

# The Astronews



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**www.hawastsoc.org**

## *President's Message*

*by Chris Peterson*

Two different asteroid visits are in the news these days. Japan's Hayabusa mission returned to Earth on June 13th after a difficult 7-year round trip to the asteroid Itokawa. The spacecraft's return was delayed by problems with its ion drive engines on the return trip after Hayabusa successfully rendezvoused with the rubble-pile asteroid. A sample collector didn't work as planned, but it is possible that a small amount of material from the asteroid was obtained anyway. The sample capsule was retrieved from its landing site in Australia and prepared for shipping back to Japan. It may be months before we learn whether this mission was the first to return samples from an asteroid.

The European Rosetta spacecraft is headed for a brief encounter with asteroid 21 Lutetia on July 10th. Its goal is comet 67P/Churyumov-Gerasimenko which it will orbit for two years beginning in 2014 and to which it will send a lander. In 2008 Rosetta flew by asteroid Steins. There seems to be some disagreement as to whether Lutetia is a C-type or an M-type asteroid, so the observations are eagerly awaited. C-types are thought to be primi-

*(Continued on page 11)*

### ☆ **Upcoming Star Parties** ☆

**Public Party-Dillingham July 5 & 31**

**Club Party-Dillingham July 10**

**Kahala/Waikele Party July 17**

## **Inside this issue:**

President's Message	1
General Notices	2
Minutes	3
NASA Space Place	4
Observer's Notebook	6
Night Sky Network News	7
Calendar	8
Meteor Log	9
Treasurer's Report	10

### Upcoming Events:

☆ The next meeting is 7:30PM on **Tues., July 6** at the Bishop Museum Planetarium.

☆ Bishop Museum's next planetarium shows with **Barry Peckham** are Friday, **July 3 & 17** at 8:00 p.m.  
[www.bishopmuseum.org/calendar](http://www.bishopmuseum.org/calendar)

☆ The next Board Meeting is Sunday, **June 27** at 3:30 p.m. at the POST building at UH.



Check  
it Out!

## Symposium on Telescope Science

The 2010 Symposium on Telescope Science saw over one hundred amateur and professional astronomers gather in Big Bear, CA to share recent research results, methods, and instrumentation related to small-telescope astronomical science. This year's Symposium was a joint gathering of the Society for Astronomical Sciences (SAS) and the Center for Backyard Astrophysics (CBA). During two full days of technical presentations, the topics ranged from variable stars (of several different types) to asteroids to Jovian satellites, and included CCD photometry, video photometry, spectroscopy, polarimetry, and radar methods of observation. In addition, about fifty people attended the "day before" tutorial workshops on "Small-telescope Spectroscopy" presented by Olivier Thizy and "Calibrating CCD Imagers" presented by Richard Berry. Attendees were treated to new-product highlights from several of the sponsor companies, and quite a few impromptu networking discussions could be found surrounding the conference location. The event was rounded out by the traditional banquet and a wonderfully entertaining presentation by Chris Butler on "Our Little Corner of the Galaxy".

Videos of many of the technical presentations from the 2010 Symposium can be viewed on the SAS website: [www.SocAstroSci.org](http://www.SocAstroSci.org).

The 2010 Symposium provided a window into small-telescope science, and some of the opportunities for collaboration between amateur and professional astronomers. This was the 29th SAS Symposium, and the progress on display bodes well for the future of small-telescope astronomical science!

The 2011 Symposium will be held at Big Bear, CA on May 24-26, 2011. The Society

(Continued on page 10)

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

### President

**Chris Peterson**

956-3131

[chrisp@higp.hawaii.edu](mailto:chrisp@higp.hawaii.edu)

### Vice-President

**Barry Peckham**

542-8658

[barry@liteboxtelescopes.com](mailto:barry@liteboxtelescopes.com)

### Secretary

**Gretchen West**

737-4742

[gwest002@hawaii.rr.com](mailto:gwest002@hawaii.rr.com)

### Treasurer

**Jim MacDonald**

261-2162

[jim.macd@hawaiiantel.net](mailto:jim.macd@hawaiiantel.net)

The **Astronews Editor**

**Carolyn Kaichi**

551-1030

[c.kaichi2001@gmail.com](mailto:c.kaichi2001@gmail.com)

### Board Members at-Large

**John Gallagher**

683-0118

[gallaghej002@hawaii.rr.com](mailto:gallaghej002@hawaii.rr.com)

**Harry Zisko**

262-1947

[harryz@pobox.com](mailto:harryz@pobox.com)

### HAS Webmaster

**Peter Besenbruch**

[prb@lava.net](mailto:prb@lava.net)

### School Star Party Coordinator

**Forrest Luke**

[lukef003@hawaii.rr.com](mailto:lukef003@hawaii.rr.com)

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# Meeting Minutes

by Gretchen West

<<Treasurer Jim MacDonald reporting for Secretary Gretchen West>>

**President Chris Peterson** called the June 1, 2010, meeting of the Hawaiian Astronomical Society to order at 7:35 p.m. in the Bishop Museum Planetarium. There were twenty-one members present.

It was planned to show the Imax trailer for the Hubble servicing mission. However, after several attempts, it was evident that the computer being used did not have the necessary software. It was decided to go on with the meeting and download the missing software in the interim. It appears that the Imax movie will not be coming to Honolulu, but if anyone hears otherwise they are asked to get the word out to the membership.

**Chris Peterson** announced that the Planetary Data Center would not be scheduling a monthly presentation in June because of other commitments. Next month, July, will be space week with appropriate coverage. In August, he hopes to have the head of Space Grant College to cover the Hawaii Spaceflight Lab's project which is the first project to be built, flown and controlled in Hawaii.

Members were reminded of the plan to hold the October HAS meeting at the Imaginationarium in Kaneohe on the grounds of the Windward Community College. **Nancy Ali** confirmed the schedule.

It was announced that **Harry and Melinda Zisko** would not be at the meeting tonight because Melinda's mom has been diagnosed with leukemia.

There will be a partial lunar eclipse at 1:38 a.m. on the morning of the 27th of June. The eclipse will start during the evening of Saturday, the 26th, with part of the umbra passing over the moon which should give it a reddish appearance. This should be a warm-up for the total lunar eclipse which will take place on the evening of Monday, December 20, at 10:20 p.m.

In the area of planetary missions, the Rover Spirit fell silent at the beginning of the Martian winter and is expected to remain in that state until July when the sun is high enough to recharge its batteries. During such periods, its primary objective is to stay alive using its energy to run heaters to keep vital parts of the system from freezing. Such activities do not include communicating with Earth. There is no guarantee that the rover will recover from this dormant state.

NASA's Stratospheric Observatory for Infrared Astronomy (SOFIA) made a successful flight from Palmdale, California, on May 26 using a highly modified 747SP aircraft with a 17-ton, 100-inch (2.5 meter) reflecting telescope. First observations were made of Jupiter and the M-82 galaxy. The benefit of the telescope is that it can get above most of the earth's water vapor for clearer views.

The New Horizons mission, NASA's Pluto-Kuiper Belt Mission, is about at the halfway point both in time and distance. The space craft is scheduled to arrive at its Pluto-Charon encounter in 2015. The space craft spends most of its trip asleep and is awoken yearly to test its functions.

The May 22 Kahala star party only attracted three telescopes and it appeared there would be very few visitors until students from the Waldorf school arrived. It was reported that the Waialeale group also had decent viewing with very few visitors.

**Forrest Luke** reported that because schools are now in their summer recess, there is currently only one star party scheduled this month at Bellows for a religious school from Wahiawa.

The club is looking for volunteer greeters for star parties to meet and greet visitors. Volunteers would be allowed a flexible schedule and asked to educate visitors on etiquette, the arrangement of telescopes, provide maps, etc.

**Vice-President Barry Peckham** explained the summer weather patterns we can

## **Black Holes No Joke**

By Dr. Tony Phillips

*Kip Thorne: Why was the black hole hungry?*

*Stephen Hawking: It had a light breakfast!*

Black hole humor—you gotta love it. Unless you're an astronomer, that is. Black holes are among the most mysterious and influential objects in the cosmos, yet astronomers cannot see into them, frustrating their attempts to make progress in fields ranging from extreme gravity to cosmic evolution.

How do you observe an object that eats light for breakfast?

"Black holes are creatures of gravity," says physicist Marco Cavaglia of the University of Mississippi. "So we have to use gravitational waves to explore them."

Enter LIGO—the NSF-funded Laser Interferometer Gravitational-wave Observatory. According to Einstein's Theory of General Relativity, black holes and other massive objects can emit gravitational waves—ripples in the fabric of space-time that travel through the cosmos. LIGO was founded in the 1990s with stations in Washington state and Louisiana to detect these waves as they pass by Earth.

*(Continued on page 9)*



Laser Interferometer Gravitational-wave Observatory in Livingston, Louisiana. Each of the two arms is 4 kilometers long. LIGO has another such observatory in Hanford, Washington.

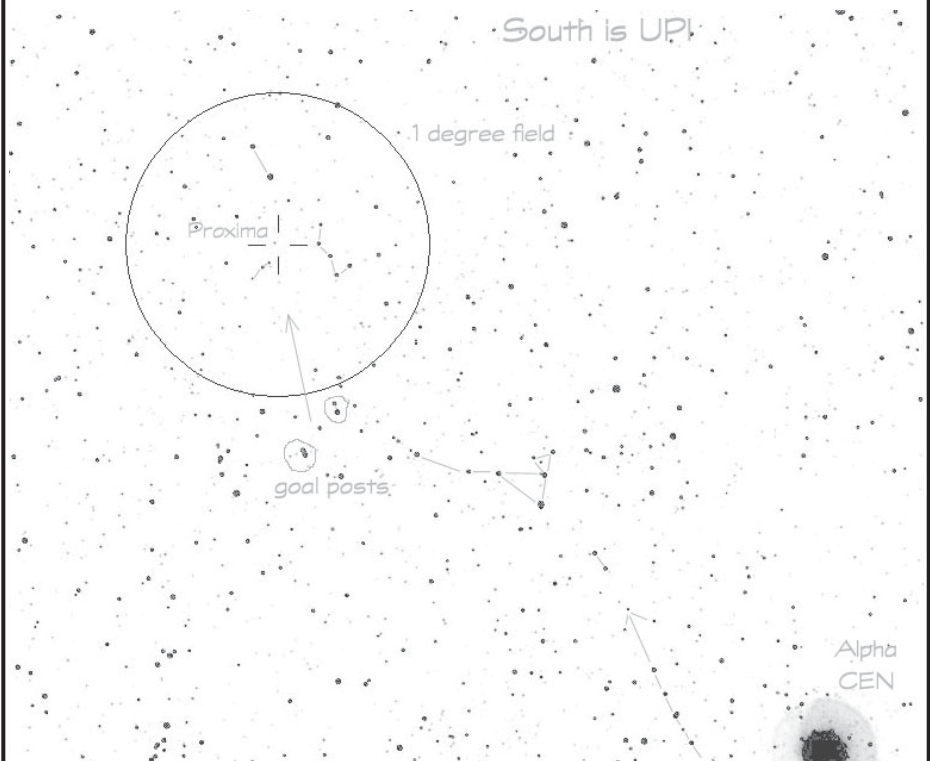
No one in Hawaii, the only state with a chance to view Proxima Centauri, has ever taken the time to find it. I am making this statement not as a fact but as an extreme likelihood. It was clear at the June club meeting that no one in the room had ever seen our nearest stellar neighbor, and the level of apathy, mixed with incredulity gave me the idea that we had a First To Find opportunity. I offered a prize to the finder, handed out 2 finder charts (5 copies) and watched while the room rallied itself enough to manage a chuckle-shrug. "Impossible! Ridiculous! Boring!"

In the time before networking and everyone is special, there was a popular expression of independent initiative: If you want something done right, you've got to do it yourself. The quest for Proxima would be impossible, ridiculous and potentially boring until somebody actually found it. For those who couldn't imagine how, I will sketch out the obstacles and the solutions.

"But it is too dim!" Magnitude reports vary a lot, and Proxima is a variable star, but an average of Mag 11 puts this target on par with the brightness of the Wild Duck Cluster (M-11) stars. Doable!

"But it is too low!" Two issues come into play here: vantage point and atmospheric conditions. Get thee to an elevated view of the southern ocean horizon on a clear night and this set-back can be bested. Public parks on the rises offer free access. Yes, I know: parks are closed after dark. That will keep the drunks and tweakers away from your equipment. Permits are available for the cop-o-phobic. Don't go on a windy night. It shakes the scope and makes low stars extra fuzzy.

*(Continued on page 11)*



### Planets Close To the Moon

Times are Hawaii Standard Time

**July 3, 04h**, M 6.0° NNW of Uranus  
(101° from sun in morning sky)

**July 3, 10h**, M 6.5° NNW of Jupiter  
(99° from sun in morning sky)

**July 12, 13h**, M 3.9° SSW of Mercury  
(16° from sun in evening sky)

**July 14, 12h**, M 5.5° SSW of Venus  
(43° from sun in morning sky)

**July 14, 14h**, M 5.6° SSW of Mars  
(58° from sun in evening sky)

**July 16, 04h**, M 7.4° SSW of Saturn  
(66° from sun in evening sky)

**July 27, 16h**, M 4.3° NNW of Neptune  
(157° from sun in morning sky)

**July 30, 12h**, M 5.9° NNW of Uranus  
(127° from sun in morning sky)

**July 30, 16h**, M 6.6° NNW of Saturn  
(124° from sun in morning sky)

### Other Events of Interest

Times are Hawaii Standard Time

**July 5, 23h**, Earth at aphelion  
(farthest from sun)

Sun-earth distance = 1.01670 a.u.










**July 30, 20h**, Venus 1.0° NNE of Regulus  
(42° from sun in morning sky)

**July 11, 05:40h**, Moon New  
(Solar eclipse in South Pacific)

**July 25, 15:36h**, Moon Full

**July 28**, Delta aquarid meteors (south)  
(Unfavorable year for this major shower)

**July 30, 20h**, Mars 1.8° SSW of Saturn  
(53° from sun in evening sky)

 <b>Mercury</b> Visible low in the western sky during the last two weeks of July.	 <b>Venus</b> Shines brightly in the evening sky at more than 40° from the sun.	 <b>Mars</b> Between Venus and Saturn in the evening sky and fades to magnitude +1.5 by the end of the month.
 <b>Jupiter</b> Rises late in the evening as it approaches opposition in September.	 <b>Saturn</b> Still well placed for evening viewing to the east of Venus and Mars.	 <b>Uranus</b> Near Jupiter in the mid-night and morning sky.
 <b>Neptune</b> Rises before midnight and is visible in the morning sky.	 Dwarf Planet <b>Pluto</b> Reached opposition on June 25 making this one of the best months to observe this dwarf planet.	 Dwarf Planet <b>Ceres</b> Reached opposition June 18 and is easily observed most of the night at magnitude +7.



(Minutes continued from page 3)

expect. We are currently in an El Nino cycle which is weakening. We have two weeks before summer weather arrives and we all know it's not good. Humid weather presents poorer seeing. Saturn is about to start fading and it won't be until September when Jupiter will be at opposition. Barry also reminded the group that the club needs greeters for star parties. Gave an example of a long-time member of the club on Kauai that performs this function and makes their guests feel welcome.

Barry mentioned the term ATM and said that in our context it refers to Amateur Telescope Makers. HAS has not had any ATMs in our ranks for a very long time. He would like to see members start building scopes for their own use. He also suggested that people think of recycling their unused telescopes rather than having them serve as dust collectors. This would be a good source for new members to get decent, reasonably priced telescopes.

Barry then went on to discuss the Alpha Centauri star system and asked how many had seen Proxima Centauri. No one responded. He went into a history of this triple star system and the discovery of this very faint red dwarf star which is a little over 4 light years away. He provided lots of statistics on the size and location of this star which brightens to approximately 10.7 magnitude periodically. Barry also provided charts for locating this very faint red star which is currently visible in southern skies. If you are interested in finding Proxima Centauri, the map that Barry provided can be found at: <http://aswa.info/articles/proxima-centauri.html>

After some delay the Imax trailer was shown. It was rather short, but enjoyable. The meeting adjourned at 9:00 p.m. Refreshments were served.

Jim MacDonald



## NIGHT SKY NETWORK NEWS

The Astronomical League is pleased to sponsor a new website, <http://ya.astroleague.org>. It is managed by a very competent team of teenage amateur astronomers. These young astronomers will be responsible for determining its features and format, and deciding which articles may be of interest to their own demographic.

The Young Astronomers (YA) website is a collaboration between numerous organizations and managed by a group of volunteer editors. The website provides a portal for young astronomers world-wide to communicate, share and read the latest astronomy news, and collaborate with others on astronomy-related projects. Featuring blogs from young astronomers, live webcasts, audio podcasts, images, videos, remote telescope access, informational guides, and much more it provides the perfect portal for one to further their knowledge of the science.

The vision for the YA group is to provide valuable resources for persons of all ages and inspire the future generations of astronomers by providing an expanse of information and resources for one to participate, learn, and become involved in the astronomical community.





They are always looking for persons who want to become involved with the group. So if you, or someone you know is interested in becoming part of the Young Astronomers team, then please don't hesitate to contact them at [youngastros@gmail.com](mailto:youngastros@gmail.com).

Clear Nights,  
John G.



# Hawaiian Astronomical Society

## Event Calendar

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



**REMINDER:**  
**ALL SCHOOL STAR PARTIES ON SUMMER BREAK!**





“The principle is simple,” says Cavaglia, a member of the LIGO team. “Each LIGO detector is an L-shaped ultra-high vacuum system with arms four kilometers long. We use lasers to precisely measure changes in the length of the arms, which stretch or contract when a gravitational wave passes by.”

Just one problem: Gravitational waves are so weak, they change the length of each detector by just 0.001 times the width of a proton! “It is a difficult measurement,” allows Cavaglia.

Seismic activity, thunderstorms, ocean waves, even a truck driving by the observatory can overwhelm the effect of a genuine gravitational wave. Figuring out how to isolate LIGO from so much terrestrial noise has been a major undertaking, but after years of work the LIGO team has done it. Since 2006, LIGO has been ready to detect gravitational waves coming from spinning black holes, supernovas, and colliding neutron stars anywhere within about 30 million light years of Earth.

So far the results are ... nil. Researchers working at dozens of collaborating institutions have yet to report a definite detection.

Does this mean Einstein was wrong? Cavaglia doesn't think so. “Einstein was probably right, as usual,” he says. “We just need more sensitivity. Right now LIGO can only detect events in our little corner of the Universe. To succeed, LIGO needs to expand its range.”

So, later this year LIGO will be shut down so researchers can begin work on Advanced LIGO—a next generation detector 10 times more sensitive than its predecessor. “We'll be monitoring a volume of space a thousand times greater than before,” says Cavaglia. “This will transform LIGO into a real observational tool.” When Advanced LIGO is completed in 2014 or so, the inner workings of black holes could finally be revealed. The punchline may yet make astronomers smile. Find out more about LIGO at <http://www.ligo.caltech.edu/>. The Space Place has a LIGO explanation for kids (of all ages) at <http://spaceplace.nasa.gov/en/kids/ligo>, where you can “hear” a star and a black hole colliding!

*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 - July 2010*

*by Mike Morrow*

July has some interesting minor showers, but the Moon is messing things up.

**Wednesday, July 28th** -- the **Delta Aquarids**. Radiant 22h36m, -16 deg. The shower has less than 15 meteors an hour. But the Moon is full just 3 days earlier so conditions are bad. The meteors are mainly faint, medium speed, with occasional brighter events. Approx. 5% to 10% leave persistent 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

# Treasurer's Report

by Jim MacDonald

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

<b>Initial Balance:</b>	<b>\$5,305.08</b>
<i>Receipts:</i>	
Donations	70.00
Dues Received	42.00
<b>Total Income:</b>	<b>\$112.00</b>
<i>Expenses:</i>	
Astronews	136.75
Excise Tax	8.56
Magazine Subscription	100.95
Postage	7.51
<b>Total Expenses:</b>	<b>\$253.77</b>
<b>Final Balance</b>	<b>\$5,163.31</b>

Our membership increased by two this month with **William and Jenny Mann** becoming members. A special thanks to the **Manns and the Red Hill Elementary School** for their donations . Thanks and clear skies to all renewing their membership this month.

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### HAS Yahoo Group

<http://tech.groups.yahoo.com/group/HawaiianAstronomicalSociety/>

(Symposium continued from page 2)

for Astronomical Sciences facilitates collaborative astronomical research between amateur, student, and professional astronomers. SAS workshops provide amateur and student astronomers with solid grounding in observational procedures and data-reduction methods. The annual "Symposium on Telescope Science" is the premier forum for presentation of the results of small-telescope research and professional-amateur astronomical collaborations.



(President continued from page 1)

tive carbonaceous bodies while M-types are metal rich. Perhaps Lutetia will turn out to be something different altogether. This is why we explore.

I recently journeyed to the Big Island. It was near new Moon, I was away from any major light pollution, and the sky was cloudless. The star clouds in the Milky Way could have fooled you, though, if you didn't know better. I did the usual astronomer things: I oriented myself to the sky and looked for familiar objects and constellations, and I observed how different the sky looked in such dark conditions. My companion, however, was nearly moved to tears by the beauty and vastness of the sky. Let's never take for granted the precious resource we have in Hawaii's dark sky.



Chris



**Image credit:  
Barry Peckham**

This image was taken on Saturday, June 19 at the Kahala Star Party with Barry's hand held "consumer grade" camera through the eyepiece of his telescope. This illustrates that a lot of great photographs of night sky objects can be taken without expensive equipment.

(Proxima continued from page 5)

"But it is buried in the Milky Way!" So what you need is a good chart and some star-hopping practice. The internet provides the former and you supply the latter. By trying to use the chart I gave out, and by cross-referencing with other charts, I learned that Proxima's location is faked on many charts. Even those folks know you won't try to find it! The Aussie bloke who issued my hand-out charts actually drew 2 bogus stars near Proxima's position. The best guide I found is a zoom-able free planetarium program: Sky-Map.org. I typed Proxima Centauri into the search window, zoomed the result, decreased the number of stars displayed, screen-captured the result, then printed a negative of the dark sky image. Done.

"But my scope is too small!" So I tried hunting with an 8" dob. On the night that I found the neighborhood, this amount of aperture was up to the task, barely. If your scope is under 8", try a perfect night at maximum altitude for both you and your target. Pull a black t-shirt over your head to shield nearby lights. Or find a friend with a bigger scope. Or play a different game.

On the clear night of June 14th I reconfirmed my find with a 12.5" scope on a platform I built to clear the landlord's bushes. I verified directions at 9:45. What once was unfamiliar territory had by now become a well-mowed 2 degree pathway down from bright Alpha Centauri: a trail of breadcrumbs, interrupted and then continued by a pair, on to a triangle and a left turn toward a pair of doubles looking like skewed goalposts. Kick through the goal posts and find a backwards Cassiopeia, a mini Aries and 2 brighter pointer stars bracketing our nearest neighbor. I was still seeing Proxima at 10:45 as it sank deeper into the horizon's haze. The real sky never looks exactly like a chart, so I cross-referenced Proxima with all the neighboring asterisms. For now I will claim to be the first person ever to identify Proxima Centauri from US soil. You can be the second! I can help, but the window has all but closed for 2010 as you read this. Next time... Carpe Proxima!

Barry



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



Locating Proxima Centauri, low in the southern sky, can be quite challenging on the neck. Barry Peckham offers some tips on locating this elusive target. **See story on page 5.** *photo courtesy B. Peckham*



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