The Astronews

Volume 54, Issue 2

www.hawastsoc.org

February 2006

Asteroid "Huikilolani" Named by Discoverers for HAS

Joseph A. Dellinger

To get credit for discovering an asteroid takes two independent set of observations. Data is seldom perfect (as you will see if you read on below); the requirement for two nights greatly reduces the chances of awarding designations to objects that are in reality mere data artifacts.

Both sets of images were taken using the Fort Bend Astronomy Club's "East-dome" telescope located at the George Observatory, a Houston Museum of Natural Science satellite facility located inside Brazos Bend State Park.

This asteroid was a classic case study in both good and bad luck!

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Inside this issue:

Upcoming Star Parties

Public Party	**Feb 4**	**Kahala/Waikele**
Public Party	**Feb 18**	**Dillingham**
Club Party	**Feb 25**	**Dillingham**
Public Party	**Mar 4**	**Kahala/Waikele**
Club Party	**Mar 25**	**Dillingham**
Public Party	**Apr 1**	**Dillingham**
Public Party	**Apr 8**	**Kahala/Waikele**

Upcoming Events:

- The next meeting is at 7:30 p.m. on Tuesday, Feb..7th at the Bishop Museum.
- The next Bishop Musm. Planetarium show with Barry Peckham will be on Fri. Feb. 3 at 7:00pm.

President's Message

One down, one that went up. That's the latest planetary spacecraft report. Since our January meeting, the Stardust mission has successfully returned its cargo of comet and interplanetary dust particles to Earth, and the New Horizons mission was launched to Pluto and the Kuiper Belt.

Comets may hold material that has remained unaltered since soon after the birth of our solar system. By studying the composition of the pieces of Comet Wild 2 that were returned by Stardust, scientists hope to learn more about the conditions that prevailed when the comets formed. The other side of Stardust's collecting panel was exposed to the interstellar dust streaming through our solar system. Some of those particles may be much older than our Sun and may tell us about conditions in the pre-solar Milky Way. The sample return capsule has been opened and examined and declared to be in excellent shape.

New Horizons will be the first spacecraft to visit Pluto. While a larger object has recently been found in the Kuiper Belt, Pluto has long ranked as the ninth, and last unvisited, planet in our solar system. The spacecraft, fastest ever launched, will pass Jupiter in about a year, but it will take more than nine years to reach Pluto. Pluto has one large moon, Charon, and two recently discovered (much smaller) moons. New Horizons will get one chance to gather data as it passes through the Pluto system, so it must be targeted carefully to take best advantage of the geometry of the system when it arrives. It's a lot simpler to plan to image two objects than four.

It's amazing to think that in 10 years, we will have gone, in the span of one human lifetime, from having only telescopic views of the Moon and planets to having

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

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.

Observer's Notebook—February 2006

by Jay Wrathall

Planets Close To the Moon

Times are Hawaii Standard Time

Feb 5, 11h, M 2.1º NNW of Mars
(97º from sun in evening sky)
Feb 11, 07h, M 3.7º NNE of Saturn
(163º from sun in morning sky)
Feb 19, 19h, M 4.8º SSW of Jupiter
(103º from sun in morning sky)
Feb 24, 15h, M 10.0º SSE of Venus
(42º from sun in morning sky)
Feb 26, 06h, M 3.6º SSE of Neptune
(20º from sun in morning sky)

Mercury and Uranus are closer that 15° from the sun when near the moon in February.

Other Events of Interest

Times are Hawaii Standard Time

Feb 5, 20h, Neptune at conjunction with sun
(Passes into morning sky.)
Feb 12, 18:44h, Moon Full
Feb 13, 22h, Venus Brightest, Mag -4.6
Feb 14, 06h, Mercury 0.02º NE of Uranus
(14º from sun in evening sky)
(Closest planet-planet appluse this year.)
Feb 23, 19h, Mercury at greatest elongation
(18.1º east of the sun in evening sky.)
Feb 25, 00h, Moon 0.79º S of Ceres
(37º from sun in morning sky)
Feb 27, 10h, Moon at perigee. (nearest this year) only 4.2 hours before the new moon.
(Expect very high and very low tides.)
Feb 27, 14:15h, Moon New

Planets in February

Mercury

has one of its best evening apparitions of the year in the last half of February.

$ Venus

rises rapidly in the morning sky. It reaches maximum brightness on Feb 13.

% Mars

gets dimmer and smaller every month. In mid-February is passes the Pleiades at mag. +0.5.

& Jupiter

rises about midnight and is best observed just before morning twilight.

' Saturn

is very well placed for late evening viewing. It is still near the brightest and largest of the year.

(Uranus

is too close to the sun for easy viewing in February.

) Neptune

is very close to the sun all month after reaching conjunction on Feb 5.

+ Pluto

rises about 1:00 am and can be observed just before morning twilight.

Meeting Minutes

H.A.S. Secretary

The general membership meeting of the Hawaiian Astronomical Society was called to order at 7:32 p.m. by President Chris Peterson. The meeting took place in the Atherton Halau of the Bishop Museum, with 35 club members and seven visitors present.

Current News - Chris began the meeting giving a brief overview of current events. He discussed breaking news of a recently observed meteorite strike on the Moon and several upcoming NASA missions.

U.H. Lecture series- The U.H. Distinguished Lecture Series will be presenting one lecture and two seminars, open to the public, featuring noted astronomer, Dr. Steven Squyres.

Visitors - Our visitors this month included three students from the Maryknoll High School Astronomy class as well as four local enthusiasts.

Club Bumper Stickers - Treasurer Jim MacDonald displayed possible designs for a bumper sticker. The cost for a club bumper sticker is predicted to cost around $3.00. A survey of the general membership at the meeting indicated that there is interest in purchasing a club bumper sticker.

2006 Astronomy Calendar - Jim MacDonald reordered and received the Sky & Tel 2006 calendars. He handed out to those who had ordered them.

2006 Winter Binocular Challenge - Secretary, Gretchen West introduced this years Winter Binocular Challenge. This is a great way for those members and interested parties without a telescope to learn more about the winter sky. The three page viewers challenge was available to five members, however Gretchen promised that she will fax the Winter Binocular Challenge to anyone with a local phone number. There will be further Binocular challenges as the year progresses. Gretchen also had copies of the H.A.S. materials Star Party location information.

School Star Parties - Forrest Luke reports that there are currently no school star parties scheduled for January 2006.

Planetary Polka - President Chris Peterson discussed the movement of the visible, the near-visible and soon not to be visible planets in the morning and evening skies.

Night Sky Network - As our Night-Sky Network Coordinator, John Gallagher was not able to attend the meeting, Chris Peterson indicates that there will be a NASA Night Sky Network teleconference on January 31, 2006. Jeff Rosenthal will discuss the ***Pictures of the Universe*** covering current and future NASA missions.

Milky Way transparency Light box - Steve Huffman shared his recently completed Milky Way Galaxy display, a transparency of the Milky Way Galaxy mounted in a light box. He would like to sell this one to finance construction of a new one.

Canon 20D-A - Member Elton Chambers just bought and will show his new Canon 20D-A digital camera which he will be using for astrophotography. The digital camera was reviewed in the November 2005 Sky & Tel.

Personal Solar Telescope - The club PST is available for rental. Club members may rent the small and highly portable solar telescope and tripod for $20.00 for a two week period.

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Meteor Log—February 2006

by Mike Morrow

This month has normally weak showers and the year's lowest sporadic rates. But thanks to Zena there are many Fireball-class sporadics.

Wednesday the 8th, the **Alpha Centaurids**. Radiant 14h00m -59 deg.
It is possible to have near 25 meteors per hour from this shower. While near dawn is best for this shower the predicted maximum is at 7PM local time for us and that is not good.

Friday the 24th, the **Delta Leonids**. Radiant 11h12m +16 deg.
This is a good year for this minor source of slow, faint meteors, with a waning crescent Moon for its peak. It may be seen all night, but expect only about 2 meteors an hour.

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

Why do we call it...?

by Mike Morrow

January was named for Janus, the Roman god who had two faces; one looking into the past and the other into the future.

February comes from the Latin word Februo, to purify. It was the time of the year for Roman ceremonies of purification.

March was named for Mars, Roman god of war, and in the time of Romulus, it was the first month of the year. Then there were only ten months in the calendar. These were of uneven lengths, some having less than 20 days and some containing as many as 35 days.

When Numa became King, (about 700 B.C.), he decided that there should be 12 months and added two - January and February - and placed them at the beginning of the calendar; and in that way March became the third month. Among the old Saxons this month was known as Lenct, meaning spring, and this is the origin of our word Lent.

April is from the Latin word Aperio, to open; it is at this season that the flowers and leaves begin to bloom. The Saxons called the month Easter Month, in honor of Eostre (or Norse Ostara), the goddess of spring.

May was named for Maia, daughter of the Roman deity Atlas.

June was named for the Roman goddess Juno.

July for a long time was known by it old name of Quintilis, from the Latin meaning five, as it was the fifth month in the ancient calendar of Romulus; but its name was changed to July in honor of Julius Caesar.

August, too, retained its old name of Sextilis (the sixth month) until the time of Augustus, who changed it to (naturally) August.

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President's Report *(Continued from page 2)*
images and other data collected by spacecraft that have visited all the major planets as well as several comets and asteroids. We really do live in the golden age of solar system exploration.

Chris

Minutes *(Continued from page 4)*
Vice President Barry Peckham announced a January 27 and 28, 2006 trip to the Molokai Ranch. This trip features , more convenient hours of darkness, clearer skies and less water vapor. The skies feature the brightest bunch of stars visible in any season and the best telescopic planet, Saturn and Jupiter. The Beach Village at Kaupoa is about 8 miles from the lodge. As this may be the last of many great visits to Molokai, we hope those interested will contact Barry Peckham at 524-2450.
Book Review - Barry reviewed a new small book by Steve Overholt, a man well known for constructing unusually large and light weight telescopes.
New Telescope - Barry introduced the club to his latest creation, a 15" Litebox telescope. Barry's latest telescope is much lighter and some of the features are slightly different.
Equatorial Platform - Paul Lawler demonstrated an equatorial platform for Dobsonian telescopes weighing less than 90 lbs. Paul demonstrated, with help from Barry and his new 15" Litebox, how the platform allows tracking for 45 minutes, before requiring a reset. This version (Type VI) of the EQ platform is available for $495 plus $45 shipping from http://www.johnsonian.com.
Big Island Visitor - Long time club member Mike Morrow, visiting from the Big Island of Hawai`i, gave the members a short update on the number of telescopes that at popping up in his area.
The first meeting of the Hawaiian Astronomical Society for 2006 adjourned at 8:54 pm. Refreshments were served followed by a short Planetarium show with Joanne Bogan. The meeting adjourned at 9:17 pm. Refreshments were served.

Respectfully submitted,
Gretchen West, HAS Secretary

Month Names *(Continued from page 5)*
September is from the Latin septem, seven: originally the 7th month, it has been the 9th for 2,000 years.

October, **November**, and **December** also retain the names by which they were known when there were but ten months in the year, derived from the Latin words Octo, Novem, and Decem - eight, nine, and ten.

Well, now we know!!

Aloha,
Mike Morrow kh6jqm
Ocean View, Hawaii

Snowstorm on Pluto

by Dr. Tony Phillips

There's a nip in the air. Outside it's beginning to snow, the first fall of winter. A few delicate flakes tumble from the sky, innocently enough, but this is no mere flurry.

Soon the air is choked with snow, falling so fast and hard it seems to pull the sky down with it. Indeed, that's what happens. Weeks later when the storm finally ends the entire atmosphere is gone. Every molecule of air on your planet has frozen and fallen to the ground.

That was a snowstorm—on Pluto.

Once every year on Pluto (1 Pluto-year = 248 Earth-years), around the beginning of winter, it gets so cold that the atmosphere freezes. Air on Pluto is made mainly of nitrogen with a smattering of methane and other compounds. When the temperature dips to about 32 K (-240 C), these molecules crystallize and the atmosphere comes down.

This artist's rendering shows how Pluto and two of its possible three moons might look from the surface of the third moon. Credit: NASA/ESA and G. Bacon (STSci)

"The collapse can happen quite suddenly," says Alan Stern of the Southwest Research Institute. "Snow begins to fall, the surface reflects more sunlight, forcing quicker cooling, accelerating the snowfall. It can all be over in a few weeks or months."

Researchers believe this will happen sometime during the next 10 to 20 years. Pluto is receding from the warmth of the Sun, carried outward by its 25% elliptical orbit. Winter is coming.

So is New Horizons. Stern is lead scientist for the robotic probe, which left Earth in January bound for Pluto. In 2015 New Horizons will become the first spacecraft to visit that distant planet. The question is, will it arrive before the snowstorm?

"We hope so," says Stern. The spacecraft is bristling with instruments designed to study Pluto's atmosphere and surface. "But we can't study the atmosphere if it's not there." Furthermore, a layer of snow on the ground ("probably a few centimeters deep," estimates Stern) could hide the underlying surface from New Horizon's remote sensors.

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Pluto *(Continued from page 7)*

Stern isn't too concerned: "Pluto's atmosphere was discovered in 1988 when astronomers watched the planet pass in front of a distant star—a stellar occultation." The star, instead of vanishing abruptly at Pluto's solid edge, faded slowly. Pluto was "fuzzy;" it had air. "Similar occultations observed since then (most recently in 2002) reveal no sign of [impending] collapse," says Stern. On the contrary, the atmosphere appears to be expanding, puffed up by lingering heat from Pluto's waning summer.

Nevertheless, it's a good thing New Horizons is fast, hurtling toward Pluto at 30,000 mph. Winter. New Horizons. Only one can be first. The race is on….

Find out more about the New Horizons mission at: http://pluto.jhuapl.edu

Kids can learn amazing facts about Pluto at: spaceplace.nasa.gov/en/kids/pluto

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

Treasurer's Report

by Jim MacDonald

HAS Financial Report as of January 15, 2006

Initial Balance:	**$6,078.44**
Receipts:	
Astronomy Payment	68.00
Donations	59.05
Dues Received	350.00
S&T Payments	296.55
Calendar Payments	40.00
Speaker Dinner Charge	10.55
Telescope Fees	40.00
Total Income:	**$864.15**
Expenses:	
Astronews	84.24
Magazine Subs. & SkyTools2 Software	1,221.60
Refreshments	17.45
P.O. Box Rent	70.00
Liability Insurance	1,094.46
Excise tax	1.20
Total Expenses:	**$2,488.95**
Ending Balance:	**$4,453.64**

Membership remained stable this month. Many thanks to those renewing their membership and to **Warren Arakaki**, **Timothy Sciulli**, **Wilfred** and **Helen Kekoanui**, **Yoshiyuki Inoue**, **Daniel Fischberg**, **James Branchaud** and **Jeff Childs** for their welcomed donations. Clear skies to all!

Huikilolani *(Continued from page 1)*

The discovery night

Two nights before, co-discoverer **Bill Dillon**, head of the FBAC asteroid team, had selected a search field very close by Alpha Capricornus (common name ***Al Giedi***, "The Goat") for a "just after full moon" discovery attempt. The strategy worked: we had gotten a discovery candidate there, and were now shooting its predicted position to try to get a confirmation night on it. (We got it: it became 2001 NK.) Since that patch of sky appeared to be promising, we also shot another search field just to the North.

Good luck! In the "South" field we had a very bright discovery candidate, which became "Svenders," one of our club's brightest discoveries ever.

Bad luck: In our scramble to get confirmation on that one, we did a rather cursory job looking for movers in the "North" field. If the data was divided up into 3, this object was merged with a star in the first image, and was very close to the edge in the second. We were also fighting bad tracking that night, which didn't help. We also had a time gap in the data: it is more difficult to detect regular motion if you blink images that are not regularly spaced apart in time, because regular motion then appears to be irregular. Whatever the reason, we simply missed noticing it, and then both Bill and I ended up traveling in the next week. (We have since learned to scan the edges of images particularly carefully, as it is very easy to overlook objects there.)

When I got back from my trip I decided to double check the data "just in case", and noticed the overlooked object.

Really good luck: It was still a discovery candidate! By rearranging how the (mostly) continuous stream of 2-minute raw images was divided and grouped into stacks, I was able to get 3 usable points on the object.

Bad luck: By the time we could next try to image the object, 9 days would have passed. That is usually too long of a time gap for a confirming observation.

The confirmation night

Len Casady (another team member) and I got out 9 days after the discovery night, set up the camera, and tried to image the predicted location of the asteroid.

Really bad luck: At that time we were still working our way up the learning curve of our AP8 camera, and we hit a major snag. The camera contains desiccant to keep its insides dry, which is supposed to be replaced once a year or so. This probably works very well on cold dry mountaintops. Our observatory, however, is located just above sea level on the Gulf Coast of Texas in the middle of a large swamp (think "giant outdoor sauna" in July). The camera has an internal cooler; the colder you can get the camera, the less noise in the data. Generally -20C is about the warmest you ever want to do imaging. As we cooled the camera that night, a nasty ring formed in the middle of the image and grew and grew. Condensation was forming inside the camera!

The formal procedure would have been to warm the camera, take the camera apart, put in fresh dessicant, and then cool the camera down again.

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Huikilolani *(Continued from page 9)*

That would have taken about 2 hours to accomplish, time we didn't have. (We have since learned to store the camera surrounded by industrial-grade room dessicant packs, all inside 2 layers of hermetically sealed bags, inside a hermetically sealed case.) So instead, we warmed the camera to -15C, so that the frost ring retreated back to covering only the center of the image, and then positioned the predicted position of the asteroid in the center of the corner of the image farthest away from the ring. We then cropped off and used just the good parts of the data from around the edges of the image.

Really good luck: That actually worked! Even after 9 days, the asteroid was still close enough to its predicted position that we got it in the small field left to us. It was also bright enough to have a decent image despite the too-hot camera. Although it was perilously close to the edge of the field, it was inside.

Bad luck: It was again very close to a star when we first started shooting it, so much of our data was not usable.

Good luck: I had brought my computer out to the observatory with me. We processed the data immediately after taking it. It was a little while before we realized that the bright, easy object near the very edge of the field was our discovery candidate. The dim, difficult object just above it that we had been struggling to pull out of the noisy data was in fact a long-known numbered object not really in need of our observation. Once we realized that, we knew all we needed to do was to go back and shoot the field again for a little bit more time before tearing down!

Bad luck: Bill was still out of town, and would be for a few more days, and all communications to and from the Minor Planet Center were

usually funneled through him. We e-mailed in the data ourselves and hoped for the best. The replies went back to him, so we did not find out for several days what the result was.

Astoundingly good luck: Once Bill got back, he was able to tell us that they had accepted our pair of nights and we got the discovery, 2001 NP14! We have never before nor since gotten a discovery from such a widely spaced pair of nights. (If you're wondering, that designation "2001 NP14" is just MPC shorthand for "the 389th asteroid discovered worldwide in the first half of July, 2001".)

Extending the orbit

It generally takes years of following an object before the orbit is well enough nailed down that the object is given a permanent number. Only then is the object namable.

Even more good luck: 2001 NP14 became eligible for naming somewhat faster than usual, because after it went to two oppositions, allowing its orbit to be extrapolated across multiple years, an observation was found for it way back in 1982. That really helped to nail down its orbit. Without that data point, the object would probably not yet be numbered.

Choosing a name

I had lived in Honolulu, Hawaii 1991-1994 and have fond memories of the astronomy club there, the Hawaiian Astronomical Society. I had been thinking for a while that I should honor the club with an asteroid. But which asteroid to use? July 11, 1991 was the date of the great total eclipse which I witnessed, successfully, from the Big Island. This asteroid was discovered on the 10th anniversary of that event, so it seemed fitting that this asteroid should be given a Hawaiian name. Bill Dillon agreed.

One final bit of good luck: The CSBN accepted our proposed name for (88297) 2001 NP14. (It was by no means guaranteed that they would!)

Here is the official citation:

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Huikilolani   88297

The slogan of the Hawai-
ian Astronomical Society

(88297) Huikilolani =
2001 NP14

Discovered 2001 Jul. 11
by J. Dellinger and W. G.
Dillon at Needville.

Founded in 1949, the Ha-
waiian Astronomical Soci-
ety exists to promote
amateur astronomy in Ha-
waii. Hui Kilolani is the
club's slogan. Literally,
it means "club of sky
watchers."
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How big is Huikilolani? According to the MPC, Huikilolani, with an absolute magnitude H=16.9, should be about 1-2km's in diameter.

Mahalo for the good times and fond memories, HAS!

Joe Dellinger

For more information on Asteroid Huikilolani visit:
http://sepwww.stanford.edu/oldsep/joe/Astro/Named/Huikilolani.html

H.A.S.
P.O. Box 17671
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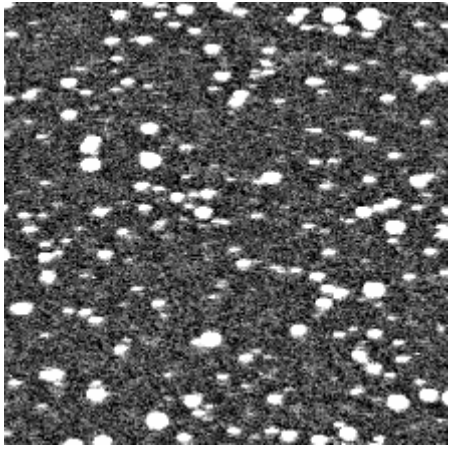

Asteroid 88297 “Huikilolani” photographed by the discoverers, Joe Dellinger and Bill Dillon..