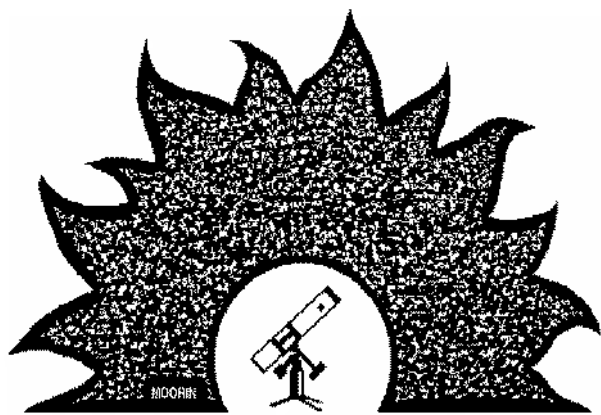




PAStimes

Phoenix Astronomical Society

www.pasaz.org

Summer 2016

Volume 67 Issue 10

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

May 5 PAS Meeting

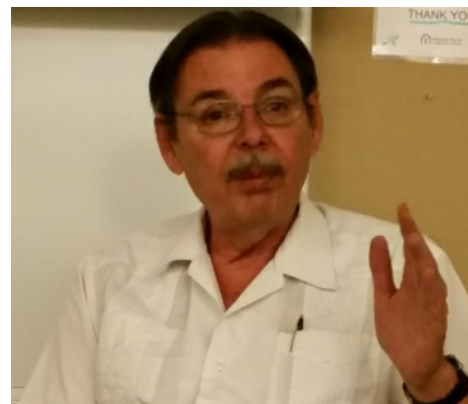
By Terri, Event Manager

The meeting started as Sam introduced the new attendees, Ken Bently and Keith who was at ASU West. Following that he introduced the club officers and turned the floor over to guest speaker and friend of PAS, Dan Heim. We had decided that since our guest speaker needed to head home early, we'd have him take the floor first and have the business portion of the meeting later. Dan did a splendid presentation about light pollution which ended around 8:40pm.

We then had Alex Vrenios share details of the transit of Mercury as this event was coming up on May 9, followed by Sam sharing some of the great Letters PAS re-

ceived for the event we did at Archway North School on April 4th. Sam read a few of the letters and offered to place the rest on the back table to show the artwork that went into these lovely letters. If you'd like to know what they said, please see the article about Archway North School Star Party of Apr 4. Eric Steinberg, PAS Treasurer gave a mini Treasure's report; Alex won the raffle.

We also held our yearly officer elections this night - the results will be in the September issue of the newsletter. Thank you all for attending and many thanks to Dan for a well done presentation!



Dan Heim taken at the May 5 PAS Meeting doing his awesome presentation on Light Pollution. Photo by Terri Finch.

The Changing of officers

By PAS officers

The officer positions within PAS change over on Sept 1. Though the outgoing officers leave their positions, they often assist in the adjustment of the new officers after the change. The officers, as of May 2016 are: Sam Insana as President, Howard Moneta as Vice President, Eric Steinberg as Treasurer, Don Boyd as Newsletter Editor, Kevin Witts as Secretary and Bruce Wurst as Past President. The new officer positions for Sept 2017 will be announced in the September issue. Here are the current officer's thoughts as to whether they are leaving their position or maintaining their current position in the new PAS year.

Alex Vrenios writes: I was elected to a

two-year term as Member-At-Large in 2015. When the Vice Presidency position opened up, however, I made my interest known. To my surprise, several members responded to my posting and they were both positive and supportive! I was elected as the new Vice President, leaving a full year on my Member-At-Large term. Bruce Wurst was nominated at the Elections meeting and was unanimously elected to serve out my term.

During my year in office, I attended all the Meeting of the Minds (business) meetings. My role was to add my voice to discussions about club related issues. We discussed things like the number, types and

lengths of newsletter articles. In January we had an extensive discussion about changes to the PAS By Laws. We also discussed the number and amount of donations we make as a club. One such donation was in the name of the late Bob Senzer, a long time PAS member and an adjunct professor of mathematics at PVCC, to the National Math and Science Institute. The Member-At-Large is asked to participate in these dealings which, generally, are the business of running our club. I was honored to be a part of this. I'd like to congratulate Bruce Wurst as the new PAS Member-At-Large and wish him well in that capacity.

Satellite Graveyard

Provided to PAS by NASA's Space Place

Where do old satellites go to die? Countries and commercial ventures have been putting spacecraft in orbit around Earth since the late 1950s. There must be a lot of space junk out there. So what happens to them when they no longer work? Find out at <http://spaceplace.nasa.gov/spacecraft-graveyard>.

President	Sam Insana	602-315-4750	President@pasaz.org
Past President/Equipment Manager	Bruce Wurst	602-971-3555	PastPresident@pasaz.org
Vice President	Howard Moneta	VicePresident@pasaz.org	
Secretary	Kevin Witts	Secretary@pasaz.org	
Event Manager	Terri Finch	602-561-5398	Events@pasaz.org
Treasurer	Eric Steinberg		Treasurer@pasaz.org
Newsletter Editor	Don K. Boyd		Editor@pasaz.org
PAS Host	Rodney Fong	602-486-5547	
Librarian	Rod Sutter		Librarian@pasaz.org
Member at Large	Jenny Weitz	602-787-6818	
	jennifer.weitz@paradisevalley.edu		
Member at Large	Alex Vrenios	602 789-6556	axv@cox.net
Webmaster	Chris Johnson	Webmaster@pasaz.org	

Phoenix Astronomical Society

3039 W Peoria Ave

#102-188

Phoenix AZ 85029

July & August Upcoming Events

By Terri, Event Manager

Please be sure to RSVP where requested at Events@pasaz.org.

July 3 Fireworks Party in Carefree. PAS Members Only.
<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=2040&day=2016-73&c=2>

July 9 Sidewalk Astronomy Public Viewing Event at Bookmans 19th Ave & Northern. Event is from 7:30pm to 10pm. Highlights of this event will be Moon, Mars, Jupiter, and Saturn.
<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=1944&day=2016-79&c=1>

July 17 FREE Telescope Workshop at Bookmans 19th Ave & Northern 3:30 to 5:30pm – RSVP required with Make & Model of the telescope you need assistance with, and number in your party, or if you do not own a telescope, RSVP that you are attending to find out what telescope to pur-

chase. RSVP required, seating is limited.

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=1900&day=2016-717&c=1>

July 27 Delta-Aquarid Meteor Shower Peak – a meteor shower can be seen best after midnight on the peak date, as well as up to 5 nights before and 5 nights after the peak date – Enjoy a view from dark location, such as your backyard. Naked eye event.

Aug 12 Perseids Meteor Shower Peak – a meteor shower can be seen best after midnight on the peak date, as well as up to 5 nights before and 5 nights after the peak date – Enjoy a view from dark location, such as your backyard. Naked eye event.

Aug 13 Private Movie Party in Carefree for PAS Members Only to celebrate Ofelia's Birthday. Potluck at 5pm. Movies to follow.

Aug 20 Sidewalk Astronomy Public

Viewing Event at Bookmans 19th Ave & Northern. Event is from 7:30pm to 10pm. Highlights of this event will be Moon, Mars, Jupiter, and Saturn.
<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=1945&day=2016-820&c=1>

Aug 21 FREE Telescope Workshop at Bookmans 19th Ave & Northern 3:30 to 5:30pm – RSVP required with Make and Model of the telescope you need assistance with, and number in your party, or if you do not own a telescope, RSVP that you are attending to find out what telescope to purchase. RSVP required, seating is limited.
<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=1901&day=2016-821&c=1>

Aug 27 FREE Public Lecture “Upcoming Astronomical Disasters” in Carefree. Potluck 5pm, Lecture begins at 7pm. Parking is limited, so RSVP early to attend. RSVP will close day before the event.

Madison Meadows Middle School May 19

By President Sam Insana

Thursday morning May 19th, I brought 2 scopes to Madison Meadows Middle School in Phoenix. I showed a giant sunspot with my 8 inch newtonian reflector and 2 solar flares, about 20,000 miles in

height, with my PST.

Over 100 7th graders viewed the Sun. They were well behaved and very interested. Their science teacher, Mary Beth, is a

good friend of Vera, so I agreed to volunteer do this event. The school may have PAS in the future for a STEM night or open house.

For Sale

Binos for Sale: I have a like new pair of Miyauchi 100mm Flourite APO 45 binoculars I would like to sell. They come with carrying case, Miyauchi 3x12mm finder, 20x and 37x eyepieces. I also had a surveying instrument company fit a Hewlett Packard mount. This is more solid than the no longer available Miyauchi fork mount. I will include a heavy survey tripod, mount and a Trimble pier mount (for commercial GPS). A similar pair sold recently w/o mount on astromart.com for \$3500. I want \$2000 firm and will drive it (don't trust shipping) to any location in Arizona. I am in Gold Canyon if you wish to pick it up. Email: monte-crawford@hotmail.com.

PAS Music Jam Jan 16

By Terri, Event Manager

We had a great audience and a super-sounding musically talented set of jammers this year. Many thanks to Mike for hosting this event at his home in Carefree!

People started to trickle in around 5:30 pm and along with the rest of us who had been there experimenting with a new quadcopter, started in on the potluck. Bruce, Ed, and Bette then arrived followed by new member Jerry Searcy and a little later, Donna and Helen Zander, Eric Steinberg, and Ora Kurland.

The music was provided by these PAS Members with their instruments: Bruce Wurst on mandolin most of the night, doubling on Jerry's guitar for a couple songs and then Sam's bass guitar for a few more songs. Sam Insana played keyboard, bass guitar and trumpet. Eric Steinberg played the bass guitar. Terri Finch rotated through keyboard, flute, guitar and mandolin. Don Boyd played keyboard and sang. Ed Wurst played keyboard and helped Jerry with his guitar throughout the jam. We also had a few people like Rodney and Ora acting as rhythm section on bongos, maracas, and tambourine. The jam ended up going until 11pm - yes, 4 hours of playing music. Great

fun!

I wish to thank Rodney for being the roadie. Rodney helped many times with the quadcopter batteries, loading and unloading instruments, and moving furniture to make this event go smoothly. Thank you Rodney! I look forward to next year's PAS Music Jam. Come play music with us. It was so much fun!



Don Boyd playing the keyboard and singing to the songs that have lyrics. Photo by Terri.



Sam Insana playing the keyboard at the PAS Music Jam on Jan 16 2016. He also brought his trumpet and bass guitar to this musical event. Photo by Terri Finch.



(L to R) Ed Wurst on the keyboard, helping Jerry Searcy with his guitar, & Bruce Wurst with his Mandolin were seen at the PAS Music Jam. In the background we have Ora Kurland & Rodney Fong enjoying the evenings musical activity. Photo by Terri.

PRESIDENT'S CORNER

By Sam Insana, President of PAS

Each year there are some PAS members left with the impression that with the election of officers at the May general meeting, club activities come to an end and that they must wait until September for astronomical activities to resume. No way! PAS is a 12 month astronomy club.

The following are examples for 2016: PAS International Astronomy Day; The

Mercury Transit of the Sun shown by PAS at 2 college campuses; PAS Mars party at Mike's in Carefree with lectures and potluck; PAS Star Tours at Phoenix Comicon; Grand Canyon Star Party, PAS Star Tours at Leprecon, PAS Sidewalk Astronomy at Bookmans; Ron Walker's Planetarium shows in Cave Creek; PAS field trip to Mt. Graham Observatories; PAS Fireworks party and star gazing at Mike's in Carefree;

PAS telescope workshops at Bookmans; New Moon trip to a dark site viewing area on Cherry Road; and the PAS newsletter filled with information. Enjoy a summer full of astronomical activities, most of which are officially sponsored by PAS, along with a few that are other organization's activities that PAS members like to enjoy together.

Be an Astronomer from your Window

By Susan Bartlett

Hi there, My name's Susan Bartlett and I'm a tutor at the local middle school. The kids that I mentor wanted me to email you and let you know that they think your page, on astronomy, is very helpful! We have been learnings all about stars and the solar system

<http://www.pasaz.org/index.php?pageid=links>

As a thank you they wanted me to reach out to you and give you another great resource they have been using and have found helpful

<http://www.blindschalet.com/kba-be-an-astronomer-right-from-your-window-240.html>

This group of kids really are wonderful

and have come a long way in learning, they were hoping you would add the above link to your page, and because of their hard work, I told them they could have a surprise pizza party this Friday ;)

Let me know if this is something you would be interested in adding to your page! Thanks, Susan Bartlett

ASU West Star Party Mar 31

By Terri, Event Manager

George Sabo writes: What a session tonight - the people just kept coming - even kids - another great event for PAS!!!

Terri writes: Isn't that a wonderful way to start the review of this event? Many thanks to Paul Schmidtke for asking PAS to be part of this event!

As usual, we went to Arby's for dinner - joining us were Mike Marron, Terri Finch, Don Boyd, Sam Insana, Pete Turner, Ofelia Waters and Paul Schmidtke. Setup for the star party which ran from 7:30pm to 9:30pm was: Don with his 8" scope, Christine with her 10" dob, Sam with his 8", Bruce Wurst with a 14" SCT, Pete with his 9.25", Paul Schmidtke with the dob that ASU West owns and George Sabo with his 8" scope. Paul had a student, Daniel, who also attended and brought his telescope to this event. Terri did PR, Handouts and Q&A with the kids, giving away 5 Nasa Space Place Calendars. Though skies were somewhat cloudy, many thanks to everyone involved for providing telescopes for the public to enjoy.

We estimate about 180 in attendance with quite a few more kids this time than ASU west events. Unfortunately the breeze was non-stop threatening to blow away the handouts. A couple of times Mike and Ofelia were seen chasing their Earth globes across the ground as the wind grabbed them and blew them away.

The highlights of the night were Jupiter and the Orion Nebula. With the clouds being so "in the way", finding other objects and keeping them was a challenge. It was still a fun event, with a constant stream of people enjoying the views. I'd say this was a busier event than previous ones with lots of interaction among the participants. We met a bunch of really nice people at this event and look forward to the next one will be in October 2016. See you there!

President **Sam** adds: Tetsuya Nakamura, Ph.D was visiting Arizona for 2 days and speaking at a scientific conference in downtown Phoenix when he found out about the PAS star party at ASU West. He emailed our club asking if we could give him a ride since he wanted to attend. I told him I would drive him back from ASU West if he could get a ride out there. He

showed up bringing lots of astrophotography on his laptop. He used a CCD and a 10 inch scope. The photos were outstanding. He said he loved looking through the many scopes PAS provided that night at the star party.

Mike talked to him for quite a while afterward, discussing the difference be-

tween Tetsuya's degree in theoretical physics and Mike's theoretical degree in physics. Actually Tetsuya was impressed with Mike's knowledge of synchrotron radiation research. On the way back to downtown Phoenix he asked me to thank PAS members for their hospitality and great time.



President Sam Insana setting up his telescope for the evening event. Photo by Terri.



Looking to the South, we see the vehicles on the left, Christine sitting on a step ladder, way in the back is Pete and then Sam with his white scope. Photo by Terri.



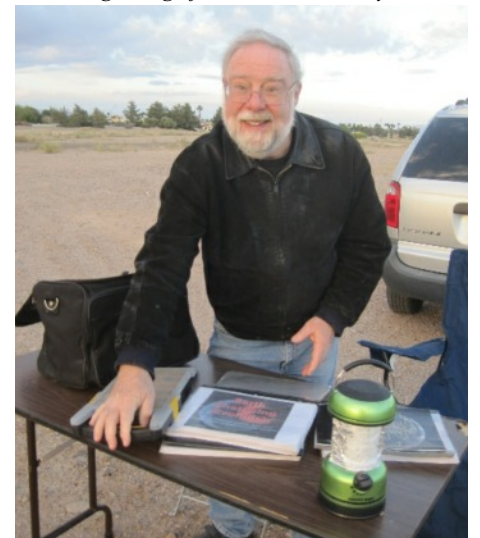
What a super windy time it was during set up. Luckily, after the sun set, the winds died down as predicted. (L to R) A crowd around Mike & his meteorites, George talking with Christine, and Paul in the foreground setting up his ASU West scope. Photo by Terri.



(L to R) Paul & Terri by PAS Table, a crowd gathers behind Ofelia at Mike's table, then Ofelia, Bruce, Christine behind Christine's Orion Dob, & Sam with bins checking out the weather. Photo by Don.



(L to R) A crowd by Mike's table, gathers on this super windy day. Then we see Ofelia, Christine, & Terri assisting Bruce at his Van, to unload his scope. It was a very cloudy day at the beginning of the event. Photo by Don.



Mike Marron, Meteorite Man, setting up his table / display of Meteorites. Photo by Terri

Cards & Letters from Archway North School

Assembled by Terri, Event Manager

The review of this event was in the May 2016 Issue of PAStimes on page 11 for the Apr 4, 2016 Star Party. These letters were written on Apr 6th and mailed to PAS. In Parenthese I have put a description of the artwork. PAS received 5 very pretty card and 8 letters. I provide them here as they were received. They are extremely beautiful and I felt a need to share them and say Thank you to Archway School for having PAS at their event!

Card 1: Dear Bruce, Thank you for coming to our school. Thank you for showing us stars and planets. From, 3rd Grade (front of page has PAS with a star, and inside has a solar system).

Card 2: Dear Christine, Thank you for coming to show us some cool stuff. Our class really enjoyed looking at Jupiter. Sincerely, Mrs. Berger's third grade class (front of page has PAS with several stars and inside is the solar system drawn out Sun to Neptune with the title of "Our Solar System").

Card 3: Thank you so much for bring (correct spelling from card) a telescope. We all had fun! I hope you come back next year. From Third Grade (this one has "Phoenix Astronomical Society" neatly lettered on the front and a drawn image of the PAS Logo and then inside is Jupiter on top, and below that is Jupiter, 4 moons in the sky, with a person and a telescope viewing them from the ground).

Card 4: Thank you for bringing all those neat rocks. We hope you guys come next year. Thanks again! From 3rd Grade (this one is written in very neat script inside).

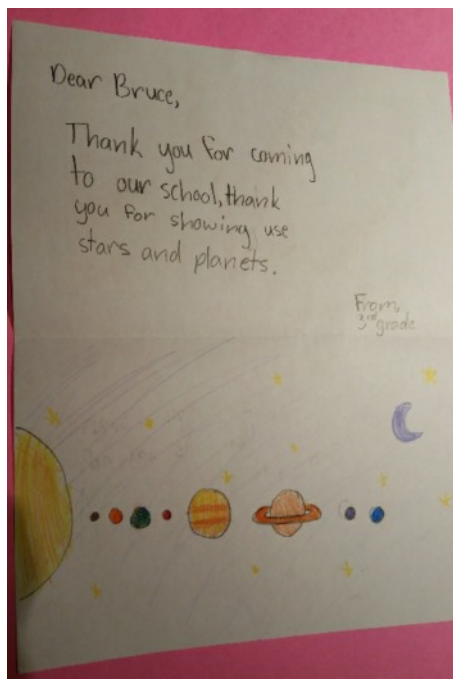
Card 5: Dear Roger, Thank you for bringing us the telescopes and helping us to learn more about our solar system. Sincerely, Third Grade ANP (this card has a very nicely colored PAS on the front and what looks like a big black hole inside).

Then we have letters:

Dear PAS, Thankyou for coming to our school and teaching us more about our solar system and about our Earth. Thank you for visiting us at Archway North Phoenix. Sincerely, Ana Sofia.

Dear PAS, Thank you for showing me Jupiter, moons and stars. I wish you did it in fourth grade. Sincerely Owen.

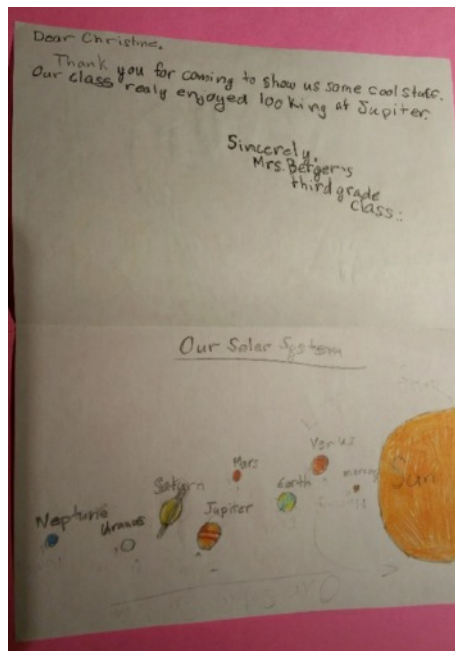
Dear PAS, Thank you for coming to are third grade star party and showing us



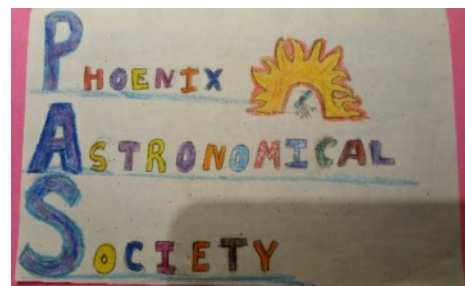
Card 1



Card 2 Front



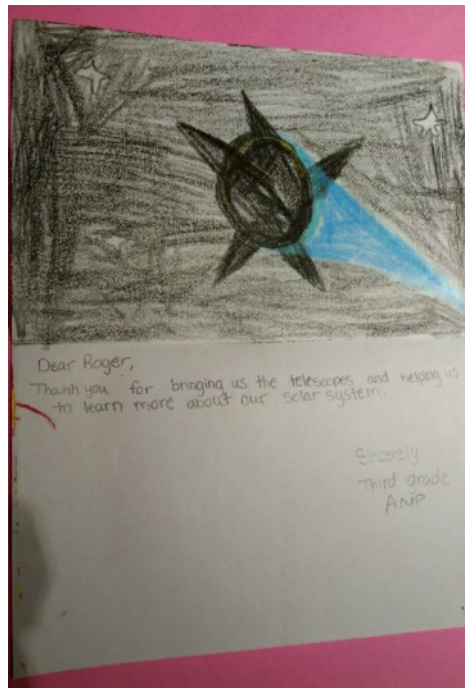
Card 2 inside



Card 3 front



Card 3 inside



Card 5 inside 4

Cards & Letters from Archway North School

part of our solar system. I love all the planet. They are amazing! I hope we do it again in fourth grade. Sincerely, Sarah.

Dear PAS, Thank you, for coming and showing your telescopes. I like seeing the planets. It was fun. Thank you. Sincerely, Zoey.

Dear PAS, Thank you for coming to ANP. You had a lot of interesting facts to share. I'm very happy I came. It was also very fun. I even got to touch a thing older than dirt- it was 3 billion years old! I also

go to look at Jupiter and binary stars and a star nursery! Sincerely Chantel.

Dear PAS, Thank you for bringing your telescopes to our school. I really enjoyed looking at the stars and Jupiter up in the sky. I really enjoyed it! Sincerely, Emily Maycoch (3rd Grade ANP)

Dear PAS, Thank you for sharing parts of the solar system. I wish you could do it again for fourth grade. It was a wonderful thing to see through the telescope. Sincerely Nile S.



Card 4 front

If you wish to see them in person, let me know so I can bring them to a meeting. This is why we share this hobby!

Telescope Workshop at Bookmans Apr 17

By Terri, Event Manager

Our team for the event included: William and Terri Finch, Rodney Fong, Bruce, Ed and Bette Wurst, Alex Vrenios and Sam Insana.

From the RSVP's, Vivian came with her Celestron Astromaster 70 (helped by Alex) and James brought his Celestron 127EQ Powerseeker (assisted by Sam). We also had Julie as a walk-in talking with William, Terri and Bruce about finding a telescope to purchase.

After the event, Alex and Diane, William and Terri, Bette, Ed and Bruce, Rodney and Sam had an enjoyable dinner at Carlos O'Brien's. Looking forward to the

next Bookmans Telescope Workshop and dinner out with the telescope team!

Alex writes: Vivian and her son went to one of our star parties last year and decided that the hobby might be both educational and fun, so he surprised her with a telescope for her birthday. Unfortunately they were not able to properly use it and sadly, it was on its way to the closet. Luckily, she heard about our workshop and decided to give it one more try.

The scope was a brand new Celestron Astromaster 70, a 70mm refractor on a manual alt-az mount. Though she was initially unsure of how to set it up, we went

through it together. We aligned the finder on a decoration on a building across the street and I showed her how to use the viewfinder and how the red dot switch would work at night.

She picked up on how to use her new scope pretty quickly after that. Looking at her eyepieces, I explained how the "smaller" 10mm number on made the scopes magnification higher. We focused on the roofline across the street and she swapped eyepieces. Once she refocused, she was amazed that she could see "nail holes" on the roof tiles. I am only sorry that I won't get to hear what she says when she sees the rings of Saturn.

Bookmans Sidewalk Astronomy Event Apr 23

By Terri, Event Manager

Attendance at the 7 pm to 10 pm event was solid this time. We had William and Terri Finch doing handouts along with Howard Moneta along the sidewalk in front of the Bookmans store. Don Boyd set up his telescope and stayed on Jupiter most of the evening until the mostly full Moon came into view over the top of Walgreens about 9pm. We also had Bruce Wurst with his 12" scope and Earl DeLong with his 10" scope

set up in the parking lot viewing Jupiter. Rodney Fong assisted with setup and take-down.

Met Wade (who attended the PVCC Telescope Workshop on Apr 21), his wife Robin and their 2 kids James and Ava were there - a very pleasant family to know. We estimate we saw about 200 people from the public at this event. Some mentioned they

heard about it on MeetUp though I also had put this event on PhoenixEvents.com. I wish to thank my telescope team and Katy Spratt who helped set up this event and gave each of us a little something (credit at Bookmans) for being there. Thanks also to the other PAS Members who attended and helped. We look forward to the next several sidewalk events lined up for Summer 2016. See you there!

CTCA May 11

By Don Boyd, PAStimes Newsletter Editor and CTCA Liaison

On Wednesday May 11, Sam Insana, Pete Turner and Don Boyd were at the Cancer Treatment Center of America in Goodyear for a star party. Mike Marron was scheduled to be there but he was not feeling well so he had to drop out. We had about 6 people viewing with us, though we

did not do solar viewing as it was rather warm. Although Don Boyd forgot the battery for his scope, Pete graciously allowed him to use his power supply.

This was the last CTCA event as CTCA has had budget cuts and did not renew the contract. We are saddened by this and

will miss doing the event. Many thanks to Amanda Montelongo, Patient Activities Coordinator for many great star parties at CTCA over the last several years. PAS has enjoyed being part of your Patient Entertainment Program.

Rancho Gabriela Career Day May 3

By Terri, Event Manager

Attending this daytime event were William and Terri Finch with Handouts, Q&A and a PST, Don Boyd with his solar scope and Mike Marron with meteorites. William, Don and I arrived with our scopes at about 7am and started setting up before the school was opened for the 8am to 2pm event; Mike arrived around 7:30, setting up indoors at a table placed so he could tell those who visit his table of meteorites to go look through the telescopes.

Though hot and windy, the day went well - everyone seemed to enjoy the view of the Sun through the 2 scopes. We also gave out a lot of handouts and over half the Q&A prizes I had brought with me. When we first set up, William put the Moon scope on the Moon until the Moon was no longer visible about 11am. Then he put his PST on the Sun. Both of these scopes share the same motorized base so we can track the Sun as well as the Moon. Eventually, the heat of the day stopped the base from working properly, so we put those scopes away.

The school has over 990 students who came to look through our telescopes, making it an interesting event with all those kids in classroom groups looking through the scopes and taking handouts in their allotted 10-minute time slot. It's not much time for a whole class to look through the telescope and talk to us - we can sure use more help next year. The more scopes we have, the faster we can have the kids go through the lines and on to their next activity for the day. Many thanks to Mike and Don for joining us for the RG event this year. Thank you also to our contact, Prescott Brigham for managing the project for all the different people who attended this year's event. He did a fantastic job. There were at least 50 organizations set up at tables in the auditorium with Mike, while outside there were fire engines, police cars, and various other things for the kids to enjoy. PAS is already signed up to do next year's Career Day event at Rancho Gabriela.

Looking forward to it, May 2, 2017.



William Finch assisting a Rancho Gabriela student in looking through the PST. Photo taken on May 5 by Terri Finch.



Rancho Gabriela outdoor Career Day set up. Left table is William's with the PST on the Moon Scope tracking mount showing the Moon and the Red Astroscan on the Moon. On the Right, the black scope and table to it's right is Don's solar scope set up. Photo by Terri.



This is the PAS Handout Table. It has all sorts of fun handouts for the kids to pick up on their rush through to the next exhibit. The most important handout is the one created by Matt Kohl (not present at this years' event) about Careers in Astronomy. Photo by Terri.

A Trip to Infini-Tees June 2

By Sam Insana

On Thursday, June 2nd, Terri Finch and I met with Dirk Kreissig, the owner of InfiniTees. He makes tee shirts, polo shirts, hats and other items with club logos and astronomy pictures on them.

We will be ordering tee shirts with our PAS glow in the dark logo, and a print of Jupiter, the Moon, the Sun, Saturn, the Earth, the Pleiades, or other heavenly ob-

jects. We will be sending detailed information shortly to all our members so they can see the merchandise and place orders for the sizes and astronomical objects they want on the black tee shirt. The cost will also be announced at that time with special member pricing. At these prices and with the fine quality of the shirts, we hope most PAS members will want at least one tee shirt. At events they will help us look our

best and generate even more excitement for astronomy. They also make fine gifts, and we may try to sell some of them at PAS public events.

Terri adds: I wish to thank Dirk and Sam for taking the time to get together with me to make this happen. Dirk has expanded his collection of space designs. They are awesome!



Hubble's bubble lights up the interstellar rubble

By Ethan Siegel

When isolated stars like our Sun reach the end of their lives, they're expected to blow off their outer layers in a roughly spherical configuration: a planetary nebula. But the most spectacular bubbles don't come from gas-and-plasma getting expelled into otherwise empty space, but from young, hot stars whose radiation pushes against the gaseous nebulae in which they were born. While most of our Sun's energy is found in the visible part of the spectrum, more massive stars burn at hotter temperatures, producing more ionizing, ultraviolet light, and also at higher luminosities. A star some 40-45 times the mass of the Sun, for example, might emit energy at a rate hundreds of thousands of times as great as our own star.

The Bubble Nebula, discovered in

1787 by William Herschel, is perhaps the classic example of this phenomenon. At a distance of 7,100 light years away in the constellation of Cassiopeia, a molecular gas cloud is actively forming stars, including the massive O-class star BD+60 2522, which itself is a magnitude +8.7 star despite its great distance and its presence in a dusty region of space. Shining with a temperature of 37,500 K and a luminosity nearly 400,000 times that of our Sun, it ionizes and evaporates off all the molecular material within a sphere 7 light years in diameter. The bubble structure itself, when viewed from a dark sky location, can be seen through an amateur telescope with an aperture as small as 8" (20 cm).

As viewed by Hubble, the thickness of the bubble wall is both apparent and spec-

tacular. A star as massive as the one creating this bubble emits stellar winds at approximately 1700 km/s, or 0.6% the speed of light. As those winds slam into the material in the interstellar medium, they push it outwards. The bubble itself appears off-center from the star due to the asymmetry of the surrounding interstellar medium with a greater density of cold gas on the "short" side than on the longer one. The blue color is due to the emission from partially ionized oxygen atoms, while the cooler yellow color highlights the dual presence of hydrogen (red) and nitrogen (green).

The star itself at the core of the nebula is currently fusing helium at its center. It is expected to live only another 10 million years or so before dying in a spectacular Type II supernova explosion.



NASA, ESA, and the Hubble Heritage Team (STScI/AURA), of the Bubble Nebula as imaged 229 years after its discovery by William Herschel.

Candeo School May 7

By Terri, Event Manager

It was a questionable evening for a star party but the forecast said we might have some good viewing time. Mike Marron with his meteorites, Bruce Wurst with his 12", Terri Finch with her 8", and William Finch with his 10" scope went to the school. There was a minor admission fee for attendees but the telescope team was treated like royalty. Our school contact, Gabby had arranged pizza for us, so we ate dinner first and then set up our scopes around 6 pm while it got dark. The event at the school included activities for the school kids and their parents from 5pm to 7pm; the star party was scheduled from 7pm to 9:30pm but there wasn't anything visible until about 7:30. The first item to show up was Jupiter, so all three scopes went there. We had quite a few interested folk swing by to see Jupiter and then talk to Mike. Dark was coming, but it wasn't there yet, and the Moon was hiding behind a cloud on the horizon. I let William and Bruce stay on Jupiter and went for the Moon which appeared only occasionally, though each time it did, I'd get a crowd to come over to view. It seemed that everyone came to see us, at least one time during the event. When the moon set, there was just Jupiter and only for about 15 minutes. I moved to the North Star because clouds had taken over the rest

of the sky until about 8:40 when it became overcast and started to sprinkle. All four of us scrambled to get packed up before the rain came.

It was a fun time. Many thanks to our patient contact Gabby Gmyrek for having us at her event. She is planning another one for next year. Thanks to the telescope team for sticking with it to the first few drops of rain. This was a great school to do an event for: we hope to do it again!



Terri Finch with her scope (Doctor Who). Photo by Bruce Wurst.



Bruce Wurst was photographing me, so I returned the favor. That's Bruce's scope in this photo. Photo by Terri Finch.



William near his scope and a huge crowd around Mike and his meteorites. Photo by Terri.

Adult Education Class at DBG June 3

By Terri, Event Manager

In preparation for this event, Mike, William and I did a test run of our presentations for the Adult Education Class, at Mike's house on May 21. The attendees at this DBG event were: Bruce Wurst with his 14", Terri Finch with her 8", Mike Marron with his meteorites and William Finch with his 10" scope.

The evening began with electric-cart transport to our location - Desert Terrace (near the boojum tree). While waiting for it to get dark, we met with our contact, Joan McDonnell and William set up the Power-Point presentations. We ended up with a class of about 14 adults waiting to learn something from us. Our Volunteer Assistant for the evening was Janet Wieder who opened the class with a few brief words, after which I took the floor and welcomed everyone to DBG, introduced PAS and gave them a brief intro on our presentation. First was William who explained how tele-

scopes work. He then turned the floor to me and I discussed how to use a star wheel and then spoke about what we might see that night. Finally, Mike did a very nicely done presentation on basic astronomy.

While Mike was doing his presentation, Bruce aligned all the scopes so when the class came out to the site, all was ready. Our plan this night was to show Jupiter, Saturn and Mars and a few other fainter objects. We started with the brighter objects adding Saturn and Mars as it darkened.

About 9pm, I gave the group a sky tour, though due to the light pollution, there wasn't much to show. We talked about the Big Dipper and the North Star and Leo and Scorpio. Then we went back to star gazing to close out the night. Bruce showed several fainter objects; I showed only a small number, but spent a lot of time talking to the group about them.

The event concluded about 10:20 since there was still an interested crowd. Many thanks to Joan for having us at DBG. Joan is a very nice lady and wonderful to work with. The four of us will be doing for the next Adult Education Class at DBG on September 30. Many thanks to Janet for all her help and thank you to my telescope team for doing this event with me.

Joan writes: I found the presentations before the Telescope viewing very helpful and informative, thank you for all the work involved in its development. The DBG team has discussed the fact that some of the landscape lighting in the desert portal caused light pollution for your viewing purposes. Angelica will discuss this further with you regarding the September event. I enjoyed meeting you all and was particularly struck by the way you discussed the night sky as if it were home town. Many thanks.

Neil DeGrasse Tyson in Phoenix May 12

Event reviewed by several PAS Members

Mark Johnston, PAS Member writes: I attended a great Neil deGrasse Tyson lecture last night. He asked at the outset if we knew what his topic was - and when the crowd yelled 'no', he asked in an incredulous voice, "You mean 5000 people paid good money to come here and listen to an astrophysicist without knowing the topic??" He then spoke about Astrophysics and the Movies, and showed examples of 'getting it right' (e.g. The Martian) and getting it wrong (e.g. Armageddon). Very entertaining and insightful with a good mix of science and humor. He spoke about how his tweets have gotten him in trouble and how an offhand tweet about one minor aspect of a movie suddenly morphed into a 'review' in the eyes of the media. His 2 hour and 45 minute talk was over too soon, then he took about 25 minutes of Q&A. All in all a really fun event and money well spent!

Pete Turner writes: Neil deGrasse Tyson's talk about Astrophysics and the Movies (+ Beer Commercials) was sold out and a great hit with the audience. The talk was held at Comerica Theater, which holds 5,000 people. He expressed his appreciation that this many people came out to hear an astrophysicist speak. As homage to Phoenix he took off his tie and shoes for the presentation.

The talk was divided into many areas and he used movies and beer commercials,

plus a Perrier commercial to see how they dealt with the science topic. Topics were on surface tension, thermodynamics, evolution, asteroids, the Sun and many more. Sometimes he pointed out errors in video clips, other times he heaped praise for their treatment of the subject. He praised the Martian for its accurate portrayal of scientific phenomena and use of grammar by making "Science" a verb; as in "science the sh** out of this stuff".

Tyson's humor and way of looking at the world was on display throughout his presentation. He also made fun of himself by showing tweets he wrote after watching a movie. He also showed tweets from those that liked or disliked his tweet. Of particular note was his tweet that BB 8 the rolling droid in Star Wars the Force Awakens couldn't operate as shown in the movie. His contention was that a rolling object would skid in the sand.

At the end of the presentation he opened it up to several questions. One young person challenged him about BB 8 saying that it wasn't CGI, it actually worked in the movie. Tyson was quick to respond that BB-8 wasn't CGI, however the man with the stick in a "green room" suit was. The stick was attached to BB -8 and prevented it from skidding. It's no secret that Tyson is much more of a Star Trek fan; commenting that the Enterprise would destroy the Millennium Falcon.

Sam Insana, President writes: See reviews above. Tyson said he normally wears a tie, but since it was over 100 degrees in Phoenix he couldn't be fashionable. In fact, he took his shoes off after a few minutes and gave his presentation in his socks. He said nature is great giving the human body a temperature of 98 degrees so that we are warm blooded and warmer than our surroundings. He said Phoenix is the only place he knows of where that law doesn't hold true.

It was interesting to learn that at age 9 he was taken to the Hayden Planetarium in New York for the first time, and at 11 he received his first telescope. He was hooked. He later became the director of the very same Planetarium and worked for the American Museum of Natural History. He said if you want your children to be stimulated to creative thinking, then stop telling them what to do. Let them discover nature on their own. Don't tell them to be careful all the time. It appears that he learned more on his own than in school (Frank resembles that remark).

Attending from PAS were Howard Moneta, Peter Turner and his wife Andie, Sam(me) and his son Frank Insana, and Dan Heim and his wife Sandi (former PAS members). It was a great evening.

Fall and Spring Upcoming PAS Events

By Terri, Event Manager Events@pasaz.org

Fall and Spring are the busiest times for PAS. There are a lot of school and other events happening and every year I set up events that I think PAS Members would like to be involved in. I'm currently working on the events for Fall 2016 and Spring 2017, including telescope workshops, PAS Meetings, star parties, lectures in Carefree, sidewalk events at Bookmans, and other fun things we do throughout the year. My suggestion to everyone is to always RSVP your attendance when requested to do so, so that if the weather does not cooperate, I can send you an email to say the event has been canceled.

If you have suggestions for events to add to the calendar, send them to me at: Events@pasaz.org. If I can fit them into the schedule, the Moon phase is good for that date and I can find PAS members wanting to do that kind of event, I will make it an event on our calendar. I'm open to suggestions.

The other thing I want to address are the emails that come to me inquiring why PAS does not provide more events during the summer months. While school is generally out during the summer, making it a good time to have events because the kids can stay up later, our monsoon season,

which usually runs from July 1 to Sept 15, is characterized by heavy nighttime cloud cover and storms that arrive quickly and often unannounced. This obviously makes it difficult to schedule and hold observing events. We have even had an entire summer collection of events canceled, so in general, we avoid them. That said, if you have some event you think should be on the PAS Calendar or want to host an event during the Summer months, I will schedule it. Just keep in mind, it could become canceled very suddenly. We hope to see a lot of you at our many fun events through the year!!!

Anasazi School May 13

By Roger Anzini, PAS Member & PAStimes Star Tour Member

Friday May 13, 2016 greeted central Arizona with a high temp of 104. The assignment for PAS was a star party for grades 3, 4 and 5 at Anasazi Elementary School. Driving north on 124th street we found the Anasazi School nestled comfortably right where the McDowell Mountain Preserve began. A pleasant surprise, the location was higher and cooler than the valley far below.

Our contact and guide was teacher Cathy Constantinescu, she introduced us to the school principal Gretchen Kaiser and several more helpful staff members. It was recommended that we set up anywhere along Anasazi's unusual hundred yard long basketball court which worked out perfectly for everyone. We were quickly supplied with a stack of pizzas and a very welcome rolling ice chest full of drinks.

Our overall presentation consisted of Kevin Witts and Suzanne Morrison with a fantastic Moon display table, Mike Marron with his table of space rocks that really do rock, Bruce Wurst with his goto 14 inch scope, Don Boyd with his 8 inch, Rick Cunningham with his 8 inch and this writer with the hand guided 16 inch DOB. Eric Jenson, dad to one of the students of this school, joined in to help us by setting up his beautiful Astro Physics scope just a few yards away on the lawn.

Most of the clouds that had given concern earlier drifted off as the warm day turned into a clear mild night. Kids and parents that arrived before and after dark were treated to the table displays of Mike Marron, Kevin Witts and Suzanne Morrison. Just before dark Jupiter joined the Moon high at center stage and we were in full astro mode for the rest of the evening.

Mars and Saturn were late to the party but Don Boyd had Mars targeted even before that low tree released it from its branches and Saturn was also glimpsed there by Rick Cunningham before the our 9:30 PM deadline. Bruce Wurst won the evening Messier award with M51, M81 and M82 just to name a few of his targets.

The setup area at Anasazi School was perfect. All the kids and parents made us feel so welcome and appreciated and Cathy, Gretchen and all the staff were right there with us the entire evening making sure we had everything we could possibly need.

Thank You Anasazi School for a wonderful evening of stargazing and smiles; looking forward to next time already, from our entire PAS team.

Cathy writes: Dear Terri, I cannot not thank you enough for this wonderful night. On behalf of my students and myself I would like to thank you for such an informative and enlightening experience. Seeing Jupiter and her moons was "out of this world". I did not get all the astronomers names, but please extend my appreciation for all their hard work. I did text Roger thanking him for everything. You were right Kevin, Mike and Suzanne were extraordinary. I will get more feedback today, but my students and parents were impressed. I would love to set up another date, and was thinking when we return to school and it is a bit cooler that would be a perfect time. Once again thank you, thank you. Terri, I spoke with my students today (Monday) and they cannot stop talking about this event, they enjoyed it so much. The students who couldn't make it due to prior commitments were disappointed, but

are looking forward to next year. Once again thank you. Cathy



Kevin Witts with his Moon display and Mike Marron with meteorites at Anasazi School on May 13. Photo taken by Don Boyd.



Mike Marron with his meteorites and a few "to-be" astronomers at his table with Rick Cunningham setting up his scope in the background to the right. Photo taken by Don Boyd.



Rick Cunningham and Roger Anzini setting up their scopes at Anasazi School for a huge star party. Photo taken by Don Boyd.

Sell Your Astronomical Equipment

The PAStimes Newsletter is your means to selling your old, unwanted, but loved and used astronomical equipment. Write an ad with description & photos, get it in the next issue of the PAStimes News-

letter. (See the ad I'll be posted in the For Sale PAS Forums & sent out to the 450 Astronomy Loving Arizona Residents who are on the Public Email Notification List Serv that I post Upcoming Free/Public

Events to once a month. PAS Members may post items for sale, in the newsletter, for free. Send them to Events@PASaz.org.

Pluto: From when it was discovered (Feb. 18, 1930) to when it was declassified (Aug. 2006) as a planet (76 years), Pluto did not make a full orbit around the sun (248 years).

International Astronomy Day May 14

By Sam Insana, President

I want to personally thank all the PAS members who attended the International Astronomy Day Star Party at Roadrunner Park, Saturday night. Although the skies looked very cloudy during the day, all of you came out trusting in my weather reports and did your very best to make it a success. As shown by the satellite photos, thin high clouds in combination with bright planetary objects made this party possible. Mark, Howard, Peter, Don, Bruce and I brought our telescopes and showed the Moon, Jupiter, Saturn and Mars, just like we advertised we would do. Other objects like M13, M57, M81 & M82, M44 and Cancer Iota were an unexpected bonus. About 50 to 100 people came to see through our telescopes and look at meteor-ites and get information about the night sky and our wonderful astronomy club. All of the customers thanked us for such a fun and educational evening. Some people came from Meetup thanks to Howard, and many others came from people just enjoying the park's softball, volleyball, tennis, basketball, cricket, fishing and playground facilities. Hopefully some people came from our press releases sent out by Kevin. Terri and William gave out literature and signed up a new member, Mike showed his meteorites, Rodney and Paul helped haul our heavy equipment hundreds of yards and watched it for us and Ed and Betty came by to give us support. Pete also provided us with a nice photo of the park showing our setup area. Although the park had many trees, we were able to set up so that they were not blocking our heavenly targets. The temperature and light breeze made it a delightful evening. Again I want to thank all of you who defied the bad weather gods and made this a great success.

I am so lucky to be President of such a fine club with fun, professional, and dedicated members.

Terri Finch, Event Manager writes: The PAS set up at this park had one group of scopes to the east, which included Bruce, Sam, Don, and Pete; to the west, was the PAS table with William, Terri and Mike; near the lake to the West of the PAS table were Mark and Howard. We had a number of MeetUp RSVP's as well as several public email RSVP's who also attended. It was very windy until about 10pm, after which it died down to a pleasant breeze. I also had put this event on VisitPhoenix.com but I didn't hear from anyone that they got the

info from there. In any case we did have a great turnout of about 150 looking through the scopes and learning that it was International Astronomy Day. The park was filled with people.

We took in one new member at this event - welcome to Yu Li.

Here are some things to remember about next event at this park: 1) Although the park doesn't officially close until 11pm, the bathrooms are closed and locked at 9pm. 2) At 10:30 all the lights are turned out which was great for viewing, but caused our visitor to leave. We followed suit and left around 11pm. Many thanks to Sam for lending his Costco heavy-duty cart for the scopes to borrow. I truly appreciate our club members and what they do to make the club awesome! Many thanks to all the members for attending, to Paul and Rodney for all the help they provided and to Sam for providing pizza to all the helpers as a thank you for attending when the weather was questionable.

John Vlcek writes: Hi. I wanted to thank you and the members of the team for the star party at Roadrunner Park. My wife and I had a great time! Looking forward to the next one. Best regards, John.

Paul Facuna writes: Sam, Thank you for the very nice compliments to all who participated in yesterday evening's International Astronomy Day Star Party at Roadrunner Park and thank you for the pizza treat to all who participated. That was very nice of you.

Lisa Trapp writes: THANK YOU!!!! :) Awesome Party :)



This is the PAS Table at night, covered in flashing red lights to draw attention which was working well. In the far back left corner you can see the East side telescope set up. Many people visited the table. Photo by Bruce.



PAS Table & Mike set up at Roadrunner Park on May 14 for International Astronomy Day. In this photo (L to R) Rodney looking away from camera, William looking at me, Mike facing right with blurry hand, Sam with the blue hat, Bruce with back to us, Paul with light color shirt, and Howard to the far right of the photo. Photo by Terri Finch.



Wide view of the PAS Table set up to show the location within the park. This was a very good event with lots of people attending. Photo by Bruce Wurst.



Telescopes are getting set up. We had 3 areas of the park we used for this event to draw people over to view through the scopes. This was the most East location with the most scopes.

Photo by Bruce.



Sam and Pete were set up near each other. Photo by Bruce.

Comicon Star Party June 2016

By Terri, Event Manager

This event was not heavy in participation from PAS Members this year. On Friday June 3rd, we had Peter Turner and Sam Insana do the star party; the next day, Mike Marron, Terri and William Finch did a second star party.

Sam writes: On Friday night, June 3rd, Peter with his 9.25 inch scope and I with my 8 inch scope, showed Jupiter and Mars to hundreds of Comicon attendees at the Convention Center in downtown Phoenix. We also enjoyed the hundreds of exhibits inside with pop culture costumes, action figures, comic books, artwork, and other items for viewing and purchase. There were also dozens of seminars and workshops. My favorites were the sci-fi short films, comedy short films, and the panel on Star Trek with David Williams (the ASU Professor of Earth and Space Sciences) moderating.

Peter writes: Friday, Sam and I showed Jupiter and Mars; Saturn was behind a tree. Those were the only objects visible downtown. For a one hour session, which got stretched to 1.5 hours due to the line, it wasn't the greatest star party. Added to that my GOTO / tracking were horrible, due to the heat I think.

Terri writes: On Saturday June 4, William, Mike and I enjoyed many aspects of the Comicon experience during the day. William and I walked the exhibits and display area, all day from 9am to 6pm. Then we did the star party that evening.

Mike brought his me- teorites and his own table which turned out to be a good thing since the tables and chairs we were promised never appear. William and Terri attended with William's scope, the PAS table and hand-outs. We were there from about 7pm to

10:30pm. We were scheduled from 8pm to 9pm but we had a constant collection of people visiting the table throughout the evening. I estimate we saw about 250 people viewing Jupiter, Saturn and Mars. William was able to swing between the planets as needed since at first, Mars and Saturn were not visible (behind the convention center building) but later in the evening they became the highlight as Jupiter vanished behind the a bank building. We also enjoyed the company of Liz and Becca who hung out with us the whole time.



Pete & Sam set up at Comicon on June 3 for a star party. Many people in fun costumes looked through their scopes. Photo by Sam.



This is Sam in his Star Trek outfit at Comicon on June 3 doing the evening star party for the attendees. Photo by Sam.

There's More Than One Phoenix Astronomical Society

By Terri, Event Manager

Matt writes: There are a lot more PASs, but only one shares our name. Peninsula Astronomical Society (Mountain View, CA), Polish Astronomical Society, Peoria Astronomical Society (Illinois), Philippines Astronomical Society, Pokhara Astronomical Society (Nepal), and the Plymouth Astronomical Society (UK).

For those of you who may not know, there is a PAS - Phoenix Astronomical Society in New Zealand. I recently got an email from a wonderful lady there, and thought this would be a good thing to include in our newsletter, as we learn from experience.

Robyn writes: Hi, I'm a Year 4 teacher

at Opaki school and was wondering if anyone from the Wairarapa Branch would be interested in bringing a telescope to school one night and showing the students some features of the summer sky. We will be studying astronomy during term 4 and it would be great if we could get a look at the night sky. If this wasn't possible, would we be able to arrange a night to come to the Stonehenge Aotearoa and have a session there looking at the night sky? Thanks, Robyn Farmer

Terri writes to Robyn: Robyn, I just figured out why what you wrote below doesn't make sense to me. You are in New Zealand. I am in Arizona, USA. I'm sorry

we can't bring a telescope to your event. You are way too far away. You would need to contact the PAS in New Zealand to get their assistance. Please have a super day. Terri

Robyn replies on Oct 13, 2012 with: Dear Terri, I'm gutted that you won't bring your telescope to new Zealand - where's your dedication?!!!! Just joking! Thank you for replying, now I won't think the NZ society has not replied! I have followed up my request with a phone call and it's all been sorted, I'm taking my class to an observatory to learn about stars. I bet the night sky is pretty awesome in Arizona, thanks for replying. Happy stargazing! Robyn

Public Mars Party in Carefree May 28

By Various Attendees

Mark Johnston writes: Fun to see and hear the Pygmy Elf Owl in the nearby saguaro. Some of the objects I observed and showed people included: Mars with polar cap and surface markings, Saturn with Cassini division, cloud belt and south polar cap, Jupiter with cloud belts, Tau Lyra (carbon star), the Stargate Cluster, M57 (Ring Nebula), M13 (Hercules Cluster), Epsilon Lyra (double double), Regulus (double), Izar (colorful double in Bootes), and Mizar/Alcor (triple in Ursa Major). We had a few new people who were very interested and some that wanted to discuss pros and cons of different telescope designs.

Keith Klein writes: I enjoyed the event very much. Kudos to Mike for hosting. Thanks to you and the PAS gang for participating to make such an interesting evening under the stars. Thanks for all you do as event manager.

Alex Vrenios writes: We spent the evening of May 28th at Mike's home in Carefree, Arizona, at a public "Mars" star party. About a dozen people showed up to see the ISS, the Sun (through a hydrogen-alpha solar scope) and later, Mars, Jupiter, Saturn, several Messier objects and a few double stars, including a double-double in Leo that I saw for the first time. I set up my 5" SCT. There were seven other, larger scopes including a 16" DOB.

About halfway through our event we were all treated to a huge fireworks display that we decided was in honor of Mike's birthday, but were more likely associated with the Cave Creek Balloon Festival, a few miles away. We had a perfect view of it through a gap in the trees - quite a show!

I met Hank and his wife, who were both artists. Hank's wife was a traditional painter, but his works were unique creations from a digital, software enhanced photograph that he printed and painted over. We also had an English visitor, a member of a Denver astronomy club who came out to say hello and to see how we do it in the desert.

The last visitors left around 11pm so we broke down the equipment and sat around to chat under a magnificent starry sky. I finally headed home around 12:30am after an interesting and rewarding evening.

Terri Finch writes: Attending this event were Mike Marron (our host) plus 28 other fine folk; some were PAS Members and two became new PAS members on this

night - congratulations to Leslie Atkinson and Nick Ferrante. The rest were guests. PAS Members began to arrive around 5pm - I was designated parking attendant, so each time I heard the car arrival alarm, I went outside to greet the incoming vehicle. At 5:45pm, we ate while I continued to assist with parking. We had a birthday cake for Mike around 7pm, by which time most attendees had arrived. Many thanks to those who participated in the potluck and to Pete for bringing the cake from Costco.

The parking was tight: As of the guests said to me, "I guess you could say that being a PAS Member has it perks", meaning that all of the public attendees had to park in the wash due to the number of cars

and lack of parking space. Kevin Harcey (not in attendance at this event but there earlier in the day) along with Mike, took flour and marked the area for parking spots. They did a great job of it and it really helped make it easier for the cars to park. Thank you to the public attendees also for parking where I asked you to.

The star party setup started around 6pm and the scopes stayed set up until about 11pm. The last 2 scopes to pack up were Sam and Don. Sam left at 12:30 while Don, William and I stuck around a little longer to chat with Mike and finally departed about 2:30am. The attendees seemed to love what we had to share with them, the highlights being Mars, Jupiter and Saturn.



Pete & Mark set up for the star party at Mike's home in Carefree for the Public Mars Party / Mike's Birthday Party on May 28. This photo is looking to the East, away from Mike's house.

Photo by Terri



Rick with his scope and his wife Tree. Photo by Terri.

Many thanks to those who brought their scopes for this event.

Peter Turner writes: There were lots of interesting people with whom to converse. While Mars was bigger than it's been in some years, it's still difficult to see much surface variation. However our guests appreciated the views of Saturn, Jupiter and Mars. I was also able to show them some deep sky objects as well; including the Lagoon and Swan Nebulas in Sagittarius. The Swan was a particularly good sight using a 2" 15mm / 82 degree eyepiece (157x) along with a UHC filter. It was a surprise that the nebulas showed up since Sagittarius was still very low on the horizon when we looked.

Nick Ferrante writes: Thanks Terri! Li and I had a great time. You guys are all good people. See you next in July.

Leslie Atkinson writes: Really enjoyed the event. Looking forward to the next one.

Richard Pipkin writes: Many, many thanks to you, Mike and the other members of PAS who provided a fascinating and informative tour of their scopes, Mars, Jupiter and many of the other incredible sights of the night sky. We lost count of the number of objects we viewed and the scopes we were able to look through, but a special thanks to Sam who seemed to enthusiastically align something new every 15 minutes and invite all to see what he'd found. And how fortunate we were to have had such a clear, cloudless and warm evening. We had a great time, and we'd love to



Facing South, the star party set up begins with (L to R) Earl in the background in blue, then Sam, Mark and then Rodney. It was a wonderful evening to have a star party. Photo by Terri.



Mike with his cake while the attendees gather around to sing to Mike. Photo by Terri.

join you all again whenever we're in town. Our warmest regards to you all, Richard and Beatriz

Dennis Crocket writes: It was great...we left a little early cause we had to dance this am but it was very much a learning experience.



Mike's birthday cake for his 62nd birthday. Pete found a super cake for this event. Photo by Terri.

Where Is The "Highest" Spot On Earth?

The highest spot on Earth all depends on what your definition of "highest" is. At 29,029 feet, Mount Everest is the tallest mountain above sea level. (Mauna Kea is Earth's tallest mountain at about 33,500 feet, with around 19,700 of that submerged beneath the Pacific Ocean.) However, be-

cause Earth is not a perfect sphere but an "oblate spheroid," one could define "highest" as being closest to outer space and not base-to-peak height.

There is a bulge that circles the Earth just below the Equator. Anyone/thing on

that part of the Earth is closer to outer space than those in other parts of the world. Mount Chimborazo, in the Andes, is a 20,000-plus-foot peak sitting on top of that bulge. Due to that placement, Chimborazo is the "highest" spot on Earth, about 1.5 miles closer to outer space than Everest.

Sci-Fi Movie Trivia:

Armageddon (1998) - Because of the patriotic nature of the script and the success of using *Top Gun* as recruitment material, the producers persuaded NASA to allow director Michael Bay and company to shoot in the normally restricted space agency. This included the neutral buoyancy lab, a 65-million-gallon, 40-foot-deep pool used to train astronauts for weightlessness and

the use of two \$10-million space suits. The crew was also allowed to shoot in the historic launch pad that went out of service after the Apollo 1 disaster, and parts of the movie were filmed at Edwards Air Force Base in California.

Deep Impact (1998) - The ship that goes to destroy the comet is called *The Messiah*. This is not only an appropriate

name, but also an inside joke. When the first space shuttle was being conceived, NASA constructed a full-scale, wooden mock up of the STS Orbiter. It was nicknamed 'The Messiah' because, according to Flight Controller Jerry Greene, everyone who walked into it said, "Jesus Christ!" in reference to its size.

Toscana Star Party June 9

By Terri, Event Manager

This was a private event for the Toscana at Desert Ridge Condos in North Phoenix. Attending from PAS were Kevin Witts with his display of rockets and related information, Sam with his 8" scope along with Terri and William with his 10" scope. We set up outside in a location previously scouted by Sam in May, which though it was outside on a balcony, had a corner location that allowed us to show the Moon, Mars, Saturn, Jupiter, Alcor/Mizar and a few faint deep-sky objects. Kevin set up inside where there was also a popular "snacking" area. There were somewhere between 30 and 60 attendees who thoroughly enjoyed the evening, especially their security guard who literally ran to get to us just before we shut down. In addition to the telescopes, I provided sky tours for those interested (and sorry, no dice to the folks who were more interested in the laser pointer than the sky). Overall the evening though hot, went very smoothly.

Our contact at Toscana was Mariah Secrest-Comer for whom I'd like to reserve special thanks. She was extremely helpful and very pleasant to work with. Her care and involvement were key toward making the event as successful as it was. Thanks, Mariah! Thanks also as always, to the telescope team and all who helped.

Mariah writes in phone text: Thanks so much! What a great night.

President **Sam** writes: On June 9th, from 8 to 10 pm, Terri, William, Kevin and Sam gave a star party for a private group at the Toscana Condos at Desert Ridge. The event was a big success with many people asking about PAS and future events.

Sci-Fi Movie Trivia

Deep Impact (1998) - 'Deep Impact' was a NASA space probe designed to study the composition of the interior of the comet Tempel 1. On July 4, 2005, one section of the Deep Impact probe successfully impacted the comet's nucleus. This is coincidental, as the scientists behind the mission and the creators of the movie devised the name independently of each other, at around the same time.



Sam setting up his telescope on the Rec Deck at the Toscana event. Photo by Terri.



This was the set up for the scopes at Toscana on June 9. This deck was perfect. It could capture the rising and setting objects. Sam and William were setting up on the deck. Photo by Terri.



Kevin, with his massively, awesome collection of Rockets and space info, was set up indoors, in the billiard room of this event location. The door behind Kevinr leads to the deck where the telescopes were set up. Photo by Terri.

Black Mountain Campus Star Party May 12

By Terri, Event Manager

Attending this event from PAS were: William and Terri Finch with the PAS Handouts table, Mike Marron with his extensive collection of meteorites, Earl DeLong with his scope, Paul Facuna, who was spot-on at directing traffic in and out of the observing area, Mike Cawley with his scope, Eric Steinberg whose huge 22" scope really impressed the attending public, and Alex Vrenios with his scope.

We had about 50 people from the public through the evening. The skies were

totally clear and the temperature was comfortable with a slight breeze (not enough to blow away the handouts).

I was glad to spend some time chatting with George Zukauckas, who was a PAS Member for a while, left and has now returned. Welcome back George! Ron Walker, the owner/operator of the Planetarium in Cave Creek was also there as was Jane Heddles-Flint who I met for the first time, though she has RSVP'd in the past. We also had several Meetup RSVP's.

I wish to thank the telescope team who did their usual excellent job with the public. I also wish to thank Mike Russell with PVCC security for providing the illuminated "Star Party" sign as well as the access down the ramp to the observing deck. Hope to see you at our next event in September!!!

George Zukauckas, PAS Member writes: I had a great time at the event last night.

A Day of Astronomy Activities in Carefree May 21

By Terri, Event Manager

This was a full day of fun astronomy activities. After a lunch with PAS Members Mike Marron, William and Terri Finch, Paul Facuna, Don Boyd and Kevin Harcey at Sesame Inn in Carefree, we drove in Mike's Van to the Star Barn, Ron's Walker's Planetarium in Cave Creek. This was a special event that included Mike doing a presentation about Meteorites after the main planetarium show. While Mike finished the show, Terri went to his house and opened it at 5:00 for the attending PAS Members.

At Mike's were Paul, Mike, William, Terri, Pete and Andi Turner, Alex Vrenios, Mark and Shirley Johnston, Sam Insana and Kevin Harcey. We shared some pizza after which Kevin Harcey left, only to have car trouble - several members went to help him.

At 7:00 pm we prepared for the 3-part presentation, for which the audience was to pretend they were the general public with no prior knowledge of astronomy. First was William Finch with a presentation about how telescopes work which ran about 5 minutes. Then Terri Finch showed the audience how to use a star wheel and spoke about what was available to see that night, specifically at the June 3 DBG event for which this was a rehearsal. Then Mike took the floor. The goal was to complete all three presentations in 45 minutes or less which we did with about 5 minutes to spare. Then we took input from the attendees on how to make this presentation as simple and easy for the general public to understand.

After the presentations we started a Movie "Deadpool." and simultaneously

had a star party going outside. The Moon, Mars and Jupiter were the highlights for the evening.

The party broke up about 11:30pm - many thanks to Mike for hosting this party. Before the presentation, Alex had an experiment he wanted to do. Here is his write-up:

Alex writes: One of the outside activities was worth noting.

A couple of months ago Mike produced a fluorescent painting and a green laser pointer. He turned down the lights and showed us how, when aimed at a red-ish color, the green spot on the paper turned to orange!

I wanted to know how a red laser would be affected by certain colors, but no one seemed to know for sure. I went online that night and found a really cheap set of fluorescent paints, so I ordered it. When it arrived I painted a color-bar diagram with one bar for each of the six colors in the set: red, green, yellow, blue, pink and orange. I told people what I was up to and asked William to bring his blue laser if he could.

We went outside and picked a spot where we were unlikely to interfere with



Inside Ron's Planetarium we see the Star Machine that makes it all possible. In this photo we see Paul at the bottom center and Mike to the far right. Photo by Terri



Many thanks to Ron (standing in this photo) for a fantastic presentation I love this planetarium! Photo by Terri.

anyone who was observing, and propped up the drawing on a chair. The red laser got a little dimmer on blue and green. The green laser went orange on the red, orange and pink bars, as expected. But the blue laser was so surprisingly bright (we all wore red safety glasses) that I honestly don't remember how it behaved on any of the colors! Not exactly publishable results, but most definitely entertaining.



Sam Insana with author of "The Trouble with Tribbles", David Gerrold at his table at the June 26, 2015 Leprecon event. The article about this photo is in the November 2015 issue of PAStimes on page 8. Photo provided by Sam.

Special Interest Groups within PAS

By Terri, Event Coordinator

What is a SIG? It's a Special Interest Group within a club such as PAS.

A while ago, at one of the Meeting's of the Minds, some members had mentioned starting an Astrophotography SIG. In fact there are many SIG's we could have within PAS and what we need are Coordinators for those groups. Some ideas that were passed around were: Astrophotography, Field Trips, Asteroid Search, Comet Hunting, Ob- serving (e.g. a group that observes the objects from a list, like Messier or Her- schel 400), Telescope Making, Public Outreach, Doctor Who, or Meteorites.

There are many options for having a SIG created within PAS - those interest- ed could have meetings, outings or other activities. Currently we only have the PAStimes Star Tours Group. But that doesn't mean we can't have more.

So, here's what's involved in a SIG within PAS:

1. Create a group name such as Astrophotography SIG.
2. Appoint one person to be the head of that SIG who communicates with me as to when, where, how and why your SIG meets, so I can put that info onto the Online calendar for your members to know when the next meeting/event is.
3. After a meeting, write a review (one member can do this or be appointed

to do it) about how your meeting/event went for the PAS member with the inten- tion of talking about how well it went and what you did, to draw in more mem- bers. (Any PAS Member can join in any SIG).

That's all it takes: someone to take the lead and someone to report what's going on for the Newsletter and the Cal- endar.

We've had many requests for the Astrophotography SIG to get started but somehow it hasn't worked out. One pos- sibility was to have two separate groups for East Valley and West Valley, to ac- commodate members in different loca- tions (I'm ok with that).

If you have an idea for a SIG and you want to run it, let me know - we can get this going.

What I like about a SIG's is that they give our members more to attend and have fun with besides the normal PAS meetings. Also, we could have an- nouncements by those in charge of the SIG's at the meetings, so that they can attract more members to their group. Additionally, I can set up listserv's for those SIG's, so all the group members of that SIG can stay informed. The possibil- ities are endless and astronomical!

August 15 2015

Sunrise: 5:50

Sunset: 19:14



New: Aug 2



Q1: Aug 11



Full: Aug 18



Q3: Aug 24

July 15 2015

Sunrise: 5:29

Sunset: 19:38



New: July 4



Q1: July 11



Full: July 19



Q3: July 26

PAS is Incorporated in the state of Arizona as a 501(c)3 organization. Our newsletter PAStimes is published monthly from September to May, and is distributed via the Internet. All issues are available on our Website www.pasaz.org. Ads for astronomy equipment are provided as a courtesy to buyers and sellers and do not constitute any endorsement by PAS or PAStimes. All photos by Don Boyd unless otherwise noted. All articles and photos are copyright their respective authors or PAStimes.