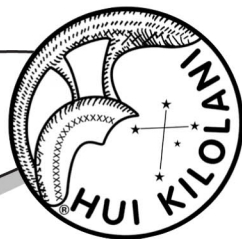


# The Astronews



Volume 58, Issue 1

January 2010

[www.hawastsoc.org](http://www.hawastsoc.org)

## President's Message

by Chris Peterson

The WISE (Wide-field Infrared Survey Explorer) spacecraft was recently launched. This mission will, as its name suggests, produce a complete sky database in four infrared wavelength bands. While there have been other infrared astronomy missions, none has produced as complete a survey at these wavelengths and resolution as will WISE. Whenever a new part of the electromagnetic spectrum is used to explore the sky we seem to find a lot of unexpected things, so get ready for some exciting discoveries.

What we do expect WISE to be able to do is to better determine the sizes of possibly Earth-threatening asteroids, locate more brown dwarf stars, and observe many phenomena in galaxies that contain dust that blocks visible light but not infrared.

Those of us who interact with the public and try to communicate some of the wonder we feel as we contemplate our immense universe often have trouble getting information across to people who have never considered the vast scales of time and space that we by now are used to. It's always good when we can talk about something that has a more familiar feel. WISE will probably help us here.

It is quite possible that WISE will identify one or more brown dwarf stars that are closer than Proxima Centauri, our closest known stellar neighbor beyond our own Sun. Although we won't be able to see it, we can point out the part of the sky it's in. The very fact that we can't even see the closest star will probably

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### Upcoming Events:

- ☆The next meeting is 7:30PM on **Tues., Jan. 5** at the Bishop Museum Planetarium.
- ☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Jan. 1 & 15** at 8:00 p.m.  
[www.bishopmuseum.org/calendar](http://www.bishopmuseum.org/calendar)
- ☆The next Board Meeting is Sunday, **Jan. 3** at 3:30 p.m. at the POST building at UH.



## NEW YEAR, NEW RESOLUTIONS...

OK, so here's another chance to start the new exercise routine, work on the front lawn, clean out that garage so the car can fit inside... so why not add expanding your knowledge of the night sky? You know you're interested, or you wouldn't be coming to the meetings and/or bothering to look at the newsletter, but maybe you'd like to get a bit more proficient in say, setting up your new telescope, finding new objects to look at, or just knowing more about that vast universe out there.

The Hawaiian Astronomical Society can help. What can we do to make this club work for you? What could improve the meetings or star parties? And, most importantly, *what can you do to get involved?* The challenge of this year is **FEEDBACK**. If you take the trouble to haul yourself out to come to the meetings or pay the dues, we also assume you care enough to have an opinion. Give us a clue--drop an email or voice your thoughts at the club or to one of the club officers--we'll be happy to hear from you.

*Carolyn*



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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.

Hawaiian Astronomical Society Vice President **Barry Peckham** called the Dec. 1, 2009 meeting of the Hawaiian Astronomical Society to order at 7:31 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were 16 members and four visitors in attendance.

Hawaii Space Lecture Series – As of Dec. 1st, no December lecture has been scheduled. However, lectures usually take place in the NASA Pacific Regional Planetary Data Center, room 544, POST Bldg, at UH Manoa. Free lectures usually begin at 7:30 p.m. For information you can contact NASA PRPDC at 808-056-3132 or on the Web go to <http://www.higp.hawaii.edu/prpdc>.

Visitors – Barry welcomed four newcomers. **John Hatch** and **Zachary Onaga**, grand-father and grandson, and **Patrick and Samuel Yim**, a father and son team. A returning visitor, **Roland Haliu**, of Ewa Beach hopes to join us at upcoming star parties.

E-mail Request – H.A.S. has received a request from an astro-imager from Massachusetts who would like to work with someone from our club to capture images of identical portions of night sky at the same moment. He is hoping to capture the images from two physically distant locations at the same time, to produce a 3-D stereoscopic image of the sky. Contact **Chris Peterson** for more details.

FYI – Capella, the sixth brightest star in the sky, was the focus of interest from **Barry Peckham** this month. A yellow giant, Capella is approximately 42 light years from earth at Mag. 0.08, much like Vega and Arcturus, and is in the sky for more than half the year. This star is 10 times our sun's diameter, but unlike our sun, is in reality a pair of suns with a separation of about 5 AU.

Book Sharing – **Gretchen West** spoke briefly about a newly acquired book, the *Stargazer's Handbook – An Atlas of the Night Sky*. This beautifully imaged book by Giles Sparrow published by Quercus Reference books, provides basic information as well as a challenge to newcomers and more seasoned enthusiasts alike. ([www.quercusbooks.co.uk](http://www.quercusbooks.co.uk))

School Star Parties – H.A.S. Star Party coordinator **Forrest Luke** reports that no school star parties were scheduled for December 2009. We will have a January 22nd school star party with Pearl Harbor Elementary.

Info – Vice President **Barry Peckham** instructed members on the subtleties of constructing and maintaining mirror cells for Newtonian telescopes. He provided photographs to illustrate the care and mathematical precision needed to support mirrors well, so that telescopes provide increase performance. Barry led a short discussion about the advantages of investing in good eyepieces. "A good eyepiece is an investment in your interest in astronomy," says Barry, "While your investment in your choice of scope is always in the front of your mind, investment in good solid eyepieces will make the difference in your viewing pleasure and overall longterm interest in this hobby."

Election – **Joanne Bogan** chaired the election again this year. All of the 2009 Board members ran unopposed and were elected by a unanimous vote of the members present at this month's meeting.

Software – **Peter Besenbruch** introduced us to a useful astronomy program called *Arc du Ciel*, and reported that he found it easy to load on his little Astronpc by Sourceforge. it is a user-friendly night sky astronomy program that Peter enjoys using and working with.

As there was no further business, the meeting was adjourned at 9:10 p.m. Refreshments were served.

Respectfully Submitted,

Gretchen West





## Sunglasses for a Solar Observatory

By Patrick Barry

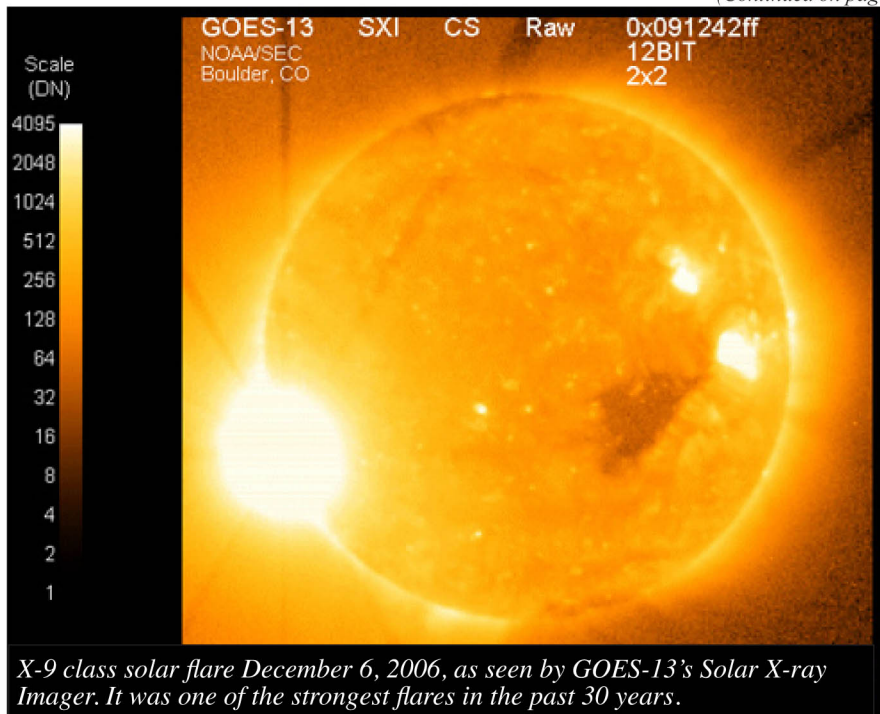
In December 2006, an enormous solar flare erupted on the Sun's surface. The blast hurled a billion-ton cloud of gas (a coronal mass ejection, or CME) toward Earth and sparked days of intense geomagnetic activity with Northern Lights appearing across much of the United States.

While sky watchers enjoyed the show from Earth's surface, something ironic was happening in Earth orbit. At the onset of the storm, the solar flare unleashed an intense pulse of X-rays. The flash blinded the Solar X-Ray Imager (SXI) on NOAA's GOES-13 satellite, damaging several rows of pixels. SXI was designed to monitor solar flares, but it must also be able to protect itself in extreme cases.

That's why NASA engineers gave the newest Geostationary Operational Environmental Satellite a new set of sophisticated "sunglasses." The new GOES-14 launched June 27 and reached geosynchronous orbit July 8.

Its "sunglasses" are a new flight-software package that will enable the SXI sensor to observe even intense solar flares safely. Radiation from these largest flares can endanger military and civilian communications satellites, threaten astronauts in orbit, and even knock out cities' power grids. SXI serves as an early warning system for these flares and helps scientists better understand what causes them. "We wanted to protect the sensor from overexposure, but we didn't want to shield it so much that it couldn't gather data when a flare is occurring," says Cynthia Tanner, SXI instrument

(Continued on page 9)





## FOR SALE

☆ *15x63 Orion Mini-Giant binoculars*  
- good condition, with 20mm eye relief  
for eyeglasses wearers \$60

☆ *10" aluminum mirror cell-made by Kenneth Novak* \$50

☆ *12.5" primary mirror- full thickness, smooth figure,  
like new coatings* \$700

☆ *Celestron C5+, vintage '92 - in like-new condition,  
tripod and 3 eyepieces* \$1500

**Contact Barry: [barry@liteboxtelescopes.com](mailto:barry@liteboxtelescopes.com)**

### NSN Update

*by John Gallagher*

There have been several recent articles in the ASTRONEWS concerning the Night Sky Network and plans to update the web site. This has now been completed. Members and those who are curious are encouraged to check it out. Our club will soon be using online services offered through the Night Sky Network that provide tools to allow us to much more easily manage club records, keep track of volunteer hours, and manage club events and club communications. Here's a video that tells you more:

<http://www.youtube.com/watch?v=qw5CyNEYHks>

To take best advantage of the services, we would like as many of our club members as possible to be a part of the Night Sky Network. If you are already a participant in the Night Sky Network, you already have access. You should go to the club page and login and update your profile by selecting "My Profile & Preferences". This link takes you to the club page: [http://nightsky.jpl.nasa.gov/club-view.cfm?Club\\_ID=453](http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=453) (watch the underline between Club\_ID=453.)

You may add yourself to the Night Sky Network using the above link and selecting in the left column "Become a Nightsky Network Participant". You will be sent a user name and password after which you can then login to access the the great features of the NSN. You should then update your profile as indicated above. Please note that you must maintain your club membership to remain a member of the Night Sky Network.

### Night Sky Network online services give you:

- Easy access to up-to-the-minute information about our events (new events, cancellations, how many people have volunteered to help out)
- Enter and track volunteer hours (including mileage for tax purposes) to gain recognition for your service
- One-touch directions to events as well as time of sunset, moon phase, weather forecast, and simple sky chart.
- "One-stop shopping" for regional/national amateur events
- Upcoming Teleconferences posted on the calendar
- Up to date info on School Star Parties you can volunteer if you miss the club meeting.

John



## Planets Close To the Moon

Times are Hawaii Standard Time

**Jan 2, 20h, M 6.3° SSW of Mars**

(145° from sun in morning sky)

**Jan 6, 03h, M 7.4° SSW of Saturn**

(101° from sun in morning sky)

**Jan 13, 09h, M 4.6° SSE of Mercury**

(17° from sun in morning sky)

**Jan 17, 11h, M 4.3° NNW of Neptune**

(27° from sun in evening sky)

**Jan 17, 18h, M 3.3° NNW of Jupiter**

(31° from sun in evening sky)

**Jan 19, 11h, M 5.5° NNW of Uranus**

(53° from sun in evening sky)

Venus is closer than 15° from the sun when near the moon in January.

## Other Events of Interest

Times are Hawaii Standard Time

**Jan 2, 14 h, Earth at Perihelion** (nearest the sun) Earth 0.98329 a.u. From the sun

**Jan 3, Quadrantid meteors**

(Unfavorable year for this major shower)

**Jan 4, 09h, Mercury** at superior conjunction with sun. (Passes into morning sky.)

**Jan 4, 09h, Venus** at inferior conjunction with sun. (Passes into evening sky.)

**Jan 14, Jan 1 in Julian Calendar**

**Jan 14, 21:12h, Moon New**










**Jan 26, 19h, Mercury** at greatest elongation (24.8° West of the sun in morning sky)

**Jan 27, 09h, Mars** nearest the earth (0.664 a.u.)

**Jan 29, 10h, Mars at opposition**

**Jan 29, 20:18, Moon Full**

**Jan 29, 23h, Moon at perigee** – closest to the earth this year. Only 2.7 hours after the full moon produces high tides.

 <b>Mercury</b> Has a nice morning appearance during the last two weeks of January, reaching maximum elongation on Jan 26.	 <b>Venus</b> Too close to the sun to be viewed in January.	 <b>Mars</b> reaches opposition on Jan 29 with a peak brightness of mag. -1.3 and diameter of 14.1". Will not be this bright again until 2014.
 <b>Jupiter</b> Low in the western sky after sunset.	 <b>Saturn</b> Rises about 10:30 in mid-month and has a magnitude of +0.8. The rings open to a maximum of 4.9° on Jan 8.	 <b>Uranus</b> East of Jupiter in the evening sky in the constellation of Aquarius.
 <b>Neptune</b> Close to Jupiter and can be viewed just after sunset in the western sky.	 Dwarf Planet <b>Pluto</b> Reached conjunction with the sun on Dec 24 and passed into the morning sky. Still too close to the sun to view.	 Asteroid <b>4 Vesta</b> Visible in Leo after 10:00 pm and will reach opposition in Feb, 2010. Magnitude in mid-January is about +6.8.



You know how it is with weather and wishes. We get our gear, our schedule and our friends ready for a night in the universe, and then the clouds drift in, or the trades start to roar, or the fog erases the horizon and all but the brightest stars. December is for shopping indoors, as a rule, while Diamond Head turns wet and green. I don't expect much astronomical cooperation in the weeks before Christmas, but I am typing this in the afterglow of a miracle. It may never happen again so I have a burning need to record and share it. Some night, if you are persistent and lucky, it may happen to you! Monday, December 7th featured weather just shy of a perfect 10. The evening news obsessed about surf and a light northerly wind that might create unsightly bumps on the sea. Except for the twinkle factor, evening skies seemed unreasonably good for this time of year. I couldn't alter plans I'd made so didn't set up my scope, and felt bad about that.

Tuesday dawned and presented us with a day even closer to perfection. The Eddie Aikau Surf meet ran for the first time in 5 years: special weather should not be wasted! I wouldn't be tangling with North Shore traffic but had an open evening for doing my thing in the heavens. And the weather held. I set my 8 inch out in the driveway at 7:30 and uncapped it so the optics could match the temperature of the cool evening air. At 9:30 I went back outside and selected an area of sky for scrutiny. Back inside I found the Auriga chart from the Night Sky Observer's Guide. These charts feature variable and double stars, good suburban targets. To enhance readability, charts can be scanned, then cropped and printed as large as possible. From the adjacent data sheet I locate doubles with nice colors, decent separations, or brightness contrasts. The printed charts are expendable so I write the info about my selected doubles directly onto the chart, with a tag line connecting info to charted star. On this night I tagged 10 doubles to find.





By 10:30 I had eye to eyepiece and chart in hand. First target: Upsilon Aurigae, a naked-eye component in the "star lei". This 3rd magnitude whitish luminary has a mag 7 bluish companion less than 4 arc seconds away. I love finding new treats in old familiar places! Then, extending a line from this star through the beta star in Auriga, I located a white & lilac pair labeled 41. The lilac color is hard to see in an 8 inch scope but I noticed its off-white tone and a nice separation of 8 arc seconds.

Moving on to harder finds, I was more than half way through my list and very much absorbed in star hopping when something wonderful happened to the world around me. Looking up, it seemed at first that my eyes had gone bad... but no! The street-lights were out! Power failure! On a clear, calm night! And I was already in a perfect place to enjoy the darkness! One never knows how long a good thing can last, so my eye went back onto the eyepiece, but in a few minutes I looked up to see what was happening in the neighborhood. More lights had gone off. Down below me, Kahala was dark. Only emergency exit lights lit the Kahala Hotel's big building. Could this really be happening? How long had amateur astronomers wished for a night like this? I'd never seen one before! After finishing the doubles list (which actually included 2 triples: Otto Struve 147 & Struve 941) I couldn't help but continue the celestial feast. Messiers 36 and 38 were in the neighborhood, and then the pull of the Winter Milky Way became too great, with Ms 93, 46 and 47, our club's favored "Dog Butt Cluster" and "Dog Butt Double" lookin' good, M41 and the Orion Nebula in fine form, Hind's Crimson Star outrageously crimson this night, the Eskimo Nebula showing well from the 'burbs and M35 in Gemini sporting it's companion cluster for scrutiny. I quit at midnight, saving a last look for Mars. The Last Quarter Moon would rise in 20 minutes, too late to crash my personal star party... on a night of miracle darkness, here on the Isle of Light. ☆

## Hawaiian Astronomical Society Event Calendar

You are currently logged in as: Carolyn Kalchit

You are a Club Coordinator of: Hawaiian Astronomical Society

< January 2010 >						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	31	New Year's Day 1	2
						Sunset: 6:03 PM
3	4	7:30 PM Club Meeting	5	6	7	8
						6:00 PM Club Star Party (D)
						Sunset: 6:07 PM
10	11	12	13	14	15	16
						6:00 PM Public Star Party (D)
						Sunset: 6:12 PM
17	Martin Luther King, Jr. Day	18	19	20	6:00 PM NSIN Telecon	21
						6:30 PM Pearl Harbor Elem SP
						6:00 PM Public Star Party (K) 6:00 PM Public Star Party (W)
						Sunset: 6:17 PM 
24	25	26	27	28	29	30
						Sunset: 6:21 PM 
31	1	2	3	4	5	6

## Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public

<http://nightsky.jpl.nasa.gov/>

**NEW LOOK FOR THE  
ASTRONEWS CALENDAR!**



*Check  
it  
Out!*

HAS Yahoo Group

<http://tech.groups.yahoo.com/group/HawaiianAstronomicalSociety/>



(Solar continued from page 4)

systems manager for the GOES-NOP series at NASA's Goddard Space Flight Center in Greenbelt, Maryland. (GOES-14 was called GOES-O before achieving orbit). Shielding the sensor from X-rays also reduces the amount of data it can gather about the flare. It's like stargazing with dark sunglasses on. So NASA engineers must strike a balance between protecting the sensor and gathering useful data. When a dangerous flare occurs, the new SXI sensor can protect itself with five levels of gradually "darker" sunglasses. Each level is a combination of filters and exposure times carefully calibrated to control the sensor's exposure to harmful high-energy X-rays. As the blast of X-rays from a major solar flare swells, GOES-14 can step up the protection for SXI through these five levels. The damaged sensor on GOES-13 had only two levels of protection—low and high. Rather than gradually increasing the amount of protection, the older sensor would remain at the low level of protection, switching to the high level only when the X-ray dose was very high. "You can collect more science while you're going up through the levels of protection," Tanner says. "We've really fine-tuned it." Forecasters anticipate a new solar maximum in 2012-2013, with plenty of sunspots and even more solar flares. "GOES-14 is ready," says Tanner.

For a great kid-level explanation of solar "indigestion" and space weather, check out [spaceplace.nasa.gov/en/kids/goes/spaceweather](http://spaceplace.nasa.gov/en/kids/goes/spaceweather). ☆

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



## NIGHT SKY NETWORK NEWS

by John Gallagher

The next Night Sky Network Teleconference on Thursday, January 21, 2010 with the theme "Globe at Night 2010 with Dr. Connie Walker. Globe at Night 2010 will take place from March 3 - 16, 2010. Teleconference begins at 4:00 pm (local time). Contact Night Sky Network Coordinator, **John Gallagher**, 683-0118 for details on downloading the Power Point presentation. Details are also posted on the HAS Yahoo! Group Calendar and the Night Sky Network Calendar.

### *Meteor Log - January 2010*

by Mike Morrow

Sunday Jan. 3, the Quadrantids.

Radiant 15h20m +49 deg. The full Moon messes up the shower and the maximum is about 9 AM local time. So the shower will not be to good for the shower. There is a chance of a strong maximum before dawn roughly between 2AM and 6AM. Well we will see. The Quadrantids can vary from less than 60 to near 200 meteors an hour. There is a suggestion that low rates may range from December 28 thru January 12.

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

## HAS Financial Report for the month ending as of Dec. 15, 2009

<b>Initial Balance:</b>	<b>\$4,567.20</b>
<i>Receipts:</i>	
Dues Received	319.00
Donations	84.00
Magazine Payment	102.00
T-Shirt Sales	15.00
<b>Total Income:</b>	<b>\$505.00</b>
<i>Expenses:</i>	
Astronews	141.15
Magazine Subscription	232.75
P.O. Box Rental	92.00
State HAS Registration Fee	2.50
Refreshments	8.49
<b>Total Expenses:</b>	<b>\$480.15</b>
<b>Final Balance</b>	<b>\$4,592.05</b>

We gained 3 new members this month. They are **Daughn O'neill**, **Zachary Onaga** and **John Hatch**. A special thanks to the anonymous donor for a very generous gift. Thanks and clear skies to all renewing their membership this month. *\*\*Don't forget that most members have December as their renewal anniversary date.\*\**

### ☆ Upcoming Star Parties ☆

<b>Club Party-Dillingham</b>	<b>Jan. 9</b>
<b>Public Party- Dillingham</b>	<b>Jan. 16</b>
<b>Kahala/Waikele Party</b>	<b>Jan. 23</b>



## HAS T-Shirts \$15!

(see Jim MacDonald)

- Light Blue

**SIZES SM - 2XL**

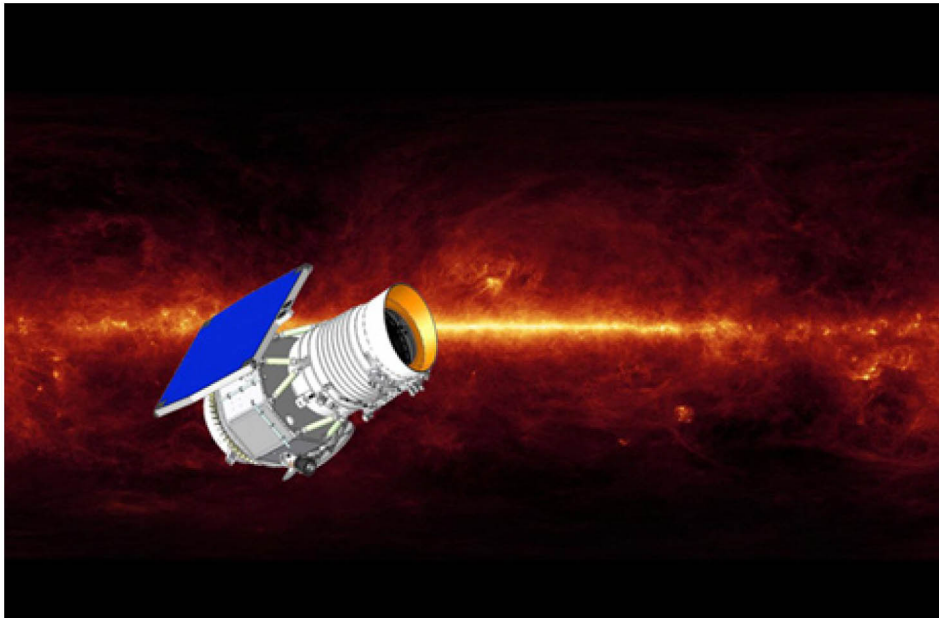
(President continued from page 1)

stimulate a lot of thought and questions.

We may also learn more about protoplanetary discs, rings of material surrounding young stars from which planets are thought to form. The Hubble Space Telescope has recently imaged such discs around stars in the Orion Nebula. This is a commonly shown object, so new information about it is always welcome and makes the job of communicating with the public easier.

Learning how big some Earth-approaching asteroids are will also provide more topics of discussion, especially if any pose a threat. As we've all seen, nothing sparks interest like a potential disaster (real or imagined)!

Chris



***Wide-field Infrared Survey Explorer (WISE) Image credit: NASA/JPL***

The Wide-field Infrared Survey Explorer mission will survey the entire sky in a portion of the electromagnetic spectrum called the mid-infrared with far greater sensitivity than any previous mission or program ever has. The survey will consist of over a million images, from which hundreds of millions of astronomical objects will be catalogued, providing a vast storehouse of knowledge about the solar system, the Milky Way, and the universe.

**\*\*COMING IN FEBRUARY\*\***

**GUEST SPEAKER FEB. 2 CLUB MEETING**

**ROB LANDIS, NASA Engineer - AMES Research Center**  
**"The NEO Factor-Between the Moon and Mars"**



Thousands of Near Earth Objects (or NEO's) have been cataloged in our solar system. Mr. Landis is part of a team that proposes human expeditions to explore these potential hazards or resources that may further enhance our reach into space. More info in the next Astronews.



**Hawaiian Astronomical Society**  
**P.O. Box 17671**  
**Honolulu, HI 96817-0671**

**STS-119 spacewalker on Earth facing side**  
**P3 truss for UCCAS deploy**

**EVA-2 March 21, 2009 19:24:18 UTC**

*courtesy:*  
**R. Vandenberg**



Spacewalker

P1 radiator

P1 truss

SARJ

P3 truss



**How you  
can imagine  
the view**

(SARJ=Solar Alpha Relay Joint)

recorded using a 10 inch reflector from the ground

**DECIDE FOR YOURSELF:** Amateur astronomer R. Vandenberg reports that he imaged an STS-119 astronaut with his 10-inch Newtonian. According to data from video recordings and calculations from the timing of the pass most likely indicates the spacewalker as joe Acaba. <http://www.wired.com/wiredscience/2009/12/a-spacewalk-as-seen-from-earth/>



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