The Astronews

HUI KILOLANI

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www.hawastsoc.org

COMING IN FEBRUARY

SANDRA DAWSON, Manager of Hawaii Community Affairs at the Thirty Meter Telescope (TMT) Observatory will be speaking to our club at the February membership meeting.

The Thirty Meter Telescope has perservered through many legal and cultural challenges in Hawaii since 2009, particularly on Hawaii Island, where the facility will be located. Currently, the construction of the Thirty Meter Telescope is scheduled to begin this year and we are extremely fortunate to have one of the principal "movers" of this project as our guest speaker. Stay tuned for more information next month!

Editor

Inside this issue:

Upcoming Events:

- ☆The next meeting is 7:30PM on **Tues., Jan 7** at the Bishop Museum.
- ☆Bishop Museum's next evening planetarium shows are every Saturday of the month at 8:00 p.m. www.bishopmuseum.org/calendar
- ☆The next Board Meeting is Sun., **Jan 5** at 3:30 p.m. at the POST building at UH.

Up To The Minute:

NSN News

HOT NEWS FROM NSN: The Night Sky Network will be running monthly, "Discover the Universe Guides". You will be able to access and download these guides without the need to register on the NSN.

Although the guides are designed to help new members gain a better understanding of Astronomy, old timers may learn a thing or two.

Each guide contains: A story about the months theme; A sky feature to observe; Try this!; One or more activities to explore the theme; and Connect to NASA Science.

Go to this link: *http://nightsky.jpl.nasa.gov/news-display.cfm?News_ID=611*. This shows the yearly schedule and what is covered in each guide. Click on the "month" to download. An info page asking some questions about yourself and how you plan to use the guide will come up but you can "skip" if you want. The next page that comes up is the download page where you can select the "Full Color" version or the "Red" version for night viewing.

Enjoy this freebie. You may want to consider **registering** (club members only) onto the NSN and see other benefits available

http://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=453&ApplicantType=Member

John

Quick Note:

No you're not seeing things: there are two sets of Minutes this month--November as well as December. There were no minutes filed the previous month and therefore we are adding it to this month's newsletter.

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The Astronews is a monthly newsletter of the Hawaiian Astronomical Society.

President's Message

by Chris Peterson

I enjoy taking note of the various rhythms that astronomy reveals. There are the daily, monthly, and yearly patterns of Earth's interactions with the Sun and Moon. Each of the planets in our solar system follows a path that interacts on its own time scale with Earth's orbital motion. For example, Mars reaches opposition roughly every two years, but the closest oppositions occur only once out of every 7 or 8 times. As I get older, the longer time periods interest me more as I see more of them repeat. One moderately long period (on the scale of a human lifetime) is the sunspot cycle.

Astronomers have a rather ironic relationship with the Sun. We spend countless hours and dollars magnifying the light of distant stars to make them appear closer, but we can only study our closest stellar neighbor by blocking almost all of its light. Although we may be annoyed when the Sun interferes with our viewing of other celestial objects, solar astronomy has taught us much of what we know about the nature of stars. One of the things we learned long ago is that the Sun follows an approximately 11-year cycle of sunspot activity.

We now know that this cycle is related to the reversal of the Sun's magnetic field, but we have much still to learn about the reasons for and details of the process. While 11 years is a miniscule fraction of the lifetime of the Sun, it is long enough for significant changes in human technological development. The Sun is about to go through a magnetic reversal while being studied by some spacecraft that weren't in space 11 years ago.

These include the STEREO and Solar Dynamics Observatory (SDO) missions. The twin STEREO spacecraft are observing the Sun from different orbital positions to gain a better understanding of coronal mass ejections. SDO is observing the Sun in many wavelengths to enable better understanding of the Sun's variability, including a strong emphasis on its magnetic field. SDO is the first mission of NASA's Living With a Star program, so we can expect to learn even more about the Sun as it pulses through its cycles. Since life on Earth depends on the Sun, understanding its processes and variability is an important goal.

Chris

Star Party Report

by Sue Girard

Dillingham Public Star Party - Dec. 21, 2013

The Dillingham Public Star Party was a festive occasion in spite of the weather. There was a rather consistent layer of clouds that kept closing in on us with 'sucker holes' getting fewer as the evening progressed. A very slim, crescent Venus delighted the visitors who numbered about 15 or so. There were 10 members who came as well. One couple with a brand new 6" Orion Newtonian telescope were having such a wonderful time, they decided to join the club that night.

Unfortunately the clouds finally closed in on us for good around 8:15pm so we decided to leave before the rain started. All in all, not a complete disaster, since there were enough celestial presents to give the visitors a very nice start to the Holidays.

Mele Kalikimaka to all!

Sue

NASA's Space Place

The Big Picture: GOES-R and the Advanced Baseline Imager

By Kieran Mulvaney

The ability to watch the development of storm systems – ideally in real time, or as close as possible – has been an invaluable benefit of the Geostationary Operational Environmental Satellites (GOES) system, now entering its fortieth year in service. But it has sometimes come with a trade-off: when the equipment on the satellite is focused on such storms, it isn't always able to monitor weather elsewhere.

"Right now, we have this kind of conflict," explains Tim Schmit of NOAA's National Environmental Satellite, Data, and Information Service (NESDIS). "Should we look at the broad scale, or look at the storm scale?" That should change with the upcoming launch of the first of the latest generation of GOES satellites, dubbed the GOES-R series, which will carry aloft a piece of equipment called the Advanced Baseline Imager (ABI).

According to Schmit, who has been working on its development since 1999, the ABI will provide images more frequently, at greater resolution and across more spectral

Geostationary Operational Environmental Satellites (GOES) have the ability to monitor dangerous storms in close to real-time. But monitoring the activity of a specific storm has always come with a trade-off: focusing on a single storm means you can't look at weather in other places. That could change with the launch of the next generation of GOES—the GOES-R series. In this month's column, learn about these satellites' new instrument, the Advanced Baseline Imager, that will make this trade-off a thing of the past.
The Advanced Baseline Imager. Credit: NOAA/NASA.

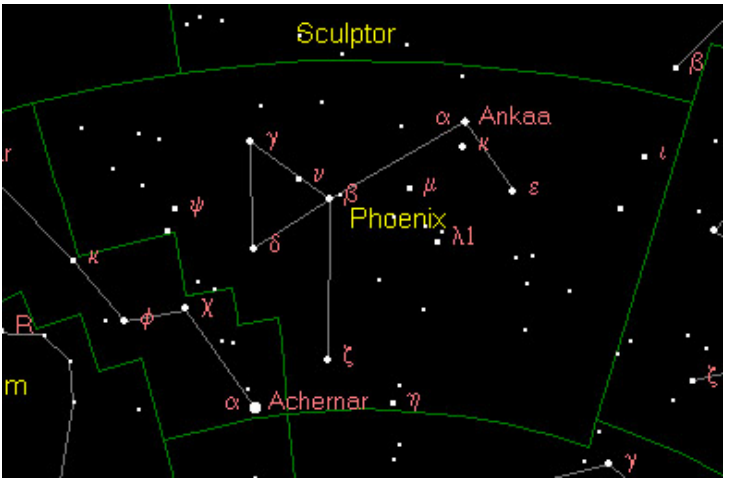
Last month I described the Phoenicids (PHO) meteor shower which peaked around December 6th. The Phoenicids meteors are slower than those of any other shower. Sue Girard may have spotted a meteor from this shower on the evening of Saturday November 23rd at approximately 8pm. This date is outside the stated range of visibility, but with an obscure shower like the PHO, the range may be an estimate. She reported that the meteor traveled from the southwest to the northeast, was yellow in color, around 2nd magnitude, and lasted about 4-6 seconds, which is extremely long for a meteor. Most of know that the typical meteor is gone before you can alert a fellow observer. Sue said that it was the slowest meteor that she had ever seen and that at first she thought it was a satellite but it moved faster than that and then just burned out at the end. Nice observation and thanks for the report Sue.

Good news for fans of the Quadrantids (QUA) meteor shower, which is the first shower in the New Year; the Moon will only be two days old when the shower peak occurs. Quadrantids carry a medium speed, and with an hourly rate as high as the reliable Geminids it should be a decent show. A quick survey of nighttime temperatures for mainland observing locations in January (Austin 42, Boston 22, Las Vegas 39, Minneapolis 8, etc.) shows that at 67°, we have a really nice location from which to observe. Don't miss out – check it out – we'll be trying out a new observing site for this January shower.

MOON PHASES

New Moon	*First Quarter*	*Full Moon*	*Last Quarter*
Jan 1&30	**Jan 08**	**Jan 16**	**Jan 24**

Shower	Activity	Max Date	λ 2000	Radiant α	Radiant δ	V∞ km/s	*r*	ZHR
Quadrantids (QUA)	12/28 - 01/12	Jan 03	283.16°	230°	+49°	41	2.1	120



Happy New Year and happy meteor watching!

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

Jan 2, 01h, M 2.0° NNW of Venus (15° from sun in evening sky)

Jan 4, 13h, M 5.1° NNW of Neptune (49° from sun in evening sky)

Jan 7, 02h, M 2.9° NNW of Uranus (82° from sun in evening sky)

Jan 14, 19h, M 4.9° S of Jupiter (168° from sun in evening sky)

Jan 22, 18h, M 3.5° SSW of Mars (102° from sun in morning sky)

Jan 25, 04h, M 0.57° S of Saturn (73° from sun in morning sky)

Jan 28, 17h, M 2.0° NNW of Venus (26° from sun in morning sky)

Jan 31, 19h, M 3.9° NNW of Mercury (18° from sun in evening sky)

Other Events of Interest

Times are Hawaii Standard Time

Jan 1, 01:14h, Moon new

Jan 1, 04h, Pluto at conjunction with sun (Passes into morning sky)

Jan 3, Quandrantid meteors (Favorable year for this major shower)

Jan 4, 02h, Earth at perihelion (closest to sun 0.98330 au)

Jan 5, 11h, Jupiter at opposition

Jan 11, 02h, Venus at inferior conj. with sun (Passes into morning sky)

Jan 14, This is Jan 1 in the Julian calendar

Jan 14, 18:52h, Moon Full

Jan 31, 00h, Mercury at greatest elongation (18.4° east of the sun in evening sky)

Dec 28, 20h, Mercury at superior conj. with sun (Passes into evening sky)

☿ Mercury

Mercury is visible in the evening twilight late in January.

♀ Venus

Low in the sky at beginning of the month, reaches inferior conjunction on Jan 11; by the end of Jan is visible in the morning sky before sunrise.

♂ Mars

Rises about midnight and is brightening rapidly, reaching mag. +0.3 by month's end.

♃ Jupiter

Reaches opposition on January 5 and shines brightly all night at about magnitude -2.6. This is the best month to view the largest planet.

♄ Saturn

Saturn rises 4 to 5 hours before the sun and is visible in the morning sky in the pre-dawn hours.

♅ Uranus

Uranus is near the meridian at sunset and can be observed during the evening.

♆ Neptune

Can be viewed low in the southwest in the early evening hours.

♇ Dwarf Planet Pluto

Pluto is at conjunction with the sun on Jan 1 and cannot be viewed this month.

⚴ Asteroid 2 Pallas

Should reach max brightness on 11/29. Look low in the east near Mercury and Saturn before sunrise. May be as bright as Mag. -5, or could be a dud.

Meeting Minutes

by Gretchen West

President Chris Peterson called the December 3, 2013 meeting of the Hawaiian Astronomical Society to order at 7:32p.m. The meeting was held in the Planetarium on the grounds of the Bishop Museum. There were 28 individuals in attendance.

Winter Pot Luck: We would like to thank all those who participated in the Winter Pot Luck Supper that took place prior to the December meeting of the Hawaiian Astronomical Society. Everyone appeared to have a good time and good eats. Our thanks to all who participated by bringing food and utensils. Merry Christmas!

Hawaii Space Lecture Series: There will be no lecture for the series for December. Contact NASA PRPDC at 808-956-3132 or on the Web go to http://www.higp.hawaii.edu/prpdc for more information on upcoming lectures.

Elections: ***Joanne Bogan*** conducted the annual elections. The slate of officers for election were:

President – ***Chris Peterson***
Vice President – ***Peter Besenbruck***
Treasurer – ***April Lew***
Secretary – ***Gretchen West***
Astronews Editor – ***Carolyn Kaichi***
At-Large Representatives- ***Otis Ann Wikman and Charles Ryken***

Sue Girard made a motion that the slate be accepted. ***Harry Zisko*** seconded the motion. Rather than elect each officer by a show of hand individually, a motion was made that the slate be elected as a unit. Upon a hand vote the total assembled membership accepted the complete slate.

We would like to thank the retiring Board members: ***Jim MacDonald, Leslie Galloway*** and ***Sue Girard*** for their efforts on the board this past year. We most definitely would like to thank ***Jim MacDonald*** for his many years as treasurer of the club.

General Subjects: ***President Chris Peterson*** reported on various missions:

The Chinese Space Agency announced that Mission Chang e will reach the Moon and that they will land on the Moon in the Bay of Rainbows on December 14, 2013. Their rover Yutu or "Jade Rabbit," will be the first soft landing on the Moon for 37 years.

India's Mars Orbiter Mission (MOM) launched in November 2013 is a stationary polar orbiter. The Indian mission should arrive about the same time as the NASA "Maven" mission which will investigate the Martian atmosphere and volatile environment.

Chris Peterson also discussed the Lunar Atmosphere and Dust Environment Explorer or "Ladee" project, a robotic mission to gather detailed information about the lunar atmosphere. Chris also described the latest Lunar X-prize information.

Dec. 4, 2013 is the 40th anniversary of NASA's Pioneer 10 spacecraft beaming the first up-close images of Jupiter back to Earth, as it made its fly-by of the giant planet. December is also the 20th anniversary of the first maintenance mission to fix the Hubble Space Telescope. The James Webb Space Telescope, scheduled for launch in 2018, is hoped to be the successor to the Hubble Space Telescope. The James Webb Space Telescope, a multi-mirror monster, will be assembled in space.

The Kepler Mission is the first space mission to search for Earth-sized and smaller exoplanets in the habitable zones of other stars using photometry. There have been some difficulties with the mission, most notably the three reaction wheels needed to keep it stable. NASA is hoping to use the solar wind to hold the telescope stationary as a fix for the problem.

Digital Projector: The assembled members voted and passed a motion that a digital projector with maintenance agreement for the club. The purchase price for the projec-

(Continued on page 9)

List View Past Events < **January 2014** > Upcoming Events Add/Log Event

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	New Year's Day 1	2	3	6:20 PM Public Star Party(G) 4 6:19 PM Public Star Party(K) Sunset: 6:04 PM
5	6	7:30 PM Club Meeting 7	8	9	10	11 Sunset: 6:09 PM
12	13	14	15	16	17	18 Sunset: 6:14 PM
19	Martin Luther King, Jr. Day 20	21	22	23	24	6:30 PM Club Star Party (D) 25 Sunset: 6:19 PM
26	27	28	29	30	31	1

<<Upcoming Star Parties>>

Kahala/Ewa Party **Jan 04**

Club Only-Dillingham **Jan 25**

***no Public star party at Dillingham this month**

☆ ☆ Upcoming School Star Parties ☆ ☆

Fri.	**02/11**	Waikiki Elementary (Waikiki)
Wed.	**02/19**	Mililani Ike Elementary (Mililani)

(Space Place continued from page 4)

bands (16, compared to five on existing GOES satellites). Perhaps most excitingly, it will also allow simultaneous scanning of both the broader view and not one but two concurrent storm systems or other small-scale patterns, such as wildfires, over areas of 1000km x 1000km.

Although the spatial resolution will not be any greater in the smaller areas than in the wider field of view, the significantly greater temporal resolution on the smaller scale (providing one image a minute) will allow meteorologists to see weather events unfold almost as if they were watching a movie.

So, for example, the ABI could be pointed at an area of Oklahoma where conditions seem primed for the formation of tornadoes. "And now you start getting one-minute data, so you can see small-scale clouds form, the convergence and growth," says Schmit.

In August, Schmit and colleagues enjoyed a brief taste of how that might look when they turned on the GOES-14 satellite, which serves as an orbiting backup for the existing generation of satellites.

"We were allowed to do some experimental imaging with this one-minute imagery," Schmit explains. "So we were able to simulate the temporal component of what we will get with ABI when it's launched."

The result was some imagery of cloud formation that, while not of the same resolution as the upcoming ABI images, unfolded on the same time scale. You can compare the difference between it and the existing GOES-13 imagery here: *http://cimss.ssec.wisc.edu/goes/blog/wp-content/uploads/2013/08/GOES1314_VIS_21AUG2013loop.gif*

Learn more about the GOES-R series of satellites here: *http://www.goes-r.gov*

Kids should be sure to check out a new online game that's all about ABI! It's as exciting as it is educational. Check it out at *http://scijinks.gov/abi* ☆

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

November Meeting Minutes

by Jim MacDonald

President Chris Peterson was away at a conference and unable to attend the meeting. In his absence, the club's sectary, Gretchen West, chaired the meeting which was called to order at 7:32p.m. The meeting was held in the Planetarium on the grounds of the Bishop Museum.

Club Vacancies: Gretchen announced that the club's board of directors had three vacancies that would need to be filled in the election at next month's general membership meeting. Members were encouraged to consider running for one of the positions. Vacancies include the position of Vice-President, and two members at large. These latter two positions offer a way to participate in and see how the board functions. All board members are expected to attend a minimum of three Dillingham star parties and serve as the person in charge to ensure that the star party functions smoothly and be the liaison with security to coordinate exit times.

Winter Pot Luck: We would remind everyone that a Winter Pot Luck Dinner will take place prior to the December H.A.S. general membership meeting at the Bishop Museum. Some of us are planning to be here at 5:30 p.m. to set up and get things going. We hope that members will join us on that night to celebrate the holiday season, as well as join in the camaraderie of fellow enthusiasts.

Items of General Interest: Gretchen told the group about three astronomy books that are good for building children's interested in the night sky.

1. DK Eyewitness Books - ASTRONOMY, with clip-art CD (in association with THE

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Treasurer's Report

by April Lew

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

Initial Balance:	**$4,272.19**
Receipts:	
Magazine Payments	32.95
Dues Received	180.00
Total Income:	**$212.95**
Expenses:	
Postage	58.50
Astronews	60.27
Calendars	161.88
Total Expenses:	**$280.65**
Final Balance	**$4,204.49**

(NOVEMBER MINUTES continued from page 9)

ROYAL OBSERVATORY, GREENWICH), by Kristen Lippencott; 2. SCHOLASTIC discover more, NIGHT SKY - Watching the Universe outside your window. By Giles Sparrow; 3. Kingfisher ASTRONOMY. by Carole Scott.

Sue Girard expanded on the 'sun funnel' project presented by ***John Sandor*** at the September meeting. Sue built her own unit and found that the best screen was made from thicker plastic shopping bags. Because of the heat of the sun, she covered the outside of the funnel with aluminum foil and also stopped down the front of the telescope with a hole of one to one and a half inch in diameter.

Paul Lawler showed a telescope that is being offered by Astronomers Without Borders (AWB). It is a 5" DOB with a single spoke spider and a helical focuser to be used on a table top. The scope is imported by Celestron from China. AWB charges $199.00 for the telescope and provides free shipping. A portion of each purchase is donated to Astronomers without borders. It is an impressive beginners scope. (For specifics see: Astronomerswithoutborders.org/)

Tom Giguere gave a very informative talk on comet ISON.

Barry Peckham stated that 238 people are regular visitors to the HAS FaceBook page, but very few are in the meeting, and discussed the astronomical league's awards program. The requirements are reasonable and everyone can receive an award. The important thing is that the program gets you to go out and do observing and thus broaden our knowledge of the night sky.

The meeting was adjourned at 9:17 p.m. Members enjoyed tasty refreshments supplied by ***April Lew.***

Respectfully Submitted,
Jim MacDonald

(Minutes continued from page 7)

tor should be between $600 to $800. ***April Lew and Gretchen West*** will get together to make the purchase for the club.

ASTRONEWS Advertisement: ***Andy Lefkowitz***, a former HAS member, is placing a notice in the Astronews for the sale of a telescope with carry bag.

Request: ***Chris Peterson*** reported that Marlin Productions has asked for permission to talk to the club about a future project regarding light pollution. Chris will also direct these people to talk to Richard Wainscoat at IfA at the University of Hawaii, Manoa.

Starlight Reserve Committee: ***Chris Peterson*** reported that meetings for the Starlight Reserve Committee have resumed. He and ***Harry Zisko*** will be attending upcoming meetings. Chris reiterated that the committee has made recommendations to the legislature regarding actions to deter further light pollution.

Alternative Viewing Site ***Chris Peterson*** made the assembled members aware of a possible additional viewing area in the Waianae area, along Waianae Valley Road. Individuals at a cultural visitor center seem open to our looking over the place as a possible South shore viewing area. Chris suggested that it might be a good place for a meteor shower viewing area or at least checking the area out during an upcoming meteor shower.

Explanations: A short discussion took place regarding how we might better explain the Milky Way to the viewing public.

Challenge: ***Barry Peckham*** challenged club members to broaden their horizons by joining him in completing an Astronomical League challenge. He expressed a desire that others take on one or more of the Astronomical League's challenges. Barry outlined the parameters and costs of the Astronomical League challenges and hopes that more members will join him.

Astronomical Viewing Software: An inquiry was made regarding available astronomical viewing software. ***Peter Besenbruck*** suggested "Carte du Siel."

Star Party Report: ***John Gallagher*** reports that there are no school star parties scheduled during the month of December. However, John did offer new star charts for the month of December and on the back, a listing of events for 2014.

Visitors: There were no visitors at this month's meeting.

Spur of the Moment Viewing: Active astronomers in the club have requested some way that interested individuals can communicate with each other on evenings when one or more of them might like to get together for a spur-of-the-moment viewing. After some discussion at this month's meeting, ***Paul Lawler*** suggested that the HAS Facebook page seems the most user-friendly venue for communications to occur.

Recognition: ***Gretchen West*** spoke to recognize the efforts of ***Richard Frey***, who has helped the club for many years with the collection and posting of the ASTRONEWS each month. A big "Thank You, Richard" from the club.

Planetarium: Once again, ***Joanne Bogan*** worked her magic in the Planetarium for the assembled H.A.S. members. We were treated to views of the northern and southern skies and to upcoming events. Joanne shared a new six-minute portion of the new "Wayfinders" show. Thanks again, Joanne.

Mahalo: As there was no further business, the meeting was adjourned at 9:12 p.m. Members enjoyed tasty refreshments supplied by ***Susan Girard and April Lew.***

Respectfully Submitted,
Gretchen West
HAS Secretary

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

HAS HOLIDAY POTLUCK! Astronews Editor happily engages in the delicious festivities at December's General Meeting. As usual, there was no shortage of great food and company. The annual dinner is, hopefully, a tradition that will bring members together and encourgage participation in club activities.
Courtesy: Jim MacDonald