



## NASA's MESSENGER Mission: A Renaissance in the Exploration of Mercury

We will have a special guest speaker at our June meeting: *Dr. David Blewett*, MESSENGER Participating Scientist

Bio: **David Blewett** is a scientist at Honolulu tech firm NovaSol. He has a bachelor's degree in Astronomy & Astrophysics from the University of Pennsylvania, and M.S. and Ph.D. in Geology & Geophysics from the University of Hawaii. His planetary research interest is the use of remote sensing to study the geology of the airless bodies in our Solar System, with emphasis on the Moon and Mercury. In March 2007 he was selected as a Participating Scientist for NASA's MESSENGER mission to Mercury.

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### Upcoming Star Parties

<b>Club Party</b>	<b>Jun 9</b>	<b>Dillingham</b>
<b>Public Party</b>	<b>Jun 16</b>	<b>Dillingham</b>
<b>Public Party</b>	<b>Jun 23</b>	<b>Kahala/Waikele</b>
<b>Club Party</b>	<b>Jul 7</b>	<b>Dillingham</b>
<b>Public Party</b>	<b>Jul 14</b>	<b>Dillingham</b>
<b>Public Party</b>	<b>Jul 21</b>	<b>Kahala/Waikele</b>
<b>Public Party</b>	<b>Aug 4</b>	<b>Dillingham</b>

### Upcoming Events:

- The next meeting is at 7:30 p.m. on **Tuesday, June 5<sup>th</sup>** at the Bishop Museum.
- Bishop Museum's next planetarium show with **Barry Peckham** is Friday, **June 1<sup>st</sup>** at 7:00 pm.

## President's Message

This month we will hear a talk on the **MESSENGER** mission, currently on its way to Mercury. At the same time, the **New Horizons** mission is headed toward Pluto, and **Cassini** is revealing more of Titan's surface each time it passes Saturn's largest moon. At the end of June, the **Dawn** mission is scheduled to launch toward two of the three largest main belt asteroids, Ceres and Vesta. If all goes as planned, in about a decade these spacecraft will substantially complete the initial reconnaissance phase of the exploration of the major bodies of our solar system.

Those my age and older can recall the days when Earth-bound telescopes were all we had to reveal the secrets that the night sky's wanderers had kept hidden since humans first noticed them. **Sputnik** made the first orbit of Earth in 1957, and **Explorer I** quickly followed in January of 1958, discovering the Van Allen belts and changing our picture of Earth. It wasn't long before spacecraft headed to the Moon, then Mars and Venus. Pictures were sent back and seen later by most people in the newspaper, magazines, or on television.

Astronauts landed on the Moon and were watched on live TV by many of us on Earth. A spacecraft flew past Mercury and revealed details of about half its surface. The **Pioneer** and **Voyager** spacecraft gave us close-up views of the gas giant planets, and, by the time of the Neptune flyby in 1989, it was possible to view images almost simultaneously as they were being received, line by line, by the **Voyager 2** team.

Since that time, we have continued exploring, but not since then have there been so many major "first looks" concentrated in such a short time. We are a privileged generation to witness so much of

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**Hawaiian Astronomical  
Society**  
P.O. Box 17671  
Honolulu, Hawaii 96817

### President

**Chris Peterson**

956-3131

chrisp@higp.hawaii.edu

### Vice President

**Barry Peckham**

524-2450

barry@litebox-telescopes.com

### Secretary

**Gretchen West**

737-4742

gwest002@hawaii.rr.com

### Treasurer

**Jim MacDonald**

261-2162

jim.macd@hawaiiintel.net

### Board Members-at-Large

**John Gallagher** 683-0118

gallaghej002@hawaii.rr.com

**Sue Girard** 680-7256

sue@kilolani.net

### *The* Astronomer Editor

**Paul Lawler**

395-8121

paul@kilolani.net

### HAS Webmaster

**Peter Besenbruch**

prb@lava.net

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**Planets Close To the Moon**

Times are Hawaii Standard Time

- June 1, 01h, M 5.7° S of Jupiter  
(174° from sun in midnight sky)
- June 6, 06h, M 1.4° SSE of Neptune  
(113° from sun in morning sky)
- June 8, 04h, M 1.5° NNW of Uranus  
(89° from sun in morning sky)
- June 10, 08h, M 4.7° NNW of Mars  
(60° from sun in morning sky)
- June 16, 00h, M 5.6° N of Mercury  
(17° from sun in evening sky)
- June 18, 06h, M 0.58° NE of Venus  
(45° from sun in evening sky)
- June 18 22h, M 0.43° NNW of Saturn  
(53° from sun in evening sky)
- June 28, 02h, M 5.7° S of Jupiter  
(153° from sun in evening sky)

**Other Events of Interest**

Times are Hawaii Standard Time

- June 2, 00h, Mercury at greatest elongation  
(23.4° East of the sun)
- June 5, 11h, Jupiter at opposition
- June 8, 17h, Venus at greatest elongation  
(45.4° East of the sun)
- June 13, 05h, Venus near center of Beehive  
Cluster (45° from sun in evening sky)
- June 14, 17:14h, Moon New
- June 18, 18h, Pluto at Opposition
- June 21, 08:11h, Summer Solstice
- Jun 28, 09h, Mercury at Inferior Conjunction  
(Passes into morning sky.)

**Planets in June**

<p> <b>Mercury</b> is well placed for evening viewing during the first week or two of June.</p>	<p> <b>Venus</b> reaches greatest elongation on June 8, Mag. -4.3</p>	<p> <b>Mars</b> rises about 2:00 am at magnitude +0.8 and diameter 6".</p>
<p> <b>Jupiter</b> reaches opposition on June 5 when it will be the brightest and largest (46") of the year.</p>	<p> <b>Saturn</b> is still visible in the evening sky, passing Venus this month at magnitude +0.6.</p>	<p> <b>Uranus</b> rises about midnight. Can be viewed between Neptune and Mars in the predawn sky.</p>
<p> <b>Neptune</b> rises before midnight and can be viewed in the early morning hours.</p>	<p> Dwarf Planet <b>Pluto</b> is at opposition this month so will be high in the sky in the hours before and after midnight.</p>	<p> <b>Asteroid Vesta</b> can be seen with the unaided eye early in June. By June 7 the moon will not rise until 11 pm and Vesta will be about mag. +5.5.</p>

# Meeting Minutes

H.A.S. Secretary

President Chris Peterson called the May 1, 2007 meeting of the Hawaiian Astronomical Society to order at 7:35 p.m. The meeting was held at the Atherton Halau of the Bishop Museum. In attendance were thirty-six members and four visitors.

**Hawaii Space Lecture Series-** The Hawaii Space Lecture Series will take place on May 3, 2007 at 7:30 p.m., at the NASA Pacific Regional Planetary Data Center, room 544 of the POST Bldg, at UH. UH planetary scientist Joe Boyce will present *The Enigmatic Craters of Mars*. For further information you can go to <http://www.higp.hawaii.edu/prpdc>.

HAS President Chris Peterson spoke briefly regarding Gleise 581, an apparent extra-solar planet. Chris explained how scientists identify objects without actually seeing them.

Chris discussed the recent full moon event at Iolani School, and the Sunday March 29<sup>th</sup> I.F.A. Open House, which was very successful. Chris informed members about the American Astronomical Society Conference beginning Sunday, May 27<sup>th</sup>, at the Hawaii Convention Center. “The Astro-Zone Honolulu,” a public event kicks off the 5-day conference.

## OLD BUSINESS

**Star Party Report** – We have had a number of very successful school star parties recently, Iolani School Space Night, and the Pearl Harbor Elementary and Ala Wai Elementary Schools viewing nights. Forrest sent a sign up

sheet around for those willing to help out on May 10<sup>th</sup> and May 27<sup>th</sup> for two more school star parties. There are four upcoming events in April, to be discussed at the next meeting. You can contact Forrest by e-mail during the month of March, as he will be on the Mainland, 3-15 through 3-29.

**Newcomers** – Chris Peterson welcomed our four guests. Cathy and Pearl, Karen Perry, and John Brusard.

**General Information-** 1) A list of membership information will appear in the June “hardcopy” edition of the Astronews. 2) For all members with a current subscription to *Sky & Tel*, be advised that you will need to send in your own renewals of \$32.95. Renewals for this magazine only will be handled in this fashion. Those members who wish to start a subscription taking advantage of the club discount should speak to Treasurer, Jim MacDonald. 3) If anyone is willing to give a student a ride out to our Dillingham Air Field viewing site please check the yahoo. chat group. 4) The club awarded two students at the Hawaii State Science and Technology Fair April 3<sup>rd</sup>.

## NEW BUSINESS

**Book Review-** Jim MacDonald brought in two charming juvenile astronomy books that are a wonderful way to introduce sky viewing to younger people. *If You Decided to Go To The Moon* and *Constellations* are full of beautiful pages and loads of useful information.

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This summer, NASA will launch a probe bound for two unexplored worlds in our solar system's asteroid belt—giant asteroids Ceres and Vesta. The probe, called Dawn, will orbit first one body and then the other in a never-before-attempted maneuver.

It has never been attempted, in part, because this mission would be virtually impossible with conventional propulsion. “Even if we were just going to go to Vesta, we would need one of the largest rockets that the U.S. has to carry all that propellant,” says Marc Rayman, Project System Engineer for Dawn at JPL. Traveling to both worlds in one mission would require an even bigger rocket.

This is a trip that calls for the unconventional. “We’re using ion propulsion,” says Rayman.

The ion engines for the Dawn spacecraft proved themselves aboard an earlier, experimental mission known as Deep Space 1 (DS1). Because ion propulsion is a relatively new technology that’s very different from conventional rockets, it was a perfect candidate for DS1, a part of NASA's New Millennium Program, which flight-tests new technologies so that missions such as Dawn can use those technologies reliably.

“The fact that those same engines are now making the Dawn mission possible shows that New Millennium

accomplished what it set out to,” Rayman says.

Ion engines work on a principle different from conventional rockets. A normal rocket engine burns a chemical fuel to produce thrust. An ion engine doesn't burn anything; a strong electric field in the engine propels charged atoms such as xenon to very high speed. The thrust produced is tiny—roughly equivalent to the weight of a piece of paper—but over time, it can generate as much speed as a conventional rocket while using only about 1/10 as much propellant.

And Dawn will need lots of propulsion. It must first climb into



Vesta's orbit, which is tilted about 7 degrees from the plane of the solar system. After studying Vesta, it will have to escape its gravity and maneuver to insert itself in an orbit around Ceres—the first

spacecraft to orbit two distant bodies. Dawn's up-close views of these worlds will help scientists understand the early solar system.

“They're remnants from the time the planets were being formed,” Rayman says. “They have preserved a record of the conditions at the dawn of the solar system.”

Find out about other New Millennium Program validated technologies and how they are being used in science missions at <http://nmp/>

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**President** (Continued from page 2)  
what was only imagined for tens of thousands of years and what will never be seen for the first time again. This

**Minutes** (Continued from page 4)  
**Speaker for our June 2007 Meeting** – Dave Blewitt, club friend and a participating scientist on the Mercury Mission will join us on June 5th. It has been some time since he has spoken to the club and we know that the upcoming talk will be informative.

**For Sale** - Club member, Tom Piper refurbished a 4.5” Celestron, f-8. It was a bit of a fixer-upper w/manual and 1 eyepiece. It was sold for \$20.

**Give-Aways** – Jay brought and gave away to interested parties a planisphere, sun indicator and a star game.

**Short Notes** – Vice President, Barry Peckham spoke on a few items. Barry related that clubs often benefit when more members are involved. Case in point was the Tucson Amateur Astronomical Association with 25 group coordinators. Barry urges more Honolulu members come out and become involved even if it is only to view the night skies.

**For Your Viewing Pleasure** – Barry pointed out that now is the time to go out and view the Spring/Summer

era truly marks a major milestone in the history of humanity. Enjoy it and appreciate it while it lasts.

Chris

skies. Double Stars are a great sight; Porima, in Virgo and Cor Corolli, to name only two. May skies are upon us and it is a good time for viewing in almost all areas of the sky.

**New Possibilities** – With the advent of the interisland Super Ferry, we have more possibilities to visit other islands and other viewing spots. We are already thinking ahead to possibly trekking to the Garden Isle of Kaua'i to experience the various viewing spots. Keep in touch and see what develops. Jay Wrathall expressed his interest in the asteroid, Vesta.

**Night Sky Network** – Night Sky Coordinator, John Gallagher, introduce members to the latest NASA Night Sky Toolkit on the solar system, which the club has been asked to evaluate. The remainder of the meeting was used for evaluation activities.

The meeting was adjourned at 9:05 p.m. and refreshments were served. Joanne Bogan conducted a show in the Planetarium after the meeting..

Respectfully Submitted,  
Gretchen West

**Space Place** (Continued from page 4)

TECHNOLOGY/infusion.html While you're there, you can also download "Professor Starr's Dream Trip," a storybook for grown-ups about how ion propulsion enabled a scientist's dream of visiting the asteroids come true. A simpler children's version is available at <http://spaceplace.nasa.gov/en/kids/nmp/starr>

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

## HAS Financial Report as of May 15, 2007

Initial Balance: .....	\$5,213.34
Receipts:	
Donations .....	27.00
Dues Received .....	114.00
Magazine Payments .....	66.95
T-Shirt Sales.....	60.00
Telescope Rentals .....	20.00
Total Income: .....	\$287.95
Expenses:	
Astronews .....	112.87
Magazine Subscriptions .....	134.95
Refreshments.....	7.69
Postage.....	2.79
Total Expenses: .....	\$258.30
Ending Balance: .....	\$5,243.47

This month we added four new members. They are **Tom and Valerie Broussard; Kathleen Pieri and Pearl Kelley**. The club thanks **Sapavith Vanaprucks** for his cash donation. An appreciative thanks also those renewing their membership this month. Clear skies to everyone!

## Meteor Log—June 2007

by Mike

Not much happens in June, there are a few minor nighttime and major daytime sources which could use attention.

Saturday the 16th, the **June Lyrids**. Radiant 18h32m +35 deg.  
The rate is variable but generally less than 5 meteors per hour. The new Moon on the 15th creates perfect conditions to search for this possible shower.

Wednesday the 27th, the **June Bootids**. Radiant 14h56m +48 deg.  
The rates run from zero to about 100 meteors an hour. The 1998 return was unexpected as the shower was dormant for 70 years. There was a June 2004 outburst on the 23rd. A shower peak may occur within six hours of 20 hours UT on the 27th. The meteors are very slow.

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

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P.O. Box 17671  
Honolulu, HI 96817**

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HAS members at our exhibit at the IFA Open House in April