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nightwatch

Newsletter of the Pomona Valley Amateur Astronomers

The sun is but a morning star. *Henry David Thoreau*

Volume 27 Number 10 ***nightwatch*** **October 2007**

President's Address

We will be having our PVAA public solar star party from 10:00 AM until 2:00 PM on Saturday, October 27th outside of the Brackett Observatory on the campus of Pomona College. Please bring your solar scopes and scopes with solar filters. I am hoping for a very good turnout, both from the public and from our members.

The PVAA hotline, (909) 596-7274 is up to date and running again, thanks to Jim Bridgewater. Current info on PVAA activities is just a phone call away.

Frank Busutil's "Project Bright Sky" which brings astronomy to the visually impaired and blind, has a new website, http://brightsky.pvaa.us/. Thanks John and Claire Stover for setting up the website and thanks Frank for the excellent work you are doing.

Or next star party is at Kelso Dunes on November 10th. This site has a good dark sky except in the northeast, the direction of Las Vegas. Come out for the star party and during the day explore the dunes and visit the museum in the historic little town of Kelso.

Our annual "Holiday Dinner" will be held (as it has for the last several years) at Jouni's in Upland. The time will be 7:00 PM Friday, December 14th. A drawing for prizes will be part of the festivities. I hope many of you will be able to attend.

Happy star gazing!

Ron Hoekwater

11th Annual Holiday Dinner

In just a couple short months we will again have the PVAA Holiday Dinner, which takes the place of our December General Meeting. Your Astronomy Club would like to invite you to our annual Holiday Dinner at 7:00 PM, Friday, December 14th at Jouni's Cafe on Central Ave. in Upland, near Foothill Blvd. Please feel free to bring along a spouse, family member, or guest. We will have a raffle and everyone will win a prize. We plan a pleasant evening of getting to know one another and sharing some holiday cheer. The menu choices and prices are in this newsletter so please reserve the date now for your calendars and get your meal choice and check in the mail or to Ludd at our next meeting. I look forward to another fun gathering for our 11th - I hope to see many of you there.

Claire Stover

PVAA Events Calendar

Month	Star Party	General	Board
October		26	18
November	10(KD)	16	8/29
December	1(MB)	Holiday Dinner (see above)	

Site Legend

(KD) Kelso Dunes
(MB) Mecca Beach Campground

What's Up Now?

My star chart for the last meeting covered a wide look at the night sky including the Giant Summer Triangle and the Giant Autumn Square. This sky includes the greatest number of stars brighter than 10th magnitude that can be seen on any night. This is because the star filled Milky Way stretches a maximum length from Cassiopeia on the North to Sagittarius on the South. So it's a night sky that includes excellent examples of deep sky objects.

Stars in deep space are not quite as they appear. The three stars in the Great Triangle appear the same brightness, so one assumes they are about the same size. They are Vega (0 magnitude, 25 light years), Altair (0.8 mag, 17ly), Deneb (1.3mag, 3000ly). Although they are the same brightness, it's obvious that Deneb is an enormous star. It's a blue-white supergiant, the most distant of all first-magnitude stars.

Then, there's the fuzzy Andromeda Galaxy (M31 plus its companions M32, M110, NGC 185, and NGC 147). This is the furthest object (2.5 million light years than can be seen with the unaided eye. If you can find it near Andromeda's "knee", you're in very dark location. It can barely be seen but it's even larger than our Milky Way Galaxy.

Although known since ancient times, M31 was thought to be a local "spiral nebula" within our own galaxy. When a supernova appeared in 1885 it was considered an ordinary nova. But very high radial velocity observations as early as 1912, by Vesto Slipher (of Lowell Observatory) fueled the belief that M31 could be a remote "island universe" far outside our own Milky Way. This debate was settled in 1925 by Edwin Hubble (of Mt. Wilson), when newly photographed Cepheid variable stars became a measuring standard. They proved that it was a distant galaxy far outside our own. Later studies of thousands of galaxies showed that they come in groups, and that Andromeda is part of our Local Group along with the nearby Pinwheel Galaxy (M33) in Triangulum. Because its pinwheel shape is viewed from overhead it's much dimmer than the closer, tilted Andromeda.

This night sky also holds exemplary planetary nebulas, so called because they looked like round fuzzy planets to early observers. At least 3,000 are now known in our galaxy. In Lyra one finds one of the first two recorded by Messier, the cheerio-like Ring Nebula (M57) It clearly shows its expanding ring blown off by the central collapsing star which still illuminates it. The second example is the Dumbbell Nebula (M27) in Vulpecula. This shows a planetary nebula with the two lobed butterfly-like form, its narrow waist caused by the star's magnetic field. One theory is that the Ring Nebula would have a dumbbell shape if viewed from its side rather than from its top and vice-versa. But no one has ever traveled there to verify this theory. In Aquarius we find the Saturn Nebula which demonstrates the ghostly planet-like form that spooked early astronomers.

In this sky we also find fine examples of globular clusters such as M15 in Pegasus and M2 in Aquarius. These show an extremely spherical formation of stars into very ancient globular groups.

This night's extra long Milky Way also has a lot of open clusters many of which were listed by Messier (M103, M52, M39, M29, and M71). M71 is an open cluster which some consider a globular cluster, showing a link between the two forms. My favorites are the ones that resemble something, like the "Coathanger" (Brocchi's Cluster) in Vulpecula. Also, the Night Owl (NGC 437) in Cassiopeia which looks like a cartoon "ET" stick figure. It's always a good one to show to school children who expect astronomy to be "entertaining."

Huge glowing gas clouds are represented by the North America Nebula (NGC 7000) region. Also of great beauty is the ethereal Veil Nebula (NGC 6992) which is the remnant of an exploded super nova over 5,000 years old. Both these illuminated nebulas are in Cygnus, as is the foreboding Great Rift. This lane of dark clouds which looks like the Milky Way is being torn open by a great rip disturbed early astronomers. But it's only an example of how enormous dark clouds can hide the brighter galaxy behind them.

Double stars are represented by the popular Alberio in Cygnus with its blue and gold set. A blue and gold couple also appear in the lesser known Almach or Gamma Andromedae in the chained maiden's foot. It's always fun to try to "split them" with your telescope.

So it is that this early autumn dark sky is filled with fine examples of the wonders of deep space.

Lee Collins

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Cassini Celebrates 10th years since Launch.

Cassini rode into space October 15, 1997 atop a Titan 4B. Its mission: to orbit and study the Saturnian system for four years. Just this week we can read more exciting headline-grabbing results - this time about Titan's land of lakes and Iapetus' mysterious dark side.

http://saturn.jpl.nasa.gov/home/index.cfm

JHJ

General Meeting

Thanks are due to Ludd for his diligence in making sure we had a meeting place on a busy Friday night at Harvey Mudd College. Our September meeting was held in a classroom instead of one of the larger lecture halls. A bit cozier than usual but we all had a great view of our speakers and their presentations.

Two guests joined our meeting – Carl, who found us through our website and Evelyn, who was Lee's guest. Welcome to you both and we hope to see you again soon.

Ron shared the many events we have coming up in October and interested members signed up for a special member price on a 2008 calendar produced by Astronomy Magazine. Remember that our membership year runs from September1st – August 31st. If you have not yet paid you yearly dues, you may mail them to the Club PO Box or give them to a Board Member at our next meeting. Please mark the date of our yearly Holiday Party on your calendars – Friday, December 14th. We will be having dinner at Jouni's Café in Upland. See our website for details. We'll have meal choices available soon. Cost is only $22 per person for dinner, door prizes, and a fun evening with your fellow Club members. I hope many of you can join us at the party.

John let us all know email delivery is now available for your monthly club newsletter, Nightwatch. In addition to the articles you are used to seeing in the print version of the newsletter, it will get to your email box sooner, any photos will be in color, and internet links will work. If you would like to get your newsletter this way, please let John know by emailing Nightwatch@pvaa.us.

Our September speaker was Dr. Michelle Thaller

We knew it would be a fun evening when we saw Michelle brought an infrared camera to the meeting to share with us. First, we discovered that the photogenic Annie Kary looks good in many different wavelengths of light as we got to see her with the infrared camera. We saw not only the warm and cool spots on her body but the warmth left behind by her hands and feet as Annie left glowing prints behind. We also enjoyed watching her makeup artistry with an ice cube. I think most parents would prefer the black hair and lips you can create with an ice cube and an IR camera over what is needed for our kids to get the same effects in visible light - hair dye and gobs of mascara!

Dr. Thaller works for JPL and helps educate the public about the Spitzer Infrared Telescope. She also helps teachers and students with observing time on the telescope. Data has been pouring in since soon after the launch in 2003, in wavelengths from 3 to 160 microns. Spitzer's range of vision allows it to see right through much of the dust in our galaxy. Michelle demonstrated this effect by turning the camera on herself as she hid inside a Hefty bag. Just as the telescope can see through the dust to reveal warm star forming areas, we saw right through the bag to see a glowing Michelle.

Unfortunately for us here on Earth, while the carbon dioxide and water vapor in our atmosphere are transparent to visible light, their presence makes the atmosphere opaque to infrared light. The Earth heating greenhouse effect is the result of this same effect as heat waves from the surface are reflected back by these molecules in the atmosphere. The IR camera was fairly pricey for the same reason. Since both glass and plastic are also opaque to IR waves the lenses were made of germanium crystal and other expensive materials. Since the telescope can't work from the surface of our planet it keeps away from the relative warmth of the Earth and Moon system by slowly lagging behind our planet in our orbit around the sun. Despite that chilly environment, Spitzer still needs liquid Helium to cool it down to 3 degrees Kelvin to operate properly. As a result of these conditions, though, it can see objects very close to absolute zero.

In addition to letting us see the objects hiding behind visible light obscuring dust, Spitzer has performed exo-planet observations. Even though we have not yet directly observed a planet orbiting around another star with any type of instrument, Spitzer has made some amazing discoveries. Some data shows the small decrease in light from a system when a large planet is eclipsed and goes behind its star. It has even been able to detect the slight temperature difference between the day and the night side of these far away worlds.

Thank you so much, Michelle, for a wonderful presentation about infrared light and the discoveries and observations made by the Spitzer Space Telescope.

Claire Stover

11th ANNUAL PVAA HOLIDAY DINNER PARTY

The 10th Annual PVAA Holiday Dinner Party will be held on **Friday, December 14, 2006,** at 7:00 pm.

Party location is **Jouni's Cafe**, 922 N. Central Avenue, Upland.

The dinner cost is $22.00 per person, member or guest.
Payment, along with your choice of dinner, **MUST** arrive at the PVAA mailbox by Friday, November 30th
or be given to Ludd Trozpek before that date.
Please fill out this form then return it with your payment, payable to PVAA, to Ludd Trozpek or mail it to:

PVAA
PO Box 162
Upland, Ca 91785

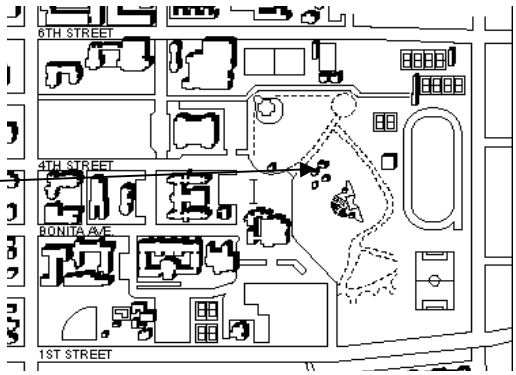
Random Observations

Don't miss this opportunity

On Saturday, October 27th from 10:00 AM until 2:00 PM, see our closest star through solar telescopes at:

Brackett Observatory, Pomona College.

Pomona College and Pomona Valley Amateur Astronomers will make available for the viewing pleasure of the public, numerous solar telescopes. See Sunspots, granulation (convection currents on the Sun), and solar prominences.



October's Speaker

The speaker for the October 26th meeting will be Dr. Laura Woodney. Dr. Woodney is a professor in the Physics Department of Cal State San Bernardino. Her research is in the physics and chemistry of comets. She will speak on current comet science including what was learned from the Deep Impact mission. During the Deep Impact mission a probe was intentionally collided with Comet Tempel 1while a second nearby spacecraft radioed its observations back to Earth. The hope was to learn more about what the comet is made of and how it is held together.

Tricks and Treats

This month both Titan and mysterious Iapetus can be seen near Saturn, when looking through most any telescope. Rhea, Dione and Tethys are always easily visible, and they are not shown on the maps, but easily found in astronomy magazines and planetarium programs.

Iapetus has an 89 day orbit, which takes it far from Saturn and the other moons usually easily visible though a telescope. But when the small moon is north or south of the planet it is easy to spot.

That's when I try to encourage folks to have a look at this small (892 miles diameter) moon, which was discovered by Giovanni Cassini in 1671. Don't despair if you don't see it this week. The next good time to Iapetus to the South of Saturn is December 31. And to the north of Saturn November 23. And you'll also spot Iapetus easily for the week or so on both sides of these dates. Next year, when Saturn rises earlier in the evening, it won't be such a trick to see it.

Here is where you'll find Cassini's Iapetus page, some Educational activities related to the Saturn system, plus star charts for viewing Jupiter, Mars, Venus and of course, Saturn, lord of the rings!

http://education.jpl.nasa.gov/amateurastronomy/index.html

Jane Houston Jones

Dinner Menu

	Quantity	Total
French Shish Kabob (Bacon wrapped Filet)	_____ **x $22**	**= _____**
Chicken Breast with Lemon & Mushroom Herbs	_____ **x $22**	**= _____**
Stuffed Shrimp	_____ **x $22**	**= _____**
	Grand Total	**= _____**

Name(s): _____

Dinner will be served with salad, bread and butter, soda, tea, or coffee, and cheesecake for desert.
The table will have vegetables with dip and sautéed mushrooms.

Project Bright Sky News

Hello Everyone.

Our 5th annual Star Party For the Los Angeles Braille Institute is all set.
Date: April 14th 2008 Joshua Tree National Park Cotton Wood Springs Group area # 3. Park information 760-367-5500

Times: Set up - 12:00 PM and as you arrive
Desert Hike - 4:30 PM
Sunset Dinner
Astronomy Talk - 7:30 PM
Warm up Snacks - 8:00 PM
Star party 8:30 PM 10:00 PM

Tent camping is allowed or you may sleep in your vehicles, If you are bringing a camper let me know. Only 2 are allowed.

Hotels - In Indio and Palm Springs a 1hour drive or less.

Please R.S.V.P. by January 31 2008

We have a website:

http://brightsky.pvaa.us/

Happy Skys To You.... You can sing this to the tune of Happy Trails to you by Roy Rogers.

Frank
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