The Astronews

HUI KILOLANI

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www.hawastsoc.org

President's Message

by Chris Peterson

This is a productive period in the study of small bodies in our solar system, and it will continue to be for years to come. The Dawn spacecraft has just entered orbit around Vesta, the second largest asteroid (or perhaps now that Ceres has been reclassified as a dwarf planet, Vesta has become the largest asteroid). Vesta is large enough for its gravity to have almost, but not quite, pulled it into a spherical shape. (See images on page 11)

Vesta is believed to be the source of the Howardite, Eucrite, and Diogenite (HED) meteorites. Dawn will spend a year orbiting Vesta. In addition to a camera, Dawn carries a visual and infrared spectrometer and a gamma ray and neutron detector. These instruments will help determine the composition of Vesta and support or refute the hypothesis that the HEDs come from Vesta.

After it leaves Vesta, Dawn will travel to Ceres for a year in orbit there. Evidence suggests that

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Inside this issue:

☆ Upcoming Star Parties ☆

Kahala/Ewa Party	**Aug 6**
Public Party-Dillingham	**Aug 20**
CLUB Party-Dillingham	**Aug 27**

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., Aug 5** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Aug 1 & 15** at 8:00 p.m.
www.bishopmuseum.org/calendar

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

Closer Look...

Did You Know?

The club calendar used in the ASTRONEWS is actually from the Night Sky Network (NSN) web site.

If a NSN member goes to the NSN web page and looks at our calendar they can click on the function for a particular date and find out all sorts of information such as location, number of people expected, setup time, driving instructions to the location and other info.

In addition, if the member did not attend the club meeting and would like to sign up for an event, they can sign up from the NSN site.

When members sign up for an event, they can record their miles driven and hours volunteered. This can come in handy at tax time.

If an event is cancelled or important information needs to be communicated, members that register with the NSN can be easily notified by e-mail through the site. In addition, if something comes up in-between the ASTRONEWS distribution and the club meeting, the message could be sent to club members about that as well.

Our current HAS webpage (www.hawastsoc.org) does not provide the capabilities available on the NSN since it is not "interactive", nor does it provide the ability to notify members of short notice changes.

Clear Nights,
John G.

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Meeting Minutes

by Gretchen West

President ***Chris Peterson*** called the July 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 twenty-four members in attendance.

Associated Lectures - ***Chris Peterson*** reports that the next free Hawaii Space Lecture Series talk will take place at 7:30 p.m. on Tuesday July 19, 2011. This month the Hawaii Space Lecture Series present David Trang. Mr. Trang, who is a graduate student, will speak on the "Origin of Lunar Concentric Crater." Should you be interested in 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 Regular lectures usually 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.

Donation to be Sold – The first edition copy of Rugal's, Atlas of the Moon, donated by ***Jay Wrathall***, is to be sold and the proceeds to be donated to the H.A.S. We would prefer to sell this excellent copy to a H.A.S. member. The price is $50. Members who are interested in this first edition book can contact ***Chris Peterson***. Should no one be interested we will sell the item on-line.

News Items – ***Chris Peterson*** gave us an update on ongoing NASA planetary missions.

The Messenger mission to Mercury continues to gather data as it orbits the closest planet to our sun. NASA's Lunar Reconnaissance Orbiter has reached the first perihelion of Mercury and achieved a high elliptical orbit. This mission will continue to gather information on the Sun closest satellite.

NASA's Spirit has not responded to commands since March 22, 2010 and the command center has decided to cease sending it commands. NASA will continue to monitor Spirit. NASA will also continue communications with the rover, Opportunity. The second rover continues to move and is journeying to Mars crater "Endeavour." Endeavour is a large crater, some 20 miles in diameter.

The Cassini mission to Saturn flew past the small moon Helene. The New Horizons craft has reached the halfway point on its way to Pluto and its moons. The Dawn spacecraft is approaching the protoplanet Vesta, the second-most massive object in the main asteroid belt. The Dawn craft snapped a few images of the object and sent them back to JPL.

Speaker at August Meeting – H.A.S. member and State Science Fair finalist, ***Travis Le,*** will speak to the club at the August general membership meeting. Travis is the recent second-place winner of this years' Astronomical League of the Pacific's Young Astronomer award. Travis will be receiving his award at the August H.A.S. general membership meeting.

Star Light Reserve – ***Harry Zisko*** reported that no meeting of the Star Light Reserve Recommendation Committee took place in late June. He reported that Bill 1493 regarding light pollution and related shielding for street light fixtures passed through the legislature. However, the D.O.T. has recommended to the Governor that he veto the bill due to cost issues. It appears that the committee is concentrating on Governor Abercrombie signing a measure that will extend the life the committee until June of 2013 and work for funding for travel expenses for outer island representatives to attend meetings in person. They will be concentrating on light trespass issues, which is a nuisance issue that will most likely be handled at the city & county level.

Upcoming Events – The club will celebrate this year's International Observe the Moon Night on October 8, 2011. This takes place the evening of our Saturday suburban star parties at Geiger and Kahala Parks. We urge everyone to mark it on their

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NASA's Space Place

New GOES-R to Give More Tornado Warning Time

by Dauna Coulter and Dr. Tony Phillips

So far this spring, more than 1,400 tornadoes have struck the U.S. Some of them have cut jaw-dropping trails of destruction across the countryside and, tragically, across inhabited communities, too. Hundreds of lives have been lost in the onslaught.

Throughout the season, the National Weather Service has routinely issued tornado alerts. In the case of the Alabama tornadoes of April 27th, forecasters warned of severe weather five full days before the twisters struck. Because they couldn't say precisely where the twisters would strike, however, many of their warnings went unheeded.

"If people get a hurricane warning, they often evacuate the area," notes NOAA's Steve Goodman. "But we react differently to tornado warnings."

Perhaps it's because tornadoes are smaller than hurricanes, and the odds of a direct hit seem so remote. Recent pictures from Tuscaloosa, Alabama, and Joplin, Mis-

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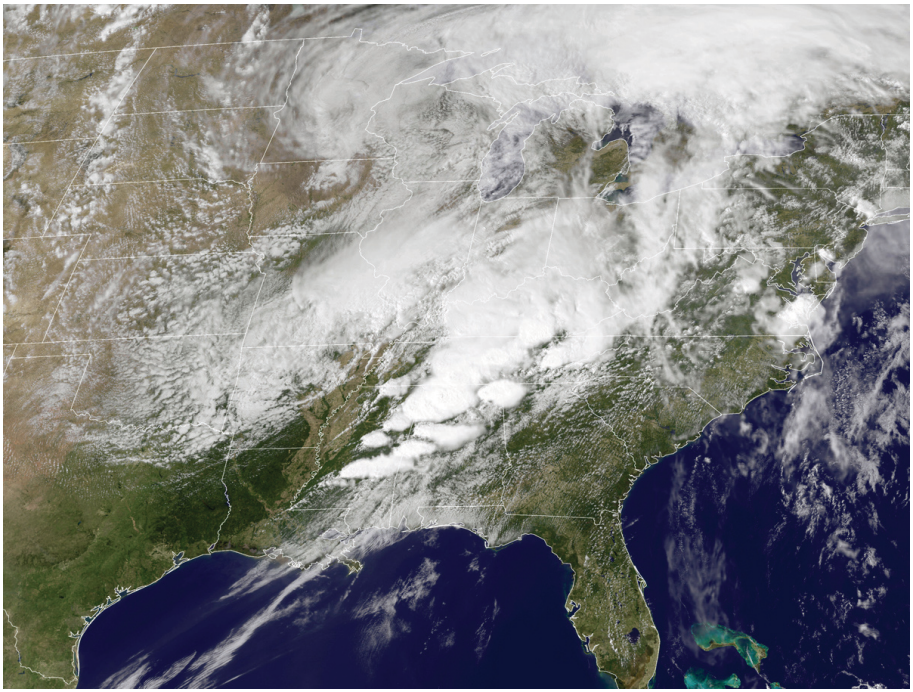

Supercell storm systems that generate tornadoes are quite distinctive as seen from space. *Image courtesy: NASA*

Meteor Log

by Tom Giguere

August is usually a delightful month for observing meteors, and it seems that even casual skywatchers are aware of the abundance of heavenly projectiles… Unfortunately, the Perseids will fail to deliver this year due to the full moon. Optimistic observers can make an attempt; however, I wouldn't recommend it.
Many members of this shower shine at approximately 2nd magnitude, which is just no match for our nearest neighbor. As a test, just try to observe the stars in the Big Dipper during a full moon – not an easy feat!
Serious meteor observers that have radio equipment will fare ok – we can all read about their counts online in the days following the "event".
As I write this month's column from North Alabama, I recall one very memorable Perseids shower where I joined the local astronomy club for the spectacle. Sure we had plenty meteors and it was a good year, but I really had trouble with the ground-based meteors that would catch my eye – you probably guessed what I'm referring to… yes, the fireflies were out that same evening!

New Moon	*First Quarter*	*Full Moon*	*Last Quarter*
July 30	**Aug 6**	**Aug 13**	**Aug 21**

Shower	Activity	Max Date	λ_{2000}	Radiant α	Radiant δ	V_∞ km/s	*r*	ZHR
Perseids (PER)*	7/17 - 8/24	Aug 13	140°	48°	58°	59	2.2	100
k -Cygnids (KCG)	8/03 - 8/25	Aug 18	145°	286°	59°	25	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

by John Gallagher

Telecon with Brooke Hsu on this year's **International Observe the Moon Night** will take place on Thursday, August 18, 2011 at 3:00 pm. Details can be found on the Night Sky Network (NSN) on the clubs calendar for the month. Just click on the "Telecon" for date and you will be taken to a page that will show additional information, sign on procedures, and a link to the power point slides. The link to the NSN Calendar is: *http://nightsky.jpl.nasa.gov/event-calendar.cfm?Club_ID=453* (Note: you must be a member of the NSN to see the details) For additional info contact John Gallagher, NSN Coordinator at 683-0118 (leave message).

Clear Nights,
John G.

Planets Close To the Moon

Times are Hawaii Standard Time

Aug 1, 00h, M 1.5º SW Mercury (22º from sun in evening sky)

Aug 3, 20h, M 7.2º SSW Saturn (61º from sun in evening sky)

Aug 14, 02h, M 5.2º NNW of Neptune (171º from sun in midnight sky)

Aug 16, 21h, M 5.7º NNW of Uranus (140º from sun in morning sky)

Aug 19, 23h, M 4.7º NNW of Jupiter (107º from sun in morning sky)

Aug 25, 03h, M 2.6º S Mars (47 from sun in morning sky)

Aug 27, 14h, M 2.4º SSW Mercury (16º from sun in morning sky)

Aug 31, 10h, M 6.9º SSW Saturn (37º from sun in evening sky)

The moon is closer than 15º from the sun when near Venus in August**.**

Other Events of Interest

Times are Hawaii Standard Time

Aug 4, 18, **Asteroid 4 Vesta at opposition**

Aug 13, 12h, **Perseid Meteors** (Unfavorable year for this major shower)

Aug 13, 08:57h, **Moon Full**

Aug 16, 02h, **Venus at superior conj. with sun** (Passes into evening sky)

Aug 16, 15h, **Mercury at inferior conj. with sun** (Passes into morning sky)

Aug 22, 13h, **Neptune at opposition**

Aug 28, 17:03h, **Moon New**

☿ Mercury

Visible just after sunset in the western twilight during the first few days of August.

♀ Venus

Too close to the sun to be observed in August, passing into the evening sky on Aug 16.

♂ Mars

Mars is visible in the morning sky at about magnitude +1.4 in Gemini.

♃ Jupiter

Rises before midnight and shines brightly in the late evening and morning sky .

♄ Saturn

Saturn is visible early in the evening in the southwestern sky.

♅ Uranus

Uranus is visible in the morning sky after midnight.

♆ Neptune

Reaches opposition this month and so is in the sky all night. Try to see the disk (2.3") by viewing near midnight with good seeing.

♇ Dwarf Planet Pluto

Reached opposition on June 27 so is near the meridian at sunset.

⚶ Asteroid 4 Vesta

Reaches opposition on August 4 - at mag +5.6 it should be a naked eye object. The Dawn spacecraft is now in orbit around Vesta..

(Minutes continued from page 3)
calendars and join us as we use binoculars and telescopes to observe our satellite.

The club will participate in the next Astronaut Lacy Veach Day of Discovery event at Punahou on Saturday, October 29, 2011. This day of science and discovery for students, parents and teachers celebrates the life of the late U.S. Astronaut Lacy Veach. ***Gretchen West*** will coordinate the club's exhibit and will be asking for willing members to sign up to help man the table.

Big Island Trip – Fifteen intrepid members of the club visited the Gemini North telescope at the summit of Mauna Kea on the Big Island of Hawaii on June 25. Making the trip with club members was author Stephen O'Meara. Club members wore cold weather gear and layered clothing to keep warm. A short presentation of slides gave everyone an idea of the events at the summit and at the star party held later that evening at the Visitor's Center at 9,300-foot level. ***Harry Zisko*** spoke briefly about the "Galaxy Garden, situated in the Paleaku Peace Sanctuary in Kona. ***Chris Peterson***, who had visited Mauna Kea previously, acquainted everyone with Lake Waiau. ***John Sandor***, who did a marvelous job of coordinating the trip, informed the Big Island trekkers that there was a $120 left over from expenses. The travelers voted that we spend the money for gifts for those who had helped us on the Big Island. ***Gretchen West*** will be purchasing gifts for Peter Michaud, Stephen James O'Meara, and Joy Pollard.

Bishop Museum - The Hawaiian Astronomical Society and the Bishop Museum have had a long and positive relationship. H.A.S. is greatful to the Bishop Museum for their continued kindness. We would like to pay back that kindness by purchasing a desktop computer for use in the Planetarium to enhance what they already have. At-Large Board member ***Paul Lawler*** will be researching computer prices, and will report back to the general membership before any purchase is made. As the purchase will be greater than $200, the general membership will be asked to vote on the expenditure at a future meeting.

Scope for Sale – ***Richard Flagg*** has contacted the club to announce the sale of a 10" Meade LX50 Schmidt-Cassegrain. The telescope is an f10 with heavy-duty fork mount, and equatorial wedge. The eyepiece is a 9.7 mm Meade 4000 series Super Plossel with a 1.25" diagonal prism. Other accessories include an 8x50 viewfinder and a keypad hand controller for the electric slow motion controls on both axes. Mr. Flagg indicates that the scope is in good condition. The price is negotiable. If you are interested contact Richard at rf@hawaii.rr.com or 947-2546.

Help for the Treasurer - ***Jim MacDonald*** reports that an update of the QuickBooks software has been purchased and installed.

School Star Parties – We have only one special group star party scheduled during July : **July 8– Mililani Mauka**

Slide Presentation – President ***Chris Peterson*** presented a series of slides on the internal makeup of the Moon. Slides presented depicted the layers of the core that are the result of seismographic data from moon missions. Other data from the use of range locators or reflected lasers and clocks to measure the Moon's libration, as well as some small specimens collected during moon missions. Presented in another series of slides was information on the buried carbonates on Mars. This information was collected via infrared observations and information deduced from impacts that exposed material.

As there was no further business, the meeting was adjourned at 8:57 p.m. Light refreshments of juice, tea, cookies and bread pudding (thanks to ***Joanne Bogan***) were served.

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

< August 2011 >

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1	7:30 PM Club Meeting 2	3	4	5	6:45 PM Public Star Party(K) 6 6:45 PM Public Star Party(G) Sunset: 7:09 PM
7	8	9	10	11	12	13 Sunset: 7:05 PM
14	15	16	17	3:00 PM NSN Teleconference 18	19	6:15 PM Public Star Party(D) 20 Sunset: 7:00 PM
21	22	23	24	25	26	6:30 PM Club Star Party (D) 27 Sunset: 6:54 PM
28	29	30	31	1	2	3

☆ ☆ Upcoming School Star Parties ☆ ☆

		-NO SCHOOL PARTIES IN AUGUST-
Fri.	**9/2**	Mililani Uka Elementary
Fri.	**9/23**	Niu Valley Middle

Special Thanks

Mahalo to JOHN SANDOR and JOANNE BOGAN who coordinated and led the "2011 HAS-Mauna Kea Expedition". All of us that had the priviledge of a great experience would like to express our appreciation for all your efforts!

Editor

(Space Place continued from page 4)
souri, however, show the perils of playing those odds. Goodman believes that more precise warnings could save lives.

To fine-tune tornado warnings, NOAA will soon launch the first in a series of next-generation weather satellites – GOES-R (Geostationary Operational Environmental Satellites-R series). The spacecraft is brimming with advanced sensors for measuring key ingredients of severe weather including winds, cloud growth, and lightning.

"GOES-R will be the first geostationary spacecraft to carry a lightning sensor," says Goodman, the GOES-R Program Senior Scientist. "Studies show that sudden changes in the total lightning activity correlate with storm intensity—and with tornadoes."

The lightning mapper will detect and map not only cloud-to-ground lightning, but also bolts within and between clouds. The kind of cloud-to-ground lightning we see from our front yards accounts for only 15-20 percent of total lightning. To get a clear idea of a storm's intensity, meteorologists need to know about all the lightning—a view GOES-R can provide.

All by itself, the lightning mapper will provide 7 minutes more lead time in tornado warnings, according to Goodman. GOES-R's state-of-the-art instruments will also improve long-range forecasts.

"The satellite's Advanced Baseline Imager (ABI), for instance, will provide a much clearer picture of clouds," says NOAA research meteorologist Tim Schmit. Compared to lesser instruments already in orbit, ABI can better detect super-cold "overshooting tops," evidence of enormous energy and upward velocity that correlate with subsequent severe weather.

"Accurate advanced notice of high-risk tornadic conditions can cue officials to close schools and businesses even before tornadoes are actually detected," says Schmit.

Forecasters doubt tornadoes can ever be predicted with 100% accuracy. The twisters are just too capricious. GOES-R, however, is a step in the right direction.

Find out more about GOES-R's unprecedented capabilities at http://www.goes-r.gov. Young people can learn more about tornadoes and all kinds of other weather at http://scijinks.gov.

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

Treasurer's Report

by Jim MacDonald

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

Initial Balance:	**$5,733.28**
Receipts:	
Donations	20.00
Dues Received	122.00
Magazine Payments	34.00
Total Income:	**$176.00**
Expenses:	
Astronews	151.32
Magazine Subscription	34.00
Mauna Kea Trip Expense	1,362.84
Postage	2.48
Accounting Software	99.99
Total Expenses:	**$1,550.64**
Final Balance	**$4,358.64**

The club gained three new members this month. They are ***Chaim and Ringo Scowcroft***; and ***Rose Kopp***. Thanks to ***Lenore Hansen-Stafford*** and ***Terry Mayeda*** for their donations. Thank you also to all those who renewed their membership this month. Come join us under the summer skies. There are lots of deep-sky objects to view.

☆ ☆ ☆

(President ontinued from page 1)

Ceres formed from water-rich components, while Vesta is much drier. The relatively low masses of these bodies allows Dawn to approach slowly and be captured into orbit even though the gravity of each body can only be roughly estimated since there has been no previous flyby of either.

New Horizons is still years away from encountering Pluto, but now its team has more planning work to do. It has just been announced that a fourth moon of Pluto has been discovered by a team using the Hubble Space Telescope. Its estimated size is slightly smaller than Nix and Hydra, the second and third moons of Pluto to be discovered. It orbits between those two.

The Pluto system will not be orbited by New Horizons, so planning the sequence of observations is tricky. When the spacecraft was being built, Charon was the only known moon of Pluto, so the observing plan was much simpler. Difficult choices must now be made because it may not be possible to obtain the highest resolution images of all sides of all the objects as New Horizons flies by.

After that, the spacecraft will continue on to a Kuiper Belt object (KBO) that hasn't been chosen yet. If you'd like to help discover a candidate, go to http:// www.icehunters.org/ where you can identify KBOs on telescopic images. It's fun and easy, and you could be the one to discover the next new world to be explored!

Chris

(*top*) **Latest image obtained by Dawn after successfully entering orbit around Vesta on July 17 at ~9,500 miles above**.
Image credit: NASA

(*Middle*) **Artist concept showing the Dawn spacecraft with Ceres and Vesta.**
Artist credit: William K. Hartmann Courtesy of UCLA

(*left*) **Earlier image obtained by Dawn after successfully entering orbit around Vesta on July 9 at ~26,000 miles away**.
Image credit: NASA

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HAS members of the Big Island/Gemini trip in fron of the Gemini North Observatory on Maunka Kea June 25, 2011. More on page 7 & 8.

Image credit: Gary Ward