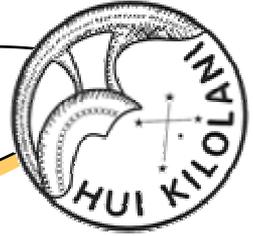


The Astronews



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October 2003

First Waikele Star Party

by Forrest Luke

Our first Waikele Community Park event went well. Between 25 and 30 folks showed up for the three telescopes we had set up. Once there, they stayed until we broke up about 9:30 PM. Mars started out poor and never got much better. The moon was a little bright, but I stopped down my SCT and showed a region of craters that looked good.

While we waited for Mars to get higher, we showed the group double stars and some open and globular clusters. My laser pointer got a good workout. We might have stayed on a bit longer but it started to cloud up. As usual, the clouds dissipated as we were finishing packing our gear away.

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Upcoming Star Parties

Public Party	Oct 4	Kahala Park
Club Party	Oct 18	Dillingham
Public Party	Oct 25	Dillingham
Public Party	Nov 1	Kahala Park
Public Party	Nov 15	Dillingham
Club Party	Nov 22	Dillingham

Upcoming Events:

- The next meeting is at 7:30 p.m. on October 7th at the Bishop Museum.
- **Sam Rhodes** next Planetarium show on Mon. Oct. 6th.

President's Message

The term "Harvest Moon" refers to the full Moon closest to the autumnal equinox. Since the Moon was full on September 10th this year, and the equinox falls on September 23rd, this year's Harvest Moon came nearly as early as is possible, almost two weeks before the beginning of Fall.

Many people know that the Harvest Moon is so named because it aids farmers in bringing in their crops. But do you know why it is special? On average, the Moon rises about 50 minutes later each night, but during this time of the year, the Moon rises at more nearly the same time for several consecutive nights, thereby helping northern hemisphere farmers continue harvesting their crops after sunset by providing light soon after sunset.

This is how it works. The Moon orbits the Earth once a month. Its path is close to the ecliptic, so it travels more or less the same circuit each month that the Sun takes a year to follow in our sky. You can think of the Moon's position in terms of the Sun's position at a different time of the year. The new Moon is wherever the Sun is. The First Quarter Moon is where the Sun will be in three months. The Full Moon is where the Sun will be in six months, and the Last Quarter Moon is where the Sun will be in nine months (or where it was three months before). Each night the Moon rises (and sets) in a different position, and each month it makes its full excursion from northernmost to southernmost rising positions.

Therefore, when the setting Sun is headed south, the rising Full Moon is headed north. This effect is most pronounced at the fall equinox. Each night the Moon rises farther north along the ecliptic, which is making its shallowest angle with the horizon. For those of us situated in the tropics, the effect is not very strong. For those in the northern temperate regions where the Harvest Moon was named, however, the effect is much more noticeable, especially in more northerly areas. If you go far enough north, the Moon actually rises at the same time for a few consecutive nights.

The next Full Moon is the Hunter's Moon. This year's Hunter's Moon occurs only about

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Planets Close to the Moon

Times are Hawaii Standard Time

- Oct 4, 16h, M 5.1° SSE of Neptune
(119° from sun in evening sky)
- Oct 6, 01h, M 4.3° SSE of Uranus
(136° from sun in evening sky)
- Oct 6, 06h, M 1.0° SE of Mars
(138° from sun in evening sky)
- Oct 17, 01h, M 4.9° N of Saturn
(101° from sun in morning sky)
- Oct 21, 16h, M 4.1° NNE of Jupiter
(47° from sun in morning sky)
- Oct 26, 10h, M 0.29° SE of Venus
(18° from sun in evening sky)

Mercury is closer than 15° from the sun when near the moon in October.

Other Events of Interest

Times are Hawaii Standard Time

- Oct 9, 21:27h, Full Moon
- Oct 13, 04h, Asteroid 2 Pallas at Opposition
- Oct 25, 00h, Mercury at superior conjunction with sun
(Passes into evening sky)
- Oct 25, 02:50h, New Moon
- Oct 28, 01h, Comet 2P Encke at opposition

The Planets in October

 Mercury Mercury is visible in the morning twilight during the first few days of the month.	 Venus Venus is visible in the evening sky, but is so close to the sun that it is difficult to find.	 Mars Mars is getting smaller and dimmer, but is still great, especially early in the month.
 Jupiter Jupiter rises a couple of hours before dawn and can be viewed just before dawn.	 Saturn Saturn rises about 1:00 am and is visible in the pre-dawn sky.	 Uranus Uranus is near Mars and is well placed for viewing this month..
 Neptune Neptune is near Mars and Uranus and is easily viewed in October.	 Pluto Pluto is in Ophiuchus and can still be viewed in the early evening sky.	

(Continued from page 2)

two and a half weeks after the equinox, so the effect should be nearly as great as during this year's Harvest Moon. Take a look in October and see the Moon in a new light. Shine on!

Chris

The September 2, 2003 meeting was called to order by President Chris Peterson at 7:34 p.m in the Atherton Halau, Bishop Museum with 25 members and 7 visitors in attendance. Chris greeted the membership and inquired of our visitors what their interests were.

Old Business: Mars Madness, held Wednesday, August 27 on the Great Lawn of the Bishop Museum, was an unparalleled success. 2960 people came to look through club scopes. Viewing started at around sunset and continued on until around 3:22 a.m. the next morning, when the last viewers left the Bishop Museum observatory. Mike Shannahan and the Bishop Museum wished to thank the 10 H.A.S. volunteers, inside on the Great Lawn, for their participation. Despite the "iffy" seeing and the intermittent rain, many people had a truly fine time.

Along the same lines, Jim DeLuze suggested a yearly H.A.S. / Bishop Museum star party on the Great Lawn, to keep interest up at the museum. Mike Shannahan said that the museum was still getting input from the public but that he will pass the idea along to higher ups.

The Pacific Regional Planetary Data Center held a talk and observing session Friday August 30, 2003.

New Business: The club is looking to make up a Star Party Visitor's

Guide and we are asking for input from the membership regarding its content. Members indicated that web site information might be included. It was suggested that we might include a visitor's guide on our web site. Business sized info cards were also suggested.

Good Places to go for observer's information The first Monday of each

month is Sam Rhode's Hawaiian Skies show in the Bishop Museum's Planetarium. It is a great learning experience, so if you're thinking of going be sure to phone 848-4168 to make reservations, ASAP.

Waikele Star Parties begin: Monthly

West O'ahu Urban Star Parties will begin at Waikele Community Park on September 6, 2003, the same evening as the East O'ahu Urban Star Party at Kahala Community Park on Pahoa Road. We ask all West O'ahu members to mention this event to their friends and neighbors. Urge them to come.

Lacey Veach Day—will take place again this year on November 18, 2003. Events will take place at Punahou School on that Saturday. We are looking for helpers. See Gretchen West if you are interested in manning the table or showing any worthy objects in the daytime skies to individuals. That night there will be urban

(Continued on page 5)



The peak shower of the month is the Orionids and conditions are favorable. Thanks Xena! The Draconids will be exceptionally difficult. Sporadic rates are good.

Wednesday the 8th and Thursday the 9th the **Draconids**. Radiant 17h28m +54 deg.

Rates vary from none to storm. There is a possible peak this year from 20h UT on the 8th to 13h UT on the 9th and possibly a little before or after the given time. The full Moon on the 10th will create problems.

Tuesday the 21st the **Orionids**. Radiant 06h20m +16 deg.

Rates run about 15 an hour. Typical shower meteors are very fast, sometimes bright, and often leave persistent trains.

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

Minutes (Continued from page 4)
star parties at both Kahala and Waialeale sites.

H.A.S. Mars Madness -Paul

Lawler gave the assembled members a tour of magnificent Mars, using Starry Night Pro. Paul pointed out interesting features in the new version.

Further discussions regarding viewing of Mars at this time revolved around CCD work versus the use of handheld digital cameras at the eyepiece. Many members commented favorably about the ease in using rather inexpensive digital cameras to catch images of the "Red Planet" and other objects in their own telescopes. In addition to that, the use of computer web cams that attach to the eyepiece were discussed. Chris Peterson will be requesting that Jay Wrathall speak at our October meeting on the pro's and con's of CCD work.

Some member suggested that the "truth" about viewing Mars at star parties be listed for review on the club

web site. The uninitiated, the newcomer to the eyepiece should be warned that the view that they see through the eyepiece will not be as seen through Hubble Space Telescope and warned not to be too upset if the image is -to them- a small yellow dot shimmering in an atmospheric haze.

REMEMBER - Our viewing cycle for Mars is approximately every 15 to 17 years when Mars is at opposition. This years cycle just happens to be at perihelion (August 30, 2003) and in opposition (August 27, 2003). The result is that we see a much larger image than normal.

Viewing the Moons - Walter Tokushige reported little success in viewing the Moons of Mars by placing a very thin strip of paper, about the diameter of the image of Mars, at the field stop of his eyepiece.

The meeting adjourned at 8:58 pm. for refreshment.

Respectfully submitted,

Gretchen West, HAS Secretary

The “fasten seatbelts” light turns off, and you get up to ask the stewardess for a pillow; it's going to be a long flight. Only a kilometer ahead in the cloudless sky, a downward draft of sheering winds looms. When the plane hits these winds, the “turbulence” will shake the cabin violently and you could be seriously hurt.

You don't know about those winds, of course, and neither does the pilot. Today's weather satellites can't see winds in clear skies: they rely on the motion of clouds to infer which way the winds are blowing.

“Believe it or not, their best indication of wind sheer right now is warnings from aircraft that have gone through it ahead of them,” says Bill Smith of NASA's Langley Research Center.

But a new satellite technology being pioneered by NASA and NOAA could improve this shaky situation. It's called GIFTS, short for Geosynchronous Imaging Fourier Transform Spectrometer. GIFTS is an infra-red sensor that can detect winds in cloudless skies by watching the motions of atmospheric water vapor. Water vapor is mostly invisible to the human eye, but it reveals itself to GIFTS by the infra-red radiation it absorbs.

Smith is the lead scientist for EO-3, a satellite designed to test out this new technology. Slated for launch in

2005 or 2006, EO-3 will carry GIFTS to Earth orbit where it can produce 3-dimensional movies of winds in the atmosphere below.

These wind data will not only improve safety, but also help the airlines save money. Knowing the winds along a flight route allows airlines to adjust the plane's fuel load accordingly, thus reducing the weight that the engines must lift. Saved fuel means saved money and less pollution.

GIFTS can help planes avoid another potentially lethal problem, too: Ice forming on their wings. If a cloud contains “supercooled” water droplets whose temperature is below freezing, those droplets will form ice on the wings of planes



that pass through it. By looking at about 1700 different frequencies of the light coming from clouds, GIFTS can measure the temperature of the cloud top and determine whether it contains water droplets that could cause aircraft icing. With information from GIFTS in hand, pilots can simply avoid clouds that appear dangerous.

Once EO-3 demonstrates the accuracy of GIFTS, airlines will be able to capitalize on this potential to make flying a cheaper and safer experience. Learn more about the GIFTS instrument and other advanced technologies being tested on the EO-3 mission at nmp.jpl.nasa.gov/eo3.

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

Equipment Report

by Ron Paul Smith

Don't confuse CCD cameras designed for astrophotography and the gorgeous stellar images they create (often at stellar prices) with the digital CCD cameras for general/consumer photography. Yet astrophotographers have discovered that the latter can image surprisingly well, when used afocally at the telescope (i.e., having the camera look into the telescope's eyepiece, just as a visual observer would do).

This can be done by hand holding the camera and snapping a few shots of the moon, or attaching the camera to a separate tripod, or even attaching the camera directly to the eyepiece with a variety of commercially available adapters made for that purpose. The key here is being able to immediately see the results of your image taking on the camera LCD viewscreen.

One such consumer digital camera is the Sony "Cybershot" DSC 707/717. It is highly praised by the authors of *The Backyard Astronomer's Guide* (an excellent and highly illustrated reference tome that should be on every amateur astronomer's bookshelf). The camera has 5 megapixel resolution, a 58mm F2 Zeiss lens that looms from a 38mm wide angle to a 190mm telephoto. In fact, the lens is so huge, that the camera was referred

to as "Sony's cannon" in a highly favorable Popular Photography magazine technical review. According to the authors, the camera can record stars to about magnitude 7.5 (wide angle) and to magnitude 10 (telephoto) in about 30 seconds (guided), close to 800 ISO speed film.

However, since this camera (and others) can only time shots to a maximum of 30 seconds, it is somewhat unsuitable for deep-sky imaging. But planets look great (depending on the quality of the telescope and eyepiece).



Let's take the Sony DSC 717 and "shoot the moon" (see page 10).

The waxing gibbous Moon presents fine resolution (note the area around the craters Tycho and Copernicus). A fairly good

(unguided) image of M42 was also made, but not included with this article. A number of images of Mars were made, but due to the 80mm 5F short focus telescope used, all that is visible is a reddish orange "dot"... so much for Mars Madness.

Of course the camera with its super sharp Zeiss optics, coupled to a long-focus "planetary" telescope would have provided pleasing images of Mars. In summary, digital cameras are just great for a hand held grab shot of the brilliant Moon or Sun, but for the stars or Mars, use a tripod.

School Star Parties

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

As a reminder, upcoming scheduled school star parties are:

24 Oct 2003 Niu Valley Middle School
27 Feb 2004 Pearl Harbor Elementary
23 Apr 2004 Lanakila Elementary
27 Apr 2004 Ala Wai Elementary

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

Star of the Month: R Scuti

by Marc Ricard

R Scuti is a star several of you have already observed but simply didn't recognize. It's one of the stars that make up the Sagitta-like grouping near M11: one of the most splendid open clusters of the summer sky. I've observed this region of the sky countless times through binoculars and in the finder of my telescope but it's only recently that I discovered that R Scuti varies in brightness. For those of you interested in observing variable stars, this is probably one of the easiest objects to start with. All you need to get started are a pair of binoculars and a star chart. The chart you can get from the AAVSO at the following URL: http://charts.aavso.org/STANDARD/SCT/R_SCT/.

I've reproduced part of the AAVSO finder chart at right. The numbers represent stellar magnitudes with the decimal point omitted.

Observing variables is a lot easier than most people believe. Your goal is to find a comparison star that is the

same or nearly the same brightness as the star you're observing. For example if you believe that R Sct brightness lies somewhere between magnitude 6.1 and 6.7 compare it to the 6.3 and 6.4 stars. If you find that it lies between 6.1 and 6.3 your estimate will be 6.2. It's that easy! Always try to find a comparison star that is just a little brighter and another that is just a little dimmer than the target star you're observing. This narrows your range and will make it easier to zero in on its value. Also avoid staring at the star. After all, these aren't faint galaxies that you're looking at.

You'll find it much easier to estimate the brightness of your variable if you glance quickly from target to comparison star several times. Finally remember that you are estimating the objects' brightness and that you may not be bang on each time. This is quite normal and to be expected. What is unexpected however is how easy this

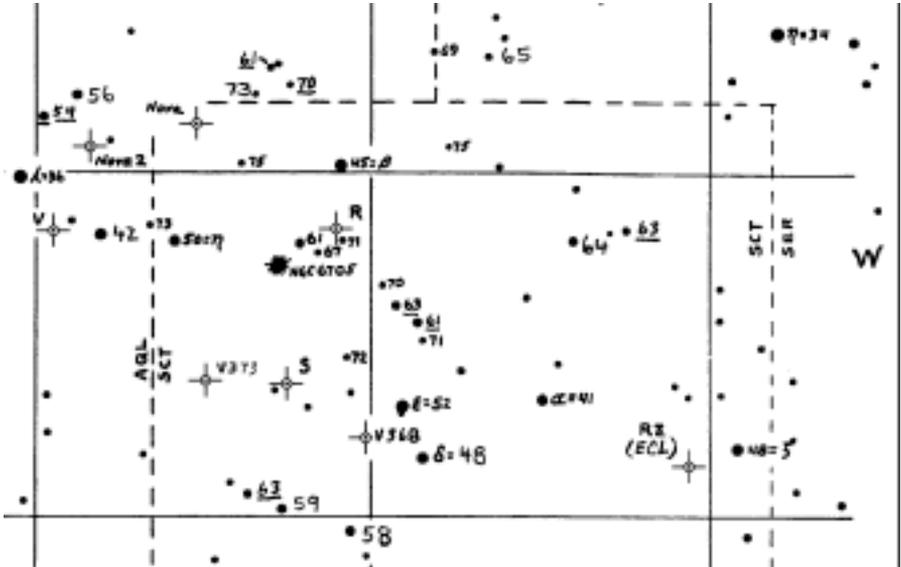
(Continued on page 9)

Star of the Month (Continued from page 8) whole exercise becomes as the field surrounding the variable becomes more familiar to you and your observing skills develop.

The first time I observed this variable I'm sure I spent at least 45 minutes before I came up with a value I was comfortable with. Now 2 to 3 minutes are usually more than enough.

from the Asymptotic Giant Branch of the Hertzsprung-Russel diagram to on the white dwarf stage. However, this transitional period is relatively short, lasting no more than a few thousand years and is not very well understood.

Astronomers hope to learn more about this phase of stellar evolution by studying these stars. But they need our help. That's right! You can help ad-



If you follow R Scuti regularly you'll be amazed at its range. Its brightness can vary from magnitude 4.5 to 9.0 in as little as four and a half months.

Astronomers are still not able to explain its behavior but its believed that stars of the RV Tauri class such as R Sct are in the process of evolving

vance scientific research from the comfort of your own backyard. If you've never observed variables before I urge you to give it a try. You can obtain more information by visiting the AAVSO web site at www.aavso.org.

Clear Skies!

Treasurer's Report

by Jim MacDonald

HAS Financial Report as of August 15, 2003

Initial Balance:	\$5,324.81
Receipts:	
Dues Received	181.00
Donation	12.00
T-Shirt Sales	15.00
Total Income:	\$208.00
Expenses:	
Astronews	153.00
Magazine Subscription Payment	65.90
Polo Shirts	22.90
Refreshments	4.86
Postage	4.97
Bank Charge	.07
Total Expenses:	\$251.70
Final Balance:	\$5,281.18

During the month we had Seven new members join the club. They are **Paul, Deborah, and Lianna McCurdy; Lisa Ota; Jerry Wilkinson; Russ Benson and Barbara Debarish**. Welcome to the new members and many thanks to those renewing their membership this month. A special thanks to **Tsugito Nishimura and Chris Trusty** for their cash donations. Clear skies to all!

(Continued from page 1)

Can whoever is doing the advertising for Kahala be asked to include Waikele in all future articles? Most of the people there were aware of Kahala from the articles but have never made the long drive there.

By the way, we would have had a slightly bigger crowd except for the traffic congestion caused by the fire that closed Kamehameha Highway between Mililani and Waipio and caused a tremendous traffic jam!



Photo by Ron Paul Smith

**Hawaiian Astronomical Society
Membership Application
2003**

Name: _____

Street or P.O. Box: _____

City: _____ State: ____ Zip: _____

Phone: _____ e-mail: _____

Family Members: _____

Dues	\$15.00	_____
Student Dues	\$8.00	_____
Family members: each	\$2.00	_____
Sky & Telescope subscription	\$32.95	_____
Astronomy subscription	\$29.00	_____
Donation		_____
Total:		_____

Fill out this form and send with your check payable to:
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Check here if you do not want information included in the Club Roster.

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Orion shot with Ron Paul Smith's Sony CyberShot DSC-717