

## Sharing the Universe

Our club has been selected as one of 20 amateur astronomy clubs across the country to participate in a study that aims to better understand the nature of amateur astronomy clubs, and what factors best support clubs in their mission. The findings from this study will be used directly in support of amateur astronomy clubs!

The study, called “Sharing the Universe” is a collaboration between the Astronomical Society of the Pacific (ASP) and the Institute for Learning Innovation (ILI), a non-profit educational research organization based in Edgewater, Maryland.

In order to support this important project, we kindly ask that you fill out the following online survey at your earliest convenience. It should take about 30 minutes to complete and will contribute valuable information to the “Sharing the Universe” project.

*(Continued on page 9)*

## Upcoming Star Parties

<b>Public Party</b>	<b>Apr 26</b>	<b>Dillingham</b>
<b>Club Party</b>	<b>May 3</b>	<b>Dillingham</b>
<i>Astronomy Day</i>	<b>May 10</b>	<b>Kahala Mall</b>
<b>Public Party</b>	<b>May 10</b>	<b>Kahala/Waikele</b>
<b>Public Party</b>	<b>May 24</b>	<b>Dillingham</b>
<b>Club Party</b>	<b>May 31</b>	<b>Dillingham</b>
<b>Public Party</b>	<b>Jun 7</b>	<b>Kahala/Waikele</b>

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### Upcoming Events:

- The next meeting is at 7:30 p.m. on **Tuesday, May 6<sup>th</sup>** at the Bishop Museum.
- Bishop Museum’s next planetarium show with **Barry Peckham** is Friday, **May 2<sup>nd</sup>** at 7:00 pm. [www.bishopmuseum.org / calendar/](http://www.bishopmuseum.org/calendar/)
- The next School Star Party is on **Wednesday, May 7<sup>th</sup>** at Ka’ala Elementary.

## President's Message

You have probably heard that a couple of men have filed a lawsuit in Hawaii to block the use of the Large Hadron Collider (LHC) that is now under construction by the European Center for Nuclear Research (CERN) in Switzerland. One of the arguments against the LHC is that it could create a mini black hole that would swallow up the Earth. One of the men who filed the lawsuit, Walter Wagner, a resident of the Big Island, claims to be a nuclear physicist but apparently has no related degree beyond a B.S. in biological science with a minor in physics. He filed a similar alarmist lawsuit several years ago against the Relativistic Heavy Ion Collider. The suit was dismissed, and none of the predicted catastrophes have occurred.

One of the purposes of this club is to educate its members and others about astronomy and how it relates to our lives on Earth. This is a perfect example of why this is important. We may not all be physicists, but we can bring some perspective to those who might ask us our opinion of this matter.

Although black holes cannot be observed directly, evidence has shown that many large galaxies, perhaps all of them, contain supermassive black holes at their centers. The velocities of stars near the centers of the galaxies move in ways that cannot be explained without a quantity of mass that couldn't be hidden from view except in a black hole. It is believed that smaller black holes also exist and are formed when a star more massive than the Sun collapses at the end of its life. Less massive stars can collapse only partially to form neutron stars. The gravity of a neutron star overcomes the nuclear forces that otherwise prevent electrons and protons from combining to form neutrons. In black holes, gravity "crushes" even neutrons into a smaller volume.

It seems to me that "mini black hole" is an oxymoron. While a powerful collision in the LHC could perhaps compress two colliding protons to the density of matter within a black hole, the object would still have only the gravity of two protons, not the several solar masses necessary to make a black hole stable. The matter would almost instantly revert back to its normal state, just as do other exotic particles produced in particle accelerators, long before its miniscule gravity could draw in other matter. Besides, cosmic rays with LHC levels of energy collide with our atmosphere every day, and we're still here!

The great majority of experts in this field agree that these doomsday scenarios are nonsense. We should be prepared to educate those who ask us about this lawsuit.

*Chris*

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*The Astronomy* 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 16<sup>th</sup> of each month. We are not responsible for unsolicited artwork.

HAWAIIAN ASTRONOMICAL SOCIETY  
GENERAL MEMBERSHIP MEETING  
April 1, 2008

President Chris Peterson called the April 1, 2008 meeting of the Hawaiian Astronomical Society to order at 7:40 p.m. The meeting was held at the Ather-ton Halau of the Bishop Museum. In attendance were twenty-three members and two visitors.

Hawaii Space Lecture Series - The next Hawaii Space Lecture Series will be on Tuesday April 22nd. Dr. Lionel Wilson, Head of the Planetary Science Research Group, Lancaster University, and visiting professor at the Hawaii Institute of Geophysics and Planetology will speak. The title of the lecture is “Water Release on Mars- Even More Exciting than You Thought Before.” The lecture will begin at 7:30 pm in the NASA Pacific Regional Planetary Data Center, room 544, on the fifth floor of the P.O.S.T. building at the University of Hawaii at Manoa. For further information you can contact NASA PRPDC at 808-056-3132 or on the Web go to <http://www.higp.hawaii.edu/prpdc>.

Hawaii State Science and Engineering Fair - The fair took place from March 31st through April 2nd. H.A.S. judges have reviewed the entries and awarded the following to the top astronomy related Science Senior Research project: A free 1-year H.A.S membership, a H.A.S. tee shirt, a 1-year subscrip-tion to an astronomy related magazine, an H.A.S. Award certificate and a \$50 check. The award winner will be announced next month.

Institute for Astronomy - Open House: This years IFA Open House takes place on Sunday, April 27th from 11:00 am to 4:00 pm. A schedule and sign-up was circulated and members signed up to man the tables.

International Sidewalk Astronomy Day - April 12 is the date for the next International Sidewalk Astronomy Day. We hope that more than just a few of our members will take the time to coordinate and set up scopes either that weekend to share the skies with the man, the woman, or the child on the street. Step out and share the skies any day of the week, really. Help others experience the “WOW!” moment!

Publicity for Dillingham Public Star Parties: At-Large member John Gal-lagher has taken the bit in his teeth and is writing publicity shorts for the FYI section of the Honolulu Advertiser. John’s Community reports hope to inform the interested public into joining us at Dillingham Field for a night out under the stars. Keep up the good work, John.

Visitors: President Chris Peterson greeted two visitors to the meeting this month. Ken Sperber, a member of the Tri-Valley Stargazers, joined us while on vacation and Nancy McDaniel hopes to join us out at up coming star par-ties.

School Star Party Report - Forrest Luke reports that there were no sched-

*(Continued on page 4)*

uled school star parties for March. Forrest took sign-ups for the next school star party at Mililani Mauka on April 5th. He also signed up astronomers for two scheduled star parties for April 25th: Lanakila Elementary and Kapolei Middle School. We will have three school star parties in May: May 8th- Ala Wai Elementary; May 9th- Pearl Harbor Elementary; and May 12th – Red Hill Elementary. A schedule and sign-ups of May star parties will be posted at the next membership meeting. If interested contact Forrest Luke.

Lunar Planetary Science Conference: Chris Peterson gave us an overview of the details of the recent Lunar Planetary Science Conference in Texas last month. He outlined the different lunar missions. Chris also reported that he and HAS member Tom Giguere attended the Houston Star Party at Brasos Bend State Park.

IFA Star Party: The Institute for Astronomy, UH Manoa invited amateur astronomers from the Hawaiian Astronomical Society to participate in a Monday evening star party on April 7th in Triangle Park at the intersection of Kahala Avenue and Diamond Head Road.

Donation - Jim MacDonald has accepted the donation of a “like-new” 8” Nexstar telescope. We will be keeping this scope for the time being as a learning tool, to broaden our ability to help members in selecting scopes that are suited to their tastes. We hope to bring the scope into better working order and it may be used as a rental scope in the future.

Book Review - Gretchen West gave a short review of a DK Eyewitness Book Astronomy with CD

Night Sky Network - John Gallagher reported to the club that the next NASA Toolkit should be arriving shortly. The new toolkit focuses on supernovae.

Globe At Night: The International Night Sky Association the “Globe at Night” project took place on February 25 through March 8, 2008. A few members present participated in the third annual international survey of the effects of light pollution on our night skies.

Australia, Here They Come: Vice President Barry Peckham and Canadian member Stephanie Choquette will be heading for Alice Springs, Australia during the month of April. They hope for good skies and moderate temperatures for their viewing time in the land down under.

In addition, Barry gave a short review of another book, the Sirens of Titan by Kurt Vonnegut. Barry also pointed out the positive characteristics of the spring sky, which is known by many to be “galaxy season.” The spring sky is great for viewing other distant objects like globular clusters like Omega Centauri, 47 Tucanae and M3.

The meeting was adjourned at 9:04 p.m. and refreshments were served.

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

## Stellar Compass for Space Explorers

by Patrick L. Barry

In space, there's no up or down, north or south, east or west. So how can robotic spacecraft know which way they're facing when they fire their thrusters, or when they try to beam scientific data back to Earth?

Without the familiar compass points of Earth's magnetic poles, spacecraft use stars and gyros to know their orientation. Thanks to a recently completed test flight, future spacecraft will be able to do so using only an ultra-low-power camera and three silicon wafers as small as your pinky fingernail.

"The wafers are actually very tiny gyros," explains Artur Chmielewski, project manager at JPL for Space Technology 6 (ST6), a part of NASA's New Millennium Program.

Traditional gyros use spinning wheels to detect changes in pitch, yaw, and roll—the three axes of rotation. For ST6's Inertial Stellar Compass, the three gyros instead consist of silicon wafers that resemble microchips. Rotating the wafers distorts microscopic structures on the surfaces of these wafers in a way that generates electric signals. The compass uses these signals—along with images of star positions taken by the camera—to measure rotation.

Because the Inertial Stellar Compass (ISC) is based on this new, radically different technology, NASA needed to flight-test it before using it in important missions. That test flight reached completion in December 2007 after about a year in orbit aboard the Air Force's TacSat-2 satellite.

"It just performed beautifully," Chmielewski says. "The data checked out really well." The engineers had hoped that ISC would measure the spacecraft's rotation with an accuracy of 0.1 degrees. In the flight tests, ISC surpassed this goal, measuring rotation to within about 0.05 degrees.

That success paves the way for using ISC to reduce the cost of future science missions. When launching probes into space, weight equals money. "If you're paying a million dollars per kilogram to send your spacecraft to Mars, you care a lot about weight," Chmielewski says. At less than 3 kilograms, ISC weighs about one-fifth as much as traditional stellar compasses. It also uses about one-tenth as much power, so a spacecraft would be able to use smaller, lighter solar panels.

Engineers at Draper Laboratory, the Cambridge, Massachusetts, company that built the ISC, are already at work on a next-generation design that will improve the compass's accuracy ten-fold, Chmielewski says. So ISC and its successors could soon help costs—and spacecraft—stay on target.

Find out more about the ISC at [nmp.nasa.gov/st6](http://nmp.nasa.gov/st6). Kids can do a fun project and get an introduction to navigating by the stars at [spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml](http://spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml).

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

## Planets Close To the Moon

Times are Hawaii Standard Time

- May 1, 10h, M 3.0° NNW of Uranus  
(50° from sun in morning sky)
- May 6, 11h, M 2.5° N of Mercury  
(20° from sun in evening sky)
- May 10, 04h, M 0.35° ENE of Mars  
(70° from sun in evening sky)
- May 12, 12h, M 2.5° SSW of Saturn  
(99° from sun in evening sky)
- May 24, 02h, M 2.4° SSE of Jupiter  
(131° from sun in morning sky)
- May 26, 16h, M 3.3° NNW of Neptune  
(102° from sun in morning sky)
- May 28, 20h, M 3.3° NNW of Uranus  
(76° from sun in morning sky)

Venus is closer than 15° from the sun when near the moon in May.

## Other Events of Interest

Times are Hawaii Standard Time

- May 5, Eta Aquarid Meteors, Very favorable year for this major shower.
- May 5, 02:18h, Moon New
- May 5, 17 UT, Moon at perigee only 15 hours after new moon. High tides expected.
- May 13, 18h, Mercury at greatest elongation  
(21.8° East of the sun)
- May 19, 16:11h, Moon Full
- May 22, 03h, Ceres 0.55° ESE of Mercury  
(19° from sun in evening sky.)

<p> <b>Mercury</b></p> <p>has its best evening apparition of the year during the first three weeks of May.</p>	<p> <b>Venus</b></p> <p>is too close to the sun to be observed in May and June.</p>	<p> <b>Mars</b></p> <p>is in the heart of Cancer. Look for it as it crosses M44 on May 22-24.</p>
<p> <b>Jupiter</b></p> <p>rises about midnight and is visible in the early morning hours.</p>	<p> <b>Saturn</b></p> <p>is still well placed for viewing in the evening sky. Look for it east of Mars near Regulus. Magnitude +0.7</p>	<p> <b>Uranus</b></p> <p>can be viewed just before dawn in the eastern sky.</p>
<p> <b>Neptune</b></p> <p>can also be viewed in the pre-dawn sky, further to the west than Uranus.</p>	<p> Dwarf Planet <b>Pluto</b></p> <p>will be at opposition in June, so this is one of the best months to view this very dim planet.</p>	<p> Dwarf Planet <b>Ceres</b></p> <p>is low in the western sky in May, and has a very close approach to Mercury on May 22.</p>

## *Meteor Log - May 2008*

*by Mike Morrow*

Increasing twilight hampers observations, but May's major shower the Eta Aquarids comes at new Moon.

Monday the 5th, the Eta Aquarids. Radiant 22h32m, -01 deg. The radiant rises in twilight only an hour or two before dawn for mid northern observers so we have a better view since we are nearer the equator. The Eta Aquarids are very swift, bright and frequently leave persistent trains. Since the new Moon falls exactly on the peak, conditions are perfect if you are observing where there are no light and no clouds.

If you are interested in observing meteors, on Oahu call Tom Giguere at 672-6677 or write Mike Morrow at P.O. Box 6692, Ocean View, Hawaii 96737

## *Minor Planet Report - May 2008*

*by Carey Johnson*

### **Comets**

5/9 197P/LINEAR 0.28 AU from Earth, Mag. 19.7  
5/14 C/2007 W1 (Boattini) 0.215 AU from Earth, Mag. 7.9  
5/18 P/2003 KV2 (LINEAR) Perihelion 1.06 AU, Mag 19.8  
5/28 79P/du Toit-Hartley Perihelion 1.239 AU, Mag 16.9  
5/29 15P/Finlay 1.34 AU from Earth, Mag. 18.1  
17P/Holmes, is in Auriga\*  
C/2007 W1 (Boattini), Mag. 8.6 - 6.1\*  
C/2006 Q1 (McNaught), Mag. 11.3 - 11.5\*  
46P/Wirtanen, Mag. 12.7 - 14.3\*  
C/2008 C1 (Chen-Gao), Mag. 12.1 - 12.9\*  
C/2008 A1 (McNaught), Mag. 12.7 - 11.7\*  
C/2007 B2 (Skiff), Mag. 12.9 - 12.9\*  
C/2006 OF2 (Broughton), Mag. 12.9 - 12.4\*  
15P/Finlay, Mag. 13.7 - 12.7\*  
C/2007 G1 (LINEAR), Mag. 12.9 - 12.2\*

### **Asteroids**

5/7 2007 JB21 0.025 AU from Earth, Mag. 23.7  
5/9 2008 DE 0.043 AU from Earth, Mag 15.9  
(1) Ceres, Mag. 8.5 - 8.4\*  
(7) Iris, Mag. 9.4 - 9.9\*  
(5) Astraea, Mag. 9.6 - 10.2\*  
(41) Daphne, Mag. 9.2 - 9.7\*  
(3) Juno, Mag. 10.2 - 9.9\*  
(11) Parthenope, Mag. 10.3 - 9.8\*  
(15) Eunomia, Mag. 10.0 - 10.3\*

\* May 1st - May 31st

See <http://www.geocities.com/quarkcsj/calendar.html> for more up to date info.



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**HawaiianAstronomicalSociety** · Hawaiian Astronomical Society

Calendar

Day

Week

**Month**

Year

Event Lists

Tasks

◀ ▶ **May 2008**

Print

[Add Event](#) - [Add Task](#)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27 [Add] IFA Open House	28 [Add]	29 [Add]	30 [Add]	1 [Add]	2 [Add]	3 [Add] 6:30p Club Star Party
4 [Add]	5 [Add] New Moon Eta Aquarids Meteor Shower Peak	6 [Add] 7:30p HAS Meeting	7 [Add] Ka'ala Elementary School, Wahiawa	8 [Add] Ala Wai El. Star Party	9 [Add] Pearl Harbor El. Star Party	10 [Add] 6:30p Kahala & Waialele Public Star Parties*
11 [Add]	12 [Add] Red Hill Star Party	13 [Add]	14 [Add] Comet C/2007 W1 (Boattini) Near-Earth Flyby (0.215 AU) M 7.9	15 [Add]	16 [Add]	17 [Add]
18 [Add]	19 [Add] Full Moon	20 [Add]	21 [Add]	22 [Add]	23 [Add]	24 [Add] 6:30p Dillingham Public Star Party
25 [Add] For more events look here.	26 [Add]	27 [Add]	28 [Add]	29 [Add]	30 [Add]	31 [Add] 6:30p Club Star Party

[Previous Month](#) | [Next Month](#)

# NOTICE!

HAS will publish a complete listing of Club members in the **July 2008** issue of the *Astronews*. This publication is required by Club by-laws, Article III, Section 2 Para C(e) and Article VIII, Section 1B. Unless notified otherwise, this list will include all member's names, addresses, and phone numbers. If you wish to have some or all of your data excluded, please notify the Club Treasurer, Jim MacDonald before **June 15<sup>th</sup>** by sending him an e-mail at [jim.macd@Hawaiiintel.net](mailto:jim.macd@Hawaiiintel.net) or by written notice to the Club's post office box listed on the back page of this newsletter. Please be advised that this listing is intended for Club members' personal use only in contacting one another. It is not to be used for any commercial or solicitation purposes. With the exception of membership in the Astronomical League, HAS does make this list available to, nor do we sell its contents to anyone for any purpose. Notice: Member information is not to be republished, redistributed, or used for any commercial or solicitation purposes. Please respect our member's right to privacy.

## Upcoming School Star Parties

- Fri. 4/25 Lanakila Elementary
- Fri. 4/25 Kapolei Middle School (Spring Fling)
- Wed 5/7 Ka'ala Elementary
- Thur. 5/8 Ala Wai Elementary
- Fri. 5/9 Pearl Harbor Elementary
- Mon. 5/12 Red Hill Elementary

If you are interested in helping out at a School Star Party, sign up on the monthly sheet at the HAS Meeting or contact the Star Party Coordinator: Forrest Luke at 623-9830 or e-mail at [lukef003@hawaii.rr.com](mailto:lukef003@hawaii.rr.com)

*(Continued from page 1)*

LINK TO SURVEY: <http://vovici.com/wsb.dll/s/6ea8g32f9c>

The ASP and ILI will share their findings from their research with us – so we will learn a lot more about ourselves as a club, while contributing to efforts to support our friends and colleagues in amateur astronomy clubs throughout the country.



## HAS Financial Report as of April 15, 2008

<b>Initial Balance:</b>	<b>\$4,844.82</b>
Receipts:	
Donations	125.00
Dues Received	278.00
Magazine Payment	66.95
T-Shirt Sales	15.00
Telescope Fee	20.00
<b>Total Income:</b>	<b>\$504.95</b>
Expenses:	
Award - Science Fair	50.00
Magazine Subscription	32.95
<b>Total Expenses:</b>	<b>\$82.95</b>
<b>Final Balance</b>	<b>\$5,266.82</b>

The club gained one new member this month. He is Benjamin Cable. A special thanks to Paul Erickson, Jeffrey Schmidt and Kevin Suehiro for their generous donations. Thanks also to everyone renewing their membership this month. Clear skies to all!

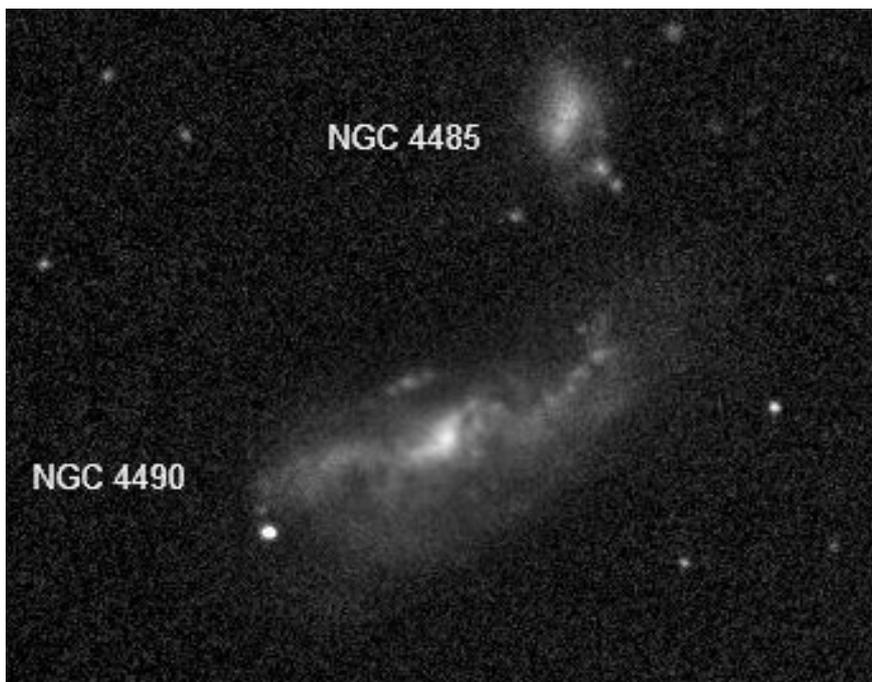
## Supernova 2008ax

Discovered 3/3/2008 by Lick Observatory Supernova Search in NGC4490, a magnitude 9.8 galaxy in the constellation Canes Venatici.

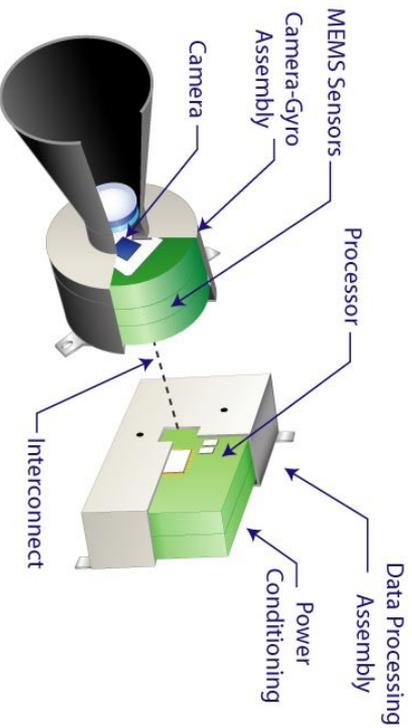
The image on the next page is of SN2008AX imaged by HAS member Freddy Willems and posted to the Yahoo Group on March 26th. He used a 14" LX-200 and a Canon 10D, and stacked 112 frames.

The image below is provided as a "before" picture. It was taken by Walter MacDonald of Winchester, Ontario using a LX-200 10" f/6.3 and a SXV-H9 CCD camera, and stacked 4, 30 second images, April 14, 2005. The image is provided with the Planetarium Program, Earth Centered Universe.

Both images were cropped to fit the newsletter.



**H.A.S.  
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Compass is built as two separate assemblies, the camera-gyro assembly and the data processor assembly, connected by a wiring harness. The technology uses an active pixel sensor in a wide-field-of-view miniature star camera and micro-electromechanical system (MEMS) gyros. Together, they provide extremely accurate information for navigation and control. (See Space Place article on Page 5.)

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