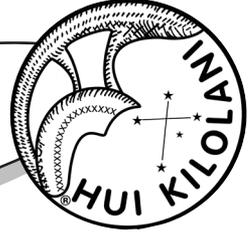


The Astronews



Volume 58, Issue 3

March 2010

www.hawastsoc.org

President's Message

by *Chris Peterson*

Most astronomy is done in the dark. We want to see things that the daytime sky obscures. However, our Sun is also an astronomical object, and lately it has been getting more attention. NASA is operating twin spacecraft in a mission called STEREO (Solar TERrestrial RELations Observatory) that is giving us more information about the Sun than we could obtain from ground-based telescopes. One spacecraft currently orbits about 60 degrees ahead of the Earth, the other about 60 degrees behind. This lets us see about 87% of the Sun's surface at once and also allows for three-dimensional imaging of much of its Earth-facing hemisphere.

While the usefulness of much astronomy may not be obvious to non-astronomers, everyone realizes how important the Sun is to Earth. The life of the planet literally depends on the Sun for its exist-

Inside this issue:

President's Message	1
General Notices	2
Minutes	3
NASA Space Place	4
Observer's Notebook	6
January Minutes	7
Calendar	8
School Star Parties	9
Meteor Log	9
Treasurer's Report	10

COMING IN MARCH

GUEST SPEAKER Mar. 2 CLUB MEETING

**NANCY ALI, Imaginarium Manager-
Windward Community College**

"FOSTERING CULTURAL UNDERSTANDING THROUGH ASTRONOMY"

Ms. Ali teaches archeoastronomy at WCC and recently had the opportunity to travel to the Middle East. Hear about her experiences with the amateur astronomy communities while in Jordan and Oman. (more on pg. 2)

(Continued on page 11)

Upcoming Events:

☆ The next meeting is 7:30PM on **Tues., Mar. 2** at the Bishop Museum Planetarium

☆ Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Mar. 5 & 19** at 8:00 p.m.
[www.bishopmuseum.org/
calendar](http://www.bishopmuseum.org/calendar)

☆ The next Board Meeting is Sunday, **Mar. 28** at 3:30 p.m. at the POST building at UH.



GUEST SPEAKER AT MARCH CLUB MEETING

.....

NANCY ALI- Windward Community College

What is the first thing you think of when you hear the words “Middle East”? War, desert, terrorism, Islam, and oil may immediately come to mind, but there is so much more to the Middle East than what is commonly portrayed in the media. Last October, Ms. Ali travelled to the Middle East on vacation and had the opportunity to connect with members of the Jordan Astronomical Society and Oman Astronomical Society. “These fellow amateur astronomers welcomed my husband and me with such generosity and friendship that I wondered if they had invented the concept of ‘aloha’”, says Ali.

A shared love of astronomy was the excuse for meeting, but the experience turned out to be so much more than just looking through a telescope together. It was an opportunity to share cultures with each other, break down barriers and stereotypes and create lasting friendships. “I found myself discussing astronomy Ph.D programs with burka-clad women, learning about the true meaning of ‘Betelgeuse’, and sleeping under the stars in the Jordanian desert”.

The members of the Jordan Astronomical Society and Oman Astronomical Society expressed their wish that Ali return home and share her experiences with other Americans, so that this cultural understanding could be extended. At the Hawaiian Astronomical Society meeting on March 2, Ms. Ali will give a presentation about her adventure with the amateur astronomers of the Middle East.



Hawaiian Astronomical Society
P.O. Box 17671
Honolulu. HI 9681-0671

President

Chris Peterson

956-3131

chrisp@higp.hawaii.edu

Vice-President

Barry Peckham

542-8658

barry@liteboxtelescopes.com

Secretary

Gretchen West

737-4742

gwest002@hawaii.rr.com

Treasurer

Jim MacDonald

261-2162

jim.macd@hawaiiantel.net

The **Astronews Editor**

Carolyn Kaichi

551-1030

c.kaichi2001@gmail.com

Board Members at-Large

John Gallagher

683-0118

gallaghej002@hawaii.rr.com

Harry Zisko

262-1947

harryz@pobox.com

HAS Webmaster

Peter Besenbruch

prb@lava.net

School Star Party Coordinator

Forrest Luke

lukef003@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.

President Chris Peterson called the February 2, 2010 meeting of the Hawaiian Astronomical Society to order at 7:30 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were thirty-three members and six visitors in attendance.

FYI – Pres. Chris Peterson spoke about recent developments. He reported the Linear Telescope discovered the impact of two asteroids within the Asteroid Belt. The Hubble Space Telescope later confirmed the incident. The two asteroids were of the same “family” within the Asteroid Belt.

On Mars the exploring rover “Spirit,” which has been stuck in the Martian dust, has been declared a stationary scientific site. Handlers on Earth tried to increase the tilt of the rover to keep the solar panels pointing in a more advantageous position, enabling it with greater solar power.

The Mars “Express” Spacecraft neared Phobos and will begin imaging about 50 kilometers distance.

Recent developments in Washington have seen President Obama called for the cancellation of the Constellation Program. The President has suggested that the goals for returning the United States to the Moon be taken over by private companies. This has caused great consternation with scientists at NASA.

School Star Party Report: **Forrest Luke** reported that there are three school star parties in February:

February 18th - Washington Intermediate

February 19th - Waikiki Elementary

February 26th – Iolani Space Night

Guest Speaker – February’s guest speaker was NASA engineer Rob Landis from the JSC/Ames Research Center. Mr. Landis gave a talk titled, “Between the Moon & Mars: The NEO Option.” Rather than return to the Moon, Landis and other scientists suggest that the United States consider exploration of Near Earth Objects (NEOs). Technology already established may be utilized to explore NEOs. Mr. Landis led us through the feasibility of using unmanned and robotic space vehicles to explore various asteroids. Such objects could provide future astronauts with valuable and useful resources. He also recounted a history of our knowledge of the Solar System and stepped us through modern astronomy.

Hawaii Space Lecture Series: **Pres. Chris Peterson** reports that Dr. Stuart Taylor will speak on exo-planets at the Tuesday, February 16, 2010 Hawaii Space Lecture Series. Contact NASA PRPDC at 808-056-3132 or go to <http://www.higp.hawaii.edu/prpdc> for more information.

Star Maps – The star maps that the Bishop Museum publishes and that we have been using have been revamped. The maps now reflect star magnitude and the movement of planets.

Globe at Night – This survey enlists the help of amateur astronomers across the globe counting the stars seen in urban settings. This year the survey will be between March 3rd through March 16th, 2010. Those people interested in participating in the survey can find more information at www.globeatnight.org.

As there was no further business, the meeting was adjourned at 9:03 p.m. Refreshments were served.



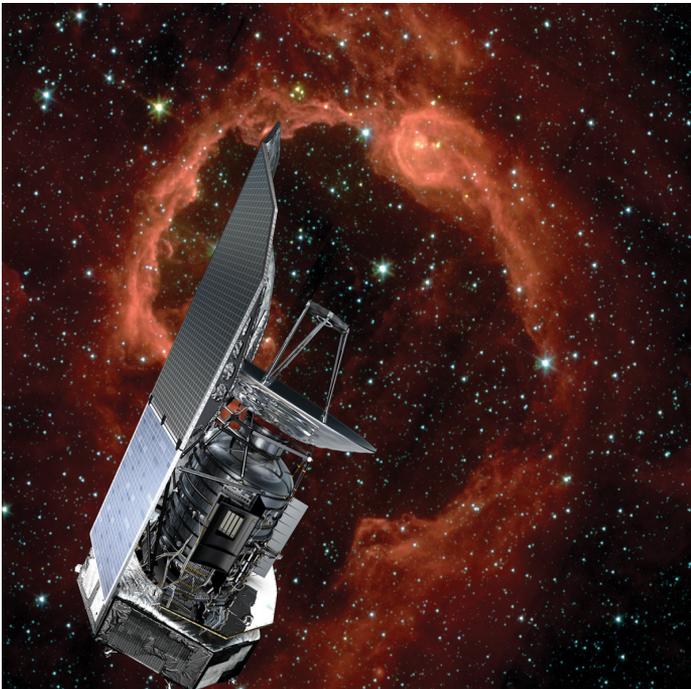
Respectfully Submitted,
Gretchen West
HAS Secretary

Flipping the Lights on Cosmic Darkness

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights. Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy "dark asteroids" of our own solar system. Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.

"The sky looks much more crowded when you look in infrared wavelengths," says George Helou, director of the NASA Herschel Science Center at Caltech. "We can't observe the infrared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above the atmosphere, all of this goes away and suddenly you can look without obstruction." Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies

(Continued on page 9)



The Herschel Space Observatory has a 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects better than ever before.

It's a fancy term but don't be scared. What folks who use this term mean is simply the thing that holds all of a telescope's optics in their proper places, plus the unchangeable optics. In most cases, a tube is used to connect primary mirror with secondary mirror, corrector plate (if any) and focuser. You may see the abbreviation OTA and this usually tells you that the mount is extra, or not included. In some cases OTA refers to a tubeless optical system. Truss dobsonian scopes are an example of this.

OTAs are what you are talking about when you say the words "Schmidt Cassegrain" or "Newtonian", "Maksutov-Cassegrain" or "Schiefspiegler". Any of these optical systems can be used with altitude-azimuth (alt-az) or equatorial mounts. You can purchase OTAs and mounts separately. Higher end OTAs are usually sold without mounts. Often the mount will cost more than the OTA. If you want to start messing with amateur telescope making, build a mount first and leave the OTA to others.

When you can break down the notion of "telescope" into OTA and Mount, it is easier to spend critical time on the optical system. How rigid or fragile is the assembly? How well is the primary mirror supported? What about ventilation? Collimation? How smooth and fine is the focusing? The secondary mirror usually gets in the way of incoming photons (exception: Schiefspiegler) and creates a central obstruction. What percentage of the main mirror does it obstruct? How clear is the corrector plate (if any) and how susceptible to dewing is it? OTAs without corrector plates are called open tube designs and they can suffer from thermal "tube currents" that blur your views. Things can be done to mitigate this problem, which goes back to OTA design.

How far should a tube project beyond the focuser? Should the back of the tube be open or closed? 4-vane, 3 vane or curved vane spider (holds the diagonal mirror on Newtonian OTAs)? Rack-&-Pinion or Crayford focuser? Tube material: cardboard, rolled steel, aluminum or fiberglass? Color: black, white, red? It matters! If your OTA includes truss poles, how large do they need to be, how many and how are they connected to the rest of the OTA? When you begin to ask these questions, cracks will form in your newbie chrysalis. Then comes the beauty part!

Barry Peckham



NIGHT SKY NETWORK NEWS

by John Gallagher

IMPORTANT TELECONFERENCE, *Thursday, March 25* on soon-to-be-released Citizen Science Project, **Moon Zoo**. Here is something we can all become involved since it will not involve using telescopes. You can get some idea if you Google the project. The local time will be 4:00 pm and it will last about one hour.

Call 1-888-455-9236 between 3:45 and 4:00 pm.

Passcode is NIGHT SKY NETWORK.

Provide your NAME and CLUB and the number of people listening with you if any.

Information on the availability of Power Point Slides will be posted on the NSN website later. Contact the club NSN Coordinator, John Gallagher, for assistance.

(Continued on page 7)

Planets Close To the Moon

Times are Hawaii Standard Time

Mar 1, 18h, M 7.4° SSW of Saturn
(159° from sun in morning sky)

Mar 13, 03h, M 3.5° NNW of Neptune
(26° from sun in morning sky)

Mar 16, 19h, M 6.1° NNW of Venus
(16° from sun in evening sky)

Mar 25, 01h, M 4.3° SSW of Mars
(116° from sun in evening sky)

Mar 29, 02h, M 7.4° SSW of Saturn
(171° from sun in midnight sky)

Uranus, Jupiter and Mercury are closer than 15° from the sun when near the moon in February.

Other Events of Interest

Times are Hawaii Standard Time

Mar 14, 03h, Mercury at superior conj.
with sun (Passes into evening sky)

Mar 15, 11:02h, Moon New

Mar 16, 21h, Uranus at conjunction
with sun (Passes into morning sky)

Mar 20, 07:33h, Spring or Vernal Equinox

Mar 21, 14h, Saturn at opposition
(Rises at sunset and sets at sunrise)

Mar 29, 16:25h, Moon Full

<p> Mercury</p> <p>Makes an evening appearance at the end of March below Venus.</p>	<p> Venus</p> <p>Venus can be seen low in the west after sunset.</p>	<p> Mars</p> <p>Still pretty good for observing, but this is the last month before it become too small to see detail.</p>
<p> Jupiter</p> <p>Jupiter is still too close to the sun to view.</p>	<p> Saturn</p> <p>Reaches opposition this month, so this is the best time of the year to observe the ringed planet.</p>	<p> Uranus</p> <p>Reaches conjunction this month, so is too close to the sun to be seen.</p>
<p> Neptune</p> <p>Neptune can be found low in the east before sunrise, but will be easier to view later in the year.</p>	<p> Dwarf Planet Pluto</p> <p>Rises before midnight and is high in the east by sunrise in Sagittarius.</p>	<p> Dwarf Planet Ceres</p> <p>In Sagittarius at magnitude +8.8, Vesta will brighten as it approaches opposition in June.</p>

HIGHLIGHTS OF MOON ZOO:

Moon Zoo will be another citizen science project, the latest incarnation of the highly successful Galaxy Zoo. The project will use high resolution images from the Lunar Reconnaissance Orbiter Camera (LROC) on NASA's LRO spacecraft. Moon Zoo will ask the participants to classify and measure the shape of features on lunar surface with the main focus on:

- Counting the number of and measuring the size of impact craters
- Categorizing locations of interest such as lava channels, crater chains, lava flooded impact craters, volcanic eruptive centers, etc.
- Assessing the degree of boulder hazard by comparing boulder density on two images
- Identifying recent changes on lunar surface by comparing LRO and Apollo photographs
- Determining the location of space mission hardware on the Moon (Apollo landers, Luna rovers, European and Chinese probes)

Clear Nights,
John G.



January's Minutes were "pre-empted" from last month's issue: here are highlights for those who missed it. --ed.

President Chris Peterson called the January 5, 2010 meeting of the Hawaiian Astronomical Society to order at 7:34 p.m. There were 29 members and three visitors in attendance.

Astronomical Items In The News - Pres. Chris Peterson reports that the Kepler Space Telescope has been involved in the identification of five exoplanets and will continue to search for and expand our understanding about exoplanets until the end of 2012. The Hubble Space Telescope has been refurbished and is involved in the observations of Deep Field North with its wide field camera #3. These observations allow us to see the galaxies in the DFN and expands our knowledge of the universe as it was thirteen million years ago. The James Webb Space Telescope will be the next generation of space telescopes. Its five meter optical and infrared telescope will launch in 2012.

Challenge – Gretchen West introduced the Winter Binocular Challenge, a series of objects that those without telescopes might like to try finding.

Aloha for a former member – Mike Morrow, visiting from the Big Island, wanted HAS to remember former member **Bill Sinton** who recently passed away. Mike reported that as a tribute to Bill's work in astronomy, the astronomical community has named a crater on Mars in his memory.

A Larger View – Pres. Chris Peterson reports that Mr. Howard Fink, on the East Coast (USA) contacted him requesting that HAS imagers and astrophotographers assist him in a project to capture stereoscopic pictures of the moon from the East Coast and Hawaii simultaneously.

Meteor Report – Tom Giguere reports that he and a number of friends stayed out all night and counted 772 meteors during the Geminid Meteor Shower, a twelve-hour period.

Visitors – There were four visitors to this month's meeting. **Byron Burks** has a general interest in astronomy and hopes to join us at our star parties. **Donna Neal** has joined us to learn more about the constellations and the night skies.

Guest Speaker – Steven Chun spoke on "So You Want to Take Astrophotos." Steve discussed the methods and equipment used to take astrophotos. For those amateurs who wish to take pictures of deep space objects. Steve listed the pros and cons of each photographic type and what he uses with his set-up. Steve used his own pictures to illustrate the problems that can plague astroimagers. Steve entertained questions following his power point presentation.



Hawaiian Astronomical Society
Event Calendar

< March 2010 >						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28		1 7:30 PM Club Meeting	2 7:00 PM Globe at Night	3 7:00 PM Globe at Night	4 7:00 PM Globe at Night	5 7:00 PM Globe at Night 6:00 PM Club Star Party (D) Sunset: 6:39 PM
7:00 PM Globe at Night 	7:00 PM Globe at Night	7:00 PM Globe at Night	7:00 PM Globe at Night	7:00 PM Globe at Night	7:00 PM Globe at Night	7:00 PM Globe at Night 6:30 PM Public Star Party(D) Sunset: 6:42 PM
7:00 PM Globe at Night	7:00 PM Globe at Night 	7:00 PM Globe at Night	17	18	19	6:30 PM Public Star Party(K) 6:30 PM Public Star Party(W) Sunset: 6:44 PM
6:30 PM Club Scout SP	22	7:00 PM Milliani Ike Elem SP 	7:00 PM Kipapa Elem Sch SP	6:00 PM Moon Zoo Telecon	26	27 Sunset: 6:46 PM
28 	29	30	31	1	2	3

Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public

DID YOU KNOW - The ASTRONEWS calendar is from the Night Sky Network (NSN). NSN members can access this calendar online and get detailed information about posted events such as star maps, moon phase, directions, volunteers needed, setup time, sunset time, length of event, estimated attendees. Volunteers can also RSVP, record their mileage and hours, which is handy when filing taxes. Other events are posted such as teleconferences and special events such as Astronomy Day and Lacey Veach Day. Join and get the latest information.

Clear Nights, John G.

☆ Upcoming Star Parties ☆

Club Party-Dillingham	Mar. 6
Public Party- Dillingham	Mar. 13
Kahala/Waikele Party	Mar. 20

(Space Place continued from page 4)

observed at far infrared wavelengths from a few hundred to more than 28,000. And with the instrument testing and system check-out phases finally completed, the discoveries are only now beginning. Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. "We will be able to decipher the chemistry of what's going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions," Helou says.

And those are just the expected things. Who knows what unexpected discoveries may come from "flipping on the lights?" Helou says "we can't wait to find out."

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA. See the ESA Herschel site at sci.esa.int/science-e/www/area/index.cfm?fareaid=16. Also, see the NASA sites at herschel.jpl.nasa.gov, www.herschel.caltech.edu, and www.nasa.gov/mission_pages/herschel. Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml.

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



Upcoming School Star Parties

Fri.	3/19	Punahou School (35 students)
Sun.	3/21	Alvah Scott Elementary (Cub Scouts)
Tues.	3/23	Mililani Ike Elementary
Wed.	3/24	Kipapa Elementary (Mililani) 5th Grade

Meteor Log - March 2010

by Mike Morrow

Meteor rates for March are low and there is little shower activity.

Sunday the 14th, the **Gamma Normids**. Radiant 15h56m Dec -50 deg. This is an underobserved minor southern hemisphere shower. With only 6 or less meteors an hour the shower (drizzle) is often undetectable. The maximum may fall on dates from the 7th to the 17th. The radiant area is best seen after local midnight. The Moon will not be a problem this year.

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 Feb. 15, 2010

Initial Balance:	\$4,728.05
<i>Receipts:</i>	
<i>Receipts:</i>	
Donations	25.00
Dues Received	264.00
Magazine Payments	98.90
Telescope Rental	20.00
Total Income:	\$407.90
<i>Expenses:</i>	
Astronews	156.04
Magazine Subscription	100.95
Postage	2.75
Refreshments	17.15
Total Expenses:	\$276.89
Final Balance	\$4,859.06

We gained two new members this month. They are *Matthew McBride* and *Allen Andrews*. A special thank you to the *Pearl Harbor Elementary School* for their generous donation. Thanks and clear skies to all renewing their membership this month. Please don't forget to check your anniversary date on the address label.

-SEE FEB. ASTRONEWS FOR HARD COPY RENEWAL FORM-

NOTICE:

HAS will publish a complete listing of Club members in the April 2010 issue of the Astronews. This publication is required by Club by-laws, Article III, Section 2 Para C(e) and Article VIII, Section 1B. Unless notified otherwise, this list will include all member's names, addresses, and phone numbers. If you wish to have some or all of your data excluded, please notify the Club Treasurer, Jim MacDonald before 15 March 2010 by sending him an e-mail at jim.macd@hawaiiintel.net or by written notice to the Club's post office box listed on the back page of this newsletter. Please be advised that this listing is intended for Club members' personal use only in contacting one another. It is not to be used for any commercial or solicitation purposes. With the exception of membership in the Astronomical League, HAS does make this list available to, nor do we sell its contents to anyone for any purpose.

Please respect our members' rights to privacy!



(President continued from page 1)

tence. However, most people don't understand how the variability in the Sun's output can affect us. STEREO may help change that.

This mission will study several aspects of the Sun's behavior, but what may be most useful in the short term is our increased ability to predict Coronal Mass Ejections (CMEs). These are violent ejections of material from the Sun that occur for reasons that aren't entirely clear. When a CME sends material to the Earth, we can get anything from increased auroras to disruption of electromagnetic devices in orbit or even on the ground. STEREO will help us understand this phenomenon better, and it will let us better predict when a CME will cause problems for us here on Earth. With enough warning, much damage can be avoided.

Now it is possible to get information about the Sun on your iPhone. The free 3D Sun app shows STEREO data and can be set to alert you to such events as the appearance of a new solar flare or sunspot. A version 2.0 is planned that will include more wavelengths and be at higher resolution.

I'll still do most of my observing at night, but it's good to know that the Sun is getting easier to keep track of as its activity ramps up during this sunspot cycle. Happy solar observing (by direct or remote means)!

Chris 

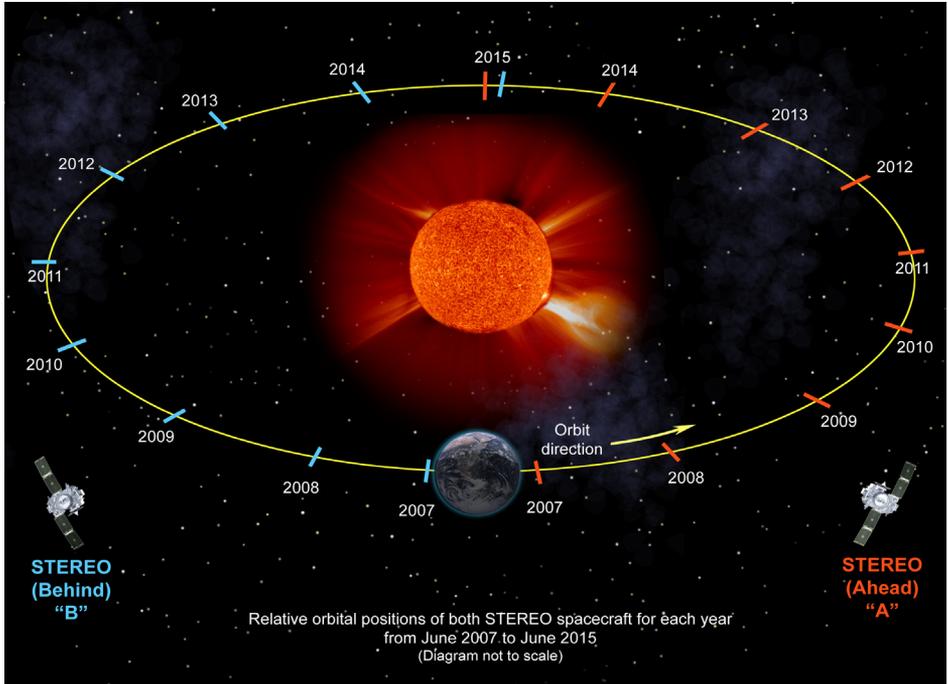


Image credit: NASA

Illustration of the positions of the STEREO spacecraft for each year from June 2007 to June 2015. (Note that in late 2010 STEREO will be separated 180 degrees and see the entire Sun at once for the first time.)

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



HAS club member and Vice President *Barry Peckham* captured these beautiful images of Mars and the moon caught this beautiful pair of images with his commercial digital camera through the eyepiece of his telescope during the Kahala public star party on Saturday, Feb. 20. You can even see a hint of polar ice on the Mars image.



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