The Astronews

HUI KILOLANI

Volume 60, Issue 5

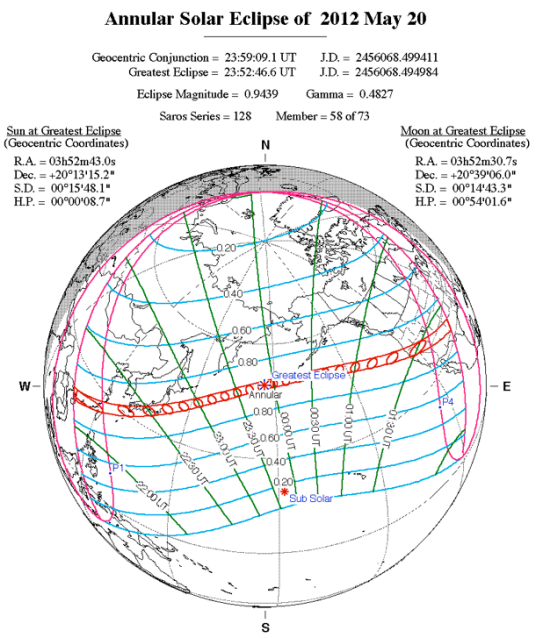
May 2012

www.hawastsoc.org

http://eclipse.gsfc.nasa.gov/solar.html

Graphic of May Solar Eclipse (see President's Message page 3)

image courtesy: F. Espenak, NASA/GSFC



The Hawaiian Astronomical Society is now on facebook

Inside this issue:

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., Mar 1** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Mar 4 & 18** at 8:00 p.m.

www.bishopmuseum.org/calendar

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

Up To The Minute:

Back in the driver's seat after a couple months of being somewhat involved in the Hawaii State Science and Engineering Fair, I'm ready to assume the Editor role again. Thanks again to my multi-talented sub, Mr. ***Jim MacDonald***, who not only filled in for me last month, but served as a judge for the club's awards, and provided us with images of the winners (see page 3).

But getting back to the science fair, the two very deserving recipients of the HAS awards went to ***Zoey Fox*** from Niu Valley Middle School and ***Travis Le*** from Punahou School. Both recieved a certificate, HAS membership and magazine subscription. Travis wins an additional $50 prize.

Zoey is an eight grader and her project titled, "HD313926: Investigating An Eclipsing Binary Star" won several other awards at the fair as well.

Travis, a senior, also won numerous awards including awards from NASA's Pacific Regional Planetary Data Center, NOAA, IfA, and the Hawaii Academy of Science Honorable Mention Grand Award for his project, "A Neural Network Approach to Forecasting Geomagnetic Storms".

The Grand Award gave Travis the opportunity to receive the Chevron-sponsored student trip to the International Science and Engineering Fair (ISEF) coming up this month in Pittsburgh.

As many of you know, our (formally) youngest club member has been highly successful for many years with the science fair, and this year as he gets ready to graduate, he is deciding between several prestigious universities.

We will miss Travis' involvement with the astronomy club and wish him luck on this new phase of his life and career, and more immediately with his competition at ISEF in May.

Congratulations to both Zoey and Travis and welcome Zoey as our next youngest member of the club!

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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

A solar eclipse is coming in May. Don't get too excited, though. It's an **annular eclipse** along the center of the path, but Hawaii will only see about a 20% bite taken out of the Sun at the maximum, at about 3 p.m.

However, this is a good opportunity to gear up for the transit of Venus that will occur in June. It's a good excuse to take your telescope out and test any solar viewing equipment (and skills) you may have. We'll be helping out with the Bishop Museum's event on June 5th, so we'd like to have a few equipped and prepared people sign up at our May meeting.

I'm planning to get a solar filter for my Astro-Physics 5-inch refractor. When I went to their website, I learned of a product I wasn't aware of. The "Baader Cool-Ceramic Safety Herschel Prism" simply replaces the star diagonal in a refractor. Most of the light is blocked, and a safe amount is transmitted through the attached eyepiece. In addition, some of the light is transmitted through a translucent ceramic tile at the back of the prism where it produces an image of the Sun that can be used as a finder. Considering the over-$600 price, though, I think I'll order a conventional filter for under $100.

I got one more interesting piece of information from the site. It states that observing the Sun with the Baader prism does no damage to the main lens of the telescope because the infrared light is transmitted as efficiently as the visible portion, so the lens won't heat up. I had always thought that might be a problem.

Astro-Physics sells Baader solar filter material for use in making a filter as well as pre-made filters. I'd like to buy the pre-made one, but instead of "Add to Cart", the price list for those says "Call", so they may be out of stock right now. The filter material appears to be available now, though, so one way or another I intend to join the crowd of solar viewers by transit day. I'm hoping for a long life, but waiting 105 years for the next transit of Venus seems like a bad bet. Happy solar viewing!

Chris

Zoey Fox, Niu Valley Middle School

Travis Le, Punahou School

Recipients of the Hawaiian Astronomical Society Agency Awards for the 55th Hawaii Science and Engineering Fair, April 2012. (see story page 2)

Image courtesy: Jim MacDonald

NASA's Space Place

NASA Helps Europe Study a Comet– Up Close and Personal

by Dr. Tony Phillips

Europe's Rosetta spacecraft is on its way to intercept comet 67P/Churyumov-Gerasimenko. Comets have been intercepted before, but this mission is different. Rosetta aims to make history by landing a probe on the comet's surface while the mother ship orbits overhead.

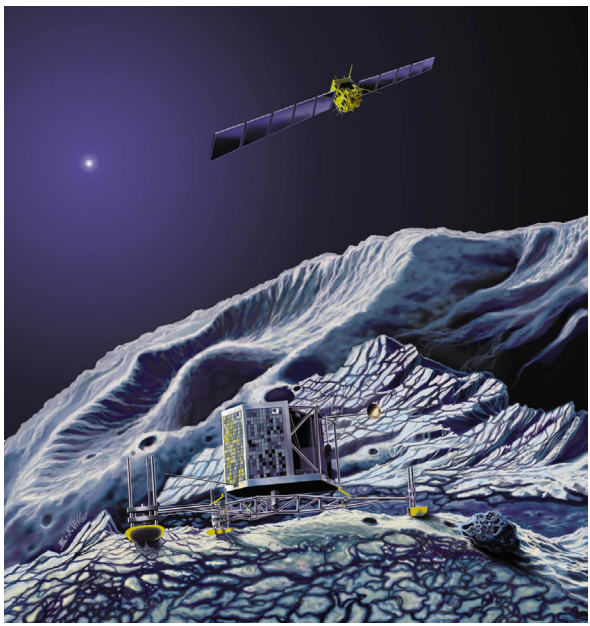
"Rosetta is the European equivalent of a NASA flagship mission," explains Claudia Alexander, project scientist for the U.S. Rosetta Project at NASA's Jet Propulsion Laboratory. "It will conduct the most comprehensive study of a comet ever performed."

Rosetta's payload contains 21 instruments (11 on the orbiter, 10 on the lander) designed to study almost every aspect of the comet's chemistry, structure, and dynamics. Three of the sensors were contributed by the U.S.: Alice (an ultraviolet spectrometer), IES (an ion and electron sensor), and MIRO (a microwave sounder).

The main event of the mission will likely be the landing. The 100-kg lander, which looks a bit like a cross between NASA's old Viking Mars landers and a modern microsatellite, will spend two weeks fastened to the comet's icy surface. The European-built probe will collect samples for analysis by onboard microscopes and take stunning panoramic images from ground level.

"First the lander will study the surface from close range to establish a baseline before the comet becomes active," explains Alexander. "Then the orbiter will investigate the flow of gas and dust around the comet's active, venting nucleus."

(Continued on page 9)



Rosetta's lander Philae will eject from the spacecraft, touch down on the comet's nucleus, and immediately fire a harpoon into the surface to anchor itself so it won't drift off in the weak gravity.

Image courtesy: NASA

Meteor Log

by Tom Giguere

Last month, April, featured the Lyrid meteor shower in the constellation of Lyra located in the northern hemisphere. The moon cooperated, but the weather didn't. It's often tough to get a quorum when it comes to Mother Nature! Anyway, the first report came in from Mike Morrow on the Big Island… after several valiant attempts he just couldn't see through those clouds. Very late in the evening (morning actually) the sky cleared, however sunrise interfered with observations. I experienced clouds and rain in Kapolei, thus was nixed. Robert Lancaster, Kaneohe, saw 4 Lyrids and 1 sporadic meteor on the morning of the 21st, but was clouded out the following night (the night of the maximum). The maximum shower coincided with the HAS public star party at Dillingham. Did anyone persevere and catch a falling star? Do tell…

Looking forward to May, we will experience the fairly sizable **η-Aquariids (ETA)** meteor shower. This shower falls early in the month, but so does that blasted full Moon. Better luck next year.

The only other shower is the minor **η-Lyrids (ELY)** shower. It might produce fewer meteors than an average sporadic count on a shower-less evening, but if you happen to see any around the 8th, visually trace them backwards and see if you caught one!

Full Moon	*Last Quarter*	*New Moon*	*First Quarter*
May 6	**May 12**	**May 21**	**May 28**

Shower	Activity	Max Date	λ_{2000}	Radiant α	Radiant δ	V_∞ km/s	*r*	ZHR
η-Aquariids (ETA)	4/19 - 5/28	May 5	45.5°	338°	-01°	66	2.4	65*
η-Lyrids (ELY)	5/3 - 5/14	May 8	48.0°	287°	+44°	43	3.0	3

If you observe this month's shower or any shower – email your observation!

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

Apr 30, 21h, M 7.3.3º SSW of Mars (113º from sun in evening sky)

May 4, 10h, M 6.2º SSW of Saturn (160º from sun in evening sky)

May 13, 09h, M 5.9º NNW of Neptune (80º from sun in morning sky)

May 16, 03h, M 5.2 NNW of Uranus (49º from sun in morning sky)

May 22, 12h, M 4.7º S of Venus (21º from sun in evening sky)

May 28, 19h, M 6.5º SSW of Mars (95º from sun in evening sky)

Mercury and Jupiter are closer the 15° from the sun when near the moon in May.

Other Events of Interest

Times are Hawaii Standard Time

May 4, 08h, Venus at greatest declination north in several centuries.

May 5, 17h, Moon at Perigee (Only 0.1 hour before full moon, very high tides expected.)

May 5, 17:35h, Moon Full

May 13, 03h, Jupiter at conjunction with sun (Passes into morning sky)

May 19, 09h, 3 Juno at Opposition

May 20, 13:47, Moon New Annular eclipse Japan, North Pacific, West Coast)

May 27, 01h, Mercury at superior conj. with sun (Passes into evening sky)

☿ Mercury

Mercury is too close to the sun to observe easily in May.

♀ Venus

Venus rapidly loses altitude during May as it approaches transit on June 5 (Hawaii Time).

♂ Mars

Still shines brightly in the southwest during the evening hours, after reaching opposition in March.

♃ Jupiter

Reaches conjunction with the sun on May 13 and is too close to the sun to observe in May.

♄ Saturn

Saturn shines brightly in the evening sky in the southeast.

♅ Uranus

Rises in the early morning hours and a couple of hours before dawn.

♆ Neptune

Neptune is also in the morning sky, rising before midnight.

♇ Dwarf Planet Pluto

Rises shortly after midnight - will be better observed later in the year.

✳ Asteroid 3 Juno

Reaches opposition on May 19, but only shines at magnitude +10.2.

Star Party Report

by Sue Girard

The (April 21) Public Star Party at Dillingham was a success in spite of the weather. There were about 130 people in nearly 40 vehicles, so we were busy getting everyone signed up and situated. Some of the folks mentioned they came out as a result of hearing about the HAS Star Party at the Bishop Museum Planetarium and some folks came for the Lyrid meteor shower. There was also an astronomy class from Sacred Hearts School who brought their own telescope.

The approaching weather made for a rather patchy sky, but Venus and Mars popped out of the clouds long enough to give everyone quite a view. Many were surprised to learn that Venus goes through 'phases' just like the Moon. Mars was directly overhead, but is receding, so it's appearance wasn't as nice as last week due to the atmospheric conditions, but everyone seemed to be happy to view it.

Saturn was low, but visible enough to show the rings quite well and there were many 'ooohs' and 'aahhhs' from the visitors. (It's always fun to hear the reaction from folks who had never seen Saturn in a telescope!)

We were able to show the visitors quite a few other objects (M81/M82, Whirlpool galaxy, double stars, etc) as we were able to catch them before the clouds gobbled them up. About 8pm the sky got pretty cloudy and there were some light sprinkles, so most of the visitors left by 8:30pm. The sky cleared periodically allowing us to grab a few fleeting glimpses of Orion nebula before it set, but shortly the cloud cover got very ominous and Key Masters ***Peter and Leslie Galloway*** decided to pack it in before the rain showers hit.

Sue

Hawaiian Astronomical Society

Event Calendar

List View Past Events < **May 2012** > Upcoming Events Add/Log Event

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	7:30 PM Club Meeting 1	2	3	4	5 Sunset: 7:00 PM
6	7	8	9	10	11	6:30 PM Club Star Party (D) 12 Sunset: 7:03 PM
13	14	15	16	17	18	6:30 PM Public Star Party(D) 19 Sunset: 7:06 PM
20	21	22	23	24	25	6:45 PM Public Star Party(K) 26 6:45 PM Public Star Party(G) Sunset: 7:09 PM
27	Memorial Day 28	29	30	31	1	2

NOTICE

HAS will publish a complete listing of Club members in the June 2012 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, 2012 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.***

(Space Place continued from page 4)

Rosetta's sensors will perform the experiments that reveal how the chemicals present interact with one another and with the solar wind. Alice and MIRO detect uncharged atoms and molecules, while IES detects the ions and electrons as the solar wind buffets the nucleus.

One problem that often vexes astronomers when they try to study comets is visibility. It's hard to see through the dusty veil of gas billowing away from the heated nucleus. The microwaves MIRO detects can penetrate the dust, so MIRO can see and measure its target molecules even when other instruments can't.

MIRO is one of several experiments focused on the comet's structural properties. It will determine the comet's dielectric constant, emissivity, and thermal conductivity to determine whether it is made of a powdery loose material, has a detectable layer of loose material, or is hard as rock.

"We want to find out whether comets have retained material from when the solar system formed," says Alexander. "If the ancient materials are still there, we can get an idea of what conditions were like at the dawn of the solar system."

Rosetta enters orbit in 2014. Stay tuned for updates!

Check out "Comet Quest," the new, free iPhone/iPad game that has you operating the Rosetta spacecraft yourself. Get the link at spaceplace.nasa.gov/comet-quest.

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

Meeting Minutes

by Gretchen West

President Chris Peterson called the April 3, 2012 meeting of the Hawaiian Astronomical Society to order at 7:34 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were twenty-six members in attendance.

Associated Lectures: There is a lecture tentatively scheduled for the Hawaii Space Lecture Series as of Tuesday, April 24, 2012, at 7:30 pm. Dr. Lionel Wilson of Lancaster University, England will speak about "Ancient Volcanic Eruptions on the Moon and Mercury." Contact NASA PRPDC at 808-956-3132 or on the Web go to http://www.higp.hawaii.edu/prpdc for more information.

IfA Open House: The University of Hawaii Institute for Astronomy will have its annual Open House on Sunday April 29, 2012, between 11:00 am and 4:00 pm. ***Gretchen West*** is coordinating workers to man the H.A.S. table during the Open House. This is a good opportunity for members to support the club and become more involved in promoting our outreach to the community.

Astronomy Day: International Astronomy Day occurs on Saturday, April 28, 2012. ***Barry Peckham*** has contaced Kahala Mall management office about our use of the area fronting Barnes & Noble bookstore, on the second floor of the shopping complex. As in past years, our members will have telescopes available for the shopping public to view the daytime skies. The Moon and Venus will both be available for viewing this year. Again, this is a wonderful opportunity for H.A.S. members to support the club and become more involved in promoting our outreach to the community.

Dillingham Airfield: We wanted to remind all members who would like to join us at Dillingham Airfield for our monthly dark sky star parties of the need to sign in with that night's Board Member In-Charge. The Keymaster will have a nightly Sign-in/Visitor's log. Information to be on the sign-in sheet includes the car's make and license plate number, driver's name, and the number of people in the car. The Dilling-

(Continued on page 11)

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of Apr. 15, 2012

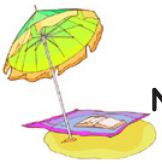
Initial Balance:	**$4,328.61**
Receipts:	
Donations	155.00
Dues Received	248.00
Magazine Payments	68.00
Total Income:	**$471.00**
Expenses:	
Astronews	59.89
Science Fair Award	50.00
Total Expenses:	**$109.89**
Final Balance	**$4,689.72**

The club gained ten new members this month. They are ***Aaron and Carolyn Still, Spino Monykeya; Wahida Azimi, Baka Fereidouni; Edward Haddock, Toni Chinnichi-Haddock; Norman and Sherry Nicolson; and Ryan Theriot***. Our special thanks to ***Aaron Still, Jay Wrathall, Kevin Suehiro and Ryan Theriot*** for their generous donations. Our thanks to all those who remembered to renew their membership. Come join us for views of Mars and Saturn.

<<Upcoming Star Parties>>

CLUB Party-Dillingham	**May 12** (G. West)
Public Party-Dillingham	**May 19** (S. Girard)
Kahala/Ewa Party	**May 26**

Upcoming School Star Parties



SUMMER VACATION!

NO SCHOOL STAR PARTIES SCHEDULED UNTIL FURTHER NOTICE

(Minutes continued from page 9)

ham security guard will used the sign-up sheet to check each car off as they leave. All exits will take place through the Dillingham Airfield West Gate. There are schedule exit times and visitors should ask the Board Member In-Charge about the times when you arrive and sign-in.

Star Party Report: Both Dillingham Airfield events had to be cancelled due to wet weather in March. The suburban star parties at Kahala and Geiger Parks were more successful. Both had clear skies, viewing the Moon, Venus, Jupiter and even Saturn. ***John Gallagher*** reported more than 40 to 50 visitors at Geiger Park with 4 astronomers there to help out, while astronomers at Kahala report that the six astronomers saw about 20 to 25 visitors. Also, the permit for use of the Kahala Community Park is now in hand.

John Gallagher reports that we have a busy month of school star parties. John signed up astronomers to help at:

Apr. 18, Scout Pack 175 (Waialua); Apr. 20, Scout Pack 166 (Schofield Barracks); Apr. 26, Ala Wai Elementary; Apr. 27, Niu Valley Middle School

Membership Roster: The club membership roster will be printed in the June ASTRONEWS. Anyone wishing their name to be omitted from the ASTRONEWS roster should contact club treasurer, ***Jim MacDonald***.

Astronomical League: ***Chris Peterson*** reminded members that the Astronomical League's website offers "What's Up with the Astronomical League." Anyone interested can go to their website.

Messier Marathon: ***Sue Girard*** presented a short power point presentation covering the history of the Messier List and the origins of the Messier Marathon. Due to poor viewing and other problems in the past few years, marathons have not been promoted. However, Sue urged members to challenge themselves to complete half-marathons to complete during the viewing times we do have at Dillingham Airfield. Sue also offered copies of Messier lists our Honolulu astronomers can use.

Hawaii State Science and Engineering Fair: The Hawaii State Science and Engineering Fair took place on April 2 - 4, 2012. ***Sue Girard, Paul Lawler and Jim MacDonald*** attended as agency judges for the club. Junior and senior research winners will receive a $50 gift certificate, an astronomy magazine subscription and a club tee shirt. See report in this issue of AstroNews.

Lunar & Planetary Science Conference: ***Chris Peterson*** gave a report on the 5-day conference that recently took place in Houston, Texas. In addition to the scientific sessions, participants also discussed financial concerns facing the scientific community. ***Tom Giguere*** also gave us an example of the kinds of posters that were also presented during the conference. Tom Giguere's poster was composed of many images and, like others at the conference, represented a year's worth of research data.

Chris also presented a series of images from the Dawn Mission employing false-color images of Vesta, created for stereo imagery. Other images showed views of the Messenger Mission with images of Mercury "hollows,"

Misc.: ***Joanne Bogan*** gave us a short run-down of her recent trip to Alaska with ***John Sandor.***

As there was no further business, the meeting was adjourned at 9:07 p.m. Refreshments were enjoyed by members after the meeting.

Respectfully Submitted,

Gretchen West

Secretary

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

Looking like a ghostly snake, a dust devil on Mars is imaged by the Mars Reconnaissance Orbiter during the martian spring season. This image was featured on April 13 in the Astronomy Picture of the Day site.

Image courtesy: NASA/APOD