

# IO – August 2003

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**Eugene Astronomical Society**, Annual Club Dues \$25, President: Jean Grendler, School Star Party Coordinator , 683-9382, [moegren@msn.com](mailto:moegren@msn.com),  
Vice-President & Treasurer: Sue Moe, [suemoe@worldnet.att.net](mailto:suemoe@worldnet.att.net), Telescope lending program: Jeff Phillips 685-0973, [phichu@epud.net](mailto:phichu@epud.net) ,  
*\*Io (EYE-oh) is nearest to Jupiter and fastest orbiting of the four Galilean moons.*  
Web Master Dave, [Nexstar11.com](http://Nexstar11.com) ; IO editor, Sam Pitts, [sampitts@aol.com](mailto:sampitts@aol.com)

## EAS August 4, 2003 Meeting North Eugene High School

On Monday, August 4, 2003, Dr. Guy Prouty will give a presentation on Archeoastronomy at the regular membership meeting of the Eugene Astronomical Society. Society meetings are held at North Eugene High Schoolroom 319, 200 Silver Lane. Meetings begin at 7pm, with announcements and business before the presentation. Members are encouraged to invite guests to enjoy Dr. Prouty's presentation. Community members are welcome to attend. The society asks for a \$1 contribution from guests. Guest passes were handed out to members at a previous meeting and this would be an excellent time to use those!

Dr. Prouty will talk about the archaeoastronomy of Assyria, Egypt, Sub-Sahara Africa, Japan, Peru, and the Ancestral Puebloan cultures of the American Southwest. Topics will include astronomical practices, celestial lore, mythologies, religions, and world-views of these ancient cultures.

Dr. Prouty is an adjunct assistant professor of anthropology at the University of Oregon, Oregon State, and Eastern Oregon University where he teaches online archaeology courses to students throughout the world. His main research interests include hunting and gathering societies of the Pacific Northwest, archaeoastronomy, palaeoethnobotany (how prehistoric plants were used for food, medicine, and technology), and multimedia design including 3D digital reconstruction of archaeological sites and video production.

**September EAS meeting date has been changed to the second Monday of the month, Sept. 8th, because of the Labor Day Holiday weekend.**

## OREGON STAR PARTY AUGUST 28-31, 2003

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OSP: PO Box 2035, Gresham, OR 97030.  
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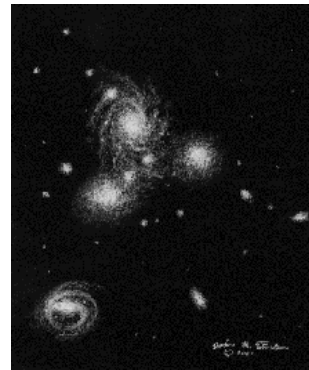
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## **Astronomical League Galaxy Groups & Clusters Certificate**



### **Introduction.**

Challenge your observing skills with this new observing guide of 99 Hickson DSS images and Megastar charts. Megastar charts guide you through the universe for these deep sky objects: 50 galaxy trios, 50 galaxy groups and 50 Abell clusters. This program of 250 galaxy groups and clusters is designed for detailed visual and/or CCD observation. For many, the challenge will be to see these galaxy clusters with their own eyes. Many of the galaxy groups and clusters in this observing program are visually accessible with a 12.5" telescope, although there are individual galaxies in some of the groups that are probably beyond almost all amateur observers.

Since the advent of the charge coupled device (CCD), visual and photographic observing techniques have been surpassed by the CCD's ability to record faint objects. While a CCD camera with an 8" or larger scope will be helpful for many of the fainter groups and clusters, you don't need a CCD camera to complete the program. However some of the more distant, fainter clusters will be a severe challenge for visual observers. This observing guide will assist you in hunting dim clusters and perhaps experiencing the thrill of discovery that George Abell and others felt in the past when discovering these distant groups. The required written descriptions may be supplemented by CCD images, pencil drawings, or a combination of both. Each method has its own advantages and disadvantages. CCD imaging is capable of greater detail and higher resolution than an experienced visual astronomer can produce. One drawback is the complicated and expensive equipment. On the other hand, sketching is a technique that requires practice, a steady hand and a skilled observer at the eyepiece. Accurately sketching a field of galaxies will generally lead to more careful observation, since one naturally tends to see more detail in an object when trying to draw it.

### **The Caldwell List.**

The Galaxy Groups and Clusters in this observing program consist of objects selected from four categories plus one additional challenge object:

- 50 relatively compact, isolated galaxy trios from the Atlas of Compact Galaxy Trios, compiled by Miles Paul (see footnote #1 of the trio list for reference).
- 99 Hickson Compact Galaxy Groups. The Hickson Catalogue comprises compact galaxy groups studied to determine the frequency of discordant red shifts within such groups. Well known groups such as Stephan's Quintet and Copeland's Septet as well as many very faint and challenging groups are included. This user-friendly Hickson Atlas with SkyView images and MegaStar charts was created by Miles Paul.
- 50 Additional Galaxy Groups. Some are relatively compact, isolated small groups. Others, including several Messier objects and their "companions," are more extended and not well-isolated from the surrounding field of galaxies.
- 50 Abell Clusters. Out of 4500 Abell galaxy clusters, we choose 50 among the brightest and most rewarding to view.
- Einstein's Cross. A quasar lensed by a galaxy (challenge object). or CCD

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## Image of the Month

Please submit your Astronomy photos, images or drawings to Dave Cole so he can select one to post on the EAS Web-Site. I can digitize 35mm negatives or prints so they can be used. -Sam

Web Master Dave : [Nexstar11.com](http://Nexstar11.com)

**Great Lunar Shot By Karla R. Casebolt**

It's time for you to submit some images

## Astronomical League Continued:

### The Awards.

There are two categories of search methods for this program, "Manual" and "Device-Aided." To be considered for the "Manual" certificate, ALL of the objects must be observed manually. A space is provided on the Submittal Form to indicate your search method. Definitions are:

- **Manual:** This term is hard to describe in words that will cover all contingencies that technology may potentially bring. In general, observers know the intent of the word "manual" and should use their judgment accordingly. There are two components to "manual." One is that the observer hand-guides the telescope to the object. The other is that the observer uses his/her eye to see through the telescope to navigate to the object. Visual finder scopes or reflex sights are permitted. Observing programs submitted with 100% of the objects searched using the manual method will have an "M" designation on the certificate next to the certificate number.
- **Device-Aided:** The observer uses aids such as manual or digital setting circles, computer devices, screen locating, or other aids that guide the telescope to the object. There will be a "DA" designation on the certificate next to the certificate number.
- Besides two types of search methods, there are two types of observing techniques: visual and imaging. Your certificate will also reflect the observing technique used. **Visual:** Observed with the eye through the optics of the telescope. **Imaging:** Observations obtained using astrophotography and/or CCD

### Rules and Regulations.

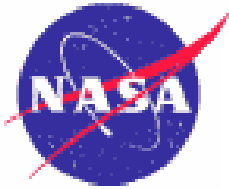
To receive the Galaxy Cluster certificate and pin, the amateur must observe a total of 120 galaxy groups: 30 from each of these four catalogues (Galaxy Trios, Hickson Groups, Additional Galaxy Groups, and Abell Clusters). This sampling of groups and clusters will give the observer a feel for the variety that exists in our night sky. All of the Galaxy Trios except IC 2375/ 77/ 79 are included in Uranometria 2000.0 and should be relatively easy to find. We have provided MegaStar finder charts for groups in the other three categories. For comments and caveats relative to the Hickson atlas, see the introduction to that atlas. For the other galaxy groups, see the comments and footnotes with the lists of those groups. Keep in mind that it is often advantageous or necessary to use high power in searching for very faint galaxies.

To receive your certificate and pin, submit your observations to your society's awards coordinator for verification, who will then contact the League Coordinator. This is necessary to ensure AL membership requirements. Members-at-Large should send copies of their records directly to the League Coordinator. Upon verification, your award will be forwarded to your society's representative for presentation, or directly to Members-at-Large.

<http://www.astroleague.org/al/obsclubs/galaxygroups/index.html>

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**L-1011 "Stargazer" takes off to carry Pegasus rocket on the first 39,000 feet of its climb to deliver a spacecraft to orbit.**



## From the Belly of an Airplane: Galaxies

By Dr. Tony Phillips

On April 28th a NASA spacecraft named GALEX left Earth. Its mission: to learn how galaxies are born, how they grow, and how they die.

"GALEX-short for Galaxy Evolution Explorer-is like a time machine," says Caltech astronomer Peter Friedman. It can see galaxies as far away as 10 billion light years, which is like looking 10 billion years into the past. The key to the mission is GALEX's ultraviolet (UV) telescope. UV rays are a telltale sign of hot young stars, newly formed, and also of galaxies crashing together. By studying the ultraviolet light emitted by galaxies, Friedman and colleagues hope to trace their evolution spanning billions of years.

This kind of work can't be done from the ground because Earth's atmosphere absorbs the most energetic UV rays. GALEX would have to go to space. To get it there, mission planners turned to Orbital Science Corporation's Pegasus rocket.

"Pegasus rockets are unusual because of the way they're launched-from the belly of an airplane," says GALEX Project Engineer Frank Surber of JPL.

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It works like this: a modified L-1011 airliner nicknamed Stargazer carries the rocket to an altitude of 39,000 feet. The pilot pushes a button and the Pegasus drops free. For 5 seconds it plunges toward Earth, unpowered, which gives the Stargazer time to get away. Then the rocket ignites its engines and surges skyward. The travel time to space: only 11 minutes.

"The aircraft eliminates the need for a large first stage on the rocket," explains Surber. "Because Stargazer can be used for many missions, it becomes a re-useable first stage and makes the launch system cheaper in the long run." (To take advantage of this inexpensive launch system, GALEX designers had to make their spacecraft weigh less than 1000 lbs-the most a Pegasus can carry.)

A Pegasus has three stages--not counting the aircraft. "Its three solid rocket engines are similar to the black powder rockets used by amateurs. The main difference is that the fuel is cast into a solid chunk called a 'grain'-about the consistency of tire rubber. Like black powder rockets, once the grain is lit it burns to completion. There's no turning back."

In this case, turning back was not required. The rocket carried GALEX to Earth orbit and deployed the spacecraft flawlessly. On May 22nd, the UV telescope opened its cover and began observing galaxies-"first light" for GALEX and another success story for Pegasus.

For adults, find out more about the GALEX mission at <http://www.galex.caltech.edu/>. Kids can read and see a video about Pegasus at <http://spaceplace.nasa.gov/galex/pegasus.html>.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Nancy Leon

## EAS CLUB CALENDAR- Updated 7/14/03

**July 18** College Hill Reservoir EAS star party 9-Midnight to see Mars rise??? Setup 7pm for collaborative activities with The Science Factory. T-shirt drawings and tables. Activities begin at 8pm!

**July 25 Friday** CANCELLED Science Factory Star Party CANCELLED

**August 4** - club meeting NEHS 7 pm Dr. Guy Prouty Archeoastronomy presentation.

**August 7** – EAS Educational Program & Star Party at Fern Ridge Library Setup 7:30, talk begins at 8pm

**August 16** - Mars Society Convention – Eugene Hilton - Public Star Party (Saturday evening August 16)- On top of the Parkade Building. Be set up for the star party before 8pm as we will be closing the upper level to auto traffic.

**August 14 – 16** EAS to provide Solar Viewing opportunities for Mars Society Convention. Times to be announced.

**August 22** (or 23 if “rainout”) EAS Mars Party @ College Hill Reservoir 8:30-Midnight Setup 7:30

**August 27** - Mars closest approach - New Moon

**August 28 – 31** Oregon Star Party...EAS contingency in attendance??

**September 8 - Club meeting – 7 PM NEHS ---2<sup>nd</sup> Monday due to Holiday----**

**September 12** – EAS “Back to School” Star Party – College Hill Reservoir 8-11pm Setup 7pm

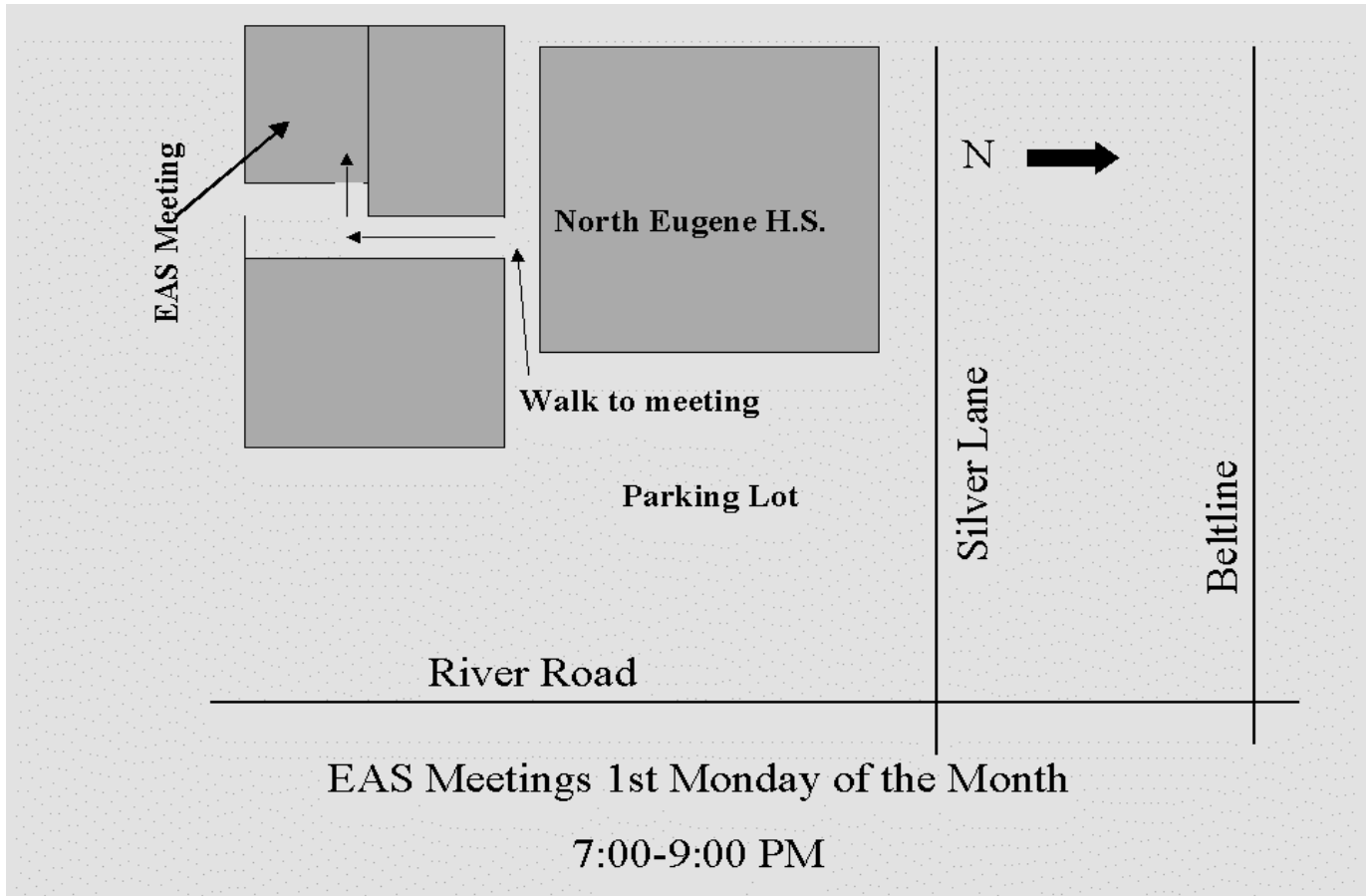
**September 20-** Eugene Celebration Parade

**September 23** - Fall equinox

**September 27** – Saturday - Mt. Pisgah Arboretum Star Party (Joint fundraiser for EAS and Mt. Pisgah Arboretum) EAS will have educational talk in the “Quonset Hut” and telescope viewing in the field area near the hut. EAS will have access to power and less dust in this area, but the sky will be limited by the trees. The trees will shelter the scopes from light from cars coming and going. We will use what sky we have and do our best! Set up is early (6:30pm) so we can get our cars in and unload scopes before the talk begins.

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September Meeting will be the 2<sup>nd</sup> Monday in September

**September 8<sup>th</sup>**

At 7:00 PM North Eugene High School

