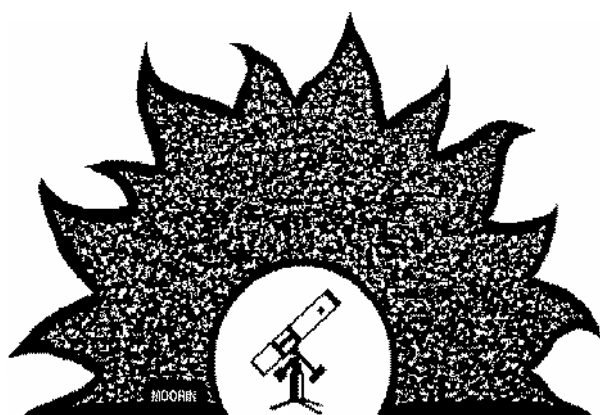




PAStimes

Phoenix Astronomical Society

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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Meeting of the Minds Review 5/29

We started the meeting by having Chris do a mini class on how the New PAS website functions for PAS members. Then he went over our NEW DARK SKY site in Mayer with how to get there, what to expect, and we all agreed that PAS would help fund the porta potty they will have delivered to the site just for attending PAS members. Then, Chris assisted the PAS members who were present who hadn't already signed up for the site, with logging in and registering.

If you did not get the chance to attend this meeting to learn how to use the new website, please get in touch with Terri. She is setting up another class for those who missed it and for those who would like to repeat it to help learn a little more or just review what they learned last time. The day of the week will be a Thursday evening

from 7pm to 10pm at Bookman's. The date is not chosen yet as she needs to know how many will be attending. If there are only a few interested in attending, and Chris thinks the class will not be big enough to make it worth it to do it as a class, he may just have you give him a call in the afternoon hours on a day that is convenient to you, and walk you through some of the features. But, until that decision is made, please let Terri know you want to attend the next class. Since this is in the July newsletter, the event will be in July or August, based on the availability of the Backroom at Bookman's. Let Terri know TODAY!

Here are some of the site items Chris covered that may interest you. As the general public, one can sign up for the site and access info about what the club is doing, and get in on the public forums. As a PAS

member or Officer, your privileges are increased such that you can get access to restricted areas of the site, such as private discussions, etc. There's a section of the site where members can post their astro photos, or other photos. There's a NEWS section that you can subscribe to that will be your new Blog. News about upcoming events will be posted there, so we would need to subscribe to it to be able to know what is happening and what is canceled. Also, the new calendar is really cool. And the calendar has map abilities so you get an interactive map with every event that provides a map. The site is really cool and we thank Chris for all his work on it. It is still a work in progress so if you see anything that needs fixing contact Chris for changes to the site. *Photos of this event can be seen at <http://tinyurl.com/5lbt9> ***



Upcoming July & August Events

By Terri, Events Coordinator

This summer will be a rough one. Already in June we had several canceled events due to storms sneaking in over the horizon and taking away our star gazing fun. The Monsoon season for Phoenix is June 15th to September 30th. During this time frame, you must be prepared to double check the website or contact the RSVP for the event you are attending up to an hour prior to the start of the event. Why? Because at the drop of a hat, the event can be canceled due to WEATHER. Yes, we have WEATHER... we have interfering, Monsoon Weather at this time of year. So, Check with the RSVP person if the Weather looks bad before making the trip to any of these events. ALL SUMMER EVENTS ARE ALWAYS WEATHER PERMITTING!

6/28 Saturday - STAR PARTY & LECTURE SERIES 1 of 4 in Carefree: RSVP is with Mike. Bring your telescope for viewing after the lecture. Arrive around 4 or 5pm. Lecture begins around 6pm and goes for about 2 hours. Then observing, movies, over night if needed. Topic: Solar System. Lecture will happen Rain or Shine.

7/4 Friday - Fireworks & Star Party in Carefree 4pm to ?: PAS members are invited, by RSVP to Mike, please, to gather at Mike's home in Carefree for Fireworks & a Star Party. The group is meeting at Bad Donkey in Carefree for dinner prior to the festivities, at 4pm. Please RSVP with Mike for attendance to both Bad Donkey and the Star Party separately. 4pm at Bad Donkey to 6pm, and then meet at Mike's home around 6:30pm to watch the Fireworks. Remember, bring your chair, and a light jacket, binoculars, cameras, maybe a hat for the Sun for before Sundown, snacks and drinks for yourself. Then, after the Fireworks we will be having a Star Party. Bring your telescopes! When the star party has completed, there will be Movies on Mike's new TV. If you have a movie you wish to share, bring it along. Those wishing to spend the night may camp out on Mike's couch or floor. Mike has a few blow up mattresses he can supply.

Some of you may wish to spend the night on the 4th, and be there again for the star party on the 5th... check this out!!!

7/5 Saturday - Star Party for the Line up of Celestial Objects - 6pm to ? in Carefree: Mike is holding a second star party, yes, 2 in a row.... Friday night and Saturday

night. Saturday has an awesome line up you will not want to miss! Again, RSVP separate for this event. This time, we do pizza delivery, split the cost of pizza. It used to be that pizza worked out to about \$1/slice, but with rising gas costs, the amount per slice may have to be adjusted. Mike would like you to leave some cash in trade for pizza slices on the table where the pizza is to cover the cost. Pitch in. Bring your own drinks, chairs, telescopes. What will you be observing? Mars, Saturn, Regulus & Moon all in a straight line. Awesome!!! Plan to attend.

During the daytime, Mike may do a tour of the town, or some other fun activity, or play games until the star party begins. Every time William and I attend Mike's events, he has a bunch of stuff to keep us busy and entertained. You will definitely want to attend his star parties.

For Non-PAS members, please RSVP with Mike. He will be able provide the map and directions to his home in Carefree.

7/5 Saturday - Dark Sky Site - Cuttin' Edge Observatory - PAS members ONLY! 4pm to ?: Bring your telescopes, snacks, chairs, drinks to CEO this Dark Sky site in Mayer AZ. Those who have not attended previously may wish to contact Chris, Webmaster, for directions. Arrive well before sundown to be polite to viewers, and plan to spend night, if you wish. The only thing at this star party is a port-a-potty. No other facilities. But the night sky will definitely AMAZE YOU! This is open to PAS MEMBERS ONLY. RSVP on the site or with Chris.

7/18 Friday - FULL MOON STAR PARTY at PV Park, 6pm to 10pm: RSVP is required for this event. No RSVP's will cancel it. RSVP is with Rod. We will be enjoying viewing the Full Moon, its craters, Valleys and more. Bring the whole family!

7/20 Sunday - Free Telescope Workshop 2:30pm to 6:30pm: RSVP is requested. RSVP is with Terri. Bring your telescope & accessories for informal instruction, 1 on 1 on how to use your telescope by daylight. Bring the whole family! Meet in the back room of Bookman's.

After the Workshop, we go to Carlos O'Brien's for dinner. RSVP for this is required so we can save you a chair at the PAS table.

7/26 Saturday - Public Invited - 3rd Quarter Moon Star Party at High Desert Park in Black Canyon City - Sundown to ?.

RSVP is with Rod and requested. \$2/car fee to attend to help pay for use of park. No RSVP's will cancel this star party. Bring your telescope and enjoy an evening of viewing. Skies are really nice from this location.

7/31 Thursday - PAS Meeting of the Minds (Business Meeting) - PVCC G-147. Come help PAS make the decisions that keep the club running smoothly. No Children please.

8/2 Saturday - STAR PARTY & LECTURE SERIES 2 of 4 in Carefree: RSVP is with Mike. Bring your telescope for viewing after the lecture. Arrive around 4 or 5pm. Lecture begins around 6pm and goes for about 2 hours. Then observing, movies, over night if needed. Topic: Stars. Lecture will happen Rain or Shine.

8/2 Saturday - Dark Sky Site - Cuttin' Edge Observatory - PAS members ONLY! 4pm to ?: Bring your telescopes, snacks, chairs, drinks to CEO this Dark Sky site in Mayer AZ. RSVP on the site or with Chris.

8/16 Saturday - Full Moon / Lunar Eclipse Star Party at PV Park 6pm to 10pm: The Full Moon turns into an eclipse around 9pm this night. We will be viewing the Moon as it is eclipsing as well as other objects. RSVP for this event is with Rod. NO RSVP's will cancel this event.

8/23 Saturday - Public Invited - 3rd Quarter Moon Star Party at High Desert Park in Black Canyon City - Sundown to ?. RSVP is with Rod and requested. \$2/car fee to attend to help pay for use of park. No RSVP's will cancel this star party.

8/28 Thursday - PAS Meeting of the Minds (Business Meeting) - PVCC G-147. Come help PAS make the decisions that keep the club running smoothly. No Children please.

8/30 Saturday - Dark Sky Site - Cuttin' Edge Observatory - PAS members ONLY! 4pm to ?: Bring your telescopes, snacks, chairs, drinks to CEO this Dark Sky site in Mayer AZ. RSVP on the site or with Chris.

8/30 Saturday - STAR PARTY & LECTURE SERIES 3 of 4 in Carefree: RSVP is with Mike. Bring your telescope for viewing after the lecture. Arrive around 4 or 5pm. Lecture begins around 6pm and goes for about 2 hours. Then observing, movies, over night if needed. Topic: Galaxies. Lecture will happen Rain or Shine.

9/4 Thursday - 1st PAS Meeting of the Season opening up with David Williams as our Guest Speaker. Come join the fun!!!

PAS Officer's Meeting Review 5/22

It was a good meeting. Very informative and VERY needed!

Chris brought his laptop and Mike brought the projector and we had a night of crash course learning how to use the NEW PAS WEBSITE. That's right, there will be a minor learning curve to using the new site.

So, on 5/22 was the Officer's crash course, and then we scheduled another training session on 5/29 at the MOM's for

PAS Members. Those of you who didn't get to attend the MOM's, please let Terri know so she can schedule you into the next class. There will only be a class if there are enough participants who didn't make it to the 5/29 class.

Many thanks goes to Chris for all his time and effort in both making the PAS website and in training us on how to use it. Questions can be sent directly to Webmas-

ter Chris anytime. It is easier on him if you attend the class and learn as a group rather than One on One, but he is open for that kind of help. You can see 2 photos of this event at <http://tinyurl.com/6c5qkv>. Enjoy! Be sure to read the review of the MOM's in this issue. ***

Q: What happens if one of the stars in Orion's belt burns out?

A: His pants will fall down.

PAS Meeting of the Minds June 26

We will be holding one more training session for learning how to use the PAS Website. We have 3 RSVP's thus far. If you have visited our NEW PAS WEBSITE at www.pasaz.org and you feel overwhelmed with WHAT DO I DO? Then, this training class is for you. No RSVP is required now that we set the date. Come to the Meeting of the Minds June 26 from 7pm to 10pm (the

Website training probably will not last that long) and learn how to use the site. Not only do you want to do this to learn how to use the site, but also, all the cool features it provides to the PAS Members, that the general public can not access.

If you attended a previous one and wish to brush up or review, feel free to swing by

and join us again. We will also be discussing some topics at this meeting that may interest you. Here is the Agenda of topics:

- * Honorary Membership Status - Dave
 - * A change to the constitution
 - * Past President option
- See you there!!! ***

Bookman's Telescope Workshops for 2008 Are Back!!!

I got word from my contact at Bookman's, that Bookman's is holding off on their renovation until the end of the year, and so, we have reinstated our Bookman's Telescope Workshops. Please, attend and help out! The dates for the Bookman's class-

es from Mid May to the end of the year are:

July 20 2:30 to 6:30pm

Sept 21 4:30 to 6:30pm

Nov 16 3pm to 6:30pm

We need a speaker for 7/20

Your assistance is needed and every-

one is welcome to join in the fun. Bring the whole family but be sure to RSVP with Terri. No RSVP's could cancel the event. See you there!!! ***

Photo Shoot in July - PAS Members Encouraged to Be in the Photo

Many PAS members are trying get in on the PAS Photo Shoot. What is this? Well, in order to advertise PAS best... we will be taking a group photo, showing some of our larger and smaller telescopes as well as the people who operate them. I've picked some dates that work in my schedule for the photo shoot. The idea is that we will be making a Post Card with this photo on it, to advertise PAsimes Star Tours. Then, after we get the photo done, Don will turn it into an awesome post card and I will send them out to the various Resorts around the Phoenix / Scottsdale area hoping to drum up some Paid Star Parties for PAS Members to do. Remember, to be part of the PAsimes Star Tours, and get paid to do star parties, you must be a current PAS member. The current dates we are discussing for in July are Saturdays and Sundays. We currently have July 12, July 13, July 19, July 26 and July 27 that do not interfere with other PAS events. The location we are doing the photo

shoot will be at N. Mt Park Visitor Center. I got permission to borrow that location anytime we wish to do this photo shoot, with a few days notice to Allyson, my contact there. I'm asking that any PAS Member who wants to be in the photo, should contact me ASAP with all the possible dates above that you can make it, for the photo. At the moment, I have more RSVP's on the 19th and the 26th, but that may not be the dates that we choose. Get that info to me very soon and an announcement on which date and what time to meet will go out by email, and phone for those who do not have Internet access. Your input is requested. If you do not wish to be in the photo, your reply is not needed. Thanks for your time. Help us plan this mini event. We are thinking of arriving at N. Mt. Park Visitor Center location around 2-3pm, and we should be done shooting photos by 5pm. We will see you there! ***

PAS 2008 SPEAKER LINE UP

By Terri, Events Coordinator
2008

9/4 - David Williams - Geology of Mars

10/2 - Jeff Hopkins - Variable Stars

12/4 - Mike George - Black Holes

2009

2/5 - Mike Marron - Galaxies & History of Universe Pt 1

3/5 - Don Garnett - Galaxy M33

Do you have a speaker you'd love to see at PAS? Send me their details & I will try my best to schedule them. Your help with ideas on who to have as a speaker is greatly needed. Thanks in advance for that help. ***

I do not feel obliged to believe that the same God who has endowed us with sense, reason, and intellect has intended us to forgo their use.

— Galileo Galilei



Arizona Sky

By Leah Sapir

In the past few months, we have used the shape of the Big Dipper to guide us to Leo, and the Big Dipper's handle has pointed out to us Arcturus and Spica, as well as Cor Caroli nestled inside the handle's curve.

As the spring constellations move towards the west, let's look for an interesting asterism that brings them all together: if we trace a line from Cor Caroli to Arcturus to Spica to Denebola (at the western end of Leo) we can see "Virgo's diamond" – a huge diamond shape across the sky. It's not as prominent as the summer triangle, because its stars are of different magnitudes: Arcturus is a very bright "zero magnitude", Spica is first mag, Denebola is second mag and Cor Caroli a faint third mag. But, it's an interesting shape that frames the spring sky.

And in the meantime, the summer triangle itself has risen in the east. Last fall we talked about Vega, Deneb, and Altair, and now we welcome them again to our summer sky.

In the southeast we can see another of our summer favorites: Scorpius is now high in the south. Its bright orange star Antares is unmistakable. The name "Antares" means "rival of Mars", and when we see them together, we can easily understand why. (Although we won't see them together this summer; Mars is still in Leo, at the other side of the sky.)

Antares is a red supergiant, about 600 light years away. Its diameter is about 300 times that of the sun; if it were located at the center of our solar system, it would cover the orbits of Mercury, Venus, Earth, and Mars.

Antares, the scorpion's heart, is framed by Sigma Scorpii (Al Niyat) and Tau Scorpii, both of which are 3rd magnitude but visible even in suburban skies. The three stars form a horizontal arc that points towards the head of the scorpion, a large vertical arc on the right, composed of the 2nd – 3rd magnitude stars Beta Scorpii (Graffias), Delta Scorpii (Dschubba), and Pi Scorpii. If we continue a little further to the right, halfway between this vertical arc and the con-

stellation Virgo we find an even wider vertical arc or triangle of 3rd magnitude stars. These were once considered to be the claws of the scorpion; but Roman astrologers decided that they needed a 12th sign of the zodiac, so they split off these three stars, and with a few additional nearby stars they created the constellation Libra – the one member of the zodiac that represents a mechanical tool rather than a human or animal.

If we draw a line from Dschubba going left through Al Niyat, Antares, and Tau Scorpii, we can continue down towards the horizon to trace the scorpion's S-shaped body, rising at the end to a forked tail and "stinger".

Scorpius is full of interesting objects. Just below a line connecting Antares and Al Niyat, about one degree from either of these stars, is the globular cluster M4. The somewhat fainter globular cluster M80 is about halfway between Antares and Graffias. Globular clusters, located in a halo around the center of our galaxy, are made up of very old stars, some about as old as the Milky Way itself. They are theorized to be leftover bits and pieces from the formation of our galaxy. If so, globular clusters must be a common by-product of galaxy formation, as they have been detected around several other galaxies as well.

M4 is about 7000 light years away – one of the closest globulars to us – and M80 is about 30,000 light years away. M4 appears a little larger because it is closer, but both are about the same actual size, about 50 light years across. M80 is much denser, though; it contains 400,000 times the sun's mass, compared to 200,000 solar masses for M4. These quantities could be the number of stars in each cluster, if those stars are around the same size as the sun; but it is more likely that each cluster has about half that number of very large stars instead. Either way, the stars in a globular cluster are very closely packed. At the center of the cluster, stars are only a few light-months apart.

Just above the scorpion's "tail" are some very nice open clusters that can be seen in binoculars or a small telescope. M7 is just above the left side of the Y-shaped "stinger". It was apparently seen about 2000 years ago by Ptolemy, who described it as a "cloudy spot following the sting of the scorpion". It is about 20 light years across, and about 1000 light years away.

M6 is a little smaller and fainter than M7, about 10 light years across and 2000 light years away. It is located a little higher and to the right. M6 is sometimes called the "Butterfly Cluster" because of its shape. It was discovered by Giovanni Hodierna in the mid-17th century, before it was listed by Messier. It includes a few orange and red giants in addition to the bright blue and white stars that usually compose an open cluster.

There are several additional open clusters adjacent to M6, and some more along the scorpion's "body". The brightest of these is NGC 6231, which is visible in binoculars or a small scope at the bottom right of the scorpion's "body", just above Zeta Scorpii. NGC 6231 is sometimes called "the table of Scorpius" because it resembles a curved table leg, or "the false comet" because it resembles a comet when viewed in dark skies. Its stars are very hot and bright, and estimated to be only 3 million years old. It is about 25 light years across, and about 6000 light years away.

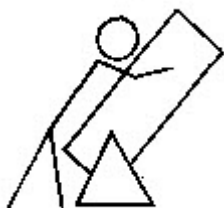
Just below NGC 6231, Zeta Scorpii appears to be a two color double star, but apparently it is just an optical double. The 4th-mag orange giant is about 150 light years away, and the 5th mag blue supergiant is much farther, possibly an outlying member of NGC 6231.

Mars and Saturn are still in Leo this month, in the west after sunset. Mars starts out less than one degree from Regulus on July 1, with Saturn about 5 degrees further east. Over the next few days, Mars moves towards Saturn, and on July 5 we see Regulus, Mars, and Saturn in a straight line, just east of the crescent moon. On July 9-10, Mars and Saturn are less than one degree apart in the sky. During July and August, both planets set earlier, and closer to sunset.

Jupiter is in the east at sunset, in Sagittarius, and is up for most of the night throughout July and August, setting around 4 am at the end of July and around 2 am at the end of August.

Venus is also an evening star, but sets very soon after sunset throughout July and August. We might be able to see a little of it during twilight. Mercury is a morning star for most of July, then switches to the evening sky in August.

On August 12-13, Venus and Saturn will be less than one degree from each other in the sky, and Mercury will be joining



Arizona Sky

them a few days later, but still very low in the sky. Mercury and Venus will continue to stay near each other for the rest of the month, while Saturn sinks into the sunset.

The dates of August 12-13 are special for another reason: this is the date of the

Perseid meteor shower, one of the best showers to view due to the pleasant summer weather – as long as we don't get clouded out by summer monsoons! The gibbous moon is less than ideal, but should be setting by around 2-3 am, giving us some time

to catch meteors.

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

June 7 Dark Observing at Cuttin Edge Observatory

By Rod Sutter

June seventh at the Cuttin Edge Observatory, we had some great views. I took my 16" and got a great view of M-104 The Sombrero Galaxy even before it was dark. Chris loaned me his new Ethos 13mm eyepiece, what great views with the eyepiece. M-57 was large and bright, and with averted vision you could see the central star. Then I went to M-27 The Dumbell and it

almost filled the whole eyepiece, and you could even make out some of the structure of the nebula. M-101 was great, M-51 was large, Saturn and Jupiter was not to good, the wind got up and the air was turbulent but still some great views. Chris, Chet and Jim were doing astrophotography, both Jim and Chet were doing the North American Nebula at the same time. Chris was doing

the Trifid Nebula. After the Moon went down, and the brightness left the sky the views got a little better. I left at 2:00am, the others were just shutting down things for the night, except Chris who was doing an all night shot of his object. You should come out next time to see some of the great views of a really dark sky.

June 12 PVCC Star party Review

By Rod Sutter

Last night turned out to be a pretty good star party. We had 18 students from the college that did viewing with us. Chet, Don, Chris, Rod and Sue were the members at the Star Party. Some of the views early did not look to good. Mars and Saturn really looked terrible most of the night. There was a lot of dust in the air, and the details we usually see were not there. Some of the views we had were Mars then Saturn. Then when darkness set in we viewed M-13, M-57. Then we showed the students some favorite double stars. I started with Mizar & Alcor, then went to Alberio Cygnus A and Cygnus B. By that time all of the students had the objects they needed and Dave said OK I think were done. And the night was over.



Star Party at Chaparral High School in Scottsdale

By Leah Sapir

The weather did not seem to be cooperating with us for the planned star party at Chaparral High School, near Scottsdale Rd and Shea Blvd. We had been invited by Robert Mattisinko, a science teacher at the school, to give a star party on Tuesday May 6, 2008, but we were clouded out. We rescheduled for Tuesday May 13, and were clouded out again; so we rescheduled for Wednesday May 14, and the weather still didn't look promising: cloudy all day, with a possibility of rain.

In addition to which, we had a very short window to work with: we had wanted to show the sky from 6:30 pm till 9, but due to spring football, the lights on the football field were on till 8 pm. On Wednesday

morning, Terri conveyed a message from Rob that "he will be there at 7:45 to hang around and either welcome people if the star party is going to happen, or cancel with everyone who shows up if the sky isn't cooperating." For most of the day, the sky was cloudy and we did not expect our telescopes to get any exercise; and then to our surprise, around sunset it suddenly cleared up! So the star party was on!

The volunteers were Chet Schuler, Doug Simons, Roger Hallman, Neil Ruilen, Mike Marron, and myself (Leah Sapir). Rob Mattisinko brought a scope too – a 10" Orion reflector. Other scopes included Chet's 8" Celestron and my 6" reflector. A group of students came to see the sky, and

we showed them "the usual suspects" – the moon and Saturn were up, and we could even see Saturn's moon Titan. Mars was up too, but didn't show much detail with a distance of 1.75 a.u. and a visual diameter of only 5 arc sec. We were able to show some globular clusters (M3 and M13), as well as Alcor and Mizar. Mike brought his meteorite display and showed it to the students too. A good time was had by all!

The next day, Rob wrote to us: "Thanks again for coming out to CHS, it's much appreciated..... see some of you next year... maybe earlier in the school year."

We are looking forward to it, and hope for more cooperative weather!

May PAS Meeting Review 5/1

By Terri, Events Coordinator

The May PAS meeting went well. We began the meeting with a few brief announcements. We talked about Astro Day on 5/2 being canceled and how we would discuss what to do to make Astro Day happen, but not on the PVCC Campus. We eventually moved it to N. Mt Park Visitor Center on May 9th. We talked about the canceled WOW event, also on 5/2, and that we had a star party coming up at Chaparral HS on 5/6. Then we gave the floor to Jerry. Jerry likes to do Show n Tell, and it is usually about his Rockets. Well, this started as a story about rockets but then turned into a really cool story about how everyone should be looking UP. There are so many really awesome events to see, that have already happened or that are going to happen very soon. A few of the events Jerry shared with us are: The Solar Eclipse of 1991, A Total Solar Eclipse in 2017, A Total Solar Eclipse with a transit of Venus, and a bunch more impressive events. The review of these events were very interesting. Jerry should write up an article for the newsletter about all the events, past and present, that he mentioned at the meeting. It was very interesting and entertaining. Thank you Jerry.

Then I attempted to start the meeting and was reminded of the Elections. We did a review of each Current Officer, and took nominees for their positions. For President we have Rod Sutter continuing another year. For Vice Prez & Events Coordinator we have Terri Finch. For Treasurer, Mike Marron took it for another year. Newsletter Editor is again Don Boyd. And PAS Host is John Pulis. These were the positions that stayed the same. The big change was that Barbara Hartman wasn't present at the meeting, and she was the current Webmaster. Over the last few months, it has been difficult to get her to make any changes on the website and many questions have come up as to why this was happening. Unfortunately, she was voted out of office, and in her place, 2 wonderful gentleman took over. We created a new position at the May meeting. Chris Johnson was voted in, after a bit of discussion, to be Webmaster. Now, his position is NOT EDITING the website, but instead designing features for the website. He wants his position to be one in which he make the functionality of the site more modern and better for all involved. There is a special class to teach everyone how to use this new website that Chris has designed, at

the May Meeting of the Minds 5/29. If you missed this meeting and want to learn how to use the site, email Terri and we will set up a second class date to accommodate those who wish to learn. The new position we created is given to Matt Kohl. Matt has been with us a long time, as some of you know. He has done an excellent job of editing the newsletter and is currently still, with Terri's help, assisting Don as Newsletter Review Committee. The three of them work together to get the newsletter out to you without errors. Anyway, the position we created we are calling Editor in Chief, or Webpage Editor. If there are any errors on the site, Matt is the one to email to get them changed. If there is a functionality problem on the site, email Chris, Webmaster. I wish to congratulate everyone who took Officer positions this year. There was a special Officer's training session on how to best use the website, at Bookman's, Officer's only, on May 22, 7pm.

After the Elections, and congratulations, we turned the floor over to Mike. Now, originally, we had a scheduled Speaker, but that speaker has retired and is no longer doing talks on weekdays/nights, due to teaching classes that evening at a community college. So, he told me he couldn't do it. So, I sent out a notice to everyone in email asking for an idea to fill in. And we got an idea to do Members

Night. However, after announcing it, I found that only one person, Jerry, had anything to share about it, so I decided that since Mike was ready and eager to do a presentation, since he had just done it a few nights before at N. Mt Park Visitor Center on 4/26, that he was a good candidate for doing that same talk for PAS. It was an excellent presentation. The topic: The Life Cycle of Sun Like Stars. It was awesome! Very good info and entertaining, and good visuals. Many questions about meteorites were asked of Mike, as he closed his talk with that topic. Thank you Mike!

After Mike's presentation, we did the 50/50 raffle and Bruce won! Congratulations Bruce, you have some cash to join PAS again next year!!!

Thanks to everyone who attended the meeting. We hope to see you at the next one, Sept 4, 2008. I'm looking for ideas on new speakers we haven't heard from previously. If you have someone in mind, please let me know so we can get them to one of our meetings. Thanks. The May meeting photos can be seen at: <http://tinyurl.com/5mr4wm> Have a Great Summer! ***

(Matt has since resigned his position as Webpage Editor as there is no need for the position since the other officers are able to make changes to the website themselves. We thank Matt for his willingness to serve.) Editor





By Dr. Tony Phillips

Congratulations! You're an oceanographer and you've just received a big grant to investigate the Pacific Ocean. Your task: Map the mighty Pacific's wind and waves, monitor its deep currents, and keep track of continent-sized temperature oscillations that shape weather around the world. Funds are available and you may start immediately.

Oh, there's just one problem: You've got to do this work using no more than *one* ocean buoy.

"That would be impossible," says Dr. Guan Le of the Goddard Space Flight Center. "The Pacific's too big to understand by studying just one location."

Yet, for Le and her space scientist colleagues, this was exactly what they have been expected to accomplish in their own studies of Earth's magnetosphere. The magnetosphere is an "ocean" of magnetism and plasma surrounding our planet. Its shores are defined by the outer bounds of Earth's magnetic field and it contains a bewildering mix of matter-energy waves, electrical currents and plasma oscillations spread across a volume billions of times greater than the Pacific Ocean itself.

"For many years we've struggled to understand the magnetosphere using mostly single spacecraft," says Le. "To really make progress, we need many spacecraft spread through the magnetosphere, working together to

understand the whole."

Enter Space Technology 5.

In March 2006 NASA launched a trio of experimental satellites to see what three "buoys" could accomplish. Because they weighed only 55 lbs. apiece and measured not much larger than a birthday cake, the three ST5 "micro-satellites" fit onboard a single Pegasus rocket. Above Earth's atmosphere, the three were flung like Frisbees from the rocket's body into the magnetosphere by a revolutionary micro-satellite launcher.

Space Technology 5 is a mission of NASA's New Millennium Program, which tests innovative technologies for use on future space missions. The 90-day flight of ST5 validated several devices crucial to space buoys: miniature magnetometers, high-efficiency solar arrays, and some strange-looking but effective micro-antennas designed from principles of Darwinian evolution. Also, ST5 showed that three satellites could maneuver together as a

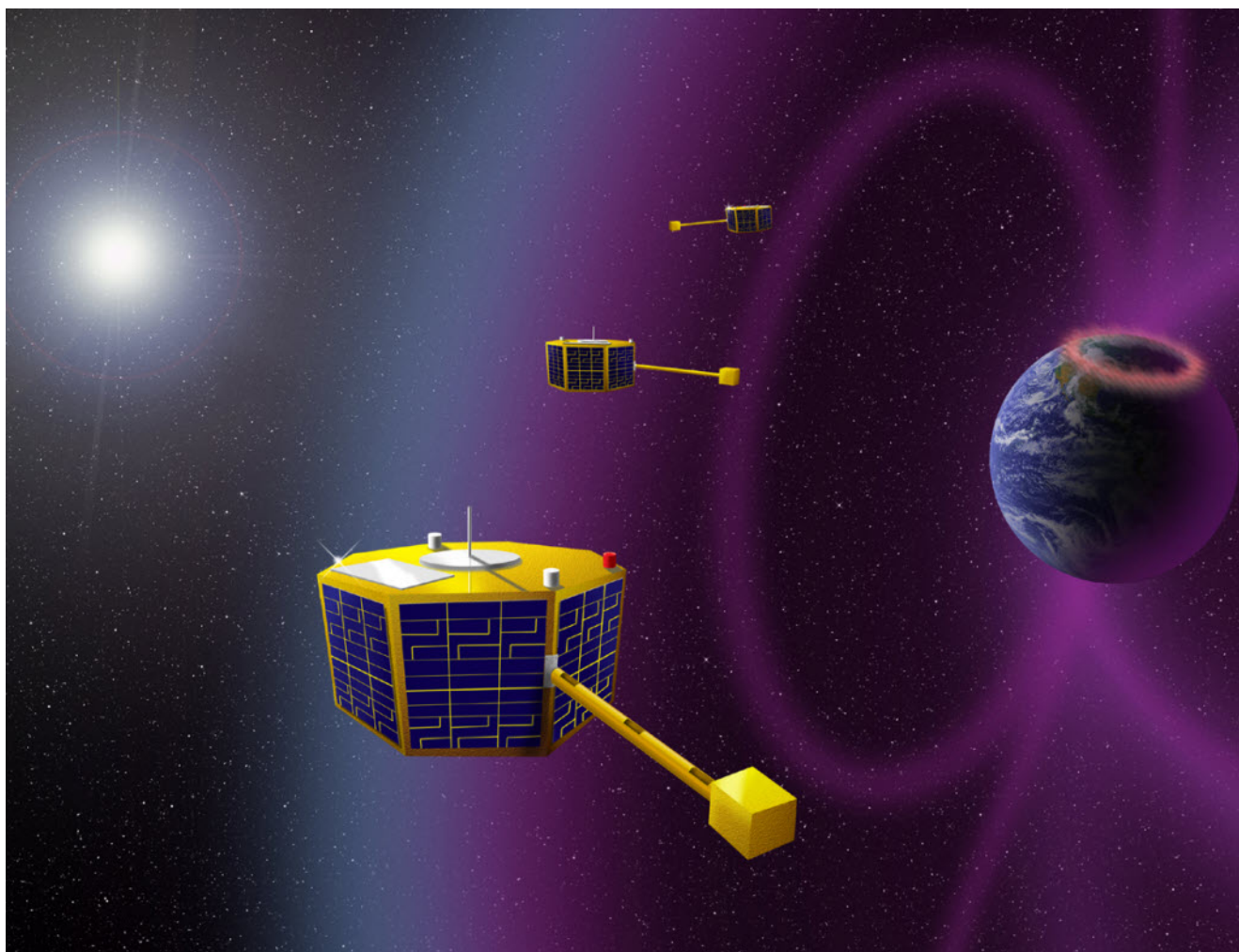
"constellation," spreading out to measure complex fields and currents.

"ST5 was able to measure the motion and thickness of current sheets in the magnetosphere," says Le, the mission's project scientist at Goddard. "This could not have been done with a single spacecraft, no matter how capable."

The ST5 mission is finished but the technology it tested will key future studies of the magnetosphere. Thanks to ST5, hopes Le, lonely buoys will soon be a thing of the past.

Learn more about ST5's miniaturized technologies at nmp.nasa.gov/st5. Kids (and grownups) can get a better understanding of the artificial evolutionary process used to design ST5's antennas at spaceplace.nasa.gov/en/kids/st5/emoticon.

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



The Space Technology 5 micro-satellites proved the feasibility of using a constellation of small spacecraft with miniature magnetometers to study Earth's magnetosphere.

North Mountain Park Visitor Center Astronomy Day 5/9

By Terri, Events Coordinator

Many, Many thanks goes to Allyson, our Ranger contact at N. Mt. Park Visitor Center. This turned out to be an awesome star party! We had Don, Mike, Sam, Bruce, Chris, Steve in attendance. I brought a table of handouts and did Moon demos with prizes for participation. We figure we had about 40 people from the public join us and we had an awesome time! Bruce caught Saturn for most of the night in his 20" Obsession. The public was very interested in what we had to share and the more interest they showed at the star party, the more we enjoyed their questions. Mike Wow'd everyone with his meteorites and stories about them. The wind picked up a few times but eventually went away. There were high thin clouds in the way near the later part of the star party but up to then, we had great viewing. Thanks go all who attended and many thanks to Allyson for scheduling and hosting this star party. The Parks Department provided drinks and snacks for those attending. Bruce and I brought our new Sky Scout with us and we used it a lot that night to find objects. Sam and Don were hunting for Mercury. Mercury couldn't be seen right after sunset, so for about an hour, we used the Sky Scout to be sure it didn't set behind the building before it could be seen. Then Sam and Don showed it to the public. I believe Mike was the highlight of the night. Most of the kids gathered around him while they waited for the Telescopes to find objects to look at. Photos for this event can be seen at: <http://tinyurl.com/6c3act> It was a successful event with all the help we had. Thanks so much for being there! We are setting up 3 more events in the Fall. Watch for the dates in the newsletter and on the website. ***





What Can We See in a Telescope?

By Leah Sapir

Our telescope workshops at Bookman's are back on schedule, after the store decided to postpone their renovations of the community room where we hold the workshops. We had a telescope workshop scheduled for May 25, 2008, and our events coordinator Terri Finch thought it would be a good idea to have an astronomy presentation while we're there. I agreed to be the first volunteer, and prepared a presentation about "What Can We See in a Telescope?"

While searching the Internet for suitable pictures, I discovered the websites of Bill Ferris (<http://www.cosmic-voyage.net>) and Jeremy Perez (<http://www.perezmedia.net/beltofvenus>) with their beautiful sketches of deep sky objects viewed through their telescopes.

Bill and Jeremy generously allowed me to use their sketches in my presentation.

I also used photographs taken through the Slooh telescopes in the Canary Islands (www.slooh.com) showing color and photographic detail in the various objects; but the sketches by Bill and Jeremy were important for showing what we can actually see in the telescope with our eyes, not just in photos. Although a camera can show more detail, seeing objects with your own eyes is important too.

I showed examples of each category of sky object, and explained what it was and what we can see when we view it:

1. objects in our solar system: including the moon, planets, and comets. I also mentioned asteroids but didn't show any pictures of them.

2. objects in our galaxy, outside the solar system: stars (including double stars, variable stars, and spectral classes of stars); star clusters (open and globular); and nebulae (emissions, reflections, dark, and planetary nebulae).
3. objects outside our galaxy: spiral galaxies, elliptical galaxies, irregular galaxies, galaxy groups and galaxy clusters.

Several "members of the public" came to learn about telescopes and what we can see through them. Club members/officers Rod Sutter, Don Boyd, and Mike Marron were also there and helped me answer questions. Thanks to Mike also for bringing a projector!

I am planning to show the presentation at the Grand Canyon Star Party as well.

Special Meeting to Amend Constitution

Thursday June 26 PAS is voting at the MOM on amending our constitution. We are going to vote on 3 things:

1. We would like to be able to give honorary memberships for a limited time. At the present our constitution only allows lifetime honorary memberships.

2. We would also like to institute the office of Past President. The purpose of this office is give our club more continuity by having the Past President advise guide the

new president. We would also need to change our Board of Directors to have the Past President have a seat on the Board. We would also like offer 1 year of free membership for all officers after they leave office.

3. Update the constitution to allow notice to have a meetings to amend the constitution to be called by electronic means and by telephone. Right now the only notice we are allowed is by written notice to every member.

This meeting will take place at the start of the MOM so that member who are only interested in these subjects do not have to sit thru the rest of the meeting...although this is highly encouraged and welcomed.

A 2/3 approval vote of the members present is required to amend the constitution, so however many members show up we can approve the changes. We encourage all members to attend and give there opinions on these important matters.

Scale Model Solar System Dedication May 2, 2008

It was a hot day. Sam, Bob, Don, Ed, Bette, Bruce, Terri, Mike attended the dedication. It started with Don and I looking for where they were dedicating the SMSS, first. So, we parked over where we usually park for the PAS events and walked past the tents that were set up with snacks. Then we came to the beginning station of the SMSS. We met the above people there and waited for the event to begin. They did some ribbon cutting and unveiled the stations one by one. When they started out, they said they were going to take photos of the donors at each of their stations. They took maybe 2 and then all of them took off for the dedication of the Life Sciences Building. The PAS group decided to walk the solar system and see where our station was. We are the Kuiper Belt Objects. We happen to be the very last station there is. It was a long walk. We are over by the performing arts center. Photos with each station and our days events can be seen at: <http://tinyurl.com/6ypysj>. So, we walked the Solar System, took photos, and then joined the group back at the dedication for

the new building. While they were doing the dedication, we snacked. I ate too many cookies, but they were good. We visited and chatted and Mike did his usual and enjoyed chatting with anyone who would listen. We had gotten there by 11am and didn't leave until about 12:30pm. It was a good event. We were just bummed that they started taking photos, one by one, and then felt it was more important to go see the dedication of the Science building. Plus, when we mentioned it to the photographer, she said to Don and I (we were the only 2 with cameras) to send the photos to her. I don't know who she is or where to send them, so I'm not sending them. We will keep them on our site and share them that way. So, visit our trip to the SMSS dedication in photos on line and enjoy! We are now forever on the PVCC campus. I'd like to thank Ed Rosenthal for coming up with this awesome idea for the PVCC campus. He was mentioned in the dedication. He is also in the pamphlet they handed out about the SMSS. Here is a list of the Stations: 1. Information Station 1, 2. Information station 2, 3. Sun,

4. Mercury, 5. Venus, 6. Earth, 7. Mars, 8. Asteroid Belt, 9. Jupiter, 10. Saturn, 11. Uranus, 12. Neptune, 13. Pluto, 14. the most important one – PAS on the Kuiper Belt! ***



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 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 5: Starparty and Fireworks with Dinner prior at Bad Donkey in Carefree at 5pm.

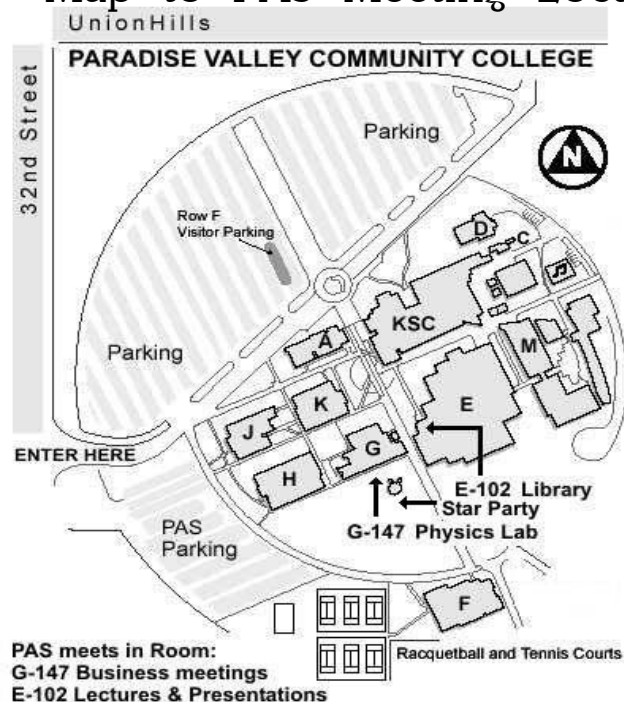
Aug 2 stars

Aug 30 Galaxies

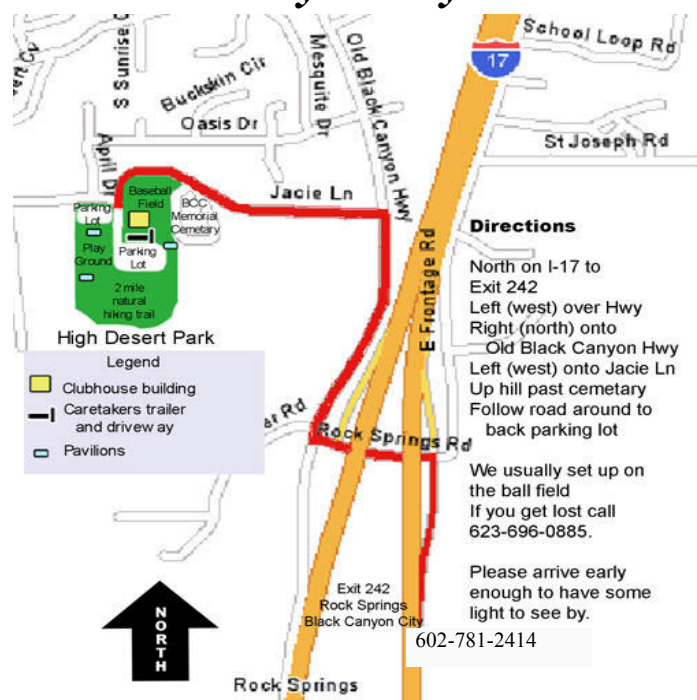
Sept 27 – Quantum Physics

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

Map to PAS Meeting Location



Black Canyon City Site



See article on page 2 for more details on events

July

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4 Mike's Star Party with Fireworks & Bad Donkey (Private)	5 Mike's Mars, Saturn, Regulus & Moon Star Party (Private) Cuttin' Edge Observatory Dark Sky site (Private)
6	7	8	9	10 Star Party featuring Saturn & Mars	11	12
13	14	15	16	17	18 Full Moon Star Party at PV Park	19
20 Free Bookman's Telescope Workshop	21	22	23	24	25	26 3rd Quarter Moon Star Party
27	28	29	30	31 PAS MEETING OF THE MINDS (Business Meeting)		

August

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 Mike's Star Party in Carefree (Private)
3	4	5	6	7	8	9
10	11	12	13	14	15	16 Full Moon & Lunar Eclipse Star Party
17	18	19	20	21	22	23 3rd Quarter Moon Star Party
24	25	26	27	28 PAS MEETING OF THE MINDS (Business Meeting)	29	30 Mike's Star Party & Lecture (Private)
31						

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

SPECIAL VOTING MEETING
TO AMEND CONSTITUTION
JUNE 26, see details pg 10.

To:

{MM:Notes 1}

{MM:First Name} {MM:Last Name}

{MM:Address Line 1}

{MM:City} {MM:State} {MM:ZIP Code}

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What's Up For July/August?

By Rod Sutter, PAS President

Planets

Name	Date	Rise	Set
Mercury	08-1-08	05:55	19:44
Venus	08-1-08	06:53	21:21
Mars	08-1-08	08:35	00:48
Jupiter	08-1-08	17:50	03:44
Saturn	08-1-08	07:57	20:55
Uranus	08-1-08	21:27	09:11
Neptune	08-1-08	2:000	06:54
Pluto	08-1-08	05:42	19:27

All Times Arizona Time

Meteor Showers

Southern delta-Aquarids	July 27	20 per hour
Perseids	August 12	110 per hour

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<u>Rocketry Liaison</u>	Jerry Belcher	623-328-9290	http://ahpra.org/launches.html

August 1 2008

Sunrise: 05:42

Sunset: 19:27



Q3: June 26, July 25



New: July 3, August 1



Q1: July 10, August 8



Full: July 18, August 16