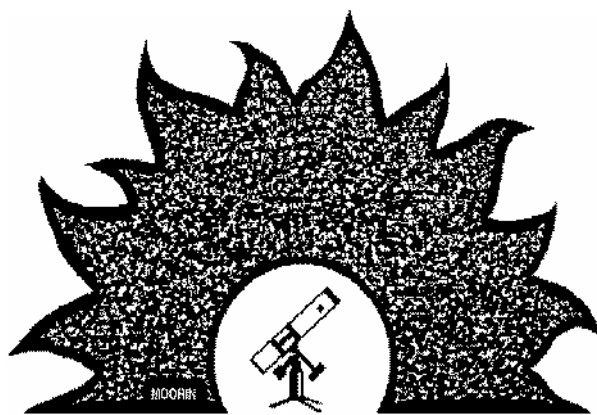




PAStimes

Phoenix Astronomical Society
www.pasaz.org

September 2007
Volume 60 Issue 1

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Next Meeting September Sixth

It's that time of year again...summer is almost over and that means PAS is meeting again. This month we are pleased to welcome Tony La Conte of Star Gazing For Everyone as our lecturer. We asked him to write a short introduction and this is what he sent.

"I will address some of the interesting facts about the classic observing objects and some lesser know objects in that area."

"In my job as a "Professional Stargazer" I try to make the night sky "Friendly" to the non-astronomer type general public. I will also talk about how to make public programs more exciting to the general public."

"My wife and I, plus a great volunteer

staff, do more than 300 programs a year to more than 75,000 people each year. Our programs are presented to schools, scout groups, community groups, at major resorts and private parties throughout the southwest. Besides our telescope programs I also own the only giant inflatable planetarium in Arizona (it can seat about 90 total people per program). I bring this out to the Challenger Space Center once a month and to many schools each year. I have been doing this as a full-time job now into our 7th year."

"I have been looking through telescopes since 1953 and have always been a great fan of "Backyard Stargazing"which is a series of lectures I do for the Glendale Public library."



Welcome Back to PAS

By Terri, Events Coordinator & V.P.

Welcome back to PAS! Yes, we have an awesome line up of events for this year. We will most likely be very busy and full of fun! Check out our speaker line up on line. Just look at those awesome speakers we have scheduled! And what about the events list.... we will most likely be back at ASU for Sally Ride, and off to several schools for star parties. We have some paid star parties coming up for those PAS members who want to enjoy a little cash for their time. We have some exciting new events we've designed. Let me tell you about them briefly. You can find out more on the flyer's on line, or pick some up at the next meeting....

1) Full Moon star parties. On the full moon that falls on a Fri or Sat night you can find us a PV Park enjoying a few hours of looking at the interesting features of the Moon. Please see the flyer on this, on line. Dates for 2007 and 2008 have been planned.

2) Meteor Shower parties. We are in the planning stages to include Meteor Showers as viewing nights. Yes, bring the whole family to our meteor shower parties. Some folks will have scopes, others are just there to see the meteors, but in either case, these will be awesome and NEW to PAS. A flyer for these dates will be on line, soon. No scope is needed for these events. Just your eyes and a desire to enjoy the night with us. Location: PV Park.

3) Solar & Lunar Eclipses. We are working on a flyer for the upcoming Solar and Lunar Eclipses that can be seen from our location. The may be total eclipses or partial, it doesn't matter as long as we can meet and have a party with it. Watch for a flyer about this type of event, coming soon. These events, right now are being organized at PV Park. Times and dates will be on the flyer.

Wow, what a line up.... plus we have

our usual events, such as:

4) 1st Q moon star parties which happen at various times throughout the year at PVCC on a Thursday night. So, if you see a 1st quarter moon coming up around a Thursday, check to see if we are at PVCC that night. Most likely, we will be there by the telescope dome.

5) New Moon, or Dark Sky star parties. These are held in the summer months at the Two Trees site north of Phoenix between Sedona and Cottonwood. Talk to Barbara about those if you wish to attend. The last summer one will be in September. Then they move to the Black Canyon City site at High Desert Park.

6) The other event at High Desert Park is the 3rd Quarter Moon star party. The moon when in its 3rd quarter phase rises late enough at night that viewing can still be good on these nights, so we have the 3rd

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May 2007 Pas Meeting Review

By Terri, V.P.

The meeting went well. We had a mishap of the Sub Sandwiches not showing up, but over all the Speaker and meeting went smoothly. Elections took place. I ran the elections. First we voted to have Rod Sutter take over as President. Rod will make an awesome President. He has that empowering sense about him. I then dropped to Vice President, as serving with Rod will be a

pleasure. Mike kept his Treasurer's position and Don stayed on as Editor for another year. John was chosen to stay as Host and Barbara kept her position as Webmaster. Jerry is still the Rocket Liaison. You can see this list on the back page of the current newsletter. We dropped, in a vote at one of the Meeting of the Minds, the P.R. position, and the Hostess position. We have Chet as the Wow contact, please see article about

this in this newsletter. Steve Dodder was our speaker and his topic of the night was Cataclysmic Variable Stars. We all enjoyed his talk. We do hope Steve will come back to do another talk in the future. He's very interesting and has a great collection of talks he can do. His enthusiasm and love for his topic was very evident. We hope to see everyone at the September PAS meeting!

Cosmic Cockroaches

By Dr. Tony Phillips

Cockroaches are supposed to be tough, able to survive anything from a good stomping to a nuclear blast. But roaches are wimps compared to a little molecule that has recently caught the eye of biologists and astronomers—the polycyclic aromatic hydrocarbon.

Polycyclic aromatic hydrocarbons (PAHs for short) are ring-shaped molecules made of carbon and hydrogen. "They're all around us," says Achim Tappe of the Harvard Center for Astrophysics. "PAHs are present in mineral oils, coal, tar, tobacco smoke and automobile exhaust." Aromatic, ring-shaped molecules structurally akin to PAHs are found in DNA itself!

That's why Tappe's recent discovery may be so important. "PAHs are so tough, they can survive a supernova."

The story begins a few thousand years ago when a massive star in the Large Magellanic Cloud exploded, blasting nearby star systems and interstellar clouds with hot gas and deadly radiation. The expanding shell, still visible from Earth after all these years and catalogued by astronomers as "N132D," spans 80 light years and has swept up some 600 Suns worth of mass.

Last year "we observed N132D using NASA's Spitzer Space Telescope," says Tappe. Spitzer is an infrared (IR) telescope, and it has a spectrometer onboard sensitive to the IR emissions of PAHs. One look at N132D revealed "PAHs all around the supernova's expanding shell. They appear to

be swept up by a shock wave of 8 million degree gas. This is causing some damage to the molecules, but many of the PAHs are surviving."

Astronomers have long known that PAHs are abundant not only on Earth but throughout the cosmos—they've been found in comet dust, meteorites and many cold interstellar clouds—but who knew they were so tough? "This is our first evidence that PAHs can withstand a supernova blast," he says.

Their ability to survive may be key to life on Earth. Many astronomers are convinced that a supernova exploded in our corner of the galaxy 4-to-5 billion years ago just as the solar system was coalescing

from primitive interstellar gas. In one scenario of life's origins, PAHs survived and made their way to our planet. It turns out that stacks of PAHs can form in water—think, primordial seas—and provide a scaffold for nucleic acids with architectural properties akin to RNA and DNA. PAHs may be just tough enough for genesis.

Cockroaches, eat your hearts out.

Find out about other Spitzer discoveries at www.spitzer.caltech.edu.

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



Using the IR spectrometer on the Spitzer Space Telescope, scientists found organic molecules in supernova remnant N132D.

Review of Bookman's Telescope Workshop & Dinner after July 8

By Terri, V.P.

You missed an awesome day. We started out at Bookman's 4:40 - 6:30pm for the Telescope Workshop. We had 3 RSVP's and all three showed up. Pratt (RSVP) came to find out about how to work his Autostar. Don did an awesome job of helping him out by bringing his telescope to use for demo. Rod was assisting Steve (RSVP) with Culminating. Roger (RSVP) came and left but he said he had a good time and plans to visit PAS in the future. Jeff Hopkins came to show us his new book, in print, and with limited copies. He wrote a brief article for the Newsletter on it, that appeared in the Summer edition. Sue was telling everyone

about a puppy they need to find a home for. Kevin and John P came and helped out. Kevin is looking for a Lab pup. John did his normal and bragged about the Officers and the club and he did a great job of promoting and showing everyone where to get the info from the PAS table. Mike showed up and was sharing his Meteorites with Pratt and Steve (RSVP). And Steve P was there to assist as well.

While things were underway, Don, Rod and I worked on some future events we want PAS to be involved in. We are collecting data on Solar & Lunar Eclipses and Meteor Showers to start having parties for those events that we can do near a weekend.

We had an awesome turnout. In fact, we were so busy up to the end we didn't know it was time to clean up and leave, except for the fact that most of us were getting hungry. Time's fun when you're having flies. Ha ha ha ha.

After our telescope class we usually get together for dinner someplace. This time we chose Carlos O'Briens. We had a good dinner, great company and the night had a good feel to it. I believe all the volunteers had a great time. You'll definitely have to attend the next one. See the UPCOMING PAS EVENTS for all your astronomy event needs. ***

Ask An Astronomer

PAS has a new feature on its website and this newsletter. Ask An Astronomer. It will be a semi-regular feature...as the questions come in To submit your question email astronomy-questions@pasaz.org.

This month we have combined 2 questions we received about the planet Mars. The second does not refer to the email that is in the first email, but it is implied by the timing of the receipt of it.

Leah Sapir is the lead person on this new column, but she will ask other members for their help as she requires it. For this month's question she asked Barbara Hartman for help.

Leah's reply is first followed by Barbara's.

Someone sent this to me a few days ago and I am wondering if it is true or not. I'm finding it hard to believe that Mars would look as large as a full moon to the naked eye. Any help you can provide is much appreciated.

Thank you!

Stephanie

The Red Planet is about to be spectacular!

This month and next, Earth is catching up with Mars in an encounter that will culminate in the closest approach between the two planets in recorded history. The next time Mars may come this close is in 2287. Due to the way Jupiter's gravity tugs on Mars and perturbs its orbit, astronomers can only be certain that Mars has not come this close to Earth in

the Last 5,000 years, but it may be as long as 60,000 years before it happens again.

The encounter will culminate on August 27th when Mars comes to within 34,649,589 miles of Earth and will be (next to the moon) the brightest object in the night sky. It will attain a magnitude of -2.9 and will appear 25.11 arc seconds wide. At a modest 75-power magnification Mars will look as large as the full moon to the naked eye.

Mars will be easy to spot. At the beginning of August it will rise in the east at 10p.m. and reach its azimuth at about 3 a.m. By the end of August when the two planets are closest, Mars will rise at nightfall and reach its highest point in the sky at 12:30a.m. That's pretty convenient to see something that no human being has seen in recorded history. So, mark your calendar at the beginning of August to see Mars grow progressively brighter and brighter throughout the month.

Share this with your children and grandchildren.

NO ONE ALIVE TODAY WILL EVER SEE THIS AGAIN.

Dear PAS Rep,

I would like to take my telescope to a good location to observe Mars where as there might be other observers there too that I can converse with. Do you have any advise as to where I might go to set up my scope for the time when Mars is close to us? I reside in Scottsdale. I would assume

there must be a good elevated spot nearby where other observers will be during this time also observing..

Thank you

Vince

Dear Stephanie and Vince,

If you're finding it hard to believe, then you're right! that is a phony email that has been making the rounds for the past few years.

When Mars is at its closest point to Earth (i.e. when both are on the same side of the sun in their orbits) then it is about 35 to 55 million miles away. This situation is known as "opposition" because the sun is on one side of the Earth, and Mars is on the opposite side. at every opposition, Mars is up all night, rising at sunset and setting at sunrise. Since Mars takes about 2 Earth-years to orbit the sun, we have an opposition about once every two years (actually a little longer - about 2 and a quarter years); and since the orbit of Mars is somewhat elliptical, there is a gradual variation in the distance of Mars at opposition. about once every 15-17 years, Mars at opposition is at its closest (about 35 million miles away), then at the next opposition it will be a little farther away (about 40 million miles), and so on during the next 7-8 years till it is about 55 million miles away at opposition; then closer each time till the next "close opposition" about 15-17 years after the previous one.

In August 2003, Mars had a close opposition that was very slightly closer than
continued on page 4

Full Moon Star Party 6/30 Review

By Terri, V.P.

It was a warm night, it started out very different than expected (Doesn't this sound like a fictional novel?). Don was first to arrive in the spot on the map marked X. We pulled in after him and told him, let's scout out the spot Steve showed us here at the Paradise Valley Park. So, we drove over and checked it out, and liked it better. Thanks Steve! So, then Rod arrived at the X. I called him (good thing we all have cell phones), and told him we moved to Steve's selection. He joined us and then I called Steve to let him know. All 4 of us parked our cars in a line down one side of the parking area to block cars from getting near our scopes. It was 7pm when this started, and soon, before we knew it it was 8pm. Someone stopped to see what we were doing. He had noticed the really awesome large sign Rod had made and was sitting at the front of the vehicles. He had a dog and was very friendly. He stayed for a moment and then went off to get

his wife. While he was gone we got the rest of the stuff set up. Steve had 2 scopes and binocs set up, Don had his new scope, Rod had a small scope and I brought handouts and my Astroscan. My thought was, who needs a bigger scope because you are just looking at the moon. Well, I think I would have been better off with the Doctor, but the Astroscan did ok. This was only the third time Astroscan had been out to see the stars.

So, that gentleman and his wife hung around most of the night, and another gentleman and his daughter (His name was Don and his daughter was Trisha) stopped by to join us. Trisha was the only kid there all night, so she was spoiled. We found the items on the moon to show her. I believe she saw 4 features of the moon. We have 8 features on our Moon treasure hunt. But it was getting late, 9:30 and they wanted to leave, so we made sure they saw the planets and the features on the moon and I awarded her 3 things for prizes for doing our Treasure Hunt.

The temperature was good for the evening, once the sun went down. The breeze was annoying at first but died down as the night went on. The people were great. There were quite a few others who didn't seem to come any farther than over by Rod. the order of the cars/scopes was Rod and the Don, then me with the PAS handouts, and then Steve. It was a fun night and I appreciate everyone who attended and everyone who volunteered. Afterwards we ended up going to 5 & Diner for a snack and were there till they closed at midnight, then stood outside the place with some great conversation till 1:30.

If you missed the Full Moon Star Party, you might want to attend the next one in October. Please see the flyer on line for more details, the map, and directions. ***

Ask An Astronomer

From Page 3

other close oppositions had been for thousands of years - but the difference was tiny compared to the total distance, something like 34 million miles away instead of 35.

When Mars is visible (i.e. when it's not below the horizon) it looks like a bright, slightly reddish or orange-ish star; at its brightest, it is brighter than many other stars, but not even as bright as Venus, and certainly not large enough to resemble a disk. That was the situation in August 2003 - Mars was a bright orange "star". at that time, looking at Mars through a telescope, we could faintly see large surface features (such as large areas of darker or lighter dust, or the polar ice caps). features about as large as continents were visible as faint blurs, and smaller features couldn't be distinguished.

The email you sent sometimes has an attached picture with a beautiful close-up view of Mars - much more detailed than could possibly be visible even through the strongest telescopes on Earth. (the picture was taken from spacecraft orbiting Mars.)

In order to appear as large as the full moon to the naked eye, Mars would need to be less than a million miles away - and we're lucky it's not that close!

More info at this website:
<http://www.snopes.com/science/mars.asp>

Right now (Aug 2007), Mars rises around midnight, and is about 120 million miles away. in the sky it is close to the constellation Taurus, and is a little brighter than the reddish star Aldebaran (in Taurus) and Betelgeuse (in nearby Orion, which rises a little later - around 3-4 am). over the coming months, Mars will be rising earlier each night, reaching opposition around Dec-Jan. it will be wandering around a little in the sky from day to day, but will remain in the general area of Taurus, Orion, and Gemini (which will also be rising earlier each night).

We will have plenty of opportunities to observe Mars over the coming months. many observers like to get an early start, to watch Mars as it gradually comes closer.

PAS will be having quite a few star parties and observing sessions over the next few months. at each one, we'll be observing many interesting objects, including Mars, if it has risen at the time. you can find info about PAS star parties on our website www.pasaz.org. Wishing you clear skies, and happy observing!

best regards,

Leah Sapir

PAS member

I am glad that you asked as Mars is currently a fine object in an 8" or larger scope. I was out observing on Friday 8/10 with a 10" scope and even though it is only 7.5 arc seconds some

albedo features are visible. Happily the planet-wide dust storm that threatened the two rovers Spirit and Opportunity, is almost all gone or we wouldn't see much at all.

A very good thing about observing the planets is that you do not really need a special spot you can observe even from the city. If you would like you are welcome to come to our next 3rd Quarter Moon star party, on Saturday September 8th. Hopefully it will be clear that night and we can get some good views of Mars. If you'd like to see what else we have planned, please do visit our web site as Leah suggested (www.pasaz.org) on the left margin click the link for Upcoming Events.

Hope to see you there!

Barbara

60 Years?

Did you notice the masthead? It says Volume 60 Issue 1, this means that PAS has been around for 60 years...well not exactly. For the first 37 years we were the POA(Phoenix Observatory Association). This is a big year for PAS and we just wanted to make note of it.

Don Boyd Editor

Welcome Back To PAS

Continued from page 1

Quarter Moon star party for those events.

7) And Rod wants to have a Moon Detail viewing night. Right now that is in the planning stages. If you have any input as to how we should do this and what time of the month is best, let Rod or me know and we will get that one going as well.

8) As far as Field Trips, we have been working on and planning a trip to Tucson. Yes, we want to visit the Mirror Lab, Stari-

zona, and some other astronomy related places like Kitt Peak. We are thinking of making it a 2 day event, with a one night sleep over. Or, if anyone wants to leave Phoenix earlier, we could go down on a Friday night, caravan/carpool, and stay to Sunday afternoon. It is in the planning stages right now, so input is requested if you have an idea how to do this as a group.

We know you want to get the most out

of belonging to PAS, and so we are planning a lot of fun events throughout this year to make it all more fun for everyone. If you have an idea you wish to share, please contact an officer or bring it to the next Meeting of the Minds. We are open to ideas and suggestions. Where do you want to go as a group for a field trip that is astronomy related? ***

Are You a PAS Member?

By Terri V.P.

Your dues are due. We start collecting at the September PAS meeting for the dues to cover all of 2008. Remember, membership runs from Jan to Dec, even though our PAS year is during the school year running from Sept - May. So, if you are wanting to

stay a PAS member, please send your due to Mike, or deliver them to the next PAS meeting.

Terri has been in charge of keeping up the roster. If you check the roster on line, and have paid recently for membership, it

should say 2008 for the year you are paid for. If not, check with Mike and Terri. And if you have an email address in your membership form, Terri will verify you have renewed and ask you to check the roster once your info has been updated. Thank you for your patience, and your dues. ***

Year in Space Calendar

By Terri, V.P.

Have you put in your order with the group to get your Year in Space Calendar this year? I will be accepting orders for the calendar starting at the September PAS meeting. Go to the Year In Space website and see the new calendar. It appears to be available, see the 2007 calendar at yearinspace.com.

Here is how the orders work. Get on

the list. We want to get 10 calendars ordered as a minimum. We get a club discount. There is no shipping involved, just a flat rate, if all calendars come to the same address. Just before I put the order in, sometime at the end of October, I will be collecting the money for the orders. I place the order, receive it, and then at the November PAS meeting, I get them delivered to you. Order yours today, as a group and save. The

previous cost was about \$10 each. Currently 1 calendar goes for 11.95, but if we get 10+ we get them for 9.95 each. Let me know you want one, today. Thanks for your order. These make awesome Christmas presents. I will be ordering myself one even without the 10 total needed for the discount but it sure is nice to only pay \$10 for it. Help us get the discount. ***

UPCOMING EVENTS INFO

By Terri, V.P.

When you receive the newsletter, and you look at the list of events that are about to happen for that month, sometimes you just have more questions or need more info. Well, Don and I have decided that the best way to get the info to you is in the newsletter in separate articles. So, if you go to the

calendar page and you find, let's say PVCC Star Party on 2/15 as an example. If there is an article to be found about that star party, it will be listed as "See Article page ____" so that you can find out more about it, if you need to. We hope this streamlines the ease of reading things in the newsletter and finding the info fast.

And we hope this helps you to attend more PAS events, and to get your RSVP in on time for those events. Thanks for your understanding and help in keeping things running smoothly. See at you the next event! If you have internet access, the PAS Website www.pasaz.org EVENTS has all the info and maps you need. ***

Pas Photo Library

By Terri, V.P.

I've made the first of several sets of PAS Photo CD's for the Library. I'm making an archive, a photo history of PAS. Currently Rod is housing the library. The idea is that if someone wants to see some history of PAS or needs a past photo for maybe a flyer or something they are doing, they can access the photos by borrowing the correct PAS CD of photos.

So, here is what I'm doing. I'm asking that any and all events you have attended that you DID NOT already send me the photos for, please get in your email, or on your computer, and get them put on a CD or emailed to me. Make sure the CD shows you as the photographer, so if they are used in the newsletter, we have credited to the proper person. And if you email them to me, I make sure your photos are in a folder showing you as the photographer. I'd like to

do it as EVENTS, but I have so many past photos that would just be easier to make a photo CD of all of those in a bunch.

So, go through your PAS Photos, email them to me if you have not in the past, or burn them to CD and give them to Rod.

GET THOSE PHOTOS TO ME (via email) or ROD (via burned CD) TODAY!

Thanks so much for helping take the photos. The PAS Library appreciates it. ***

Couch Potato Telescope 7/21

Text and photos by Terri, V.P.

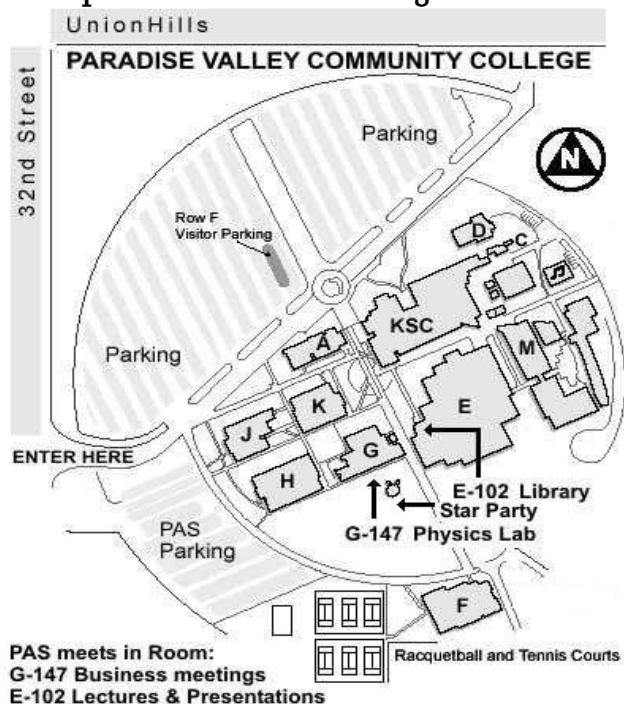
Matt, William & I decided to take a road trip to Sedona. In the process we ran across Dennis Young and spent part of the day with him. While we were with him I asked him about a project he had announced at the last PAS meeting he did a presentation for, and if he had finished that project. The project was called THE COUCH POTATO TELESCOPE. Jerry Belcher had just asked me about this the last time I saw him prior to the summer, so the research I did while with Dennis, is really for Jerry, but the rest of you might want to know this info as well.

What is a Couch Potato Telescope? Well, please, view the photos in this newsletter to get the best idea, but here is what the pamphlet says. "A binocular mount for REALLY relaxed viewing of Stars.... Satellites.... Birds... Race Cars.... and Neighbors." Dennis provided me with a page that I'm going to make copies of and give out to anyone who wishes to put together one of these viewing chairs for their own use. Dennis says he uses it as another way to entertain the people when he is running his telescope. He will put his big scope on an object, and as you know his scope does not currently track the object, and then run over to the Couch Potato and have one person get out, while another jumps in. He gets them positioned, and then runs back to his 28" telescope, and centers the object again, or he has one of his Sirius Lookers members/observers help him with this. He says it is good for filling the time while the line waits to see the object in his telescope. I think it would be awesome for public star parties if someone would like to make one or 2 of them for use at PAS events. Anyway, I

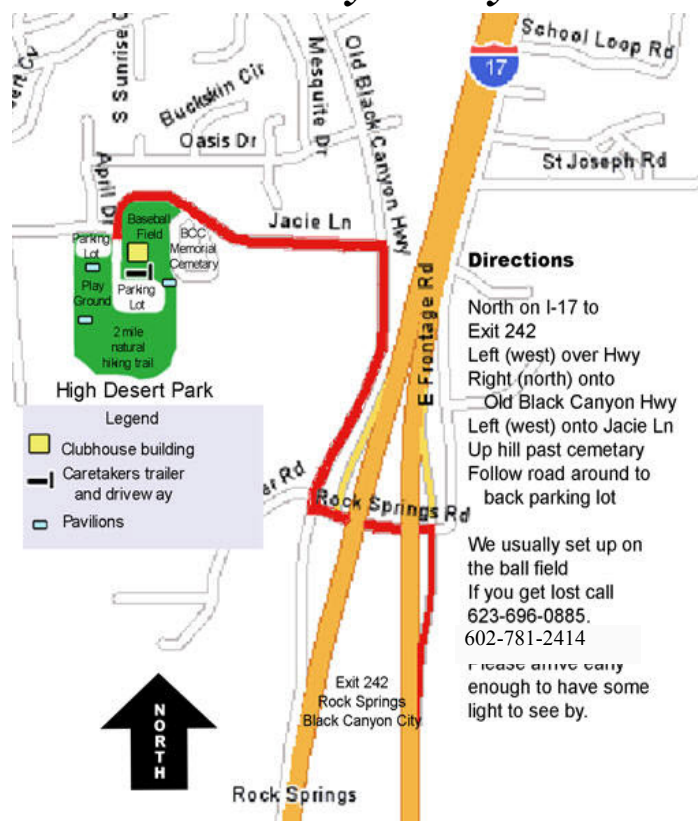
have the pamphlet, and I am going to duplicate it, and we will have copies for you at the next PAS meeting. It is really an awesome item and we hope to see more of them in use. Many thanks to Dennis for showing it to me, and allowing me to photograph it. He also provided me with the pamphlet, and we had an awesome day together. Currently Dennis is not scheduled to talk to PAS, but if any of you would like him to incorporate this item into another talk, let me know and I will schedule it for a PAS meeting. ***



Map to PAS Meeting Location



Black Canyon City Site



OUTDOOR EVENTS ARE WEATHER PERMITTING, RSVP'S REQUIRED

Sept. 6 Thursday	7 pm to 9:30 pm	Paradise Valley Comm. College 18401 N. 32nd St Phoenix, AZ 85032 Library	PAS General Meeting Tony La Conte, STAR GAZING FOR EVERYONE "Treasures of Summer Triangle"
Sept. 8 Saturday	Sundown to Moonrise	High Desert Park Jacie Lane Black Canyon City, AZ 85324	PAS 3rd Quarter Moon Star Party All are Welcome! \$2 per car donation request. RSVP with Barbara Hartman to attend. * Weather Permitting *
Sept. 9 Sunday	4:30 pm to 6:30 pm	Bookman's Back room 8034 North 19th Avenue Phoenix, AZ 85021-5101	PAS Bookman's Free Indoor Telescope Workshop I-17 & Northern - Bookman's back room R.S.V.P. is required with Terri, to attend or help out.
Sept. 15 Saturday	Sundown till ?	Two Trees Observing Site Call Barbara Hartman for map and directions	PAS Deep Sky Star Party RSVP with Barbara Hartman to attend. We are guests at this site so no white light of any kind. You need a Red Rock Pass to use the site (\$5.00 per day, remember midnight becomes the next day, so you will need one for Saturday and Sunday, or \$20.00 for the whole year)*Weather permitting*
Sept. 20 Thursday	6pm to 10pm	Paradise Valley Comm. College 18401 N. 32nd StPhoenix, AZ 85032 By G-147 Telescope Dome	PAS/PVCC Public Star Party *** Volunteers Needed *** RSVP with Terri Finch to attend or to help out. * Weather Permitting *
Sept. 27 Thursday	7 pm to 10 pm	Paradise Valley Comm. College 18401 N. 32nd StPhoenix, AZ 85032 in room G-147	PAS Meeting of the Minds No children please (business meeting)
Sept. 28 Friday	Sept. 28	PAS MEMBERS ONLY STAR PARTY RSVP with Terri by September 15th to help out.	

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
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Chandler AZ 85225

To:

{MM:Notes 1}
{MM:First Name} {MM:Last Name}
{MM:Address Line 1}
{MM:City} {MM:State} {MM:ZIP Code}

Upcoming PAS Meetings

September 6th: Tony LaConte "Treasures of the Summer Triangle"
October 4th: Melissa Morris, ASU "Indirect Detection of Water in Forming Planetary Systems"
November 1st: Ross Tucker JPL SSA "Planetary Exploration"

PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter PASTimes is published monthly from September to May and distributed by USPS and the Internet. All Issues are available for download on our website www.pasaz.org. Ads for astronomy equipment are provided as a courtesy to sellers and buyers, and do not constitute any endorsement by PAS. All Photos by Don Boyd unless otherwise credited. All articles and photos are copyright their authors or PASTimes.

Astro Events

September 4: Mars 6° south of Moon

September 8: Venus 3° south of the Moon

September 10: Saturn .8° north of the Moon

September 13: Mercury 2° north of the Moon

September: Jupiter 6° north of the Moon

September 15 2007

Sunrise: 6:11

Sunset: 6:34



Full: August 28



Q3: September 4



New: September 11



Q1: September 19

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