The Astronews

Volume 61, Issue 5

May 2013

www.hawastsoc.org

Your club is seeking individuals with these unique qualifications:

* Must enjoy stargazing
* Know that the Earth revolves around the sun
* Can sit or stand for at least 2 hours
* Can help herd youngsters into a semi-straight lines
* Enjoys casual conservation with other members of the human race
* Enjoys having fun outdoors sharing the wonders of the night sky

You do not need a telescope for these activities but your help allows those with telescopes to concentrate on managing their telescopes. You can even point out constellations to youngsters and adults alike or even point out the effects of light pollution. WOW – now you're really impressing someone!

The best part is the incredible gratitude, respect, appreciation from the masses and an occasional snack, as well as the satisfaction of showing others the gift of understanding the sky.

Please contact the School Star Party Coordinator, ***John Gallagher***, at gallaghej002@hawaii.rr.com or ANY other HAS Board Member if interested.

John G.

Inside this issue:

Upcoming Events:

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

☆Planetarium shows with **Barry Peckham** are ON HOLD until further notice. www.bishopmuseum.org/calendar

☆The next Board Meeting is Sun., **May 5** at 3:30 p.m. at the POST building at UH.

Up To The Minute:

Science Fair Winners

HAS participated in the 56th Hawaii State Science and Engineering Fair. As we have done in the past, one winner was chosen from the Junior and one from the Senior research groups involving Astronomy. In each case the club awarded winners with a certificate of accomplishment, HAS membership for a year, a subscription to either Astronomy or Sky & Telescope magazine and a HAS T-Shirt. In addition, the senior research winner was given a $50.00 cash award. That winner is Christopher Kim, a tenth grader from Maui High School. His project involved variations in cataclysmic variable star systems. The Junior winner is Christopher Lindsay, an eighth grader from Iolani School who was working on identifying transiting extrasolar planets. We found these projects very complex involving a level of detail not expected from young students. It is our hope that our club will foster their continued interest in astronomy and science in general. *- Jim*

☆ ☆ ☆

STAR PARTY REPORT
by Sue Girard

Dillingham Public Star Party - April 6

The April Club Star Party turned out to be a very trying evening weather-wise. A thick layer of haze and frequent cloudy periods put a damper on observing for the 11 club members who came out. We were also visited by the first termites of the season as well, so it was rather unpleasant at times. Jupiter drifted in and out of focus with all the haze and the Milky Way wasn't even visible! Galaxy viewing was very poor, so we had to be satisfied with star clusters, the few bright nebulae and double stars as were observable between the cloudy periods. A last look at Hind's crimson star showed it to be quite red and rather dim. It started to dew up rather early so we left between 9:30 and 10pm. Hopefully the weather will be better next month! *- Sue*

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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.

President's Message

by Chris Peterson

As I write this it is Earth Day. How long will it be before we can celebrate "second Earth" day? The Kepler mission has just announced the discovery of a few more planets near the size of Earth and in their stars' habitable zones. These planets are less than twice the diameter of Earth, but we don't know their compositions. It seems only a matter of time before we discover an Earth-size planet in the habitable zone of a Sun-like star.

Many people are fascinated by these discoveries because they like to imagine visiting these worlds and encountering other life forms. There's no reason to expect that we'll ever be able to travel faster than the speed of light, although we can't be sure of that.

However, we can certainly travel through space faster than we have done so far. Nuclear powered rockets should be able to maintain acceleration much longer than the chemical rockets we currently use that fire for only a few minutes until they run out of fuel.

If we could discount the theory of relativity, it would be possible to achieve the speed of light after about a year of acceleration at the equivalent of one Earth gravity (9.8 m/s^2). Of course, we can't discount relativity, and we could never reach the speed of light that way, but we could reach a significant fraction of it. That's when time begins to slow down for travelers as compared to those not moving. The trip wouldn't seem as long for those on it as for those who stay behind.

The planets just discovered orbit stars 1200 and 2700 light years away. If there are creatures there trying to discover us, they would see light that left Earth in 800 A.D. or 700 B.C. We are seeing those planets as they were then. Anyone travelling to such a distant world would have to be aware that the place they reach might be very different from the one they started out for, especially if we think it might hold intelligent life.

Chris

From the Editor: This is part of a continuing series contributed by Joseph E. Ciotti, Professor of Physics, Astronomy & Mathematics/ Director of the Center for Aerospace Education, Windward Community College, University of Hawai'i

This article originally appeared in The Hawaiian Journal of History, Vol. 45, 2011

HISTORICAL VIEWS ON MAUNA KEA: FROM THE VANTAGE POINTS OF HAWAIIAN CULTURE AND ASTRONOMICAL RESEARCH

BROKEN TRUST - WIDENING THE CULTURAL DIVIDE (cont.)

The broken trust between these cultures was instigated by real and perceived causes. Among those were the following:

• Semantic Arguments. One of the hotly debated issues at that time was how to count the number of telescopes at the summit. The 1983 Master Plan for Mauna Kea stipulated a maximum of thirteen. By 1999, when the new Master Plan was being crafted, there already were thirteen observatories, including the soon-to-be constructed Submillimeter Array (SMA), managed by the Smithsonian Astrophysical Observatory and Taiwan. Unlike the other twelve observatories that housed one telescope each, the SMA consisted of eight movable antenna dishes, each measuring 6 meters (20 feet) across. These dishes could be positioned in different configurations to take advantage of a resolution-improving technique called interferometry. The question was whether these eight dishes counted as one telescope or eight separate instruments? Compounding the issue was the newly proposed plan to install four to six small 1.8-m telescopes, called "outriggers," around the Keck Observatories. These were to work in concert

(Continued on page 11)

NASA's Space Place

Exploring the Water World

By Diane K. Fisher

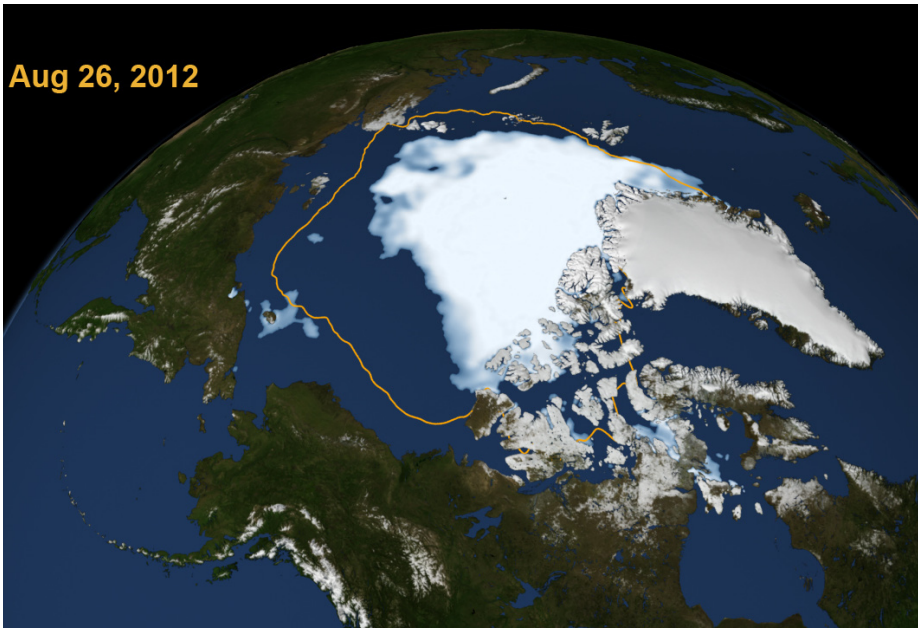
In some ways, we know more about Mars, Venus and the Moon than we know about Earth. That's because 70% of our solar system's watery blue planet is hidden under its ocean. The ocean contains about 98% of all the water on Earth. In total volume, it makes up more than 99% of the space inhabited by living creatures on the planet.

As dominant a feature as it is, the ocean—at least below a few tens of meters deep—is an alien world most of us seldom contemplate. But perhaps we should.

The ocean stores heat like a "fly wheel" for climate. Its huge capacity as a heat and water reservoir moderates the climate of Earth. Within this Earth system, both the physical and biological processes of the ocean play a key role in the water cycle, the carbon cycle, and climate variability.

This great reservoir continuously exchanges heat, moisture, and carbon with the atmosphere, driving our weather patterns and influencing the slow, subtle changes in

(Continued on page 9)



This image from September 2012, shows that the Arctic sea is the smallest recorded since record keeping began in 1979. This image is from NASA's Scientific Visualization Studio at Goddard Space Flight Center. Ninety-nine percent of the space inhabited by living creatures on Earth is under water. In many ways, Earth is as alien to us as any other planet or moon in our solar system. At least we can now learn about it without having to rely on instruments set adrift on the waves.
Credit: NASA

The η-Aquariids (ETA) is a fine, rich stream associated with Comet 1P/Halley, like the Orionids of October, and is visible for only a few hours before dawn. The fast and often bright meteors make the wait for the radiant to rise worthwhile, and the meteors are known to leave glowing persistent trains. While the radiant is still low, η-Aquariids tend to have very long paths. The shower has a relatively broad maximum, sometimes with a variable number of submaxima, which usually occurs in early May. The new Moon on May 10 creates near-perfect viewing conditions for this shower with no more than a slender waning crescent Moon by the maximum date.

The path of the η-Aquariids radiant is shown below.

Last Quarter	*New Moon*	*First Quarter*	*Full Moon*
May 02 & 31	**May 10**	**May 18**	**May 25**

Shower	Activity	Max Date	λ 2000	Radiant α	Radiant δ	V∞ km/s	*r*	ZHR
η-Aquariids (ETA)	4/19 - 5/28	May 06	45.5°	338°	-01°	66	2.4	55
η-Lyrids (ELY)	5/03 - 5/14	May 08	48.0°	287°	+44°	43	3.0	3

Good luck with viewing the showers this month.

Tom Giguere, 808-782-1408, ***Thomas.giguere@yahoo.com***
Mike Morrow, PO Box 6692, Ocean View, HI 96737

Planets Close To the Moon

Times are Hawaii Standard Time

May 3, 15h, M 5.7° NNW of Neptune
(69° from sun in morning sky)

May 6, 12h, Moon 3.8° NNW of Uranus
(35° from the sun in morning sky)

May 12, 04h, M 2.6º S of Jupiter
(28º from sun in morning sky)

Apr 22, 20h, M 3.7° SSW of Saturn
(153° from sun in evening sky)

May 31, 00h, M 5.6° NNW of Neptune
(95° from sun in morning sky)

Mars, Venus, and Mercury are closer that 15° from the sun when near the moon in May.

Other Events of Interest

Times are Hawaii Standard Time

May 9, 14:31h, Moon new

May 11, 04h, Mercury at superior conj. with sun (Passes into evening sky)

May 24, 11h, Mercury 1.4° of Venus
(15° from sun in evening sky)

May 24, 18:26h, Moon full

May 26, 21h, Mercury 2.4° N of Jupiter
(17° from sun in evening sky)

May 28, 09h, Venus 1.00° N of Jupiter
(16° from sun in evening sky)

☿ **Mercury** Makes an appearance in the evening sky late in the month. It is very close to Venus and Jupiter between May 24 and May 29.	♀ **Venus** Venus is low in the west after sunset.	♂ **Mars** Mars is still too close to the sun to be viewed.
♃ **Jupiter** Visible in the SW after sunset. It starts the month above Venus, but by the end of the month is very close to Venus and Mercury.	♄ **Saturn** Reached opposition last month so is in the sky most of the night.	♅ **Uranus** Uranus is low in the east before sunrise.
♆ **Neptune** Is far enough from the sun to be viewed in the early morning before sunrise, but will be better later this year.	♇ Dwarf Planet **Pluto** Visible in the morning sky before dawn, but will be better placed for viewing later in the year.	⚶ Asteroid **4-Vesta** Vesta is the brightest asteroid this month, even brighter than the Dwarf Planet Ceres, which is near Vesta in Taurus.

Meeting Minutes

by Gretchen West

President Chris Peterson called the April 2, 2013 meeting of the Hawaiian Astronomical Society to order at 7:37p.m. The meeting was held at the Planetarium of the Bishop Museum. There were 22 in attendance.

Hawaii Space Lecture Series: This month's lecture is scheduled for Tuesday, April 23, 2013. Dr. Lionel Wilson, Emeritus Professor of Earth & Planetary Sciences, Lancaster University, Britain. Dr Wilson will speak regarding "Volcanic Asteroids: What We Did and Did Not Learn from Vesta". For more information: NASA PRPDC at 808-956-3132 or *http://www.higp.hawaii.edu/prpdc*. Lectures usually take place at the NASA Pacific Regional Planetary Data Center, room 544 in the Pacific Ocean Science and Technology Building, UH Manoa.

Upcoming Events:

H.A.S. Swap Meet – A club swap meet will be held at the June general membership meeting. Should you be interested in selling astronomy related items at the swap meet, please contact H.A.S. Board members. We will need a general idea of the number of individuals so that we may have enough room for all items.

Science Café - Held at JJ's Bistro in Kaimuki, April 16th. The focus of this month's talk will be the Hawaii Space Flight Laboratory, scheduled to launch in October.

Astronomy Day 2013 – This year's Astronomy Day falls on April 20th. ***Barry Peckham*** will be our contact with Kahala Mall, where we hope to set up an outreach display and hands-on daytime lunar viewing. While it is not the same Saturday as our regular suburban star party, we will hold Astronomy Day there again.

IfA Open House- The Annual Open House will be on April 14th. See page 9.

Hawaii State Science Fair: The Hawaii State Science Fair at the Hawaii Convention Center on April 7-9. ***Jim MacDonald*** will chair our group of judges.

Comet PANSTARRS C/2011 L4: ***Chris Peterson*** led a short discussion regarding the viewing of Comet PANSTARRS which was be visible in the western skies in mid-March. IfA held a viewing at Magic Island the evening of March 12th. Some of our members joined IfA on the beach, while others found their own vantage points.

Star Party Report: ***John Gallagher*** reported that there will be a few upcoming school star parties in April. John requested help and sent around a sign-up sheets for April events.

Visitors: We welcomed ***Mike McMahon and family***.

Star Light Reserve: Chris attended the first committee meetings this year. Meetings will continue to be monitored by ***Harry Zisko and/or Chris Peterson***. We are uncertain what further steps can be taken by the state. It would appear that steps by the city would be advisable.

44th Annual Lunar and Planetary Science Conference: ***Chris Peterson*** gave a brief description of the Lunar and Planetary Science Conference he attended.

The Night Skies: It is always a joy to take a ride through the night skies with ***Joanne Bogan.*** As always, we thank Joanne for the wonderful show she creates for us.

As there was no further business, the meeting was adjourned at 9:38 p.m. Members enjoyed tasty refreshments after the meeting.

Respectfully Submitted,
Gretchen West
HAS Secretary

List View Past Events < **May 2013** > Upcoming Events Add/Log Event

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	1 8:00 PM Globe at Night	2 8:00 PM Globe at Night	3 8:00 PM Globe at Night	4 8:00 PM Globe at Night 6:30 PM Club Star Party (D) Sunset: 7:00 PM
5 8:00 PM Globe at Night	6 8:00 PM Globe at Night	7 8:00 PM Globe at Night 7:30 PM Club Meeting	8 8:00 PM Globe at Night	9	10	11 6:25 PM Public Star Party(D) Sunset: 7:03 PM
12	13	14	15	16	17 7:15 PM Palolo Elem Star Gazing	18 6:30 PM Public Star Party(G) 6:30 PM Public Star Party(K) Sunset: 7:06 PM
19	20	21	22	23	24	25 Sunset: 7:09 PM
26	Memorial Day 27	28	29	30	31	1

NOTICE:

HAS will publish a complete listing of Club members in the **June 2013** 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, mailing addresses, and phone numbers. If you wish to have some or all of your data excluded, please notify the Club Treasurer, ***Jim MacDonald*** before **May 15, 2013** by sending him an e-mail at ***jim.macd@hawaiiantel.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 our 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 member's right to privacy.

Member information is not to be republished, redistributed, or used for any commercial or solicitation purposes.

(Space Place continued from page 4)
our climate.

The study of Earth and its ocean is a big part of NASA's mission. Before satellites, the information we had about the ocean was pretty much "hit or miss," with the only data collectors being ships, buoys, and instruments set adrift on the waves.

Now ocean-observing satellites measure surface topography, currents, waves, and winds. They monitor the health of phytoplankton, which live in the surface layer of the ocean and supply half the oxygen in the atmosphere. Satellites monitor the extent of Arctic sea ice so we can compare this important parameter with that of past years. Satellites also measure rainfall, the amount of sunlight reaching the sea, the temperature of the ocean's surface, and even its salinity!

Using remote sensing data and computer models, scientists can now investigate how the oceans affect the evolution of weather, hurricanes, and climate. In just a few months, one satellite can collect more information about the ocean than all the ships and buoys in the world have collected over the past 100 years!

NASA's Earth Science Division has launched many missions to planet Earth. These satellites and other studies all help us understand how the atmosphere, the ocean, the land and life—including humans—all interact together.

Find out more about NASA's ocean studies at http://science.nasa.gov/earth-science/oceanography. Kids will have fun exploring our planet at The Space Place, http://spaceplace.nasa.gov/earth.

☆

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

Club members ***Gretchen West, John Gallagher and John Sandor*** at this year's IfA Open House - April 14 2013. HAS can always use new volunteers for events such at this one, promoting amateur astronomy in Honolulu. Contact any club officer if interested in future events.

Photo courtesy: Jim MacDonald

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of Apr. 15, 2013

Initial Balance:	**$4,626.83**
Receipts:	
Donations	178.00
Dues Received	190.00
Total Income:	**$368.00**
Expenses:	
Astronews	118.15
Magazine Subscriptions	94.00
Postage	11.92
Refreshments	12.37
Science Fair Award	50.00
Total Expenses:	**$286.44**
Final Balance	**$4,708.39**

The club gained two two members this month. They are ***Michael McMahon*** and ***Marion Summerer***. A special thanks to ***William Mann, David Dellalana***, ***Michael McMahon, Lenore Hansen-Stafford and the Malama Learning Center*** for their generous donations. Come join us at one of our star parties for some wonderful viewing. Saturn has once again returned to our skies.

<<Upcoming Star Parties>>

CLUB Party-Dillingham **May 4** (Girard)

Public Party-Dillingham **May 11** (MacDonald)

Kahala/Ewa Party **May 18**

☆ ☆ Upcoming School Star Parties ☆ ☆

Fri.	**5/10**	Hawaii Bapitist Academy (Honolulu)
Fri.	**5/17**	Palolo Elementary (Honolulu)

with the two large 10-m telescopes, much like the interferometric technique used by the SMA. Astronomers claimed that these telescopes worked in tandem, so should count only as one telescope. While technically true, it was understandably viewed as the semantics of deception by the opposing side—a loophole to bypass the limit set by the initial Master Plan.

• Overstating Cases. As mentioned earlier, astronomers unintentionally created the illusion of being wealthy landlords by repeatedly citing the staggering $1-a-second cost for observing time at the summit. While payment was actually made in-kind rather than cash, the overstatement was more damaging than helpful. Overstatements are rarely persuasive and frequently appear self-serving. Unfortunately, neither did the Hawaiian community escape this pitfall. In an effort to emphasize their disapproval of observatories or any other structure being placed at the summit, they often recited the claim that the summit was too sacred for even Hawaiian altars. Although none were ever found at the very peak, archaeologists had identified hundreds of shrines, burials, and culturally significant sites within the summit area. From the earliest days when Kuiper conducted his test studies, astronomers had avoided building on the summit's highest peak, called Pu'u Wēkiu. Nevertheless, the observatories were within the summit proper, and so drew constant admonition for encroaching upon land too sacred for any man-made structure. Then, in 1997 the Hawaiian community erected a spiritual altar, called an ahu lele, at the very peak of Pu'u Wēkiu. Had the rules changed? Or was overstatement to blame again?

• Honoring vs. Patronizing. The controversy already surrounding the aforementioned proposal to add several smaller telescopes around the Keck facility became more inflamed when astronomers suggested naming these add-on telescopes "outriggers." The metaphor was an innocent attempt to compare the spacefaring exploration conducted by the Keck telescope with the seafaring exploration of Hawaiians on canoes fitted with similar supporting outriggers. This reference, however, was viewed by some as condescending. A similar situation occurred at another sacred mountain in Arizona. Mount Graham (known as dzil nchaa si'an to the Apaches) has long faced the same controversy as Mauna Kea. In 1992, the innovative Large Binocular Telescope stirred up international protest over its originally proposed name, the Columbus Project.

• Self-Imposed Silence. When community dissent escalated in the early 1990s, astronomers probably felt blindsided. Prior to then, little objection had been voiced on the development of astronomy facilities on Mauna Kea. Why didn't the community speak up before? And why now? After all, astronomy was partly responsible for rescuing the failing economy of the Big Island. By 1996, the last sugarcane plantation had closed. Topped only by tourism, the Big Island's astronomy industry today pumps over $150 million into the local economy and employs over 600 workers, many from the island itself.

The Hawaiian community claimed in their defense that their voices had been silenced with the overthrow of the monarchy and their language suppressed. Indeed, from 1896 until 1986, Hawaii law (Act 57, sec. 30) mandated English as the basis of instruction in all public and private schools. Courses in Hawaiian or any other language required special authorization. The end result significantly limited the use of Hawaiian in schools for nearly a century. In 1987, one year after the State Legislature amended section 298-2 (the successor to this English-only law), the Board of Education approved the first Hawaiian immersion classes. But was this claim a legitimate excuse or merely a rationalization? Did this self-acknowledged low self-esteem excuse the silence of the Hawaiian community or only explain it? Certainly, on this count astronomers were blameless.

☆ *(To Be Continued)*

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Place stamp here. Post Office will not deliver mail without proper postage

HAS volunteers ***John Gallagher*** and ***Sue Girard*** show curious shoppers the wonders of our daytime star at Astro Day (4/20). Club members set up outside Barnes & Noble, which has hosted the club for many years for the event. We need more member volunteers, from telescope operators to monitoring the public flow. See page 1 for more details. *Image courtesy:* ***Jim MacDonald***