President's Message by Chris Peterson

The June 5th transit of Venus will complete only the 4th pair of transits that have occurred since the telescope was invented, and the first that was not used to significantly increase our understanding of the scale of the solar system. Previous transits were precious and rare opportunities to refine our knowledge of our “local” celestial environment.

How did we figure out the size of the solar system, something beyond our physical reach? We relied heavily on simple geometry and trigonometry along with Kepler’s laws. Even a single observation allows for estimation of the size of Venus relative to the Sun. A second observer at a far distant location on Earth can provide the necessary additional data to allow for measurement of the distance to Venus. Of course, real measurements contain errors, and small errors in angular measurement add up to big errors in distance estimation, so each transit was an opportunity to reduce the errors and refine the estimates.

Johannes Kepler predicted the 1631 transit, but it was not observable in Europe and was not scientifically observed. The 1639 transit was observed by Jeremiah Horrocks and others. Horrocks used his data to estimate the size of the astronomical unit. His figure was only about two thirds of the correct value, but a great improvement on earlier guesses.

The 1761 and 1769 transits were observed by many, including Captain Cook. The observations were used to produce a much better estimate of the AU. The error was then reduced to just a few percent. The 1874 and 1882 transits added more precision.

Now that we have radar and other techniques to measure these kinds of distances, Venus transits are
SB2402 has passed both the House and the Senate, and has been sent to the Governor. You can review the bill by going to: [tinyurl.com/7qclgd7]. I don’t know the date by when the Gov has to act on this, but I’ll update the club at the next general meeting. Next SRC meeting is not scheduled yet, but may be towards the end of June.

Harry Zisko

Lahaina Noon Local Times

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<th>Location</th>
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Congratulations to member Travis Le, for his participation at the International Science and Engineering Fair in Pittsburgh last month, and graduation from Punahou School! Good luck and we’ll miss you as you head off to Stanford in the fall!
HAS Financial Report for the month ending as of June 15, 2012

Initial Balance: $4,689.72

Receipts:
- Donations: 48.00
- Dues Received: 130.00
- Telescope Rental: 20.00

Total Income: $198.00

Expenses:
- Astronews: 57.74
- Magazine Subscription: 34.00

Total Expenses: $91.74

Final Balance: $4,795.98

The club gained four new members this month. They are Mark, Cheryl, Lura and David Looper. Our special thanks to Jane and Morris Jones and Robert Humphreys for their donations. Our thanks to all those who remembered to renew their membership. Come join us for some great views of the Summer skies.

HAS on facebook

Yes, the club has had a “bulletin board” on the Web, then a real website, and more recently a sort-of-but-not-really affiliated Yahoo group, then our affiliation with the Night Sky Network. Why bother with a Facebook page? Here is why:

This is the Age Of Facebook. It will not last, but while it does its engines are firing on all cylinders. Popularity increases networking power, which is both the power to access information and the power to share it. Facebook’s feedback loop tends to engage those of us inclined to share and to learn about our hobby, our club and our activities. Club members have astro-pals outside the club and an accumulation of interests/activities/articles creates a powerful learning and bonding tool. Facebook is the essence of interactivity. Every “friend” is a sort of webmaster, posting whatever interests them, from other sites on Facebook, or from the larger Web, or from their own keyboard and camera. The controls are very simple. VERY SIMPLE. Yes, there are administrators to remove the stinky stuff.

When you “like” (by clicking a button) The Hawaiian Astronomical Society on Facebook, your email inbox gets notified each time something gets posted to their “Wall”, which is a catch-all for friends’ postings. Freddy puts up his latest planetary images, Barry and Sue post star party pics, Sky&Tel articles and NPR news briefs get posted, worthy sightings are shared. It gets better as more people participate. Currently there are more non-HAS friends on the HAS Facebook page than club members, and there are twice as many friends as there are HAS members who attend meetings. But your input will make it better.

It goes without saying that many fear Facebook as a soul-stealing monster. I say just be careful what you share. Keep your checking account and credit card info to yourself, and don’t post embarrassing pictures. Fools can find trouble without Facebook’s help.

I’d like to see observing session reports, spontaneous gatherings announced, photos of amateurs and equipment in action, astronomy questions put out to the membership, shared news found on the Net, professional/NASA imaging… anything that relates to our passion and the practice of it. Cute pet pictures need not apply.

If you are already on Facebook, type “Hawaiian Astronomical Society” into the search window, then “like” it, or type in my name and send me a message requesting that I forward an invitation to you. I’m not promoting Facebook but rather promoting its use by the club. It is a tool, like a hammer, and while hammers can kill you, they can also hit the nail right on its head.
As the eruptions continued almost non-stop, Earth’s magnetic field was buffeted by coronal mass ejections or “CMEs.” One of those clouds hit Earth’s magnetosphere so hard, our planet’s magnetic field was sharply compressed, leaving geosynchronous satellites on the outside looking in. For a while, the spacecraft were directly exposed to solar wind plasma.

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When all was said and done, the defenses held—no harm done.

This wasn’t the strongest solar storm in recorded history—not by a long shot. That distinction goes to the Carrington Event of September 1859 when geomagnetic activity set telegraph offices on fire and sparked auroras over Mexico, Florida, and Tahiti. Even with that in mind, however, March 2012 was remarkable.

It makes you wonder, what if? What if Earth didn’t have a magnetic field to fend off CMEs and deflect the most energetic particles from the Sun.

The answer might lie on Mars. The red planet has no global magnetic field and as a result its atmosphere has been stripped away over time by CMEs and other gusts of solar wind. At least that’s what many researchers believe. Today, Mars is a desiccated and apparently lifeless wasteland.

Only 93 million miles from Earth, a G-type star is acting up. Thank goodness for magnetism.

With your inner and outer children, read, watch, and listen in to “Super Star Meets the Plucky Planet,” a rhyming and animated conversation between the Sun and Earth, at http://spaceplace.nasa.gov/story-superstar.

This article 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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Shower       Activity       Max Date       λ            Radiant       V∞    r    ZHR
June Bootids (JBO) 6/22 - 7/02  Jun 27  95.7°  224°  +48°  18  2.2  Var

If you happen to catch any celestial manna from heaven, let us all know!

Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com
Mike Morrow, PO Box 6692, Ocean View, HI 96737.

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HAS has published a complete listing of Club members in this 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 includes all member’s names, mailing addresses, and phone numbers.

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 our 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 member’s right to privacy.
Observer's Notebook

Planets Close To the Moon
Times are Hawaii Standard Time

June 9, 15h, M 5.9º NNW of Neptune
(106º from sun in morning sky)
June 12, 12h, M 5.1º NNW of Uranus
(73º from sun in morning sky)
June 16, 20h, M 1.4º NW of Jupiter
(25º from sun in evening sky)
June 17, 14h, M 2.1 N of Venus
(18º from sun in morning sky)
June 21, 07h, M 5.5º S of Mercury
(18º from sun in morning sky)
June 26, 01h, M 5.4º SSW of Mars
(24º from sun in evening sky)
June 27, 22h, M 6.1º SSW of Saturn
(24º from sun in evening sky)

Other Events of Interest
Times are Hawaii Standard Time

June 4, 01:11h, Moon Full
June 5, Transit of Venus
12:10h - Ingress, exterior contact
12:28h - Ingress, interior contact
15:27h - Mid
18:12h - Sun sets
June 5, 15h, Venus at inferior conj. with sun (Passes into morning sky)
June 19, 05:02h, Moon New
June 20, 13:07h, Summer Solstice
June 29, 00h, Pluto at opposition

(Best time of year to observe this minor planet, look near midnight when it is highest in the sky)

Mercury
Mercury makes an evening appearance during the last 2 weeks of June.

Venus
After transit on June 5th, Venus rises rapidly in the morning sky and by the end of the month is rising 2 hours before the sun.

Mars
Still shines brightly in the southwest during the evening hours, after reaching opposition in March.

Jupiter
Jupiter is above Venus in the early morning sky - still pretty close to the sun.

Saturn
Saturn shines brightly in the evening sky in the southeast.

Uranus
Rises before midnight and can be viewed before dawn.

Neptune
Neptune is in the morning sky and rises before midnight.

Dwarf Planet Pluto
Reaches opposition on June 29. This is the best month to view this minor planet in the hours around midnight.

Asteroid Juno
Still in the sky most of the night after reaching opposition in the middle of last month.

Star Myths, a Personal View
by Charles Rykken

From songs to poesy, even now, there is a personal mythology of the stars, not to mention the sun, moon, and the planets. Even so called primitive cultures had myths about the stars. For example, referring to the Pleiades: “Due to a high visibility, these stars enjoyed a special place in many ancient cultures. They are winter stars in the Northern Hemisphere and summer stars in the Southern Hemisphere: we can tell that these stars were known since old times, by several cultures all around the world, including the Maori and Australian Aborigines, Chinese, Maya and Aztec and the Native people of North America.”

I use the word myth/mythology in the sense advocated by Joseph Campbell where a belief or narrative was at some time and place held as true. The old myths have in common a subjective sense where the person’s tribe/culture plays a prominent role. The old myth-making factories suffered a rupture when Galileo forcibly maintained that the earth revolved the sun and Darwin followed with the haymaker punch that said not only was the earth an insignificant speck in a galaxy which itself was one in billions, but that humans had evolved from single-celled slime.

One of the prime functions of myth is to provide a safe and comfortable “home” for the tribe/culture. The rift between religion and science continues to this day but with a very interesting twist. There is a revolution going on the scientific community. In a typically human way, the scientific community had found its stable “home” in mathematical causal models. Not suitable for the general public because of the subject/object split. Most people want something personal and subjective in their myths.

Einstein’s relativity and Schrödinger’s quantum mechanics brought the subjective back into science. The science of consciousness has cemented the necessity of discarding the myth of objectivity. The sand castle of mathematics was elucidated by a documentary done by BBC 4 “Dangerous Knowledge” It is available on YouTube. The gist of the story is that there is an infinite variety of ways of doing mathematics but most physicists did not believe this had any relevance to physics. Stephen Hawking recently (http://www.physics.sfasu.edu/astro/news/20030308news%5CStephenHawking20030308.htm) said that indeed the implication of there being an infinite number of ways of doing physics obliterated the “home” of safe and stolid mathematics.

What is so ironic about these developments is that the subject/object split and a focus on physical nature allowed science to get a divorce from the catholic church and flower in the process. The tragedy was that most scientists made the subject/object split into its own religion with mechanistic materialism and the search for a theory of everything.

These new discoveries that unite present philosophy of science with old time religion like Buddhism may be just what is need to bridge the great cultural divide between science and religion.

Charles

(Continued from page 1)

no longer useful for this purpose. However, there will be scientific observations of this transit. Earth’s nearly full Moon will be observed to try to detect the difference in the amount and color of light that is reflected before, during, and after the transit. There should be a small drop in light reaching the Moon during the transit, and the portion that refracts through the atmosphere of Venus should show spectral differences from unfiltered sunlight. If successful, these techniques could be applied to the investigation of planets around distant stars.

Chris
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(Charles)

(President’s Message continued from page 1)

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### Full Moon

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<th>V∞ km/s</th>
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<th>ZHR</th>
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<td>June Bootids (JBO)</td>
<td>6/22 - 7/02</td>
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<td>+48°</td>
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**Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com**

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**Hawaiian Astronomical Society**

**Event Calendar**

**Meteor Log**

by Tom Giguere

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**Star Party Report**

**by Sue Girard**

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**Sat May 12, 2012:**

The Club Star party at Dillingham turned out very well for those members who showed up. We didn’t have a very big turnout with only Gretchen, Bryon and Hannah Thomas, Greg Wilson, Peter and Leslie Galloway, and myself. But what a night! It was clear all evening long and the seeing was quite spectacular.

Venus was a beautiful, bright crescent and Saturn showed a tremendous amount of detail. The receding Mars even offered an enticing look. We took advantage of the cloud-free sky and perused all our favorites with Omega Centauri, the galaxies of Virgo and Leo offering wonderful views.

However, with the moisture in the high atmosphere, it wasn’t the best night for doubles. It started to get chilly about 10pm and the talk went from galaxies and star clusters to coffee, parkas and mittens - yes, we definitely decided to plan the preparations for the next Star Party a bit better! Bryon and Hannah decided to call it quits, but the rest of us braved the ‘Hawaii version’ of cold and stayed until midnight. It sure was worth it!
Thank Goodness for Magnetism
by Dr. Tony Phillips

Only 93 million miles from Earth, a certain G-type star is beginning to act up. Every 11 years or so, the solar cycle brings a period of high solar activity. Giant islands of magnetism—"sunspots"—break through the stellar surface in increasing numbers. Sometimes they erupt like a billion atomic bombs going off at once, producing intense flares of X-rays and UV radiation, and hurling massive clouds of plasma toward Earth.

This is happening right now. Only a few years ago the Sun was in a state of deep quiet, but as 2012 unfolds, the pendulum is swinging. Strong flares are becoming commonplace as sunspots once again pepper the solar disk. Fortunately, Earth is defended from solar storms by a strong, global magnetic field.

In March 2012, those defenses were tested. At the very beginning of the month, a remarkable sunspot appeared on the Sun’s eastern limb. AR1429, as experts called it, was an angry-looking region almost as wide as the planet Jupiter. Almost as soon as it appeared, it began to erupt. During the period March 2nd to 15th, it rotated across the solar disk and fired off more than 50 flares. Three of those eruptions were X-class flares, the most powerful kind.

As the eruptions continued almost non-stop, Earth’s magnetic field was buffeted by coronal mass ejections or "CMEs." One of those clouds hit Earth’s magnetosphere so hard, our planet’s magnetic field was sharply compressed, leaving geosynchronous satellites on the outside looking in. For a while, the spacecraft were directly exposed to solar wind plasma.

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This article 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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Meeting Minutes by Gretchen West

President Chris Peterson called the May 2, 2012 meeting of the Hawaiian Astronomical Society to order at 7:30p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. As Gretchen West is not in attendance, meeting minutes are taken by H.A.S.-at-large member, Sue Girard.

President’s report: Chris reported that he has not lined up any speakers yet for the next meeting, but is working on getting one.

It was reported that the ISS would shortly be passing over the city, so Chris broke up the meeting for a break to go an watch it. We went out on the lawn and at 7:39pm the ISS began it’s pass. It was -2.5 in mag and was about 38 degrees at it’s highest.

When the meeting resumed, Chris said that the University of Hawaii will be the first university to design, build, and launch it’s own satellite. The launch is set for Barking Sands Launching site on Kauai. The project will be funded by NASA.

Chris mentioned the recent HAS activities from the past week. There were two school star parties, the Astronomy Day event on Saturday at Kahala Mall, and the Institute for Astronomy Open House event on Sunday April 28, 2012 and thanked those that helped out.
HAS Financial Report for the month ending as of June 15, 2012

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<td>34.00</td>
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<td><strong>Total Expenses:</strong></td>
<td><strong>$91.74</strong></td>
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<td><strong>Final Balance:</strong></td>
<td><strong>$4,795.98</strong></td>
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The club gained four new members this month. They are Mark, Cheryl, Lura and David Looper. Our special thanks to Jane and Morris Jones and Robert Humphreys for their donations. Our thanks to all those who remembered to renew their membership. Come join us for some great views of the Summer skies.

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**HAS on Facebook**

Yes, the club has had a “bulletin board” on the Web, then a real website, and more recently a sort-of-but-not-really affiliated Yahoo group, then our affiliation with the Night Sky Network. Why bother with a Facebook page? Here is why:

This is the Age Of Facebook. It will not last, but while it does its engines are firing on all cylinders. Popularity increases networking power, which is both the power to access information and the power to share it. Facebook’s feedback loop tends to engage those of us inclined to share and to learn about our hobby, our club and our activities. Club members have astro-pals outside the club and an accumulation of interests/activities/articles creates a powerful learning and bonding tool. Facebook is the essence of interactivity. Every “friend” is a sort of webmaster, posting whatever interests them, from other sites on Facebook, or from the larger Web, or from their own keyboard and camera. The controls are very simple. VERY SIMPLE. Yes, there are administrators to remove the stinky stuff.

When you “like” (by clicking a button) The Hawaiian Astronomical Society on Facebook, your email inbox gets notified each time something gets posted to their “Wall”, which is a catch-all for friends’ postings. Freddy puts up his latest planetary images, Barry and Sue post star party pics, Sky&Tel articles and NPR news briefs get posted, worthy sightings are shared. It gets better as more people participate. Currently there are more non-HAS friends on the HAS Facebook page than club members, and there are twice as many friends as there are HAS members who attend meetings. But your input will make it better.

It goes without saying that many fear Facebook as a soul-stealing monster. I say just be careful what you share. Keep your checking account and credit card info to yourself, and don’t post embarrassing pictures. Fools can find trouble without Facebook’s help.

I’d like to see observing session reports, spontaneous gatherings announced, photos of amateurs and equipment in action, astronomy questions put out to the membership, shared news found on the Net, professional/NASA imaging… anything that relates to our passion and the practice of it. Cute pet pictures need not apply.

If you are already on Facebook, type “Hawaiian Astronomical Society” into the search window, then “like” it, or type in my name and send me a message requesting that I forward an invitation to you. I’m not promoting Facebook but rather promoting its use by the club. It is a tool, like a hammer, and while hammers can kill you, they can also hit the nail right on its head.

Barry
SB2402 has passed both the House and the Senate, and has been sent to the Governor. You can review the bill by going to: http://tinyurl.com/7qclgd7. I don’t know the date by when the Gov has to act on this, but I’ll update the club at the next general meeting. Next SRC meeting is not scheduled yet, but may be towards the end of June.

Harry Zisko

Lahaina Noon Local Times

Lahaina: May 30 12:35 p.m.
June 11 12:42 p.m.

Kaneohe: May 27 12:28 p.m.
July 15 12:37 p.m.

Honolulu: May 26 12:28 p.m.
July 15 12:37 p.m.

Kaunakakai: May 25 12:24 p.m.
July 16 12:34 p.m.

Lanai City: May 25 12:24 p.m.
July 18 12:33 p.m.

Lahaina: May 23 12:23 p.m.
July 17 12:32 p.m.

Kahului: May 23 12:22 p.m.
July 17 12:32 p.m.

Hana: May 23 12:20 p.m.
July 18 12:30 p.m.

Hilo: May 18 12:16 p.m.
July 24 12:26 p.m.

Kailua-Kona: May 18 12:20 p.m.
July 23 12:30 p.m.

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Congrats

Congratulations to member Travis Le, for his participation at the International Science and Engineering Fair in Pittsburgh last month, and graduation from Punahou School! Good luck and we’ll miss you as you head off to Stanford in the fall!

Steve and Jeannie: I found us on Yahoo. Sarah and A.J. are students from Windward Community College who came to pick up some extra credit for their astronomy class.

Volunteers: Chris asked for a show of hands to see who will be coming to Bishop Museum on June 5th for the Transit of Venus to help out. He said the Museum was going to be open to the public from 12 noon to 5pm, but HAS folks could stay on for the regular meeting that evening.

There will be a partial eclipse of the Sun from Hawaii on May 20th, peaking about 3:00 pm, with the Moon covering about 20% of the Sun’s surface.

Chris reminded members of the upcoming Lahaina Noon on May 27th at 12:30pm and said there will be another one in July.

He also reminded members that the full membership list will be published in June and asked anyone who did not wish to have their name on the list to contact Jim MacDonald.

Astronomy article: John Sandor showed club members a publication he just purchased from Astronomy magazine, entitled Worlds Greatest Telescopes, which includes an article by Peter Michaud on the Mauna Kea scopes.

Since there was no other speaker the meeting was adjourned at 8:33pm and everyone went out to look at the Moon, Saturn, Mars, and Venus through several scopes set up on the deck over the Planetarium. (Thanks to Jim MacDonald, Sue Girard, April Lew, Peter Galloway for bringing their scopes!)
President's Message by Chris Peterson

The June 5th transit of Venus will complete only the 4th pair of transits that have occurred since the telescope was invented, and the first that was not used to significantly increase our understanding of the scale of the solar system. Previous transits were precious and rare opportunities to refine our knowledge of our “local” celestial environment.

How did we figure out the size of the solar system, something beyond our physical reach? We relied heavily on simple geometry and trigonometry along with Kepler’s laws. Even a single observation allows for estimation of the size of Venus relative to the Sun. A second observer at a far distant location on Earth can provide the necessary additional data to allow for measurement of the distance to Venus. Of course, real measurements contain errors, and small errors in angular measurement add up to big errors in distance estimation, so each transit was an opportunity to reduce the errors and refine the estimates.

Johannes Kepler predicted the 1631 transit, but it was not observable in Europe and was not scientifically observed. The 1639 transit was observed by Jeremiah Horrocks and others. Horrocks used his data to estimate the size of the astronomical unit. His figure was only about two thirds of the correct value, but a great improvement on earlier guesses.

The 1761 and 1769 transits were observed by many, including Captain Cook. The observations were used to produce a much better estimate of the AU. The error was then reduced to just a few percent. The 1874 and 1882 transits added more precision.

Now that we have radar and other techniques to measure these kinds of distances, Venus transits are