

PAStimes

Phoenix Astronomical Society
www.pasaz.org

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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Members Night at PAS September 5

By Terri, Event Coordinator

Welcome back to PAS! It was a fun, interesting, strange weather summer, but now it is time to get back into the swing of things with PAS. Over the summer, we had a great Lecture Series by Mike, a couple attempts at & 1 successful Night Sky Training Session, some wild dust storms, some rain and we are hoping that September cooperates with our great event line-up. See page 2 for the Upcoming September Events.

At the September PAS Meeting, we are doing Members' Night. This is your chance to share something astronomy related with the Members, in a short presentation. I would love to have several guest speakers

for the evening, so let's keep our presentations at 30-40 minutes max. We can also open this meeting up to Show & Tell. So, if you have something you wish to share: a book you love, a star chart, a new scope you bought, a program you enjoy... bring it along and let's hear about it. Please sign up with Terri so we can schedule your presentation into the evening. I would love to have everyone sign up by NOON on this day.

For this meeting, we will be having snacks that are provided by the members. Please bring a snack to share. A box of cookies, a bag of chips, popcorn, anything finger food related, is great. Bottled water will be provided by President Bruce. Plates

& Napkins, if remembered, will be provided by PAS, brought by Terri - someone send me a reminder, please.

We will also have the Book Swap and Magazine Swap. Do you have older Magazines and Books you'd like to share? Bring them along and at the snack table at the back of the room, put your items into the pile, and take from the pile. The idea is that Terri does not want to take any magazines or books home, so help yourself to the pile, and return them at a future meeting to share with our Members. We hope to see everyone there! ***

Meeting of the Minds June 27

By Terri, Event Coordinator

President Bruce Wurst opened the meeting. In attendance was: Darlene Ahl-efeld, Rick Cunningham, Don Boyd, Sam Insana, Rodney Fong, Chet Schuler, Albert Tucker, Darren Johnson, Jeremy Dietrich + Mom, William & Terri Finch, Eric Steinberg, Mike Marron, and Alex & Diane Vrenios.

Vote: We started the meeting with the voting portion. First topic was to discuss the Membership Class. We wish to add a Membership Class to the PAS Membership Form / Dues Sheet. To do this, our Constitution states that we have to Vote on it. So, we discussed everything having to do with addition of Lifetime Membership... how much does it cost PAS, what is the going rate of cost per member, compared to Dues collected, and more. This discussion took at

least 45 minutes. The results of the Vote are 16 Yes and 1 No. So, it was voted in to add a Lifetime Membership option on our Membership form.

The next voting issue was about creating a Paypal account for the purpose of ease of anyone who doesn't want to pay with a check, or pay cash to Mike at an event. So, we voted on adding Paypal. What this would consist of is, we make a Paypal account, and then we get electronic access to the Checking Account PAS has, and Terri would be in charge of transferring monies from Paypal to the Checking account as monies come in. Paypal doesn't charge any fees to Non Profit organizations, so there would be no cost to PAS to have this account. The way Paypal works is that anyone can donate or pay for their

membership through Paypal, into the PAS Paypal account, and when they do, Terri would receive an email stating that monies were added to the Paypal account. Then, sometime soon after they are deposited and able to be moved around, she can then send the monies, electronically to the PAS Checking Account. It would just make it easier on some of our new members, and some existing members, who prefer to pay with Paypal. The voting results were 16 Yes and 1 No. Paypal will be added as an option to join or donate to PAS.

Then we talked about the Pizza Party. The purpose of the discussion was to get agreement with everyone that we move the PAS End of the Year Pizza Party to the April Meeting of the Minds, make it a closed meeting, also have the Awards Cer-

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September PAS Events

By Terri, Event Coordinator

RVSP to: Events@pasaz.org

Sep 3: CTCA (Private) 8pm to 10pm. RSVP with Joe. PAStimes Star Tour Members only.

Sep 5: PAS Meeting 7pm to 10pm PVCC Main Campus LS-201. Today is Members' Night. Sign up with Terri by Sep 4, Noon, to do a mini presentation on anything astronomy. Bring a snack to share. Water provided by President Bruce. Bring a friend! Everyone welcome!

Sep 7: Estrella Observatory Star Party (private) 5pm Potluck, 7pm Star Party. RSVP is with Yves and on the PAS Calendar for this event. Sign up on PerfectPotluck.com & bring your scope!

Sep 7: Dark Sky Antenna's Star Party (Private) Event begins at sundown and goes to dawn. RSVP is with Eric for this event. Bring your own everything.

Sep 12: Free Telescope Workshop and public Star Party at PVCC main Campus - 32nd Street & Union Hills- 7pm to 10pm. RSVP is required with Terri

Events@pasaz.org. When you RSVP - leave number in your party and type of scope you are seeking help with. This is also a good class to attend to get ideas on what type of scope you should purchase. RSVP for the Workshop, the Star Party or both.

Sep 16: Scout Star Party in Tempe (Private)

Sep 17: CTCA Back up date for Sep 3.

Sep 22: Bookmans FREE Telescope Workshop. 3:30-5:30pm. PAS Members, let Terri know you are attending. If you are attending to find out how to use your telescope or learn about telescopes, please RSVP Events@pasaz.org by noon the day of the event. Bring something to take notes with, your telescope, accessories, questions. RSVP is required. When you RSVP, leave your name, and the make and model of the telescope you need assistance with.

Sep 26: PAS Indoor/Outdoor Astro Event with Indoor Demos & hands on Meteorites, Outdoor Star Party & Telescope

Workshop. Event is from 7:30pm to 10pm. RSVP is required with Terri. When you RSVP for the Telescope Workshop, leave your name and the make & model of the telescope you are seeking assistance with. PAS Members, please sign up with your indoor demo by noon.

Sep 28: Night Sky Training Session (NSTS) at Mike's home in Carefree (Private - PAS Members Only). Potluck at 5pm. NSTS set up starts at 7pm. RSVP is required with Terri. Bring your scope, accessories, something to write with and on, a table, red filtered flashlight, light jacket, & star chart.

Oct 1: CTCA (Private) 7pm to 9pm. RSVP with Joe. PAStimes Star Tour Members only.

Oct 3: PAS Meeting 7pm to 10pm PVCC Main Campus LS-201. We have an Awesome Guest Speaker for tonight. Bring a snack to share. Water provided by President Bruce. Bring a friend! Everyone welcome!

Meeting of the Minds Presentations

By Terri, Event Coordinator

At the Meeting of the Minds, we have been having a really great collection of mini presentations by PAS Members. If you would like to join in the fun, think up something you wish to present on, having to do with anything Astronomy related, and let me know the title of your presentation and the length. I will schedule you into the Meeting of the Minds or into the September

PAS Meeting, depending on which is coming up next, so that we can hear all about your favorite topic. Past Presentations by Eric Steinberg, Alex Vrenios, Darlene Ahlefeld, Chris Johnson, Sam Insana, and other PAS members, has really made the Meeting of the Minds a meeting that has worth to our club members. We have to meet once in awhile for voting, discussion, etc... oh, and

to party, but to have a special presentation is really worth it. I totally appreciate all who have done mini presentations and all of those presenters to follow. Thank you so much and let's keep our meetings interesting to everyone! Sign up today!

1st Night Sky Training Session (NSTS) at Mike's Apr 13

By Terri, Event Coordinator

In attendance was: Earl DeLong, Don Boyd, Terry Dancer & his Dad, Terri & William Finch, Albert Tucker, Rick Cunningham, Sam Insana, Kraig Nelson, Darlene Ahlefeld, Eric, Ora & Noah Steinberg, and of course, the Host of the party, Mike Marron. We also had a guest: Tom Hines.

The potluck started about 5pm. William and I arrived about 4:50pm with pizza from Domino's. The winds were wild. It was forecast that by 7pm, the winds would die down, but we left at 1am, and the winds never gave up. However, Eric, Terry and 2 other scopes set up. Since the other two scopes were smaller than 8", they were soon put away due to the high winds. As dark took over, we gathered outdoors in the observing area and had a super, wonderful, informative, entertaining presentation by Eric. Thank you so much Eric. Sam was going to talk about setting circles, but Eric covered that. And I was going to take everyone on a tour of the night sky, constellations and lore, but Eric covered that as well.

It was really an awesome presentation and I found out later that many of the attendees appreciated it, as they didn't know that info. So, Eric really gave us all a great presentation.

After the presentation, Eric showed a few more objects in his scope, and Terry searched for and found the Crab Nebula. There were holes in the clouds, so we could see a few objects, but the cloud cover was at least 80% of the sky, most of the night. And the winds just kept blowing and blowing.

I wish to thank everyone who brought food to share. Pizza was brought by the Finches. Sam brought coleslaw and White Castle burgers, which was a nice, different treat. Darlene brought puffs and grapes. There were chips and cheese sticks, and chicken wings and 2 buckets of KFC. Plenty to eat. About an hour after Eric did his presentation, and a few of us got tired of fighting the wind, the party broke up. Eric left, Sam left, and the scopes were put

away. Those of us who came and didn't take out our scopes were disappointed in the weather. And due to the cloud cover, no red flashlights were needed to see your way around, as there was plenty of glow from the light pollution.

It was a good event, however, it wasn't what I had in mind. So, we will try this again at the next event. Hoping for clear skies, good temperatures, NO wind if at all possible, and we hope to see you there. If you didn't attend, you only missed Eric's great presentation. We can have him repeat it at a later event. It was well worth a repeat performance! Thank you again, Eric!

Kraig Nelson writes: this was my first event at Mike's. What a terrific experience, clouds notwithstanding! I learned a great deal from the well-informed speaker and enjoyed the ensuing interaction with club members. I look forward to the next event at Mike's historic venue. Let's hope for clear viewing. §

Benchmark Elementary School May 3

By Terri, Event Coordinator

In attendance was: Terri Finch with an 8" scope, William Finch with a 10" Scope, Don Boyd with his 6" scope, Earl DeLong with his 10" scope, Sam Insana with his 8" Scope, & Darren Johnson with his 10" scope. Our contact, Julie, was a very good hostess. She provided us with plenty of pizza and drinks. We arrived at 6pm for set, and within minutes of arriving, the pizza arrived. So, while setting up, we also enjoyed food. 7pm came and so did the crowd. I would estimate attendance 25 adults & 75 kids. Once the crowd came, there were no more breaks, as it was a constant flow of people through our scopes. Most of the scopes shared Jupiter for the longest time. I took Sirius, at first, to try to align my scope. I was stuck on Sirius for about 30 minutes and then the Orion Nebula, not super visible naked eye, but enough I could find it, was above the building, so I took Orion for about another 40 minutes before the bush by the building, and the building hid Orion from view. Then I moved to Arcturas, also with the plan to align my scope, and got stuck there for another 40 minutes talking about Arcturas

and showing it. The crowd slowed down a bit and I moved my scope to align it on the North Star. Then I was stuck there for another amount of time, right up until we were told to pack up for the evening. I heard about Jupiter and Saturn, but never saw them this night. However, I did give out about 35 Q & A Prizes through the night. Totally enjoyable event. One thing I love about doing this school's star party is that the attendees are very interested in what we have to show them, and they ask questions, participate in conversations, and even if they don't know what we are talking about, they try to learn more. It is really a pleasure to do this event. We are planning another event at this school in Fall 2013. Watch for the announcement. They haven't done any Fall events, so I suggested a change in the sky would be a good thing.

Weather wise, the thin cloud cover was like having a bunch of light pollution. Most of the scopes stayed on bright objects because of the amount of reflected light coming from the clouds. We hope for clear skies at the next week. Many thanks to Julie for having us at her school!

Earl writes: We had another well attended star party at Benchmark school. Don, Terri, William, Sam, Darren and I all arrived at 5:30PM. We moved to the basketball court and set up our equipment. While eating our pizza, we were a little concerned about the wispy clouds to the west. As the sun set, these dissipated. The crowd started to arrive right at sunset and we frantically searched the western sky for Jupiter. I was the first to spot it and we all turned our equipment on it. As the evening progressed, I turned to Saturn. I used a yellow filter on this object for the first time and was impressed with how it helped the image. Everyone who stopped by remarked on how much clearer the view was through my scope. Once the crowds thinned, I quickly star aligned and viewed M44 the beehive cluster, Izar a double star in Bootes (I was unable to resolve it at 100X), and Bootes 39 a nice double star of equal brightness. Please consider joining us at the next public event. It is always an enjoyable time.

CTCA Apr 25

By Joe Collins

CTCA/PAS Solar Viewing & SkyTour Event Thursday April 25th, 2013 Report by Joseph T Collins, CancerFighter @ CTCA WRMC & PAS Member PAS Attendees: Don Boyd, Joe & Renee Collins and Steve Palmer. We had a combined total of twenty-five 'customers': CTCA patients, caregivers, and family members join us up on the 5th floor garden terrace, eleven for solar viewing, and fourteen later for the SkyTour event. This was the highest turn-out to memory, and the first time we have had this event on a Thursday. CTCA well publicized the event, plus there was a lot of anticipation for us to come out since we had to reschedule our last two dates in April due to cloudiness. The skies for this event were clear of clouds, but we had high altitude turbulence visible when looking at the limb of the Moon and haziness from the horizon to 20° altitude due to dirt kicked up by the wind mixed with a little smog. Visibility conditions did not hamper viewing of Jupiter, Saturn and the Moon for our customers. We started the SkyTour event right on time at 8pm, but missed the overhead flight of the ISS while we were doing our star alignments! We chose to run the event until 11:30pm to view the tail end of the Lyrid meteor shower: a few folks spotted shoot-

ing stars.

Joe Collins jcollins79@cox.net: Solar viewing: Folks looked in Don's scope to see the sunspots on the full solar disc at about 30X magnification, and then would come over to my scope to view the filamentary structure of the sunspots umbrae at higher magnification ~75X. The total sunspot count for today was 95, but of those facing us, we could only see the 15 or so largest of these. There were two active groups of sunspots we focused on: AR1723 and AR1726. Spaceweather.com reported two coronal holes and probability of an M-class flare of 40% over the next two days. Two small 'weird-looking' sunspots were observed near the reported locations of the coronal holes. I confirmed my solar alignment method (again) on my Celestron C-11 SCT telescope obviating need for a sun-spotter/viewfinder. I will document this for PAS...very quick method for SCT telescopes with computer-controlled mounts!

During the SkyTour, I showed customers sector G-3 of lunar surface around the crater Tycho, easily identifiable due to its massive ray system. For armchair astronomy, I recommend the Moon Atlas at <http://www.lunasociety.org/atlas/>. The full

moon's illumination was so intense that for safety's sake, I pulled a 'Corey Hart', and wore my sunglasses at night. For customers, I used two sets of filter glasses. Ironically, I received my 2" 13%T lunar filter through the mail from Orion the day after the event, so I won't have lunar filter issues for future Moon viewing events. We viewed Jupiter and its moons, Saturn and its moons, Polaris, Cor Caroli, Tegman, Sirius, Castor, M42 Orion Nebula/ Trapezium, M3 globular cluster, and the Stargate cluster asterism. I shared the new Sky & Telescope JupiterMoons and SaturnMoons iPad Apps with customers and showed one patient interested in Astronomy how to access college-level Astronomy courses via iTunes U. The full 'Pink' Moon's brightness prevented us from viewing many deep space objects (M42 and M3/M5 were mostly washed out by moonlight glare) but it was a good night for viewing binary stars and Saturn being almost at opposition looked spectacular! To improve the viewing of Saturn, I used a grey neutral 1.25" filter from Albert Tucker with my TeleVue 18mm eyepiece. This filter suppresses stray light from the Moon and fluctuations/refractions off of the atmosphere; without it focusing on Saturn was

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Astro Day in Carefree Apr 20

By Terri, Event Coordinator

Many thanks to Mike Marron for hosting this party. In attendance was Terry Dancer with his 8" scope, William & Terri Finch with a 10" and 8", Rick Cunningham with a borrowed scope of about 4", Albert who came with binoculars to watch the meteor shower and about 5 people from the public. The potluck started at 5:30. William and I arrived about 5:15pm. It was a great day for an event. After dinner, we set up our scopes. The public started showing up about 7:30. The public didn't leave until 12:30am. The plan, originally for this event, was to have the public star party and then with the time that was left, do a private session, maybe even some NSTS. But, with the public sticking around, we decided to show more objects. Many thanks to Terry who kept the public busy. Don and I worked in the Asterism list. We viewed the asterism and using the annoyingly bright Moon of the evening, we judged if the asterism would be bright enough in a

school star party setting. Then we made a list of the asterisms that we thought we'd like to try at the next school. Here's the list we came up with: Asterisms with names of IC37, Sailboat and Stargate. The rest of the asterisms we viewed seemed too faint to use for a public event. We will continue to check the asterism list, as we only made a small dent in it. While Don was looking for Asterisms, William was playing around with filters and eyepieces on Saturn. And I was trying to find out how well my Go-to System was working, so I did an alignment, and then put the scope on the Orion Nebula, and then walked away to Terry's or Don's scope to view with the public, and when I came back about 10 to 15 minutes later, Orion was still in the view finder. So, then, I did a go-to to Saturn and the go-to found Saturn. I'm still not skilled at using my Go-to, but I am glad I have it. I just need to get out and practice using it more, to get more familiar with it. About 11:30, the sky

got a bit mushy. We looked for objects and most of the scopes packed up and called it a night. Don, William, Rick and I kept our scopes up and tried to work our way around the horizon mush. 12:30 came and the public was leaving. It was 2am before we left, after packing up, then visiting for a bit with Kevin Harcey & Bob Senzer. Mike had passed out in bed right after the public left. It was a very good event. The event details changed from the original plan but I think it went very well. Thanks to all who attended and showed the public the awesomeness of Astronomy! I'd like to note one thing, who ever picked a waxing Gibbous moon for Astronomy Day, was not someone who was going to be outdoors viewing with a scope. The moon was too large and in the way and really made it difficult to have a successful viewing session for anything fainter than the Orion Nebula.

Meeting of the Minds June 27

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emony that same day. The Pizza would be paid for by PAS, and not charged to the PAS members, however, putting cash in the snack fund would help pay for the pizza, but would not be a request or requirement. This was agreed upon, even after talking about the status of PAS's budget and how each person on the PAS Roster in 2012 cost PAS \$25.13. Then Darren came up with the idea of having the pizza party donated, so he is going to research that situation for PAS and get back to Terri on it.

We also discussed taking in advertisers to help defray the cost of some things PAS pays for. We hope to implement that soon.

The third topic discussed was the status of the PAS Telescopes for borrowing

within the club. The question was, should we repair the 12" scope for \$1400 to \$1600? The overall consensus was that we should hold off on repairs to the 12", fix up and get ready the 8" and 10" for lending out to PAS Members, and see how it goes with those two scopes for a year or 2. Then, if we have enough borrowing of PAS telescopes by club members, we can consider repairing the 12" scope at that time. So, Bruce and Terri will get the scopes ready for lending, with a sign out sheet of all items included in the borrowing of the scope, and start the process soon. A list of what scopes are available and accessories will be online soon.

We then turned the presentation time

over to Alex who did a fine presentation on Star Charts, Laser Pointers, Red Flashlights, and Stellarium. When Alex completed his presentation, we had Darlene set up Starry Night. Her computer wasn't cooperating so when she got to an auto part, we let her run that in the background while Eric did a presentation with his favorite Star Charts & Sky Safari for Ipad. Then Sam did his star charts and to close out the evening, Terri covered her star charts. It was an awesome night! If you missed this meeting, you missed some great Star Chart info. I wish to thank all who sent in a proxy or email vote, as their votes were added to the count. See you at the next Meeting of the Minds. §

CTCA Apr 25

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more difficult.

Don Boyd dazphotog@aol.com: I showed the sun, moon, Jupiter, Saturn, Cassiopeia, beehive cluster, M42 and the asterisms: "IC"37 and the Stargate. I tried some other DSO's, the open and globular clusters were too faint tonight due to the full moon.

Acknowledgements- Thanks goes to Jennifer Kehren who provided plenty of copies of our handouts, meal tickets and 'catchy' signage advertising the event. Thanks also go to PAS member, Steve Palmer who visited us around 10pm and stayed to help us with breakdown and packing up at the close of the event.

Next time- We (PAS AZ) are looking forward to coming out again next month on Tuesday May 7th.

Some helpful Java Scripts from Sky & Telescope: NOTE: you may have to create a username & password and sign in. If you find any of these links to be helpful, please let me know.

http://www.skyandtelescope.com/obse_rving/objects/javascript/moon_phases
Moon Phases on any date

http://www.skyandtelescope.com/obse_rving/objects/javascript/jupiter# Jupiter and Galilean moons simulator

http://www.skyandtelescope.com/obse_rving/objects/javascript/saturn_moons Saturn & its moons simulator

http://www.skyandtelescope.com/obse_rving/almanac/almanacCustom?latitude=42.383&longitude=71.133&tzzone=7&UTdate=now&UTtime=now# Moon &

Planets Almanac

http://www.skyandtelescope.com/obse_rving/objects/javascript/mars Mars surface profiler

<http://skychart.skyandtelescope.com/skychart.php> Interactive Sky/Star Chart

http://www.skyandtelescope.com/obse_rving/objects/javascript/satellite_tracker/satelliteChooser_ISS/HST/STS Satellite tracker

http://www.skyandtelescope.com/obse_rving/objects/javascript/3304091.html Jupiter Red Spot transit Calculator

http://www.skyandtelescope.com/scop_ealc Telescope Attribute Calculator

<http://www.lunasociety.org/atlas/> Full Moon Atlas by grid zones

Ads in PAStimes

For Sale: Meade "STARFINDER" Dobsonian Scope 10" with rotating stand and Instruction Manual with 7 eyepieces. 3 eyepieces are Meade double coated, 9MM, 12MM, and 25MM. 4 eyepieces are Super Plossl 9.7MM, 20MM, and 26MM. Included are 2 extra Rack and Pinnion Focusers, and a TELRAD Reflex Sight. Asking 225.00 OBO. Contact Roger at Schollra@aol.com or 480 991 0133. Go to this link for the photos of this telescope & accessories: <http://www.pasaz.org/forums/downloads.php?do=file&id=213>

Venus Transit of June 5, 2012 Special Edition

By Terri, Event Coordinator and Copy Editor to Don

It's hot off the press! Help yourself to a copy of the Venus Transit Special Edition Newsletter. You can find the Newsletter at this link: <http://www.pasaz.org/PAStimes/2012-2013/Transit.pdf>, or in the Newsletter section of the website for the 2012-2013 Season named "Venus Transit 2012." Photos of this event are in the PAS Photo Gallery. The links to the photo gallery are listed in the Newsletter on page 5. Enjoy! ***

Bookmans Telescope Workshop May 5

By Terri, Event Coordinator

It was a lovely day for a Telescope Workshop. The parking lot of Bookmans wasn't as busy as normal, probably due to the holiday - Cinco De Mayo. We had 2 public RSVP's, of which one showed up & an extra attended. Allisha Collinson attended to find out what telescope to purchase. Prior to Allisha showing up, Rodney Fang (who had attended the PAS meeting on May 2) was there with the same questions. So, we did a double "What telescope should you purchase?" Q & A session.

I wish to thank the Telescope Teachers from this event: Earl DeLong, William Finch, & Don Boyd. I'd also like to thank

Bookmans for providing the space to have this event. They put us in a new area. We are now at the front of the store, on the right as you walk in, in a little sit down, cafe looking area. The magazine racks that were there, have been moved to other locations within the store. And I heard they are moving around and expanding their musical instrument section, thus the reason to have us move to a new location within the store. So, we are right there, in the front, as you walk into the store. Look along the back wall to the right of the Trade In counter. It was a very successful event.

We had 2 visitors while doing the

event. Jim Bensfield (a PAS Member who joined just over a year ago) stopped by with his grand daughter to pick up his Year in Space Calendar from me and talk about how his granddaughter was very interested in astronomy. And we also had a surprise visit from one of my music students, Jen Perreault & her daughter, Maci. It was a very enjoyable afternoon. The sky was overcast most of the event (as now we are right by the front window - I can see outside) and the winds picked up quite a bit from the start of the event to the end. We look forward to the next Telescope Workshop at Bookmans. See you there!§

CTCA May 7

CTCA/PAS Solar Viewing & SkyTour Event Tuesday May 7th, 2013 Report by Joseph T Collins, CancerFighter @ CTCA WRMC & PAS Member

PAS Attendees: Joe & Renee Collins. We had a combined total of eighteen 'customers': CTCA patients, care-givers, and family members join us up on the 5th floor garden terrace, two for solar viewing, and sixteen later for the SkyTour event. There were several CTCA patient events prior to the SkyTour so the solar viewing was less attended than last time, and we nearly cancelled due to high wind gusts. Fortunately, the wind settled for the SkyTour portion of our event. Due to superb publicity at the CTCA patient events, we actually had more attendees than last month for the SkyTour portion of the event which was a pleasant surprise. The evening was comfortably cool for some folks, but the wind chill made sweaters a good idea. There were clouds hugging the mountains and peripheral horizon, but 90% of the sky was crystal clear for stargazing.

It is notable and ironic that sometimes the nights forecast to the worst, turn out to be the best! I was already struggling with the call to cancel/reschedule this event because of the cloudiness/wind weather forecasts, but despite the wind, the stargazing component of the SkyTour was 'excellent' as predicted by Accuweather. I decided to run the event because the back-up date 7/21 was only forecast to be 'good' for stargazing with 48% cloud cover predicted.

Solar viewing: I weathered 25-30mph

gusts on the 5th floor garden terrace during solar viewing. My scope was rigid against the wind with no bothersome vibration due to the wind apparent with a 32mm eyepiece but it was noticeable at night for my 13mm eyepiece. I am sure the wind gusts would have been problematic for our members with large tube reflector and refractor telescopes. It was somewhat comical- my fold up chairs flew across the terrace, my drinks flew to the ground from the tables creating spills to clean up. I hunkered down and created 'wind blocks' out of available tables- that extra setup-up and 'pause time' during the worse gusts cut the solar viewing time by an hour (did solar viewing from 6:15pm until sunset). Still, I had decent viewing of AR1739 sunspots with two customers [In retrospect, I should have just cancelled the solar viewing component]. Fortunately, the wind died down about an hour after sunset, so Renee and I continued with the SkyTour event.

During the SkyTour: I showed sixteen customers Jupiter and its moons, Venus, Saturn and its moons, and M3, M5, M13, M53 globular clusters. M13 just happened to be in the darkest part of the sky and looked awesome! Saturn and its ring was a crowd pleaser! Even with clear skies, it was difficult to see more than a hazy spot or 'smudge' of M82 and M101. We star gazed: Arcturus, Spica, Sirius, and many multiple star systems: iota Cancri, Algieba, Castor, 54-Leo, Cor Caroli, Algorab, 35-Com, 24-com, 19-Lyncis, Porrima, and Albereio. Faint, but tantalizingly visible with 13mm TeleVue eyepiece, we were

able to see M57 ring nebula and the 'ghost of Jupiter' and ended looking at the Star-gate cluster asterism. We ran the event from 8pm until 12:30am 5/8. We were ready to breakdown at 11:30pm, but we had a last minute customer, a caregiver of one of the employees at CTCA undergoing surgery. Since we personally knew both of them, and she told us she would likely not be able to join us in the future, we did a special SkyTour for her for another hour. She revealed to us afterwards that she is seriously considering getting a degree in Astronomy!

Acknowledgements- Thanks goes to Jennifer Kehren who provided plenty of copies of our handouts, meal tickets and 'catchy' signage advertising the event by the entrance to the Cafeteria. Thanks also go to Blas of the new patient group for promoting the SkyTour event.

Next time- We (PAS AZ) are looking forward to coming out again next month on Tuesday June 4th.

Some helpful Java Scripts from Sky & Telescope (and the internet): NOTE: you may have to create a username & password and sign in. If you find any of these links to be helpful, please let me know.

http://www.skyandtelescope.com/obse_rving/objects/javascript/moon_phases
Moon Phases on any date

http://www.skyandtelescope.com/obse_rving/objects/javascript/jupiter# Jupiter and Galilean moons simulator

http://www.skyandtelescope.com/obse_rving/objects/javascript/saturn_moons Saturn & its moons simulator

(Continued on page 9)



Size Does Matter, But So Does Dark Energy

By Dr. Ethan Siegel

Here in our own galactic backyard, the Milky Way contains some 200-400 billion stars, and that's not even the biggest galaxy in our own local group. Andromeda (M31) is even bigger and more massive than we are, made up of around a *trillion* stars! When you throw in the Triangulum Galaxy (M33), the Large and Small Magellanic Clouds, and the dozens of dwarf galaxies and hundreds of globular clusters gravitationally bound to us and our nearest neighbors, our local group sure does seem impressive.

Yet that's just chicken feed compared to the largest structures in the universe. Giant clusters and superclusters of galaxies, containing thousands of times the mass of our entire local group, can be found omnidirectionally with telescope surveys. Perhaps the two most famous examples are the nearby Virgo Cluster and the somewhat more distant Coma Supercluster, the latter containing more than 3,000 galaxies. There are millions of giant clusters like this in our observable universe, and the gravitational forces at play are absolutely

tremendous: there are literally *quadrillions* of times the mass of our Sun in these systems.

The largest superclusters line up along filaments, forming a great cosmic web of structure with huge intergalactic voids in between the galaxy-rich regions. These galaxy filaments span anywhere from hundreds of millions of light-years all the way up to more than a *billion* light years in length. The CfA2 Great Wall, the Sloan Great Wall, and most recently, the Huge-LQG (Large Quasar Group) are the largest known ones, with the Huge-LQG -- a group of at least 73 quasars -- apparently stretching nearly 4 billion light years in its longest direction: more than 5% of the observable universe! With more mass than a million Milky Way galaxies in there, this structure is a puzzle for cosmology.

You see, with the normal matter, dark matter, and dark energy in our universe, there's an upper limit to the size of gravitationally bound filaments that should form. The Huge-LQG, if real, is more than *double* the size of that largest predicted struc-

ture, and this could cast doubts on the core principle of cosmology: that on the largest scales, the universe is roughly uniform everywhere. But this might not pose a problem at all, thanks to an unlikely culprit: **dark energy**. Just as the local group is part of the Virgo Supercluster but recedes from it, and the Leo Cluster -- a large member of the Coma Supercluster -- is accelerating away from Coma, it's conceivable that the Huge-LQG isn't a single, bound structure at all, but will eventually be driven apart by dark energy. Either way, we're just a tiny drop in the vast cosmic ocean, on the outskirts of its rich, yet barely fathomable depths.

Learn about the many ways in which NASA strives to uncover the mysteries of the universe:

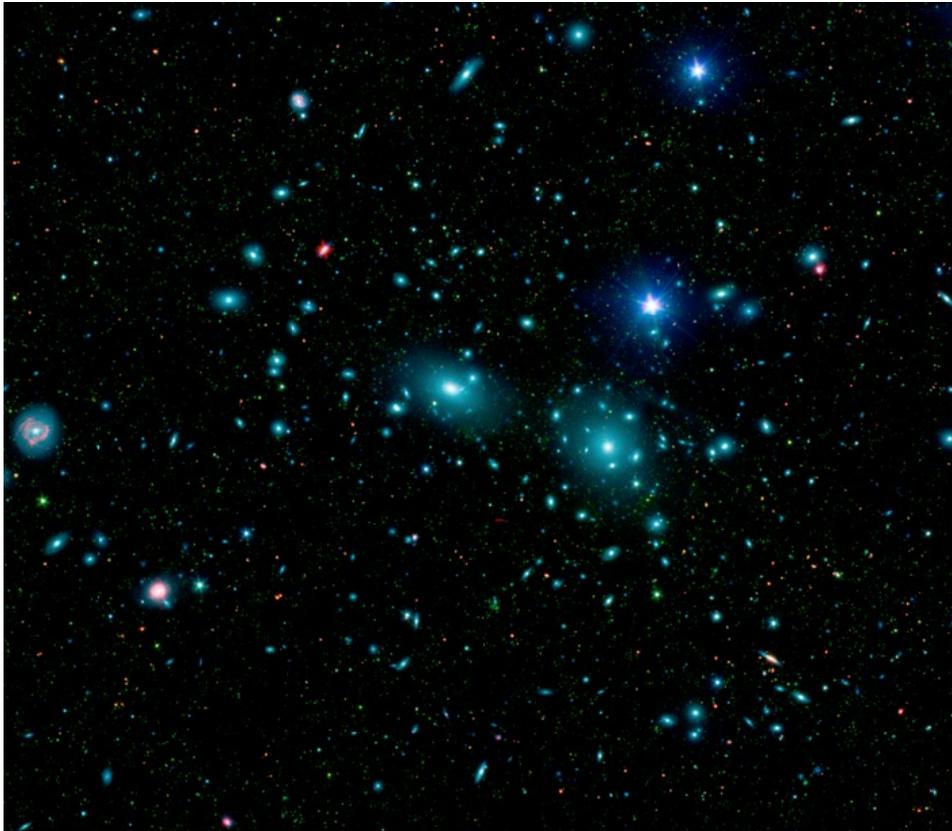
<http://science.nasa.gov/astrophysics/>. Kids can make their own clusters of galaxies by checking out The Space Place's fun galactic mobile activity:

<http://spaceplace.nasa.gov/galactic-mobile/>

Solar Eclipse of May 20, 2012 Special Edition

By Terri, Event Coordinator and
Copy Editor to Don

It's hot off the press! Help yourself to a copy of the Solar Eclipse Special Edition Newsletter. You can find the Newsletter at this [link](http://www.pasaz.org/PAStimes/2012/2013/Eclipse.pdf): <http://www.pasaz.org/PAStimes/2012/2013/Eclipse.pdf>, or in the Newsletter section of the website for the 2012-2013 Season named "Solar Eclipse 2012." Photos of this event are in the PAS Photo Gallery. The links to the photo gallery are listed in the Newsletter on page 14. Enjoy! ***



Digital mosaic of infrared light (courtesy of Spitzer) and visible light (SDSS) of the Coma Cluster, the largest member of the Coma Supercluster. Image credit: NASA / JPL-Caltech / Goddard Space Flight Center / Sloan Digital Sky Survey.

Star Party at Canyon Springs School in Anthem, Feb 27

by Don Boyd

It was a good star party. I got there at 5:30 and Mike was already there eating pizza, Albert arrived a few minutes later and Leah arrived before 6. There was nothing to see until 6:30, when I saw Jupiter, because the moon did not rise until 8:30. It was almost 7 before we could see anything except Jupiter. I did an alignment on my 6" goto reflector, and showed the Double Cluster and ET Cluster. The participants were well behaved and orderly, and we were well taken care of. There was plenty of pizza, and one of the teachers delivered

water to everybody.

Leah adds: "The star party went very well! It was a little cool towards the end, but the sky was beautiful and clear. I arrived around 5:50, and Don, Albert and Mike were already there. Since the Sun didn't set till 6:30, I brought a solar filter and my solar system scale model. The solar filter didn't do much good because the Sun was behind a tree. However, I was able to show some of the kids my solar system model while waiting for the sky to get dark, and Mike showed them his meteors of

course. As soon as it was dark enough, I showed Jupiter and its moons in my scope (6" newtonian dob). All four moons were visible - two on each side. I stayed on Jupiter all night because nobody said that they had already seen it. I understand that by the time I was able to show Jupiter, Don had already switched to star clusters. On occasion, when people asked, I also answered other questions such as what constellations we can see in the sky. A good (and educational) time was had by all." ***

Rancho Gabriela May 7

By Terri, Event Coordinator for PAS

Many, many thanks to everyone who donated plastic grocery bags to this event! We probably used about 200 of them. What we discovered is that Rancho Gabriela got wise this year and provided the students of K - 6 with Walmart plastic bags. In the morning, though, we saw grades 7 and 8 first, and so they got our plastic bags packed with goodies. Now I have several plastic trash bags of bags left for another event.

Many thanks to my Rancho Gabriela Team. From PAS we had in attendance: William Finch who assisted in the giving away of stuffed bags, Terri Finch who did Q & A with the students who would stop and talk for a moment. Don Boyd who did Solar viewing, Earl DeLong who assisted with bag stuffing, bag give away and crowd control (a very needed position), Jerry Belcher and his friend Scott, who did Solar viewing, Matt Kohl who did bag stuffing, passport stamping, and bag handout and Darren Johnson, who did Solar Viewing with us, and Chris Johnson who also brought his solar scope.

The day began very hectic while we got set up, not under the gazebo from last year, but along the side of the Gym for which the shade wasn't too bad. We had shade all day, as the Sun crept across the

sky. It was cooler in the morning hours, but soon got up to 85, which was nice compared to previous years that seemed like 1,000 degrees. Jerry and Scott hid under an umbrella most of the day. Breakfast was tasty, although not very diabetic friendly. Lunch was subs, chips, and there was plenty to eat and drink.

We first saw the 8th Graders. It seemed like they weren't that interested in viewing through the scopes. But the 7th Graders were awesome! They spent a lot of time talking and asking questions. Then the 6th graders were ok, followed by the 3rd and 4th graders. I expected 4th grade to be more interested in space, as that is when I became interested and was taught it in school, but 3rd and 4th graders all said they hadn't had anything on the Solar System, yet. Then we had lunch. Then we saw the 5th graders, Kindergarteners, 1st Grade and lastly 2nd grade. The 1st & 2nd Graders were very intriguing and questioning. The whole day was exhausting but fun, interesting and a good time.

I wish to thank Natalie Sawyer for inviting us this year. Previous years we had a different contact at the school, who was just as awesome as Natalie. This school takes good care of us, checking to make sure we got fed, letting us know the sched-

ule, and just being a great host to the event.

If / when we do this event again next year, I would like the same location but Matt made a suggestion. He said we should set up the handout table indoors, and just have the solar scopes outdoors, and I got to thinking, maybe have the kids pick up something from the scopes, a handout or something, as they make their way through our display. The other thought that someone suggested was to make a handout about what kind of careers can be obtained in Astronomy. Since we are a club, when the kids ask us about our jobs, we have been distinguishing between our day job and PAS as a hobby. I realize this doesn't fit Career day the way the teachers want it to, but maybe next year we can make a career handout with ideas of the kind of jobs one can find in an astronomy field. We will do some research on this and create the flier for next year.

Many thanks to everyone who attended, helped, and was there to support this event.

Julie Dungan writes in phone text: Thank you for your time, energy, and passion. We truly enjoy it and look forward to next time :) ***

Pluto's Moons

Provided by Alex Vrenios

Two years ago, a team using the Hubble telescope spotted a fourth moon orbiting Pluto, and a year later, they discovered a fifth. Since then, they've had the boring names of P4 and P5. No more. The International Astronomical Union officially christened the moons with appropriately awesome names. Kerberos is named after a three-headed dog that guards the gates of hell, and Styx is named after the river separating the living from the dead. The names were the second- and third-place winners in an international public vote. "Vulcan" actually won, but the IAU vetoed it because it wasn't associated with Pluto in mythology. Besides, we need that one for when we meet the real Vulcans! ***

CTCA May 7

(Continued from page 6)

<http://www.skyandtelescope.com/observing/almanac/almanacCustom?latitude=42.383&longitude=71.133&tzzone=7&UTdate=now&UTtime=now#> Moon & Planets Almanac

<http://www.skyandtelescope.com/observing/objects/javascript/mars> Mars surface

profiler

<http://skychart.skyandtelescope.com/skychart.php> Interactive Sky/Star Chart

http://www.skyandtelescope.com/observing/objects/javascript/satellite_tracker/satelliteChooser ISS/HST/STS Satellite tracker

<http://www.skyandtelescope.com/observing/objects/javascript/3304091.html> Jupiter Red Spot transit Calculator

<http://www.skyandtelescope.com/scopecalculator> Telescope Attribute Calculator

<http://www.lunasociety.org/atlas/> Full Moon Atlas by grid zones

PAS Photo Gallery Update

By Terri, Event Coordinator

The PAS Photo Gallery has been updated with some new Photo Albums. Please check them out next time you are browsing the PAS Website. They are marked with "New" on the album listing. You can visit the Photo Gallery by this link: <http://www.pasaz.org/forums/gallery.php>. You can also see all the Photo Albums in a list format, with links to the albums, at this location. Download the current file and check back each time a notice goes out saying I've updated or added more photos to the gallery. The link for that list is: <http://www.pasaz.org/forums/downloads.php?do=file&id=104>. Enjoy!

PAS Name Badge Order Being Placed

By Terri, Event Coordinator

The PAS Name Badge order is being put in, shortly after the September 5th PAS Meeting. If you plan to have a PAS Name Badge, and haven't already put your order in with me, please do so right away. The next order won't be for another 6 months. Your deadline is to mail a check, using the Membership Form at this link: <http://www.pasaz.org/forums/downloads.php?do=cat&id=2>, and marking your name, the way you want it spelled on the Name Badge, and providing \$15 to PAS, received by Sept 5th, or hand deliver it, to Terri (who

will give it to Mike after she adds your name, with proper spelling, to the list of name badges being order) when you attend the meeting. If you can't make the deadline, I need to know so I can hold the order. You can email me a delay notice, include the date you will be able to get the \$15 to Mike, and I will see what I can do about holding the order for your situation. I will not hold it more than 15 days, as I wish to deliver these name badges by the October PAS Meeting.

Why do you need a PAS Name Badge?

If you are an active member in PAS, attending meetings, attending star parties, we like for you to BELONG to PAS. Name Badges are not mandatory, but they are nice to have your commitment to PAS. And if you belong to the PAStimes Star Tours Team, you must have a PAS Name Badge to do any of the paid events. It is part of the dress code for those events. So, put in your order today. Membership form is required for this order. Thank you! ***

PAS Membership Dues are Due

By Terri, Event Coordinator

PAS memberships last from January to December. We start collecting the membership renewals in September for the following year to make it easier on Mike, our Treasurer, to update the PAS Roster. The deadline to pay your 2014 dues is January 31. If your dues are not received by then, you will be removed from the PAS Roster, the PAS Website (as a PAS Member meaning you have no access to the Private info on the site) and the PAS email list. This is a lot of work for me. I prefer to leave you on the lists. So, I'm asking that everyone who plans to be a 2014 PAS Member,

please, get your dues into Mike prior to the end of Jan. 2014, so that I do not have to remove you from the various locations & then add you again when you do catch up on your dues. This past year we let quite a few members slide.... some hadn't paid until June 2013, for their 2013 dues. Please, do not do that this time. I will remove you Jan 31. We hope you stay with PAS for a very long time. Put your membership dues in the mail today, or bring them to the next event that either Mike or Terri attends (to save postage).

Be sure to use the 2014 membership form, found on line at this link: <http://www.pasaz.org/forums/downloads.php?do=file&id=18>. In January 2014, I will send out emails to those who have not renewed. If you are unsure if you need to renew, you can check the PAS Roster at this link (Members only) <http://www.pasaz.org/forums/downloads.php?do=file&id=48> The Roster should show that you are current for 2014. If it shows a year prior to 2014, you are due to pay your dues. ***

A Review of “Star Charts by Wil Tirion” App for Apple iPhone

By Alex Vrenios, PhD, July 2013

My first set of star charts was a collection of 16 maps spread throughout an astronomy book. The book covered everything one needed to know about the constellations, stellar objects, telescopes, eyepieces, etc. It was a terrific introduction to the hobby, but it wouldn't stay open on any one page long enough to be of much help under the sky.

My next set of charts was a bound version of the Wil Tirion Sky Atlas 2000.0, an excellent reference that was a major expense for me at the time. Translating a night's observing plan into a set of charts, then flipping back and forth through the pages got old fast. I bought the same set of charts on heavy loose-leaf pages printed with white stars on a black sky background. This was another luxury purchase but it greatly simplified my observing sessions. Imagine my delight to see a Wil Tirion star chart app for my iPhone!

If you are familiar with either the bound or the loose-leaf versions of Wil Tirion's star charts, you already know they are of very high quality and are intended for the serious observer. The Star Charts by Wil Tirion iPhone app contains 18 maps, each representing a section of the sky. There are 2 polar maps and 16 sectionals, 8 above and 8 below the celestial equator. Each of these maps is about 70 degrees tall and 50 degrees, or 3 hours of RA, wide. (There is some overlap between map sections.) It's a very professional looking presentation.

When you first start the app, it selects the map that corresponds to what you might see in the sky from your current location on Earth. Once active you can choose any of the 18 maps manually. You can also select a map by constellation name or by star name. (This option just brings up the map that the constellation or star is on. It does not bring that object to center, as some reviewers would like it to.) Once a map is displayed you can swipe the screen left or right to switch to the next map east or west of the map you're on, or you can swipe it up or down to get to the corresponding northern or southern sky's polar map. When you get to the map you're interested in, you can use pinch and zoom gestures to adjust the level of magnification. The map number is displayed at the top of the screen. Four buttons across the bottom are labeled Layers, Legend, Settings (gears icon) and Help (question mark).

The Layers screen lets you turn on grid lines, coordinates, constellation boundaries, object names, and the names of stars and galaxies. The Legend screen shows you the star size vs. magnitude, as displayed on a map at maximum zoom. It shows the symbols used for the various deep sky objects, like stars, clusters and nebulae, and defines the codes that indicate their source (Messier, NGC, etc.). It even includes a complete listing of the Greek alphabet!

The Settings screen lets you choose

between auto-map-select at startup or manual, south- or north-up views, black or white background, and a red filter to preserve night vision. That's the positive part of this review; now for the negative.

First and foremost, star charts are not well suited to being viewed on a tiny screen. That said, each time a new map is selected it takes a second or two to display. It presents one rectangular tile at a time, as if each map is being generated for display every time it's needed. (Not knowing how this software works, I hesitate to complain about that, but it seems to me there ought to be a way to flash a complete map onto the screen all at once. This may be a non-issue on an iPhone 5, e.g., or any smartphone with a faster processor, more memory, etc.) Finally, you discover that the charts only go down to the 6th magnitude and even at maximum magnification only the brightest stars are labeled, limitations I found to be very disappointing.

The overall system design of this app is classy looking, very professional and supportive of a \$3.99 price tag. When you start the app in the field, however, you realize that it's distractingly slow and hard to read. Then you think that maybe it would be better on a newer, faster iPhone, or better yet an iPad. But while mag 6 star charts are a good choice for beginners, they just don't go deep enough for the intermediate or more advanced observer. ***

App Reviews

By Terri Finch

“App Discussion: Phone, Tablet, Computer” is the title of the new Forum within the PAS Private Forums. This is a place to post your pros and cons about apps that you have, or have experienced, etc. Feel free to browse the collection we have started in this Forum Thread and comment on the apps you have experienced. If you post your own review of an App, please be sure to include, in the title of your posting, the phone, tablet, or computer your app works on. All reviews are welcome to better help your fellow PAS Member. Here is the link to the Forum where these reviews can be found: <http://www.pasaz.org/forums/forumdisplay.php?f=15> ***

NASA's Mission to the Moon

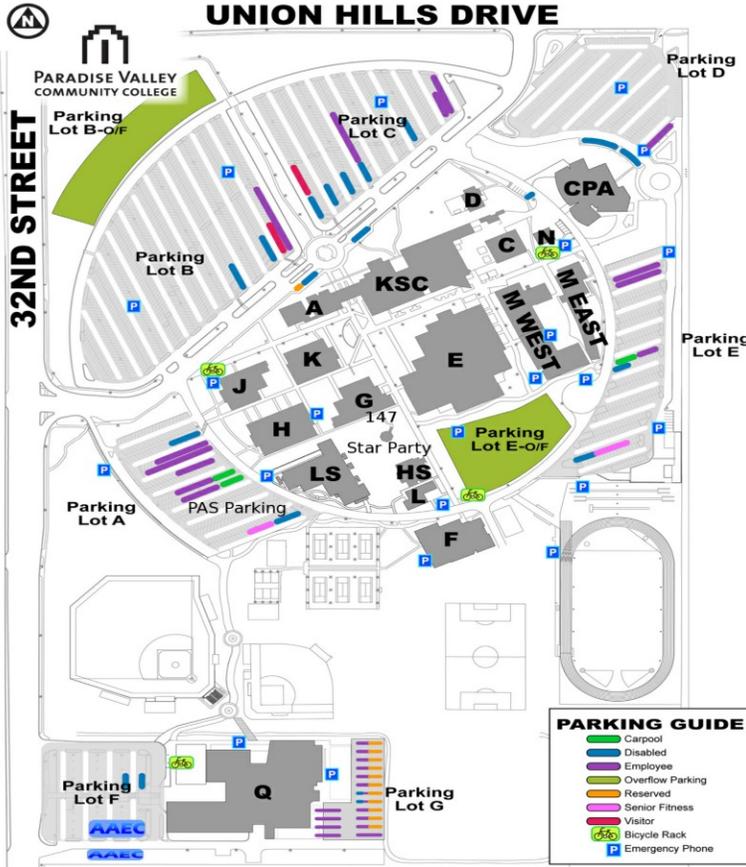
Info provided by Andrew Shaner, The International Observe the Moon Night Coordinating Committee, InOMN

Website: <http://observethemoonnight.org>

NASA's next mission to the Moon is launching in September. The Lunar Atmosphere and Dust Environment Explorer (LADEE) is scheduled to launch from the NASA Wallops Flight Facility on 6 September 2013 at approximately 11:27 PM US Eastern Time. LADEE will orbit the Moon collecting data on the Moon's thin exosphere and the lunar dust environment. For more information about LADEE, please visit http://www.nasa.gov/mission_pages/LADEE/main/index.html.

Map of PVCC Main Location

18401 N. 32nd Street | Phoenix, AZ 85032



Map of PVCC Black Mountain

34250 N. 60th Street | Scottsdale, AZ 85266



September 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Labor Day	3 CTCA (Private)	4	5 PAS Meeting	6	7 Antenna's (Private)/ Estrella Obs (Private)
8	9	10	11	12 Telescope Workshop	13	14
15	16	17 CTCA Back up (Private)	18	19	20	21
22 Telescope Workshop	23	24	25	26 Telescope Workshop	27	28 NSTS (Private)
29	30					

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PAS Speaker Line-up for Fall 2013

By Terri, Event Coordinator

Oct 3: Rick Tejera “Beyond M42 (what to look at after you’ve found all the easy stuff)”

Nov 7: Eric Steinberg “What’s Up? The Night Sky & Basic Celestial Mechanics”

Dec 5: Astronomy Swap Meet: Earl DeLong “Chemistry of the Cosmos”

PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter PASTimes is published monthly from September to May and distributed by US PS and the Internet. All Issues are available for download on our website www.pasaz.org

Ads for astronomy equipment are provided as a courtesy to sellers and buyers, and do not constitute any endorsement by PAS. All Photos by Don Boyd unless otherwise credited. All articles and photos are copyright their authors or PASTimes.

What’s Up For September?

By Rod Sutter, PAS Past President

Planets

Name	Date	Rise	Set
Mercury	09-15-13	07:36	19:17
Venus	09-15-13	09:35	20:22
Mars	09-15-09	02:55	16:39
Jupiter	09-15-13	00:55	15:04
Saturn	09-15-13	09:44	20:44
Uranus	09-15-13	19:17	07:44
Neptune	09-15-13	17:36	04:46
Pluto	09-15-13	14:19	00:36

All Times Arizona Time

September 15 2013

Sunrise: 06:11

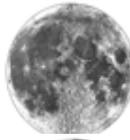
Sunset: 18:33



New: September 5



Q1: September 12



Full: September 19



Q3: September 26