the constellations that appear north of the ecliptic.

*This is a great way to learn the Sky or refresh our memories after 4-5 months of cloudy skies.*

## What's Out Tonight

March offers some fine opportunities for viewing the Gas Giants, Jupiter & Saturn. Jupiter's Great Red Spot will be visible throughout the month of March, during Early morning hours when it is high in the sky for good viewing. Jupiter's moons also put on quite a show this month with many transits and some multiple transits with more than one shadow being visible at one time. Especially good evenings will be, March 4, at 11:00 PM on; Late evening March 11 & Early Morning March 12; Early Morning (1 AM) March 19; Early Evening March 20; March 27, 3 Shadows; Saturn also is in a nice high position for good detailed viewing.

Orion, Lupus, Puppis, Eridanus & Canis Major are now visible from sites with an UN-obstructed Southern view. Take advantage of any clear nights ahead and enjoy the night skies of Winter, Spring skies and Constellations are coming soon. Get started in identifying and sketching them, participate in the **Constellation Hunter Club!**  
Clear & Steady Skies-Sam

## Jupiter's Red Spot Centered PST

03/01	06:33	16:29		03/16	03:55	23:46
03/02	02:24	22:16		03/17		19:37
03/03		18:07		03/18	05:33	15:28
03/04	04:02	23:54		03/19	01:24	21:15
03/05	01:03	20:54		03/20	07:11	17:06
03/06	05:40	19:45		03/21	03:02	22:53
03/07	01:32	21:23		03/22	08:49	18:44
03/08	07:18	17:14		03/23	04:40	
03/09	02:10	23:01		03/24	00:31	20:23
03/10	08:56	18:52		03/25	06:18	16:14
03/11	04:47			03/26	02:09	22:01
03/12	00:39	20:30		03/27	07:56	17:56
03/13	06:25	16:21		03/28	03:48	23:39
03/14	02:17	22:08		03/29	19:30	11:34
03/15	08:03	17:59		03/30	05:26	15:21
				03/31	01:17	11:13

## Transits of Jupiter's Moons



03/01	07:49	Europa	Shadow Begins
03/02	21:08	Callisto	Eclipse Ends
03/03	04:53	Io	Transit Begins
	07:10	Io	Transit Ends
03/4	21:05	Europa	Transit Begins
	23:20	Io	Transit Begins
03/05	01:36	Io	Transit Ends
03/06	17:46	Io	Transit Begins
	20:01	Io	Transit Ends
03/10	06:38	Io	Transit Begins
03/11	01:35	Callisto	Transit Begins
	04:29	Callisto	Ends Begins
	23:21	Europa	Transit Begins
03/12	01:04	Io	Transit Begins
	02:10	Europa	Transit Ends
	03:19	Io	Transit Ends
03/13	16:03	Ganymede	Transit Begins
	19:30	Io	Transit Begins
	18:10	Io	Transit Begins
	21:45	Io	Transit Ends
03/19	01:37	Europa	Transit Begins
	02:48	Io	Transit Begins
03/20	18:25	Ganymede	Transit Begins
	21:14	Io	Transit Begins
	21:45	Ganymede	Transit Ends
	23:29	Io	Transit Ends
03/26	03:54	Europa	Transit Begins
	04:33	Io	Transit Begins
03/27	20:59	Callisto	Shadow Begins
	21:44	Ganymede	Transit Begins
	22:59	Io	Transit Begins
03/28	01:05	Ganymede	Transit Ends
	01:14	Io	Transit Ends
03/29	17:03	Europa	Transit Begins
	17:25	Io	Transit Begins
	19:40	Io	Transit Ends
	19:53	Europa	Transit Ends

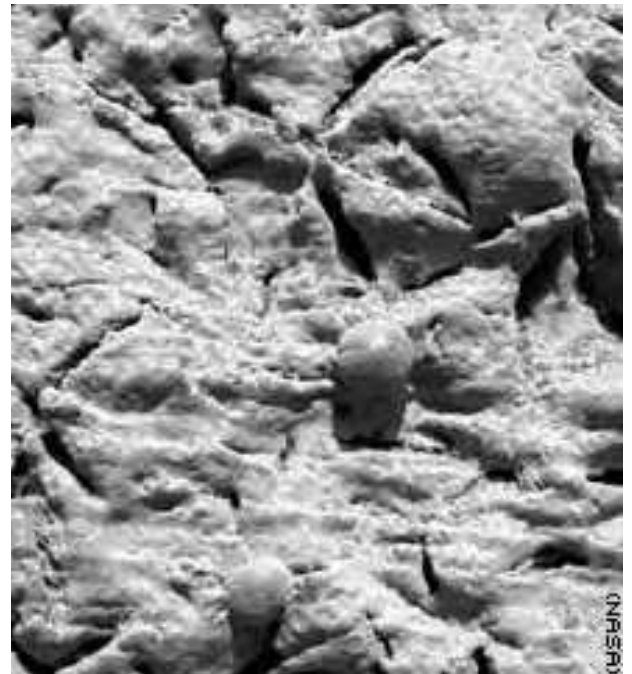
Shadows cast on Jupiter's disk by Transit of its moons may Begin and end after transit times. Begin observing before Times listed, do to time variations related to various locations within time zones.



## Opportunity at "El Capitan"



NASA's Mars Exploration Rover Opportunity casts a shadow over the El Capitan area that the rover is examining with tools on its robotic arm. Opportunity took this image with its front hazard-avoidance camera on Feb. 23, 2004, during the rover's 29th martian day, or sol. Opportunity used its rock abrasion tool to grind a small hole into Opportunity Ledge later on sol 29 to prepare for using the other tools on its arm to analyze the freshly exposed rock. During subsequent sols.



This is a microscopic photograph of a Mars rock taken by NASA's Opportunity rover that has triggered excitement among scientists.

Go to the links listed below and explore the latest news on both rover's revolutionary exploration of Mars.

<http://marsrovers.jpl.nasa.gov/home/>

<http://www.cnn.com/2004/TECH/space/02/24/mars.rock.ap/index.html>

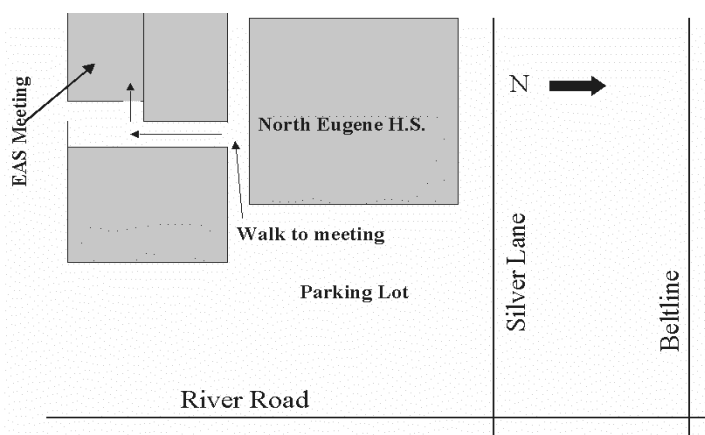
## ★ Amateur Astronomer Finds New Nebula ★

Amateur Jay McNeil noted an unusual nebula that was not listed for M78, which has turned out to be an eruption of a pre-sequence star, less than ten of these have ever been recorded. Bo Reipurth states, "I can confirm the reality of Jay McNeil's object, and I would like to emphasize that this is likely to be the most significant eruption of a pre-main sequence star in the last decade or more, George Herbig and I have followed these developments with the greatest interest. The earlier we can get this object observed the better. Unfortunately, just like when V1057 Cyg erupted in 1969, it happens when the object is beginning to disappear into the evening twilight. The coming new moon period will be the last chance for 5-6 months to get good data."

This new nebula is classified as a cometary-type reflection nebula (much like NGC 2261). Just as Hubble's Variable Nebula, the optical nebula will likely alter in apparent brightness and extent, as its responsible star (the IRAS object in outburst) varies in intensity. This is a golden opportunity for amateurs to image and collect data to assist the professionals in the understanding of early stellar evolution. The discovery was made with a Takahashi FS78 3" refractor and CCD camera.

**Congratulations to Jay McNeil and all the amateurs involved.**

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EAS Meetings 1st Monday of the Month  
7:00-9:00 PM

## -eugeneastro - Mail list of the Eugene Astronomical Society

The List keeps growing! Join the fun and discuss Astronomical Topics with others! Keep informed to local astronomical events and happenings. Use the list to ask questions about equipment or anything regarding Astronomy. The NW Astronomy list is open to anyone to join. Dave Cole, the EAS Webmaster, moderates this list. To join, visit <http://lists.cmc.net/cgi-bin/mailman/listinfo/eugeneastro>

## ITS 2004

Imaging the Sky with Digital, Web & Video Cameras Conference Saturday June 26, 2004 Mt. Hood Community College Planetarium Sky Theater Gresham, Oregon Digital, web, and video cameras are being used to image the Moon, Sun and planets. This conference covers using these cameras, how to mount them to the telescope and image processing techniques. State of the art technologies and techniques used by amateur astronomers here in the northwest will be presented. This conference is designed for everyone astronomically inclined, including those who have no prior astronomy imaging experience.

The conference presentations include Electronic Imaging Basics by Mel Bartels, Image Processing by Richard Berry, Web Cameras by David Haworth, Digital Cameras by Richard Berry, Video Cameras by Craig Zerbe and first quarter Moon imaging demonstrations (weather permitting). Conference attendees will receive a conference CD-ROM with presentations, imaging information and related software.

Register early because seating is limited. Registration is \$30.00 by May 31, 2004 and in June it is \$40.00. Schedule is subject to change. For more information and registration, visit <http://www.its-ccd.org/>. Sponsored by Mt. Hood Community College Science Club and Planetarium Sky Theater, 26000 SE Stark Street, Gresham, Oregon 97030

## Welcome New Board Member Frank Casebolt

The Board of EAS received AC's resignation from the board of directors at it's last meeting and would like to thank AC for his time and service to the board and EAS. The EAS Board subsequently appointed Frank Casebolt to the vacant director position. Frank is a long time member of EAS and brings a wealth of knowledge and experience to the board. Congratulations Frank!

## James Jackson Earns Lunar Club Certificate

EAS member Jim Jackson observed 100 features on the moon using the naked eye, binoculars and at least one telescope to earn another Astronomical League Certificate Successfully completing this survey of the moon is a significant achievement. EAS is very proud of Jim for his accomplishment.

I hope that Jim's efforts will be an inspiration for all of us to take a good look at our nearest neighbor in space and to begin an observing program that will give us pleasure while helping us hone our observing skills.

Congratulations, Jim. I know you will have many more successes! - By: Jean Grendler

## Astrophotography Contest

Thanks again to the wonderful people at Dot Dotson's for hosting another Astrophotography Contest at Astronomy Day, April 24, 2004 at North Eugene High School from 2:00 PM to Midnight. Review those recent Astro-images or get out and take advantage of any clear nights ahead and submit your entries to Dot Dotson's. Call for details, or better still, stop by for a visit and pick-up your entry forms. Browse the store and see what's available in astronomy equipment, film and cameras. Several nice prizes will be awarded.

**Dot Dotson's, 1600 Willamette, Eugene, OR (541) 485-1771**

## AstroCon 2004

Mark your calendar! For a truly once-in-a-lifetime event—a "Great Conjunction" of the ASP, the Astronomical League, the American Association of Variable Star Observers, and the Association of Lunar and Planetary Observers, called AstroCon 2004.

From July 20 to July 24, amateur astronomers and astronomy educators from all over the country will gather in the San Francisco Bay Area. Meetings will be held at the Doubletree Hotel & Executive Meeting Center-Berkeley Marina, centrally located on the picturesque San Francisco Bay, with panoramic views of the Golden Gate Bridge and the San Francisco Skyline.

Co-hosted by the Astronomical Association of Northern California and the Eastbay Astronomical Society, ASTROCON 2004 will focus on observational astronomy and on public outreach.

In addition to a galaxy of workshops and sessions, optional field trips will include a tour to Lick Observatory (and possible observing with the famous 36-inch refractor), and a visit—and observing session—at the new Chabot Space and Science Center.

For the latest program updates and registration information, go to the AstroCon 2004 web site ([www.astrocon2004.org](http://www.astrocon2004.org)).

## School Star Party Season

Several teachers are requesting *EAS* School Star Parties and classroom visits. You will begin seeing requests for volunteers soon. You can help by letting the *EAS Star Party Coordinator*, Jean Grendler, know that you are available so she can add your name to her "short call list". This is helpful when we have weather issues to deal with and have a window of opportunity come up, she will know who to call on for fast help. *EAS* volunteers must have a current *EAS* membership form or the *EAS* Volunteer Release Form filled out and on file with *EAS* Secretary/Treasurer, Sue Moe, to participate in activities on school grounds. School Star Parties fall under the category of *EAS Education & Outreach* and Jean, as *EAS* president and E & O Coordinator, has been visiting classrooms and communicating with teachers in our community on behalf of *EAS*. Members are requested to refer teachers who are interested in scheduling an *EAS* school star party to Jean for scheduling. *EAS* members who wish to participate in classroom visits on behalf of *EAS* are welcome to contact Jean to help.

Eugene Astronomical Society is a shining star in our community. Members volunteering at *EAS* sanctioned events make it so! Thank you to all the members who donate their valuable time to *EAS* events!

**SIGN UP NOW TO HELP WITH  
ASTRONOMY DAY 2004  
AND JOIN THE FUN!!**

## Planetary Scientists Find Planetoid in Kuiper Belt; could be Biggest yet Discovered



PASADENA, Calif.--Planetary scientists at the California Institute of Technology and University on Tuesday night discovered a new planetoid in the outer fringes of the solar system. The planetoid, currently known only as 2004 DW, could be even larger than Quaoar--the current record holder in the area known as the Kuiper Belt--and is some 4.4 billion miles from Earth.

According to the discoverers, Caltech associate professor of planetary astronomy Mike Brown and his colleagues Chad Trujillo (now at the Gemini North observatory in Hawaii), and David Rabinowitz of Yale University, the planetoid was found as part of the same search program that discovered Quaoar in late 2002. The astronomers use the 48-inch Samuel Oschin Telescope at Palomar Observatory and the recently installed QUEST CCD camera built by a consortium including Yale and the University of Indiana, to systematically study different regions of the sky each night.





Unlike Quaoar, the new planetoid hasn't yet been pinpointed on old photographic plates or other images. Because its orbit is therefore not well understood yet, it cannot be given an official name. "So far we only have a one-day orbit," said Brown, explaining that the data covers only a tiny fraction of the orbit the object follows in its more than 300-year trip around the sun. "From that we know only how far away it is and how its orbit is tilted relative to the planets."

The tilt that Brown has measured is an astonishingly large 20 degrees, larger even than that of Pluto, which has an orbital inclination of 17 degrees and is an anomaly among the otherwise planar planets. The size of 2004 DW is not yet certain; Brown estimates a size of about 1,400 kilometers, based on a comparison of the planetoid's luminosity with that of Quaoar. Because the distance of the object can already be calculated, its luminosity should be a good indicator of its size relative to Quaoar, provided the two objects have the same albedo, or reflectivity.

Quaoar is known to have an albedo of about 10 percent, which is slightly higher than the reflectivity of our own moon. Thus, if the new object is similar, the 1,400-kilometer estimate should hold. If its albedo is lower, then it could actually be somewhat larger; or if higher, smaller. According to Brown, scientists know little about the albedos of objects this large this far away, so the true size is quite uncertain. Researchers could best make size measurements with the Hubble Space Telescope or the newer Spitzer Space Telescope. The continued discovery of massive planetoids on the outer fringe of the solar system is further evidence that objects even farther and even larger are lurking out there. "It's now only a matter of time before something is going to be discovered out there that will change our entire view of the outer solar system," Brown says. The team is working hard to uncover new information about the planetoid, which they will release as it becomes available, Brown adds. Other telescopes will also be used to better characterize the planetoid's features.

Further information is at the following Web site: <http://www.gps.caltech.edu/~chad/2004dw>  
### Contact: Robert Tindol (626) 395-3631 [tindol@caltech.edu](mailto:tindol@caltech.edu)

# March 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	<b>1</b> EAS GENERAL MEETING 7:00 PM Asteroid 2003 YM137 NEF 0.096 AU	<b>2</b>	<b>3</b>	<b>4</b> Jupiter Opposition	<b>5</b> Voyager 1 Jupiter Fly-By 1979 Sunset 6:06 PM	<b>6</b>  Comet T7 Linear 00 05.60 +12 01.8 (6.4) Sunrise 6:40 AM FULL MOON
<b>7</b>	<b>8</b> John Herschels Birthday 1792 Asteroid 7 Iris Opposition (9.0 Mag)	<b>9</b>	<b>10</b> Asteroid 2002 CD NEF 0.167 AU Ash Wednesday	<b>11</b> Mercury Occults HIP 117820 (8.6 m)	<b>12</b> Asteroid 1154 Astronomia Occults HIP 86819 (6.7 m) Sunset 6:15 PM	<b>13</b>  Venus Occults PPM 118153 (8.4 m) Sunrise 6:28 AM First Quarter
<b>14</b>	<b>15</b> Albert Einstein's 125th Birthday 1879 Comet C/2003 H1 Linear CAE 1.334 AU	<b>16</b> Comet T7 Linear 00 02.30 +10 52.9 (5.5)	<b>17</b> Venus Occults TYC 1219-01658-1 (9.1) St. Patrick's Day	<b>18</b> Asteroid 2002 SY269 NEF 0.029 AU	<b>19</b> Asteroid 2002 GD2 NEF 0.120 AU Sunset 6:24 PM	<b>20</b>  Spring 1:49 AM (EST) Eye's of March Equinox(06:49 UT) Sunrise 6:15 AM NEW MOON
<b>21</b>	<b>22</b> Comet T7 Linear 00 00.58 +10 16.7 (5.1) Venus Occults TYC 1227-00116-1 (9.3 M)	<b>23</b> Asteroid 2001FE7 NEF 0.077 AU Comet West-Hartley CAE 1.317 AU Wernher Von Braun's Birthday 1912	<b>24</b> Asteroid 4769 Castalia NEF 0.215 AU	<b>25</b> Moon Occults Mars	<b>26</b> Comet T7 Linear 23 58.77 +09 37.6 (4.6) Venus Occults PPM 92330 (8.3 M) Sunset 6:32 PM	<b>27</b> Asteroid 2002 GQ NEF 0.099 AU Mariner 7 (1967) Sunrise 6:03 AM
<b>28</b> 	<b>29</b> Triple-Moon-Shadow Transit-Jupiter Last Quarter Mercury & Venus Greatest Elongation 19° & 46° East of Sun	<b>30</b>	<b>31</b> Comet T7 Linear 23 56.86 +08 54.1 (4.2)			

NEF = Near Earth Flyby ( ) = Magnitude AU = Astronomical Unit CAE = Closest Approach to Earth