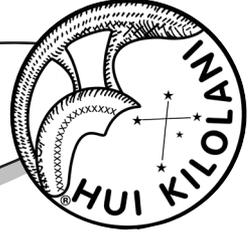


# The Astronews



Volume 58, Issue 5

May 2010

[www.hawastsoc.org](http://www.hawastsoc.org)

## President's Message

by *Chris Peterson*

President Obama's new plan for NASA's future has been met with a lot of emotion. Even the Apollo 11 astronauts are divided over the wisdom of the new direction. There have even been pro-spaceflight demonstrations for the first time I can remember. Why are emotions running so strong?

I think it's because human spaceflight and exploration excite our imaginations like almost nothing else. When we see images of astronauts in space or on the Moon, we imagine ourselves in their place. While some people view any government expenditure that doesn't immediately translate to more money in their pocket as "waste," I think most people realize that NASA provides important returns for (by government standards) a modest investment (less than one per cent of the budget).

But beyond rational calculations is the raw thrill of adventure that comes from venturing where "no one has gone before." This is mixed, for Americans, with pride in belonging to a nation that has accomplished so many firsts in space.

As astronomers, we don't expect to go ourselves to any of the objects that we observe outside our solar system, and most of us will never even achieve

*(Continued on page 11)*

### ☆ Upcoming Star Parties ☆

|                                 |               |
|---------------------------------|---------------|
| <b>Club Party-Dillingham</b>    | <b>May 8</b>  |
| <b>Public Party- Dillingham</b> | <b>May 15</b> |
| <b>Kahala/Waikele Party</b>     | <b>May 22</b> |

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#### Upcoming Events:

☆ The next meeting is 7:30PM on **Tues., May 4** at the Bishop Museum Planetarium.

☆ Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **May 7 & 21** at 8:00 p.m.  
[www.bishopmuseum.org/calendar](http://www.bishopmuseum.org/calendar)

☆ The next Board Meeting is Sunday, **May 2** at 3:30 p.m. at the POST building at UH.



## 53rd Hawai'i State Science & Engineering Fair Report

.....

It might be easy to dismiss science projects as "not real research" because the students are all under 19 years old, but if you managed to attend this year's 53rd Hawai'i State Science and Engineering Fair at the Hawaii Convention Center last month you might be mildly surprised.

The fair's Grand Winner, Kang-Ying Liu from St. Andrew's Priory, came in with her winning mathematics entry, "New Triangular Inequalities In The Form of s-a, s-b, and s-c". I didn't even understand the title, but it was impressive enough to win over the state judges as the best project this year and attract the attention of the local media.

{But enough of embarrassing myself with my lack of math skills.}

I'm proud to report that for the second year, HAS club member **Travis Le** placed in the fair with his astronomy/physics category project, "A Comparison of Similar Planetary Systems to WASP2". Travis is a sophomore at Punahou and this is only his second time entering the science fair-he's 2 for 2! He placed 1st in the HAIS (Hawaii Association of Independent Schools) District Fair in February, which means he has already won a place at the Intel International Science & Engineering Fair (ISEF) this month.

Other astronomy projects included: "Muon Detection At Elevation", "Discovering an Asteroid", "Tracking Cosmic Rays" and "A Comet in a Sea of Asteroids" in the Senior Division (gr. 9-12), and "Asteroid 25413 Itokawa" in the Junior Division (gr. 6-8).

Overall, the 23 students from around the islands will be traveling to ISEF in San Jose, CA. see page 11 for pictures and stats of the fair.

**SPECIAL THANKS to club members: Jim MacDonald, Gretchen West, John Sandor and Chris Peterson for judging; and Forrest Luke and Harry Zisko for setup/takedown!!**



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The **Astronews** is a 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 email. The deadline is the 16th of each month. We are not responsible for unsolicited artwork.

President **Chris Peterson** called the April 6, 2010 meeting of the Hawaiian Astronomical Society to order at 7:35 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were twenty-one members in attendance.

**FYI – EVENTS IN APRIL:** The Hawaii State Science and Engineering Fair on April 5-7 at the Hawaii Convention Center. As in previous years, the Hawaiian Astronomical Society will be presenting two awards to students with projects relating to astronomy. There will be an award made to one student in the senior research division and one to a student in the junior research division.

H.A.S. will participate in the Ifa Open House on Sunday, April 18 and Astronomy Day on Saturday, April 24. H.A.S. will set a display and our telescopes for solar viewing, outside Barnes & Noble at Kahala Mall on Astronomy Day from 1:00 p.m. to 5:00 p.m.

On April 25th, the second annual Geek Meet at Magic Island in Ala Moana Park.

**Farrington Highway Street Lights** - Farrington Highway light poles numbered # 45, 46, and 47 have been shielded. The lenses for these lights extended outward and blared light even though the light had been shielded. The thank you note that **Barry Peckham** sent to the Department of Transportation mentioned this and the DOT appears to have responded by changing the bulbs to flat aspect lenses. The problem of glare has been reduced noticeably.

**Globe at Night** – Due to weather, it appears that few members participated in this year's Globe at Night observances. This year the survey called "The Globe at Night," which enlists the help of amateur astronomers across the globe, sets about counting the stars seen in urban settings. The 2010 survey took place March 3 - 16, 2010. Those people interested in information about the survey can find it at [www.globeatnight.org](http://www.globeatnight.org). This year's cloudy nights kept most HAS members from taking part.

**School Star Party Report:** **Forrest Luke** reported that there were five school star parties in during the month of March. Viewers enjoyed the skies with the help of H.A.S. astronomers. Six school star parties are scheduled for April.

**Lunar Planetary Science Conference** - President **Chris Peterson** traveled to Houston during the month of March to take part in and attend the Lunar Planetary Science Conference. Chris was very happy to report that this year's conference featured more sessions regarding lunar information than those on Mars.

**Television** - Astronomers and the viewing public were joined by television personality Pamela Young during the February Kahala Star Party. Pamela and her news crew looked through telescopes and conducted interviews relating to the night sky. The report was shown on the news the following evening. If you are interested in seeing the video look at the YouTube video at <http://www.kitv.com/video/22629319/index.html>

**Chris Peterson**, with the help of **Tom Giguere** demonstrated a program in which the orbiting planets of our solar system identified by musical tones played a song of the universe. This fun program is available at <http://www.whitevinyl.com/solarbeat/>

We also have the ability to view a scale of the universe: this is an interactive illustration of objects ranging from smallest to largest in the universe over about 60 orders of magnitude. See <http://www.newgrounds.com/portal/view/525347>.

**Guest Speaker** – Hawaiian Astronomical Society member and UH scientist **Tom Giguere** was our featured speaker this month. Tom discussed the images of the lunar surface taken by the LROC lunar cameras. The high resolution camera utilized 252 MB per snap shot. To view the targeting site go to [http://target.lroc.asu.edu/output/lroc/lroc\\_page.html](http://target.lroc.asu.edu/output/lroc/lroc_page.html).

As there was no further business, the meeting was adjourned at 9:07 p.m. Refreshments were served.



Respectfully Submitted,  
Gretchen West  
HAS Secretary

## A Rock Hound is Born

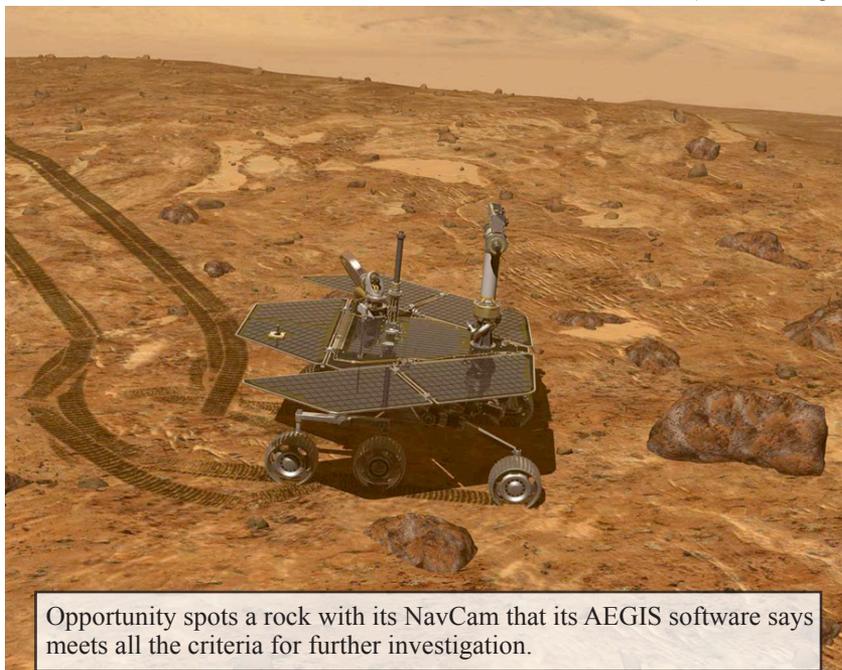
It's tough to be a geologist when you can't tell one rock from another. Is that a meteorite or a chunk of lava? A river rock or an impact fragment? Houston, we have a problem!

It's a problem Spirit and Opportunity have been dealing with for the past six years. The two rovers are on a mission to explore the geology of the Red Planet, yet for the longest time they couldn't recognize interesting rocks without help from humans back on Earth.

Fortunately, it is possible to teach old rovers new tricks. All you have to do is change their programming—and that's just what NASA has done. "During the winter, we uploaded new software to Opportunity," says Tara Estlin, a rover driver, senior member of JPL's Artificial Intelligence Group, and the lead developer of AEGIS, short for Autonomous Exploration for Gathering Increased Science. "AEGIS allows the rover to make some decisions on its own."

Estlin and her team have been working for several years to develop and upload increasingly sophisticated software to the rovers. As a result, the twins have learned to avoid obstacles, identify dust devils, and calculate the distance to reach their arms to a rock.

*(Continued on page 9)*



Once upon a time, in the mid or late '60s, a Vedanta monk roamed through mounds of WW2 salvage near the shipyards of San Francisco. He was looking for porthole glass. One of the prized sizes measured 12 1/2" across. Some ship designer had fancied foot-wide portholes and the extra width of glass disk hid behind the frame. This unknown designer had inadvertently set a standard size for telescope makers decades into the future.

The monk snatched up many of these cheap glass blanks for his telescope-making classes, but also kept his eyes and mind open for other useful military surplus. The rummaging monk was John Dobson, and he told me that he knew right away what to do with Teflon from the first moment he spied it.

One of his heaviest scopes used a large surplus Teflon disk rubbing on Teflon azimuth bearings. As his telescope-making revolution spread across the States, Teflon became a go-to for bearing surfaces on a Dobsonian. That is, until the commercial scope makers jumped into the game. By the late '80s telescope manufacturers like Coulter, Celestron, Meade and Orion had pronounced Teflon "too expensive" and substituted sticky nylon strips where the Teflon should have been.

Dobson was very angry that his name got attached to scopes with jerky motions.

He wrote to Meade and told them, "If you are going to bandy my name about, at least make something that works!" Meanwhile, amateur telescope makers determined that bumpy Formica-like material made a slab of Teflon glide even more smoothly on telescope bearings. Ebony Star became a buzzword in the early '90s. It is the trade name for a black & white version of bumpy plastic laminate manufactured by Wilsonart (not Formica). But no commercial scopes were paying attention. "Too expensive!" they insisted.

So John Dobson's name became synonymous with jerky telescopes. For \$10 or less you can swap your sticky nylon bearings for smooth Teflon and dramatically improve the way your telescope moves through the stars. John Dobson will thank you for setting things right.

Barry 



**Upcoming School Star Parties**

|       |             |                           |
|-------|-------------|---------------------------|
| Tues. | <b>5/18</b> | Red Hill                  |
| Fri.  | <b>5/21</b> | Mililani Mauka Elementary |
|       |             | -- SUMMER BREAK--         |
|       |             |                           |

**Planets Close To the Moon**

Times are Hawaii Standard Time

**May 6, 19h, M 4.1° NNW of Neptune**  
(78° from sun in morning sky)

**May 9, 02h, M 5.9° NNW of Jupiter**  
(53° from sun in morning sky)

**Apr 9, 11h, M 5.7° NNW of Uranus**  
(50° from sun in morning sky)

**May 12, 02h, M 7.4° NNW of Mercury**  
(19° from sun in morning sky)

**May 15, 23h, M 0.62° W of Venus**  
(30° from sun in evening sky)

**May 19, 21h, M 4.9° SSW of Mars**  
(81° from sun in evening sky)

**May 22, 13h, M 7.5° SSW of Saturn**  
(116° from sun in midnight sky)

**Other Events of Interest**

Times are Hawaii Standard Time

**May 2, 11h, Moon 1.7° SE of 1 Ceres**  
(127° from sun in evening sky)

**May 6, 06h, 2 Pallas at opposition**

**May 13, 14:05h, Moon New**

**May 25, 16h,**  
**Mercury at greatest elongation**  
(25.1° west of the sun in morning sky)

**May 27, 13:07h, Moon Full**

**May 29, 13h, Moon 0.61° E of 1 Ceres**  
(156° from sun in evening sky)

|   |  |   |
|---|--|---|
| <p> <b>Mercury</b></p> <p>Makes a morning appearance during the last half of May, but is rather poor for northern observers.</p> | <p> <b>Venus</b></p> <p>Getting a little higher in the evening sky, setting about 2 1/2 hours after the sun.</p>            | <p> <b>Mars</b></p> <p>Mars has faded to about magnitude +0.8 with a 7.1" disk in early May.</p> |
| <p> <b>Jupiter</b></p> <p>Jupiter rises between 2 and 3 am and shines brightly in the pre-dawn sky.</p>                         | <p> <b>Saturn</b></p> <p>Still well placed for evening viewing with its ring almost edge-on.</p>                          | <p> <b>Uranus</b></p> <p>Uranus is a little east of Jupiter in the morning sky.</p>            |
| <p> <b>Neptune</b></p> <p>Can be found in the east before sunrise, but will be easier to view later in the year.</p>            | <p> Dwarf Planet <b>Pluto</b></p> <p>Rises before midnight and is high in the midnight sky by sunrise in Sagittarius.</p> | <p> Asteroid <b>Pallas</b></p> <p>Reaches opposition on May 6 at magnitude 8.7.</p>            |

Far away from earth in the constellation CYGNUS, The Swan, there happens to be an “ordinary” star similar to our sun. It is called 52 Cygni and is estimated to be about 1800 light years from us. That’s six trillion miles times 1,800 if you care to be exact.

The reason I’m telling you about this ordinary star is because it has five satellites in orbit--we’ll call them planets. One of them is so similar to our Earth that it’s almost a dead-ringer for us. Of course, no one knows any of this--yet. It will probably take years and expenditure of vast sums before mankind learns what I’m now divulging.

But I have a purpose in this narration so bear with me. When mankind finally studies this star and its satellites they are in for a shocking revelation--not that there is life--by 2015 we found proof of rudimentary life on several exo-planets. No, the big news is that there is humanoid intelligent life on the Earth-like planet.

Before we go further we must have a name for this planet. Since it is so Earth-like, if we transpose the last H it would spell “HEART”, so that seems a fitting name--so be it!

Did I tell you I had shocking news!?! Well it gets better! On planet Heart, the human-like species that has evolved is compartmentalized into various sub groups, depending on their role to society as a whole--not too unlike “ant” colonies on earth. So there are several grades of workers etc. in ascending order of importance and--get this--the top of the heap is a small group of Heart-things called: SKYWATCHERS!!!!

It seems that somehow the Heart-beings figured out that of all the activities these beings could engage in (not counting food production and reproduction), star-gazing just might be the most important and prestigious. Therefore they trained their most precocious and motivated youngsters for this exciting scientific endeavor.

No one knows for sure why and how this evolved--for defense, intellectual curiosity, or what? What I can tell you is that when I focused my 50” litebox Dob from my special platform in space above the Earth’s atmosphere on that planet Heart, I saw something absolutely unbelievable--there in a remote highland area I could make out someone using a large refractor, and it saw me seeing it! I saw it waving to me and I waved back--WHAT A COMPELLING MOMENT!!!!

The lesson for all of us seems to be, “Take Heart, believe in Heart, strive to be like a Heart on EARTH”.

Mel



## NIGHT SKY NETWORK NEWS

by John Gallagher

**LRO Update Telecon** will be held on Thurs., May 20, 2010 at 3:00 pm HST. The Lunar Reconnaissance Orbiter (LRO) allows us to see the moon as we’ve never seen it before. Brooke Hsu, from Goddard Space Flight Center and Brian Day (NASA Ames) will give us an update on the LRO and tell us why the LRO is so exciting. Call the toll-free conference line anytime after 2:45 pm: **1-888-455-9236**

- You will be asked for the passcode: NIGHT SKY NETWORK

- You will be asked to give your NAME and the CLUB you belong to, and number of people listening with you.

The PowerPoint to accompany the talk will be available by May 17; **you must be a member of the NSN to download**; [https://nightsky.jpl.nasa.gov/club/download-view.cfm?Doc\\_ID=450](https://nightsky.jpl.nasa.gov/club/download-view.cfm?Doc_ID=450)

Clear Nights,  
John G.



**Hawaiian Astronomical Society**  
**Event Calendar**

| < May 2010 >       |                                |         |           |   |   |  |
|--------------------|--------------------------------|---------|-----------|---|---|--|
| Sunday             | Monday                         | Tuesday | Wednesday | Thursday  | Friday  | Saturday   |
| 25                 | 26                             | 27      | 28        | 29  | 30  | 1<br>Sunset: 6:58 PM   |
| 2                  | 3<br>7:30 PM Club Meeting      | 4       | 5         | 6<br>                                | 7   | 8<br>6:45 PM Club Star Party (D)<br>Sunset: 7:01 PM                |
| 9                  | 10                             | 11      | 12        | 13  | 14<br> | 15<br>6:45 PM Public Star Party(D)<br>Sunset: 7:04 PM              |
| 16                 | 17<br>7:00 PM Red Hill Elem SP | 18      | 19        | 20<br>3:00 PM LRO Update Telecon<br> | 21<br>7:00 PM Milliani Mauka Elem SP  | 22<br>6:30 PM Public Star Party(K)<br>6:30 PM Public Star Party(W) |
| 23                 | 24                             | 25      | 26        | 27<br>                               | 28  | 29<br>Sunset: 7:07 PM  |
| 30<br>Memorial Day | 31                             | 1       | 2         | 3<br>                                | 4   | 5<br>Sunset: 7:10 PM   |

## Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public

**DID YOU KNOW - MOON ZOO**, a “citizen science project”, is scheduled to launch in May 2010. The project uses high resolution images from the LRO mission to classify and measure the shape of features on the lunar surface. Participants will be asked to focus on the following:

- Counting the number of and measuring the size of impact craters;
- Categorizing locations of interest such as lava channels, crater chains, lave flooded impact craters, volcanic eruption centers, etc.;
- Assessing the degree of boulder hazard by comparing boulder density on two images;
- Identifying recent changes on lunar surface by comparing LRO and Apollo photographs;
- Determining the location of space mission hardware on the moon (Apollo landers, Lunar rovers, European and Chinese probes).

If you want to get a feel of the program (Beta): <http://moon.zooniverse.org>

Clear Nights, John G.

*(Space Place continued from page 4)*

With the latest upgrade, a rock hound is born.

Now, Opportunity's computer can examine images that the rover takes using its wide-angle navigation camera (NavCam) and pick out rocks with interesting colors or shapes. It can then center its narrower-angle panoramic camera (PanCam) on targets of interest for close-up shots through various color filters. All this happens without human intervention.

The system was recently put to the test; Opportunity performed splendidly. At the end of a drive on March 4th, the rover settled in for a bit of rock hunting. Opportunity surveyed the landscape and decided that one particular rock, out of more than 50 in the NavCam photo, best met criteria that researchers had set for a target of interest: large and dark.

"It found exactly the target we would want it to find," Estlin says. "It appears to be one of the rocks tossed outward onto the surface when an impact dug a nearby crater." The new software doesn't make humans obsolete. On the contrary, humans are very much "in the loop," setting criteria for what's interesting and evaluating Opportunity's discoveries. The main effect of the new software is to strengthen the rover-human partnership and boost their combined exploring prowess.

Mindful that Opportunity was only supposed to last about six months after it landed in 2004, Estlin says "it is amazing to see Opportunity performing a brand new autonomous activity six years later."

What will the rock hounds of Mars be up to six years from now? Stay tuned for future uploads!

Learn more about how the AEGIS software works at <http://scienceandtechnology.jpl.nasa.gov/newsandevents/newsdetails/?NewsID=677>. If you work with middle- or high-school kids, you'll find a fun way to explore another kind of robot software—the kind that enables "fuzzy thinking"—at [http://spaceplace.nasa.gov/en/educators/teachers\\_page2.shtml#fuzzy](http://spaceplace.nasa.gov/en/educators/teachers_page2.shtml#fuzzy).

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

## *Meteor Log - May 2010*

*by Mike Morrow*

Increasing twilight masses up observations and the major shower -- the **Eta Aquarids** is lost to the Moon.

Thursday, May 6th - The **Eta Aquarids**. Radiant 22h32m, -01 deg. Rates range from less than 60 to slightly above 60 and hour if you are very close to the equator or south of it. This year may be one of the better years as the rates change over a 12 year period. Rates may be above 30 an hour between the 3rd and the 10th. This is a good radio shower.

If you are interested in observing meteors contact **Tom Giguere** at 672-6677, or write **Mike Morrow**, P.O. Box 6692, Ocean View, Hawaii 96737

# Treasurer's Report

by Jim MacDonald

## HAS Financial Report for the month ending as of Apr. 15, 2010

|                         |                   |
|-------------------------|-------------------|
| <b>Initial Balance:</b> | <b>\$5,316.61</b> |
|                         |                   |
| <i>Receipts:</i>        |                   |
| Donations               | 100.00            |
| Dues Received           | 104.00            |
| Magazine Payments       | 32.95             |
| Telescope Rental        | 20.00             |
| <b>Total Income:</b>    | <b>\$256.95</b>   |
|                         |                   |
| <i>Expenses:</i>        |                   |
| Astronews               | 155.62            |
| Magazine Subscription   | 200.85            |
| Science Fair Award      | 50.00             |
| Refreshments            | 7.98              |
| <b>Total Expenses:</b>  | <b>\$414.45</b>   |
|                         |                   |
| <b>Final Balance</b>    | <b>\$5,159.11</b> |

Our membership remained constant this month. A special thanks to **Kevin Suehiro** for his generous donation . Thanks and clear skies to all renewing their membership this month. Thanks and clear skies to all renewing their membership this month. Please don't forget to check your anniversary date on the address label. (See February Astronews for hard copy renewal form)

### ***HAS Policy Statement On Use Of Lasers - Adopted July 6, 2004***

- 1. No laser in excess of 5mW output shall be used by any person at any event sponsored by the Hawaiian Astronomical Society (HAS). This restriction also applies to HAS members participating in events sponsored by other organizations such as schools, scouting groups, churches, etc., which include HAS as a participating organization. This maximum output level will not exceed lasers found in category Class IIIA as spelled out in ANSI Z136.1-1993.*
- 2. Individuals using lasers are expected to exercise utmost caution in their handling of such instruments. Lasers used as pointers should only be aimed skyward, not at any aircraft, or where they might reflect off of shiny surfaces, or where there is a possibility of hitting any person or animal. Telescopes in the process of being aligned by a laser need to be pointed in such a manner that any laser beam escaping from the scope's optics will be directed skyward.*

(President continued from page 1)

Earth orbit. However, it is likely that humans will visit new solar system objects in the lifetimes of many of us, and later even venture beyond. It is certain that we will keep sending spacecraft to new places to show us sights we can now only imagine.

In our lifetimes though, most of the universe is accessible to us only through astronomy. We can see things that it would be impossible to reach before our Sun becomes a cold ember, even if we could travel as fast as our current understanding of physics allows. Yet through our imaginations we can be transported there instantly. What fires our imaginations? The views through telescopes certainly play a large part in that. That inspires me to share those views with others.



Chris



**Science Fair Report (see pg. 2) by Carolyn Kaichi**

April 7-8, 2010

**Hawaii State Science & Engineering Fair at the Hawaii Convention Center:**

- \* 605 STUDENTS (65% Female/35% Male)
- \* 441 PROJECTS
- \* 447 AWARDS
- \* 74 REPRESENTED SCHOOLS
- \* ~300 JUDGES
- \* ~100 VOLUNTEERS

23 STUDENTS ATTENDING ISEF :  
19 Females/4 Males



HAS club member Travis Le with his winning project.

see more Science Fair pictures on

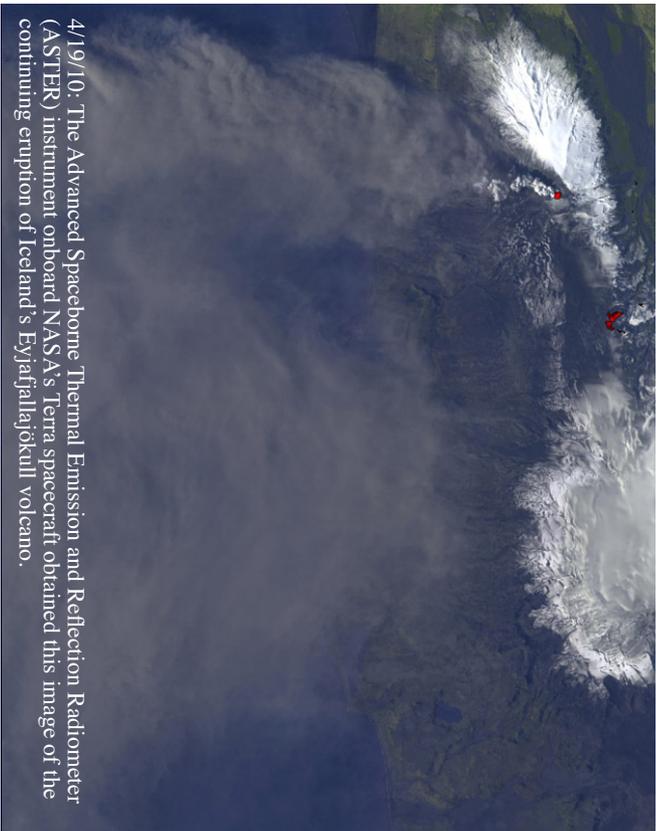
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Hawaii Academy of Science



Opening ceremony at the state fair, pictured at ribbon-cutting is Dr. Dee Symonds (former fair winner), Sen. Daniel Inouye, Dr. Bruce Anderson (president-elect of Hawaii Academy of Science), and Dr. Isabella Abbott.

**Hawaiian Astronomical Society**  
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**Honolulu, HI 96817-0671**



4/19/10: The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument onboard NASA's Terra spacecraft obtained this image of the continuing eruption of Iceland's Eyjafjallajökull volcano.

The image shows a white eruption column being transported to the south by the prevailing winds. The image is dominated by the gray, ash-laden eruption cloud dispersed south and east by the winds, blowing from the southern Iceland coast towards Europe. This image covers an area of 58.6 by 46.8 kilometers (36.3 by 29 miles). The resolution is 15 meters (49 feet) per pixel. *Image courtesy: NASA*

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