The Astronews

HUI KILOLANI

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July 2008

Pattern Recognition

by Barry Peckham

Birds do it. Bees do it. Even those weak in the knees do it. Every body with a brain spends a large chunk of time making sense of apparent chaos. It allows us to find our way home, which in turn encourages us to venture away from home in the first place. At the eyepiece, one of the top 10 questions has to do with how we find targets in the night sky. If your answer is to point to your keypad, you need not read further. The key for the rest of us is pattern recognition: "second star from the left…of what?"

Visually, stars are but points of light. Arm-chair astronomers can forget that, buried as they are with trivia about what stars really are. Anyone who looks into the heavens on a clear night and who wants to talk about black holes has been spending too much time with the Discovery Channel. For thousands of years, hundreds of cultures have gained a familiarity with the night

(Continued on page 4)

Upcoming Star Parties

Club Party	**Jun**	**28**	**Dillingham**
Public Party	**Jul**	**5**	**Dillingham**
Public Party	**Jul**	**12**	**Kahala/Waikele**
Club Party	**Jul**	**26**	**Dillingham**
Public Party	**Aug**	**2**	**Dillingham**
Public Party	**Aug**	**9**	**Kahala/Waikele**

Inside this issue:

Upcoming Events:

- The next meeting is at 7:30 p.m. on **Tuesday, July 1st** at the Bishop Museum.
- Bishop Museum's next planetarium show with **Barry Peckham** is Friday, **July 11th** at 7:00 pm www.bishopmuseum.org/calendar
- The next Board Meeting is at 3:30 PM on **June 29th** at the POST building at UH.

President's Message

One reason I like observing the Moon and planets is that the view is always different. Of course, no two observing sessions are the same, but usually that's because of variations in the equipment we're using, the sky conditions, or even our own condition! You may enjoy seeing M13 just as much (or more!) the 57th time you see it as you did the 12th or 32nd time, but the object itself hasn't changed perceptibly over that period.

Objects in our solar system, though, are another story. They're close enough and move fast enough relative to us that they appear different at different times. The Moon, for example, can change its appearance during the course of one evening as new mountain tops are illuminated by the slowly rising Sun.

Planets rotate new features into our eyepieces, surface features and cloud patterns change over time, and they change their apparent size as the distance between us grows or shrinks. Previously unknown comets arrive to surprise us, and periodic comets confound us with their unpredictable degrees of brightening as they approach the Sun.

Perhaps most entertaining is the way our solar system neighbors dance through the sky. Near opposition, a planet's prograde motion turns to retrograde, then back to prograde again. There are interesting objects near the ecliptic that periodically pose with a passing body, sometimes close enough to be captured in a single field of view or image.

Then there are the planetary conjunctions. We have some interesting ones coming up. On July 5th, the Moon, Regulus, Mars and Saturn will be nearly in a straight line only 9° long. Mars passes Saturn on July 9th when they're separated by less than 40'. This puts them in the same low-power eyepiece field of view. The day before and

(Continued on page 4)

Hawaiian Astronomical Society
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***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 16th of each month. We are not responsible for unsolicited artwork.

HAS Meeting Minutes June 3, 2008

President Chris Peterson opened the meeting at 7:38 PM.

He presented the latest news on the Phoenix Lander mission, currently near Mars' north pole, then made an appeal to club members about attending star parties.

Carolyn Kaichi, who's arms were tired, just flew in from a workshop in St. Paul that was organizing public astronomy events for 2009, which is an International Year of Astronomy. The well-funded Big Island astronomy organizations will be doing a lot. What will we be doing? Think about it! 2009 will be the 400th year since Galileo turned a telescope on the heavens.

There were 4 visitors to our meeting. Selena and Shawna sat with their dad, Ort. Brittany and Keith are interested in telescoping with us. Keith is looking to buy a used scope.

Chris reminds us that there are certificates available from the Astronomical League for completing various lists of observed objects.

Jay Wrathall donated a 3" reflector to anyone who would take it away. He also spoke about a ST-8 CCD camera he wants to sell at a big discount. It is 10 years old and requires color filters to get color images.

Chris is planning to ask Paul Coleman to give us a talk about the Faulkes Telescope on Haleakala. Stay tuned. Chris also mentioned the discovery of an exoplanet only 3X Earth's mass. It is 3000 light years away and orbits a possible brown dwarf with only 20% of the Sun's mass.

Paul Lawler spread this news item: the Norma and Sagittarius arms of the Milky Way may not exist after all. If you bought stars there, call your realtor.

Chris added to this galactic news that the tightness of wind of a galaxy's arms is now thought to be an indicator of the size of the black hole at its center.

Forrest gave his star party report. The Camp Timberline star party was very clear despite wet ground from a late afternoon downpour. He also passed out Ala Wai Elementary star party thank-you notes from the kids.

Mike Morrow from the Big Island gave a vog news update. He wants the Astronews to feature profiles of long-time members but is allergic to keyboards and can't do the work himself.

Paul Lawler presented a darkly humorous poster to Gary Ward who is sure he will be hit by a meteor some day (he did use the word meteorite so perhaps he thinks he will be hit on the rebound).

John Gallagher gave his Night Sky Network Report. He talked about the latest tool kit, with star maps and then Chris narrated the tool kit PowerPoint show about supernovas, lasting about 15 minutes.

Barry Peckham read a few excepts from a John Dobson bio by David Levy, announced a return trip to Kauai for a star party in September, talked about the weather and club scopes for rent.

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Joanne Bogan opened the planetarium for interested club members and guests.

The meeting was pau at 8:56 PM

Meeting notes by Barry Peckham

(Continued from page 1)

sky by means of pattern recognition. A recognizable pattern of stars is called an asterism (not a constellation!) and asterisms, don't you know, come in all sizes, from the Big Dipper to Gary the Snail. The notion of patterns can also be stretched to include any pattern on a star map that can be recognized in the eyepiece. Connected with the thrill you first felt upon revisiting Orion's Belt is the satisfaction of pulling familiarity and orientation from a random starfield at 80X. As with any strange city, what gets you from place to place is a good map. Maps are "good" when the mapmaker's goals are aligned with your own. The more specific your goals are, the greater is your need for a specific map.

In years gone by, small groups of us spent quality time on the practice of star-hopping, which is a visual path forged across the heavens, using pattern recognition as the primary tool. Once this innate ability is transferred onto the night sky, it can become both a means to a goal or an end in itself, the way people-watching springs from the ability to find your mom in the supermarket. Surveying the subtleties of human faces or spotting a mapped pattern in the real sky, these are just 2 variants of the same game. I invite you to pick a game board (also called "star chart") that suits you and to play it during the next HAS star party.

(Continued from page 2)

after they are separated by less than a degree. Venus is the next to catch Saturn. On August 12th they are separated by less than half a degree but set little more than an hour after the Sun. Venus at almost -4 magnitude will be far easier to spot than 1st magnitude Saturn. Mercury joins the group on August 15th, passing less than a degree from Saturn and about 2° from Venus. The two inner planets appear closer than a degree apart on August 19th and 20th. They are joined by the Moon and Mars on September 1st, and Venus comes within 19' of Mars on September 11th.

Some of these will be harder to view than others, but if you succeed you may be rewarded with a view you will long remember.

Chris

Did you know?

The Minutes from the HAS Board Meeting are available for viewing at each meeting. They are located in the Secretary's binder on the table at the front of the room.

NASA's Space Place

Space Buoys

By Dr. Tony Phillips

Congratulations! You're an oceanographer and you've just received a big grant to investigate the Pacific Ocean. Your task: Map the mighty Pacific's wind and waves, monitor its deep currents, and keep track of continent-sized temperature oscillations that shape weather around the world. Funds are available and you may start immediately.

Oh, there's just one problem: You've got to do this work using no more than one ocean buoy.

"That would be impossible," says Dr. Guan Le of the Goddard Space Flight Center. "The Pacific's too big to understand by studying just one location."

Yet, for Le and her space scientist colleagues, this was exactly what they have been expected to accomplish in their own studies of Earth's magnetosphere. The magnetosphere is an "ocean" of magnetism and plasma surrounding our planet. Its shores are defined by the outer bounds of Earth's magnetic field and it contains a bewildering mix of matter-energy waves, electrical currents and plasma oscillations spread across a volume billions of times greater than the Pacific Ocean itself.

"For many years we've struggled to understand the magnetosphere using mostly single spacecraft," says Le. "To really make progress, we need many spacecraft spread through the magnetosphere, working together to understand the whole."

Enter Space Technology 5.

In March 2006 NASA launched a trio of experimental satellites to see what three "buoys" could accomplish. Because they weighed only 55 lbs. apiece and measured not much larger than a birthday cake, the three ST5 "micro-satellites" fit onboard a single Pegasus rocket. Above Earth's atmosphere, the three were flung like Frisbees from the rocket's body into the magnetosphere by a revolutionary micro-satellite launcher.

Space Technology 5 is a mission of NASA's New Millennium Program, which tests innovative technologies for use on future space missions. The 90-day flight of ST5 validated several devices crucial to space buoys: miniature magnetometers, high-efficiency solar arrays, and some strange-looking but effective micro-antennas designed from principles of Darwinian evolution. Also, ST5 showed that three satellites could maneuver together as a "constellation," spreading out to measure complex fields and currents.

"ST5 was able to measure the motion and thickness of current sheets in the magnetosphere," says Le, the mission's project scientist at Goddard. "This could not have been done with a single spacecraft, no matter how capable."

The ST5 mission is finished but the technology it tested will key future studies of the magnetosphere. Thanks to ST5, hopes Le, lonely buoys will soon be a thing of the past.

Learn more about ST5's miniaturized technologies at nmp.nasa.gov/st5. Kids (and grownups) can get a better understanding of the artificial evolutionary process used to design ST5's antennas at spaceplace.nasa.gov/en/kids/st5/emoticon.

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

Observer's Notebook - July 2008

by Jay Wrathall

Planets Close To the Moon

Times are Hawaii Standard Time

July 1, 04h, M 7.7º N of Mercury (22º from sun in morning sky)
July 6, 06h, M 2.3º SSW of Mars (48º from sun in evening sky)
July 6, 10h, M 3.1º SSW of Saturn (50º from sun in evening sky)
July 17, 04h, M 2.6º SSE of Jupiter (171º from sun in midnight sky)
July 20, 03h, M 0.80º NNW of Neptune (155º from sun in morning sky)
July 22, 08h, M 3.7º NNW of Uranus (128º from sun in morning sky)

Venus is closer that 15º from the sun when near the moon in July.

Other Events of Interest

Times are Hawaii Standard Time

July 1, 05h, Mars 0.67º NNE of Regulus (50º from sun in the evening sky) (Closest appulse of a planet to a 1st magnitude star this year)
July 1, 08h, Mercury at greatest elongation. (21.8º West of the sun in morning sky)
July 2, 16:19h, Moon New
July 3, Earth at aphelion (Farthest from sun for 2008 at 1.01676 a.u.)
July 8, 22h, Jupiter at opposition.
July 10, 06h, Mars 0.64º SSW of Saturn (47º from sun in the evening sky)
July 17, 21:59h, Moon Full
July 29, 10h, Mercury At superior conj. with sun (passes into evening sky)

Mercury is still visible in the evening during the first week or so of July.	**Venus** is still too close to the sun to easily observe in July.	**Mars** has close conjunctions with Regulus and Saturn this month. Look for it low in the southwest after sunset.
Jupiter reaches opposition this month, so this is the best time to view this giant planet. Best observed close to midnight.	**Saturn** is near Mars in the southwest after sunset. Is very close to Mars on July 10.	**Uranus** is in the morning sky before dawn in Aquarius.
Neptune is also in the morning sky before dawn in Capricornus.	Dwarf Planet **Pluto** reached opposition in June so is still well placed for observing or imaging. Near Jupiter.	**(1) Ceres** is very low in the east just before dawn, and is less than a degree from the moon on July 31.

Meteor Log - July 2008

by Mike Morrow

One reasonable shower this month and two minor showers. The minor showers each have less that 5 meteors per hour. Sporadic rates improve through the month.

Sunday, July 27th: Delta Aquarids. Radiant 22h36m Dec:-16 deg. The lack of moonlight in late July is good news for this shower. Recent analysis suggests the maximum may not be as sharp as a single date. Rates may be 15 to 20 per hour from July 27 - 29. The radiant is available all night. Expect chiefly faint, medium speed meteors with occasionally significantly brighter ones. About 5 - 10% leave persistant trains.

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.

Minor Planet Report - July 2008

by Carey Johnson

Comets

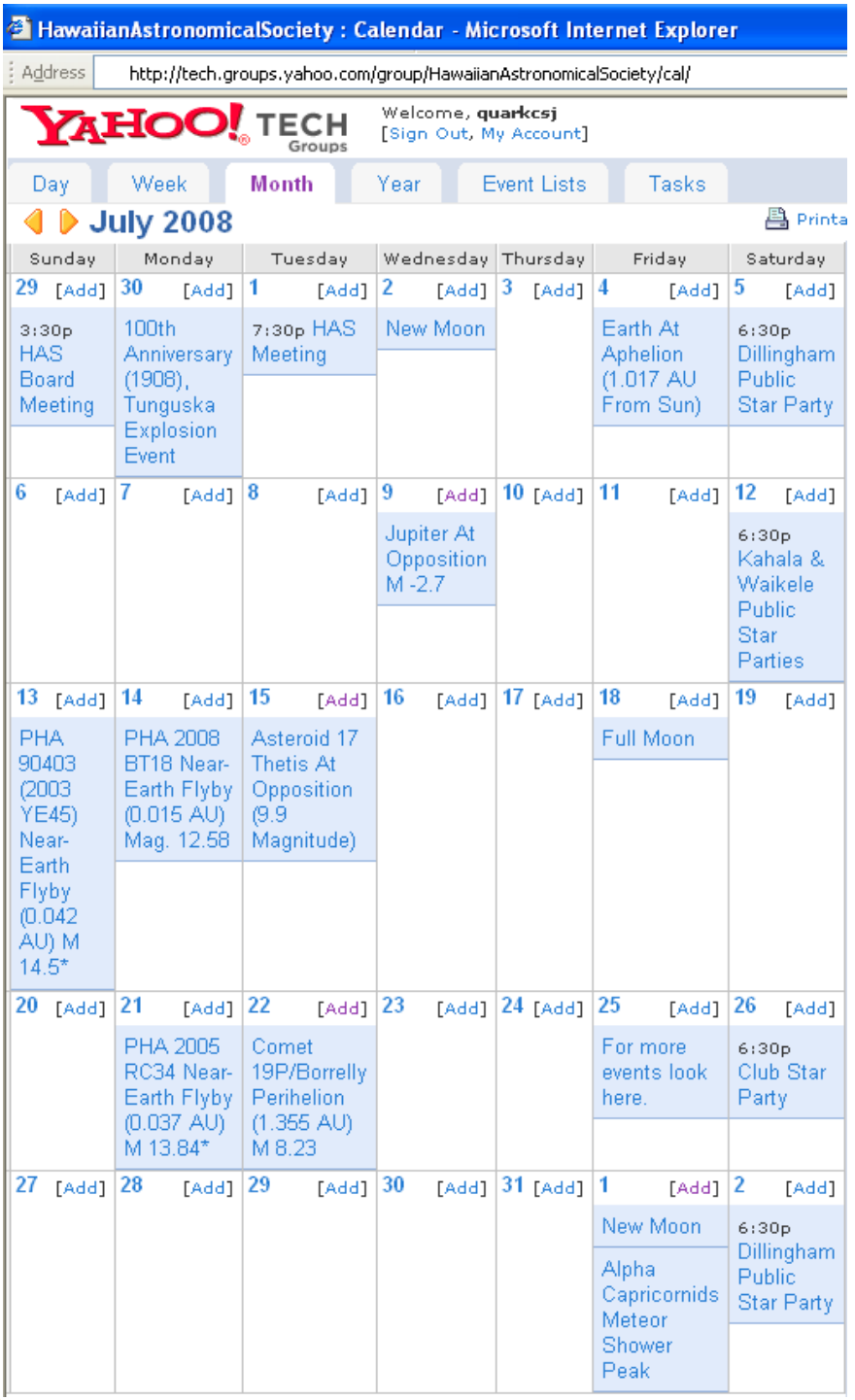
7/22 19P/Borrelly Perihelion 1.355 AU, Mag. 8.23
C/2006 Q1 (McNaught), Mag. 11.8 - 12.0*
C/2007 G1 (LINEAR), Mag. 11.9 - 12.0*
6P/d'Arrest, Mag. 12.4 - 10.7*
C/2007 N3 (Lulin), Mag. 12.7 - 11.7*
C/2007 W1 (Boattini), Mag. 6.1 - 8.4*
C/2006 OF2 (Broughton), Mag. 12.0 - 11.6*
15P/Finlay, Mag. 12.7 - 13.6*
19P/Borrelly, Mag. 9.7 - 9.5*

Asteroids

7/10 2002 AZ1 0.022 AU from Earth, Mag. 18
7/13 (90403) (2003 YE45) 0.042 AU from Earth, Mag. 14.5
7/14 2008 BT18 0.015 AU from Earth Mag. 12.58
7/15 (17) Thetis at Opposition, Mag. 9.9
7/21 2005 RC34 0.037 AU from Earth, Mag. 13.84
(11) Parthenope, Mag. 9.2 - 8.7*
(4) Vesta, Mag. 7.6 - 7.4*
(2) Pallas, Mag. 9.1 - 8.8*
(1) Ceres, Mag. 8.3 - 8.4*
(3) Juno, Mag. 9.9 - 10.2*
(17) Thetis, Mag. 9.9 - 10.0*
(43) Ariadne, Mag. 10.4 - 9.9*
(51) Nemausa, Mag. 10.3 - 10.3*
(9) Metis, Mag. 10.4 - 10.0*
(41) Daphne, Mag. 10.2 - 10.6*
(7) Iris, Mag 10.3 - 10.6*

* July 1st - July 31st

See http://www.geocities.com/quarkcsj/calendar.html for more up to date info.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Day
Week
Month
Year
Event Lists
Tasks
July 2008
Printa
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
29 [Add]
3:30p HAS Board Meeting
30 [Add]
100th Anniversary (1908), Tunguska Explosion Event
1 [Add]
7:30p HAS Meeting
2 [Add]
New Moon
3 [Add]
4 [Add]
Earth At Aphelion (1.017 AU From Sun)
5 [Add]
6:30p Dillingham Public Star Party
6 [Add]
7 [Add]
8 [Add]
9 [Add]
Jupiter At Opposition M -2.7
10 [Add]
11 [Add]
12 [Add]
6:30p Kahala & Waikele Public Star Parties
13 [Add]
PHA 90403 (2003 YE45) Near-Earth Flyby (0.042 AU) M 14.5*
14 [Add]
PHA 2008 BT18 Near-Earth Flyby (0.015 AU) Mag. 12.58
15 [Add]
Asteroid 17 Thetis At Opposition (9.9 Magnitude)
16 [Add]
17 [Add]
18 [Add]
Full Moon
19 [Add]
20 [Add]
21 [Add]
PHA 2005 RC34 Near-Earth Flyby (0.037 AU) M 13.84*
22 [Add]
Comet 19P/Borrelly Perihelion (1.355 AU) M 8.23
23 [Add]
24 [Add]
25 [Add]
For more events look here.
26 [Add]
6:30p Club Star Party
27 [Add]
28 [Add]
29 [Add]
30 [Add]
31 [Add]
1 [Add]
New Moon
Alpha Capricornids Meteor Shower Peak
2 [Add]
6:30p Dillingham Public Star Party

Astronomy Day

May 10th, 2008

HAS Members share views of the Sun and Moon at Barnes & Nobles at Kahala Mall.

Gretchen shows while John tells.

Treasurer's Report

by Jim MacDonald

HAS Financial Report as of June 15, 2008

Initial Balance:	**$5,292.66**
Receipts:	
Donations	280.00
Dues Received	276.00
Magazine Payment	66.95
Telescope Fee	20.00
Total Income:	**$642.95**
Expenses:	
Astronews (2 Months)	456.72
Astro League Dues	675.00
Magazine Subscriptions	32.04
Postage	5.32
Refreshments	18.97
Total Expenses:	**$1,324.96**
Final Balance	**$4,610.65**

The club membership increased by six this month. The new members include **Kotaro Koizumi**, **Paul Shin**, **Nancy McDaniel**, **Lance Smith**, **Jeoffrey Nielsen** and **Brittany Gonzalez**. A special thanks to **Dave Verret**, **Wallace Izuo**, **Sapavith Vanapruks**, and **Mark Rezentes** for their thoughtful donations. As a results of school star parties, **Pearl Harbor Elementary**, **Red Hill Elementary** and the **Honolulu Waldorf Schools** made cash donations to the club. Thanks to everyone involved. Clear skies to all!

For Sale

Binoculars for sale: Galileo Brand 16x70s with multicoatings and BAK4 prisms, like new, in box with case. $160.

Telescope for sale: 6" f/6 dob with rotating tube and low profie JMI focuser plus telrad. Optics by Pierre Schwaar. Automotive tube finish. Brand new. $495. Contact Barry: 542-8658

HAS Returns to Kauai

As announced at the June meeting, members from our club will be making a second visit to Kauai's dry and dark south side to join with the Kauai Education, Astronomy and Science Association (KEASA) at an observing site of their choosing. The weekend trip is set for September 26th through 28th and all are welcome to come along. I encourage those with airline friendly aperture to reap the rewards of truly dark skies. If, after all these years, you have made a conscious choice to avoid owning a flying telescope, please know that we'll be happy to service your telescopic needs at the site, in exchange for your help with our expenses. For the lawyers reading this notice, please be advised that HAS does not sponsor this event, nor does it coordinate activities or charge fees. We all get ourselves to Kauai any way we can, arrange our own accommodations and handle our own insurance needs. If you haven't yet taken your interest in the night sky to a neighbor island, you are missing one of the greatest thrills known to sentient beings. History will laugh at your reckless disregard for the vanishing natural resource which we call… darkness. Come to Kauai and see for yourself! Barry will have the details : barry@liteboxtelescopes.com

Upcoming School Star Parties

Schools are on summer vacation. The next thing I have scheduled at this time is October 3rd. Take a well deserved break but stay tuned. Something might come up.

Forrest

If you are interested in helping out at a School Star Party, sign up on the monthly sheet at the HAS Meeting or contact the Star Party Coordinator: Forrest Luke at 623-9830 or e-mail at lukef003@hawaii.rr.com

Electronic Newsletter

This month's link (for members only) was posted
June 19th at
http://kilolani.net/astronews/Astronews_2008-07.pdf

If you would like to receive the electronic version,
e-mail the Newsletter Editor at quarkcsj@hotmail.com

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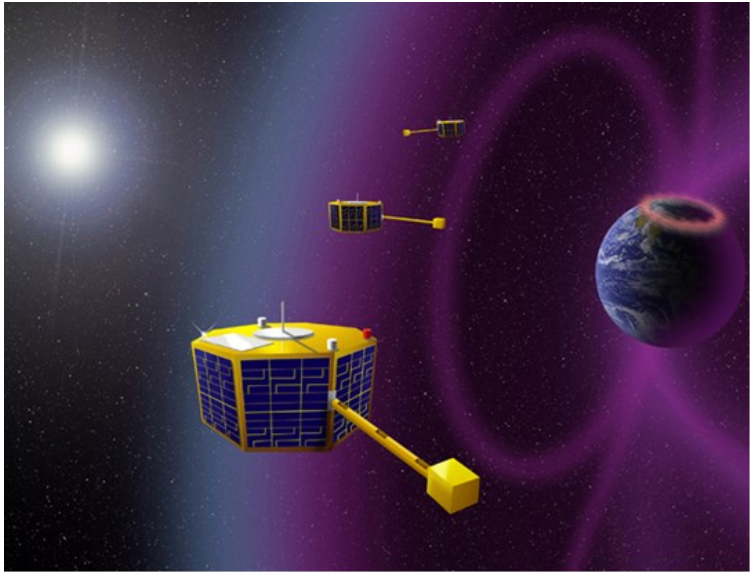

The Space Technology 5 micro-satellites proved the feasibility of using a constellation of small spacecraft with miniature magnetometers to study Earth's magnetosphere.
(See NASA's Space Place article on page 5.)