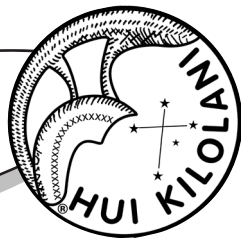


# The Astronews



Volume 59, Issue 5

May 2011

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

## *President's Message*

*by Chris Peterson*

At our April membership meeting, we discussed NASA's decadal survey results. At the end of the meeting we voted to support funding for NASA's goals in the coming decades, and that support will be communicated to the appropriate authorities.

In the meantime, the fiscal 2011 budget has been passed. NASA suffered a small reduction from 2010 levels, but it is now free to pursue its 2011 objectives rather than be restricted to what was authorized in the 2010 appropriation. The 2012 budget battle is still ahead.

Regardless of the future decisions, many projects are continuing and remind us that we are still in a golden age of exploration. Spacecraft are in orbit around Mercury, the Moon, Mars, and Saturn.

The Dawn mission is scheduled to arrive at asteroid 4 Vesta in July for a year in orbit. After that it should travel to dwarf planet Ceres, the largest and first discovered asteroid, arriving in 2015. New Horizons will fly by Pluto later in 2015 for the second dwarf planet encounter of the year.

*(Continued on page 11)*

### ☆ **Upcoming Star Parties** ☆

<b>Kahala/Ewa Party</b>	<b>June 4</b>
<b>Club Party-Dillingham</b>	<b>June 25</b>
<b>Public Party-Dillingham</b>	<b>July 2*</b>

## **Inside this issue:**

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### Upcoming Events:

☆ The next meeting is 7:30PM on **Tues., June 7** at the Bishop Museum Planetarium.

☆ Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **June 3 & 10** at 8:00 p.m.  
[www.bishopmuseum.org/calendar](http://www.bishopmuseum.org/calendar)

☆ The next Board Meeting is **Sunday, May 29** at 3:30 p.m. at the POST building at UH.



## MAUNA KEA ASTRONOMY TOUR UPDATE:

\*\*\*June 24-26, 2011\*\*\*

Thanks to those 19 members who signed up to visit the Gemini North Telescope on Mauna Kea in June. If any participants have not received an email from me regarding the submission of their tour fee, please contact me. We look forward to the journey and hope to give you a trip report in our August Astronews.

Aloha,



**John Sandor**  
[sandball@aol.com](mailto:sandball@aol.com)

### ☆ OTHER NOTES ☆

The Editor would again like to thank her "Go-to Person" **Jim MacDonald** for taking over the Astronews for a couple of months during a very intense time period preparing and executing the 54th Hawaii State Science and Engineering Fair.

Once again, HAS club member and Punahou student **Travis Le** entered an award-winning project in the Astronomy category: **Determining "Hot Spots" Through Correlations of CMEs and Solar Flares.**

In the Senior Research division, there were eighteen Physics and Astronomy projects this year--a very good showing of excellent research. It is also interesting to note that there were a lot of astronomy projects from schools that regularly engage the Hawaiian Astronomical Society for star parties and outreach.

Congratulations to ALL and kudos to those in the Club that give their time and energy to inspire our next generation of scientists and hobbyists!

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The **Astronews** is a 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 email. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

# Meeting Minutes

by *Gretchen West*

**President Chris Peterson** called the April 5, 2011 meeting of the Hawaiian Astronomical Society to order at 7:32 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were 19 members and two visitors in attendance.

**Welcome Back:** Chris welcomed **John Gallagher** back. John has been recuperating from surgery. He continues to work as our star party coordinator and Night Sky Network liaison.

**Associated Lectures:** H.A.S. President **Chris Peterson** reports that the next free Hawaii Space Lecture Series talk has been scheduled for April 26, 2011. Graduate student, Mike Markley will lecture on "The Messenger's Science Goals and Latest Images of Mercury." The lecture will take place at the NASA Pacific Regional Planetary Data Center, room 544 in the Pacific Ocean Science and Technology Building on the Manoa campus of the University of Hawaii. Should you be interested in any upcoming lectures or for information you can contact NASA PRPDC at 808-956-3132 or on the Web go to <http://www.higp.hawaii.edu/prpdc>

**Missions:** Chris reviewed new information on several missions. Recent data from the Cassini mission shows the fine scale structures or corrugations in the rings of Saturn. Chris indicated that the irregularities in the rings most probably were the result of a cometary impact in about 1983. Next, the Mars Spirit rover still has not communicated with Earth. The lack of communications leaves doubt that the rover will be revived. Opportunity rover still appears to be on the move and is situated near a small crater where it is gathering data. The small amount of movement of the rover may indicate problems with its wheels.

**Imaginarium Visit:** The March 1, 2011 general membership meeting held at the "Imaginarium" on the grounds of Windward Community College in Kaneohe was a great success.

**Big Island Trip:** **John Sandor** reported on the upcoming trip the Big Island. The sign-up period is now closed and we have 19 people signed up. As soon as the amount is determined, participants will soon be asked to forward their transportation (van rental) fee to our club treasurer, **Jim MacDonald**.

**Announcements:** Those interested in the Institute for Astronomy Open House on April 10 were asked to speak with **Gretchen West** who will coordinated the workers for the event.

Chris reminded members that the annual Globe at Night event which asks individuals to view the sky naked eye and report the number of visible recognizable stars and constellations.

May 7, 2011 is the date for this year's **Astronomy Day**. We will again set up a display and viewing spot at Kahala Mall's Barnes & Noble.

**Reminder:** Chris reminded members that the Member-Only Star Parties at Dillingham Airfield are for members to enjoy the night sky to pursue their own agenda without having to 'entertain' others without their own equipment. True, there is a lot of interaction at such gatherings between members and the sharing of views, but this is a time for personal rejuvenation and a time to view the skies independently. While they enjoy

## Cosmic Recount

By Dr. Tony Phillips

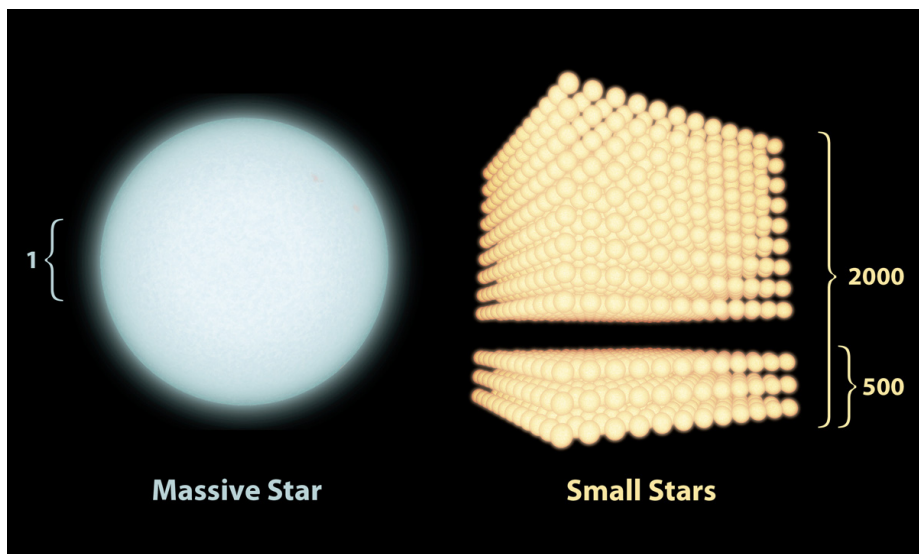
News flash: The Census Bureau has found a way to save time and money. Just count the biggest people. For every NBA star like Shaquille O'Neal or Yao Ming, there are about a million ordinary citizens far below the rim. So count the Shaqs, multiply by a million, and the census is done.

Could the Bureau really get away with a scheme like that? Not likely. Yet this is just what astronomers have been doing for decades.

Astronomers are census-takers, too. They often have to estimate the number and type of stars in a distant galaxy. The problem is, when you look into the distant reaches of the cosmos, the only stars you can see are the biggest and brightest. There's no alternative. To figure out the total population, you count the supermassive Shaqs and multiply by some correction factor to estimate the number of little guys.

The correction factor astronomers use comes from a function called the "IMF"—short for "initial mass function." The initial mass function tells us the relative number of stars of different masses. For example, for every 20-solar-mass giant born in an

*(Continued on page 9)*



*Astronomers have recently found that some galaxies have as many as 2000 small stars for every 1 massive star. They used to think all galaxies had only about 500 small stars for every 1 massive star.*

Mike Shanahan, who lets us meet in the planetarium monthly, passed on a call from a woman who wanted to donate an heirloom. I took the call and spoke with this donor, wanting only a good home for her father's telescope. All she knew about the scope was that it was about 3 feet long, very heavy and came with an "easel". At first, I was told that this instrument might be 100 years old... salable as an antique. Later it seemed more likely to the donor that the vintage fell into the '40s. I hung up after promising to pick it up at her Waikiki high rise. It is always disappointing to detect a total lack of interest in the night sky by someone who's ancestors "felt the love" for things celestial. This woman put the love of her father into one of his prized possessions, disregarding the purpose for which the possession was prized. I know, it happens a lot!



On a Thursday morning before work I navigated to the donor's building and took delivery of the heirloom. The optical tube assembly (OTA) was wrapped in many plastic bags, so I couldn't see what I was getting, but it felt unusually heavy and had strange bumps. The tripod really did look more like an easel, all steel and very spindly. A large eyepiece, also wrapped in shopping bags, slipped out of the cart and hit the pavement. I unwrapped it on the spot to inspect for damage. None noticeable, but what a huge eyepiece! It had more glass than a Walmart refractor.

Later that day I drove toward home, and smack into the Kalaniana'ole shut-down. Car-jackers were terrorizing an area by Kalani High. With the freeway looking like a parking lot and my engine turned off, I inspected the donated telescope, slowly unwrapping it in the back seat while continuing to hold my position in the driver's seat. A stubby, homemade refractor appeared, less than 2 feet long, with a built-in star diagonal. The objective lens, maybe 4 1/2" wide and taken from WW2 surplus equipment, had been fastened to a short length of 6 inch pipe and then a length of 4 inch pipe. I know the vintage because someone had used a label maker and stuck the info on its barrel, including maker's name and city of origin (Santa Barbara).

Dust blanketed the optics, none of which had anti-glare coatings. But because of my predicament, this old scope was soon scanning the hillside homes from the driver's side window. Hey! Give me a break! In daylight it was all about architecture. The contraption can focus, but all views include a white fog. Perhaps this can be minimized with a good cleaning. So who wants to buy this lovely relic of amateur telescope-making's yesteryear? Proceeds go to HAS. I will of course bring it to the next club meeting. Will you bring yourself?

Barry



## Planets Close To the Moon

Times are Hawaii Standard Time

**May 1, 06h, M 5.6° NNW Jupiter**  
(18° from sun in morning sky)

**May 1, 07h, M 5.3° NNW of Mars**  
(18° from sun in morning sky)

**May 14, 00h, M 7.6° SSW of Saturn**  
(137° from sun in evening sky)

**May 24, 05h, M 5.4° NNW of Neptune**  
(92° from sun in morning sky)

**May 26, 21h, M 5.9° NNW of Uranus**  
(62° from sun in morning sky)

**May 20, 01h, M 5.4° NNW Jupiter**  
(39° from sun in morning sky)

**May 30, 10h, M 3.8° N of Mars**  
(24° from sun in morning sky)

**May 30, 15h, M 4.4° NNW of Venus**  
(21° from sun in morning sky)

**Mercury** is closer than 15° from the sun when near the moon in May

## Other Events of Interest

Times are Hawaii Standard Time

**May 2, 20:50h, Moon New**

**May 6, Eta Aquarid Meteors**  
(Favorable year for this shower)

**May 7, 09h, Mercury** at greatest elongation (26.6° west of the sun in morning sky)

**May 7, Astronomy Day**

**May 7, 19h, Mercury** 1.4° SSE of **Venus**  
(27° from sun in morning sky)

**May 11, 06h, Venus** 0.57° SSE of **Jupiter**  
(26° from sun in morning sky)

**May 11, 10h, Mercury** 2.1° SSE of **Jupiter** (26° from sun in morning sky)










**May 11, 10h, Mercury, Venus, Jupiter** within a circle of 2.05°. (26° from sun in morning sky)

**May 17, 01:07h, Moon Full**

**May 17, 21h, Mercury** 1.4° SE of **Venus**  
(24° from sun in morning sky)

**May 20, 22 h, Mercury** 2.1° SSE of **Mars**  
(22° from sun in morning sky)

**May 22, 23h, Venus** 0.99° SSE of **Mars**  
(22° from sun in morning sky)

 <b>Mercury</b> Visible in the morning during the first three weeks of May. Passes close to Mars, Venus, and Jupiter.	 <b>Venus</b> Shines bright in the morning sky about 20° from the sun.	 <b>Mars</b> Visible low in the eastern sky before dawn near Venus and Mercury.
 <b>Jupiter</b> Begins May low in the eastern morning sky at dawn but goes to about 40° from the sun by month's end..	 <b>Saturn</b> Reached opposition on April 3. Visible most of the night - best observed late in the evening.	 <b>Uranus</b> Visible in the morning sky before dawn.
 <b>Neptune</b> Visible in the morning sky, above Venus.	 Dwarf Planet <b>Pluto</b> Rises before midnight and is visible in the morning hours near M25 in Sagittarius.	 Asteroid <b>3 Juno</b> Reached opposition on Mar 11 and is still well placed for viewing in Virgo.

Two showers are visible early in May with some interference from the Moon. Will this make up for April's Lyrid moon impact, time will tell. The  $\eta$ -Aquiriids are surprisingly strong and may be worth a view, whereas the  $\eta$ -Lyrids will be difficult to parcel out from the average sporadic rate. Viewing details follow...

## $\eta$ -Aquiriids (ETA)

This shower is a fine, rich stream associated with Comet 1P/Halley, like the Orionids of October, but one visible for only a few hours before dawn, essentially from tropical and southern hemisphere sites. The fast and often bright meteors make the wait for radiant-rise worthwhile, and many events leave glowing persistent trains after them. A relatively broad maximum, sometimes with a variable number of submaxima, usually occurs in early May.

## $\eta$ -Lyrids (ELY)

This recent introduction to the Visual Working List is associated with Comet C/1983 H1 IRAS-Araki-Alcock, though it appears to be only a weak shower. The general radiant area is on-view all night from the northern hemisphere (primarily), while the waxing Moon, at first quarter on May 10, sets to leave most of the post-midnight sky dark enough for useful observing even by May 11.

New Moon May 3		First Quarter May 10		Full Moon May 17		Last Quarter May 24		
Shower	Activity	Max Date	$\lambda$ 2000	Radiant $\alpha$	$\delta$	$V_{\infty}$ km/s	$r$	ZHR
$\eta$ -Aquiriids	4/19 - 5/28	May 06	45.5°	338°	-01°	66	2.4	70*
$\eta$ -Lyrids	5/03 - 5/14	May 09	48.0°	287°	+44°	43	3.0	3

For more information on observing meteors, please contact Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com or Mike Morrow, PO Box 6692, Ocean View, HI 96737.



## NIGHT SKY NETWORK NEWS

### NSN Telecon:

Thursday, May 19th, 2011, 3:00 PM

Dr Jeffrey Van Cleve, an astronomer and support scientist on the Kepler Team will present his Stargazers, Starfarers, and Kepler.

Click on the event on the NSN Calendar for details:

[http://nightsky.jpl.nasa.gov/event-calendar.cfm?Club\\_ID=453](http://nightsky.jpl.nasa.gov/event-calendar.cfm?Club_ID=453) (Note the underline between Club\_ID=453).

For additional info contact John Gallagher, NSN Coordinator at 683-0118 (leave message).

Clear Nights,  
John G.





# Hawaiian Astronomical Society

## Event Calendar

< May 2011 >						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 7:30 PM Club Meeting	3 	4	5	6 7:15 PM Ala Wai Elementary Sch SP	7 3 events: Click here to view  Sunset: 7:00 PM
8	7:15 PM Mililani Mauka Elem SP	9 7:00 PM Pearl Harbor Elem SP	10 7:15 PM Lanakila Elem School SP	11	12	13  Sunset: 7:03 PM
15	16	17 	18	19 3:00 PM NSN Teleconference	20	21 6:30 PM Public Star Party(D)  Sunset: 7:06 PM
22	23	24 	25	26	27	28 6:30 PM Club Star Party (D)  Sunset: 7:10 PM
29 Memorial Day 7:30 PM Muscular Dystrophy Associ	30	31	1	2	3	4



### Upcoming School Star Parties



Fri.	5/6	Ala Wai Elementary
Mon.	5/9	Mililani Mauka Elementary
Tue.	5/10	Pearl Harbor Elementary
Wed.	5/11	Lanakila Elementary
Mon.	5/30	MDA Camp (Camp Erdman)*Waiver Required



*(Space Place continued from page 4)*

interstellar cloud, there ought to be about 100 ordinary sun-like stars. This kind of ratio allows astronomers to conduct a census of all stars even when they can see only the behemoths.

Now for the real news flash: The initial mass function astronomers have been using for years might be wrong.

NASA's Galaxy Evolution Explorer, an ultraviolet space telescope dedicated to the study of galaxies, has found proof that small stars are more numerous than previously believed.

"Some of the standard assumptions that we've had—that the brightest stars tell you about the whole population—don't seem to work, at least not in a constant way," says Gerhardt R. Meurer who led the study as a research scientist at Johns Hopkins University, Baltimore, Md. (Meurer is now at the University of Western Australia.)

Meurer says that the discrepancy could be as high as a factor of four. In other words, the total mass of small stars in some galaxies could be four times greater than astronomers thought. Take that, Shaq!

The study relied on data from Galaxy Evolution Explorer to sense UV radiation from the smaller stars in distant galaxies, and data from telescopes at the Cerro Tololo Inter-American Observatory to sense the "H-alpha" (red light) signature of larger stars. Results apply mainly to galaxies where stars are newly forming, cautions Meurer.

"I think this is one of the more important results to come out of the Galaxy Evolution Explorer mission," he says. Indeed, astronomers might never count stars the same way again.

Find out about some of the other important discoveries of the Galaxy Evolution Explorer at <http://www.galex.caltech.edu/>. For an easy-to-understand answer for kids to "How many solar systems are in our galaxy?" go to The Space Place at: <http://tiny.cc/12KMa>

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

.....  
*(Minutes continued from page 3)*

sharing the night sky with the public and with other members, the Members-only parties allow personal challenge and renewal of spirit.

**NASA Planetary Science Decadal Survey:** Chris Peterson explained the missions under consideration for planetary explorations. The decadal survey reviewed small, medium and large missions, their cost, affect and funding requirements. The survey reviewed reasons why some missions need to be broken down to bring down mission expenditures. Chris asked the club members to vote to support the missions mentioned in the survey and authorizing letters be sent to our Congressional members indicating as much. The vote was unanimously accepted.

**Upcoming Events:** March 28 through March 30, 2011 marked this year's Hawaii State Science and Engineering Fair. **Jim MacDonald, Paul Lawler and Gretchen West** served as agency judges for H.A.S. This year's award for senior research went to **Travis Le** and the award for junior research went to Stephanie Spear.

Planetarium guide and longtime member Joanne Bogan, showed a newly-renovated star projector during her star program.

As there was no further business, the meeting was adjourned at 9:03 p.m. Light refreshments were served.

Respectfully Submitted,

Gretchen West  
H.A.S. Secretary



# Treasurer's Report

by Jim MacDonald

## HAS Financial Report for the month ending as of April 15, 2011

<b>Initial Balance:</b>	<b>\$4,861.48</b>
<i>Receipts:</i>	
Donations	15.00
Dues Received	277.00
Magazines	34.00
<b>Total Income:</b>	<b>\$326.00</b>
<i>Expenses:</i>	
Astronews	154.76
Science Fair Award	50.00
Magazine Subscription	34.00
Postage	2.24
<b>Total Expenses:</b>	<b>\$241.00</b>
<b>Final Balance</b>	<b>\$4,946.48</b>

The club gained six new members this month. They include *Eugene Mindrescu, Laura Papuc, Michael Abundo, Nathaniel, Elizabeth and Ian Shippen*. Thanks to *Gerald Miyasato, Warren Arakaki and Duane Wenzel* for their donations. Thanks also to all those renewing their membership this month. Come join us under the spring skies. There are lots of deep-sky objects to view plus Saturn is back.

### NOTICE:

This Astronews issue includes a complete listing of Club members and their contact information. This publication is required by Club by-laws, Article III, Section 2 Para C(e) and Article VIII, Section 1B. If you wish to have some or all of your data excluded in the future, please notify the Club Treasurer, Jim MacDonald by 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.

*Please respect our members' rights to privacy!*



*(President continued from page 1)*

Observations are just now starting to find a suitable next target deeper in the Kuiper belt for New Horizons to visit after it leaves Pluto.

Three more missions will launch later this year. Juno is up first, in August. It will travel to Jupiter to study its composition and investigate its origin. The Gravity Recovery and Interior Laboratory (GRAIL) mission is scheduled for a September launch to the Moon. It will study the interior of the Moon through careful measure of its gravity field.

In November, Mars Science Laboratory will carry a mobile suite of instruments to study samples of Mars as it roves widely across the surface.

When we think of space telescopes, the Hubble usually comes to mind first, but there are over a dozen operating missions that NASA runs or has contributed to. Work is also continuing on the James Webb Space Telescope. Due to launch in 2014, it will observe mostly in the infrared.

We have a lot to look forward to this year and for years to come.

*Chris*



#### **MAX-C**

*This is an artist's concept of the Mars Astrobiology Explorer-Cacher (MAX-C) mission concept. The 2013 Decadal study named MAX-C the highest priority large mission for the decade 2013-2022. The mission concept calls for a three-mission NASA-ESA Mars sample return campaign extending into the decade beyond 2022.*

**Credit: NASA**

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**Honolulu, HI 96817-0671**

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postage



**HAS club members *Sue Girard, Gretchen West, Lorna Hansen-Stafford and Travis Le*** at the Institute for Astronomy's annual Open House April 10, 2011. Travis attended with his award-winning science fair project along with other students who also had astronomy projects entered in the Hawaii State Science and Engineering Fair this March. **See story on page 2.**

*photo by Jim MacDonald*