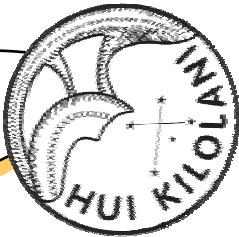


The Astronews



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April 2004

A Walk in the Forest

by Brian Tung

You like walking through a forest. The forest has a lot of trees—maybe a hundred thousand. Some of the trees are very distinctive—the largest ones, or in some cases, two trees have grown so close together that they've merged. You get the idea. But most of the trees look anonymous. Even from close up, they look much like all the other trees.

Someone gives you a map which gives the location of every last tree in the forest. In addition, there are some points of interest marked on the map, like a group of seven particularly young trees in a tight clump, or a hollowed out tree stump shaped like a ring, or a pond that's shaped like North America.

Finding the few very distinctive trees is easy—you can see those trees

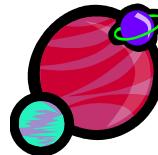
(Continued on page 7)

Upcoming Star Parties

Public Party	Apr 10	Dillingham
Club Party	Apr 17	Dillingham
Public Party	Apr 24*	Kahala/Waikale
Club Party	May 15	Dillingham
Public Party	May 22	Dillingham
Public Party	May 29	Kahala/Waikale

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Upcoming Events:

- The next meeting is at 7:30 p.m. on Tue. Apr. 6th at the Bishop Museum
- Sam Rhoads next Planetarium show on Mon. Apr. 5th.
- Astronomy Day is on April 24th.

President's Message

I'm writing this report from the Lunar and Planetary Science Conference in Houston, Texas. It's the first day of the conference, so I haven't seen very many talks yet. I'll give a report on the conference at the April meeting. The only thing I've heard so far about "Sedna", the new Kuiper Belt object that's just been discovered eight billion miles out and 3/4 the size of Pluto, is what I've heard on CNN, but I'm sure I'll hear more before the conference is over.

This afternoon I attended a talk given by Don Brownlee who headed up the Stardust mission that successfully flew a spacecraft by Comet Wild 2 in January. The mission collected (in aerogel) many small particles given off by the comet while avoiding centimeter-sized "rocks" that would have destroyed the spacecraft. The best images of a comet nucleus ever obtained were returned. They have a resolution of about 20 meters per pixel and revealed a surface unlike any other ever seen. There are many craters and other depressions, and at least one overhang that demonstrates that the comet has at least some cohesive strength.

One reason that small (micrometer-sized) particles are thought to be a rich source of knowledge about conditions in the early history of the solar system is that they almost certainly have remained nearly unchanged since that time. Particles that small can be formed by condensation from a gaseous state, but it is almost impossible to produce them by breaking down larger particles. The small particles tend to stick together, so even in a laboratory it is nearly impossible to achieve such a small size by grinding, for example.

Wild 2 has only recently been thrown (by Jupiter) into an orbit that takes it close enough to the Sun to be heated enough to

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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

735-0482

gwest@pixi.com

Treasurer

Jim MacDonald

261-2162

jim.macd@verizon.net

Board Members-at-Large

John Gallagher 683-0118

gallaghej002@hawaii.rr.com

Nick Bradley 735-3634

The Astronews Editor

Paul C. Lawler

395-8121

paul@lawler.net

HAS Webmaster

Peter Besenbruch

prb@lava.net

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

- Apr 2, 12h, M 3.2° NNE of Jupiter
(147° from sun in evening sky)
Apr 13, 09h, M 5.2° SSE of Neptune
(69° from sun in morning sky)
Apr 14, 22h, M 4.1° SSE of Uranus
(50° from sun in morning sky)
Apr 23, 01h, M 1.4° S of Venus
(43° from sun in evening sky)
Apr 23, 10h, M 2.2° N of Mars
(47° from sun in evening sky)
Apr 24, 20h, M 4.8° N of Saturn
(63° from sun in evening sky)
Apr 29, 19h, M 3.3° NNE of Jupiter
(119° from sun in evening sky)
Mercury is within 15° of the sun when near the moon in April.

Other Events of Interest

Times are Hawaii Standard Time

- Apr 3, 08h, Venus 0.53° SSE of the Pleiades
(46° from sun in evening sky)
April 5, 01:04h, Full Moon
Apr 16, 15h, Mercury at inferior conj. with sun
(Passes into morning sky)
Apr 19, 03:23h, New Moon
Apr 22, Lyrid Meteors
Apr 24, Astronomy Day

The Planets in April

 Mercury M. has a fine evening appearance in the first week of April, low in the west after sunset.	 Venus Venus is very bright in the western sky after sunset at magnitude -4.4.	 Mars Mars is about mag. 1.6 and is in the SE after sunset just above Venus.
21 Jupiter Jupiter was at opposition March 3 and is in the sky most of the night. Mag. -2.3. Diameter, 42".	 Saturn Saturn is high in the west at sunset and is well placed for evening viewing. Mag. 0.2.	 Uranus Uranus rises about two hours before sunrise and can be viewed in the east just before dawn..
 Neptune Neptune rises before Uranus but will be better placed for viewing later in the year.	 Pluto Pluto is well placed for viewing after midnight. By summer it will be visible in the evening.	

Meeting Minutes

H.A.S. Secretary

The meeting was called to order at 7:35 p.m. by President Chris Peterson. There were twenty-seven members and three visitors in attendance. Chris spoke briefly about the Mars Explorers, Spirit and Discovery, the explorer vehicles found strong evidence of the effects of water some time in Mars's past. Chris also spoke of the European Space Agency's "Rosetta Mission" of Comet 67P. It is scheduled to reach the comet in 2014 using gravitational assist. It is to drop a lander/penetrator, take samples and a return of samples is scheduled for 10+ years. Chris also related details about his recent New Zealand trip.

There was a general discussion of the superior results of our outreach into the community via Public Star Parties.

Bishop Museum

March 26—Scheduled upcoming cooperative effort of the Bishop Museum and the Hawaiian Astronomical Society. Carolyn Kaichi, spoke briefly about another community star party to view the planets Mercury, Venus, Mars, Saturn and Jupiter. Helpers are asked to set-up at Bishop Museum around 5 p.m.

School Star Parties

Forrest Luke reports that there are school star parties scheduled for March and three (3) in April. A sign-up sheet will be passed at the next meeting for interested members.

New Business

I.F.A. Open House -April 18, 2004 - We will have table to inform public about hands-on astronomical opportunities afforded by H.A.S.

ASTRONOMY DAY

April 24, 2004 - Kahala Mall (in front of Barnes & Noble Booksellers) mid-

day. Moon viewing and Sun spotting available for the public outside on upper level. Monthly Urban Star Party later that night at Kahala Community Park.

New Business

John Gallagher informed the club about what our involvement would be should we participate in the NASA Night-Sky Network. We would report on community outreach activities, like our star parties, Astronomy Day and Bishop Museum activities. Chris and board members wanted the general membership to be aware that NASA will likely be reaping the rewards of our work and taking credit for community involvement. We will be associated with NASA and will receive material to pass out to the public during outreach activities. John Gallagher volunteered to be the coordinator and asked for and enlisted the help of Steve Huffman, Jim Bedian and Gretchen West to be co-coordinators. The general membership in attendance unanimously voted that we participate.

V. P. Barry Peckham reported that beginning in early Feb. 2004 an elongated blue streak has appeared below the Southern Band on Jupiter. On March 28th (UT)/Hawaii March 27 between 8 p.m. -10 p.m. 3 moon shadows will simultaneously transit Jupiter and be visible in Hawaii.

Beginners Subject

Barry spoke briefly about the pros and cons of reflector and refractor telescopes.

Messier Marathon 2004

Consider a 1/2 Marathon or try to view Messier objects. Barry has a

(Continued on page 11)

Meteor Log—April 2004

by Mike Morrow

April is much like February in having more sporadic fireballs than usual. This year the Lyrids have no Moon which is nice.

Thursday the 22nd the **Lyrids**, (radiant 18h04m +34 deg.)

This shower has variable maximum rates but the rates may reach about 40 and hour. Unfortunately the maximum is at 04 UTC or six in the evening for Hawaii. Shower meteors may be seen from about the 16th through the 25th so we may have some luck this year.

Friday the 23rd the **Pi Puppids**, (radiant 07h20m -45 deg.)

Rates run from nothing to about 20 and hour. Meteors are usually slow and bright New Zealand would be a fine place to observe this shower.

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

"Beginner Issues" Talks

by Barry Peckham

If you'd like to give a short (5 minute) talk on one of these subjects at a club meeting please contact Barry... otherwise we'll have to listen to him ;^)

- April - All about Aperture**
- May - Eyepiece overview**
- June - Focal Ratio Factoids**
- July - Dark Adaptation**
- Aug. - Using Star Charts**
- Sept. - Star Hopping**
- Oct. - Seeing vs. Transparency**
- Nov. - Observing Lists**
- Dec. - Apparent Field of View**

President's Message (*Continued from page 2*) begin losing a significant amount of material. The small rocky particles have probably never been warmer than 180 Kelvins (Celsius degrees above absolute zero), because at that temperature the comet begins to release the particles into space.

This is a young comet that has only been around the Sun five times

since entering its current orbit. Of course, the images and data collected by other instruments on board have already been returned and are currently being studied, but the Stardust team eagerly awaits opening the treasure chest of knowledge about the early solar system that the returning samples represent.

Chris

Probes that can distinguish between “interesting” things and “boring” things are vital for deep space exploration, say JPL scientists.

Along with his colleagues in NASA's Space Technology 6 Project (ST6), JPL's Steven Chien is working to develop an artificial intelligence technology that does just that. They call it the

Autonomous Sciencecraft Experiment, and it's one of many next-generation satellite technologies emerging from NASA's New Millennium Program.

As humanity expands its exploration of the outer solar system—or even neighboring solar systems!—the probes we send suffer from two unavoidable handicaps. First, commands radioed by mission scientists on Earth take a long time to reach the probe: six hours for the planned New Horizons mission to Pluto, for example.

Second, the great distance also means that data beamed back by the probe trickles to Earth at a lower bandwidth—often much less than an old 28.8 kbps modem. Waiting for hundreds or thousands of multi-megabyte scientific images to download could

take weeks. And often many of those images will be “boring,” that is, they won't contain anything new or important for scientists to puzzle over. That's certainly not the most efficient way of using a multi-million dollar probe.

Even worse, what if one of those images showed something extremely “interesting”—a rare event like a volcanic eruption or an unexpected feature like glaciers of methane ice?

By the time scientists see the images, hours or days would have passed, and it may be too late to tell the probe to take a closer

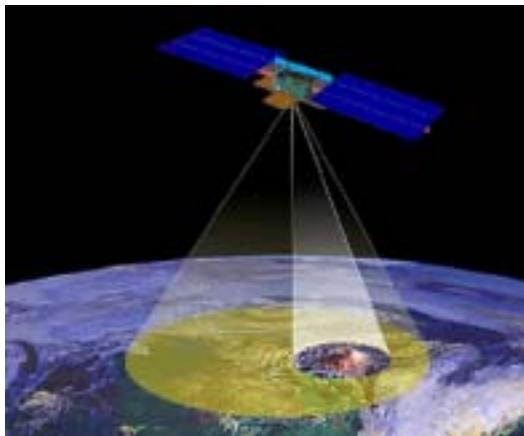
look.

But how can a probe's computer brain possibly decide what's “interesting” to scientists and what's not?

“What you really want is a probe that can identify changes or unique features and focus on those things on its own, rather than just taking images indiscriminately,” says Arthur Chmielewski, one of Chien's colleagues at JPL.

Indeed, that's what Chien's software does. It looks for things that

(Continued on page 9)



The Autonomous Sciencecraft technology that will be tested as part of NASA's Space Technology 6 mission will use artificial intelligence to select and transmit only the scientifically significant images.

Forest Walk (*Continued from page 1*) from a great distance and walk almost right up to them. But getting from those to the interesting points isn't so easy. You have to identify the right patterns of trees. You know, "OK, look for a clump of four trees to the north, arranged in a square. Then, go northwest until you get to three large trees equally spaced in a line. If you make a right turn and go for 100, oh, maybe 200 yards, you'll find the Seven Saplings."

Trouble is, there are a lot of clumps of four trees shaped like a square. Lots of lines of three trees in a row, evenly spaced. If it's your first time out, you're not quite sure how large the trees should be, how widely spaced they should be. Should you turn the compass so the needle rests on NW, or do you have it rest on N and go in the direction of NW? Some people get lost so many times and never get there. Or they get to the Hoop Stump, but it's so small they don't even recognize it at first. When they do, they say, "Gee, it's so small. Not at all like in the pictures." No wonder they give up.

That's too bad, because some of these spots are really fantastic. So much so that a group of seasoned hikers have gotten together to provide a navigation service. You tell them which spot you want to visit, and they'll put you in a coach (not motor-driven, it's environmentally friendly) and drive you there. On the way there, you can have a cup of coffee, play a game of cards, whatever. Once you get there, you may decide it's pretty nice. Maybe the forest isn't such a drag, after all.

Some people like the ponds and

the other interesting spots so much that they stick to being driven there. They spend a lot of time, getting to really know the things that grow there, the intricate detail, the beautiful colors. Or they'll take awesome photos of the place—long exposures that capture the motion of the water in a way that you can't really see by the unaided eye.

Others try to forge out on their own. They get lost a lot at first, but gradually, they build up their repertoire of paths. Besides, getting just a little lost affords you the possibility of finding some of your own interesting spots, just by random chance. After a while, they get pretty good at it, and can guide others. Sometimes, to help them along, they get a GPS. They still have to walk, but now they know when they're getting warmer, whether they're walking in the right direction, how far off they still are, and so on. That way, you can still look out at what you're walking around, instead of the big blur it usually is, watching from the couch. Although, a few people keep their eyes so intently on the GPS that they occasionally walk into a boulder.

Eventually, a community of dedicated forest aficionados springs up. People invest a lot of time, energy, and money setting themselves up to visit the forest. Equipment becomes a lot more standardized, and more affordable. Some people get caught up more in the discussion of which boots are better than in the actual hiking. Others debate the merits of finding your own way as opposed to the forest coaches.

The forest is also under stress

(*Continued on page 9*)

5th Annual Astronomy Open House

Come See What We See

by Joan Yanagihara

You are cordially invited to the open house
at the
**University of Hawaii
Institute for Astronomy**

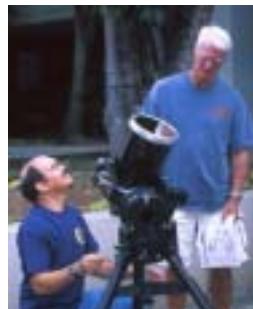
**Sunday, April 18, 2004, 11 a.m. to 4 p.m.
2680 Woodlawn Drive, Manoa**

*(next to the Manoa Public Library and
across the street from Noelani School)*

Free admission and free parking

Featured activities will include

- **Amateur Telescope Clinic**
How to purchase, assemble, and use your telescope
- **Remote Observing Live from Mauna Kea**
with the NASA Infrared Telescope
- **Sunspot Viewing**
- **Fun with Physics**
interactive activities
- **Starlab Portable Planetarium Shows**
for the keiki
- **Ask an Astronomer**
- **Lab Tours/Demonstrations**
- **Hands-on Activities**
bottle rockets, comet making



Presentations/Lectures for all ages
Refreshments will be available

For more information: <http://www.ifa.hawaii.edu/open-house/>

School Star Parties

School and Group Star Parties are being coordinated by Forrest Luke. If you are contacted for a school star party, please have the school contact Forrest directly by phone at 623-9830 or via e-mail at <lukef003@hawaii.rr.com>.

As a reminder, upcoming scheduled school star parties are:

15 Apr 2004 Kamehameha Schools, Kapalama Campus

23 Apr 2004 Lanakila Elementary

27 Apr 2004 Ala Wai Elementary

If you signed up and need help finding the school, or if you didn't sign up, but still want to participate, please contact Forrest.

Forest Walk (*Continued from page 7*)
from the outside. The local town's main industry is toothpick manufacture, and because the factories get a bit lazy about control, many of the toothpicks don't make their way into the little boxes, but instead are sprayed uselessly into the air, where they bounce around and eventually land in the forest. At first, it's not a big deal, but enough time passes that the toothpicks start filling in the ponds, and making them harder to find, let alone enjoy. The local fauna and flora diminish considerably. Even the trees are difficult to see now, as a result of a thick layer of toothpicks. A few incensed foresters form the Coalition Against Toothpicks, or CAT, but sup-

port is sporadic. A few factories develop better control methods for ensuring that their toothpicks get into the little boxes, but the major factories go right on spraying them into the air.

Finally, the entire forest is buried under a hundred million tons of toothpicks. Perhaps a couple dozen trees survive the onslaught, their pitiful tops poking out from beneath the dental doodads. The whole community of foresters packs up and moves to the Arizona desert, where there are few trees, and takes up amateur astronomy.

"At last," they say, "a stress-free hobby."

©2003 Brian Tung works at the USC Information Sciences Institute, and observes from Southern California.

Sciencecraft (*Continued from page 6*)
change. A mission to Jupiter's icy moon Europa, for instance, might zero in on newly-formed cracks in the ice. Using artificial intelligence to set priorities, the probe could capture a complete movie of growing fractures rather than a single haphazard snapshot.

Until scientists can actually travel to deep space and explore distant

worlds in person, they'll need spacecraft "out there" that can do some of the thinking for them. Sciencecraft is leading the way.

Learn more about Sciencecraft at nmp.nasa.gov/st6. Kids can make a "Star Finder" for this month and learn about another of the ST6 technologies at spaceplace.nasa.gov/st6starfinder/st6starfinder.htm

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 March 15, 2004

Initial Balance: \$5,713.64

Receipts:

Donation	50.00
Dues Received.....	134.00
Polo Shirt Deposit	37.00

Total Income: \$221.00

Expenses:

Astronews.....	163.59
Magazine Subscriptions.....	189.80
Refreshments.....	5.62
Postage	11.30
Polo Shirts	21.87
Excise Tax	1.80

Total Expenses: \$393.98

Final Balance \$5540.66

We had four new members join the club this month. They are **Gregory Ha, Kristine Ayson, Jeff and Jessica Schmidt**. Many thanks to those renewing their membership and a special thanks to **Jeff and Jessica Schmidt** for their generous donation. Clear skies to all!

Special Notice

HAS will publish a complete listing of Club members in the May 2004 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 will include all member's names, addresses, and phone numbers. If you wish to have some or all of your data excluded, please notify the Club Treasurer, Jim MacDonald before April 15 by sending him an e-mail at jim.macd@verizon.net or by written notice to the Club's post office box listed on the back page of this newsletter. Please be advised that this listing is intended for Club members' personal use only in contacting one another. HAS does make this list available to, nor do we sell its contents to anyone for any purpose.

Dangerous Chemical Alert

from the Internet

It's time we were all alerted to the presence of a dangerous chemical, which has become all too common! **Dihydrogen Monoxide** is the main component in acid rain! And, it has caused many people's deaths over the years.

Here are some other facts about it:

- Contributes to the “greenhouse effect.”
- May cause severe burns.
- Contributes to the erosion of our natural landscape.
- Accelerates corrosion and rusting of many metals.
- May cause electrical failures and decreased effectiveness of automobile brakes.
- Has been found in excised tumors of terminal cancer patients.
- Has a decidedly negative effect on amateur astronomers at star parties.

And it gets worse:

Despite the dangers, dihydrogen monoxide is often used:

- as an industrial solvent and coolant in nuclear power plants.
- in the production of styrofoam as a fire retardant.
- in many forms of cruel animal research.
- in the distribution of pesticides.
- Even after washing, produce remains heavily contaminated by this chemical.
- as an additive in certain “junk-foods” and other food products.

Companies dump waste DHMO into rivers and the ocean, and nothing can be done to stop them because this practice is still legal. The impact on wildlife is extreme, and we cannot afford to ignore it any longer!

Minutes (Continued from page 4)

Binocular Challenge for interested individuals.

Asterism Contest

(Asterism = any recognizable grouping of stars) All HAS members were challenged to find a new asterism, document it by sketching, and pinpoint its notable location by the March 20th Club Star Party. (in retrospect, given the weather on March 20th the previous 2 sentences are almost humorous) Your asterism should be visible east of Taurus in the Spring-

time sky. Be sure to identify the probable star magnitude.

Book Review

The Little Book of Coincidence available at Borders bookstore. The book identifies and documents the pathways of the planets creating interesting designs.

The meeting was adjourned at 9:09 p.m. and a short Sky Tonight show was available for interested members in the planetarium at 9:00 p.m.

Respectfully Submitted,
Gretchen West, HAS Secretary

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



Tenagra II 32" F7 Ritchey-Chretien telescope

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