The Astronews

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Special Offer for HAS Members

Editor

The software demonstrated at the September meeting (SkyTools 2) is available to HAS members at a special volume discount price. The list price is $99.95, but Club members can receive the following discounts (plus $1 shipping).

Quantity 2-9..... $74.98
Quantity 10-24..... $59.97
Quantity 25 or more..... $49.96

HAS will be arranging a group purchase of SkyTools 2. If you would like to participate, please contact me via e-mail (stargazer@kilolani.net). The final price will depend on the number of participants. For more info on SkyTools 2, you can visit the website at http://www.skyhound.com

Upcoming Star Parties

Club Party	**Oct 1**	**Dillingham**
Public Party	**Oct 8**	**Kahala/Waikele**
Public Party	**Oct 22**	**Dillingham**
Club Party	**Oct 29**	**Dillingham**
Public Party	**Nov 5**	**Kahala/Waikele**
Club Party	**Nov 26**	**Dillingham**

Inside this issue:

Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, Oct.4th at the Bishop Museum.
- **Bishop Museum's** next planetarium show (with **Barry Peckham**) is on Friday, Oct. 7th.

President's Message

When increasing numbers of scientists began seriously studying the Moon in preparation for human landings there, it became clear that most of the craters on the Moon were caused by impacts. After Apollo astronauts began returning samples, it was possible to date some of the material that resulted from those impacts. It was determined that most of the large multi-ring basins were formed about 3.8 to 3.9 billion years ago, about 700 million years after the formation of the Sun and planets.

Some scientists argued for a late heavy bombardment (LHB) period with a flurry of impacts that created these basins. Others suggested that there had been a steady drop off of the impact rate and that evidence for earlier impacts had been erased by subsequent ones. Over the years, evidence in support of the LHB theory has accumulated, but there has been no way to explain why there would have been such a long delay between the initial formation of the planets and a relatively brief period of greatly increased cratering rates.

Now an international group of researchers has developed a computer simulation that may explain what happened. As described in the September issue of Sky and Telescope, the model starts 10 million years after the formation of the solar system with Jupiter slightly farther from the Sun that it currently is, Saturn, Uranus, and Neptune closer, and the order of Uranus and Neptune reversed. Gravitational interactions change the orbits of the planets and scatter what have become the Kuiper belt objects from their original locations just outside the (early) orbit of Uranus. This model explains the timing of the LHB as well as the current orbits of the giant planets and the existence of the Trojan asteroids that lead and trail Jupiter by 60°.

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Hawaiian Astronomical Society
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***The* Astronews** 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 15th of each month. We are not responsible for unsolicited artwork.

Planets Close To the Moon

Times are Hawaii Standard Time

Oct 6, 20h, M 1.4º SSW of Venus
(45º from sun in evening sky)
Oct 12, 07h, M 4.4º SSE of Neptune
(115º from sun in evening sky)
Oct 13, 20h, M 2.3º SSE of Uranus
(136º from sun in evening sky)
Oct 19, 00h, M 4.7º NNW of Mars
(155º from sun in morning sky)
Oct 25, 10h, M 4.2º NNE of Saturn
(82º from sun in morning sky)

Mercury and Jupiter are closer than 15º from the sun when near the moon in October.

Other Events of Interest

Times are Hawaii Standard Time

Oct 3, 02:24h, Moon New
Oct 5, 10h, Mercury 1.3º SSW of Jupiter
(13º from sun in evening sky)
Oct 16, 16h, Moon, Venus 1.6º N of Antares
(46º from sun in evening sky)
Oct 17, 02:13h, Moon Full
Oct 22, Jupiter at conjunction with the sun
(Passes into morning sky)
Oct 29, 17h, Mars closest to the Earth
(0.464 a.u..)

Planets in October

☿ Mercury

Mercury is hard to observe in Oct as it is very close to the sun all month.

♀ Venus

Shines very brightly in the west after sunset. Mag. -4.3.

♂ Mars

Rises in the early evening, brightens to Mag. -2.3 by the end of the month when it will be closest to the earth.

♃ Jupiter

Is very close to the sun all month and reaches conjunction on Oct 22 when it passes into the morning sky.

♄ Saturn

rises about 1:00 a.m. and can be viewed before Dawn near M44

♅ Uranus

Is still well placed for viewing in the evening in Aquarius. Mag +5.8.

♆ Neptune

Near Uranus in the evening sky in the constellation of Capricornus. Mag +7.9.

♇ Pluto

Low in the southwest just after sunset, Pluto is getting too close to the sun for easy viewing.

Meeting Minutes

H.A.S. Secretary

The general membership meeting was called to order at 7:38 p.m. by President Chris Peterson. The meeting was held in the Atherton Halau on the grounds of the Bishop Museum. Twenty-four members and five visitors were present

Greeting and General Discussion - President Chris Peterson began this month¹s meeting with a general discussion of the current and ongoing projects and explorations to other planets, Venus, Jupiter and Mars.

Lecture at Planetary Data Center - Dr. Karen Stockstill of the University of Hawaii will guest lecturer Tuesday, September 27, 2005. The title of her talk is "Past Lakes on Mars? Evidence For and Against" The free lecture takes place at 7:30 p.m. in the Planetary Data Center, Rm 544 of the POST Building at U.H. Manoa.

Welcome to Visitors- five visitors were greeted by Chris Peterson.

Telescope Rentals Available to Members- We would like to remind all members who do not own their own telescopes that H.A.S. does have Dobsonian telescopes and a PST available for rental on a monthly basis. Not only do you have the opportunity to view the night skies or (with the P.S.T.) the sun at home but we urge you join us at our dark sky star parties at Dillingham Airfield on the north shore or the suburban star parties at Kahala Community Park or Waikele Regional Park.

Lacy Veach Day - The club will participate at this year¹s October 29, 2005 activity day at Punahou. We will be sharing the daytime sky with interested Lacy Veach Day participants. There was a sign up and anyone interested in helping out is asked to contact Gretchen West.

Calendar Dilemma - The general membership assembled voted to hold the July 2006 General Membership Meeting on July 11, 2006, rather than the regularly scheduled July 4th. So mark that one on the calendar as a change.

Donation/for Auction - The Meade telescope donated to the club a few months ago was auctioned. The multi-coated refractor with tripod, Model # 390, 90 mm diameter, f ratio 11. The telescope was in need of repair. The telescope raised $35.

School Star Party Report - Forrest Luke reported on school parties.

Magazine $$$ Increase- Jim MacDonald reports that the magazine ASTRONOMY has increase its yearly price by $5.00, to $34.00 per year.

Pictures- Jay Wrathall shared 2 photographs of well known constellations taken at the eyepiece with a digital camera. Not as easy to pick up on as there were many 9th and 10th magnitude stars in the field.

Review of Current Planetary Missions - President Peterson reviewed and led a discussion of current planetary missions by NASA and other national and international agencies; Cassini, Hiyabusa, and Smart One, to name a few.

Solar Flare - The current solar flare of enormous proportions was discussed. Joanne Bogan mentioned that they had great views of it in the museum scope. The CME will not immediately impact communications but as it rotates it may cause problems.

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Meteor Log—October 2005

by Mike Morrow

The shower of the month, the Orionids, suffers from a bright waning Moon, though checking for Draconids will be a bit easier. Sporadic rates remain good.

Saturday the 8th, **the Draconids**. Radiant 17h28m +54 deg.
Rates for this shower run from none to a storm. The most recent strom was in 1946, but 1999 had a minor outburst. Draconids are slow-moving.

Friday the 21st, **the Orionids**. Radiant 06h20m +16degs.
This shower produces 15 to 20 meteors an hour with but rates are variable. Typical shower meteors are very fast, sometimes bright, and often leave persistent trains (about 50%+). Associated with Comet Halley as are the **Eta Aquarids** of May. The Moon, full to waning gibbous, spoils this shower. Ah Xena, where are you?!.

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

President's Report *(Continued from page 2)*

While it's too early to know whether this model will become accepted, it does provide a possible answer for a question that has long intrigued planetary scientists. Time will tell if the answer is the correct one.

Chris

Minutes *(Continued from page 4)*

SkyTools 2 - Paul Lawler, moving quickly through the computer application, introduced this useful and resource filled observation tool that PC users have available to them.

Magazine Review - Vice President Barry Peckham spoke briefly about the magazine written with amateur astronomers in mind. As a matter of fact it is called the ***Amateur Astronomy*** and is written by the very same amateur astronomers, like those in our club. The quarterly magazine, edited by Tom Clarke, an amateur astronomer from Florida, is available at $28.00 per year

Night Sky Network - John Gallagher, working tirelessly to promote the NASA program to the public, spoke briefly about the upcoming teleconference on September 29. He urges people to come out to our own star parties, enjoy the skies and stars, and help us better inform the public about our wonderful night skies.

Alberio - Binary or Optical Double? - Yes, you guessed it. A discussion took place deliberating this very question. Why not research up on the issue and come to the next meeting. We would like to see you there!

The meeting adjourned at 9:16 p.m. Refreshments were served and a short Planetarium show was given by Joanne Bogan.

..... Respectfully submitted ,
..... Gretchen West, Secretary HAS

NASA's Space Place

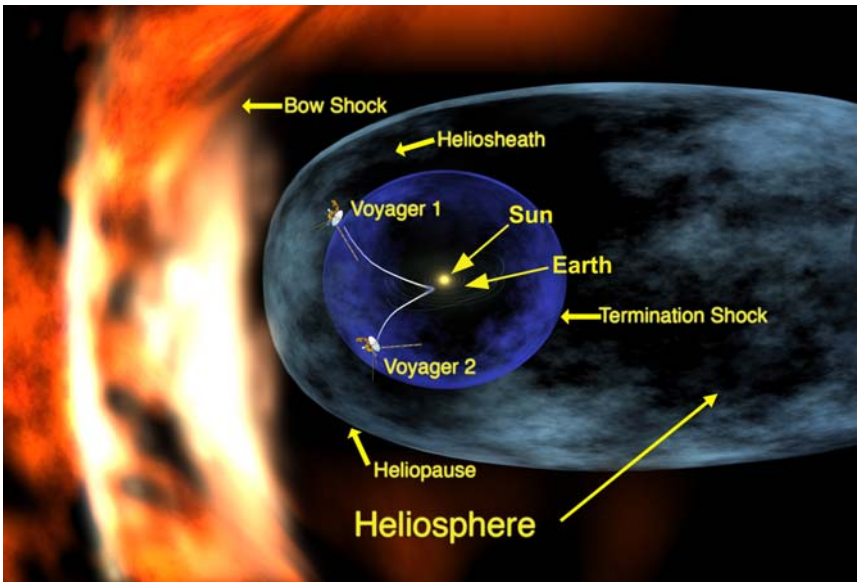
Where No Spacecraft has Gone Before by Dr. Tony Phillips

In 1977, Voyager 1 left our planet. Its mission: to visit Jupiter and Saturn and to study their moons. The flybys were an enormous success. Voyager 1 discovered active volcanoes on Io, found evidence for submerged oceans on Europa, and photographed dark rings around Jupiter itself. Later, the spacecraft buzzed Saturn's moon Titan—alerting astronomers that it was a very strange place indeed! —and flew behind Saturn's rings, seeing what was hidden from Earth.

Beyond Saturn, Neptune and Uranus beckoned, but Voyager 1's planet-tour ended there. Saturn's gravity seized Voyager 1 and slingshot it into deep space. Voyager 1 was heading for the stars—just as NASA had planned.

Now, in 2005, the spacecraft is nine billion miles (96 astronomical units) from the Sun, and it has entered a strange region of space no ship has ever visited before.

"We call this region 'the heliosheath.' It's where the solar wind piles up against the interstellar medium at the outer edge of our solar system," says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.



Out in the Milky Way, where Voyager 1 is trying to go, the "empty space" between stars is not really empty. It's filled with clouds of gas and dust. The wind from the Sun blows a gigantic bubble in this cloudy "interstellar medium." All nine planets from Mercury to Pluto fit comfortably inside. The heliosheath is, essentially, the bubble's skin.

"The heliosheath is different from any other place we've been,"

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Treasurer's Report

by Jim MacDonald

HAS Financial Report as of September 15, 2005

Initial Balance:	**$4,877.95**
Receipts:	
Astronomy Payment	34.00
Donations	38.05
Dues Received	89.00
S&T Payments	32.95
Telescope Fees	40.00
Total Income:	**$234.00**
Expenses:	
Astronews	150.75
Magazine Subscriptions	160.80
Postage	3.85
Refreshments	9.57
Total Expenses:	**$321.12**
Ending Balance:	**$4,766.25**

The club welcomes Three new members this month. They are **Trey** and **Jan McGriff**, and **Bing Fu**. In addition, many thanks to those renewing their membership and to **Glenn Nanamori** and **James Chock** for their generous donations. Clear skies to all!

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says Stone. Near the Sun, the solar wind moves at a million miles per hour. At the heliosheath, the solar wind slows eventually to a dead stop. The slowing wind becomes denser, more turbulent, and its magnetic field—a remnant of the sun's own magnetism--grows stronger.

So far from Earth, this turbulent magnetic gas is curiously important to human life. "The heliosheath is a shield against galactic cosmic rays," explains Stone. Subatomic particles blasted in our direction by distant supernovas and black holes are deflected by the heliosheath, protecting the inner solar system from much deadly radiation.

Voyager 1 is exploring this shield for the first time. "We'll remain inside the heliosheath for 8 to 10 years," predicts Stone, "then we'll break through, finally reaching interstellar space."

What's out there? Stay tuned…

For more about the twin Voyager spacecraft, visit voyager.jpl.nasa.gov. Kids can learn about Voyager 1 and 2 and their grand tour of the outer planets at spaceplace.nasa.gov/en/kids/vgr_fact3.shtml

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

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HAS Members preparing for a public event to view the Deep Impact Mission from the great lawn at Bishop Museum