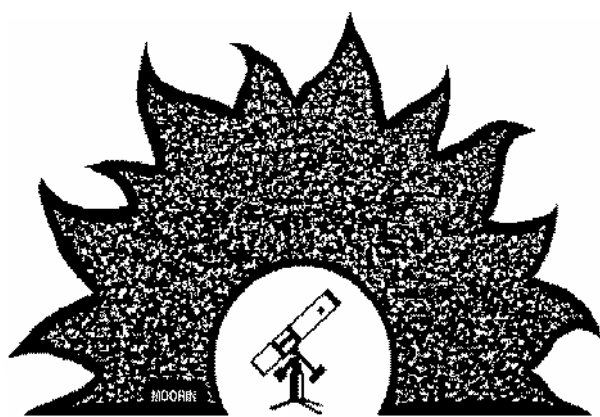




PAStimes

Phoenix Astronomical Society
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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Dr. Laurice Dee to be April 3 Speaker

Our Speaker this month is Dr. Laurice Dee A Solar System Ambassador for The Jet Propulsion Laboratory. Her topic this month is "The Study of Our Solar System by Some of the Robotic Explorers"

Hi, my name is Dr. Laurice Dee, and I have been a Solar System Ambassador (SSA) for the last 10 years. I have shared the excitement of robotic solar system exploration with the public, as well as with

the space community, through numerous slide and poster presentations. I have also written articles for a few astronomy newsletters, including PAS. By the way, Jet Propulsion Laboratory (JPL) specializes in robotic solar system exploration, and our Solar System Ambassadors Program (SSAP) is run by JPL, as well. There are over 300 SSAs from all over the nation doing public outreach like I do. Robotic

solar system exploration never ceases to amaze me, especially with the new missions to Mercury, Pluto, and elsewhere in our celestial neighborhood, and the most unique missions to Mars, Jupiter, and Saturn (i.e., Pathfinder, Galileo, and Cassini). So, I will be showing videos of some of the most interesting missions tonight. Enjoy!

Special Raffle at April PAS Meeting

There will be a special raffle at the April PAS meeting. We will be raffling off a Sky Scout from Celestron. The proceeds of this raffle will be 10% to PAS and the rest to the gas fund to get the TEAM up to Mayer April 12th. The Sky Scout sells for \$425 according to the Celestron website.

Everyone is welcome to come to the

PAS meeting and get in on the raffle. Tickets will be sold at \$1/ticket or \$5/6 tickets. There will not be a 50/50 raffle this month, that's why PAS is taking 10% of the raffle money for the Sky Scout. Bring your cash and get in on the raffle.

The drawing will be done right after Dr. Dee does her presentation. SAC and

EVAC are being invited to join in the raffle and come to the PAS meeting.

We will see you there!!! Bring cash! Come win the Sky Scout!!!

PAS Meeting is on April 3rd, 7pm to 9:30pm in the PVCC Library. Bring the whole family! ***

Upcoming April Events

We have an exciting month lined up for April. Check it out and maybe we can have you volunteer to help at some of them.

Apr 3 - PAS Meeting 7pm to 9:30pm PVCC Library. Speaker: Dr. Laurice Dee. Topic: "The Study of Our Solar System by Some of the Robotic Explorer." Dr. Dee has giving our club multiple interesting presentations in the past. We invite her to do it again. If you'd like to read some interesting articles she has written, please go to our website www.pasaz.org and check out the section in the left column DOWNLOADS at the very bottom of the page are all the articles she has sent PAS to be posted on our site. She writes very well and you may wish to read some of them prior to the meeting.

Apr 4 - Wow Star Party. The WOW Star Parties are NOT PUBLIC events. This one will be held at South Mountain Park and you will need to RSVP with Chet for attendance. We ask that Only PAS Telescope operators RSVP. Chet needs the assistance, so go to the back page of this newsletter and get his contact info, and let him know you can attend. These are very rewarding event. The kids involved in this are usually underprivileged and have not had the opportunity to look through a telescope previously. They are really delighted to have you attend and show them something cool about the night sky. WOW = Wonderful Outdoor World and it is a City of Phoenix program. We thank Joshua, our contact for the WOW

program for allowing PAS the opportunity to be involved in this kind of event. Your assistance is appreciated and needed. Joshua sets up about 3-5 of these star parties every school semester. If you can assist, let Chet know, right away.

Apr 5 - MESSIER MARATHON AT 2 TREES SITE. Barbara is the RSVP for this event. If you are serious observer and want to tackle the Messier Marathon at a really awesome site, you will want to go to this star party. We invite anyone who would like to attend, whether you are trying the marathon or not. This is NOT an observing event. Those who attend are trying to win the Marathon. What is the marathon? Every year, one time during the year, all 110 Messier

Meeting of the Minds Assembly Party Review 2/28

Text and Photos by Terri, Events Coordinator

Many, Many thanks goes to Leah, Don, Rod, Sue, Barb, Mike, Steve, John, Chet, & William for coming to and working very hard to assemble the 500 blue PAS bags going to the Mayer Girl Scout event. We put many cool items in each bag, not all identical but similar. We had fun doing it but it was hard work to get them all done before the end of the night, 10pm.

Snacks were brought, as this was to be a party, but we had no time for snacks, so they atay with Terri to be brought to the PAS meeting the next Thursday. Thanks so everyone who brought snacks.

2 Topics were discussed at this meeting, prior to assembling bags.

1) PAS was asked to quote a bid to do 40 star parties for the next year for the City Parks and Recs. After much discussion and thought, most of us voted not to take the job. The job would entail having a minimum of 5 scopes at each event and someone to do a 45 minutes presentation. We don't know the dates of these events because they weren't given. Some of us can't make certain dates, and what if the dates fall on other already taken dates of events. This is much like the WOW program, where Chet would really like to have some help with those star parties, but because they fall on dates we have other star parties, our TEAM must decide which one they wish to attend. So, it falls on Chet to coordinate his event with who ever offers to help, and me to coordinate the double booking situation. If we don't have the manpower to cover 2 events

like that on one night, how will we guarantee 5 scopes at a star party, every time they want an event? The price we were going to quote them was \$1200 for each event. But, looking at the location of some of these events, like Usery Park, or better yet, the one by Queen Creek. They are so far away, and if is on a week night, most of us, not only can we not do them because they would end too late for work the next day, but also, we might not be able to get to them that quick as we have to leave work, get home, pack up for the star party, drive there through the traffic of rush hour, and possibly get there late. So, 9/10th of us voted against taking this job. And if you look at the PAS Schedule for 2008 you will see that we have a lot of really cool activities planned that something like this might get in the way of doing. Anyway, we declined the offer. Rod suggested we decline and ask if they can give us the dates of the events for 2009, so that we can decide if we can do them based on our schedule. So, we will see what comes of that.

The 2nd topic was "how are we getting to Mayer?" It was decided by the group that we are going to have everyone that resides in Phx, meet at I-17 and Bell Park and Ride. It is right there next to the Denny's at that intersection. We are meeting there at 9am. We will leave some vehicles behind, and move things around from one vehicle to another, then leave P&R by 9:15, to drive up and meet at Barbara's house at 9:45. So, people like Mike, who aren't close to the P&R, can drive right up to Barbara's house

and meet us there at 9:45. Our goal is to get all of us traveling together, north and to condense the number of vehicles going north to save on gas. Then, it should take about 1 hour, or maybe even less than an hour to get up there, so we want to arrive around 10:45. Breakfast is being served at 11am, and we want about 15 minutes to get organized when we get there, parking, etc, so that we can enjoy breakfast before setting up.

Bring with you: Sleeping needs, bag, pillow, etc, Telescopes, handouts, BYO drinks in case they don't provide enough while there, Jacket as it may be cooler at night, hat for the sun, Rod is bringing our canopy's, any activity items you need to include (Barb, Terri, Mike), chairs, your printout of your objects info so you can share that with the girls, and anything else you might want to put on the list, camera. I suggest making a list so nothing is forgotten.

The assembly part of this meeting was very busy. The party part didn't actually happen as planned. But many, many, many thanks goes to those who came and helped out. More photos for this event can be seen at <http://tinyurl.com/2la63t> ***



John Pulis stamps playing cards for Sally Ride



Barbara and Sue



Leah Sapir and Steve Palmer prep bags for the mayer event

ASU Meteorite Center Outreach Program



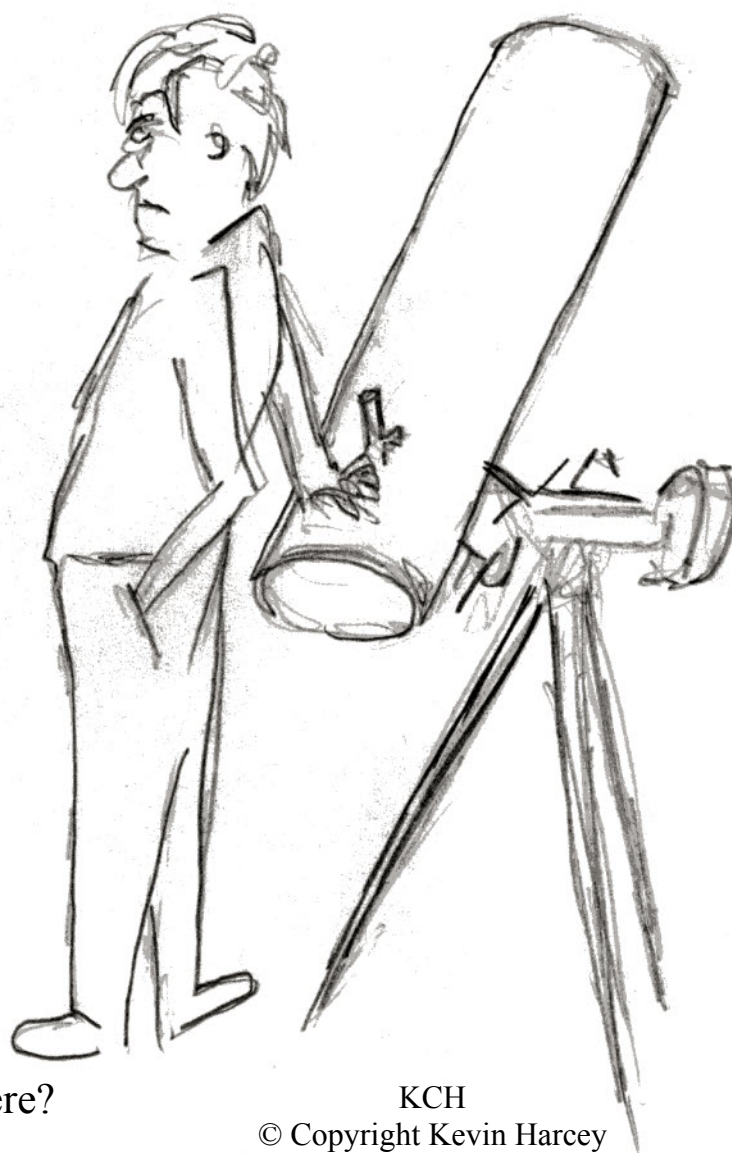
Lots of bags for the Mayer event

The Center for Meteorite Studies at Arizona State University would like to alert you to an upcoming outreach event on Friday, March 28, 2008. This Friday (March 28, 2008), the School of Earth and Space Exploration with collaboration from the Department of Physics astronomy graduate students will be hosting the 2nd Astronomy Open House of the semester.

The event runs from 8 pm until 10 pm. We will have exciting tele-

scope viewing, Physics demonstrations, Meteorite and mineral display and a short talk by one of our graduate students titled "News from the frontier". The talk will cover all the latest in solar system exploration.

Please join us Friday on the 5th floor of the Physical Sciences Bldg. H-wing (ASU Tempe Campus) for our 2nd activity of the semester. More information can be found here: <http://eagle.la.asu.edu/openhouse/>



Can you see the Boy Scout camp from here?

KCH

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Arizona Sky

By Leah Sapir

Last month we used the Big Dipper to help us find Polaris and the Little Dipper; this month, let's use "our big signpost in the sky" to find some constellations south and east of Ursa Major.

In the early evening hours this month, the Big Dipper will be high in the northeast, standing upright on its handle. The main outline of the Big Dipper, if we look at the three outer stars of its bowl (Dubhe, Merak, and Phad) along with Alkaid, the star at the end of the handle, is a trapezoid (like a rectangle that is wider on one side). High in the southeast, parallel to the Big Dipper, is a mirror-image trapezoid around the same size. This is the body of Leo the lion.

At the upper end of Leo's trapezoid, on the side facing the Big Dipper, is a arc of fainter stars representing the lion's head. This arc, along with the three stars at the upper end of the trapezoid, forms a "sickle" or "backwards question mark". Regulus, the brightest star in Leo (at the top right of the trapezoid as it is rising in the east), is the dot at the bottom of the "question mark". And not far from Regulus, along the bottom of the lion's body, is another bright "star" – the planet Saturn. Saturn will be a guest in Leo for the rest of this year, and continuing into 2009.

Leo is one of the few constellations that actually looks like its name – a very regal lion, almost sphinx-like.

Let's take a closer look at the stars at the front of Leo's body. We've already met Regulus, and the star at the other corner of the trapezoid (at the top left as Leo is rising) is named Algieba. Regulus is a blue giant about 77 light years away, and Algieba is a double star system about 125 light years away, consisting of an orange giant and its yellow companion. Algieba's two components circle each other every 600 years. Two additional stars near Algieba are apparently just optical companions – in the same line of sight, but not really related to the double star system.

Between Algieba and Regulus is a fainter star, Eta Leonis. Although it does not seem to be as bright as either of its neighbors, it is actually a blue supergiant, about 2000 light years away, and about

100 times as luminous as either Regulus or Algieba.

A little to the west of Regulus (above Regulus as it is rising, or to the right of Regulus if we are facing south), and resembling the lion's front paw stretched out ahead of him, is Subra (Omicron Leonis). Subra appears about as bright as Eta Leonis, but is actually a much fainter and closer star, only 135 light years away.

About 2/3 of the way from Regulus to Subra (and a little above the line joining them) is a very interesting star – R Leonis, a red giant about 450 times as large as the sun. R Leonis is an unstable star that varies from 4th to 11th magnitudes over a period of around 310 days. At its brightest, it can appear a deep red color.

If we draw a line from Algieba through Regulus and continue for a little while, i.e. going towards the south, we come to another reddish star, about as bright as Algieba. This is Alphard, an orange giant that forms the red "heart" of Hydra, the sea serpent. A little to the west of Alphard (towards the right, if we are looking south) is Hydra's head – a little group of stars forming a small pentagon, with the point facing towards Alphard. Two of the stars are reasonably bright (although a little dimmer than Alphard) but the other three are fainter, and might require dark skies to be seen clearly.

Returning to Leo, let's take a look at the triangle of stars that forms the lion's hind quarters. The star at the far end of Leo's body is Denebola, a blue-white star about 35 light years away. About 1/3 of the way from Denebola to Regulus is the star Chort, a blue-white giant whose claim to fame is a group of three galaxies seen near it in the sky: M65, M66 and NGC 3628, otherwise known as the "Leo Trio". All three are spiral galaxies about 30 million light years away, and each one is seen at a different angle: M66 is face-on, M65 is slightly inclined to our line of sight, and NGC 3628 is edge-on. They're a treat to view through a telescope, but require high magnification and dark skies to be seen clearly. There is another group halfway between the Leo Trio and Regulus, this one consisting of spiral galaxies M95 and M96, and elliptical galaxy M105, about 40 million light years away. These also require dark skies and high magnification to be visible.

About 2/3 of the way from Denebola to Alkaid (which, as you remember, is the star

at the end of the Big Dipper's handle) is another bright star, Cor Caroli. This star was named by Edmund Halley after King Charles of England. Cor Caroli is a very pretty two-color double, with a blue primary and yellow companion. The pair is around 100 light years away.

Near Cor Caroli in the sky (between Cor Caroli and the Big Dipper's bowl) is Chara, which together with Cor Caroli forms the constellation of Canes Venatici, the hunting dogs. A third star, between Chara and the Big Dipper's handle, is Y Canum venaticorum, a red star nicknamed "La Superba". Y CVn is a carbon star, a star that has fused most of its hydrogen into helium and most of its helium into carbon. The carbon compounds in its atmosphere filter its light and make it look red. Y CVn is about 700 light years away.

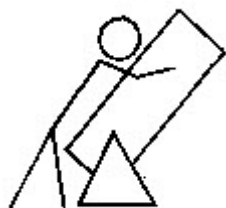
Between Denebola and Cor Caroli is a faint constellation with an interesting story: Coma Berenices, which means "hair of Berenice". We might wonder – why is there a constellation named for someone's hair???

Berenice was the queen of Egypt around 2200 years ago. Her husband, Ptolemy III, and his father Ptolemy II, established the famous library in Alexandria.

At one point, Ptolemy had to go away to war, and Berenice prayed to the Greek gods for her husband's safe return. She vowed that if Ptolemy returned home safely, she would cut off her beautiful hair and offer it to Aphrodite. And so it was – Ptolemy returned, and Berenice cut off her hair and placed it in Aphrodite's temple. And, within a day it was gone. Ptolemy called Conon, the royal astronomer (and probably astrologer too), and demanded an explanation: who had stolen his wife's hair? Conon had to think quickly!

He pointed to the sky, at a faint cluster of stars near Denebola, and said, "Your majesty, those stars are the hair of Queen Berenice! Aphrodite was so pleased with the queen's gift that she placed it in the sky for everyone to admire." (Conon didn't tell the king and queen that this star cluster had until then been considered to be the tuft of hair on the end of Leo the lion's tail.)

The Coma star cluster requires dark skies to be seen with the naked eye, but it is beautiful when seen in binoculars. The cluster, also known as Melotte 111, is about 290 light years away.



Arizona Sky

This month, Mars and Saturn will be high in the sky at sunset – Mars in Gemini, and Saturn in Leo. Mars will set around 1-2 a.m., and Saturn will set around 3-4 a.m. Jupiter will be rising around 1-2 a.m., and will be up for the rest of the night.

Venus and Mercury are starting to disappear into the sunrise, and after mid month, Mercury will become an evening star again. It's still low in the horizon during April, but in May it will be getting

higher and more visible.

Join us next month when we will continue to explore the spring constellations. And till then – wishing you clear skies, and happy observing!

Upcoming April Events

Continued from page 1

objects in the sky can be seen from dusk to dawn. That one night a year, serious observers around the world compete to find out who can view the most objects in that single night. The location, 2 TREES, is hosted by the Serius Lookers of Sedona. Dennis Young has opened his chosen site to those who seriously want to try the marathon. Barbara is the PAS RSVP, so contact her if you plan to attend, just in case something comes up that cancels the event. Her contact info is on the back of this newsletter. We hope to see you there! Event starts at sundown and it is required you get there before sundown as not to destroy anyone's night vision, and it goes until Dawn. If you plan to leave before dawn, please read the star party etiquette page accessible on the left side of our website www.pasaz.org under the topic of OBSERVING. Read it before you attend. RSVP with Barbara to attend. See you there!

Apr 10 - Indoor/Outdoor PAS Event at PVCC in G-147 from 7:30pm to 9:30pm. Volunteers are asked to be there by 7pm for set up. This event happens 2 times a year at PVCC in this very same room. What we do is set up hands on, cool things to learn about astronomy. All ages are welcome to attend and RSVP is required with Terri. We originally called it the Indoor event and the plan was to hold it on some night that wasn't good for observing, and we'd do only indoor stuff, but over the years we have decided that some of our TEAM members would like to offer their telescopes for the viewing of really cool stuff in the night sky. So, we now have both... the indoor stuff to be enjoyed and learned from, and the observing outdoors in the evening, Weather Permitting, and possibly through Bubba, the 11" in the big dome on campus. So, let me know you are attending as a volunteer, or as the public, and come have some fun with us. We have a blast!!! We have games, and demos, and Chet will be there with his imaging demo. This was awesome. A few months back Chet did a demo at Bookman's and he did such an awesome job of it that I've had requests to have him do a presentation to the club on that same technique. I

haven't schedule him yet, but if you missed the Bookman's event, please plan to attend this night and learn about imaging from Chet. Awesome! Barbara has a demo having to do with the planets in the Solar System and their current positions, with finding them that night outdoors. Mike will have his meteorites on display and he will love to talk about it all night long, if you give him the chance. We hope to see you there!

Apr 11 - Volunteers are needed. RSVP is with Terri. Sunset Ridge Elementary School. We did this star party last year and not only was the entire school wonderful to us but we had a great time as well. This was the star party that we got introduced to Bruce's 20" telescope. He will hopefully be there again this year. I know it impressed the kids who attended. We will be having games again this year, so your help is requested and appreciated. Let me know today you are attending. We will be doing the star party from 5pm to 10pm. Come have fun with us!

Apr 12 - This is it!! The event of a life time! We will be doing the Mayer 900 Girl Scout star party. We have the events picked out for the day's activities and we will be having day and night time observing as well as hands on activities. There are 12 of us doing this event so far, and we are staying over night at the location. It will be a blast!! Volunteers are meeting at I-17 and Bell to caravan/carpool up to Barbara's house where we will pick her and Mike up in their vehicles and caravan the rest of the way up to Mayer. We are due in Mayer at 11am, I wish to get there by 10:45, it takes an hour from Phx, so probably 40 minutes from Black Canyon City, so we must leave BCC by 9:30, Phx by 9am, let's meet at the Park and Ride at 8:45. Do not be late. We will be following Barbara and Rod up to the location as they know the way to get there.

Apr 24 - PAS Meeting of the Minds!!! Bring your ideas. Everything we didn't discuss at the last MOM will be discussed at this one, and more. The list will go out as the date gets closer. Watch for it on the PAS

Digest <http://pasaz-digest.blogspot.com/> or if you have already signed up to receive the Blog info in your email inbox, then watch for it in your email. The MOM is at PVCC in G-147 from 7pm to 10pm, or earlier if we finish all our topics quick enough. Send me your topics today! No topics cancels the meeting.

Apr 26 - A very special event!!! North Mountain Park Visitor Center... this is the 2nd of 3 events at this location during the Spring. We will be setting up at 5pm to catch the view of the Sun and we need Volunteers. We stay until 9:30 or until the crowd leaves. We hope you can join in the fun. Open to the public, all ages welcome, bring a telescope if you have one, and RSVP with Terri to attend.

May 1 - The May PAS Meeting falls on the very first day of the month, so I thought I'd mention it so you know ahead of time, before the next newsletter comes out. Our Speaker will be: Kevin Mullins and his Topic will be "mars Exploration Rover." This will be a fantastic end to our season. We hope you can attend. The meeting is at PVCC in the Library from 7pm to 9:30pm. See you there!

We hope you can assist and/or attend these fun PAS events. Bring the whole family to all public events! For more events that may not have made this list at time of printing, please see www.pasaz.org UPCOMING EVENTS. ***

Arrowhead Elementary School Star Party

by Terri, Events Coordinator

I received this email from our favorite star party location, Arrowhead Elementary School. Carol writes:

Terri, I had to have a total replacement of the left knee that was already replaced once. I was very allergic to the nickel in the knee replacement. Consequently, I think we will have to wait until next fall to have the star party. Please stay in touch with me. Thank you! Carol Jesson

March Meeting Review

By Terri, V.P.

We had an awesome PAS Meeting for Mar 8th. The meeting opened with a few very brief announcements and then we turned it over to our Guest Speaker Steve Coe. Steve told us all about the Nebulae and he had some humorous things to share. We all enjoyed this presentation so much, I asked him, before he left, to do another one soon. So, he and I will be scheduling his return to PAS for another presentation. His

talk lasted about an hour and afterwards we did the Raffles. There were three of them this month. Next month we will have 2 of these three. 1) The 50/50 raffle was won by Bruce who took in \$14, and the other \$14 went to PAS. 2) We had a Mystery prize donated by Mark Stephenson who arrived a bit late after the PAS Social had ended and asked that I raffle off his prize at the next PAS meeting. His prize brought in \$11 to

go in the PAS Treasury. And the 3) last item we raffled was one of the many meteorites we received from Astronomy Magazine to raise money to cover the gas for the trip up to Mayer in April. We raised \$11 so far on the first meteorite and Sam won it this time. Next month there will be another meteorite plus the 50/50 raffle. We don't have, that I know of, any mystery gifts for April. See you at the April meeting. ***

What in the World is Electricity

By Dave Berry Submitted by Leah

Today's scientific question is: What in the world is electricity and where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an important electrical lesson: On a cool dry day, scuff your feet along a carpet, then reach your hand into a friend's mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches one that electricity can be a very powerful force, but we must never use it to hurt others unless we need to learn an important lesson about electricity.

It also illustrates how an electrical circuit works. When you scuffed your feet, you picked up batches of "electrons", which are very small objects that carpet manufacturers weave into carpet so that they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friend's filling, then travel down to his feet and back into the carpet, thus completing the circuit.

AMAZING ELECTRONIC FACT: If you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc.

for granted, hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first Electrical Pioneer, Benjamin Franklin, who flew a kite in a lightning storm and received a serious electrical shock. This proved that lightning was powered by the same force as carpets, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as, "A penny saved is a penny earned." Eventually he had to be given a job running the post office.

After Franklin came a herd of Electrical Pioneers whose names have become part of our electrical terminology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. These pioneers conducted many important electrical experiments. Among them, Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked, even though it was no longer attached to the frog, which was dead anyway. Galvani's discovery led to enormous advances in the field of amphibian medicine. Today, skilled veterinary surgeons can take a frog that has been seriously injured or killed, implant pieces of metal in its muscles, and watch it hop back into the pond -- almost.

But the greatest Electrical Pioneer of them all was Thomas Edison, who was a

brilliant inventor despite the fact that he had little formal education and lived in New Jersey. Edison's first major invention in 1877 was the phonograph, which could soon be found in thousands of American homes, where it basically sat until 1923, when the record was invented. But Edison's greatest achievement came in 1879 when he invented the electric company. Edison's design was a brilliant adaptation of the simple electrical circuit: the electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then (this is the brilliant part) sends it right back to the customer again.

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and never get caught, since very few customers take the time to examine their electricity closely. In fact, the last year any new electricity was generated was 1937.

Today, thanks to men like Edison and Franklin, and frogs like Galvani's, we receive almost unlimited benefits from electricity. For example, in the past decade scientists have developed the laser, an electronic appliance so powerful that it can vaporize a bulldozer 2000 yards away, yet so precise that doctors can use it to perform delicate operations to the human eyeball, provided they remember to change the power setting from "Bulldozer" to "Eyeball."

Full Moon Star Party Review 3/21

It was a full moon. Definitely. I'd like to thank those who attended this star party.... Scott, Kevin and family attended and were the highlight of the night. Kevin Harcey, John Pulis, Rod & Sue, William & Terri and Don all joined from PAS. We had Janice from PUMA Press there as well. It was

wonderful weather and the night went real smooth.... and once it turned a bit chilly, we all departed. The sky was cooperative and the Moon was awesome! Scott brought his big binocs, very nice pair, and we viewed a few items through them. Kevin, his wife, and his son came and they were ecstatic.

We sure enjoyed their company. Kevin Harcey brought 2 of his scopes. John Pulis had a scope. Rod brought his and Don brought his and we had a great time. It was nice to see Sue who just had surgery the week before. We hope to see you at the next event at PV Park. ***

by Patrick Barry

It's 10 o'clock, and do you know where your Oriental Honey Buzzard is?

Tracking the whereabouts of birds and other migrating wildlife across thousands of miles of land, air, and sea is no easy feat. Yet to protect the habitats of endangered species, scientists need to know where these roving animals go during their seasonal travels.

Rather than chasing these animals around the globe, a growing number of scientists are leveraging the bird's-eye view of orbiting satellites to easily monitor animals' movements anywhere in the world.

The system piggybacks on weather satellites called Polar Operational Environmental Satellites, which are operated by the National Oceanic and Atmospheric Administration (NOAA), as well as a European satellite called MetOp. Sensors aboard these satellites pick up signals beamed from portable transmitters on the Earth's surface, 850 kilometers below. NOAA began the project—called Argos—in cooperation with NASA and the French space agency (CNES) in 1974. At that time, scientists placed these transmitters primarily on buoys and balloons to study the oceans and atmosphere. As electronics shrank and new satellites' sensors became more sensitive, the transmitters became small and light enough by the 1990s that scientists could mount them safely on animals. Yes, even on birds like the Oriental Honey Buzzard.

“Scientists just never had the capability of doing this before,” says Christopher O’Connors, Program Manager for Argos at NOAA.

Today, transmitters weigh as little as 1/20th of a pound and require a fraction of a watt of power. The satellites can detect these feeble signals in part because the transmitters broadcast at frequencies between 401 and 403 MHz, a part of the spectrum reserved for environmental uses. That way there's very little interference from other sources of radio noise.

“Argos is being used more and more for animal tracking,” O’Connors says. More than 17,000 transmitters are currently being tracked by Argos, and almost 4,000 of them are on wildlife. “The animal research has been the most interesting area in terms of innovative science.”

For example, researchers in Japan used Argos to track endangered Grey-faced Buz-

zards and Oriental Honey Buzzards for thousands of kilometers along the birds' migrations through Japan and Southeast Asia. Scientists have also mapped the movements of loggerhead sea turtles off the west coast of Africa. Other studies have documented migrations of wood storks, Malaysian elephants, porcupine caribou, right whales, and walruses, to name a few.

Argos data is available online at www.argos-system.org, so every evening, scientists can check the whereabouts of all their herds, schools, and flocks. Kids can learn about some of these endangered spe-

cies and play a memory game with them at spaceplace.nasa.gov/en/kids/poes_tracking.

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



The ARGOS program tracks the whereabouts of endangered migrating animals via miniature transmitters on the animals and the POES satellites in orbit.

Bookman's Telescope Workshops Are Temporarily Ending

PAS was informed that Bookman's will be renovating their back room, actually their whole store. And the renovation starts in April. So, they have informed us that we are no longer using the back room from April 1st, on into the future. So, until further notice, all Bookman's events are canceled

after March. So the LAST Bookman's telescope workshop will be on Mar 30 4:30pm to 6:30pm. Let's make it a good one. Bring your scope, learn how to use it by daylight, and then join us for dinner at Carlos O'Briens afterwards. If they allow us to use the back room, or even if they have a back

room after they renovate, I will get a notice out letting you know we are reinstated the dates of the Bookman's Telescope Workshops. Until then, see you at the LAST one until further notice. Thanks for your understanding! ***

PVCC Indoor Astronomy Event 4/10

You won't want to miss this event. Volunteers are asked to let Terri know what you plan to do at this event this year. Guests are asked to RSVP attendance so we know how many will attend. The event set up is 7pm for the volunteers. Guests

are asked to arrive and enjoy their hands-on experiences from 7:30pm to 9:30pm. We close up at 9:30. Weather Permitting we will have viewing through several scopes outside by the telescope domes, and possibly through the telescopes in

the domes. Plan to attend. All ages are welcome and encouraged to be there. We love sharing astronomy with you. Come enjoy the night with us and learn more about our shared favorite topic!!! ***

Sunset Ridge Elementary School Star Party 4/11

Volunteers are needed. Remember this awesome star party last year? Well, they want us back and I want to make sure we have enough

scopes to accommodate them. Please RSVP with Terri soon to let her know you are attending to help out. every one is welcome to come

to this star party. See map to location on page 10. See you there!!! ***

PAS Bookman's Backroom Telescope Accessories Workshop 2/10

It was a lovely Sunday afternoon. The night before we had had an awesome time at the PAS Social. So, we get there around 2:30 and wait for the Belly Dance class to end. Then we take over the room, set up the tables and chairs, expecting 8 PAS members and one public RSVP. From 3pm to about 4pm, Sue and Terri play on their Nintendo DS's, shared games. Don and William were on their individual computers doing stuff. Rod was reading a book. No one showed up from the Public, yet. So, then we stop of games and decide we better get some serious discussion going. So, Don and Rod pull out their Year In Space Calendars, and Terri has hers out, and we start discussing upcoming events. In fact, we make it all the way through the year, to Jan 8th 2009 for the last event we discussed.

Here are some of the things we discussed:

For the Nov 2008 Meeting and the Jan 8th 2009 PAS meetings, we need speakers. So, we are seeking help finding speakers for those two dates. Let Terri or

Rod know if you have a suggest or a request.

Something very different is happening. Bookman's will be renovating their building and so Apr 30th is the last day the Community room (back room) will be available to borrow until the renovation is done. We have one more Telescope class between now and then. MARCH 30TH will be our last Bookman's Telescope Class. All the rest of the classes may be moving to another location or being canceled due to the changes at Bookman's. So, we discussed possible places to hold Telescope classes, such as the ones we were doing at Bookman's. If you have any ideas for this, please share. Remember, the public is encouraged to bring their scopes to a public location to learn how to use their telescopes by daylight, indoors. We don't need A/V, food, drink, or even electricity. But it needs to be in a lighted, indoor location so it doesn't get rained out. And it should be a public location so that we might draw in people who are passing by, as well as

those who RSVP. Your input and ideas are very welcome.

We discussed some fun events coming up that we need to talk over and discuss how it will happen. For instance:

Astro Day at PVCC - What time to begin? Volunteers Needed

Sally Ride - Who is doing what that day? Volunteers Needed

The photo shoot at PVCC star party on May 8th.

We used our time to discuss items that have needed to be discussed.

6pm came and no public had shown up so we closed it up and went to dinner.

Carlos O'Briens saw Bruce, the birthday boy, Bette & Ed, Rod & Sue, Don, and William and Terri. We had our favorite waiter, shown in the photos. We had an awesome dinner, a great time and enjoyed it tremendously. Plan to join us next time on Mar 30th. RSVP today. Check out this link to see the photos from this event: <http://tinyurl.com/2tkkkw>***

Sally Ride Festival Review 3/1/08

By Terri, Events Coordinator Photos by Rod and Sue

Wow, this was some day. We got all set up with our table, see photo, and before you knew it, there were a ton of girls visiting our table. As they came up to the table, they were greeted with many handouts they could help themselves to. Then further down the table, we had Ed on an electronic game. As long as they got one answer correct, they got a prize, which was a 2008 Space Place Calendar. Then they moved down the line and tried the Constellation Tubes. Guessing one right, or more, got them various post cards with pretty pictures as well as a PAS Bookmark. Then further down we had Bruce doing the Solar System distance game. He told them, if you make it to Mars, I'll give you a prize. His prizes were posters from NASA Space Place. The other game we had going on was that they had to go visit the telescopes down the hill and come back with 4 playing cards (stamped on the back with our logo and web address in case they kept it instead of playing the game) and they would collect one from Don doing Solar, one from Rod doing Solar, Chet was doing a different form of Solar and we had Mike doing Meteorites. They bring their cards up to the PAS Table and before I gave them their prize, they had to tell me what they learned down the hill. Then they would see if they win the poker game - Highest card wins, against me. I then awarded them various prizes based on what I had in front of me. We had cute card sets we had gotten donated to us for the Mayer event that we were using for this game as well. I think it was around 10:30 we got swamped with Girls, constantly flowing to

our table, and then by lunch, which lunch was late, around 1:30 or so, it died down. We ate lunch and we decided to pack it in around 2pm. The day flew by. It was loads of fun and we all agreed that this year the girls were more INTO the whole science thing, talking about it, and listening more, and sharing what they knew. It was very rewarding to be part of this event. See you next year for another Sally Ride Event. And Sally Ride was there this year! Thanks to all my volunteers!!! See photos at: <http://tinyurl.com/2wmrzz> ***

THANKS TO PAS FROM SALLY RIDE FESTIVAL COORDINATOR

Hello everyone!

We want to thank all of you for making Saturday's Sally Ride Science Festival at Arizona State University such a great success! We couldn't have done it without all of you! All of your booths looked absolutely fantastic and I am sure the girls had a blast visiting (exploring!) them.

We hope that you enjoyed the day and were able to get a lot of exposure for your organization. If you have any feedback or suggestions (good or bad) please feel free to send me an email. Best of luck to you and we hope you will be able to join us again at one of our future events in the Tempe area!

Best wishes,

Tracy

Tracy Busse
Exhibitor Coordinator
Sally Ride Science
tbusse@sallyridesience.com
ph. 215.822.6713



Mike's Summer Lecture Series 2008

All PAS Members are welcome to come to Mike's home, RSVP required with Mike, for a fascinating Physics Lecture / Star Parties Series this Summer. Below are the dates and topics of his presentation. Bring cash to get in on the shared pizza. Show up around 4pm-5pm. Lecture will be begin at 6pm and

run for about 2 hours. Afterwards there will be a star party in a really awesome, dark sky location - Mike's home. On July 2, stay for the fireworks. Bring bedding if you plan to spend the night. We will see you there. RSVP at primefactory@q.com or 480-488-3031.

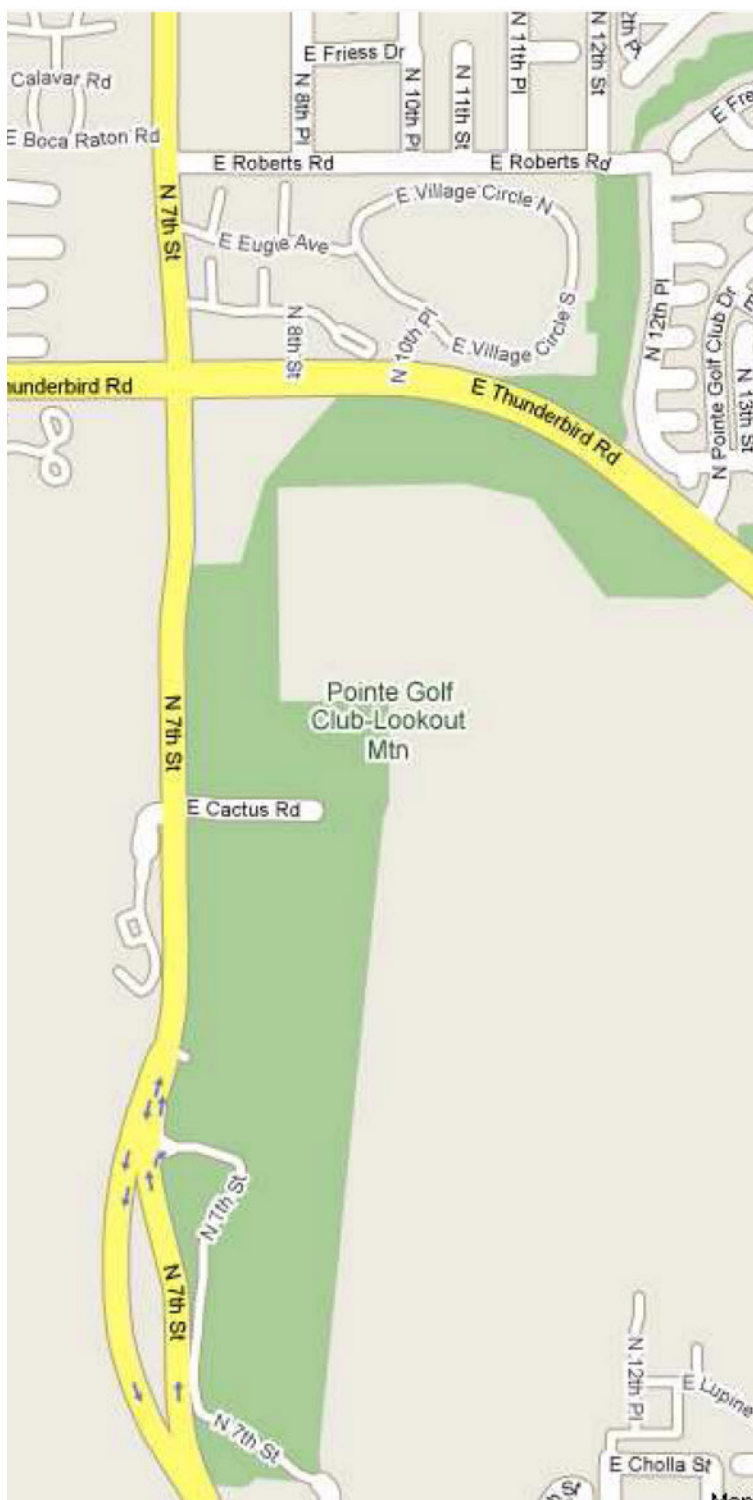
June 28: Solar System

July 2: Stars

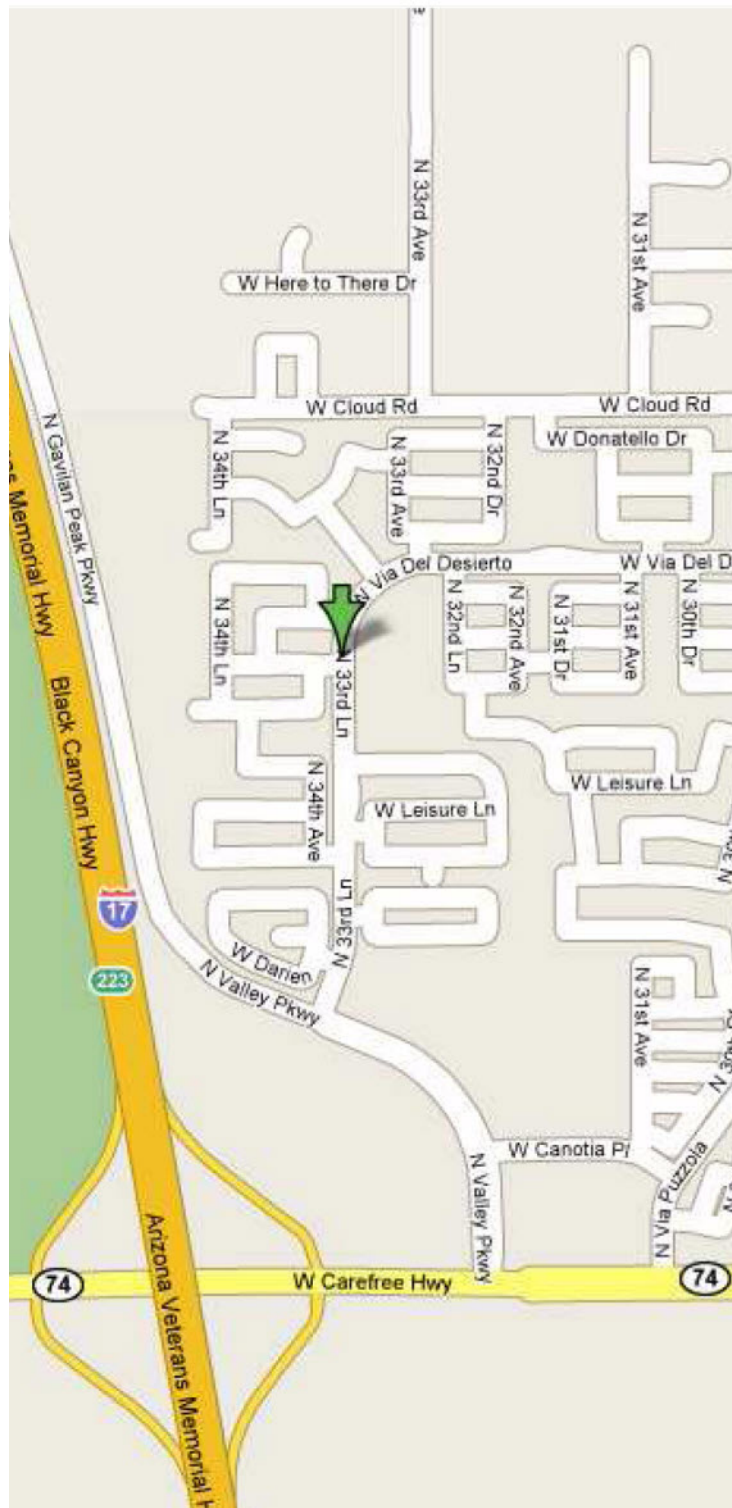
Aug 30 Galaxies

Sept 27: Geophysical Evolution

The whole family is invited to these events!!! ***

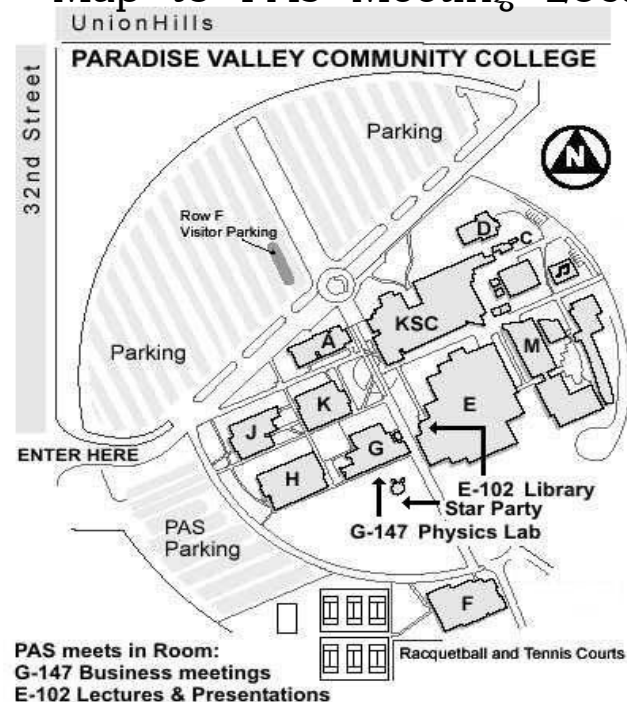


North Mt Visitor Center
12950 N. 7th Street, Phoenix, Arizona 85020
Location: On 7th Street just south of Thunderbird

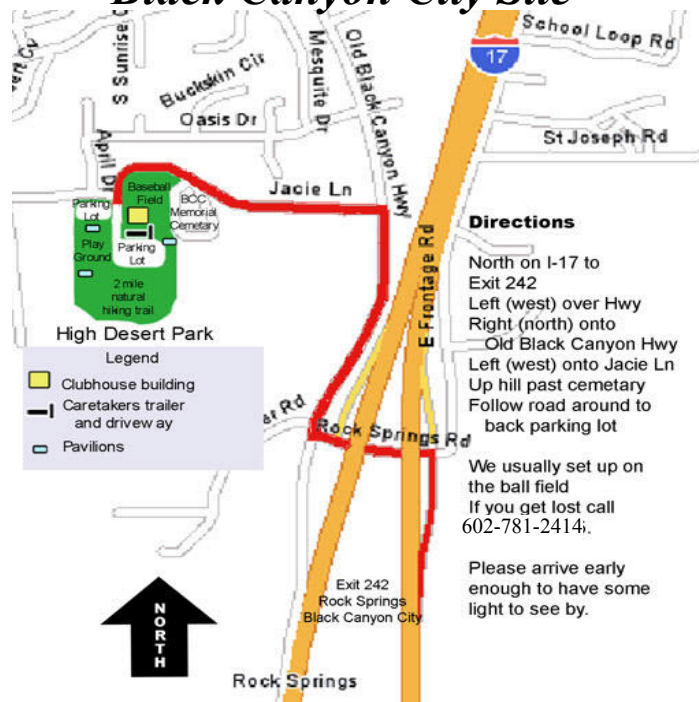


Sunset Ridge Elementary
35707 N 33rd Ln
Phoenix, AZ 85086

Map to PAS Meeting Location



Black Canyon City Site



April

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3 PAS General meeting See page 1	4 WOW Starparty See page 1	5 Messier marathon at 2 trees site. See page 1
6	7	8	9	10 Indoor/Outdoor PAS Event See Page 5	11 Sunset Ridge Elementary School. See page 5	12 Mayer 900 Girl Scout star party. See page 5
13	14	15	16	17	18	19
20	21	22	23	24	25	26 North Mountain Park Visitor Center. See Page 5
27	28	29	30	PAS General Meeting See page 5		

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. Ads in PAStimes are FREE to members all others are asked to make a small donation. Donations are to be sent to the Editor who will forward them to the Treasurer.

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

To:

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What's Up For April?

By Rod Sutter, PAS President
Lunar Eclipse Wed 20th 20:29

Planets

Name	Date	Rise	Set
Mercury	04-1-08	05:45	17:36
Venus	04-1-08	04:03	15:21
Mars	04-1-08	11:20	01:41
Jupiter	04-1-08	02:04	12:10
Saturn	05-1-08	15:28	04:35
Uranus	04-1-08	05:20	17:01
Neptune	04-1-08	03:56	14:45
Pluto	04-1-08	00:27	11:01

All Times Arizona Time

Meteor Showers

Lyrids	04-22-08
Pi-Puppids	04-23-08

April 15 2008

Sunrise: 05:58

Sunset: 18:57



Q3: March 29



New: April 6



Q1: April 12



Full: April 20

Phoenix Astronomical Society Contact Info

<u>President / Librarian</u>	Rod Sutter	602-971-9129	President@pasaz.org
<u>Vice President / Events Coordinator</u>	Terri Finch	602-561-5398	VicePresident@pasaz.org
<u>Treasurer</u>	Mike Marron	480-488-3031	Treasurer@pasaz.org
<u>Newsletter Editor</u>	Don Boyd	480-963-7189	Editor@pasaz.org
<u>PAS Host</u>	John Pulis	623-570-5308	
<u>Webmaster / Dark Sky Advocate</u>	Barbara Hartman	623-374-5364	Webmaster@pasaz.org
<u>WOW Contact</u>	Chet Schuler	480-272-4545	chetsch@cox.net
<u>Rocketry Liaison</u>	Jerry Belcher	623-328-9290	http://ahpra.org/launches.html