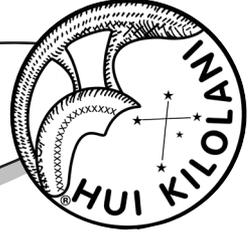


The Astronews



Volume 60, Issue 11

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www.hawastsoc.org

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



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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.
www.bishopmuseum.org/calendar
- ☆ The next Board Meeting is Sun., **Nov 4** at 3:30 p.m. at the POST building at UH.



CAROLINE'S CLUSTERS:

by Paul Lawler

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 sculpator NGC 253, but that's a story for another day.

Paul



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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.

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 Planethunters.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 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



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 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 fan-shaped tail. The Blue Snowball was very nice and 'Gary the snail' delighted most everyone. Open clusters in Cassiopeia and Sagittaris 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 an infrared security camera, in case there was something else to be found lurking nearby.

And lo and behold, for a handful of stars, the bolometer measurements were off the

(Continued on page 9)



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.

Credit: NASA

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.

	<i>Last Quarter</i> Nov 7	<i>New Moon</i> Nov 13	<i>First Quarter</i> Nov 20	<i>Full Moon</i> Nov 28				
Shower	Activity	Max Date	λ 2000	Radiant α	δ	V_{∞} km/s	r	ZHR
Northern Taurids (NTA)*	10/20 - 12/10	Nov 12	230°	58°	+22°	29	2.3	5
Leonids (LEO)*	11/06 - 11/30	Nov 17	235.27°	152°	+22°	71	2.5	15*
α -Monocerotids (AMO)	11/15 - 11/25	Nov 21	239.32°	117°	+01°	65	2.4	Var

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

CLUB SHIRTS FOR SALE

to order see Jim MacDonald



POLO STYLE:

Embroidered, different colors, sizes
Orders need to be place by November



T-SHIRT:

\$15

- Dark Blue (s - 2XL)
- Light Blue (s - L only)

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 evening 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)

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 is closer than 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.	 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.

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 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!

(Continued on page 11)

Hawaiian Astronomical Society

Event Calendar

List View		Past Events		< November 2012 >		Upcoming Events		Add/Log Event	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
28	29	30	31	1	2	3			
						Sunset: 5:55 PM			
4	5	6	7	8	9	10			
		7:30 PM Club Meeting				5:15 PM Club Star Party (D)			Sunset: 5:52 PM
11	Veterans Day	12	13	14	15	16			
						5:30 PM Cub Scout campout			5:15 PM Public Star Party(D)
									Sunset: 5:51 PM
18	19	20	21	22	23	24			
				Thanksgiving Day		5:15 PM Public Star Party(K) 5:15 PM Public Star Party(G)			Sunset: 5:50 PM
25	26	27	28	29	30	1			



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

(Space Place continued from page 4)

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—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.

What else did Herschel recently uncover? Find out at <http://spaceplace.nasa.gov/comet-ocean>.

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

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

Initial Balance:	\$4,559.27
<i>Receipts:</i>	
T-Shirt Sales	15.00
Donations	13.50
Dues Received	128.00
Calendars	26.00
Polo Shirt Deposit	27.98
Total Income:	\$210.48
<i>Expenses:</i>	
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.

<<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)
2013		
Fri	1/18	Waikiki Elementary (Honolulu)

(Minutes continued from page 9)

Calendar Time: *Jim MacDonald* also reports that Astronomy Magazine has offered their 2013 calendars “Deep Space Mysteries,” as well as Discovery Magazine 2013 calendars “Wonders of Science” for a discounted \$6.50 each. Pre-paid orders will need to be completed no later than the October meeting.

What’s Up With the Planetarium: *Joanne Bogan* took the members over to the Planetarium. Stripped bare the Planetarium was cavernous and Joanne explained the renovations that will soon be made. It sounds really exciting!

Club Pot Luck in January: In honor of the refurbishment and reopening of the Bishop Museum Planetarium we would like to invite all H.A.S. members to join us for a Hawaiian Astronomical Society potluck supper prior to the January 2013 meeting. Plan you best potluck delicacies and come join in. We would also like to take a group picture of the entire club at that time.

An Astronomical Vacation: *John Sandor and Joanne Bogan*, just back from their astronomically-themed tour of England, regaled members with the sights and sounds of London and surrounding areas. Wow! So cool!

* As there was no further business, the meeting was adjourned at 9:420 p.m.

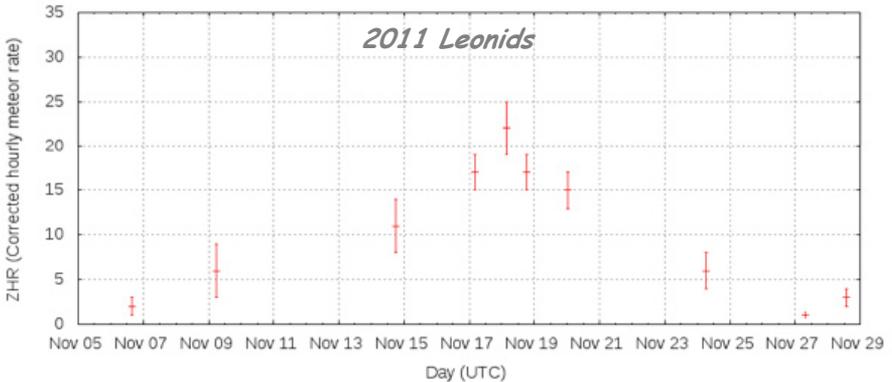
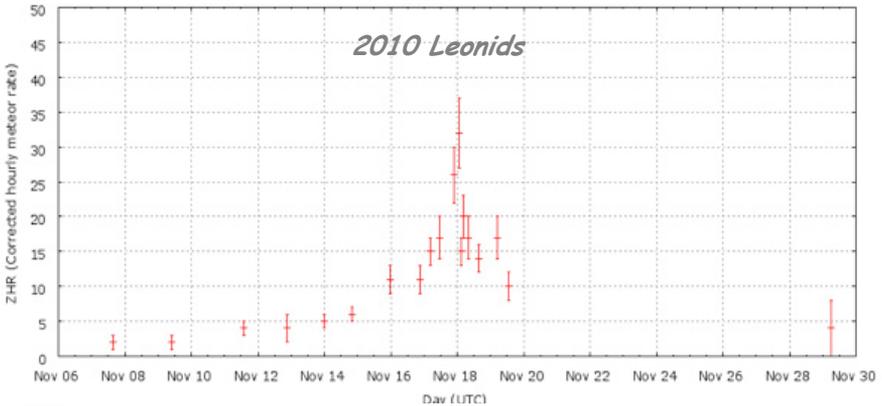
Respectfully Submitted,

Gretchen West

Secretary

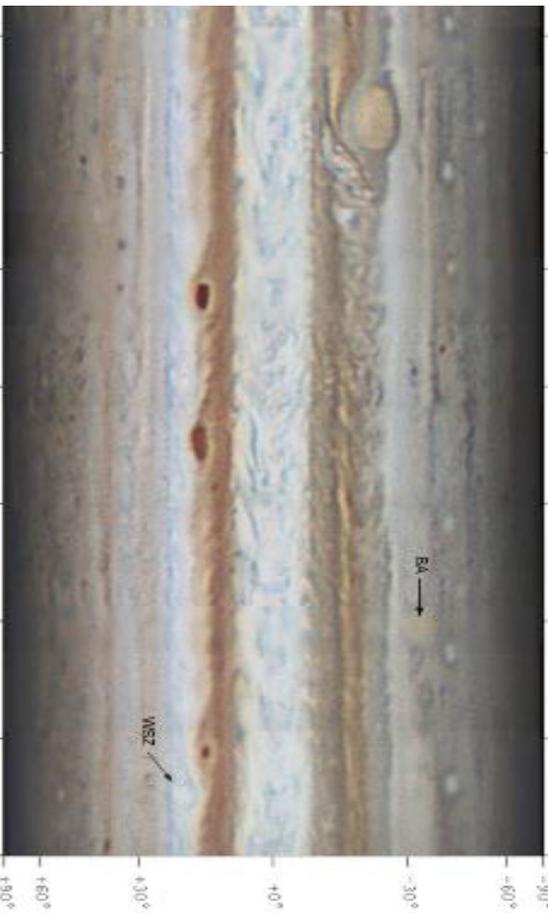


METEOR REPORT (continued from pg. 5) The two graphs below illustrates the number of Leonid meteor sightings in 2010 and 2011.



Hawaiian Astronomical Society
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150° 180° 210° 240° 270° 300° 330° 360°
-90° -60° -30° +0° +30° +60° +90°



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 Willemis

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