Jupiter imaged and processed between November 13 - 15, 2011 by astrophotographer Freddy Williams. Freddy will present a talk at the November club—see page 1 for details. (Image altered and cropped to fit this space)

Image courtesy: Freddy Williams

ASTROPHOTOGRAPHY
FREDDY WILLEMS
Special Guest Speaker - NOVEMBER

Join us for a talk by Freddy Willems, astrophotographer specializing in planetary imaging. Using a 14” Celestron SCT, a 2X Barlow and a DMK monochrome camera and RGB filters/wheel, Freddy explains, “Every time when the skies are clear there is something in me that drags me outside, willing or not I have to image the planets, knowing that there will be lots of processing work after each imaging session...and lack of sleep!”

Editor
In a conversation with club member Stéphanie Choquette, I asked her if she had seen anything interesting at this year’s StarFest in Ontario, and she said, “Do you know Caroline’s White Rose in Cassiopeia?” Just by chance I was observing NGC 7789 in Cassiopeia on August 18, the very same night she was seeing it at StarFest. I find this cluster very beautiful because of its delicacy. There are no bright stars in it (in fact, none brighter than mag. 11), but it has several dust lanes which give it an ethereal quality. Club member Jane Houston Jones describes it as “lace like.” Unlike most open clusters, NGC 7789 is a rich cluster, which is best observed with higher powers. Jane notes that at 200x there is a noticeable dark spot in the center of the cluster. I found that even at 300x the cluster only looks more interesting. M11, the “Wild Duck” cluster reacts similarly to higher power. You can find NGC 7789 3° southeast of Beta Cassiopeiae (the last star in the W).

This is not the only cluster which has been nicknamed “Caroline’s Cluster.” The most well known is NGC 2360 in Canis Major. This is considered the first original discovery of a deep sky object by Caroline observing on her own. This cluster is smaller than NGC 7789 (around 60 stars instead of 100) and not dramatic, but very delicate. Your appreciation of the cluster will be improved by viewing first at low power and then bumping the power up to 200x. You should see lots of dark spots in the cluster. To find NGC 2360 draw a line between Sirius (the dog’s nose) and the dog’s left ear. Extend that line out the same distance from the dog ear as Sirius. Put your scope there and move it slightly south and you should be on it.

Other clusters discovered by Caroline Herschel are NGC 189 and NGC 659 (also in Cassiopeia), NGC 2548, NGC 6633, NGC 6819, NGC 6966, and NGC 7380. Then of course there’s the fabulous galaxy in sculptor NGC 253, but that’s a story for another day.

**HAWAIIAN ASTRONOMICAL SOCIETY**

**P.O. Box 17671**

**Honolulu, HI 9681-0671**

**President**

Chris Peterson  
956-3131  
chrisp@higp.hawaii.edu

**Vice-President**

Leslie Galloway  
636-1024  
gallowayL001@hawaii.rr.com

**Secretary**

Gretchen West  
282-1892  
gwest002@hawaii.rr.com

**Treasurer**

Jim MacDonald  
371-8759  
jim.macd@hawaiiantel.net

**The Astronews Editor**

Carolyn Kaichi  
551-1030  
c.kaichi2001@gmail.com

**Board Members at-Large**

Sue Girard  
341-6114  
socrux@hawaiiantel.net

April Lew  
734-2705  
stardustlounge@hotmail.com

**HAS Webmasters**

Peter Besenbruch  
peter@besenbruch.info

Harry Zisko  
harryz@pobox.com

**School Star Party Coordinator**

John Gallagher  
gallaghej002@hawaii.rr.com

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.

**Volume 60, Issue 11**
Treasurer’s Report

by Jim MacDonald


<table>
<thead>
<tr>
<th>Initial Balance:</th>
<th>$4,559.27</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Receipts:</strong></td>
<td></td>
</tr>
<tr>
<td>T-Shirt Sales</td>
<td>15.00</td>
</tr>
<tr>
<td>Donations</td>
<td>13.50</td>
</tr>
<tr>
<td>Dues Received</td>
<td>128.00</td>
</tr>
<tr>
<td>Calendars</td>
<td>26.00</td>
</tr>
<tr>
<td>Polo Shirt Deposit</td>
<td>27.98</td>
</tr>
<tr>
<td><strong>Total Income:</strong></td>
<td>$210.48</td>
</tr>
<tr>
<td><strong>Expenses:</strong></td>
<td></td>
</tr>
<tr>
<td>Astronews (2 months)</td>
<td>207.63</td>
</tr>
<tr>
<td>Bank Charge</td>
<td>7.00</td>
</tr>
<tr>
<td>Liability Insurance</td>
<td>320.00</td>
</tr>
<tr>
<td>Postage</td>
<td>2.30</td>
</tr>
<tr>
<td>Refreshments (8 months)</td>
<td>99.05</td>
</tr>
<tr>
<td>Returned Check</td>
<td>27.98</td>
</tr>
<tr>
<td><strong>Total Expenses:</strong></td>
<td>$663.96</td>
</tr>
<tr>
<td><strong>Final Balance:</strong></td>
<td>$4,105.29</td>
</tr>
</tbody>
</table>

The club gained one new member this month. She is Otis Wikman. Thanks also to Elton Chambers and Matthew Cochran for their donations. We appreciate all of those who remembered to renew their membership on time.

President’s Message

by Chris Peterson

Once upon a time, a lone astronomer with a telescope and dark skies could discover something new. The sky was vast, and few people had the equipment, time, and dedication to keep looking until they found something no one had seen before. Those days are gone. Giant telescopes beyond the reach of any individual are operated by large organizations, and even students are able to really discover things. Discovery is no longer available to amateurs, right? Not really.

It’s still possible to discover a comet the old-fashioned way. Some even still find new asteroids. However, new technology has also opened up new avenues. Amateurs, called “citizen scientists” by some, have just helped discover a planet using data from the Kepler mission that continuously monitors a number of stars for evidence of transiting planets. Kepler data can be viewed at PlanetHunters.org, and potential transits can be identified by anyone willing to spend time looking at the data. The planet found this way was no “ordinary” exoplanet, either. It orbits a binary system that is in turn orbited by another pair of stars much farther away (about 900 A.U.). Similar sites are used to classify galaxies and to hunt for Kuiper belt objects that New Horizons might visit after Pluto.

In other exoplanet news, a planet that is probably composed largely of diamond has been found orbiting the star 55 Cancri (Rho 1 Cancri). The innermost of 5 planets in the system, it orbits in only 18 hours. Even more exciting, an Earth-sized planet has been found to orbit Alpha Centauri B. While it also orbits in a short 3.2-day orbit, the system may contain other yet undiscovered planets in the habitable zone. This may spark excitement among those who know, as even many non-astronomers do, that the Alpha Centauri system contains the nearest known stars to our Sun.

If you’d like to make exoplanet or other discoveries of your own from the comfort of your living room, visit PlanetHunters.org or the other Galaxy Zoo-type sites and get to work. If you’d like to make discoveries about yourself, consider running for a Hawaiian Astronomical Society office. Elections are coming up, and the club needs the services of members willing to keep it running. Who knows, maybe you’ll discover leadership skills you didn’t know you had.

Chris

<<Upcoming Star Parties>>

**CLUB Party-Dillingham** Nov. 10 (Lew)

**Public Party-Dillingham** Nov. 17 (MacDonald)

**Kahala/Ewa Party** Nov. 24

☆ ☆ Upcoming School Star Parties ☆ ☆

<table>
<thead>
<tr>
<th>Thurs</th>
<th>10/25</th>
<th>Kamakau Charter @ Bishop Museum (solar viewing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri</td>
<td>10/19</td>
<td>Boy Scouts Camp (Schofield Barracks)</td>
</tr>
<tr>
<td>Fri</td>
<td>1/18</td>
<td>Waikiki Elementary (Honolulu)</td>
</tr>
</tbody>
</table>

Dillingham Public Star Party - Oct 13, 2012

The Oct. public star party was a great success. We had 25 cars and a bus load of students, all of whom were quite impressed with the clear sky, beautiful Milky Way, and the many interesting objects to observe. There were some clouds at the beginning, but they quickly disappeared and the sky cleared to reveal a wonderful view of the Milky Way stretching directly overhead.

We had the usual objects to show case, but the transparent sky allowed visitors to catch glimpses of some of the more exotic objects. The ‘double- double ‘ was easily split and the Andromeda galaxy showed quite a lot of detail. Gretchen found that new comet Hergenrother in the Great Square of Pegasus and it proved to be quite bright with a surprisingly broad, curved tail. The Blue Snowball was very nice and ‘Gary the snail ‘ delighted most everyone. Open clusters in Cassiopeia and Sagittarius also impressed the crowd. We showed them some nice double stars and globulars as the night progressed.

Most visitors left at 8:30pm and the rest of us left around 10pm as some clouds moved in. All in all, a very nice evening.

(Continued on page 9)
A Cosmic Tease:
Trials of the Herschel Space Telescope Science Teams
By Dr. Marc J. Kuchner

Vast fields of marble-sized chunks of ice and rock spun slowly in the darkness this week, and I sat in the back of a grey conference room with white plastic tables spread with papers and laptops. I was sitting in on a meeting of an international team of astronomers gathered to analyze data from the Herschel Infrared Observatory. This telescope, sometimes just called Herschel, orbits the Sun about a million miles from the Earth.

The meeting began with dinner at Karl’s house. Karl charred chorizo on the backyard grill while the airplanes dribbled into Dulles airport. Our colleagues arrived, jetlagged and yawning, from Germany, Sweden, and Spain, and we sat on Karl’s couches catching up on the latest gossip. The unemployment level in Spain is about twenty percent, so research funding there is hard to come by these days. That’s not nice to hear. But it cheered us up to be with old friends.

The meeting commenced the next morning, as the vast fields of ice and rock continued to spin—shards glinting in the starlight. Or maybe they didn’t. Maybe they didn’t exist at all.

You see, this team is looking at a series of images of stars taken by a device called a bolometer that is blind to ordinary starlight. Instead, the bolometer inside Herschel senses infrared light, a kind of light that we would probably refer to as heat if we could feel it. But the idea of pointing the bolometer at the stars was not to collect ordinary starlight. It was to measure heat coming from the vicinity of these stars, like you could feel it. But the idea of pointing the bolometer at the stars was not to collect ordinary starlight. Instead, the bolometer inside Herschel senses infrared light, a kind of light that we would probably refer to as heat if we could feel it.

Low developed the germanium bolometer in 1878. His instrument detects a broad range of infrared wavelengths, sensitive to differences in temperature of one hundred-thousandth of a degree Celsius (0.00001 C). In 1961, Frank Low developed the germanium bolometer, which is hundreds of times more sensitive than previous detectors and capable of detecting far-infrared radiation.

Samuel Pierpoint Langley, who developed the bolometer in 1878. His instrument detects a broad range of infrared wavelengths, sensitive to differences in temperature of one hundred-thousandth of a degree Celsius (0.00001 C). In 1961, Frank Low developed the germanium bolometer, which is hundreds of times more sensitive than previous detectors and capable of detecting far-infrared radiation.

And lo and behold, for a handful of stars, the bolometer measurements were off the charts! Maybe something was orbiting these stars. From the details of the bolometer readings—which channels lit up and so on—you would guess that this stuff took the form of majestic fields or rings of icy and rocky particles. It would be a new kind of disk, a discovery worth writing home to Madrid about.

There are several teams of astronomers analyzing data from the Herschel Space Telescope. They call themselves by oddly inappropriate sounding acronyms: GASPS, DUNES, DEBRIS. For the time being, the scientists on these teams are the only ones with access to the Herschel data. But in January, all the data these teams are working on will suddenly be released to the public. So they are all under pressure to finish their work by then. The team whose meeting I was sitting in on would like to publish a paper about the new disks by then.

But it’s not so simple. The stars that this team had measured were relatively nearby as stars go, less than a few hundred light years. But the universe is big, and full of galaxies of all kinds—a sea of galaxies starting from maybe a hundred thousand light years away, and stretching on and on. Maybe one of those background galaxies was lined up with each of the stars that had lit up the bolometer—foozing us into thinking they were seeing disks around these stars.

The team argued and paced, and then broke for lunch. We marched to the cafeteria through the rain. Meanwhile, vast fields of marble-sized chunks of ice and rock spun slowly in the darkness. Or maybe they didn’t.


Dr. Marc J. Kuchner is an astrophysicist at the Exoplanets and Stellar Astrophysics Laboratory at NASA’s Goddard Space Flight Center. NASA’s Astrophysics Division works on big questions about the origin and evolution of the universe, galaxies, and planetary systems. Explore more at http://www.science.nasa.gov/astrophysics/.

.................................................................................................................................

Star Party Report
(Continued from page 3)

Dillingham Club Star Party - Oct 6, 2012

I left Honolulu under heavy cloud cover fully expecting to cancel the star party since I was the Key Master for the evening but was pleasantly surprised to find the Dillingham area completely clear! Only two other members showed up (Gretchen and Henry) and the wind was too strong to set up the scopes (Gretchen had brought her 6” and Henry had his 8” Celestron), so we decided to try our hand at binocular astronomy.

It turned out to be a very nice time since we were able to shelter from the wind enough to see a fair number of globulars in Sagittarius and Scorpius as well as many of the open clusters in that area as well. We were treated to a very nice pass of the ISS in the southern sky at 7 pm.

We also observed the Omega and Lagoon nebulae and the area around the Scutum star cloud. The eastern and northern skies didn’t disappoint either with Andromeda galaxy (I could also see the satellite galaxies with my spotter scope), Cassiopeia clusters and M13.

Since Gretchen had to leave early, we decided to call it quits at 8:30pm. It turned out to be a very special evening of binocular observing, so the next time you are at Dillingham give it a try!

Credit: NASA

(Space Place continued from page 4)

Page 4

The Astronews

Page 9
We have the preliminary results for the Orionids, which peaked both on the 20th and 23rd of last month. The peak zenith hourly rate was 43 for both dates, which is actually above the predicted average of 25.

The casual reports from around Hawaii didn’t show a lot of activity; Mike Morrow, Big Island, saw one sporadic and zero Orionids; two windward observers scored six Orionids; and I didn’t see any as I observed briefly from Kapolei. The star observer, Mike Linnolt, Ocean View, caught 13 meteors in 1.3 hours, which works out nicely to one every 0.1 hours or six minutes.

Let’s look at the showers coming up in November. The Northern Taurids (NTA), like its southern counterpart, the Southern Taurids (STA) are related to Comet 2P/Encke. The shower is one day from new moon, with a radiant that is large and diffuse. Shower members are quite slow at 29 km/second. Slow meteors are always interesting to watch. The Leonids (LEO) shower occurs this month on the 17th, four days after New Moon. If you observe after the Moon sets, you’ll have a much better chance of seeing shower members. The parent comet, 55P/Tempel-Tuttle reached perihelion almost 15 years ago in 1998. The shower has continued at a low level and has been variable from year-to-year since then.

The two activity charts (see page 11) for past years provides the observer with some idea of how many meteors can be observed around the maximum date. The Hawaiian Astronomical Society is now on facebook.
### Observer's Notebook

**Planets Close To the Moon**

*Times are Hawaii Standard Time*

- **Nov 1, 15h, M 0.93° SSW of Jupiter**
  143° from sun in evening sky
- **Nov 11, 06h, M 5.1° SSW of Venus**
  32° from sun in morning sky
- **Nov 12, 10h, M 4.3° S of Saturn**
  15° from sun in evening sky
- **Nov 15, 22h, M 1.4° NNW of Mars**
  34° from sun in morning sky
- **Nov 20, 09h, M 6.0° NNW of Neptune**
  92° from sun in evening sky
- **Nov 23, 01h, M 4.9° NNW of Uranus**
  123° from sun in evening sky
- **Nov 28, 15h, M 0.67° SSW of Jupiter**
  175° from sun in midnight sky

Mercury is closer that 15° from the sun when near the moon in November.

### Other Events of Interest

*Times are Hawaii Standard Time*

- **Nov 13, 12:07 h, Moon new**
- **Nov 17 Leonid Meteors**
  Favorable year for this major shower
- **Nov 17, 06h, Mercury at inferior conj. with sun**
  Passes into morning sky
- **Nov 26, 15h, Venus 0.53° from Saturn**
  29° from sun in morning sky
- **Nov 28, 04:46 h, Moon full**

#### Mercury

Mercury appears in the morning sky the last few days of the month.

#### Venus

Shines brightly in the morning sky at magnitude -4.1. Has a very close approach to Saturn on the morning of Nov 26.

#### Mars

Mars is now too close to the western horizon after sunset to be seen crisply.

#### Jupiter

Rises in the early evening and shines brightly in Taurus for the rest of the night.

#### Saturn

Saturn appears in the morning sky and is very close to Venus on Nov. 26.

#### Uranus

Reached opposition in September and is well placed for viewing in Pisces.

#### Neptune

Reached opposition in August, so this is still a good month to view the most distant planet in the solar system.

#### Dwarf Planet Pluto

Pluto is about 45° from the sun in the evening sky.

#### Asteroid 1 Ceres

Approaching opposition in Dec. and brightens from about mag. +7.9 at the beginning of Nov. to +7.3 at the end of the month.

---

### Meeting Minutes

**President Chris Peterson** called the October 2, 2012 meeting of the Hawaiian Astronomical Society to order at 7:31 p.m. The meeting was held in Paki Hall on the grounds of the Bishop Museum. There were 19 members in attendance.

**Planetarium Upgrade: Chris Peterson** informed the membership that during the Planetarium retrofit, H.A.S. is hoping to visit the Windward Community College’s Imaginarium. We may visit in December. Our own planetarium is scheduled to complete the makeover by Dec. 2, 2012.

**Travel to Dillingham Field:** It’s advised that the Thot Bridge on the edge of Wahiawa town is temporarily closed to traffic. Members and visitors traveling out to Dillingham Airfield via Wahiawa should use Wilikina Drive, rather than Thot Bridge and on to Kaukonaoa Road.

**Speaker:** Chris Peterson has communicated with Freddie Willems about coming to speak on astrophotography and imaging. We are looking forward to Freddie’s response.

**Books:** The four books donated to the club by Michael Chauvin are hopefully in Mike Shanahan’s office.

**Lacy Veach Day:** Saturday, October 27 on the grounds of Punahou School. **Gretchen West** will be the liaison. **Gretchen West,** **Jim MacDonald,** **John Gallagher,** **Sue Girard,** **Lenore Hansen-Stafford,** **Joanne Bogan** and **John Sandor** have volunteered to man the H.A.S. table from 7:30 am until 1:30 p.m.

**Dillingham Airfield/State of Hawaii:** News reports indicate that the State of Hawaii may return Dillingham Airfield to the federal government. No further information is available at this time.

**Yearly Elections:** H.A.S. yearly elections for the Board of Directors takes place at the December meeting. Anyone interested in running for a place on the board or who would like to nominate a member for election should contact Joanne Bogan who has graciously accepted to be the elections chair this year.

**New Comet:** The ISON comet has been spotted by club astronomers. This comet will continue to be visible for some time. Come out to Dillingham or to one of our suburban star gazing events to take a look.

**Mission News:** Chris Peterson reviewed the mission updates for Mercury, Venus, and the Lunar Reconnaissance Orbiter. Chris also remarked on the Mars rovers Curiosity and Opportunity. Further discussion centered on the Jupiter Juno mission and to the mission to Europa, and updates on missions to Saturn, Pluto and Vesta.

**Star Party Report:** John Gallagher reports that our recent school star party in Haiku Valley was a success. Our team of astronomers shared the early evening skies with the 34 students of the Hawaiian immersion school. John passed a sign-up sheet for members interested in helping out at our upcoming events at Niu Valley Middle School on October 19th.

**Star Light Reserve Committee:** It was reported that Richard Wainscoat did not return requests for information regarding the next meeting the committee, so we will wait and see.

**T-Shirts:** Jim MacDonald reported that new “winter” dark blue H.A.S. t-shirts are available in all sizes. There are also a limited supply of ‘summer’ light blue shirts. Jim also had illustrations of polo shirts that will be available for order with the H.A.S. logo. Orders will be taken with pre-payments only!
Observer’s Notebook by Jay Wrathall

Planets Close To the Moon
Times are Hawaii Standard Time

Nov 1, 15h, M 0.93° SSW of Jupiter 
(143° from sun in morning sky)

Nov 11, 06h, M 5.1° SSW of Venus 
(32° from sun in morning sky)

Nov 12, 10h, M 4.3° S of Saturn 
(15 from sun in evening sky)

Nov 15, 22h, M 1.4° NNW of Mars 
(34° from sun in morning sky)

Nov 20, 09h, M 6.0° NNW of Neptune 
(92° from sun in evening sky)

Nov 23, 01h, M 4.9° NNW of Uranus 
(123° from sun in evening sky)

Nov 28, 15h, M 0.67° SSW of Jupiter 
(175° from sun in midnight sky)

Mercury is closer that 15° from the sun when near the moon in November.

Mercury
Mercury appears in the morning sky the last few days of the month.

Venus
Shines brightly in the morning sky at magnitude -4.1. Has a very close approach to Saturn on the morning of Nov 26.

Mars
Mars is now too close to the western horizon after sunset to be seen crisply.

Jupiter
Rises in the early evening and shines brightly in Taurus for the rest of the night.

Saturn
Saturn appears in the morning sky and is very close to Venus on Nov. 26.

Uranus
Reached opposition in September and is well placed for viewing in Pisces.

Neptune
Reached opposition in August, so this is still a good month to view the most distant planet in the solar system.

Dwarf Planet
Pluto
Pluto is about 45° from the sun in the evening sky.

1 Ceres
Approaching opposition in Dec. and brightens from about mag. +7.9 at the beginning of Nov. to +7.3 at the end of the month.

Meeting Minutes by Gretchen West

President Chris Peterson called the October 2, 2012 meeting of the Hawaiian Astronomical Society to order at 7:31p.m. The meeting was held in Paki Hall on the grounds of the Bishop Museum. There were 19 members in attendance.

Planetarium Upgrade: Chris Peterson informed the membership that during the Planetarium retrofit, H.A.S. is hoping to visit the Windward Community College’s Imaginarium. We may visit in December. Our own planetarium is scheduled to complete the makeover by Dec. 2, 2012.

Travel to Dillingham Field: It’s advised that the Thot Bridge on the edge of Wahiawa town is temporarily closed to traffic. Members and visitors traveling out to Dillingham Airfield via Wahiawa should use Wilikina Drive, rather than Thot Bridge and on to Kaukonaoa Road.

Speaker: Chris Peterson has communicated with Freddie Willems about coming to speak on astrophotography and imaging. We are looking forward to Freddie’s response.

Books: The four books donated to the club by Michael Chauvin are hopefully in Mike Shamahan’s office.

Lacy Veach Day: Saturday, October 27 on the grounds of Punahou School. Gretchen West will be the liaison. Gretchen West, Jim MacDonald, John Gallagher, Sue Girard, Lenore Hansen-Stafford, Joanne Bogan and John Sandor have volunteered to man the H.A.S. table from 7:30 am until 1:30 p.m.

Dillingham Airfield/State of Hawaii: News reports indicate that the State of Hawaii may return Dillingham Airfield to the federal government. No further information is available at this time.

Yearly Elections: H.A.S. yearly elections for the Board of Directors takes place at the December meeting. Anyone interested in running for a place on the board or who would like to nominate a member for election should contact Joanne Bogan who has graciously accepted to be the elections chair this year.

New Comet: The ISON comet has been spotted by club astronomers. This comet will continue to be visible for some time. Come out to Dillingham or to one of our suburban star gazing events to take a look.


Star Party Report: John Gallagher reports that our recent school star party in Haiku Valley was a success. Our team of astronomers shared the early evening skies with the 34 students of the Hawaiian immersion school. John passed a sign-up sheet for members interested in helping out at our upcoming events at Niu Valley Middle School on October 19th.

Star Light Reserve Committee: It was reported that Richard Wainscoat did not return requests for information regarding the next meeting the committee, so we will wait and see.

T-Shirts: Jim MacDonald reported that new “winter” dark blue H.A.S. t-shirts are available in all sizes. There are also a limited supply of ‘summer’ light blue shirts. Jim also had illustrations of polo shirts that will be available for order with the H.A.S. logo. Orders will be taken with pre-payments only!

(Continued on page 11)
We have the preliminary results for the Orionids, which peaked both on the 20th and 23rd of last month. The peak zenith hourly rate was 43 for both dates, which is actually above the predicted average of 25.

The casual reports from around Hawaii didn’t show a lot of activity; Mike Morrow, Big Island, saw one sporadic and zero Orionids; two windward observers scored six Orionids; and I didn’t see any as I observed briefly from Kapolei. The star observer, Mike Linnolt, Ocean View, caught 13 meteors in 1.3 hours, which works out nicely to one every 0.1 hours or six minutes.

Let’s look at the showers coming up in November. The Northern Taurids (NTA), like its southern counterpart, the Southern Taurids (STA) are related to Comet 2P/Encke. The shower is one day from new moon, with a radiant that is large and diffuse. Shower members are quite slow at 29 km/second. Slow meteors are always interesting to watch. The Leonids (LEO) shower occurs this month on the 17th, four days after New Moon. If you observe after the Moon sets, you’ll have a much better chance of seeing shower members. The parent comet, 55P/Tempel-Tuttle reached perihelion almost 15 years ago in 1998. The shower has continued at a low level and has been variable from year-to-year since then.

The two activity charts (see page 11) for past years provides the observer with some idea of how many meteors can be observed around the maximum date.

<table>
<thead>
<tr>
<th>Last Quarter</th>
<th>New Moon</th>
<th>First Quarter</th>
<th>Full Moon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 7</td>
<td>Nov 13</td>
<td>Nov 20</td>
<td>Nov 28</td>
</tr>
<tr>
<td>Shower</td>
<td>Activity</td>
<td>Max Date</td>
<td>λ</td>
</tr>
<tr>
<td>Northern Taurids (NTA)*</td>
<td>10/20 - 12/10</td>
<td>Nov 12</td>
<td>230°</td>
</tr>
<tr>
<td>Leonids (LEO)*</td>
<td>11/06 - 11/30</td>
<td>Nov 17</td>
<td>235.27°</td>
</tr>
<tr>
<td>α-Monocerotids (AMO)</td>
<td>11/15 - 11/25</td>
<td>Nov 21</td>
<td>239.32°</td>
</tr>
</tbody>
</table>

Keep looking up…! Tom Giguere, 808-782-1408, thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

---

Beautiful closeup taken hand-held at the eyepiece of Barry’s “15 incher” and featuring the crater trio of Theophilus, Cyrillus and Catharina. Courtesy Barry Peckham from the October Kahala Star Party, Oct. 20, posted on Facebook.

---

The Hawaiian Astronomical Society is now on Facebook.

---

Club Shirts for Sale

POLO STYLE:
- Embroidered, different colors, sizes
- Orders need to be place by November

T-SHIRT:
- Dark Blue (s - 2XL)
- Light Blue (s - L only)

---

Meteor Log by Tom Giguere

---

Page 8
A Cosmic Tease:
Trials of the Herschel Space Telescope Science Teams
By Dr. Marc J. Kuchner

Vast fields of marble-sized chunks of ice and rock spun slowly in the darkness this week, and I sat in the back of a grey conference room with white plastic tables spread with papers and laptops. I was sitting in on a meeting of an international team of astronomers gathered to analyze data from the Herschel Infrared Observatory. This telescope, sometimes just called Herschel, orbits the Sun about a million miles from the Earth.

The meeting began with dinner at Karl’s house. Karl charred chorizo on the backyard grill while the airplanes dribbled into Dulles airport. Our colleagues arrived, jetlagged and yawning, from Germany, Sweden, and Spain, and we sat on Karl’s couches catching up on the latest gossip. The unemployment level in Spain is about twenty percent, so research funding there is hard to come by these days. That’s not nice to hear. But it cheered us up to be with old friends.

The meeting commenced the next morning, as the vast fields of ice and rock continued to spin—shards glinting in the starlight. Or maybe they didn’t. Maybe they didn’t exist at all.

You see, this team is looking at a series of images of stars taken by a device called a bolometer that is blind to ordinary starlight. Instead, the bolometer inside Herschel senses infrared light, a kind of light that we would probably refer to as heat if we could feel it. But the idea of pointing the bolometer at the stars was not to collect readings—which channels lit up and so on—you would guess that this stuff took the form of majestic fields or rings of icy and rocky particles. It would be a new kind of disk, a discovery worth writing home to Madrid about.

There are several teams of astronomers analyzing data from the Herschel Space Telescope. They call themselves by oddly inappropriate sounding acronyms: GASPS, DUNES, DEBRIS. For the time being, the scientists on these teams are the only ones with access to the Herschel data. But in January, all the data these teams are working on will suddenly be released to the public. So they are all under pressure to finish their work by then. The team whose meeting I was sitting in on would like to publish a paper about the new disks by then.

But it’s not so simple. The stars that this team had measured were relatively nearby as stars go, less than a few hundred light years. But the universe is big, and full of galaxies of all kinds—a sea of galaxies starting from maybe a hundred thousand light years away, and stretching on and on. Maybe one of those background galaxies was lined up with each of the stars that had lit up the bolometer—fooling us into thinking they were seeing disks around these stars.

The team argued and paced, and then broke for lunch. We marched to the cafeteria through the rain. Meanwhile, vast fields of marble-sized chunks of ice and rock spun slowly in the darkness. Or maybe they didn’t.


Dr. Marc J. Kuchner is an astrophysicist at the Exoplanets and Stellar Astrophysics Laboratory at NASA’s Goddard Space Flight Center. NASA’s Astrophysics Division works on big questions about the origin and evolution of the universe, galaxies, and planetary systems. Explore more at http://www.science.nasa.gov/astrophysics/.

Star Party Report
by Sue Girard

(Continued from page 3)

Dillingham Club Star Party - Oct 6, 2012

I left Honolulu under heavy cloud cover fully expecting to cancel the star party since I was the Key Master for the evening but was pleasantly surprised to find the Dillingham area completely clear! Only two other members showed up (Gretchen and Henry) and the wind was too strong to set up the scopes (Gretchen had brought her 6" and Henry had his 8" Celestron), so we decided to try our hand at binocular astronomy.

It turned out to be a very nice time since we were able to shelter from the wind enough to see a fair number of globulars in Sagittarius and Scorpius as well as many of the open clusters in that area as well. We were treated to a very nice pass of the ISS in the southern sky at 7 pm.

We also observed the Omega and Lagoon nebulae and the area around the Scutum star cloud. The eastern and northern skies didn’t disappoint either with Andromeda galaxy (I could also see the satellite galaxies with my spotter scope), Cassiopeia clusters and M13.

Since Gretchen had to leave early, we decided to call it quits at 8:30pm. It turned out to be a very special evening of binocular observing, so the next time you are at Dillingham give it a try!
Treasurer’s Report

by Jim MacDonald


Initial Balance: $4,559.27

Receipts:
- T-Shirt Sales 15.00
- Donations 13.50
- Dues Received 128.00
- Calendars 26.00
- Polo Shirt Deposit 27.98

Total Income: $210.48

Expenses:
- Astronews (2 months) 207.63
- Bank Charge 7.00
- Liability Insurance 320.00
- Postage 2.30
- Refreshments (8 months) 99.05
- Returned Check 27.98

Total Expenses: $663.96

Final Balance: $4,105.29

The club gained one new member this month. She is Otis Wikman. Thanks also to Elton Chambers and Matthew Cochran for their donations. We appreciate all of those who remembered to renew their membership on time.

President’s Message

by Chris Peterson

Once upon a time, a lone astronomer with a telescope and dark skies could discover something new. The sky was vast, and few people had the equipment, time, and dedication to keep looking until they found something no one had seen before. Those days are gone. Giant telescopes beyond the reach of any individual are operated by large organizations, and time is doled out only to professionals. Discovery is no longer available to amateurs, right? Not really.

It’s still possible to discover a comet the old-fashioned way. Some even still find new asteroids. However, new technology has also opened up new avenues. Amateurs, called “citizen scientists” by some, have just helped discover a planet using data from the Kepler mission that continuously monitors a large number of stars for evidence of transiting planets. Kepler data can be viewed at Planet hunters.org, and potential transits can be identified there by anyone willing to spend time looking at the data. The planet found this way was no “ordinary” exoplanet, either. It orbits a binary system that is in turn orbited by another pair of stars much farther away (about 900 A.U.). Similar sites are used to classify galaxies and to hunt for Kuiper belt objects that New Horizons might visit after Pluto.

In other exoplanet news, a planet that is probably composed largely of diamond has been found orbiting the star 55 Cancri (Rho 1 Cancri). The innermost of 5 planets in the system, it orbits in only 18 hours. Even more exciting, an Earth-sized planet has been found to orbit Alpha Centauri B. While it also roasts in a short 3.2-day orbit, the system may contain other yet undiscovered planets in the habitable zone. This may spark excitement among those who know, as even many non-astronomers do, that the Alpha Centauri system contains the nearest known stars to our Sun.

If you’d like to make exoplanet or other discoveries of your own from the comfort of your living room, visit Planet hunters.org or the other Galaxy Zoo-type sites and get to work. If you’d like to make discoveries about yourself, consider running for a Hawaiian Astronomical Society office. Elections are coming up, and the club needs the services of members willing to keep it running. Who knows, maybe you’ll discover leadership skills you didn’t know you had.

Chris

<<Upcoming Star Parties>>

CLUB Party-Dillingham Nov. 10 (Lew)
Public Party-Dillingham Nov. 17 (MacDonald)
Kahala/Ewa Party Nov. 24

Upcoming School Star Parties

Thurs 10/25 Kamakau Charter @ Bishop Museum (solar viewing)
Fri 10/19 Boy Scouts Camp (Schofield Barracks)
Fri 1/18 Waikiki Elementary (Honolulu)

Star Party Report

by Sue Girard

Dillingham Public Star Party - Oct 13, 2012

The Oct. public star party was a great success. We had 25 cars and a bus load of students, all of whom were quite impressed with the clear sky, beautiful Milky Way, and the many interesting objects to observe. There were some clouds at the beginning, but they quickly disappeared and the sky cleared to reveal a wonderful view of the Milky Way stretching directly overhead.

We had the usual objects to showcase, but the transparent sky allowed visitors to catch glimpses of some of the more exotic objects. The double-double was easily split and the Andromeda galaxy showed quite a lot of detail. Gretchen found that new comet Hergenrother in the Great Square of Pegasus and it proved to be quite bright with a surprisingly broad shaped tail. The Blue Snowball was very nice and ‘Gary the snail’ delighted most everyone. Open clusters in Cassiopeia and Sagittarius also impressed the crowd. We showed them some nice double stars and globulars as the night progressed.

Most visitors left at 8:30pm and the rest of us left around 10pm as some clouds moved in. All in all, a very nice evening.

(Continued on page 9)

The Astronews
In a conversation with club member Stephanie Choquette, I asked her if she had seen anything interesting at this year’s StarFest in Ontario, and she said, “Do you know Caroline’s White Rose in Cassiopeia?” Just by chance I was observing NGC 7789 in Cassiopeia on August 18, the very same night she was seeing it at StarFest. I find this cluster very beautiful because of its delicacy. There are no bright stars in it (in fact, none brighter than mag. 11), but it has several dust lanes which give it an ethereal quality. Club member Jane Houston Jones describes it as “lace like.” Unlike most open clusters, NGC 7789 is a rich cluster, which is best observed with higher powers. Jane notes that at 200x there is a noticeable dark spot in the center of the cluster. I found that even at 300x the cluster only looks more interesting. M11, the “Wild Duck” cluster reacts similarly to higher power. You can find NGC 7789 3° southeast of Beta Cassiopeiae (the last star in the W).

This is not the only cluster which has been nicknamed “Caroline’s Cluster.” The most well known is NGC 2360 in Canis Major. This is considered the first original discovery of a deep sky object by Caroline observing on her own. This cluster is smaller than NGC 7789 (around 60 stars instead of 100) and not dramatic, but very delicate. Your appreciation of the cluster will be improved by viewing first at low power and then bumping the power up to 200x. You should see lots of dark spots in the cluster. To find NGC 2360 draw a line between Sirius (the dog’s nose) and the dog’s left ear. Extend that line out the same distance from the dog ear as Sirius. Put your scope there and move it slightly south and you should be on it.

Other clusters discovered by Caroline Herschel are NGC 189 and NGC 659 (also in Cassiopeia), NGC 2548, NGC 6633, NGC 6819, NGC 6966, and NGC 7380. Then of course there’s the fabulous galaxy in sculptor NGC 253, but that’s a story for another day.
Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, HI 96817-0671

Inside this issue:
- President’s Message
- NASA Space Place
- Meteor Log
- Observer’s Notebook
- Calendar
- Minutes
- Star Parties
- Treasurer’s Report

Upcoming Events:
- The next meeting is 7:30PM on Tues., Nov. 6 at the Bishop Museum.
- Planetarium shows with Barry Peckham are ON HOLD during the renovation.
- The next Board Meeting is Sun., Nov 4 at 3:30 p.m. at the POST building at UH.

Editor