



Newsletter of the Pomona Valley Amateur Astronomers

People who think they know everything
 are a great annoyance to those of us who do.
Isaac Asimov

Volume 28 Number 5


nightwatch

May 2008

President's Address

This time of year I always look forward to the Riverside Telescope Makers Conference up at Big Bear. For me, RTMC is the best place to be on Memorial Day weekend. This is the 40th year of RTMC Astronomy Expo and it just keeps getting better. As our speaker this month (Alex McConahay) will be telling us all about RTMC, I'll just say that I think it is the high point of the year for Southern California amateur astronomy. For more information visit: <http://www.rtmcastronomyexpo.org/>.

On our third try, with cooperation from the weather this time, we finally had a successful solar star party. About 50 people came out to see the Sun in H-alpha and white light and to watch the movie, *Solar Max*, in Brackett Observatory. Thanks go out to all who came out to help and to Bryan Penprase and Pomona College

for letting us use the observatory and grounds for this event. We are planning another solar star party for the  Pg2

Trip to Edwards Air Force Base

We have over 20 people signed up for our Wednesday, June 25th trip to the Air Force Base. Our group is getting a private tour but if there are extra seats on the 42-person bus, we may see if any nearby astronomy club members would like to join us rather than let seats go to waste. The visit will run from about 9:30 AM until 3:00 PM and will include a morning visit with NASA, lunch in their cafeteria, then a tour with the Air Force. While there may be a few areas which are off-limits for pictures, we are welcome to bring cameras. We were advised to pack plenty of drinks and water since the desert in June is usually pretty hot. Please feel free to invite family members on the tour.

Those interested may meet at 7 AM in the College parking lot near our General Meeting location for the drive up there so we can share cars and gas money! We will need some information ahead of time from all those who wish to attend so please contact Claire or pick up a signup sheet by our meeting on May 16th at the latest so we can reserve you a spot. We will be meeting a bus from the Base at their Northern entrance for our tours; below are two links for maps of Edwards.

<http://www.npwrc.usgs.gov/resource/birds/chekbird/r1/edwarmap.htm>

<http://www.planetware.com/map-of/california-edwards-air-force-base-us-ca-eaf.htm>

PVAA Events Calendar

Month	Star Party	General	Board
June	7(Brea Cyn)	20	12
July	5(WM)	18	10
August	2(CC)	15	7

Site Legend

(CC) Cow Canyon Saddle above Mount Baldy Village
 (Brea Cyn) Boy Scout Camp - Directions at later date.
 (WM) White Mountains - Grandview Campground

Pg1  Claremont Village Venture in October.

We have several public star parties coming up. On Monday, May 12th we will be at the Ontario Library Main Branch from 7:00 to 9:00 PM. Saturday, May 31st we will be at the Girl Scout Camporee in [El Potrero Scout Camp](#) near Lake Elsinore. Saturday, June 7th will be a combination Girl Scout / PVAA star party at Brea Canyon Scout Camp. And Monday, June 9th we will be out front of the Montclair Barnes and Noble store. Please support as many of these events as you can.

On Wednesday, June 25th we will have the opportunity to tour Edwards Air Force Flight Test Center. Much aviation and space flight history has been made at Edwards. The base also has a museum. If you intend to go on the tour, please see Claire at the May general meeting.

Over the last several years PVAA has held several star parties at GMARS, the Riverside Astronomical Society's dark sky site near Landers. We have been told that PVAA members are welcome anytime. Recently RAS doubled the size of GMARS with the purchase five acres and house just to the east of the original site. This purchase will expand the available room for parking and for setting up telescopes. It will also help to keep the RAS dark sky site dark. The PVAA board has donated \$1000.00 to help RAS with the expansion of the observing site. Because one of our club's goals is to encourage and further amateur astronomy, I believe that this is an excellent use of our money.

Ron Hoekwater

April General Meeting

Our local newspaper, the Daily Bulletin, along with our Publicity Director, Dorene Hopkins, have been doing a great job of publicizing our events – and as a result we had two visitors this month who found us through articles in the paper. We hope they enjoyed their evening.

We heard from Ludd about the 5th annual Desert Star Party for the Braille Institute of Los Angeles that was held on April 14th. Several club members assisted Frank Busutil with the event which was again a great success. Attendees all participated in a nature walk through the desert, enjoyed a meal, then sat for a lecture on the night sky that turned into an impromptu observing session when an obliging International Space Station passed by overhead at magnitude -2.2. The whole group helped to look for the object, most were able to see it, and all were interested to hear some facts about the astronauts and the science labs which went by so closely overhead. Several people asked for the website where they could access future space station positions so they could find it themselves after they returned home. The website for locations of not only the ISS but the Hubble Space Telescope, bright satellites, and the Space Shuttle when it is in orbit is www.heavens-above.com. Chris, a member from the Orange County Astronomers, spoke to some of our visitors about things to see in the night sky while darkness fell and Club members finished setting up their telescopes. Our patient telescope operators worked with each viewer to try and get images of the moon, Mars, and Saturn into a part of their eye where there was still some vision and almost all the participants were able to see something, some even discerning the elongated form of Saturn and its rings or the circular shapes of craters on the moon. A small campfire along with cider and hot chocolate were available during the viewing anyone was chilly – or hungry. We even made sure everyone got a roasted marshmallow for dessert!

Since the last General meeting, your Board voted to donate \$1000 of Club funds toward the purchase by the Riverside Astronomical Society of 5-acres of land located right next to their GMARS facility in Landers, California. That club's intent was to protect their existing location from any possible, more lighted use of that land by new site owners as well as to allow for possible expansion of their star party location. PVAA members have attended many events with our sister club and have an open invitation to use their GMARS site so we decided to support their purchase. Please feel under no obligation, but if any member wishes to donate towards the land purchase in addition on their own you may contact Ludd and he will handle arrangements to direct your donation to the Riverside Club.

Claire Stover

PVAA Officers and Board

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April Featured Speaker

Our speaker was Eric Grosfils, Associate Professor in the Geology Department at Pomona College. Dr. Grosfils specializes in planetary geology and physical volcanology and has participated with his students in several NASA-funded projects to study the geological processes on Mars and Venus. The studies concentrated on understanding how the volcanic and tectonic features of these planets formed the surfaces we see there today. He spoke to us about Planetary Volcanism and Venus.

In many respects, Venus is Earth's closest planetary sibling.

- Venus' diameter is 86% that of the Earth's. It has 82% the mass
- If you weigh 180 pounds on the Earth, you would weigh 163 pounds on Venus
- Venus is about three-quarters the Earth's distance from the Sun
- Venus' average density is 5.24 g/cm³ while Earth's is 5.52 g/cm³

After that though, the differences start to surface.

- The Earth's atmosphere is 77% nitrogen and 21% oxygen while that of Venus is 96% carbon dioxide
- Our day is just under 24 hours but Venus' lasts for 243 Earth days and is just a little longer than its 224.7 day year
- Venus' axis is tilted 177.36 degrees, the Earth's only 23.5 degrees, which means that on our sister planet the sun rises in the west and sets in the east
- Hot weather prevails on Venus, where the average surface temperature is almost 900 degrees Fahrenheit
- There is no evidence of a global magnetic field on Venus
- Its atmospheric pressure is over 90 times that of the Earth at sea-level

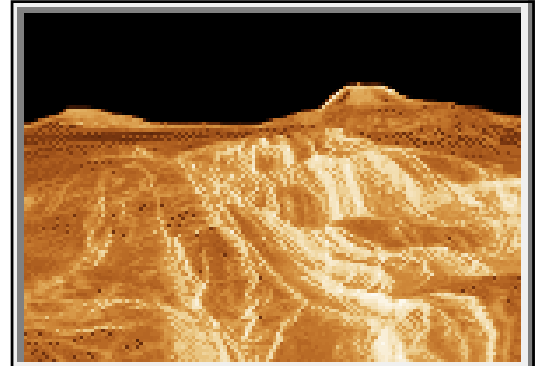
These differences account for some unusual features on this scalding planet. While there are craters covering the surface, none are larger than about one mile since most impactors either burn up or fragment in the thick atmosphere.

The photos and radar images taken of Venus show a world covered with evidence of volcanism. Interestingly enough, though, the data show no changes at all over the last 30-40 years of observations so the planet may no longer be active. A single intriguing exception occurred when a Venus orbiter detected the signature gasses in its atmosphere which on Earth would mean an eruption happened just before the orbiter arrived at the planet. Future research will no doubt be looking carefully for any signs that volcanic forces are still at work.

A lot of terrain which marks volcanic activity on Earth is also present on our sister planet – shield volcanoes, like those on Hawaii, cinder cones, composite volcanoes, lava domes, and calderas like Crater Lake in Oregon. In fact, 80% of the planet's surface consists of smooth volcanic plains. These features can appear very different on Venus, though, due to its dense atmosphere. Ash plumes thrown out from an eruption cannot travel far and volcanoes are therefore usually unable to reach heights like those seen on Earth. Overall, Venus' surface is very flat.

Thank you, Dr. Grosfils; we thoroughly enjoyed our introduction to this interesting planet.

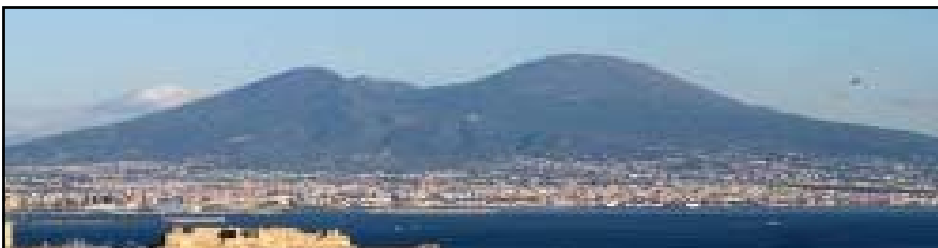
Claire Stover



Venus - A portion of Western Eistla Regio is displayed in this three dimensional perspective view of the surface of Venus. The viewpoint is located 725 kilometers (450 miles) southeast of Gula Mons. A rift valley, shown in the foreground, extends to the base of Gula Mons, a 3 kilometer (1.86 miles) high volcano. This view is facing the northwest with Gula Mons appearing at the right on the horizon. Sif Mons, a volcano with a diameter of 300 kilometers (180 miles) and a height of 2 kilometers (1.2 miles), appears to the left of Gula Mons in the background. (Courtesy NASA/JPL)



Crater Lake, Oregon



Mt. Vesuvius, Italy - an active composite or stratovolcano.

- References: http://www.arcadiastreet.com/cgvistas/venus_002.htm
<http://sci.esa.int/science-e/www/object/index.cfm?fobjectid=34067>
<http://news.bbc.co.uk/2/hi/science/nature/4335628.stm>
http://volcano.und.edu/vwdocs/volc_images/north_america/crater_lake.html
<http://www.solarviews.com/eng/venus.htm>
<http://en.wikipedia.org/wiki/Venus>

Pluto – Dog Of The Solar System

Pluto became a dog in 1930, during the Great Depression, when a Disney comic strip showed Mickey Mouse finding a lost dog on the street. “I’ll take you home and call you Pluto after the newly found planet,” Mickey squeaked. American newspapers, searching for good news, were all celebrating the discovery of “Planet X” by an American “Kansas farm boy” Clyde Tombaugh. It was a year so desperate for optimism that Walt Disney would name a lovable orange pup after Pluto, the dark ruler of the underworld. Newspapers promoted a worldwide contest to name “Planet X,” selecting the name Pluto as the winner. It had been sent in by an eleven-year-old English girl, Venetia Burney. Significantly its abbreviation PL were the initials of Percival Lowell, the Massachusetts textile mills millionaire who funded the search for a possible ninth planet beyond Neptune. Lowell had hoped a “Planet X” search would establish his scientific credibility, which had been dented by his belief that Mars was inhabited by busy Martians building a network of canals – but let’s go back to 1894.

That was the year Percival Lowell, oldest son of the wealthy textile empire of Lowell, Massachusetts, left for Flagstaff, Arizona. Here he would set up his own private observatory on Mars Hill. Far from the family mills he would view the red planet and see a network of intelligently constructed canals. His father would send Percival letters, saying that if he wasn’t discovering something very important with his telescope he’d better come and run the textile mills. That’s when Percival realized that the Martians were building brand new canals on a monthly basis, bringing water from the polar caps to irrigate their arid planet. The newspapers loved the Martian canal idea. H.G. Wells wrote a novel, *War Of The Worlds*, in which Martians invade Earth in search of water. But every other astronomer in the world thought Percival Lowell was crazy. So the search for “Planet X” was launched. Sadly, Lowell dropped dead of a heart attack before the search even began. Upon his death his widow, who had always wanted to go back to Boston, withdrew all the family funds from the observatory. Vesto Melvin Slipher and the other astronomers scrambled for funds from other sources. Widow Constance, perhaps out of guilt, restored some few funds and built an extravagant marble tomb for Percival in the shape of an observatory dome. It sits next to the Mars Hill telescope dome and cost a whole lot more.

So it was left for Vesto Slipher to hire the cheapest assistant he could find to tirelessly search for a ninth planet. He hired a 22-year-old “Kansas farm boy,” Clyde Tombaugh. After a year of photographic “blink-comparator” searching, Clyde finally found a moving dot of light. He took the night off and went to Flagstaff to see a Gary Cooper movie. Much to Clyde’s surprise, the newspapers soon turned him into a national hero. He was the first American to discover a planet! Even in the Depression, funds began slowly flowing toward Lowell Observatory. Clyde went on to discover several comets and became a respected professional astronomer. Widow Constance promised more funds if the new planet were named Constance. But distant Pluto, originally thought to be as big as the Earth, would soon begin to shrink in known size as telescopes became larger.

In 1978, at a new Arizona telescope, astronomer James Christy discovered that Pluto had a relatively large moon. He called it Charon, after the boatman of Hell who ferries the damned across the River Styx. Sadly, since the estimated size of Pluto had been based on its brightness, it now became smaller than Earth’s Moon. On the brighter side, Pluto and Charon revolve around a common center. So, they became the Solar System’s only double (dwarf) planetary system! Gravitationally locked, the two bodies always face each other as they spin through space like an icy waltzing couple. Pluto once again dogged the news services, and there would be more barking to come.

In 2003 astronomer Mike Brown, searching with a powerful telescope at Palomar, discovered a planet even farther out. It has an orbit of 557 years, three times the distance of Pluto from the Sun. Its size is slightly larger than Pluto. So in this bureaucratic day and age it had to be turned over to the International Astronomical Union to decide its classical name and if it would truly be a tenth planet. Brown, appealing to the newspapers’ need for drama, called it “Xena” (stranger) after the popular T.V. show *Xena, The Warrior Princess*. Its tiny moonlet could be called “Gabrielle” after Xena’s faithful sidekick.

Other remote minor planets had already been discovered on the outer edges of the Solar System. So the IAU, faced with possibility that more planets larger than Pluto would be found, debated whether Pluto should even be called a planet. Once again Pluto dogged the news as amateur astronomers and Disney fans marched in angry protest.

Finally, it was decided that Pluto should be a dwarf planet. And, after prolonged argument, it was decided that “Xena” would be dwarf planet Eris (goddess of argument). Its mini-moon would be named Dysnomia (goddess of lawlessness). Brown was philosophical, noting that Lucy Lawless was the actress who had played Xena. Pluto reacted by revealing two new mini-moons to be called Hydra and Nix.

Overlooked in a media outcry over the demotion of Pluto was the fact that the largest asteroid Ceres (goddess of cereal) was PROMOTED to dwarf planet. Ceres, discovered in 1801, had been the biggest of thousands of asteroids that orbit between Earth and Mars. Upon its discovery it was hailed as a great new planet, but it’s now known to be less than half the size of Pluto. The Dawn spacecraft is currently on its way to Ceres and will reach it in 2015 after visiting what has now become the largest asteroid, Vesta (goddess of the hearth), in 2011.

But Pluto’s dog days continued. In 2007 the American Dialect Society chose “plutoed” (meaning to demote or devalue) as its Word Of The Year.

Pluto, which takes 249 years to orbit the sun and eccentrically strays dog-like within the orbit of Neptune, will woof again in 2015. This is when the New Horizons spacecraft, launched in 2006 with some of Clyde Tombaugh’s ashes on board, will reach it. Then Pluto, which has given its name to a cute Disney pup and the deadly substance Plutonium, will bark out with new surprises and once again be a top news dog.

May Star Party

Our May star party at the Mount Baldy Ranch RV Park, above Baldy Village was well attended. If I counted right we had a total of 15 members and visitors.

This was our third observing session from this site. In the past some have had difficulty finding us, especially if they arrived after dark. To help alleviate that problem Jim Bridgewater brought and set up a couple of signs. Although I don't think anyone had trouble finding us this time I would still advise anyone who hasn't been to this site previously, to try to get there before dark. I am told that there are some places where one could inadvertently drive into a ravine in the dark.

After being clear most of the day, thin clouds started to form in the early evening. This limited observing to brighter objects. Fortunately, Saturn was up displaying its charms. We had a good look at the ringed planet. The transparency was not good, but the seeing was steady. We also looked at Mars, but it is getting pretty far away now. We couldn't see much more than an orange disk.

As the night went on the clouds got worse until it was completely overcast. Everyone except Shawn Griffin, Michael Keenan, and myself packed up and headed down the hill. Almost as soon as the last one left it started to clear. In less than an hour there wasn't a cloud in the sky. We looked at M13 and M51 in Shawn's 4-inch Newtonian.

We also spent some time looking for objects which, as it turned out were beyond the reach of a 4-inch scope, at least from Mount Baldy. The sky at this site is very good considering how close to town it is, but there is definitely some light pollution. It is dark enough to see the Milky Way. The northern sky is best. The western sky is pretty washed out. The south is better than one might expect.

As Scorpius rose over the mountain Shawn and I called it a night. The skies were less than ideal most of the time, but I think everyone still had a good time.

On Saturday, August 2nd we will be returning to Mount Baldy Ranch RV Park. Our next star party will be June 7th with the Girl Scouts at the Scout Camp in Brea Canyon.

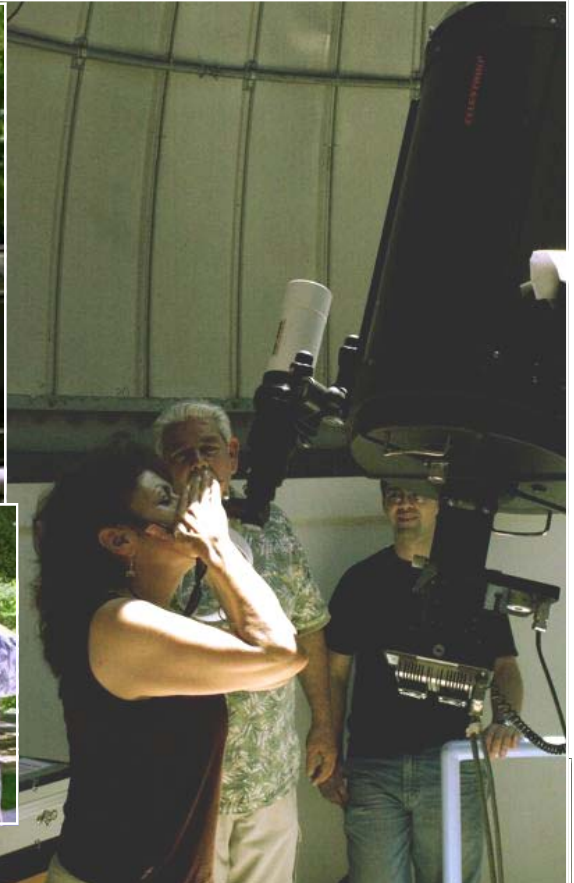
Ron Hoekwater

Solar Observing at Brackett Observatory,
Pomona College April 26, 2008



Solar Observing at Brackett Observatory, Pomona College

April 26, 2008



Photos by Ray Magdziarz

