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President's Message

By Chris Peterson

A Decadal Survey of the planetary science community was requested by NASA and the National Science Foundation to help determine the priorities for funding in the decade beginning in 2013. The results of the survey were reported at the 42nd Lunar and Planetary Science Conference in Houston on March 7. The briefing was broadcast live, and a recording can be viewed at <http://www.lpi.usra.edu/meetings/lpsc2011/>. A committee synthesized the contents of 199 white papers contributed by interested parties. The report prioritizes spending on space missions as well as technology development and infrastructure necessary to provide maximum scientific return on dollars invested.

The decadal surveys in planetary science are modeled after the highly successful decadal surveys of the astronomy community. These have been used for fifty years to guide the development of Earth- and Space-based telescopes. Congress and

(Continued on page 2)

Upcoming Star Parties

Public Party Apr 02	Dillingham
Public Party Apr 09	Kahala/Ewa
Club Party Apr 23	Dillingham
Public Party Apr 30	Dillingham

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Upcoming Events:

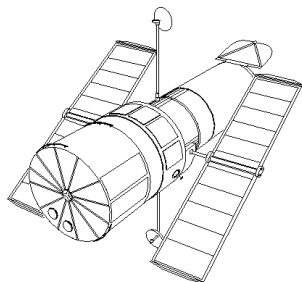
- The next meeting is at 7:30 p.m. on **Tuesday, Apr 5**, at the Bishop Museum Planetarium
- Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **Apr 1 & 15**, at 8:00 p.m. www.bishopmuseum.org/calendar
- The next Board Meeting is Sunday, **Apr 3**, at 3:30 p.m. at the POST building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

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funding agencies look closely at the priorities outlined in these reports and usually base their decisions in large part on the content of the reports.

The most recent astronomy decadal survey, “New Worlds, New Horizons in Astronomy and Astrophysics,” was released last year and is available at http://sites.nationalacademies.org/bpa/BPA_049810 in various formats. The planetary science report, “Vision and Voyages for Planetary Science in the Decade 2013-2022” can be downloaded at http://solarsystem.nasa.gov/multimedia/download-detail.cfm?DL_ID=742. Both are lengthy documents but have brief summaries of a few pages.

Public input is currently being solicited for the planetary report. I’ll outline the major proposals in these reports at our April meeting, and we can discuss them. Funding for many programs is under attack by the new Congress, and public support makes a difference in which programs get funded or cut. Everyone is, of course, welcome to contact his or her own representatives and voice an opinion. We can discuss at the meeting whether the club should express a view that may carry more weight than that of an individual.



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The Astroneus is the 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 e-mail. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

**Hawaiian Astronomical Society
General Membership Meeting
March 1, 2011**

President Chris Peterson called the March 1 meeting of the Hawaiian Astronomical Society to order at 7:32 p.m. The meeting was held at the *Hokulani Imaginarium* on the grounds of Windward Community College in Kaneohe. There were thirty-one members and guests in attendance.

Announcements: *Chris* announced the name and anticipated topic for the next Space Lecture Series talk scheduled for Sunday, March 27, at 7:30 p.m. at the NASA Pacific Regional Planetary Data Center, room 544 in the Pacific Ocean Science and Technology Building, University of Hawaii, Manoa. Chris is not sure of the topic of *Dr. Joost Van Summeren's* talk, but he previously gave a presentation entitled, "Feasibility of Plate Tectonics on Rocky Exoplanets." If interested in any upcoming lectures, please contact NASA PRPDC at 808-956-3132 or go to <http://www.higp.hawaii.edu/prpdc>.

The Hawaii Academy of Science will hold its annual Science and Engineering Fair at the Hawaii Convention Center from March 28 to 30. HAS will again participate in the event by reviewing Astronomy related projects and provide recognition of the top submissions in the Junior and Senior Research category. Members participating in judging will be *Gretchen West, Paul Lawler, and Jim MacDonald*.

The Institute for Astronomy (IFA) will hold its annual open house at their headquarters in Manoa on Sunday, April 10. We are planning to participate in this year's gathering. *Gretchen West* will be the club's coordinator.

An Election: It was announced last month that *John Gallagher* is stepping down from his member-at-large position for health reasons. At that time it was announced that nominations would be solicited to fill this vacancy. Sue Girard agreed to have her name offered for consideration in filling this position. A vote by show of hands was taken and she was elected by an overwhelming majority of members present. John has volunteered to continue as the club's Star Party Coordinator and representative on the Night Sky Network.

March star map - Chris announced that the star map for March has been printed and is available for anyone wanting a copy. It features

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(Meeting Minutes continued from Page 3)

stars visible to the unaided eye known to have planets within our galaxy. The map is from the Night Sky Network and made available by **John Gallagher**. The map also includes the dates of our star parties at Dillingham and the Geiger/Kahala Community parks.

The Iolani School star party on February 25 went well. It was scheduled for their third-grade class. The viewing was good with no moon and Jupiter was low in the west. The student's scheduling moved along smartly and everyone seemed to enjoy themselves.

The initial star party at **Geiger Community Park** on February 12 was a washout. It was hoped that this location in Ewa Beach would present better viewing than the previous Waikele location. However, the sky was overcast and no telescopes were set up. **John Gallagher** and his wife were present to meet anyone that might show up.

Big Island Trip - **John Sandor** gave a status report of arrangements for the Big Island trip to the Gemini telescope in June. So far, there are 13 confirmed reservation requests for the 22 spaces available for the trip. He has received various inquiries from non-members and hopes to have all of the spaces filled by the end of March. He announced that he has sent an e-mail to all of those with confirmed reservations and that if you have not heard from him, you should send him an e-mail indicating your interest. For continued updates, look for information on the club's web site. Most of the group will be departing Oahu on Friday, June 24. The trip to the summit of Mauna Kea will be on Saturday, June 25, and the visit to the Imiloa Planetarium in Hilo on Sunday. Members of the group are to make their own travel and hotel reservations. Group rates have been arranged at the Castle Hilo Hawaiian Hotel. While you are not required to stay at that hotel, transportation will depart from the Castle Hotel and anyone staying elsewhere will have to make arrangements to get to this hotel to be included.

The space shuttle Discovery has arrived at the International Space Station (ISS) and is unloading cargo and performing maintenance. The U.S. will soon be without the capability to supply the ISS and will have to rely on the soyuz to transport astronauts to and from the ISS. Private corporations are gearing up to provide shuttle service for cargo to the ISS. In further news, the messenger satellite is about to go into orbit around Mercury and provide pictures of parts of the planet that we have not seen before. Also, the Dawn spacecraft launched in 2007, is to

GOES-R, Zombie Fighter

by Dr. Tony Phillips

On April 5, 2010, something eerie happened to the Galaxy 15 telecommunications satellite; It turned into a zombie.

The day began as usual, with industry-owned Galaxy 15 relaying TV signals to millions of viewers in North America, when suddenly the geosynchronous satellite stopped taking commands from Earth. It was brain dead! Like any good zombie, however, its body continued to function. Within days, Galaxy 15 began to meander among other satellites in geosynchronous orbit, transmitting its own signal on top of the others'. Satellite operators scrambled to deal with the interference, all the while wondering *what happened?*

In horror movies, zombies are usually produced by viruses.

“In this case, the culprit was probably the sun,” says Bill Denig of the National Geophysical Data Center in Boulder, Colorado. He and colleague Janet Green of NOAA’s Space Weather Prediction Center recently led a study of the Galaxy 15 anomaly, and here are their conclusions:

On April 3rd, a relatively minor solar flare launched a cloud of plasma toward Earth. Galaxy 15 had experienced many such events before, but this time there was a difference.

“Galaxy 15 was just emerging from the shadow of Earth when the cloud arrived and triggered a geomagnetic storm,” explains Denig. Suddenly exposed to sunlight and the ongoing storm, “the spacecraft began to heat up and charge [up].”

Electrons swirling around Galaxy 15 stuck to and penetrated the spacecraft’s surface. As more and more charged particles accumulated, voltages began to rise, and—zap!—an electrostatic discharge occurred. A zombie was born.

“At least, this is what we suspect happened based on data collected by GOES satellites in the vicinity,” he says. “We’ll be able to diagnose events like this much better, however, after GOES-R is launched by NASA in 2015.”

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Planets Close To the Moon

Times are Hawaii Standard Time

- Apr 16, 17h, M 7.6° SSW of Saturn
(165° from sun in evening sky)
- Apr 26, 19h, M 75.2° NNW of Neptune
(66° from sun in morning sky)
- Apr 29, 07h, M 5.8° NNW of Uranus
(37° from sun in morning sky)
- Apr 30, 08h, M 6.6° NNW of Venus
(28° from sun in morning sky)
- Apr 30, 14h, M 7.3° NNW of Mercury
(28° from sun in morning sky)

Mars and Jupiter are closer than 15° from the sun when near the moon in April.

Other Events of Interest

Times are Hawaii Standard Time

- Apr 3, 04:12h, Moon New
- Apr 3, 14h, Saturn at Opposition
- Apr 6, 05h, Jupiter at conjunction with sun
(Passes into morning sky)
- Apr 9, 10h, Mercury at inferior conj. with sun
(Passes into morning sky)
- Apr 17, 16:43h, Moon Full
- Apr 22, Lyrid Meteors
(Unfavorable year for this sometimes strong shower.)
- Apr 22, 16 h, Venus 0.85° SSE of Uranus
(30° from sun in morning sky)
- Apr 30, 17h, Mars 0.36° NNW of Jupiter
(18° from sun in morning sky)

♿ Mercury Makes a morning appearance the last few days of the month.	♀ Venus Shines bright in the morning sky about 25° from the sun.	♂ Mars Too close to the sun for most of the month. Can be seen close to Jupiter & Venus late in the month. (See Above)
♃ Jupiter Reaches conjunction on Apr 6 and is too close to the sun to be viewed till the last couple of days of the month.	♄ Saturn Reaches opposition on April 3. April is the best month of the year to view the ringed planet.	♅ Uranus Is visible the last couple of weeks of the month low in the morning sky.
♆ Neptune Is visible in the morning sky, above Venus.	♇ Dwarf Planet Pluto Is visible before dawn in the eastern sky, but will be better placed for observing later in the year.	♁ Asteroid Juno Reached opposition on Mar 11 and is still well placed for viewing in Virgo.

June 24-26, 2011

Those who have made valid reservation requests by March 31 will be notified by email on April 1 (no fooling!) of their participant status. At this time, it looks like we may have a few unfilled participant slots. I'll be calculating the per person participation fee soon after April 1, and will be asking that this fee be remitted to HAS by April 30. Those who have been notified of their confirmed participant status for the tour should make their travel arrangements for the Big Island. See the HAS Web site for more details: <http://www.hawastsoc.org/MaunaKea2011/Geninfo.html>

Aloha, and see you on Mauna Kea!

John Sandor
sandball@aol.com

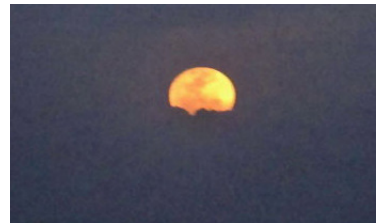
(Space Place continued from page 5)

GOES-R is NOAA's next-generation Geostationary Operational Environmental Satellite. One of the instruments it will carry, a low-energy electron counter, is crucial to "zombie fighting." Low energy-electrons are the ones most likely to stick to a spacecraft's surface and cause brain-frying discharges. By monitoring these particles in Earth orbit, GOES-R will provide better post-mortems for future zombie outbreaks. This could help satellite designers figure out how to build spacecraft less susceptible to discharges. Also, GOES-R will be able to issue alerts when dangerous electrons appear. Satellite operators could then take protective action—for example, putting their birds in 'safe mode'—to keep the zombie population at bay.

Were you fortunate enough to see the rising of the Super Moon on Saturday evening, March 19, 2011? This event was well touted in the media leading up to this date. It started out as being the largest and brightest (closest) moon in almost 20 years. Then this distance was revised to 19 years. Then it was revised downward to where I finally heard it was almost 18 years. There was also a rumor that this event would cause a super high tide which was officially discounted. NASA reported that the moon would be 14 percent bigger and 30 percent brighter. However, we were advised the best vantage point for viewing was with the moon on the horizon with objects in the foreground, aka the moon illusion.

Barry Peckham likes to see a moon rise out of the ocean so I contacted him to see if he was planning to be out at the Blowhole lookout to witness the rising of the super moon. The weather was not good on our end of the island. The sky was almost totally socked in with scattered rain showers blowing through the area. Barry agreed to meet a couple of minutes before the scheduled moon rising time of 7:06 p.m. Conditions in the Blowhole parking lot were not welcoming. The wind was blowing in the 20 to 30 mile an hour range. The ocean was crashing on the rocks below and there was a lot of sea spray in the air. Needless to say, parking was at a premium. After all, others wanted to see this event too.

The clouds were down on the horizon so there was no seeing the moon emerge from the sea. We waited and debated the specific location to watch. A few minutes after the scheduled moon rise, Barry spotted a sliver of the moon through the clouds. Finally we were greeted by a glowing golden orb, nice and round. Barry snapped a couple of pictures before the moon rose into a thick cloud bank and disappeared. With that, we said adieu with about half of the parking lot and headed off to a bowl of warm noodles.



Later back in Kailua, the moon was high in the sky shining through a clear patch. It didn't look any larger than any other moon, but I will say it did look a lot brighter.

make a flyby of asteroid Vesta sometime between the end of this year and 2012. It will then proceed to Ceres arriving around 2015. The Dawn spacecraft is powered by an Ion Propulsion Engine.

The meeting adjourned at 7:59 p.m. Our host, *Joe Ciotti* gave an introduction to the facility and some of his background in the development of the Imaginarium, the Lanihuli Observatory and the Imiloa planetarium in Hilo. He then demonstrated the capabilities of the digital full dome system in the Imaginarium.

Respectfully Submitted,
Jim MacDonald

ODE TO AN AMATEUR ASTRONOMER

[it could be Herschel, or Barry or you]

A Mariner he longed to be
Of distant places too small to see.
But with a glass, polished and bright
He saw creation's early light.
Then steadfast through all the night
Facing cold, snow, and wet despite
All the elements pummeled with their might.
But [he, she] a Mariner of wondrous sights
Would persist in viewing with sheer delight.
Ah!! But what's the gain?
A distant galaxy like sand, a grain.
But wait--there are sights so profound
Of celestial bodies--they simply abound.
What rewards await this nocturnal quest?
The wondrous cosmos with which we are blessed?
Not just to navigate the sky and stand in awe
But something further, we search for.
A celestial homeland to be gained?
Our place in the universe to be attained.
Close to the common thread of life.
That's the Mariner's elan and the just reward for his strife.

Mel Levin--with help from Clare--a little.
ps--Clare actually helped quite a bit.

HAS Financial Report as of March 15, 2011

Initial Balance:	\$4,810.77*
Receipts:	
Donations	15.00
Dues Received	187.00
Magazine Payments	34.00
Total Income:	\$236.00
Expenses:	
Astronews	65.47
Magazine Subscriptions	99.90
Postage	7.29
Refreshments	12.63
Total Expenses:	\$185.29
Final Balance	\$4,861.48

We gained seven new members this month. Included are **Patti Gallagher-Jones, Bruce Jones; Walter, Ellen, Charles, and Dorrie Jankowski** and **April Lew**. Thanks to **Robert Humphreys** for his donation. Thanks and clear skies to all renewing their membership this month. Come join us under the spring skies. There are lots of deep-sky objects to view and Saturn is back.

Upcoming School Star Parties

- April 01 (Fri) Ma'ema'e School PTSA (Has been cancelled)
- April 07 (Thu) Pearl Harbor Elementary
- April 08 (Fri) Mililani Mauka Elementary
- April 12 (Tue) Punahou School Astronomy Club
- April 29 (Fri) Niu Valley Middle School
- May 06 (Fri) Ala Wai Elementary
- May 11 (Wed) Lanakila Elementary
- May 30 (Mon) Muscular Dystrophy Assn Summer Camp
- June 10 (Fri) Ma'ema'e Girl Scout Bridge Camp

If you are interested in participating, sign up during HAS meetings or contact John Gallagher at gallaghej002@hawaii.rr.com or call 683-0118 and leave a message.

Hawaiian Astronomical Society
Event Calendar

< April 2011 >						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	31	7:00 PM Ma'ema'e School PTSA St	6:15 PM Public Star Party(D) Sunset: 6:48 PM
3 	4 7:30 PM Club Meeting	5	6	7:00 PM Pearl Harbor Elem SP	7:00 PM Mililani Mauka Elem SP	6:30 PM Public Star Party(K) 6:30 PM Public Star Party(G) Sunset: 6:50 PM
10	11 	12	13	14	15	16 Sunset: 6:52 PM
17	18 	19	20	21	22	6:30 PM Club Star Party (D) 23 Sunset: 6:55 PM
24	25 	26	27	28	7:00 PM Niu Valley Middle School	6:30 PM Public Star Party(D) 30 Sunset: 6:57 PM

Notice:

HAS will publish a complete listing of club members in the May, 2011, 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 you opt-out, 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 April 15, 2011, by sending him an e-mail at jim.macd@hawaiiantel.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 member's personal use only for 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 NOT make this list available to, nor do we sell its contents to, anyone for any purpose.

Please respect our member's right to privacy!





Barry's excellent view of the Bay of Rainbows (Sinus Iridum, 260 Km in Dia) The tiny crater named Sharp is on it's rim. Plato is on the right hand edge of the picture and Philolaus is on the upper edge. Can you find the crater named for Caroline Herschel?

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