The Astronews

HUI KILOLANI

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## THE NEIGHBORLY THING – BARRY PECKHAM

Only ten years in the wishing, our club's visit with stargazers on Kauai was far beyond a pessimist's dream. The Kauai Educational Association for Science and Astronomy (KEASA) group is the HAS of the Garden Isle. With a tenth the population base, these folks deliver a great star party in a place far darker than Dillingham and more cloud-free as well. The grass is always greener on their observing field (because it is a ball field) and street traffic can never shine its headlight glare onto scope users.

Outreach specialist Rozlyn Reiner gives the star party a friendly face. She meets and greets arriving visitors, preps them for views through the telescope and roams the field, keeping current on the targeted objects. Roz also had illuminated star charts and some big binoculars on a boom mount. There were 2 twin 8" Orion

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## Inside this issue:



## Upcoming Star Parties

| | | |
|---|---|---|
| **Club Party** | **Feb 2** | **Dillingham** |
| **Public Party** | **Feb 9** | **Kahala/Waikele** |
| **Public Party** | **Feb 23** | **Dillingham** |
| **Club Party** | **Mar 1** | **Dillingham** |
| **Public Party** | **Mar 8** | **Dillingham** |
| **Public Party** | **Mar 15** | **Kahala/Waikele** |
| **Club Party** | **Mar 29** | **Dillingham** |

### Upcoming Events:

- The next meeting is at 7:30 p.m. on **Tuesday, Feb. 5th** at the Bishop Museum.
- Bishop Museum's next planetarium show with **Barry Peckham** is Friday, **Feb. 1st** at 7:00 pm.

## President's Message

The chances of that small asteroid hitting Mars at the end of January have been reduced to one in 10,000, effectively ruling it out. You may recall that the likelihood of a hit increased from about 1 in 75 to 1 in 25 before falling drastically. It's easy to get excited about the increasing probabilities, but we should understand that there was nothing unusual about what happened this time.

Once it became clear that the asteroid would cross the orbit of Mars, the question became one of exactly when and where it would do so. Astronomical observations always have uncertainties because of the limits of precision of clocks and imaging systems. As more observations are conducted, the orbit becomes better known, and the uncertainties diminish.

Imagine, for example, a circle that has the predicted intersection point of the orbits of Mars and the asteroid at its center. The diameter of the circle depends on the degree of uncertainty of the position of the asteroid when it crosses the orbit of Mars. The position of Mars at this time can be represented by a line with the thickness of the diameter of Mars and a length proportional to the uncertainty of the crossing time. The proportion of the circle covered by Mars is equivalent to the probability of a collision.

If the uncertainties are large at the beginning, the circle is very large compared to the area covered by the possible positions of Mars. As the asteroid's orbit becomes better known, the circle of uncertainty shrinks (although the position of the center point may move). The proportion of the smaller circle covered by the possible positions of Mars is then larger. This trend continues until the shrinking circle no longer includes Mars.

Even if the predicted crossing point never changes, the statistical chance of a collision can rise for a while before it suddenly drops to nearly zero. Some day we may witness a collision like this, but that day has not yet come.

*Chris*


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The Astronews is the monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via e-mail. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

HAWAIIAN ASTRONOMICAL SOCIETY
GENERAL MEMBERSHIP MEETING
January 8, 2008

President Chris Peterson called the January 8, 2008 meting of the Hawaiian Astronomical Society to order at 7:42 p.m. The meeting was held at the Atherton Halau of the Bishop Museum. In attendance were twenty-six members and five visitors.

**Hawaii Space Lecture Series** - There is a lecture scheduled for the Hawaii Space Lecture Series for January 22, 2008 at 7:30 pm in the NASA Pacific Regional Planetary Data Center on the fifth floor of the P.O.S.T. building at the University of Hawaii at Manoa. The featured speaker for this month will be Dr. Peter Mouginis-Mark. He will be speaking on "Geology of the Martian Impact Crater Tooting: A Tale of Two Planets. The lecture takes place For further information you can contact NASA PRPDC at 808-056-3132 or on the Web go to http://www.higp.hawaii.edu/prpdc.

**Star Party Report -** Forrest Luke reports that H.A.S. has no school star parties scheduled for the near future.

**General Information -** H.A.S. President, Chris Peterson reminded everyone that the planet Mars is still an excellent object for viewing this month.

H.A.S. President, Chris Peterson discussed the "Messenger Mission" to Mercury, which will have an opportunity to image half of the hemisphere not yet seen. Chris also mentioned the "New Horizons" mission to Pluto. The Mars "Spirit" rover, which was only to last 90 days, has just reached its fourth anniversary on the face of Mars. The "Opportunity" rover is also still working and communicating with Earth.

Request from Mr. Walter Banning- In a recent letter the H.A.S, Mr. Banning is requesting help and posting a reward for help in verifying the rings of Pluto. Anyone interested should contact President Chris Peterson for details.

**Visitors** - We had five visitors join us at the meeting this month. We hope to see you at our suburban and dark sky star parties.

**Windward Community College -** Nancy Ali from the Windward Community College Imaginarium informed members of the upcoming series of workshops on cultural astronomy to be held Sundays: January 20th, February 3rd, and February 17. Registration required. Call 235-7433 for details.

**Kauai Trip -** H.A.S. Vice-President Barry Peckham, Paul Lawler, Carolyn Kaichi and Gretchen West traveled to Kauai and were hosted at a potluck dinner and star partly at the Kaumakani School Baseball Field by Rozaline Reiner and the members of KEASA, the Kauai Astronomy club. The evening was a success. New friends made and dark skies shared.

**Short Notes -** Vice President Barry Peckham spoke on a variety of subject. The new Teleview eyepiece, the "Ethos," with an apparent wide field of view and a

*(Continued on page 4)*

hefty price tag gave great views of the night sky to viewers on Kauai.

Even poor nights in Hawaii are worthwhile. Barry urges people to count their blessings and the variety of objects one can see at one of our "not-so-stellar" evenings out at Dillingham. Have Fun!!!

"Hidden Treasures", a new book out by Steve O'Meara (Cambridge Press) is a worthwhile purchase for those looking for a challenge, and "First Star I See Tonight" by Robert Eckland extols the joys of astronomy in prose and poetry.

Barry capped off his short items by reviewing a few interesting facts about the star Canopus.

**Streetlights to be shielded -** The three streetlights opposite the Dillingham viewing site will eventually be shielded by the Hawaii State Dept. of Transportation. President Chris Peterson received a letter from the D.O.T. in response to our earlier letter.

**Possible Asteroid Impact on Mars -** President Chris Peterson spoke briefly about the very slight possibility of an asteroid impact on Mars on January 30, 2008.

**Night Sky Network Teleconference -** At-Large member and Night Sky Coordinator John Gallagher informed members about the upcoming teleconference, on February 5, 2008. Anyone who is interested in any of the teleconference information should contact John Gallagher.

- Big Island resident and club member Mike Morrow shared a new book he recently received. The book on meteor showers references work by our friend Mike.

- The meeting was adjourned at 9:03 p.m. and refreshments were served.

- Joanne Bogan provided a Planetarium for interested members following the meeting.

Respectfully Submitted,
Gretchen West,
Secretary, H.A.S.

**No Mars Rock Unturned**
**by Patrick L. Barry**

Imagine someday taking a driving tour of the surface of Mars. You trail-blaze across a dusty valley floor, looking in amazement at the rocky, orange-brown hillsides and mountains all around. With each passing meter, you spy bizarre-looking rocks that no human has ever seen, and may never see again. Are they meteorites or bits of Martian crust? They beg to be photographed.

But on this tour, you can't whip out your camera and take on-the-spot close-ups of an especially interesting-looking rock. You have to wait for orders from headquarters back on Earth, and those orders won't arrive until tomorrow. By then, you probably will have passed the rock by. How frustrating!

That's essentially the predicament of the Spirit and Opportunity rovers, which are currently in their fourth year of exploring Mars. Mission scientists must wait overnight for the day's data to download from the rovers, and the rovers can't take high-res pictures of interesting rocks without explicit instructions to do so.

However, artificial intelligence software developed at JPL could soon turn the rovers into more-autonomous shutterbugs.

This software, called Autonomous Exploration for Gathering Increased Science (AEGIS), would search for interesting or unusual rocks using the rovers' low-resolution, black-and-white navigational cameras. Then, without waiting for instructions from Earth, AEGIS could direct the rovers' high-resolution cameras, spectrometers, and thermal imagers to gather data about the rocks of interest.

"Using AEGIS, the rovers could get science data that they would otherwise miss," says Rebecca Castaño, leader of the AEGIS project at JPL. The software builds on artificial intelligence technologies pioneered by NASA's Earth Observing-1 satellite (EO-1), one of a series of technology-testbed satellites developed by NASA's New Millennium Program.

AEGIS identifies a rock as being interesting in one of two ways. Mission scientists can program AEGIS to look for rocks with certain traits, such as smoothness or roughness, bright or dark surfaces, or shapes that are rounded or flat.
In addition, AEGIS can single out rocks simply because they look unusual, which often means the rocks could tell scientists something new about Mars's present and past.

The software has been thoroughly tested, Castaño says, and now it must be integrated and tested with other flight software, then uploaded to the rovers on Mars. Once installed, she hopes, Spirit and Opportunity will leave no good Mars rock unturned.

Check out other ways that the Mars Rovers have been upgraded with artificial intelligence software at nmp/TECHNOLOGY/infusion.html#sciencecraft.

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

# Observer's Notebook - February 2008 by Jay Wrathall

## Planets Close To the Moon

**Times are Hawaii Standard Time**

Feb 3, 21h, M 4.0º S of Jupiter
(34º from sun in morning sky)
Feb 4, 03h, M 4.2º S of Venus
(31º from sun in morning sky)
Feb 8, 21h, M 2.5º NNW of Uranus
(27º from sun in evening sky)
Feb 15, 22h, M 1.6º N of Mars
(118º from sun in evening sky)
Feb 20, 21h, M 2.5º SSW of Saturn
(176º from sun in midnight sky)

Mercury and Neptune are closer than 15º from the sun when near the moon in February.

## Other Events of Interest

**Times are Hawaii Standard Time**

Feb 1, 02h, Venus 0.59º N of Jupiter
(32º from sun in morning sky)
Feb 6, 08h, Mercury at inferior conj. with sun (Passes into morning sky)
Feb 6, 17:44h, Moon New
Feb 8, Alpha Centaurid meteors
Feb 10, 16h, Neptune at conjunction with sun (Passes into morning sky)
Feb 20, 17:29h, Moon Full
Feb 23, 23h, Saturn at opposition
Feb 26, 15h, Mercury 1.1º NNW of Venus (26º from sun in morning sky)

## Planets in February

| | | |
|---|---|---|
| **Mercury** is visible in the morning the last two weeks of Feb. Very close to Venus on Feb 26. | **Venus** has close conjunctions with Jupiter and Mercury this month, but is getting lower and sets only an hour before the sun by month's end. | **Mars** is still well placed for viewing in the evening sky, but will fade to magnitude 0.0 by mid-month. |
| **Jupiter** after a conjunction with Venus on Feb 1, the two brightest planets separate quickly. | **Saturn** is at conjunction with the sun this month and so is the brightest this year at mag. +0.2. | **Uranus** is very low in the west at sunset. |
| **Neptune** reaches conjunction with the sun this month and is too close to the sun to observe. | Dwarf Planet **Pluto** rises after midnight and can be observed in the morning sky. | Dwarf Planet **Ceres** is visible Cetus during the evening hours. |

# Chicken Little Report - February 2008 by Carey Johnson

**Meteor Showers**

1/28 – 2/21 Alpha Centaurids Peaks Feb 8/9

**Comets**

2/2 46P/Wirtanen Perihelion 1.057 AU (0.918 AU from Earth) Mag. 11.
2/15 C/2007 T1 (McNaught) 1.082 AU Mag. 13 and fading.
2/17 46P/Wirtanen Closest Approach 0.918 AU (peak Mag. 11.38)
2/19 79P/du Toit-Hartley 0.829 AU Mag. 17.6
2/26 194P/LINEAR (2007 W2) Perihelion 1.709 AU (1.05 AU from Earth) Mag. 17.7
2/1-29 8P/Tuttle Moves from Eridanus to Horologium
3/7 17P/Holmes conjunction with NGC1499 California Nebula.

**Asteroids**

2/12 2007 DA 0.0253 AU (peak Mag. 17.3)
2/19 4450 Pan (1987 SY) 0.0408 AU (peak Mag. 12.1)
2/26 2002 TD66 0.0428 AU (peak Mag. 15.2)

Omega Centauri NGC5139 imaged by HAS member Steven Chun as posted on the Yahoo Group May 22, 2007. Taken with a Canon XTi on a 8" LX200R. 20 45 sec frames stacked by ImagesPlus.
By the end of February it rises around 11PM.

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dobs in service, a couple SCTs including a classic orange Celestron, an Orion 12" dob and a small refractor set up for imaging. HAS members added two 12.5" dobs plus a 10 incher. No one asked how.

The sky in this part of the island became cloudless before sunset and stayed that way for 90 blissful minutes into the darkness. Our main annoyance was the zodiacal light (and a healthy crop of mosquitoes). Kauai's bigger scopes didn't show up that night, but their owners did, and one of them brought a new TeleVue "Ethos" eyepiece for testing. My scope became the lucky guinea pig for nearly 3 hours, once the passing haze had cleared off. These Kauai guys aimed my scope all over the sky, re-experiencing their favorites with improved contrast, scale and field-of-view. During this time it became evident that Oahu's larger club creates more info sharing and therefore more sky knowledge. Scope wranglers Paul Lawler and Gretchen West had a ton of targets at their fingertips. Nothing works better than combining know-how with raw material, and the material in this case was Kauai's clear, dark sky.

One fellow on the field took time out to raz me about a talk I gave to a PA astro-club 6+ years ago. He sat in the seats at this meeting, a pilgrim about to ascend to the heaven of a job at Keck, and was miffed to hear me trash the Big Island as an ultimate destination for amateur astronomers. For 6 years he'd held the Keck job and toted his own equipment toward the top of Mauna Kea while folks back near Philly fawned over his fate. What I saw on this darkened Kauai ball field was a guy with aperture insufficient to inspire its use under drop-dead gorgeous starfields… where he was NOT freezing his fingers and toes, ears and nose. He told me he was only getting out with his scope once or

*(Continued on page 9)*

## Treasurer's Report

by Jim MacDonald

**HAS Financial Report as of January 15, 2008**

| | |
|---|---|
| **Initial Balance:** | **$4,863.73** |
| Receipts: | |
| Calendars | 13.00 |
| Donations | 79.05 |
| Dues Received | 330.00 |
| Magazine Payments | 99.90 |
| T-Shirt Sales | 45.00 |
| Telescope Fee | 40.00 |
| **Total Income:** | **$606.95** |
| Expenses: | |
| Astronews | 73.20 |
| Magazine Subscriptions | 323.73 |
| Postage | 4.60 |
| Refreshments | 8.02 |
| **Total Expenses:** | **$409.55** |
| **Final Balance** | **$5,061.13** |

This month we gained three new members. They are **Duane Wenzel**, **Joanna Mackin** and **Stanford Chun**. We would like to extend a special thanks to Diane Kellett, Susan Girard, Brian Hill and Yoshiuki Inoue for their donations. Thanks also to everyone renewing their membership this month. Clear skies to all!

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twice a year, here in Kauai. I have no confidence that he reported this new-and-improved heaven to his old mainland clubmates.

'Round midnight the early risers began to wane so we said good night to the universe and packed for a short ride to the coffee-flavored hill town of Kalaheo. It wasn't wise to make our visit so short, but the bad weather only cleared in time for Saturday night. We wouldn't have extended our viewing time by arriving a day earlier.

**Stay Connected**
**Join the**
**HAS Yahoo Group**

http://tech.groups.yahoo.com/group/HawaiianAstronomicalSociety/

**Night Sky Network**

Astronomy Clubs bringing the wonders of the universe to the public

Light pollution is widespread and becoming nearly unavoidable.
Find out how to make a difference.
(photo courtesy NASA Earth Observatory)

Here is a great opportunity to get the public informed and involved with the fight against light pollution. Join us for a timely telecon with one of the biggest advocates for dark skies, Connie Walker of the GLOBE at Night project and the National Optical Astronomy Observatory (NOAO). She will talk with us about how to participate in this worldwide citizen science project and what your club can do to increase awareness about light pollution. As a special gift to Night Sky network clubs, GLOBE at Night has given away 20 Sky-Quality Meters with a full outreach kit to use at star parties, even cloudy ones!

The winners of the Sky-Quality Meters are listed on the Discussion Board, under Announcements. Even if your club did not win a Sky-Quality Meter, you can still participate in the program! You can help out with this global citizen science project with your unaided eye...
or... **Five lucky winners** will also receive a Sky-Quality Meter at the end of the teleconference! (available to NSN clubs who did not already win one)

A PowerPoint to download or view online will be available by February 1st.

How to listen in to the Teleconference "The GLOBE at Night Project":
On Tuesday, February 5th, 6:00 pm Pacific Time (9:00 pm Eastern), call the toll-free conference call line anytime after 5:45 pm. An operator will answer and you will be asked for the pass code.

For more information see your Night Sky Network Coordinator, At-Large Member - John Gallagher.
or
http://nightsky.jpl.nasa.gov/

# THE HAWAIIAN ASTRONOMICAL SOCIETY

## MEMBERSHIP APPLICATION

2008/2009

Name _____

Street or P.O. Box _____

City _____ State _____ Zip _____

Phone _____ (e-mail) _____

Family Members _____

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_____

| | | |
|---|---|---|
| Dues | $20.00 | _____ |
| Dues (Full-time Student) | $12.00 | _____ |
| Additional family members. Each | $2.00 | _____ |
| *Sky and Telescope* Subscription | $32.95 | _____ |
| *Astronomy* Subscription | $34.00 | _____ |
| Donation | | _____ |
| Total | | _____ |

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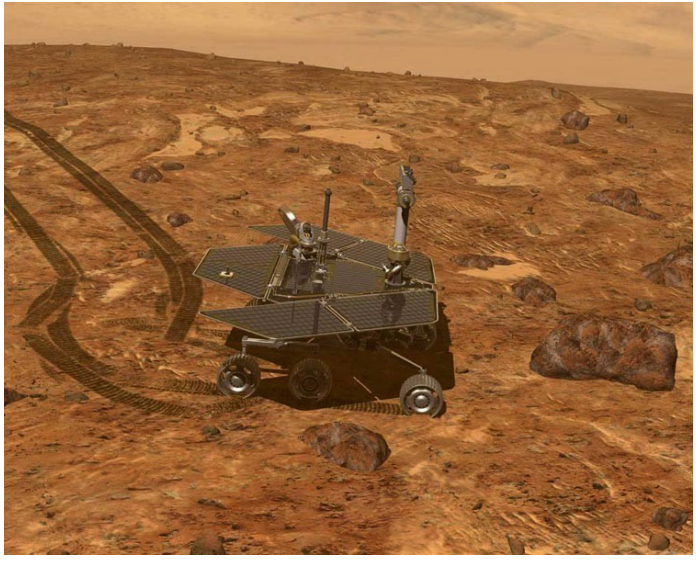

Are these rocks of any scientific interest? With the new AEGIS software, the Mars Rovers, Spirit and Opportunity, will be able to judge for themselves whether a scene is worth a high-resolution image. (Artist's rendering.) See **Space Place** article inside (Page 5.)