The Astronews

HUI KILOLANI

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President's Message

by Chris Peterson

Have you ever seen a black hole? Of course you haven't. Black holes emit no light, so it's impossible to actually see one. However, we may be observing where one was just born!

What we can observe is the light emitted when matter approaches a black hole. Black holes come in a variety of sizes. Most if not all galaxies contain supermassive black holes at their centers. Whether these predate galaxy formation or are a result of it is not clear. Most black holes, though, are much smaller with masses similar to that of a single star. These typically form when a large star explodes in a supernova and the remnant collapses.

In April of 1979 a supernova (SN 1979C) was observed in M100, a galaxy about 55 million light years away in the Virgo cluster. Astronomers have been observing it ever since, and some have now suggested that a 20 solar mass star collapsed to form a 5 solar mass black hole. If so, it is our first opportunity to witness the birth and early development of a black hole of this size.

The energetic collisions produced as matter nears the black hole produces X-rays. The orbiting Chandra observatory is providing data. This kind of

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Inside this issue:

☆ Upcoming Star Parties ☆

Club Party-Dillingham	**Dec. 4**
Kahala/Waikele Party	**Dec. 11**
Public Party-Dillingham	**holiday!**

Upcoming Events:

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

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Dec 3 & 17**at 8:00 p.m.
www.bishopmuseum.org/calendar

☆The next Board Meeting is Sun., **Dec 5** at 3:30 p.m. at the POST building at UH.

Closer Look...

To mark an unprecedented flurry of exploration which is about to begin, NASA announced today that the coming year will be "The Year of the Solar System" (YSS).

"During YSS, we'll see triple the [usual] number of launches, flybys and orbital insertions," says Jim Green, Director of Planetary Science at NASA headquarters. "There hasn't been anything quite like it in the history of the Space Age.

Naturally, it's a Martian year.

"These events will unfold over the next 23 months, the length of a year on the Red Planet" explains Green. "History will remember the period Oct. 2010 through Aug. 2012 as a golden age of planetary exploration."

The action begins near the end of October 2010 with a visit to Comet Hartley 2. On Oct. 20th, Hartley 2 will have a close encounter with Earth; only 11 million miles away, it will be faintly visible to the naked eye and become a splendid target for back-yard telescopes. Amateur astronomers can watch the comet as NASA's Deep Impact/ EPOXI spacecraft dives into its vast green atmosphere and plunges toward the icy core. On Nov. 4th EPOXI will fly a mere 435 miles from Hartley's nucleus, mapping the surface and studying outbursts of gas at close-range.

Later in November, NASA astrobiologists will launch O/OREOS, a shoebox-sized satellite designed to test the durability of

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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.

Meeting Minutes

by Gretchen West

President Chris Peterson called the November 2, 2010 meeting of the Hawaiian Astronomical Society to order at 7:33 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were twenty-two members in attendance.

Associated Lectures: H.A.S. President ***Chris Peterson*** reports that the next Hawaii Space Lecture Series talk will take place at 7:30 pm, on Tuesday, Nov. 30th. Dr. Ryan Ogliore will speak on "Insights into the Young Solar System from NASA's Stardust Mission." The lecture will 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. For more information contact NASA PRPDC at 808-956-3132 or go to *http://www.higp.hawaii.edu/prpdc*.

Chris also spoke briefly about the EPOXI Mission to Comet Hartley 2. The plan was to retarget the Deep Impact spacecraft to have it accomplish a flyby of Comet Hartley 2. This mission will be only the fifth comet to be imaged in this way.

Mars Rovers: NASA has not had any communication with the rover Spirit since March 22. During the intervening months the low angles of sunlight have limited the power that the rover's solar panels could absorb. NASA continues to send commands to the rover in hopes that it may soon respond.

Kepler Mission: will record star transit data to hopefully confirm the existence of extra-solar planets similar to our own.

Imaginarium Visit – Due to technical difficulties our visit at Windward Community College's Imaginarium will have to be put off for the time being. Dr. Ciotti hopes that we will be able to visit the facility in the new year. Chris Peterson listed a selection of titles that Dr. Ciotti suggested for our viewing pleasure.

Upcoming Events: On Tuesday, Nov. 16th, the Bishop Museum will host the Galaxy Forum 2010. The event is designed to help educators in initiating and developing astronomy education.

The Great Worldwide Star Count took place during the last week in October. This annual event asks amateur astronomers to assess the visibility of stars in their own areas and report the findings.

Seeking Help: The Amanda Kahanui of the Honolulu Zoo Association is asking for help with her Meade LX 90 emc. She is asking for help in aligning and setting up their scope. If you are familiar with this type of scope or if you are willing to help, please contact Chris Peterson for more information.

Cool Sightings: During the October 30th Dillingham Airfield Star Party, enthusiasts were able to view a double transit of Jupiter. Viewer watched as the Galilean moons, Europa and Ganymede, emerge from the glare of Jupiter while their shadows still played across the face of the solar system's largest planet.

School Star Party Report: ***John Gallagher*** reported that club astronomers will be working with two schools during the month of November; Leihoku Elementary in Waianae and Mililani Uka School at Camp Erdmann.

Lacy Veach Day Report: For the fifth year, the Hawaiian Astronomical Society participated in the Astronaut Lacy Veach Day of Discovery. The event took place Saturday, October 16, 2010 at Punahou School's Mamiya Science Building. ***John Gallagher*** and ***Sue Girard*** stood out in the early autumn sun to show students, parents and educators images of the Sun while ***Harry and Melinda Zisko, John Sandor, Vincent Le and Gretchen West*** promoted our star gazing events and provided answers to student and adult questions. Sue Girard detected a seldom seen solar flare, which bloomed and receded over a twenty-minute period. Awesome!

Helpful Items: ***Steve Chun*** brought and shared an f4 6-inch Imaging Newtonian scope and a laser collimator that projects a visible cross-hair image. The collimator has compression rings that expand to fit the inside diameter of the focuser.

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NASA's Space Place

Blue Rings around Red Galaxies

By Trudy E. Bell and Dr.Tony Phillips

Beautiful flat rings around the planet Saturn are one thing—but flat rings around entire galaxies?

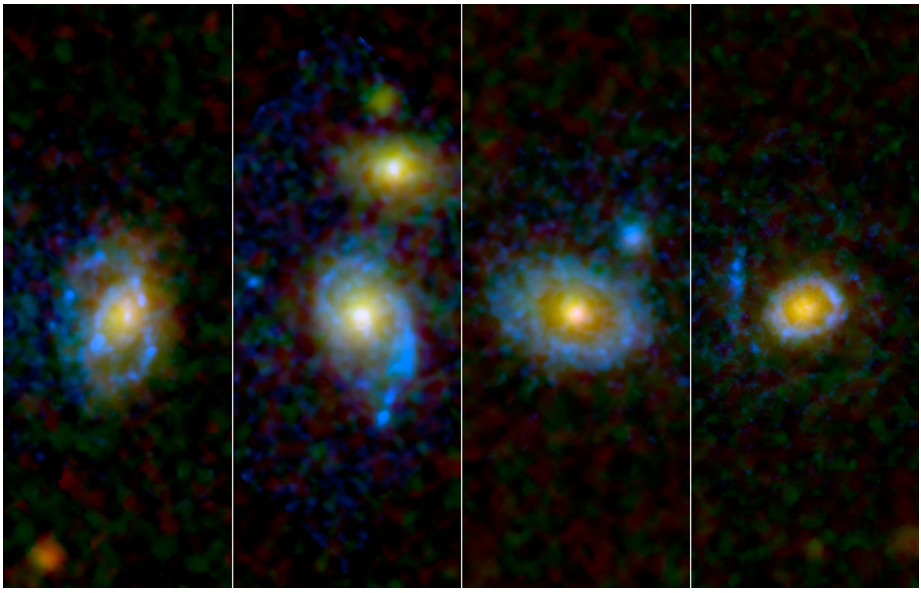
That is the astonishing discovery that two astronomers, Samir Salim of Indiana University at Bloomington and R. Michael Rich of UCLA described in the May 10, 2010, issue of The Astrophysical Journal Letters.

"For most of the twentieth century, astronomers observing at visible wavelengths saw that galaxies looked either 'red and dead' or 'blue and new,'" explained Salim. Reddish galaxies were featureless, shaped mostly like balls or lentils; bluish ones were magnificent spirals or irregular galaxies.

Elliptical galaxies looked red, astronomers reasoned, because they had mostly old red giant stars near the end of their life cycles, and little gas from which new stars could form. Spiral and irregular galaxies looked blue, however, because they were rich in gas and dust that were active nurseries birthing hot, massive, bluish stars.
At least, that's how galaxies appear in visible light.

As early as the 1970s, though, the first space-borne telescopes sensitive to ultraviolet radiation (UV) revealed something mysterious: a few red elliptical galaxies emitted "a surprising ultraviolet excess," said Rich. The observations suggested that some old red galaxies might not be as "dead" as previously supposed.

(Continued on page 9)



New, long-exposure Hubble Space Telescope images of elliptical galaxies show a surprising amount of new star formation.

THE GREAT COURSES™

Our Night Sky

Taught By Professor Edward M. Murphy, Ph.D., University of Virginia, University of Virginia

My friend John Sandor recently lent me a new course he had purchased from The Teaching Company. Called "Our Night Sky" the course is taught by Prof. Edward M. Murphy of the University of Virginia. John suggested it might be of interest to the AstroNews readers.

This is supposed to be an elementary survey of the night sky and it is except it isn't so elementary. The 12 lectures last about 1/2 hour and cover the following:

- The constellations and their stars
- Seeing and navigating the night sky
- Using binoculars and backyard telescopes
- Observing the moon and the sun
- Observing the planets with a telescope
- Meteor showers,comets, eclipses and more
- The northern sky and the north celestial pole
- The seasonal skies
- The southern sky and the Milky Way

A course booklet is included which contains a glossary and bibliography. I found Prof. Murphy to be articulate and well grounded in his subject, and his delivery was clear and straight forward--so I actually enjoyed the experience. He mixed science and classical mythology--the science was clearly explained but his many myths were covered so rapidly that I couldn't be sure who did it to whom and why--a minor criticism.

Overall I would definitely recommend this course to newcomers--I would also recommend it to "oldies" as well, as it is a very good review and some subjects are more than elementary.

What I liked best was Prof. Murphy's handling of the science, in-depth covering of certain subjects like the phases of the moon, his clear presentation, the bibliography and tables of the 30 brightest stars and the constellations,

What I didn't like as well: the guidebook is too sketchy, there is an over-emphasis on the planisphere and there is an overabundance of classical mythology and other factscovered too rapidly to digest.

My overall impression is that this course rates an A minus and would be an excellent introduction to astronomy to be seen and enjoyed by established and aspiring amateur astronomers.

Mel

Planets Close To the Moon

Times are Hawaii Standard Time

Dec 1, 03h, M 7.5º SSW of Saturn (54º from sun in morning sky)

Dec 2, 08h, M 6.2º SSW of Venus (39º from sun in morning sky)

Dec 6, 13h, M 0.78º NE of Mars (15º from sun in evening sky)

Dec 6, 21h, M 2.0º NNW of Mercury (19º from sun in evening sky)

Dec 11, 00h, M 4.7º NNW of Neptune (67º from sun in evening sky)

Dec 13, 11h, M 6.6º NNW of Jupiter (93º from sun in evening sky)

Dec 13 14h, M 6.0º NNW of Uranus (95º from sun in evening sky)

Dec 28, 12h, M 7.5º SSW of Saturn (80º from sun in morning sky)

Dec 31, 05h, M 6.9º S of Saturn (46º from sun in morning sky)

Other Events of Interest

Times are Hawaii Standard Time

Dec 1, 06h, Mercury at greatest elongation (21.5º east of the sun in evening sky)

Dec 2, 01h, Venus brightest, Mag. -4.7

Dec 5, 12:36h, Moon New

Dec 14, Geminid meteors
(Favorable year for this major shower.)

Dec 19, 15h, Mercury at Inferior Conj. with sun (Passes into morning sky)

Dec 20, 22:14h, Moon Full

Dec 20, Total eclipse of the moon
Times: Partial eclipse begins - 20:32h
Total eclipse begins - 21:40h
Total eclipse ends - 22:54h
Partial eclipse ends - 00:02 Dec 21

Dec 21, 13:42h Winter Solstice

Dec 26, 11h Pluto at conjunction with sun (Passes into morning sky.)

☿ Mercury

Visible low in the western sky after sunset during the first half of the month, then in the morning sky before dawn the last few days of Dec.

♀ Venus

Bright and high in the eastern sky before dawn during all of December. Reaches maximum brightness on Dec 2.

♂ Mars

Very low in the west after sunset and is hard to find in the evening twilight.

♃ Jupiter

Jupiter is well placed for viewing near the zenith at sunset.

♄ Saturn

Rises about 1:00 am and is well placed for morning viewing before dawn.

♅ Uranus

Close to Jupiter in the evening sky.

♆ Neptune

Well placed for viewing west of Jupiter in the evening sky.

♇ Dwarf Planet Pluto

Reaches conjunction with sun on Dec. 26, so is too close to the sun to be viewed in December.

Asteroid Iris

Will reach opposition on Jan. 24, 2011. It can be observed late in the evening in Cancer at magnitude +8.6.

(Minutes continued from page 3)

Big Island Trip: The Hawaiian Astronomical Society has received an invitation for club members to tour the Gemini Observatory on the Big Island. No exact date has been set, but the consensus of members at the October meeting favored a date for mid-summer 2011. ***Joanne Bogan*** and ***John Sandor*** reported that they are looking into getting a group discount at for a mid-summer trip that may include a stop at the Onizuka center at the 9,000 foot level and a visit to the Imiloa Center in Hilo. If interested, contact ***Joanne Bogan***.

PST Update: The club's personal solar telescope (PST) has been repaired and is available for rent. If interested, please contact Vice President ***Barry Peckham.***

Upcoming Elections: The yearly election of board members will take place at the December general membership meeting. ***Harry Zisko*** is not running for re-election as At-Large member for next year, but he has consented to be the elections chairman. The Hawaiian Astronomical Society will open formal nominations at the December general membership meeting. Should you wish to put your name or the name of a fellow member into nomination, please contact Harry Zisko.

Time with Barry: Vice President ***Barry Peckham*** recently returned from the East Coast. Barry explained the trials and tribulations of refiguring a mirror. Mirrors are the heart of a reflector telescope. A good, thin mirror is an asset to the astronomer who has a portable scope. He discussed the reactions of people as they first look into the eyepiece. He also delineated often asked questions from those who are becoming interested in buying a telescope.

To the delight of all, Planetarium guide and longtime member ***Joanne Bogan*** lead us through the current nighttime skies over Hawaii, showing us which planets are visible and other interesting objects.

As there was no further business, the meeting was adjourned at 9:09 p.m. Light refreshments were served.

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

(Closer Look continued from page 2)

life in space. Short for "Organism/ORganic Exposure to Orbital Stresses," O/OREOS will expose a collection of organic molecules and microbes to solar and cosmic radiation. Could space be a natural habitat for these "micronauts?" O/OREOS may provide some answers. Bonus: The same rocket that delivers O/OREOS to space will carry an experimental solar sail. NanoSail-D will unfurl in Earth orbit and circle our planet for months. Occasionally, the sail will catch a sunbeam and redirect it harmlessly to the ground below where sky watchers can witness history's first "solar sail flares."

On December 7, 2010, Japan's Akatsuki (Venus Climate Orbiter) spacecraft grabs the spotlight when it enters orbit around Venus. The mission aims to understand how a planet so similar to Earth in size and orbit went so terribly wrong. Venus is bone-dry, shrouded by acid clouds, and beset by a case of global warming hot enough to melt lead. Instruments on Akatsuki will probe Venus from the top of its super-cloudy atmosphere all the way to the volcano-pocked surface below, providing the kind of detailed information researchers need for comparative planetary.

"Take a deep breath," says Green, "because that was just the first three months of YSS!" ☆

Hawaiian Astronomical Society

Event Calendar

< December 2010 >						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
28	29	30	1	2	3	4 5:30 PM Club Star Party (D) Sunset: 5:50 PM
5	6	7 7:30 PM Club Meeting	8	9	10	11 5:30 PM Public Star Party(K) 5:30 PM Public Star Party(W) Sunset: 5:52 PM
12	13	14	15	16	17	18 Sunset: 5:55 PM
19	20	21	22	23	24	25 Christmas Day Sunset: 5:58 PM
26	27	28	29	30	31	1

Upcoming School Star Parties

No School Programs Until 2011!

HAVE A NICE VACATION!

If you are interested in helping out at a School Star Party, sign up at the HAS meeting or contact the Star Party Coordinator: ***John Gallagher*** *at 683-0118 (leave message) or e-mail at gallaghej002@hawaii.rr.com. If you are contacted for a School Star Party please have the school submit a request at http://nightsky.jpl.nasa.gov/club-eventrequest.cfm?Club_ID=453 (note underline between Club_ID).*

(Space Place continued from page 4)
To investigate, Salim and Rich used NASA's Galaxy Evolution Explorer satellite to identify 30 red elliptical galaxies that also emitted the strongest UV. Then they captured a long, detailed picture of each galaxy using the Hubble Space Telescope.

"Hubble revealed the answer," says Salim. The UV radiation was emitted by enormous, flat bluish rings that completely surrounded each reddish galaxy, reminiscent of the rings of Saturn. In some cases, the bluish rings even showed a faint spiral structure!

Because the bluish UV rings looked like star-forming spiral arms and lay mostly beyond the red stars at the centers of the elliptical galaxies "we concluded that the bluish rings must be made of hot young stars," Salim continued. "But if new stars are still being formed, that means the red-and-dead galaxies must have acquired some new gas to make them."

How does a galaxy "acquire some gas?" Salim speculates that it was an act of theft.

Sometimes galaxies have close encounters. If a gas-rich irregular galaxy passed close to a gas-poor elliptical galaxy, the gravity of the elliptical galaxy could steal some gas. Further studies by Galaxy Evolution Explorer, Hubble and other telescopes are expected to reveal more about the process. One thing is certain, says Rich: "The evolution of galaxies is even more surprising and beautiful than we imagined."

The press release is available at http://www.galex.caltech.edu/newsroom/glx2010-03f.html. The full published article is "Star Formation Signatures in Optically Quiescent Early-Type Galaxies" by Samir Salim and R. Michael Rich, The Astrophysical Journal Letters 714: L290–L294, 2010 May 10.

Point the kids to the Photon Pile-up Game at http://spaceplace.nasa.gov/en/kids/galex/photon, where they can have fun learning about the particle nature of light.

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

Meteor Log

by Mike Morrow

Moonlight is kinder during the first half of the month than the second half. Sporadic rates remain good.

Monday Dec. 6th, the Phoenicids. Radiant 01h12m, -53 deg. Rates for this shower run from a few to near 100 an hour. The high rate has occurred only one time in the past 50 some years. What will happen now or in the futrue is in need of regular attention. The meteors are slow and moderately bright.

Tuesday Decmber 14th, the Geminids. Radiant 07h28m, +33 deg. The maximum should be about 1 AM local time. The waxing gibbous Moon will still allow some dark skies for this shower's peak. One good thing about the shower is its radiant is just north of Castor. Geminids are mainly bright and of medium speed. A few leave persistent trains. Telescopic Geminids are most numerous about a day before the visual ones.

Wednesday December 22nd, the Ursids. Radiant 14h28m, 76 deg. Rates are variable but may be up to about 50 and hour. The Full Moon messes up much chance of seeing what the Ursids may do this time. The maximum may fall near 3 AM local time. Ursids tend to be faint and of medium-speed.

If you are interested in observing meteors contact **Tom Giguere** at 672-6677, or write **Mike Morrow,** P.O. Box 6692, Ocean View, Hawaii 96737

Treasurer's Report

by Jim MacDonald

HAS Financial Report for the month ending as of Nov. 15, 2010

Initial Balance:	**$4,156.06**
Receipts:	
Calendar Payments	6.50
Donations	13.05
Dues Received	80.00
Magazine/SkyTools Payments	66.95/560.00
T-Shirt Sales	15.00
Total Income:	**$741.50**
Expenses:	
Astronews	69.76
Postage	2.24
Bank Charges	30.39
Magazine Subscription	32.95
Refreshments	9.30
State of HI Bus. Registration	2.50
Total Expenses:	**$147.14**
Final Balance	**$4,750.42**

Thanks to all renewing their membership this month. Thanks also to ***Susan Girard*** for her donation. *Remember, your anniversary date is listed in the upper left hand corner of the Astronews address label.*

Many members renewals occur at this time of year. Most of all, come out and join us under the stars soon. Give your telescope some much needed exercise. You'll both enjoy it.

Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public

COSMIC COLLISION

The club has received a DVD from the Night Sky Network called "Cosmic Collisions", produced by American Museum of Natural History. This 20-minute video will be shown at the December meeting. It shows the importance of cosmic collisions starting from when the Universe was first formed, the time of the dinosaurs, today, to what they expect will happen in the furture. There is lots of information throughout the video that is enlightening such as the belief that the asteroid belt is chock full of rocks but in fact it is sparsely dominated otherwise the WISE Mission would have had problems. And if you live long enough, you will be living in Milky Andromeda. Come see what you might be missing.

Clear Nights,
John G.

(President ontinued from page 1)

light has also been observed from what is thought to be the formation of supermassive black holes in the most distant galaxies early in the history of the universe, but we have never observed a "small" black hole forming this close to Earth.

It is not certain what is the minimum size required for forming a black hole. Supernovas of this type in smaller stars result in neutron stars. Regardless of whether this turns out to be a black hole or a neutron star, the result will help to determine where that dividing line lies.

On a sadder not, Brian Marsden has died. He headed up both the Central Bureau for Astronomical Telegrams and the Minor Planet Center for many years. For an obituary, see http://www.minorplanetcenter.org/mpec/K10/K10W10.html.

Chris

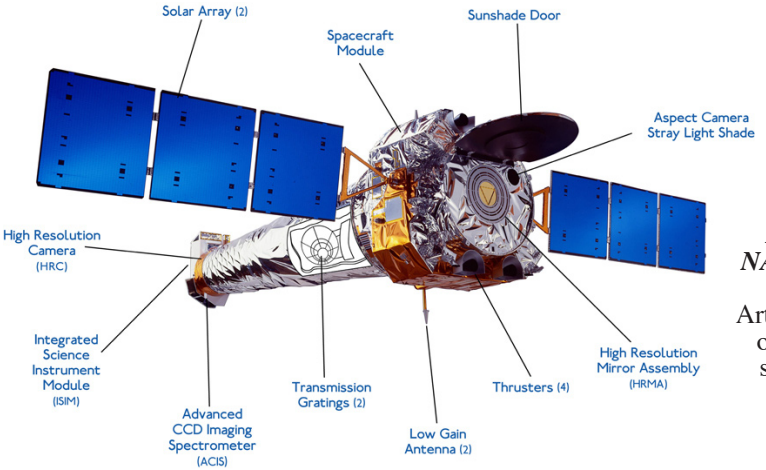


Image credit: NASA/CXC/SAO

Artist's illustration of the Chandra spacecraft and instruments

Here is the updated list of candidates for the HAS Board for 2011. While there is a person listed for each position, we are still actively seeking additional candidates for every position. If you wish to nominate yourself, or someone else, please send email to ***Harry Zisko***. If you nominate someone besides yourself, that person will not be listed on the ballot until they have been contacted and confirmed that they are willing to serve on the Board.

Nominations will be closed at the HAS General Meeting on December 7, 2010, with election of 2011 officers immediately afterwards.

I will update this topic in the forum when new candidates are confirmed.

President:	Chris Peterson
Vice President:	Barry Peckham
Secretary:	Gretchen West
Treasurer:	Jim MacDonald
Member at Large:	John Gallagher
Member at Large:	Paul Lawler
AstroNews Editor:	Carolyn Kaichi

Club Elections

Mahalo,
Harry Zisko

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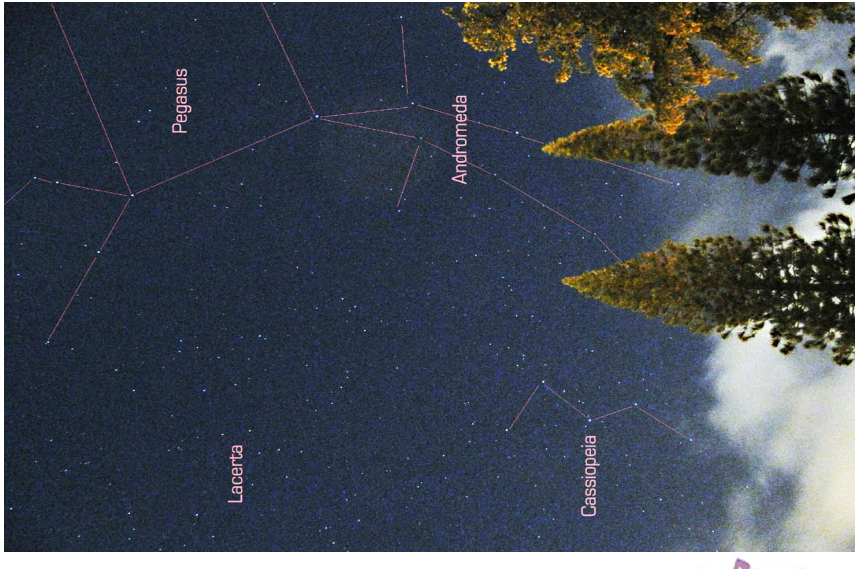

Time exposure of the north-eastern sky taken during the "town" star party on November 13 at Kahala Park.
Image credit: Barry Peckham