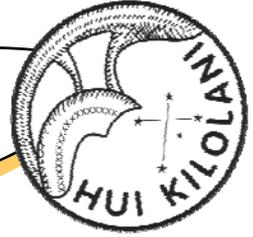


The Astronews



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November 2005

SkyTools 2 Club Group Purchase

Editor

HAS has arranged a group purchase of SkyTools 2. We have had more than 10 people respond, so the price will be \$60.95 (including shipping). Please send your checks to Jim MacDonald (HAS club address on page 2) or bring payment to the club meeting. If you did not respond last month and are still interested, you can still get in on this great deal.

For more info on SkyTools 2, you can visit the website at <http://www.skyhound.com>

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Upcoming Star Parties

| | | |
|--------------|--------|-----------------|
| Club Party | Oct 29 | Dillingham |
| Public Party | Nov 5 | Kahala/Waialele |
| Club Party | Nov 26 | Dillingham |
| Public Party | Dec 3 | Dillingham |
| Public Party | Dec 10 | Kahala/Waialele |
| Public Party | Jan 7 | Kahala/Waialele |



Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, Nov. 1st at the Bishop Museum.
- Bishop Museum's next planetarium show (with **Barry Peckham**) is on Friday, Nov. 4th.

President's Message

The current apparition of Mars provides an opportunity to think about, visualize, and discuss the effects of orbital dynamics on the appearance of celestial objects in our solar system. The appearance of Mars this time is in some ways better and in some ways worse than it was during the last opposition period two years ago.

The major factor affecting the apparent size of Mars in our telescopes is the shape of Mars's orbit (and to a lesser extent that of Earth) and our positions along those orbits. While no planet in our solar system has a perfectly circular orbit, most approximate circles fairly closely. The orbit of Mars is, however, one of the more eccentric ones. Its perihelion and aphelion distances vary by 36 million miles (compared to 4 million miles for Earth). Since Mars is farther from the Sun than is Earth, our closest approach is when Mars is near its perihelion.

This was the case in 2003. Earth hadn't quite caught up to it by its next perihelion last July, so Mars is now getting farther from the Sun each day. The distance between Mars and Earth is at a minimum on October 29th (HST), but still more than 8 million miles greater than in 2003. After that, Mars is traveling away from the Sun faster than Earth overtakes it. By the time of opposition on November 6 (HST), Mars and Earth will be a little farther apart.

In contrast, the inclination of the orbit of Mars with respect to that of Earth is more favorable this time. Mars was farther to the south of the celestial equator last time, so it was lower in the southern sky for observers in the northern hemisphere. We will see Mars pass closer to overhead this time, making up somewhat for the smaller apparent size in our telescopes.

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The Astronomer 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

- Nov 3, 13h, M 1.3° S of Mercury
(24° from sun in evening sky)
- Nov 5, 09h, M 1.4° S of Venus
(47° from sun in evening sky)
- Nov 8, 13h, M 4.3° SSE of Neptune
(88° from sun in evening sky)
- Nov 10, 02h, M 2.3° SSE of Uranus
(155° from sun in evening sky)
- Nov 14, 18h, M 2.5° NNW of Mars
(169° from sun in evening sky)
- Nov 21, 20h, M 4.0° NNE of Saturn
(109° from sun in morning sky)
- Nov 28, 20h, M 3.2° SSW of Jupiter
(30° from sun in morning sky)

Other Events of Interest

Times are Hawaii Standard Time

- Nov 1, 15:23h, Moon New
- Nov 3, 06h, Mercury at greatest elongation
(23.5° east of the sun.)
- Nov 3, 09h, Venus at greatest elongation
(47.1° east of the sun.)
- Nov 3, 23h, 19 Fortuna at Opposition
- Nov 6, 22h, Mars at Opposition
- Nov 15, 14:56h, Moon Full
- Nov 16, 03h, Moon 0.29° SE of Pleiades
(173° from sun in Midnight sky)
- Nov 17, Leonid Meteors
- Nov 24, 06h, Mercury at inferior conj. With
sun. (Passes into morning sky.)

Planets in November

| | | |
|--|--|--|
| <p> Mercury</p> <p>Mercury is visible in the evening twilight the first half of the month.</p> | <p> Venus</p> <p>Shines very brightly in the southwest after sunset. Mag. -4.4. Reaches greatest elongation on Nov 3</p> | <p> Mars</p> <p>Reaches opposition on Nov 6 at magnitude -2.3. This will be the closest approach of Mars until 2018.</p> |
| <p> Jupiter</p> <p>Is close to the sun but may be viewed in the east just before dawn late in the month.</p> | <p> Saturn</p> <p>Saturn rises well before midnight by the end of the month and can be observed after midnight..</p> | <p> Uranus</p> <p>Is low in the southwest after sunset in Aquarius. Mag +5.8.</p> |
| <p> Neptune</p> <p>Near Uranus in the evening sky in the constellation of Capricornus. Mag +7.9.</p> | | <p> Pluto</p> <p>Pluto is too close to the sun for viewing in November.</p> |

The October 4, 2005 general membership meeting of the Hawaiian Astronomical Society was called to order at 7:33 p.m. by Chris Peterson. The meeting was held in the Atherton Halau on the grounds of the Bishop Museum. There were 24 members and 2 visitors in attendance.

President Chris Peterson began the proceedings this evening by commenting that many cultural holidays are keyed to the astronomical calendar; noticeably the Jewish New Year, **Rosh Hashana** and the beginning of the Muslim month of **Ramadan**.

Both holidays begin Oct. 4th this year. **SOEST** - The 8th Biennial Open House *The Hot Spot for Cool Science*, takes place Friday, October 14, 2005, 9 a.m. - 2 p.m. and Saturday, October 15, 2005. There will be displays, demonstrations, and activities at the University of Hawaii's School of Ocean & Earth Science & Technology's POST, HIG, AND MSB buildings.

Lecture at Planetary Data Center - The Planetary Data Center will have a planetary scientist, HIGP, Dr. Sarah Fagents of the University of Hawaii as guest lecturer Tuesday, October 25, 2005. The title of her talk is *Cassini at Saturn: Highlights of the First Year in Orbit*. 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 - Two visitors were greeted by Chris Peterson.

Mars Approach - The planet Mars is becoming larger and more pronounced in the late evening and early morning skies during the month of October.

Enjoy its color, size and telescopic

sights. Enjoy them at home at your leisure or at a star party with members of the club. Do come and join us.

Lacy Veach Day- October 29, 2005 - will again take place on the grounds of the Case Middle School complex, Punahou School. We have six members signed up to help us out.

Barry's Molokai Report - Vice President Barry Peckham spoke briefly about the great views experienced by the brave souls who journeyed to Molokai, for a astronomical weekend. Participants enjoyed one excellent and one really good night of viewing.

School Star Party Report - John Gallagher reported that is one scheduled school star parties for the month of October, on the 25th. This event for Kamehameha Schools takes place at Camp Erdmann in Mokuleia.

Jay Wrathall - shared a windfall of USB cables with members in attendance. 6 foot USB cables sold at the meeting for \$1.00 each, while comparable cables in stores cost \$18 to \$20 each. Jay donated a portion of the sale of the cables, which he bought on ebay, to the club.

Upcoming Elections - Joanne Bogan has agreed to chair the elections committee again this year. Current Board members are willing to run for election again this year, but urge anyone interesting in becoming involved with the workings of the club to put their name in nomination by contacting Joanne Bogan. The election slate will be read aloud at the November general membership meeting. Voting will take place during the December general membership meeting. All members in

(Continued on page 7)

The main shower of the month the Leonids lose out to a full Moon. Sporadic rates are still good for us. It is a good year for the Alpha Monocerotids.

Saturday the 5th, the **Southern Taurids**. Radiant 03h20m +13 deg. Radiant is about 1h20m by 10 deg in size. About 3 meteors per hour.

Saturday the 12th, the **Northern Taurids**. Radiant 03h 52m +22 deg. The moon is helpful and it would be good to check this shower as a large peak may occur.

Thursday the 17th, the **Leonids**. Radiant 10h12m +22 deg. Rates are variable, perhaps 10-20+ this year. The Moon is one day past full this year at the probable peak. The Leonids are extremely swift, often bright, and 50 to 70% leave persistent trains.

Monday the 21st, the **Alpha Monocerotids**. Radiant 07h48m +01 deg. This would be a good year to check this shower except the Moon is in the way. The peak in 1995 lasted about 30 minutes and produced about 420 meteors. This year is important as it is the 10 peak year, however we are not in the best position for viewing the peak. The western Pacific, eastern China, Alaska and a few other places are better placed.

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

Reason #28 why Astrology is wrong: “The tide created by Venus’s tug on Earth’s oceans is equal to two thicknesses of Saran Wrap.”

Definition: “Jiffy” —the amount of time it takes light to travel one centimeter.

If you don’t know how you got somewhere, you don’t know where you are.

— James Burke

2006 Meeting & Star Party Dates

| Club Meeting | Dillingham Public | Dillingham Club Only | Kahala/Waikele |
|--------------|-------------------|----------------------|----------------|
| Jan 3 | Jan 21 | Jan 28 | Jan 7 |
| Feb 7 | Feb 18 | Feb 25 | Feb 4 |
| Mar 7 | Apr 1 | Mar 25 | Mar 4 |
| Apr 4 | Apr 29 | Apr 22 | Apr 8 |
| May 2 | May 27 | May 20 | May 6* |
| Jun 6 | Jun 17 | Jun 24 | Jun 3 |
| Jul 4 | Jul 15 | Jul 22 | Jul 1 |
| Aug 1 | Aug 26 | Aug 19 | Jul 29 |
| Sep 5 | Sep 23 | Sep 16 | Sep 2 |
| Oct 3 | Oct 14 | Oct 21 | Sep 30 |
| Nov 7 | Nov 11 | Nov 18 | Oct 28 |
| Dec 5 | Dec 23 | Dec 16 | Nov 25 |
| Jan 2 '06 | Jan 20 '06 | Jan 13 '06 | Dec 30 |

*Astronomy Day

There are two kinds of light—the glow that illuminates, and the glare that obscures.

—James Thurber

President's Report (Continued from page 2)
Here in Hawaii, Mars will pass less than six degrees from the zenith.

Earth's view of Mars won't get better than this until 2018, so enjoy it while you can!.

Chris

Minutes (Continued from page 4)
good standing and present at the meeting in December will vote.

Moon Views - President Chris Peterson presented power point presentation on the Aristarchus Plateau, Moon. Future explorations by the NASA and other space agencies are looking for likely places for human habitation on the moon. Aristarchus's area of pyroclastic ash may afford shielding from solar radiation. Fine grained pyroclastic ash may collect solar gases of hydrogen and helium, which human moon inhabitants may be able to collect for use in heating or for power. Lava channels may be viable storage areas of such gases and/or hypothesized water deposits at the Moon's poles, creating energy potential and a possible source of water for Moon colonists.

Discussion of the moon also touched upon current theories for the creation of the moon.

Miss Leavitt's Stars - Steve Huffman shared his find of the book about 1900 century astronomer and "human computer," Henrietta Leavitt of the Harvard Observatory who discovered how to measure the universe. The Atlas Books, Great Discoveries series book give readers a glimpse into the life of the little known woman whose life of work forms the backbone of modern astronomy.

Nite Sky Teleconference - John G. informed the Board of the latest NASA Nite Sky teleconference to be held September 26, 2005.

Short Bites - Vice President Barry Peckham wanted to remind everyone of the Bishop Museum's The Sky Tonight which takes place on the first Friday of every month. The general theme of these discussions is "What's in the Sky Now." Barry stressed the importance of continued use creating competence, so our continued observation of the night sky allows us to become more competent at our avocation. Don't sit back and wait for the day when you will know more before you go out and observe. Go out now and use the glorious sky that we have here in Hawaii.

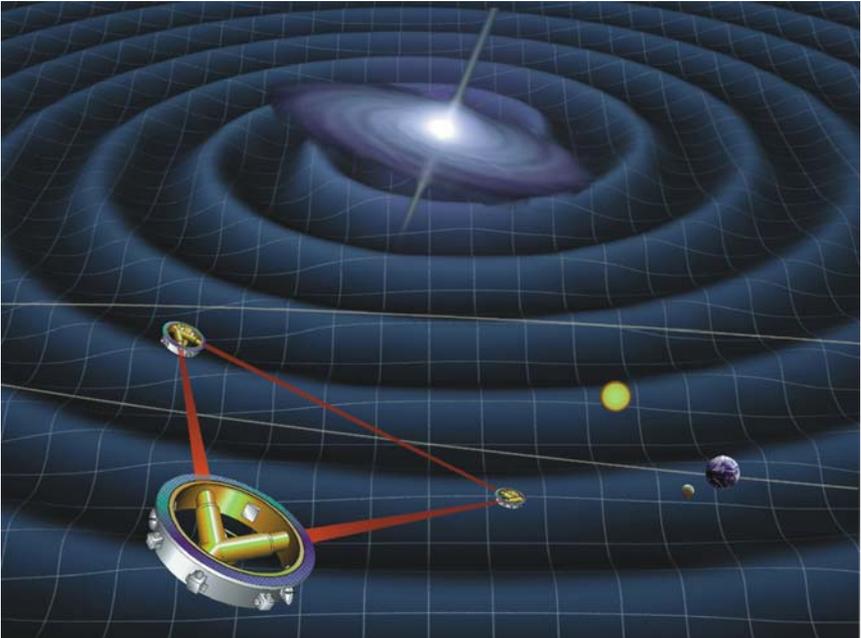
Telescope Rentals Available to Members - H.A.S. has Dobsonian telescopes and a PST available for rental on a monthly basis. You have the opportunity to view the night skies or (with the P.S.T.) the daytime sky at home, and we urge you join us at our dark sky star parties at Dillingham Airfield on the north shore or possibly at the suburban star parties at Kahala Community Park or Waialeale Regional Park, which take place once a month. Participation at the star parties gives you the opportunity to get pointers on and learn more about the use of you telescope rental, get a feel for the kind of telescope you may like to purchase for your own, and enjoy fellowship with others at these get togethers.

Meeting adjourned at 9:02 p.m.
Refreshments were served.

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

When a massive star reaches the end of its life, it can explode into a supernova rivaling the brilliance of an entire galaxy. What's left of the star fades in weeks, but its outer layers expand through space as a turbulent

Yes, they believe they can. According to Einstein's general theory of relativity, changes in the star's gravitational field should propagate outward, just like light—indeed, at the speed of light.



cloud of gases. Astronomers see beautiful remnants from past supernovas all around the sky, one of the most famous being the Crab Nebula in Taurus.

When a star throws off nine-tenths of its mass in a supernova, however, it also throws off nine-tenths of its gravitational field.

Astronomers see the light from supernovas. Can they also somehow sense the sudden and dramatic change in the exploding star's gravitational field?

Those propagating changes would be a gravitational wave.

Einstein said what we feel as a gravitational field arises from the fact that huge masses curve space and time. The more massive an object, the more it bends the three dimensions of space and the fourth dimension of time. And if a massive object's gravitational field changes suddenly—say, when a star explodes—it should kink or wrinkle the very geometry of space-time. Moreover, that wrinkle should propagate outward like ripples

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radiating outward in a pond from a thrown stone.

The frequency and timing of gravitational waves should reveal what's happening deep inside a supernova, in contrast to light, which is radiated from the surface. Thus, gravitational waves allow astronomers to peer inside the universe's most violent events—like doctors peer at patients' internal organs using CAT scans. The technique is not limited to supernovas: colliding neutron stars, black holes and other exotic objects may be revealed, too.

NASA and the European Space Agency are now building prototype equipment for the first space experiment to measure gravitational waves: the Laser Interferometer Space Antenna, or LISA.

LISA will look for patterns of compression and stretching in space-time that signal the passage of a gravitational wave. Three small spacecraft will fly in a triangular formation behind the Earth, each beaming a laser at the other two, continuously measuring their mutual separation. Although the three 'craft will be 5 million kilometers apart, they will monitor their separation to one billionth of a centimeter, smaller than an atom's diameter, which is the kind of precision needed to sense these elusive waves.

LISA is slated for launch around 2015.

To learn more about LISA, go to <http://lisa.jpl.nasa.gov>. Kids can learn about LISA and do a gravitational wave interactive crossword at <http://spaceplace.nasa.gov/en/kids/lisaxword/lisaxword.shtml>.

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



If the view in one PST is good, the view in two PSTs must be better, right? This product was created by Howie Glatter.

With the benefit of experience, with the efforts of planning and determination, and with the windfall of good fortune, more than 30 in a group called "Stargazers of Oahu" made their various ways to the West End of Molokai on the last day of sweltering September. Some of us had been considerably slowed by Island Air and its Department of Make-Believe. Your Astronews editor and I were among the last to arrive at the Beach Village, darn close to 10:00 PM on a cloudless evening. Sitting invisibly on the observing lawn, a small group of the faithful waited for our two 12.5" LITEBOX scopes to get set up.

Then began a fine night of viewing faint, famous and favorite extraterrestrial targets. Everything looks so much better in a dark sky. By 2:00 AM the last of our group had succumbed to the sandman, in combination with Thor and his lightening displays to our south. Among the last to surrender was Roy, who had been up since 4:00 AM and who was considered a tag-a-long since his girlfriend was the astronomy fan. Roy is a very curious guy, distinguished in the game of geocaching. The idea of the night sky as a territory littered with hidden treasures kept him standing by the scope far longer than others in the group.

But our group wasn't really composed of stargazers. HAS members numbered only 5. There were 3 students from the U.H. Leisure Astronomy class and a few more from The Sky Tonight planetarium show. The others were simply people who knew stargazers or else fans of Molokai. The bulk of our group were in the play-by-

day and sleep-at-night mode. Those with an interest in things telescopic would suffer no long lines at the eye-piece.

There was a man and his son in our group who waited for the delayed telescopes for 20 minutes on Friday night. He saw how beautiful the sky was. After 20 minutes of waiting, he was done with the universe. On Saturday night, another good one, he wouldn't look up at all. A woman in our group told me before the weekend that she might bring a small scope to Molokai because she only had a small interest in stars. I told her that taking a tiny scope to perfect skies was like swimming out to perfect waves on a popsicle stick. This person spent the weekend demonstrating that she preferred popsicle sticks, and refusing to look in the big scopes. But HAS member Sue Girard was on hand with binoculars and a spotting scope to share, educate and entertain. After all, if bare eyes can be amazed by the Summer Milky Way in a dark sky, then surely a 10-fold enhancement of this is a wonder worth the effort.

I was feeling a bit odd about leading a group of astro-agnostics to the Promised Land, where we moved among locals who were disinclined to tilt their heads back after sunset. Could the visible universe, under ideal viewing conditions, be undeserving of human interest?

In the old standard Sidewalk Astronomer flier, John Dobson presents the issue like this: "Although we, as living organisms, owe both our existence and our slow genetic development to the Sun, its dazzling bright-

(Continued on page 11)

HAS Financial Report as of October 15, 2005

| | |
|-----------------------------|-------------------|
| Initial Balance:..... | \$4,766.25 |
| Receipts: | |
| Astronomy Payment..... | 34.00 |
| Donations..... | 19.05 |
| Dues Received..... | 166.00 |
| S&T Payments..... | 65.90 |
| Telescope Fees..... | 80.00 |
| T-Shirt Sales..... | 15.00 |
| Total Income: | \$379.95 |
| Expenses: | |
| Astronews..... | 139.50 |
| Magazine Subscriptions..... | 174.74 |
| Refreshments..... | 4.48 |
| Total Expenses: | \$318.72 |
| Ending Balance:..... | \$4,827.48 |

Club membership remained stable this month. Many thanks to those renewing their membership and to **Jay Wrathall, Nancy Wilimek and Barry Peckham** for their generous donations. Clear skies to all!

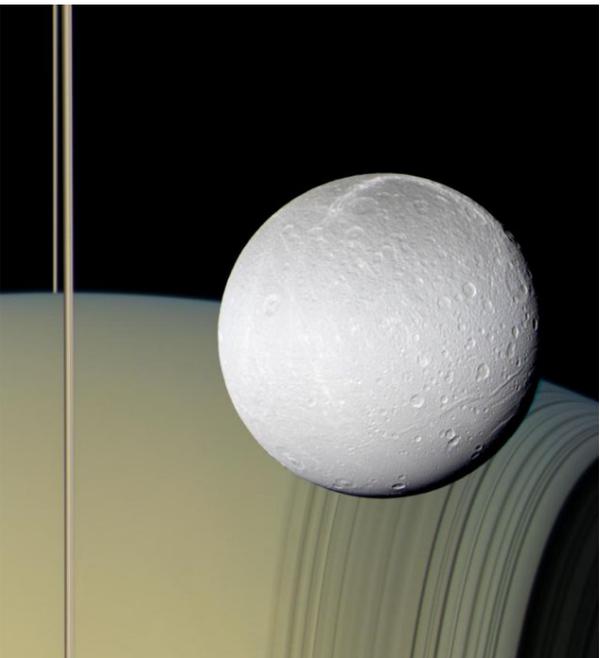
(Continued from page 10)
 ness prevents us from seeing the Universe by day. The blueness of the daytime sky is not the color of the air but simply the shorter wavelengths scattered from the sunlight by the gas layer above us. And that gas layer by night, unlit by the Sun, is sufficiently transparent so that through it we may gaze into the far reaches of the Universe.”

The point both he and I are trying to make is that clear dark skies are a treasure to be cherished. Yet, neither an astronomy club nor an island holding 2 million eyeballs can manage to pay attention. What we pay attention

to is bright city lights and advertising. Nobody advertises darkness here in Hawaii. West Molokai is under the radar of conventional wisdom... which of course is what makes it so dark.

Molokai has its rugged charm in daylight hours and is a potent antidote to our urban existence, but the Friendly Isle comes into its glory at night. In a much more scenic setting, at the rim of the Grand Canyon, John Dobson calls out to the gawkers, "Wait 'til the sun goes down and you can see everything else!" That advice should be the motto of Molokai.

**H.A.S.
P.O. Box 17671
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**Dione and the other icy saturnian moons have a perpetual
ringside view of the gorgeous gas giant planet.**

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