



Newsletter of the Pomona Valley Amateur Astronomers

The massive bulk of the earth does indeed shrink to insignificance in comparison with the size of the heavens.
Nicolaus Copernicus

President's Address

Attending our star parties, especially over the last few months, has for me been a wonderful experience. The number one reason that I joined PVAA was to go out and observe the sky with a group. It adds enormously to the enjoyment of our hobby to be surrounded by other stargazers sharing views of celestial objects. Some of my favorite things to look at, I first learned of at a club star party. That is why I have been very pleased by the great turnout at our recent star parties.

Our next star party on November 1st will be at Mojave River Forks Regional Park. This will be our first trip to this site. It is fairly close so it won't cost a lot in gas and it promises to be a lot of fun. There is a link to more information on the club website on the calendar page.

Speaking of which, keep checking the calendar page for upcoming public star parties too. The biggest of these public events will be on October 25th in Claremont at the Village Venture. The Village Venture is attended by thousands of people. This will be a solar star party so bring your solar observing equipment. We plan to set up in front of the Metro link train station from 9:00 AM until 5:00 PM. If you can't be there the whole day then be there as much of it as you can.

Lastly, club members really enjoyed the Edwards Air Force Base / NASA facility tour last summer so we are thinking about doing a few more outings. Come to the next meeting on Friday, October 17th to learn more and to give your input on this. See you then.

Ron Hoekwater

PVAA HOLIDAY DINNER PARTY

The 12th Annual PVAA Holiday Dinner Party will be held on **Friday, December 12, 2008**, at 7:00 pm.


Party location is [Jouni's Cafe](#), 922 N. Central Avenue, Upland. Details will be announced at the General Meeting - October 17

September General Meeting

During our September meeting in the College's Beckman Hall, we were finally able to see visitor Gary Gonnella in the light. Gary has joined us during the last few months at Mt Baldy and at two of our public events at the Chino Hills bookstore. This was his first visit to a General meeting and he must have liked what he saw since he joined the Club. Please make Gary and his 13" Dobsonian welcome!

Bill Vaskis reported to the Club on our visit to Astro Camp in Idyllwild at the end of August. Despite some rain showers and an interaction between two helicopters on a rescue mission and Ron's 22" telescope, we enjoyed our long weekend. Many members explored the quaint town, savored the local food, remembered dorm life, checked out Labor Day yard sales, and, oh yeah, observed the night sky without a lot of light pollution though there were some clouds to provide us with a challenge. Thank you to Larry Kawano and to Ken Crowder for helping to arrange and host our Club's August event. Those of us who attended had a blast!

Our speaker in September was a voice from the past of PVAA – one of the first Club members from the early 1970s – Jeff Schroeder. Just to show that a hobby can sometimes morph into a vocation, Jeff started off in the Club but has also worked at the San Antonio College Planetarium for 27 years and now works for JPL on various projects, including the Mars Science Observatory. Jeff started his amateur observing through a 60-mm refractor, soon graduating to a 4" and then a 6" telescope, which he had in time for RTMC in 1974. Not satisfied with the light gathering capacity of this instrument, he started building what was to become his biggest (weight-wise at least) and most well recognized telescope – a car mounted 11" refractor which weighed in at ½ a ton without the optics.

The telescope and its car mount evolved over the years and became perched on a used Volvo station wagon.  Pg2

Club Events Calendar

- October 16, School Fundraiser,
Barnes & Noble, Chino Hills 7:30 – 9:30 pm
- October 17, General Meeting
Steve Edberg - Space Interferometry Mission
- October 25, Sidewalk Solar Star Party @ Village Venture,
Claremont Metrolink Station 9am - 5pm
- November 1, Star Party - Mojave River Forks Regional Park
- November 5, Star Party - Ontario Library Main Branch 7–9pm
- November 6, Board Meeting - Village Grill 5:30 pm
- November 10, PBS presentation of Journey to Palomar
- November 14, General Meeting
- November 22, Star Party - Cottonwood Springs
- December 4, Board Meeting
- December 8, School Star Party - Oakmont
- December 12, Holiday Party - Jouni's Café 7 pm
- December 27, Star Party - Claremont Hills Wilderness Park
- January 8, Board Meeting
- January 16, General Meeting
- January 24, Star Party - Mecca Beach Campground - Salton Sea
- February 3, Star Party - Ontario Library - Main Branch 7–9 pm
- February 5, Board Meeting
- February 13, General Meeting
- February 21, Star Party
- February 24, School Star Party - Victorville
- March 5, Board Meeting
- March 13, General Meeting
- March 21, Star Party
- May 22 - 25, RTMC

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The 15-foot tube made quite a sight on top of the sturdy car. It is fortunate Jeff didn't debut the instrument in today's more security conscious times or he would have certainly had more trouble with authorities as he strove to share the skies with the public using his cannon-like instrument. The setup was ready in 1986 for the return of Halley's comet, which of course was very well publicized in the media. A small ad in the local paper that Jeff would be at Cow Canyon with his telescope was met with over 1500 people, only one-half of whom were able to get to the eyepiece while the comet was visible since Jeff's was the only telescope there.

One of his favorite uses of the scope, though, was at Inspiration Point in Idyllwild during May of 1986 when he chanced upon a group of rest home residents out to view the comet. They were thrilled to find that Jeff had a telescope - and a huge one at that - since they hadn't brought any optical aid at all. There was the advantage that Jeff's 11" was easy to use for those seated in a wheelchair. The best part of the evening was to show two of the viewers the comet for the second time as they also saw Halley during its visit to our part of the solar system 76 years prior, in 1910.

It turned out the Cow Canyon viewing of Halley's comet was not the most popular public event Jeff was to support. In 2003, Jeff and his giant telescope were recruited by Griffith Observatory for the close approach of Mars. With the Observatory closed for renovations, the public's appetite for astronomy was running high. Over 18,000 people showed up on the night of Mars' closest approach. Jeff estimated that between 8:45 PM and 4:15 AM the next morning he showed the red planet to about 3200 people. Wow – talk about reaching a large audience!

Jeff had some good advice for those of us who bring telescope to public events and I put some of it to use at our recent star party for 2nd and 3rd graders in Chino Hills. Jeff said that youngsters about that age and younger tend to look at the eyepiece out of the far corner of their eye. After letting the parent know what he is up to, he gently tilts the child's head so their eye is parallel to and in front of the eyepiece – a position which more often elicits the "Wow" and "Ooooh" comments we all live for at public viewings.

I guess Jeff liked his view of our Club and its members as well since he decided to renew his membership with us. We hope to see Jeff and his viewing instruments at future Club events. Thank you for sharing your stories and lessons from decades of public astronomy, Jeff.

Claire Stover

References:

http://books.google.com/books?id=p282ijnF3C0C&pg=PA138&lpg=PA138&dq=%22jeff+schroeder%22+astronomy&source=web&ots=ukKe3vMIDY&sig=7a_0iEgIY0QLBDRveco5aBuu_Ho&hl=en&sa=X&oi=book_result&resnum=3&ct=result#PPA139,M1

<http://www.thefreelibrary.com/OTHERWORLDLY+FANS+GET+CLOSER+LOOK+AT+RED+PLANET-a0106957968>

Jeff's report on seeing the Deep Impact's contact with Comet Tempel 1 from Wrightwood in 2005:

<http://www.skyandtelescope.com/observing/3310436.html?page=1&c=y>



Figure 5.8. Jeff Schroeder's large refractor mounted on a car, as shown at the 1987 Riverside Telescope Makers Conference.

If It Quacks Like a Planet...

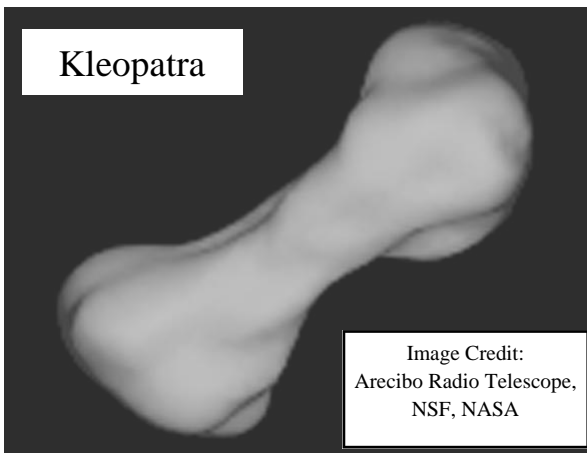
This month we continue our “debate” over whether or not Pluto counts as a planet.

So once again, our picture of the solar system has changed in the last few years and this is forcing us to reconsider what defines a planet. There are two basic approaches that could be called individual and regional.

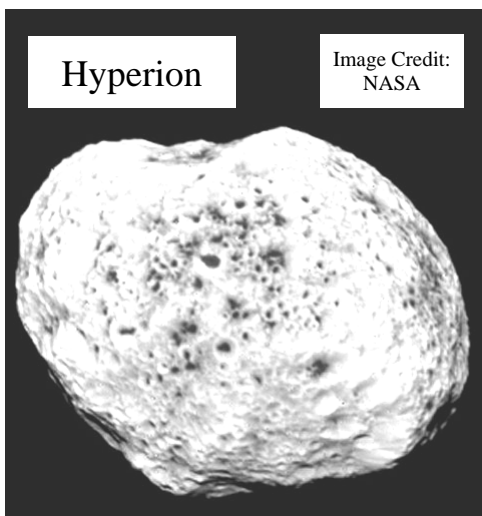
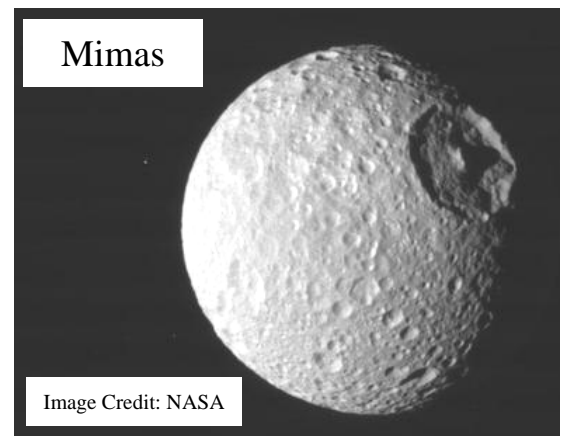
PART II: The Individual Approach

The individual approach says that a planet is defined purely by what it is. This approach defines a planet as orbiting the Sun and bigger than some given size. Some folks like to just pick a nice round number (e.g. 1000 km radius) and call that the minimum size for a planet. The problem with this is that it's completely arbitrary: there is no physical reason to pick one size vs. another. As a result, if you've got a body that has a radius of 990 km, it will be too small to be a planet (even though it could be virtually identical to one that is 10 km bigger). An even bigger problem is what to do with a body that has a radius of 1000 km with an uncertainty of 50 km. What are you going to call it?

So picking an arbitrary size with no physical meaning behind it can raise all sorts of problems. However, a lot of folks have argued that there is a physically meaningful size distinction we can use, based on how round the body is. The shape of any astronomical body is based on the fight between gravity trying to pull it into a sphere and the physical strength of its materials (rock, ice, gas, whatever) resisting this force. The bigger the body, the stronger the gravity, so big bodies tend to be roughly spherical, while small ones can be all sorts of odd shapes (have a look at the asteroid Kleopatra for a good example of this).



(Note: I'm leaving out a couple of complications here: spin and tides. Both a planet's spin and tidal forces from other objects can pull a body out of round. However, this can be corrected for in your definition.)



So, why not say that a planet is something that is big enough for gravity to make it round? Here, there are two problems. One is mainly aesthetic. We have always had 6 to 9 planets. Extending that by a couple wouldn't really be a problem. But if we call any round body orbiting the Sun a planet we could easily have 50+ planets in our own solar system (including a few of the largest asteroids as well as a few dozen bodies in the Kuiper Belt). When you've got a group that big, you're going to have to divide them up into categories and then we can have the same fight over which ones fit into which categories.

The other problem is the same as before: arbitrary cutoff. In our solar system, there doesn't seem to be a clear distinction between the gravity-dominated worlds and the strength-dominated worlds. For example, consider some of the moons in our solar system (we don't have many good pictures of the asteroids and Kuiper Belt objects). Proteus (a moon of Neptune) and Mimas (a moon of Saturn) are virtually the same size. To look at them, it appears that Mimas is pretty close to spherical, except for a large impact crater that dominates one side. On the other hand, Proteus looks fairly boxy. Gravity has rounded it out some, but strength is more important here.

So, if these two moons were going around the Sun, would either or both of them be called planets? If they would be planets, how about Saturn's moon Hyperion, which is even more irregularly shaped (but still, it looks like gravity has played some role here as well). Unfortunately, there are dozens (at least) of asteroids and Kuiper Belt objects that are in this same size range, so this definition still leaves us having to split objects into different classes when there doesn't seem to be such a clear distinction in nature.

Next month we will conclude with my own preference of the more regional definition and I'll explain why.

Dave Kary

What's Up? – Dark Seas At Our Galactic South Pole

Astronomical “seas” around our galactic south pole are dark and deep. Dark because we’re looking away from the star-crowded galactic plane (that bright band of Milky Way) into the open southern “bottom” of our galaxy. Bright stars are sparse, but well equipped amateur astronomers can see galaxies as deep in space as 300 million light years.

That’s the distance of the remarkable Stephan’s Quintet in the constellation of Pegasus. This group got Hollywood recognition by appearing at the beginning of “It’s A Wonderful Life” complete with angelic voices resolving to help the movie’s hero. The real galactic cluster is more demonic. Discovered by Edouardo Stephan in 1877, one of its galaxies is actually in front of the others. The quartet that remains is in a disturbingly close cluster. Recent X-ray, infrared, and radio wave reports from the orbiting Spitzer Space Telescope report giant bow shocks as wide as our own Milky Way galaxy produced by the crashing gravity interaction among the group. But don’t worry too much, this violent galactic traffic jam happened 300 million years ago.

Close by in Pegasus (flying horse), and a mere 43 million light years away, is the relatively peaceful looking galaxy NGC 7331. It’s been called the brightest galaxy never cataloged by Messier, and comparable to our Milky Way in size and shape.

Swinging southeast past the autumnal asterism of the Great Square, formed by stars from Pegasus and Andromeda, lies the farthest object that human eyes can see – the Andromeda Galaxy (M31). It’s easily seen in dark skies because it’s part of the Local Group containing our own Milky Way Galaxy. Only a mere 2 ½ million light years close it has two bright companion galaxies M32 and M110. It was the Andromeda Galaxy that was proven by Edwin Hubble at Mt. Wilson in 1925 to be a distant, separate “island universe” outside our own Milky Way Galaxy.

Another member of the Local Group is the Triangulum or Pinwheel Galaxy (M33). Triangulum tells us its location is in the geometric constellation of the Triangle, and Pinwheel reports its overhead spiral appearance (there are other “pinwheel” galaxies, like M101) It’s easy to find just between Andromeda and Triangulum. So is M31 just above the reclining four star form of Andromeda as she lies chained waiting for the nearby sea monster Cetus to come and eat her. Heroic Perseus will rescue her, of course. Cetus, the sea monster, reminds us that as we move south toward the Galactic South Pole we cross an area nicknamed “the sea.” Here are the “watery” constellations of Aquarius (water bearer), Piscis Austrinus (southern fish), Piscis (fish), Capricornus (sea goat), Eridanus (the river), and Cetus (sea monster). Cetus contains Mira (miracle) that infamous unstable variable star (3.5 mag. to an “invisible” 10 mag). Mira is a deteriorating red giant that drags a 13 light year “tail” of discarded matter behind it.

Here, as we look out the galaxy’s dark polar area, the only 1st magnitude stars are Fomalhaut (fish’s mouth) and Achernar (at river Eridanus’ mouth just below our horizon). But distant galaxies are visible, such as M74 in Pisces and M77 in Cetus.

Just south of Cetus we come to the Galactic South Pole in the constellation of Sculptor. This loser constellation was created by irresponsible 18th century chart makers. It’s either a sculptor sculpting or a sculptor’s studio with a sculptor sculpting. But since it contains nothing but scattered dim stars, who cares?

Here lies the Sculptor Galaxy Group, its brightest feature being NGC 253 (the galaxy that rhymes). Nearby are the equally vague and shapeless constellations of Fornax (furnace) and Eridanus (the river) with their extremely distant (100 million light years) galaxy groups.

The rhyming galaxy, NGC 253, is a mere 11 million light years away, is probably why it was discovered in 1783 by Caroline Herschel. Caroline Herschel was the first scientist woman in history to be officially recognized by male dominated scientific societies. This was certainly because she died at age 97, outliving her famous brother William Herschel (discoverer of the planet Uranus and the previously mentioned NGC 7331) and her astronomer nephew, John.

But let’s go back to about 1770 when the Herschels left Germany to migrate to England and become musicians. William was a composer-organist, and Caroline was a singer. Fortunately for astronomy, William had a hobby of making larger and larger telescopes. This led to many discoveries, especially the gas giant Uranus (our 7th planet) in 1781. Uranus was the first planet so faint that it needed a telescope to discover it.

This won him the position of Royal Astronomer to King George III. At first William was encouraged to name the new planet after his patron King. But “mad” King George did some crazy things (it was all the result of royal inbreeding) and Herschel finally named the planet after Uranus, father of the Titans. But, in an outburst of English patriotism, he named Uranus’ moons after characters in Shakespeare plays – Titania, Oberon (Midsummer Night’s Dream) Ariel, and Miranda (The Tempest). This tradition has been carried on as more moons have been discovered (Hamlet, Macbeth). It was unusual but so is Uranus (now located in “the sea” between Aquarius and Pisces). Uranus is a planet that’s “knocked” on its side and it, and all its moons, rotate in the opposite direction from our other planets.

Caroline was to abandon singing to become a discoverer of comets, galaxies, and the first official woman scientist. Along with her brother William and his son John, the Herschel family was a leading pioneer family in telescope making and astronomical discoveries in both the northern and southern hemispheres. As religious people however, they believed all the planets to be inhabited in accordance with God’s plan for the universe.

So, even though the seas of outer space are dark around the Galactic South Pole, with newer and bigger telescopes determined astronomers can see deeply into an apparently infinite universe of galaxies.

The PVAA Star Party

Well, I got a late start to begin with, which should explain why I got to the Mt. Baldy trailer park at about 7pm. I found a small place to back my truck into and within a few minutes I had my 13.1-inch telescope setup and ready to go. Well, almost ready to go. I had to collimate the poor dear after that rather rough ride into the park. Drat, my collimating tools needed a bit of ambient light to get good results so I was limited to low power eyepieces. It turned out that if I didn't use more than a 9mm eyepiece the image was quite passable. The gentleman just to the west of me (I believe this was Jim Bridgewater) had a 4.5 inch refractor set up and allowed me a very nice view of Jupiter. As darkness fell it became obvious that the seeing was not as good as it had been for the last star party held here. The Milky Way was barely visible (but it was visible) and the sky seemed to be fairly steady.

Very early on we had a rather brusque introduction to the park steward. His management, who our club officers had dealt with, failed to inform him of the evening's arrangements. In the end the problem was solved to everyone's satisfaction (with money given directly to our hosts hands). He was happy (or less unhappy) and we continued our nighttime activities unimpeded.

I turned my telescope to a double star known as "Kurhah" located in the center of the square of Cepheus. The components of this double star are at magnitudes 4.4 and 6.5 with a separation of 7.7".The Night Sky Observers Guide (Kepple and Sanner) states that with an 8 to 10 inch telescope the color of the two becomes somewhat off-white. Whether it was the observing conditions or the lack of collimation on my telescopes part, all I saw was two very white stars.

I wandered over to Ron Hoekwater's 22-inch telescope and took in the marvelous sight of Herschel's Garnet star. I think Ron, Jeff Felton and I agreed that the star wasn't quite as deeply colored as perhaps we remembered but still was impressive.

I swung my telescope onto M13 or rather got very close and with some assistance from another member we got the cluster into view. With the 13mm eyepiece the cluster sparkles with an unearthly beauty that never fails to impress. I tried the 3.5 mm Nagler I bought at PATS but this was less than good. The telescope collimation and the sky conditions conspired to turn the scene into a quagmire of almost circular blobs quivering endlessly in the eyepiece.

I went over and talked to Dave Gardner while looking through his telescope and catching up on his astronomical endeavors since I last saw him.

I spent a great deal of time talking to Claire and John Stover, our highly regarded club office holders, so much so, that the time passed rather pleasantly divided between observing and discoursing on bikes and rides.

I put my star spectroscope on a 30mm eyepiece and aimed at Deneb. The atmosphere had enough instability to make the lines in the spectrum somewhat hard to see. The few who came over to see this unusual sight probably came away less than impressed (I will have to try again at our next star party). Setting the spectroscope up on a higher power eyepiece would probably make the lines stand out more but time was running out.

Toward the end of the evening I looked at M52 in Cassiopeia, which is a very nice sight in any telescope from 3 inch and up. About 100 stars are spread over 0.2 degrees of sky with the brightest member at slightly below 8th magnitude.

I finally ended the evening with an old friend; NGC 7331 in Pegasus. This 9.5 magnitude galaxy is easy to find and challenging in trying to pick up the attendant galaxies nearby. The challenge was going to be harder than I thought. NGC 7331 was not as distinct as I have seen on many occasions and the companion galaxies were not to be seen at all. The background was unfortunately filled with scattered light from the city below creating a milky miasma that brought to a close the observing session.

My final thoughts are that the site is a good close destination for a star party. The party in July proved that the conditions can be good and I encourage the continued use of this area (if possible).

Roy Schmidt

PVAA Officers and Board

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Photo by Bob Griffin

M57 Ring Nebula

Photo by Bob Griffin

M51 Whirlpool Galaxy

M81 Bode's Galaxy in the Big Dipper

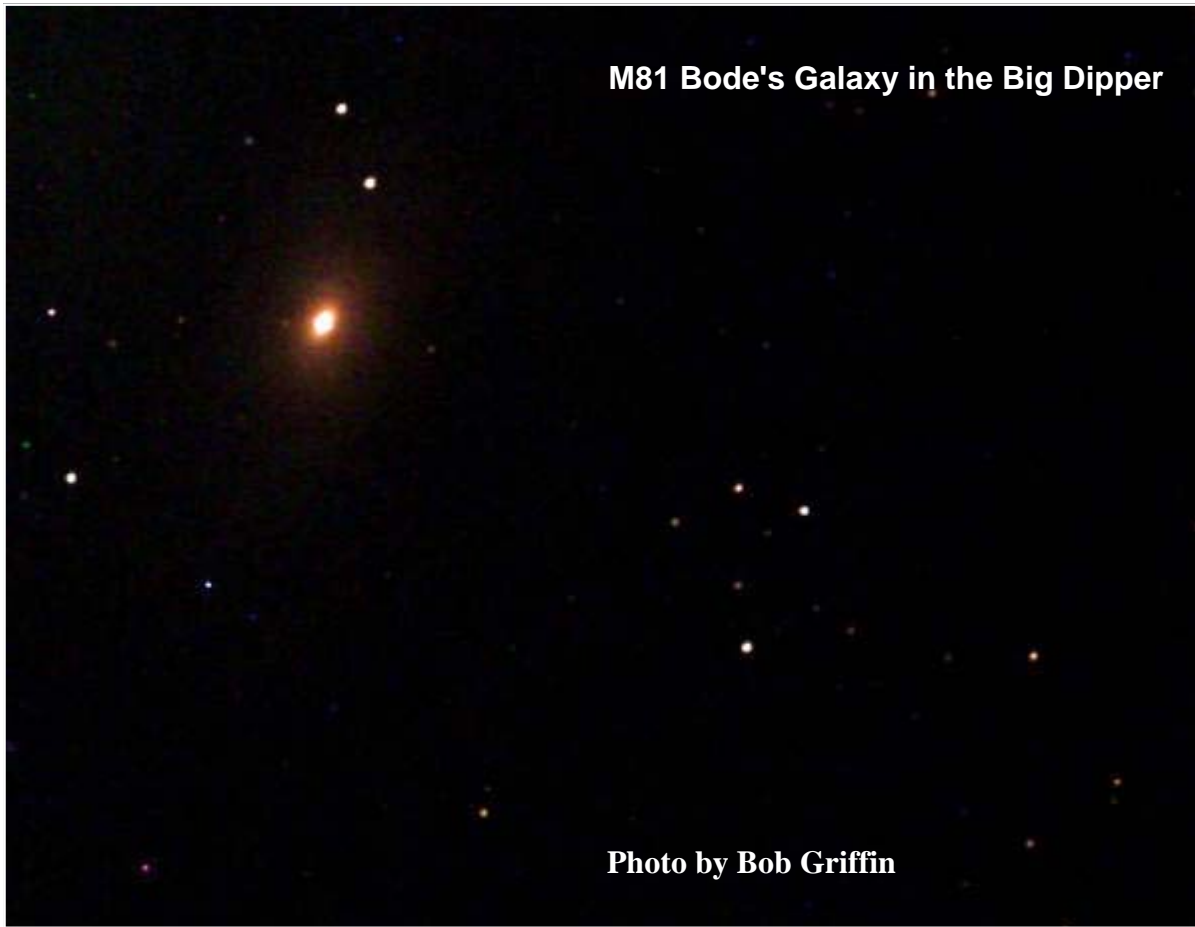


Photo by Bob Griffin

Photo by Bob Griffin

M13 Hercules Globular Cluster



Photo by Bob Griffin



M31 Andromeda Galaxy

Nightfall 2008 is Coming

I just wanted to make sure that you and the members of the Pomona Valley Amateur Astronomers knew about Nightfall 2008. It is taking place in Borrego Springs in late October and will feature three nights of dark skies at a wonderful desert resort. We are also hosting several astronomical imaging workshops, including two conducted by Craig Stark of PHD Guiding and Nebulosity fame.

For more event information, go to www.nightfall2008.com

Ralph Megna

For hotel or camping reservations call (800) 242-0044 or go online at www.p cresort.com.

NIGHTFALL

DEEP SKY TREATS IN THE DESERT 2008

Thursday through Sunday
October 30 to November 2, 2008
Palm Canyon Resort
221 Palm Canyon Drive
Borrego Springs, California 92004
<http://www.nightfall2008.com>
info@nightfall2008.com

NIGHTFALL BASICS

Nightfall 2008 is a four-day event held at a desert resort in Borrego Springs, California; this is the 16th annual edition. The resort supports the event by either switching off or changing to red all of the exterior lighting, and by making Nightfall the exclusive user of the property for its duration. There is no cost to come to Nightfall, but lodging or RV parking costs at the resort are the responsibility of the attendee (see below). You may also stay at a nearby hotel, or camp at the adjacent state park, and still set up on the main event grounds during Nightfall.

WHAT CAN I DO?

You may attend Nightfall for one, two or three nights (minimum two-nights if you are staying at the Palm Canyon Resort). Many people make a mini-vacation out of it and come out on Thursday afternoon and stay until Sunday. Nightfall typically offers sunny, mid-fall days - great for exploring the nearby Anza Borrego Park; you can also attend workshops on astro-imaging and related topics during the day on Friday and Saturday (special registration/fees required). At night, there are several designated areas on the hotel grounds for telescope set-up; these areas have signs, and will be identified in the printed program. Large telescopes can be safely left outside, but participants are encouraged to keep cameras and other accessories in their cars, or take them back to their rooms, and you should provide protection against the sun and dust during the day. Other free activities during Nightfall include a Friday afternoon reception in the hotel saloon, a Saturday afternoon potluck dinner, and Saturday night sky tour.

HOW DO I REGISTER?

If you plan on staying at the Palm Canyon Resort, either in a hotel room or in the RV park, you need to call the resort at (800) 242-0044 or go online at www.p cresort.com. **You should reserve early - the resort is often sold out by the end of summer.** When calling, please tell the clerk you are attending Nightfall (aka "the telescope event"), or you may be told the resort is booked for the weekend. Rates this year range from \$94 to \$105 a night for rooms, and \$28 to \$34 a night for RV sites; both require a minimum two-night stay. If you are coming in an RV and want to have a separate space for your telescope gear, you must pay for that space. If you are interested in attending the astroimaging workshops on Friday or Saturday, please check the website - www.nightfall2008.com - for registration information and cost.