The Astronews

HUI KILOLANI

Volume 58, Issue 6

June 2010

www.hawastsoc.org

President's Message

by Chris Peterson

One of the things I like most about planetary observing is that you always see something different. Of course, the planets move regularly through the sky, and we await good viewing opportunities for the inner planets. There are also predictable events like satellite transits and changes in orientation with respect to Earth that provide anticipated views of particular features.

However, it's the unpredictable changes that can be most exciting. Jupiter is now in the middle of such an episode. The Southern Equatorial Belt has faded from view. This is the region in proximity to the Great Red Spot, so it will be interesting to look for the Spot against an unfamiliar backdrop.

Such changes in Jupiter's appearance are infrequent but fairly common. This fading appears to happen every three to fifteen years. It's not known how long this condition will last, but it's quite possible that it will persist until Jupiter reaches opposition on September 21st. The planet is currently rising well past midnight.

Had the Galileo spacecraft's main antenna opened as planned, we might know more about these changes than we do. It was supposed to take

(Continued on page 11)

☆ Upcoming Star Parties ☆

Public Party- Dillingham	**June 5**
Club Party-Dillingham	**June 12**
Kahala/Waikele Party	**June 19**

Inside this issue:

Upcoming Events:

☆The next meeting is 7:30PM on **Tues., June 1** at the Bishop Museum Planetarium.

☆Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **June 4 & 18** at 8:00 p.m.

www.bishopmuseum.org/calendar

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

MESSAGE FROM THE HAS BOARD

Expand your horizons! Your Board discussed the need to encourage members of HAS to become involved in the club's outreach programs, especially public star parties at Dillingham, Kahala and Waikele. All you need is the desire to help your club. That's not asking much and you do not need any equipment. "GREETERS" are needed to:

-Welcome the public to star parties;
-Explain club and site policies;
-Provide general layout of the area;
-Explain the lock on the gate at Dillingham;
-Keep headlights away from areas that have telescopes set up;
- Explain the use of flashlights and other safety precautions.

It's easy! We also provide visitors with star maps and other information. A mentor will help you until you feel confident with the routine. Even if you're feeling as if don't have enough knowledge, you probably know more than the visitor. Keep in mind that there are lots of very experienced astronomers available for your support so if you're asked a question you do not know the answer just tell them "that's a good question" - the expert over there {point} will be able to give you the answer. ***The club needs your help.*** Volunteer and become an active member in your club. The hidden dividends will surprise you!

Hawaiian Astronomical Society
P.O. Box 17671
Honolulu. HI 9681-0671

President
Chris Peterson
956-3131
chrisp@higp.hawaii.edu

Vice-President
Barry Peckham
542-8658
barry@liteboxtelescopes.com

Secretary
Gretchen West
737-4742
gwest002@hawaii.rr.com

Treasurer
Jim MacDonald
261-2162
jim.macd@hawaiiantel.net

The Astronews **Editor**
Carolyn Kaichi
551-1030
c.kaichi2001@gmail.com

Board Members at-Large
John Gallagher
683-0118
gallaghej002@hawaii.rr.com

Harry Zisko
262-1947
harryz@pobox.com

HAS Webmaster
Peter Besenbruch
prb@lava.net

School Star Party Coordinator
Forrest Luke
lukef003@hawaii.rr.com

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.

Meeting Minutes

by Gretchen West

President ***Chris Peterson*** called the May 4, 2010 meeting of the Hawaiian Astronomical Society to order at 7:30 p.m. The meeting was held at the Planetarium on the grounds of the Bishop Museum. There were 18 members and four visitors in attendance.

Hawaii Space Lecture Series: President ***Chris Peterson*** reports that the next lecture in the series will take place on the Tuesday, May 25th. The subject under discussion will be "A Year in the Life of the LRO". Contact NASA PRPDC at 808-056-3132 or go to http://www.higp.hawaii.edu/prpdc for more information.

FYI – Chris Peterson reminded members that much have taken place since the last H.A.S. meeting: The Lunar Reconnaissance Orbiter detected the location of the Lunacod, a Soviet craft of the 1970s. Through the use of more modern technology, using lasers and reflectors researchers have possibly detected the librations of the moon's lunar core content. Using the Lunacod craft and known U.S. materials still in residence on the moon, lunar scientist have detected changes in the distance between the Earth and our Moon, as well as measuring how fast the Earth's continents are moving apart.

On Mars, the two rovers, which were engineered to work six or so months have greatly surpassed everyone's expectations. Bogged down, the Spirit has fallen silent. However with the coming of the Martian "spring" it is hoped that it will once again become somewhat active and sent home new information. The Opportunity is moving about slowly and is edging towards crater, Endeavor. The Opportunity has traveled about 13 miles/ 20 km across the surface of Mars.

The Cassini spacecraft will be making a flyby of Saturn's moon Enceladus. It is hoped that it will be able to characterize subsurface characteristics.

The Kepler spacecraft is staring at an area in the constellation of Cygnus. It has identified over 200 candidates that may harbor stars with extra-solar planets.

The spacecraft Hayabusa that traveled to comet Itokawa, is nearing the end of its mission and the spacecraft is scheduled to come down in Australia around June 13 of this year. It is hoped that the craft collected and returned the world's first sample material from the comet.

The 53rd Hawaii State Science and Engineering Fair took place April 5-7 at the Hawaii Convention Center. H.A.S. member ***Travis Le*** received an award from H.A.S. for his research. There will be an award made to one student in the senior research division and one to a student in the junior research division.

Public Outreach - H.A.S. participated in the IfA Open House on Sunday, April 18. John Gallagher taught youngsters how to make a pocket solar system. Thanks go out to everyone who helped out with this event.

Astronomy Day took place on the following Saturday, April 24th. H.A.S. set up a display and telescopes for solar viewing outside Barnes & Noble at Kahala Mall from 1:00 - 5:00 p.m. ***Sue Girard, John Gallagher, Gretchen West, Barry Peckham, Paul Lawler,*** as well as ***Harry and Melinda Zisco*** manned the table answering questions, handing out flyers and showing passersby the daytime sky.

Repairs - The P.S.T. or personal solar telescope that the club and some members own have needed repairs. Thanks to research done by ***Paul Lawler***, it is understood that Coronado will make needed repairs if you provide proof of purchase and send the scope to Coronado.

(Continued on page 7)

NASA's Space Place

Ancient Supernova Riddle, Solved

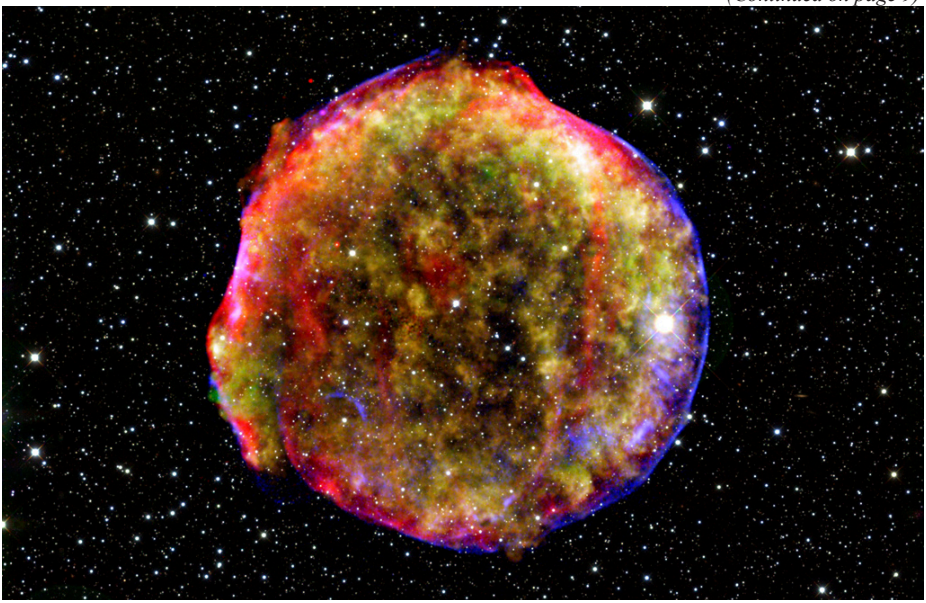
By Dr. Tony Phillips

Australopithecus squinted at the blue African sky. He had never seen a star in broad daylight before, but he could see one today. Was it dangerous? He stared for a long time, puzzled, but nothing happened, and after a while he strode across the savanna unconcerned.

Millions of years later, we know better.

That star was a supernova, one of many that exploded in our corner of the Milky Way around the Pliocene era of pre-humans. Australopithecus left no records; we know the explosions happened because their debris is still around. The solar system and everything else within about 300 light-years is surrounded by supernova exhaust—a haze of million-degree gas that permeates all of local space.
Supernovas are dangerous things, and when one appears in the daytime sky, it is cause for alarm. How did Earth survive? Modern astronomers believe the blasts were too far away (albeit not by much) to zap our planet with lethal amounts of radiation. Also, the Sun's magnetic field has done a good job holding the hot gas at bay. In other words, we lucked out.

(Continued on page 9)



Left-over cloud from the Tycho supernova, witnessed by Tycho Brahe and other astronomers over 400 years ago. This image combines infrared light captured by the Spitzer Space Telescope with x-rays captured by the Chandra X-ray Observatory, plus visible light from the Calar Also Observatory in Spain.

OV-104 Atlantis: 25 Years of International and Planetary History

With 32 launches and a 25-year career, the Space Shuttle Atlantis lifted off the launchpad on May 14. This is the final flight for this orbiter, with only two more flights remaining for the shuttle program. This article highlights Atlantis' glorious history and service.

January 29, 1979: Conceived as the fourth of the original four orbiters in NASA's Space Shuttle fleet, the contract for construction of orbiter OV-104, later named "Atlantis" during her construction process, is awarded to the Rockwell International company.

March 30, 1980: Construction of Space Shuttle orbiter Atlantis begins with the start of structural assembly for OV-104's Crew Module. She is named after the RV Atlantis, a two-masted sailing ship that operated as the primary research vessel for the Woods Hole Oceanographic Institute from 1930 to 1966.

March 6, 1985: Almost four years to the day after construction began, the then-youngest orbiter of NASA's fleet rolls out of her construction facility at Palmdale on with a total birth weight of 151,315 lbs – 3.5 tons lighter than sister Columbia.

April 13, 1985: Atlantis arrives at her home at the Kennedy Space Center.

October 3, 1985: Atlantis embarks on her maiden flight mission 51-J, a classified Department of Defense mission. After four days in space and 64 orbits of Earth, Atlantis and her five member crew returns safely to Earth on October 7.

Jan. 1986 - Sept. 1988: All shuttle flights are grounded due to the loss of Challenger.

May 4, 1989: Atlantis deploys the Magellan spacecraft to Venus - a spacecraft that maps over 90% of Venus' surface and the first interplanetary probe launched by NASA since Pioneer Orbiter (also to Venus) in 1978.

October 18, 1989: Atlantis embarks on a four day mission to deploy the Galileo spacecraft to Jupiter.

June 27, 1995: STS-71 docks with Mir, marking the start of one of the Space Shuttle's original missions of rendezvousing with and servicing an orbiting space station.

May 2000: Atlantis STS-101/2A.2a, resupply mission to the International Space Station (ISS). After shuttle modifications, this is the first time an orbiter flies with a glass cockpit.

Feb. 2003 - July 2005: All shuttle flights are grounded due to the loss of Columbia.

Feb. 7, 2008: STS-122 delivers the first laboratory to the ISS since Destiny (STS-98), and marks the beginning of construction of the International partner laboratories with the delivery of the European Space Agency's Columbus research module.

May 11, 2009: The highly successful STS-125 service and upgrade mission for the Hubble Space Telescope.

May 14, 2010: STS-132, the 34th shuttle flight to the ISS. Atlantis' 12-day mission will deliver the Russian-built Mini Research Module-1 that will provide additional storage space and a new docking port for Russian Soyuz and Progress spacecraft. Three spacewalks are planned to stage spare components outside the station, including six spare batteries, a Ku-band antenna and spare parts for the Canadian Dextre robotic arm.

Atlantis has served the Space Shuttle Program extremely well in her 25 years. She

(Continued on page 11)

Planets Close To the Moon

Times are Hawaii Standard Time

June 3, 05h, M 4.3º NNW of Neptune (104º from sun in morning sky)

June 5, 18h, M 6.3º NNW of Jupiter (75º from sun in morning sky)

June 5, 19h, M 5.9º NNW of Uranus (75º from sun in morning sky)

June 10, 15h, M 5.2º NNW of Mercury (19º from sun in morning sky)

June 14, 18h, M 3.8º SSW of Venus (36º from sun in evening sky)

June 17, 05h, M 5.4º SSW of Mars (69º from sun in evening sky)

June 18, 18h, M 7.5º SSW of Saturn (90º from sun in evening sky)

June 30, 12h, M 4.3º NNW of Neptune (130º from sun in morning sky)

Other Events of Interest

Times are Hawaii Standard Time

June 7, 22h, Jupiter 0.44° SSE of Uranus (77° from sun in morning sky -Closest planet-planet appulse of the year)

June 7, 20h, Jupiter 0.44° SSE of Uranus (77° from sun in morning sky)

June 12, 01:14h, Moon New

June 18, 08h, 1 Ceres at opposition

June 21, 01:29h, Summer Solstice

June 25, 05h, Pluto at opposition

June 26, 01:30h, Moon Full

June 28, 02h, Mercury at superior conj. with sun (passes into evening sky)

☿ Mercury

Still visible in the morning for the first 2 weeks of June, but is rather poor for northern observers.

♀ Venus

Reaches its highest point for this apparition, in June at about 40º. This is about 2 months before greatest elongation

♂ Mars

Mars reaches its highest point for this apparition, in June at about 40º. This is about 2 months before greatest elongation.

♃ Jupiter

Jupiter shines brightly in the morning sky. It has a very close approach to Uranus on June 7.

♄ Saturn

Still well placed for evening viewing, setting about midnight.

♅ Uranus

Very near Jupiter in the morning sky, less than 1/2 of a degree on June 7.

♆ Neptune

Rises before midnight and is visible in the morning sky.

♇ Dwarf Planet Pluto

Reaches opposition on June 25 making this the best month to observe this dwarf planet.

⚳ Dwarf Planet Ceres

Reaches opposition June 18. The two brightest dwarf planets both reach opposition this month.

(Minutes continued from page 3)

School Star Party Report: ***Forrest Luke*** reported that there were six school star parties in during the month of April. Viewers enjoyed the skies with the help of H.A.S. astronomers although a few were clouded out.

April 7th – Boy Scout in Mililani
April 16th – Niu Valley Middle School
April 20th – Ala Wai Elementary
April 21st – Lanakila Elementary
April 22nd – Mililani Middle School
April 29th – Boy Scouts
Forrest passed a clipboard around for sign-ups for upcoming May school star parties.

Galaxy Forum 2010 - On May 23rd the second annual Galaxy Forum will take place in Hilo at the Imiloa Center. The Galaxy Forum urges educators to learn more about galaxy education.

Star Party Greeters Needed - The H.A.S. participating astronomers are asking any H.A.S. member interested in becoming more involved in our club to join us as a greeter at our monthly star parties. Learn and teach others about the night sky. Come learn what our star parties are all about. Contact any H.A.S. Board if you are interested.

Upcoming events – The H.A.S. is looking into the possibility of a future meeting at the Windward Community College Imaginarium in Kaneohe. Further details will be posted late.

Planetarium guide and longtime member ***Joanne Bogan*** lead us through a hands-on explanation of lunar phases. Through the use of two-inch Styrofoam globes, members had a concrete visualization of the phases of the moon. As always, a treat!

As there was no further business, the meeting was adjourned at 9:00 p.m. Refreshments were served.

Respectfully Submitted,
Gretchen West
HAS Secretary

NIGHT SKY NETWORK NEWS

NASA Night Sky Network (NSN) is on Facebook!
http://www.facebook.com/nightskynetwork

Many clubs have expressed concern about the lack of age diversity in amateur astronomy clubs and wanting to involve the next generation of amateur astronomers to meetings and events. Facebook helps bridge that gap.

You do not need join Facebook to view the posts and astronomy clubs that are affiliated with NSN will also get their news on the site.

However, if you do use Facebook, we welcome you to become a fan and invite your friends to participate as well. Check it out! ☆

Hawaiian Astronomical Society

Event Calendar

< June 2010 >						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
30	31	7:30 PM Club Meeting 1	2	3	4	7:00 PM Public Star Party(D) 5 Sunset: 7:13 PM
6	7	8	9	10	11	7:00 PM Club Star Party (D) 12 Sunset: 7:15 PM
13	14	15	16	17	18	7:00 PM Public Star Party(K) 19 7:00 PM Public Star Party(W) Sunset: 7:17 PM
20	21	22	23	24	25	26 Sunset: 7:18 PM
27	28	29	30	1	2	3

REMINDER:

ALL SCHOOL STAR PARTIES ON SUMMER BREAK!

☆ ☆ ☆

(Space Place continued from page 4)
The debris from those old explosions has the compelling power of a train wreck; astronomers have trouble tearing their eyes away. Over the years, they've thoroughly surveyed the wreckage and therein found a mystery—clouds of hydrogen and helium apparently too fragile to have survived the blasts. One of them, whimsically called "the Local Fluff," is on the doorstep of the solar system.

The observed temperature and density of the Fluff do not provide enough pressure to resist the crushing action of the hot supernova gas around it," says astronomer Merav Opher of George Mason University. "It makes us wonder, how can such a cloud exist?"

NASA's Voyager spacecraft may have found the answer.

NASA's two Voyager probes have been racing out of the solar system for more than 30 years. They are now beyond the orbit of Pluto and on the verge of entering interstellar space. "The Voyagers are not actually inside the Local Fluff," explains Opher. "But they are getting close and can sense what the cloud is like as they approach it."

And the answer is …

"Magnetism," says Opher. "Voyager data show that the Fluff is strongly magnetized with a field strength between 4 and 5 microgauss. This magnetic field can provide the pressure required to resist destruction."

If fluffy clouds of hydrogen can survive a supernova blast, maybe it's not so surprising that we did, too. "Indeed, this is helping us understand how supernovas interact with their environment—and how destructive the blasts actually are," says Opher. Maybe Australopithecus was on to something after all.

Opher's original research describing Voyager's discovery of the magnetic field in the Local Fluff may be found in Nature, 462, 1036-1038 (24 December 2009). The Space Place has a new Amazing Fact page about the Voyagers' Golden Records, with sample images and sounds of Earth. Just in case one of the Voyager's ever meets up with ET, we will want to introduce ourselves. Visit http://spaceplace.nasa.gov/en/kids/voyager.

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 - June 2010 by Mike Morrow

June has nice long twlight so the nights are short and ceases up north. The only shower of the month that is nighttime has a small problem with the Moon.

Sunday June 27th, the June Bootids. Radiant 14h56m, +48 deg. On occasion this shower may reach hourly rates near 100, but mainly rates are much less. In June 1998 rates were high after a 70 year dormant stretch. The maximum will most likely be durning the daylight hours. If much happens it may be be within six hours of local time 5:30 AM. The Moon will be a problem. Meteors from this shower are very slow. Good Luck.

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 May 15, 2010

Initial Balance:	**$5,159.11**
Receipts:	
Donations	11.05
Dues Received	148.00
Magazine Payments	100.95
Total Income:	**$260.00**
Expenses:	
Astronews	66.33
Magazine Subscription	32.95
Refreshments	14.75
Total Expenses:	**$114.03**
Final Balance	**$5,305.08**

Our membership increased by nine this month. They are ***Aline Shayner; Mary, Jane, and Bob Suphan; Loretta Linwood; Maelynne and Allan Arellano; Ellery Galanto and Avielyn Mercado.*** A special thanks to ***Ellery Galanto*** for his donation. Thanks and clear skies to all renewing their membership this month.

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.

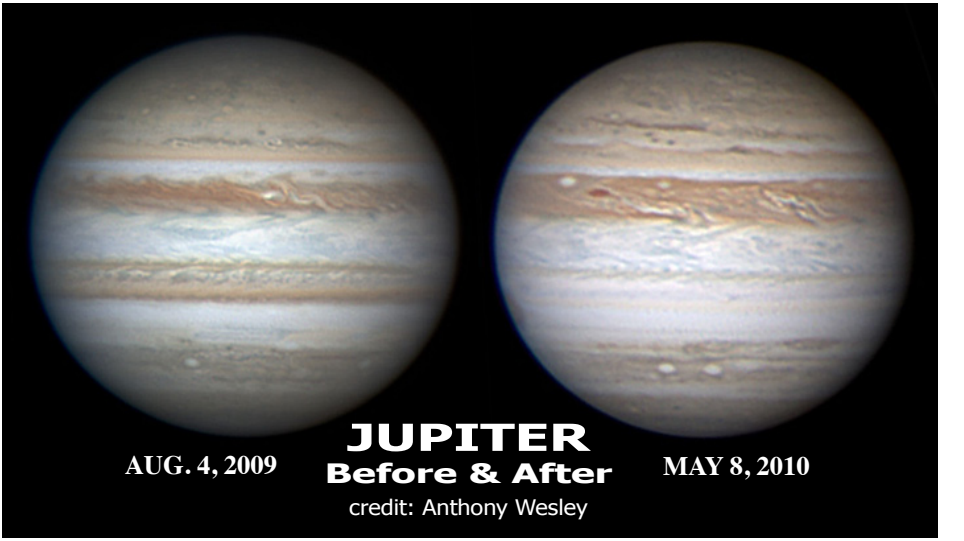
(President ontinued from page 1)

movies that could have shed light on Jupiter's dynamic atmosphere. Unfortunately, the reduced communication rate that resulted from the antenna malfunction severely limited the quantity of atmospheric data that could be returned.

We do know that the appearance of Jupiter's clouds depends on a number of factors. These include chemical composition, cloud height, and wind speeds. At smaller scales, storms and other cloud features are continually appearing and disappearing.

It is usually amateurs, as in this case, who discover changes such as this faded Belt. Observations on large research telescopes must be planned months in advance. Amateurs have the advantage of being free to just look around and check multiple targets as they please. So keep looking. Maybe you'll discover the next unexpected phenomenon.

Chris



(Atlantis continued from page 5)

has deployed two interplanetary probes and 12 satellites, conducted seven straight dockings with the Russian Mir space station, serviced the Hubble Telescope, and conducted 11 International Space Station construction flights (including STS-132).
By the time this newsletter goes to press, Atlantis will have most likely landed at Kennedy Space Center in Florida after its successful mission.

Not quite done yet, Atlantis will be readied for STS-335 "Launch On Need" rescue flight for STS-134 scheduled for July of this year. STS-134, flying on the shuttle Endeavour, will be the second to the last flight for the shuttle fleet. Discovery, carrying mision STS-133, is scheduled to launch in September of this year, which will be the beginning of the end for the space shuttle era. Hopefully, Atlantis will not be deployed then.

It will be a bittersweet moment when the last flight takes off from KSC. I remember watching the first launch of the Columbia on April 12, 1981 when I felt that truly, space exploration was poised at the brink of reaching the stars. I still feel that same thrill whenever I see the ISS glide across the evening sky.

I will miss our shuttle fleet, and wish them well...

Editor

Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, HI 96817-0671

Place stamp here. Post Office will not deliver mail without proper postage

On her final journey, Atlantis' patch represents the theme of flying off into the sunset at the end of the Space Shuttle Program program. However, the image of the sun heralds the promise of a new day as it rises for the first time on the new space station module, the MRM-1, or Mini Research Module-1. The MRM-1 is also known as *Rassvet* in Russian, which means "Dawn". **See story on page 5.**