

PAStimes

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PAS Has Two Meetings In May: May 5 and May 19

The guest speaker at our **May 5th meeting** is Dolores Hill. Dolores is senior research specialist at the University of Arizona's Lunar and Planetary Laboratory (LPL). She analyzes and classifies meteorites, supports LPL meteorite research activities, and provides hands-on meteorite opportunities for school groups and special public events. She has analyzed a variety of meteorites from all over the world including Lunar and Martian meteorites since 1981, using LPL's electron microprobe and gamma ray spectrometer laboratory. Dolores is currently part of the Education and Public Outreach Team for the proposed NASA OSIRIS-REx sample return mission to Potentially Hazardous Asteroid (PHA) RQ36.

Dolores's presentation will be: "Meteorites: Keys to Understanding the Solar System".

Meteorites reveal tantalizing clues to the formation and evolution of the Solar System.

There is a surprising variety of meteorite types from different parent bodies and ages. The world's meteorite and research collections contain samples from primitive cometary material and interstellar dust grains to highly processed asteroids and fragments of other planets. In addition to the presentation, we will display examples of typical meteorites and "meteorwrongs" (objects misidentified as meteorites). Come hold one of the oldest rocks in the Solar

System...4.567 billion years old, part of the iron-nickel core of a large asteroid, and a meteorite that is thought to be a piece of the asteroid Vesta!

The guest speaker at our **May 19th meeting** will be Dr. Robert Piccioni (pronounced "Pitch-O-knee"). Robert's presentation will be "Einstein for Everyone": How did a young rebel, who seemed doomed to fail, overcome rejection to become the world's most famous scientist? In plain English, what do his theories mean? And how does Einstein impact our lives through DVDs, GPS, CCD imaging and digital cameras, computers, and smarter energy?

See May 19 meeting Speaker on pg 4

April PAS Meeting Review

By Terri, Event Coordinator

There was a great turnout at this event. We opened the meeting with very short announcements and then turned it over to our fabulous guest speaker, Rik Hill. Rik talked about Near Earth Asteroids and the process in which the Catalina Sky Survey is spending hours, days, and years looking for potentially hazardous asteroids that may come too close for comfort to the Earth. It was a wonderful topic and very interesting. Rik was awesome.

In attendance, and a surprising treat, was John Pulis. I wish to thank Judy Wolff for stepping up to help sign in the guests until John appeared at the meeting, and took over as PAS Host. Many thanks to Sam Insana who provided the popcorn, addictive stuff. Ed Wurst brought a bunch of cookies and the bottled water for this month. Bob Senzer brought the Oreos, which weren't

opened, so you will see them at the next several meetings. Leah Sapir provided some chocolate-chip cookies at a previous meeting and I brought those for everyone to enjoy. At the end of the presentation, we opened it up for announcements, and Jerry Belcher invited everyone to the 4th Saturday of the month's Rocket Launch. Kraig Nelson, a new PAS member, won the 50/50 raffle, splitting \$46 with the club.

We had a few brief announcements at the end of the meeting. Bob Christ is in the lead for winning the PAS Messier Marathon Plaque, to be presented at the May 19th PAS meeting. There is still one more Messier Marathon evening that will be held on April 30, for any members who want to compete. I thanked Joe Collins for finding our awesome guest speaker, Rik. Rik and his wife Dolores come to us from Tucson. Dolores will be our May 5th speaker. You

will definitely want to attend that meeting.

It was a fun, informative, very good meeting with a good turnout. I can't wait until the next two meetings, May 5 and May 19th. The speaker line-up is awesome! See you there!§



Rik Hill, April's speaker

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PAS Upcoming Summer Events: May

By Terri, Event Coordinator

May 5: PAS Meeting and Officer Elections at PVCC in Rm G-147, 7pm to 10pm. Guest speaker: Dolores Hill. It's a pizza party! Pizza and bottled water provided by PAS. Bring a friend!

May 6: Rancho Gabriela School star party in Surprise, 7:30 to 9:30pm. RSVP with Terri to attend. Scopes needed. PAS Members only.

May 7: Astronomy Day and Desert Botanical Gardens paid star party, 8pm to 10pm. PAStimes Star Tour members only. RSVP with Sam.

May 9: Chaparral School star party, 7:30 to 9:30pm. RSVP with Terri to attend. Scopes needed. PAS Members only.

May 10: Cancer Treatment Center paid star party, 8pm to 10pm. RSVP with Joe. PAStimes Star Tour members only.

May 10: Deadline to submit your

Messier Marathon results (Events@pasaz.org) to win 1st place plaque.

May 11: Rancho Gabriela star party backup date for May 6.

May 12: PVCC Public star party by telescope dome, 7:30 to 10pm. RSVP with Terri to attend. Volunteers and scopes needed. Bring a friend!

May 13: Benchmark School star party. RSVP with Terri to attend. Volunteers and scopes needed. PAS Members Only.

May 19: Special PAS Meeting, 7pm to 10pm at PVCC in Rm G-147. Bring a friend!

May 20: Birthday party for Mike Marron at Bad Donkey in Carefree, 7pm to 9pm. RSVP with Terri to attend. Details will be discussed by email.

May 22: Bookmans Telescope Workshop. RSVP with Terri. 3:30 to 5:30pm in Bookmans backroom. Volunteers are needed. Bring a friend!

May 24: CTCA backup date for May 10.

May 26: PAS Meeting of the Minds. This is the business portion of PAS. Everyone is welcome, no children please. Bring snacks to share, make it a party. Meet at PVCC in Rm G-147, 7pm to 10pm.

May 28: PAS Virtual Star Party, 8pm to 2am. RSVP is required with Chris. Event is held at Chris's home in Goodyear. Bring your laptop, snacks and drinks to share. PAS Members only.

May 28: Portal, AZ Star Party - PAS Members only are invited to Dave's property, no facilities, for an overnight, super dark sky star party. RSVP is with Dave at david.hellmann@pvmail.maricopa.edu by Thursday May 26 at noon. Directions & Maps can be found in the Private calendar link of this event on the PAS Website. §

PAS Upcoming Summer Events: June

Jun 7: Cancer Treatment Center paid star party, 8:30pm to 10:30pm. RSVP with Joe. PAStimes Star Tour members only.

Jun 12: Bookmans Telescope Workshop. RSVP with Terri. 3:30 to 5:30pm in Bookmans backroom. Volunteers are needed. Bring a friend!

Jun 21: CTCA backup date for Jun 7.

Jun 25: PAS Virtual Star Party, 8pm to 2am. RSVP is required with Chris. Event is held at Chris's home in Goodyear. Bring your laptop, snacks and drinks to share. PAS Members only.

Jun 30: PAS Meeting of the Minds.

This is the business portion of PAS. Everyone is welcome, no children please. Bring snacks to share, make it a party. Check with Terri as to whether meeting will take place, as meeting will be cancelled if there are not enough topics to discuss. Meet at PVCC in Rm G-147, 7pm to 10pm. §

PAS Upcoming Summer Events: July

Jul 2: Cuttin' Edge Observatory star party in Mayer. RSVP is required with Chris. Arrive before sundown, 7:30pm. PAS Members only.

Jul 3: 4th of July Party and Fireworks at Mike's home in Carefree. RSVP with Mike to attend. Bring scope. 4pm is potluck – bring food and drink to share. Fireworks around sundown, star party to follow. Bring a friend!

Jul 12: Cancer Treatment Center paid star party, 8:30pm to 10:30pm. RSVP with

Joe. PAStimes Star Tour members only.

Jul 23: PAS Virtual Star Party, 8pm to 2am. RSVP is required with Chris. Event is held at Chris's home in Goodyear. Bring your laptop, snacks and drinks to share. PAS Members Only.

Jul 26: CTCA backup date for Jul 12.

Jul 28: PAS Meeting of the Minds. This is the business portion of PAS. Everyone is welcome, no children please. Bring snacks to share, make it a party. Check with

Terri as to whether meeting will take place, as meeting will be cancelled if there are not enough topics to discuss. Meet at PVCC in Rm G-147, 7pm to 10pm.

Jul 30: Cuttin' Edge Observatory star party in Mayer. RSVP is required with Chris. Arrive before sundown, 7:15pm. PAS Members only.

Jul 30: Potluck and star party at Mike's in Carefree. 4pm is potluck followed by star party. Everyone welcome, bring a friend, RSVP is required with Mike. §

PAS Upcoming Summer Events: August and September

Aug 2: Cancer Treatment Center paid star party, 8pm to 10pm. RSVP with Joe. PAStimes Star Tour members only.

Aug 12: Perseids Meteor Shower Peak. No PAS event scheduled, yet.

Aug 13: PAS Moon Marathon at Cow Track Ranch in Carefree. 4pm Potluck followed by Moon Marathon after sunset. RSVP required with Mike. Prizes awarded for participation.

Aug 14: Bookmans Telescope Workshop. RSVP with Terri. 3:30 to 5:30pm in

Bookmans backroom. Volunteers are needed. Bring a friend!

Aug 16: CTCA backup date for Aug 2.

Aug 20: PAS Virtual Star Party, 8pm to 2am. RSVP is required with Chris. Event is held at Chris's home in Goodyear. Bring your laptop, snacks and drinks to share. PAS Members only.

Aug 25: PAS Meeting of the Minds. This is the business portion of PAS. Everyone is welcome, no children please. Bring snacks to share, make it a party. Check with

Terri as to whether meeting will take place, as meeting will be cancelled if there are not enough topics to discuss. Meet at PVCC in Rm G-147, 7pm to 10pm.

Aug 27: Cuttin' Edge Observatory star party in Mayer. RSVP is required with Chris. Arrive before sundown, 7pm. PAS Members only.

Sep 1: PAS Meeting in Library – MEMBERS NIGHT. Bring a friend! Sign up with Terri to do a 10-15 minute presentation. §

PAS Moon Marathon 2011

By Terri, Event Coordinator

The PAS Moon Marathon of March 19 was canceled due to very thick clouds. We have rescheduled this event for August 13, with a backup date of December 10. These

are the only two Saturdays that have a full moon and are not already taken by another event on the PAS Calendar. Please RSVP your attendance with Terri. See you there and good luck winning the Marathon. The

first-place winner gets the Moon Marathon plaque designed by Jerry Belcher. Additional prizes are listed in the forum thread about this event. ***§

Messier Marathon 2011 at Hovatter Airstrip

By Bob Christ, PAS Member

The 2011 All Arizona Messier Marathon, sponsored by the Saguaro Astronomy Club (SAC), was held April 2nd at a dark site aptly named Hovatter Airstrip. Located approximately 100 miles west of Phoenix off of exit 53 (Hovatter exit) on Route 10, the site is an old airfield that provides easy access, easy setup, good access to low-placed celestial objects, and usually excellent dark skies.

While the Marathon is conducted on a Saturday each year, a significant number of folks (myself included) set up to view Friday evening as well.

The sky was probably an 8-of-10 night Friday evening, and I was able to see details in objects that had previously eluded me. Omega Centauri, a magnificent globular cluster located at -47° in the southern sky, seemed to almost consume the total field of view in my widest-field eyepiece. What a sight!

After the wonderful viewing Friday

night, I placed my scope into hibernate mode, a utility I had not used before. While the sky was magnificent Friday evening, the same could not be said on Saturday: it was ugly and the Marathon was almost called off.

I wanted to log objects prior to astronomical twilight at 8:19 PM, and Sirius was going to be my "go to" star because of its brightness, to validate that the hibernate utility had worked. It was very cloudy and I had to be vigilant, waiting for Sirius to poke through the clouds. Sirius surfaced momentarily, I slewed to it, and hibernate had worked beautifully: Sirius was positioned dead center in the FOV.

"Let the games begin."

I logged the 3 open clusters in Puppis before 7:45. I had bagged M77, always a low-placed difficult object to log, the night before at 7:55 and was ready for it Saturday evening, but the clouds were pervasive. Then it became a game of point the scope

where the clouds were not. By 11:00 PM, I had logged 66 objects (missed M77, 74, 33, and 76) and the clouds totally obscured the sky.

From 11PM to 1PM I just sat looking up at the sky. Aside from wind gusts, I heard no sounds, and the moonless and cloudy sky delivered an eerie sense of sensory deprivation. At 1PM, I decided there was no hope the sky would clear and I had to reinforce the stake at one corner of the tent to prevent my "home" from going airborne before bedding down.

Sleep was difficult, the wind blew and stopped blowing; the temperature became warm, and then colder. To reduce the sail of the tent, I kept the windows down, and whenever I peered outside the sky was socked-in.

When I surfaced early in the morning following marginal sleep, I discovered the sky had amazingly cleared and 106 (out of 110) objects took first prize. §

September PAS Meeting Is Members' Night

By Terri, Event Coordinator

We'd love to see a bunch of PAS members involved in Members' night this year. It was decided that each September PAS meeting would be Members' Night to allow our Members to shine. If you have a 10 - 15 minute presentation that you'd like to share with the membership, please prepare it and

then drop me an email Events@pasaz.org with the title of your presentation plus an approximate length of time that you would want to have to do your presentation. The first ones to sign up will get the allotted times, and whatever is left, goes to those who sign up later. You can do a presentation as short as a minute to as long as 15

minutes, at the moment. If we get a lot of signups, I will adjust the time to allow for as many participants as I can. We would love to hear from you. Topics can be anything about astronomy, rocketry, space, book reviews, telescope reviews, space art, and more. §

Pinnacle Peak Cub Scouts Star Party

By Bob Christ, PAS Member

Mike Marron and I supported this event in North Scottsdale on Tuesday, April 5th. The cloudy skies that had haunted the All Arizona Messier Marathon a few days earlier were still prevalent, and I almost "pulled the plug" to cancel. I'm glad I did not, and it turned out to be a wonderful event even though the sky did not cooperate.

The promised attendees (about 40 Cub Scouts) were present, as well as a number of parents and scout leaders.

We divided the scouts into two groups

so Mike and I could address them concurrently in an orderly fashion and then switch groups. I heard a lot of laughter coming from Mike's area so his attendees were certainly enthusiastic and well entertained.

Cloudy skies don't affect Mike's presentation (part of my rationale to not cancel), but scoping objects became a real challenge. My target list turned out to be an exercise in planning: not execution. I was able to display the 3% illuminated Moon before clouds obscured it, and I was able to show M42 (the Orion nebula) directly, and through high wispy clouds, to oohs and

ahhhs. My "second group" was treated to views of Saturn, both directly and through the clouds, and it too was a big hit. The oohs and ahhs came from both the scouts and their parents.

I shared astronomy facts while waiting for objects to appear, and it was exciting to field really interesting questions from the scouts. Clearly they are being exposed to information about the sky. Most refreshing!

The scouts and parents were most appreciative and we received a LOT of thank you comments. §

May 19 Meeting Speaker

Continued from pg 1

Robert graduated from Caltech, has a Ph.D. in high-energy physics from Stanford University, and was on the research faculty of Harvard University. He is an expert on Einstein's theories and cosmology. Robert ran eight high-tech companies and holds patents in medical equipment, microelectronics, and smart energy. Since "retiring",

Robert's mission is making science accessible. He is "Teacher of the Year" at the Osher Institute and hosts the online radio show "Guide to the Cosmos". Robert is the author of two books that won national and international competitions for "Best Popular Science Book of the Year": "Everyone's Guide to Atoms, Einstein, and the Uni-

verse" explores the exciting discoveries of modern astronomy, physics, and cosmology and "Can Life Be Merely An Accident?" examines the many exacting requirements for life and how extraordinarily improbable it is that they occurred by random chance. §

Report on Mike's Marvelous March 19 Moon Marathon

By Pete Morrissey

Sue and I could not stay for the festivities due to family matters, but we did manage to stop by and drop off some wine and beer. In return, Mike gave us a tour of his famous old family home/ranch house/bar/restaurant/theatre which got its start serving the workers from the Bartlett dam site circa 1930. I highly recommend a visit to those members who haven't been there yet. Too bad the moon wasn't very cooperative. Let's hope for better weather next time! §

We Have Two May PAS Meetings!!!

By Terri, Event Coordinator

Yes! PAS will be having not one but TWO wonderful meetings in May - each complete with a guest speaker, refreshments, and PARTY!

May 5: The May 5th meeting will be a pizza party in Rm G-147 at PVCC with Officer Elections. Pizza and water will be provided by PAS. Our guest speaker will

be Dolores Hill.

May 19: The May 19th PAS meeting is a special meeting, again in Rm G-147 and a party! Bring a snack to share. Water provided by PAS. We have an awesome guest speaker lined up for this night: Dr. Robert Piccioni..

See article on page 1 of this issue for

more information about the two guest speakers (May 5 and May 19) and their presentations

Sept 1: The September PAS meeting will be Members Night! Sign up today to give a presentation at this meeting. The meeting will also feature the Messier Marathon Awards Ceremony. §

May 10th Deadline

By Terri, Event Coordinator

May 10th is an important date for those PAS Members who have attended a Messier Marathon and wish to possibly be awarded the 2011 Messier Marathon Plaque. Get your results to me by then. Give me the following information: your name, how

many objects you were successful in finding, and list the objects you missed. That's it. You need to beat Bob Christ who is currently in the lead within PAS. Get out there on April 30, find those Messier objects, and win the main plaque. You can submit your results by email

Events@pasaz.org or by phone 602-561-5398. I await hearing from you. I'd like to post the PAS members data in a future issue of our newsletter. So, even if you haven't beat Bob, get that data to me so we can congratulate you for the objects you were able to view. Thanks. ***§

Posters for Learning Astronomy and Natural Science for Educators and Teachers

By Bob Senzer, PAS Member

As a substitute teacher, primarily in the Deer Valley Unified School District [DVUSD], I have been distributing astronomy posters to the schools where I have been called to do substitute teaching. These posters are targeted for distribution to Natural Science teachers within the district. Some schools may choose to display the posters in their media centers [libraries] or may choose some alternative venue. I have delivered these posters directly to the chairpersons of the science departments, to science teachers, and to school librarians. In every case, I have explained that these posters were provided by PAS for educational

purposes. Schools that have received such posters include Hillcrest Middle School, Deer Valley High School, Boulder Creek High School, and Goldwater High School. The list of recipients reflects schools where I have performed substitute teaching.

I have no remaining inventory of posters, therefore, the distribution is complete for the moment. If any PAS member has astronomy posters that they would like to contribute, I will gladly accept them and distribute them to the schools where I substitute. On rare occasions, I substitute within the Glendale Union High School District [GUHSD]. However, since GUHSD does not currently have as many substitute as-

signments, I did not have an opportunity to distribute any of the posters within the GUHSD schools.

Teachers and other representatives of the schools who received such posters were extremely appreciative. Most of my substituting is not directly in science classes, thus I have not seen these posters on the walls as yet, but I am confident that the schools will display them and PAS will have enriched the learning environment.

The content of the posters varied, including scenes of the Milky Way Galaxy, the LROC mission, the Pleiades, the Andromeda Galaxy, and other sky objects. §

Washington Elementary Star Party Review 4/15

By Sam Insana

On April 15th, Frank and I arrived at Washington Elementary School at 6 pm for a 7pm star party. We had the PST and solar filter on the 8-inch Newtonian, but cloud cover made the Sun unobservable for flares and sunspots. There were about 100 people there at 6 pm. They waited one hour for us to start our 7 pm viewing. The only object we could see was the Moon, so Frank showed the little kids the whole Moon with his small refractor, and I showed close-up craters at 250 power with the Newtonian. From 7 until 8 pm there were over 500 people. Many people stood in line and not everyone got to see the Moon. Mike was on hand with his meteorites so he kept the people entertained. Unfortunately, another Mars rock disappeared from Mike's collec-

tion, but the school said they would pay the \$50 for Mike to replace it.

At 8 pm I showed Saturn, but less than half the people were able to see it because of the long line. Some saw the Orion Nebula through Frank's refractor, but at 8:50 pm we were warned that the sprinklers would be going off in ten minutes. That gave us just enough time to toss everything in our vehicles. The school provided us with pizza, and a tip jar. Everyone was very nice and they seemed to be very appreciative. It was a good time, but very exhausting. Next time we have a star party with over 500 people, we should make sure we have at least four scopes. It was fun, but a bit of a mess and totally draining. Afterwards Mike,

Frank, and I went to Marie Callendars for some well earned pie. §

Many Thanks from Washington School

By Sara Pearson, Teacher

The event was great! I am not sure how many attendees there were, but there were a good amount of families. Unfortunately, Mike's piece of Mars got lost. A child opened the case it was in. We feel terrible and are going to do what we can do to get him a new one. Mike, Sam, and Frank were so nice, thanks for giving an experience to these kids that they couldn't have had without your generosity. We will definitely be planning an event in the fall. I will book early! Thanks again! §

Meeting of the Minds Review April 28

By Terri, Event Coordinator

This was a very productive meeting with good discussions. Here's what you missed.

In attendance were Chet Schuler, Dave Hellman, Sam Insana, Frank Insana, Don Boyd, Judy Wolff, Chris Johnson, Mike Marron, William and Terri Finch, Bob Senzer, and two guests, Bill and MaryAnn.

Election of Officers at the May 5th PAS meeting: With elections coming up this next week, I brought up Rod's situation. Rod is requesting for someone to take his place as President until he can get a more reasonable schedule at work, which current-

ly prevents him from attending any PAS events. He goes to bed at 5pm, gets up at midnight, for each day of 11 hours for 7 days a week. Great income but he said that by the end of his shift all he wants to do is come home and go to bed. So, the position of President is open for the taking. Rod did say that if needed, he will continue to keep his position, but would prefer that someone with a better schedule might want to fill in for a year. What does the President do? The President of PAS finds the guest speakers and hosts all meetings. So, you would research the guest speakers, and send the contact info for the speakers to Terri, who would then schedule the speakers into our

PAS meetings (held on the first Thursday of each month). You would open and close all PAS meetings and MOM's, and possibly run the MOM's discussion. If possible, you should be at all or most PAS events (although, over the years, it has become harder for any one PAS member to be at all events, so that part of your position is subject to your availability). Terri will keep her current position, which at the moment is Vice President, Event Coordinator and Acting President. The group at the MOM's asked if I wanted to be president again. I don't mind taking the title, but could really use a vice under me to find speakers and run meetings I can't be at, which is mostly the President's



Arizona Sky

By Leah Sapir

The constellation Draco, the dragon, is easily viewed in the northern sky during most of the year, but especially from spring till fall. Draco's head – a compact trapezoid with two bright stars for eyes – is near Hercules. The dragon's tail winds between Ursa major and Ursa minor.

About 10 degrees north of the dragon's head is a beautiful nebula: NGC 6543, also known as the "Cat's Eye" Nebula. This nebula figured importantly in one of the great advances of astronomy.

During the 18th and 19th centuries, astronomers (including Charles Messier, William Herschel, and others) found many faint fuzzy objects in the sky, that they referred to as "nebulae". When viewed through larger telescopes, some – but not all – of the nebulae could be resolved into clusters of stars. Some nebulae seemed to be uniformly smooth, while others (called "planetary nebulae" because of their superficial resemblance to planets) showed just one bright star at the center. In some cases, star clusters were surrounded by unresolved nebulosity.

Some astronomers believed that the unresolved "nebulae" could all be resolved into stars with large enough telescopes; others believed that the "nebulae" were made of a "shining fluid".

In 1835, the French philosopher Auguste Comte wrote, "We can imagine the possibility of determining the shapes of stars, their distances, their sizes, and their movements; but there is no means by which we will ever be able to examine their chemical composition." It's interesting that he wasn't even referring to stars but to planets; little did he know that only 150 years later, humans would send spacecraft to explore the planets up close. And even in his own time, Comte didn't know that the research of a young German optician, Josef von Fraunhofer, would lead to a breakthrough in our knowledge of what stars and nebulae are made of.

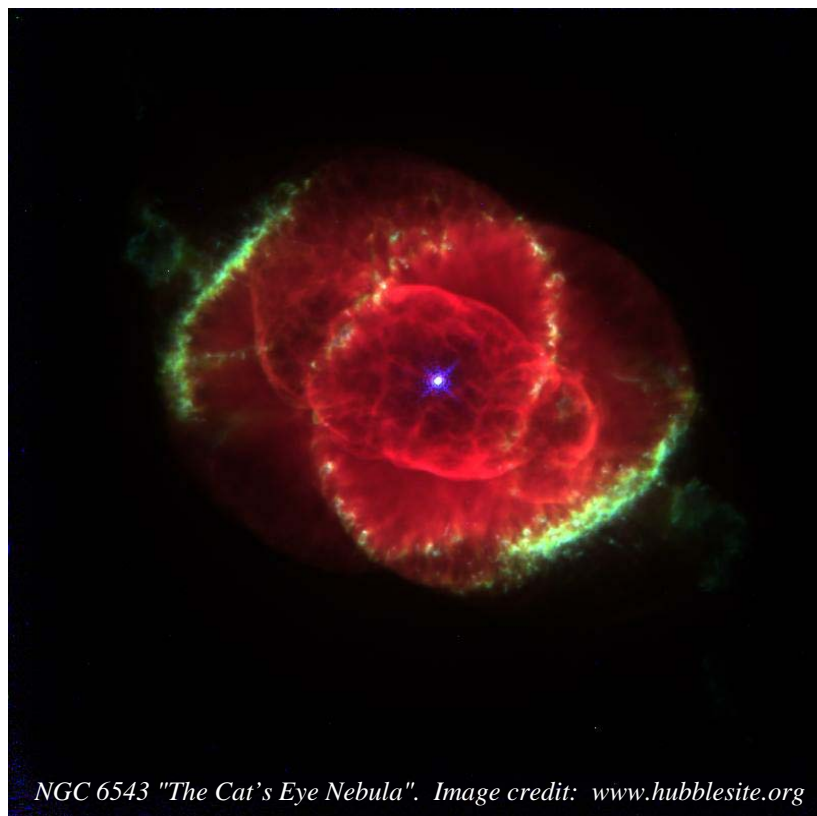
In the 17th century, Isaac Newton had shown that sunlight could be split into a continuous spectrum – like the rainbow – by passing it through a glass prism. In 1815, Fraunhofer mag-

nified the solar spectrum by passing it through a narrow slit, and found that it wasn't as "continuous" as it seemed; dark lines appeared in certain places.

In the meantime, chemists observing the properties of various elements had noted that each element produces a characteristic color when heated or burned. For example, so-

dium produces a bright yellow flame, while calcium burns with a reddish color. In 1859, the German chemists Gustav Kirchhoff and Robert Bunsen (for whom the Bunsen burner is named) did more exact measurements of this phenomenon, and found that each element, when heated, produces a characteristic pattern of spectral lines. Moreover - if white light (which includes the complete spectrum) is passed through a cool vapor of the element, the same pattern appears as dark lines in the spectrum. They noted that some of these spectral lines exactly matched the dark lines found by Fraunhofer in the sun's spectrum. They deduced that the dark lines represented elements in the sun's atmosphere, which absorb those wavelengths before the light reaches us – the same wavelengths of light that are released when the element is heated.

In England, a chemist and college professor named William Miller gave a lecture at the Pharmaceutical Society about the discoveries of Kirchhoff and Bunsen. One of Miller's neighbors who heard the lecture was an amateur astronomer, William Huggins. On the way home from the lecture, Huggins asked Miller to work together with him, to examine the spectra of stars and other sky objects. They measured the spectra of several planets and bright stars, and



NGC 6543 "The Cat's Eye Nebula". Image credit: www.hubblesite.org

published their results at the end of 1863. Huggins also measured the spectra of 26 different elements, for comparison to the astronomical spectra.

In August 1864, Huggins decided to point his spectroscope at a small nebula in Draco - the "Cat's Eye Nebula". Huggins describes his experience: "On the evening of the 29th of August, 1864, I directed the telescope for the first time to a planetary nebula in Draco.... after a few moments of hesitation, I put my eye to the spectroscope. Was I not about to look into a secret place of creation? I looked into the spectroscope. No spectrum such as I expected! A single bright line only!... The riddle of the nebulae was solved. The answer, which had come to us in the light itself, read: Not an aggregation of stars, but a luminous gas."

Examining various "nebulae" with his spectroscope, Huggins found that some "nebulae" had a nearly continuous spectrum, while others had spectra composed of one or a few bright emission lines; he therefore correctly concluded that the ones with a continuous spectrum are composed of stars (today we know they are star clusters and galaxies), while those with a "line" spectrum are composed of luminous gases.

In 1869, Huggins was introduced to

Arizona Sky

Margaret Murray, a young amateur astronomer. They were married in 1875, and worked together on their research. Margaret kept detailed notebooks; she also tried various photographic methods to record their results, and kept detailed records of these. She varied the design of the spectroscope, and she and William analyzed the results together. They measured the spectra of many stars and nebulae, and published their results as a book in 1899: "An Atlas of Representative Stellar Spectra."

However, the bright line that William had found in NGC 6543 was still a mystery - it did not match any known element. The line was found in many nebulae and became known as "the chief nebular line". One theory was that it was produced by magnesium, since it is close to one of the lines in that spectrum. Huggins noted that the line was also close to one of the spectral lines of

nitrogen. But the line was not magnesium or nitrogen; and it was theorized that it might represent a previously unknown element, "nebulium".

It was only in 1927 that the mystery was solved. The line was found to be produced by doubly-ionized oxygen, under low-density conditions that exist in space but not on Earth; that is why the line was detected in nebulae, but not in any terrestrial spectra.

The Cat's Eye Nebula is about 3000 light years away. Its central star is a Wolf-Rayet star - a very hot star (about 100,000 degrees C) in the last stages of its life. The star is ejecting mass at high speeds of several thousand miles per second. The nebula's complex structure includes two expanding bubbles that are perpendicular to each other, surrounded by nine spherical shells. Each shell represents an ejection of mass through

a fast solar wind from the central star. These "mass ejection events" occurred about 1000 to 2000 years apart over the past 10,000 to 20,000 years, producing the series of shells. In this color-enhanced image from the Hubble Space Telescope, red represents the light emitted from hydrogen atoms, blue from oxygen and green from nitrogen.

The Cat's Eye Nebula is about 9th magnitude, and can be viewed through a telescope in dark skies. While the visual view won't compare with the Hubble photo, a bit of greenish color can be seen. We can combine this modest view with our knowledge of the contribution of NGC 6543 to the discovery of what nebulae are made of. Join us next time when we will continue to explore the summer and fall constellations, and till then - wishing you clear skies, and happy observing!§

Planets This Summer

By Leah Sapir

Saturn is still the prominent planet at the beginning of May, but it will be starting to set earlier over the next few months, and will be joined by a few other planets over the summer.

At the beginning of this month, Saturn will be high in the east after sunset, and will

set around 4:30 am. In June and July, it begins the evening in the south, and sets around 2 am in June and midnight in July. In August it moves into the western sky, and sets around 10:30 pm at the beginning of August, and 8:30 by the end of the month.

Jupiter, Uranus and Neptune begin May

as morning stars, but they gradually rise earlier and move into the evening sky during the summer. Neptune, currently in the constellation Aquarius, will be the first to appear each night, followed by Uranus and Jupiter a few hours later. Uranus is in the constellation Pisces, and Jupiter is currently in Pisces as well, but moves into Aries after June 6. §

The rising times for Jupiter, Uranus and Neptune during the summer will be:

	May 1	June 1	July 1	Aug 1	Aug 31
Neptune rises	2:33	0:32	22:29	20:26	18:25
Uranus rises	3:59	2:01	0:04	21:58	19:58
Jupiter rises	4:53	3:11	1:29	23:36	21:42

Mars is also a morning star that will gradually be rising earlier, but it won't be moving as quickly into the evening sky as the outer planets. Mars rises around 5 am in May, 4 am in June, 3 am in July, and 2 am in August.

Venus is still hanging around in our predawn sky, but is visible only in twilight. It rises around 4:30 am in May, June and July, and fades into the sunrise in August.

Mercury begins May as a morning star, rising around 4:30 am. In the middle of June it switches to the evening sky, and will be visible after sunset from mid-June to mid-August.

If you like conjunctions - this summer

we'll see a bunch of them! Here's a list of what this summer has in store for us:

May 1 - crescent Moon a little to the left of Venus and Mercury, very low in the east before sunrise; Jupiter and Mars nearby but very close to the horizon.

May 4 - crescent Moon between the Pleiades and Hyades in the west after sunset.

May 5 - crescent Moon near the Hyades in the west after sunset.

May 9 - Moon near the Beehive Cluster till around midnight.

May 10 - Jupiter, Venus and Mercury clustered low in the east before sunrise. Mars nearby, a little closer to the horizon.

May 13-14 - Moon and Saturn together in the south from sunset to 3 am.

May 19-23 - Mars, Venus and Mercury clustered low in the east before sunrise, Jupiter a little higher.

June 5 - Moon and the Beehive Cluster in the west after sunset.

June 10-11 - Moon and Saturn in the south from sunset till around 1 am.

June 27 - Moon between Jupiter and the Pleiades in the east before sunrise.

June 28 - Moon between Mars and the Pleiades in the east before sunrise; the Hyades nearby (below) but very close to horizon.

Meeting of the Minds Review April 28

Continued from page 5

position, more than the Vice. So, if someone runs for Pres or Vice, and I move to Pres, they'd be helping to find the Guest Speakers and filling in at meetings to help with running the event. At least I'm not giving up my position as Event Coordinator in which you would need to keep the website updated, send out emails about events, take care of new members and get them connected with the site, coordinate events with schools. Anyone wanting that position, please don't hesitate to take my PAS job from me. Don will stay as Editor. Mike offered to allow others to be Treasurer, so if you want the position, let me know before the May 5th PAS meeting so you can be nominated. If there are no changes in positions, the elections on May 5 will take no more than five minutes to review, renew, and vote in the same people to the same positions. We'd like to see a change in officers, but if everyone is happy with the job we are doing, vote us back in.

Public Star Party in dark location nearby: The group came up with several possible locations for holding a public dark-sky star party. We will put this data into the forums for discussion, and then vote on which location we prefer. The locations the group listed are: Black Canyon City Park, Mayer, Spur Cross Ranch (about 5 miles north of Carefree), Mike's house in Carefree, Picket Post (off Rte 60, about 30 miles east of Apache Junction - darkest site, and has freeway access), White Tank Park (suggested by Dewell Howell, who was not present at the meeting). It was decided that we would have two dark-sky star parties a year planned, with one in the spring and one in the fall. The link within the PAS website forums to learn more about this topic is <http://www.pasaz.org/forums/newreply.php?do=newreply&noquote=1&p=1338>.

Field Trips: Then we discussed the possibility that once a year, PAS would host a field trip to a nearby astronomy facility. Here's the list of the locations that were discussed: ASU meteorite collection, ASU Active Mars Rovers, ASU Planetarium, Mineral Museum with Bob Holmes (must be set up by end of May 2011), a day or evening photo shoot with Dennis Young, Lowell Observatory for a day trip, the US Naval Observatory near Flagstaff, Meteor Crater, archeo-astronomy locations such as Casa Malpais, U of A Mirror Lab, Kitt Peak, Mt. Graham, Discovery Park in Saford, Catalina Mountains, Mt. Lemmon,

VLA (Very Large Array of radio telescopes in New Mexico), SETI Institute in New Mexico, JPL (NASA Jet Propulsion Laboratory) in Pasadena CA, PATS (Pacific Astronomy and Telescope Show) in Pasadena CA, Palomar Observatory (between Los Angeles and San Diego), Lunar Orbiter Reconnaissance Mission. The link to read more, and add input on this subject is <http://www.pasaz.org/forums/showthread.php?t=491>.

Scope #'s vs Attendance #'s: This topic wasn't really discussed as much as we would have liked it to be, as far as a resolution. So, it may become a discussion for a future MOM's. What we did discuss was that sometimes, a school invites all of their students, and we can have a range of 30 to 300 attendees. It is a challenge to figure out how many will attend the event, and have enough scopes to cover the event. One suggestion was to provide extra scopes, but then you have to have the manpower to operate the scopes. We don't just leave our scopes unattended and available for use by the attendees. That's asking for broken equipment. More discussion about this topic is in progress at this link <http://www.pasaz.org/forums/showthread.php?t=541>.

Standards for Canceling Star Parties: This matter was very well discussed, but no real conclusion was reached. It's rather vague as to when to cancel a star party. Things that were discussed within this topic:

1) On our site, we have the ability to RSVP for an event as "Yes," "No," or "Maybe." One member pointed out that "Maybe" doesn't really commit the PAS member to being there, and it really doesn't do the RSVP person any good to know that your attendance is "Maybe." Thus, it is requested that all "Maybe's" become "Yes" or "No" within a week of the event. For instance, let's say you have an event that's one month away, and you are thinking you might be able to attend, but are not sure. If you put in a "Maybe" RSVP, you will get a notice in your email a week prior, and again a few days prior to the event, that says: "You have RSVP'd "Maybe" for this event. Would you like to update your RSVP now?" Then you can go to the link the email provides, and mark the event as "Yes" or "No" as it fits your schedule. I use this option for events I am unsure if I will be able to attend, and then when the reminder comes in, I decide if I can make it or not.

The website automatically notifies you if you choose "Maybe" as your RSVP. But, it does not notify you that you have chosen "Yes" or "No," and therefore, if you choose "Yes" you should go to the option on that RSVP page that says "Send me a reminder about this event." Then, about a week before the event, a reminder comes to your email and says that you have RSVP'd "Yes" to attend this event, and would you like to make any changes. When I schedule the events, I look at how far away the event is, and I usually put a deadline of noon to add or change your RSVP for really far away events, and four hours prior to the start of events that are closer, such as a PVCC Star Party. I base it on, when would the PAS member located furthest from the event, need to know the RSVP attendance, prior to leaving their home; then I add one hour. So, I figure four hours is enough time for the last minute RSVP in the Phoenix area.

2) Then we discussed schools that ask for us to do star parties, multiple times in a year. It was decided that we should only allow each school to do one event per school year (Sept to May). We have several schools who do two in a year. And each school needs to pick a date for their event and if we are the ONLY event of the night, they need to pick a backup date. So, let's say they pick a date of October 15, and it gets canceled, and then the backup date was a month later, November 15 (example purposes only) and it gets canceled. My suggestion to the school would be to try to pick two more dates in the spring, so that they get one star party within the school year, or wait until the following fall semester again.

3) The next part of the discussion turned towards weather. Whether or not there will be weather today. Ha ha ha! Winds: Chris says that for Mayer, 20mph winds or wind gusts would be a cancel for his location. I have been doing 10mph or over... which the group agreed was too low. So, the new standard for wind and wind gusts is that 20mph is the limit for a safe viewing and non blowing-over-the-scope wind gust speed. Precipitation: I was telling the group that when the forecast says 10% chance of rain, that usually means we will not get any rain, or if we do, it will be very little, a sprinkle. But 20% or more, usually means we will be rained on. Then the discussion turned to the true meaning of the 20% chance of rain, we were not able to reach a conclusion on this topic. We also

Meeting of the Minds Review April 28

discussed cloud cover, which is the same situation. What the meteorologist means when they say we have 20% chance of rain or 20% cloud cover, is that 20% of the Phoenix area will have rain or clouds. And there is no real accuracy when it comes to this prediction. So, I told the group about how I have weather watchers and I rely on them. Tim, Bob and Don report to me about what they see in their favorite weather providing site. Each of them checks several sites before reporting to me if they would go do a star party with the forecast as it is for that evening's event. And I appreciate their input, because I don't have the time to look it up, and would rather just read an update in an email, collect the data, post it in the forums, and then make a decision on it based on what they provided me for the weather forecast. That plan has been working for the past year, although Sam was mentioning that I have canceled a few events that could have provided decent viewing. Which leads me to the last sub-topic: there are several ways to get info about the weather. And I am not the authority of the weather. I am the RSVP for quite a few public events, but we do have other RSVP's for their events, or events they have taken over as their own. Sam is RSVP for Seven Springs and DBG. Joe covers CTCA and will cover the star party at his home, once we start doing that event. Mike takes care of his home and Spur Cross Ranch. And Chris is in charge of the Mayer star parties. Now, if the weather doesn't look good for an event, what was suggested is that I would send a notice about the weather to the RSVP person (listed above) and they would decide if the event will happen or not. And here is the criteria to consider: If the event is a bunch of kids, say under 12 years of age, they would be happy to see a planet and the Moon for an evening of viewing. Thus, if there are clouds, but no rain, and possible holes within the clouds to catch a planet and / or the Moon, the event may still happen. But, if we are doing an event where the attendance is mostly adults, then they would want to see deep sky objects, and so, we might consider a cancel for that clouded event, if all we think we can see that night is the Moon and a planet. And the decision will be up to the RSVP person in charge of that event. For public events, the Moon and a planet may be enough, and in cases like the star parties at PVCC, with the buildings, the lights, etc... that's about all we can see that night, any way. So a few

clouds, should not cancel an event.

4) One topic I think needs discussion, and we can talk about it at the next MOM's, is what is the minimum number of scopes for the attendance? Should it be 25 people per scope? That's what the booking doc suggests, however the booking doc is thinking in the terms of a paid event, in which, if they have 100 people attending, they don't want long lines at the scopes. The hiring people probably want to see more objects, shorter lines, etc... So, I shall add this topic to the discussion for the next MOM's we hold.

<http://www.pasaz.org/forums/showthread.php?t=542>.

Mike's upcoming events : Then we talked about Mike's upcoming events at his home in Carefree.

1) For the Messier Marathon at his house April 30, it was decided that due to high winds, there will probably not be a Marathon, but there will still be a party. For the July 3rd event, PAS members may bring a friend, but it is mostly for PAS members. The July 30th event is open to the public for a star party.

2) And then there is Mike's birthday party at Bad Donkey on May 20 in Carefree. We are seeking one PAS member to RSVP to pick up a cake, cup cakes, or pie for desert as the birthday cake for the party, and as the present to Mike. RSVP your attendance and the cake, today. Your participation and help are appreciated.

Dave's event in Portal: Dave Hellman of PVCC is offering, only to PAS members, a star party on Saturday May 28 on his property in Portal, AZ. Please note that there are no facilities. Maps, directions, etc can be found on the website at this link: <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=646&day=2011-5-28>.

Solar System Model: Dave has noticed that the Solar System Model for which PAS donated one of the locations – the Kuiper Belt location – has become rusty due to the sprinklers raining on it daily. So, he has removed it from its location and will renovate it and a few other plaques over time. He just wanted us to know this in case we do the Solar System walk on campus and discover it isn't in its designated location over by the Arts Center on campus.

Dave then mentioned the purchasing of two radio telescopes for PVCC. He said it is on his shopping list for the college at \$7,000

a piece.

DBG Ideas: The Desert Botanical Garden is looking to expand its activities that are astronomy-related. So, a list of ideas was shared of what DBG would like to HIRE PAS members to do. If you are able to do any of these and would like to help DBG and get paid to do it, email Events@pasaz.org and I will set you up with DBG. Here is the list: 1) Solar viewing with lecture about the Sun and its effect on the desert plants, 2) Q Ranch in Prescott - wildlife, plants, solar scopes, camping, horses, day event, 3) Black Mountain location, 4) Star party at Spur Cross Ranch or Picket Post Mountain, 5) maybe do something for the NEA viewing on Nov 7th, or a meteor shower viewing session, or an upcoming eclipse. Several possible events for DBG that would need to be done by specific people: 6) Chris's remote astrophotography and telescope control, 7) Dan Heim - Light pollution and rainbows presentations, 8) A Dennis Young photography event. Here's the link for more discussion about this topic: <http://www.pasaz.org/forums/showthread.php?p=1359#post1359>.

If you missed this meeting, you may want to review these topics by going to the links provided. We hope to see you at the next MOM's for some more fun topics, sharing of snacks, and socializing after the meeting concludes. The group socialized for about half an hour before moving the party to Village Inn. The Meeting of the Minds (MOM's) is on the last Thursday of the month, every month, but only take place if there are enough topics to hold a minimum of a one-hour discussion. See you at the next MOM's. ***



This photo of the Sun was taken at 3:00 Tuesday April 26. 2 large sunspots are visible.

CTCA Star Party Review April 12

By Joe Collins

We had another successful CTCA/PAS Sky Tour Event last night for 22 attendees at Cancer Treatment Center of America in Goodyear.

The weather cooperated beautifully throughout the evening. We had some wind that calmed down by sunset, and the skies were clear until we started seeing some high altitude cirrus clouds towards the end of the event. The temperatures were very comfortable and moderate tonight. We really didn't need jackets; consequently, many of the attendees hung out longer with us and asked many more astro questions than usual. We gave out 16 educational handouts to interested attendees.

Early Solar Viewing: Don Boyd volunteered to come early for solar viewing this evening, and started at 5:30pm. Eight "early birds" showed up to view a "train" of at least eight earth-sized sunspots visible through Don's solar-filtered 6" reflector, from the 5:30 to 10 o'clock position. An odd

phenomenon we noticed was that the sunspots became more visible closer to sunset.

Night Time SkyTour: We (Don Boyd, Steve Palmer and Joe Collins) started the evening program around 7:30pm and ended officially around 10:30pm. Steve brought his 6" APO refractor, and I brought my Celestron C-11 SCT.

We viewed the Moon, Saturn and its moons, about a dozen binary stars, and several Messier objects, such as globular clusters M3 and M13, the Orion nebula M42, and the Pleiades M45. Even though the Moon was bright (therefore the conditions were not best for deep sky objects), the air was non-turbulent tonight, so it was great for resolving binaries. A great time was had by all!

Odds and Ends: Steve mentioned there was a large solar flare today about 2:30pm, so we looked to the north for auroral activity, but did not see any tonight.

I ran an experiment with Carina Sky Safari wireless software to control my scope via WiFi from an iPad. It worked...sort of, but caused my scope to lose its prior star alignment by about 10 degrees. No problem, I just had to realign. I'll get the bugs out of it for next time, though I think using iPad Star Walk software is a better teaching accessory for our Sky Tours.

We discovered that one of the patients attending tonight is the granddaughter of RJ Trumpler, an astronomer at UC Berkeley back in the 1940-50's who actually has a crater on the Moon named after him.

Don Boyd adds: the CTCA star party went well. We had probably 20 people between the solar and nighttime viewing. I had eight for solar viewing, and one for the Moon after the Sun set and before we went downstairs for supper. We had about ten participants during the nighttime viewing, and most of them stayed around for a long time as it was a beautiful night. **§

Desert Botanical Garden Star Party of April 22

By Sam Insana

Don, Mike and Sam worked the paid event at Desert Botanical Gardens for an adult audience. Mike gave a meteorite lecture from 7:00 to 7:30 pm. Then Don and Sam showed the night sky with their telescopes. We saw Saturn, the Orion Nebula, M3 globular cluster, M44 "the Beehive" open star cluster, Iota Cancri double star, and a few other objects. Although the night sky was supposed to be cloud-free, there were dozens of thick contrails from jet

planes. The atmosphere must have had a lot of water vapor, and no wind, to allow such an accumulation and long lasting cloud buildup of contrails. Those unexpected clouds prevented us from seeing galaxies M81 and M82, and several other objects we had planned to see. However the DBG guests said they had a great time with what they did see and the meteorite presentation. We also gave them handouts of the April constellations, and the writeup on PAS.

Steen Lawson, the education director from DBG, wants us to give more star parties next fall. He was there and said he was impressed with our presentation.

Frank helped Don, Mike and Sam transport all our gear from the parking lot to the lecture hall and the viewing area and back again. He stayed at DBG from 7 am until 10 pm, quite a long day. Mike, Frank and Sam then relaxed at a Tempe restaurant for a late dinner. ***§

ASU West Open House / Star Party Review 4/14

By Terri, Event Coordinator

The ASU West star party was a GREAT success! We must have had over 300 people there, kids to adult. I brought my scope, and William did an awesome job working it as I walked around and passed out handouts about PAS. Paul Schmidtke had the ASU West 10" scope set up next to mine. For the paper weight to hold down the handouts for Paul's students to use for the assignment, he had a mannequin's hand. He offered us a hand, several times. Dewell Howell, a new PAS member, brought his 10" dob. Don Boyd was there with his scope

and showed the Beehive cluster. A lady from ASU West brought her scope and set up to join the fun. She had an ETX. Jeff Hopkins was there, but I didn't get to see what scope he brought. With the crowds so thick and long lines, I didn't leave my scope for long. And the highlight of the night was Dennis Young, who brought his 28" telescope and did a bino view on the moon, while his brother, Doug, was helping with the bino observing chair. Dennis, of course, had the longest lines but we all had a great time. The winds were bothering to those of us who had to find the objects with the

breeze flowing across our open eye balls, and the handouts kept trying to fly away, but the night was good. We had a bit of haze, and the viewing wasn't the most awesome, but we saw things like the Moon (of course), Saturn, the Orion Nebula until it set, and a galaxy or two. Paul also found some star clusters. The attendees seemed to enjoy it all! Many thanks to Jeff, Dewell, Dennis, Doug, and Don for providing scopes at this event. Let's look forward to another successful event in the Fall. Hope to see you there!§

Meteorites & More

Edited for newsletter from info provided by Dolores Hill

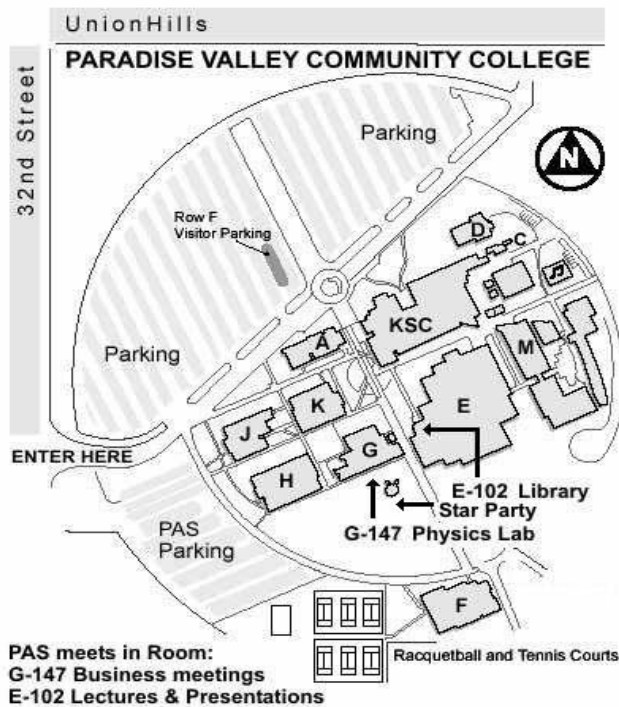
It's not every day that PAS has a husband-and-wife team of astronomers as guest speakers!

At our April meeting we enjoyed hearing from Rik Hill about his studies of Near Earth Asteroids, and at our May 5 meeting, Dolores Hill will tell us everything we wanted to know about meteorites. If there is time,

Dolores will also give us a preview on the "OSIRIS-REx LIST" (a mission to visit a carbonaceous asteroid and bring back a sample) and the November observing opportunity.

Dolores is a meteoricist at the Lunar and Planetary Lab of the University of Arizona in Tucson. §

Map to PAS Meeting Location



Planets This Summer

Continued from page 7

July 3 – crescent Moon, Mercury and the Beehive Cluster low in the west after sunset.

July 7 – Moon and Saturn in the southwest from sunset till 11 pm.

July 23 & 24 – Moon and Jupiter in the east from 1 am to sunrise.

July 25 – Moon and the Pleiades in the east from 1 am to sunrise.

July 26 – crescent Moon and the Hyades in the east from 3 am to sunrise.

July 27 – crescent Moon and Mars in the east from 3 am to sunrise.

Aug 1 – crescent Moon and Mercury very low in the west after sunset.

Aug 3 – Moon and Saturn in the

west after sunset.

Aug 18-19 and 19-20 – Moon and Jupiter in the east from 11 pm to sunrise.

Aug 21 – Moon between Jupiter and the Pleiades in the east from midnight to sunrise.

Aug 22 – Moon between the Pleiades and Hyades in the east from 1 am to sunrise.

Aug 23 – Moon near the Hyades in the east from 1 am to sunrise.

Aug 25 – crescent Moon and Mars in the east from 3 am to sunrise.

Aug 26 & 27 – crescent Moon and the Beehive Cluster in the east before sunrise. §

March 24th Telescope Workshop and Star Party review

By Dewell Howell (New PAS Member)

The telescope workshop started roughly at 7:00. Since only four people were there (Don, Bob, myself and my guest Randy) we were not sure when to begin. Instead of an actual presentation on telescopes we elected to just discuss the topic in general. This turned out to be a good thing since I was still researching my first scope and Randy had many questions as well. Both Don and Bob were able to give us a lot of great information during the informal Q and A. Some of the topics we covered were optics and eyepieces, aperture, telescope mounts, push-to versus go-to computer tracking, finder scopes and laser pointers.

After our chat we decided to borrow one of the school's telescopes and get some hands-on time looking at the sky. Paradise Valley Community College has a very nice 16-inch Dobsonian telescope, and this was another bit of good fortune since it was a

Dobsonian mount I had in mind to buy. Don first showed us M42, the Orion nebula, and while the nebulosity did not show as much we would have liked under the school lights, it was still a great first object for the evening. Later Don pointed the scope to the Pleiades for us to enjoy. Soon after, at my request, Don allowed me to drive the scope and I was able to find Saturn on my first try. A few PVCC students decided to stop by and see what all the excitement was about. We of course treated them to a viewing of Saturn as well.

All in all, the event was a lot of fun and very informative. I was able to have many of my questions answered, and eventually made a decision which telescope was right for me. My friend Randy and I had a great time, and we were very appreciative to Don, Bob and PAS for an excellent workshop and star party.

Bob Senzer adds: The star party went well. We got some nice views of the Orion nebula, Saturn, and the Pleiades through PVCC's 16-inch Meade Lightbridge. Saturn was aligned in a manner that made the rings quite visible, and we could see Saturn's moon Titan as well.

Because of the light attendance, I had the opportunity to use the Lightbridge and was astonished at how easy it was to sight an object through the finder. The finder was a Telrad, which projects a bullseye of red concentric rings on the view of the sky. I also was surprised by how easily the telescope could be moved with a light touch.

There was a discussion pertaining to the light-gathering power of 8 and 10 inch reflectors in regard to an initial telescope purchase. The "telescope teachers" included Dave Hellman of PVCC, along with Don Boyd and myself. ***§

Ads in PAStimes

Ads in PAStimes run for a month and may be renewed on a month-by-month basis, if submitted by deadline, space permitting.

Don Boyd
PAStimes Editor
701 W. Del Rio St.
Chandler AZ 85225

To:

PAS Speaker Line-up for 2011

By Terri, Event Coordinator

Do you have a guest speaker who you'd like to hear from? Drop me an email with your suggestions and any data you can find, and I'll be happy to schedule them.

Sep 1: Members' Night - Sign up today!

Oct 6: Mike Marron: "Asteroid Mining"

Nov 3: Bob Holmes: "Holding a Piece of the Stars and Planets in Your Hand"

Dec 1: David Williams: "Planet Rovers: From Lunokhod to Spirit and Beyond"

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What's Up For May

By Rod Sutter, PAS President

Name	Date	Rise	Set
Mercury	05-1-11	04:38	16:59
Venus	05-1-11	04:26	16:48
Mars	05-1-11	04:50	17:35
Jupiter	05-1-11	04:51	17:33
Saturn	05-1-11	16:37	04:30
Uranus	05-1-11	03:55	16:02
Neptune	05-1-11	02:22	13:24
Pluto	05-1-11	23:03	09:27

All Times Arizona Time

May 15 2011

Sunrise: 05:25

Sunset: 19:16



New: May 3



Q1: May 10



Full: May 24



Q3: June 1