

PAStimes

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Spectroscopy for Everyone!

By Tom Field, January 2012 PAS Guest Speaker

Spectroscopy is the art of analyzing the colorful rainbow spectrum that a device like a prism produces. Spectroscopy is the primary research tool used in modern astronomical research. However, until the last few years, spectroscopy has been too expensive and difficult for all but a few amateurs. Today, though, new tools make spectroscopy accessible to almost all of us. You no longer need a PhD, dark skies, long exposures, or enormous aperture! With your current telescope and camera (or even a simple web cam) you can now easily capture exciting spectra, including the at-

mosphere on Uranus or the red shift a quasar. This talk, with lots of interesting examples, will show you what it's all about, and how you can get started.

Tom Field has been an amateur astronomer for about 20 years. Several years ago, a bit jaded on visual imaging, he decided he wanted to do some real science with his equipment. Frustrated by the software tools that were available for spectroscopy, Tom wrote his own, which is now in use on six continents. Tom says, "My goal is to light a fire under the butts our amateur community, most of whom have no idea how easy and incredibly exciting spectroscopy can be." Tom's article on spectroscopy appeared in

the August issue of Sky & Telescope Magazine and his software was just included in the magazine's Hot Product 2012 list. He is a compelling speaker, making his topic interesting and accessible.

Tom will be appearing before us over the web via webinar software that's a lot like Skype. This is a first for the club, and opens up a lot of possibilities for us to have other speakers in the future who appear from remote locations. Other clubs to which Tom has spoken have reported that Tom's remote presentation was almost like he was present in the room and that they would do it again in a heartbeat. +

PAS Meeting Review Dec 1

By Terri, Event Coordinator

It was a swap meet! I wish to thank everyone who attended and brought something to sell, trade and cash to buy things with. I do not know the results of the swap meet, as to what sold and what didn't, but it sure was an interesting meeting.

We opened the meeting with a few announcements. Jerry Belcher announced that the 4th weekend of February will be a big Rocket Launch. For more info, please contact him directly. His info is on Page 2 in the PAS Contact at the top of the page. We had a brief poem read to us by Oro Kurland from a book that she is currently enjoying, "How we see the sky." It was a very good poem and she was telling us how good the book is, as well.

Then we turned the meeting over to one of my favorite Guest Speakers, David Williams. David did a presentation on the past to present to future planet rovers. This was

totally interesting and a great source of information. Those who missed the meeting, really missed a good topic. David is always a welcome Guest Speaker. He is very fun to listen to, has great information and PAS loves to have him return. David and I have set a return date for Nov 1, 2012. So, if you missed him at this meeting, please come join us next November, where he will give another awesome presentation.

What's really cool is David Williams won the 50/50 raffle \$34 was collected, and so David got \$17 and PAS got the other \$17. Thanks to everyone who participated in the 50/50 raffle. The winners are always appreciative of taking home some cash. It was a great meeting, and we had a few extra, non PAS members, attend. We also had some members we haven't seen in a long time, attend. That was a nice surprise. And 1 out of town guest from California, Yvonne McMillian. We also had one new

member join - welcome Robert Standerfer.

Thanks to Ed Wurst and Sam Insana for the awesome snacks. Bruce Wurst, our President, provided the bottled water. We hope to see you at the next PAS Meeting and other fun PAS events!+



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Upcoming January 2012 Events

By Terri, Event Coordinator Events@pasaz.org

Jan 5: PAS meeting in G-147. Meet at 7pm with set up for the guest speaker, snacking, socializing. Then 7:30 the meeting begins with a few brief announcements, & then the guest speaker takes over. Since we are in G-147, bring snacks to share, enjoy some bottled water provided by our President, come make it a party! Our guest speaker, via the internet, is Tom Field. His topic is Spectroscopy. <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=643&day=2012-1-5&c=1>

Jan 8: Our first of the year Bookman's Telescope Workshop. If you can assist, please help out. We will be set up by the Musical Instrument section. We are there from 3:30 to 5:30, with 3pm being set up time. Set up time is needed, as we have to move things around to make room for our event. And at the end of the event, I will

need help to put things back where they were. RSVP your helpful assistance. Thanks.

<http://www.pasaz.org/forums/calendar.php?do=getinfo&e=664&day=2012-1-8&c=1>

Jan 10: A Middle School in downtown Phoenix needs some assistance. Details on the website at <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=742&day=2012-1-10>.

They are feeding us and a reimbursement for gas has been received. \$50 will be split between those who drive to the event per vehicle. Event is from 5:30pm to 8pm.

Jan 17: CTCA - RSVP with Joe to attend. PAStimes Star Tour Members only. 7pm to 9pm.

Jan 19: FREE Telescope Workshop at PVCC Main Campus from 7pm to 10pm. This is also a Star Party, so bring your scope to assist. RSVP is required and when you

RSVP, please mention what type of scope you are seeking assistance on, so I may match you with the Telescope Teacher who can best assist you. Everyone Welcome! <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=682&day=2012-1-19&c=1>

Jan 21: PAS Social! <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=728&day=2012-1-21>

Starting at 4pm and going until whenever. Food, fun, games, movies, and Socializing! Bring the whole immediate family but RSVP is Required. PAS Members & their guests, only.

Jan 26: PAS Meeting of the Minds at PVCC Main Campus 7pm to 10pm. <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=689&day=2012-1-26&c=1>

Jan 31: CTCA - RSVP with Joe to attend. PAStimes Star Tour Members only. 7pm to 9pm. +

Field Trip Prior to the PAS Social

By Terri, Event Coordinator

At the Dec 15 Meeting of the Minds, Mike announced that he is hosting a field trip to the Grace Frederick's museum prior to the PAS Social, for those PAS Members who wish to attend. The admission is \$10 to

get in to the museum and everyone will meet at Mike's house, who is attending, by noon. From there, we will carpool over to the museum. The museum will take about 3 hours to walk though it and see it all. Those

interested should RSVP with Mike at PrimeFactorY@q.com or 480-488-3031. We must leave by noon to get back in time for the start of the Social, so do not be late or you will be left behind.+

A Quick Reminder That Your Dues Are Due

By Terri, Event Coordinator

The PAS year runs from January to December, but we start asking our members to renew their membership in September, to make it easier for Mike, our Treasurer, to get the files updated.

The PAS Roster is always available for members to view on our website in the Member's Download section. If you are a current member of PAS, your membership officially ends December 31, but we extend one month to allow for those who can't get a check to Mike earlier.

But at the end of January, those who have not renewed, will be removed from the PAS website and the PAS Roster. So, be sure to update your membership with Mike. If you are unsure of your status, pop into the Roster at this link: <http://www.pasaz.org/forums/downloads.php?do=file&id=48> to see if your membership shows you are current through 2012 (right side of document). If not, please consider renewing your membership, and soon. We don't want to have to remove you from our list of Awesome PAS Members. PAStimes Star Tour Members must be current,

before December 31 to receive compensation for helping at a paid event. Convenient ways to pay include: bring cash to a meeting to give to Mike, and be sure to get a receipt for your membership dues, or send Mike a check with your membership form. Be sure your membership form shows 2012 at the top of the page, as no other dated membership forms will be accepted. The PAS Dues Sheet / Membership Form is at this link: <http://www.pasaz.org/forums/downloads.php?do=file&id=129>. The updated version (2012) is available now. ***

Thanksgiving Holiday Weekend Viewing at CEO Nov 26

By Attendees of this event

Sam Insana writes: Frank and I arrived in the late afternoon at the Cuttin' Edge Observatory in Mayer and set up the 8-inch Newtonian and PST. We saw over a dozen sunspots and over a dozen solar flares. At sunset, Venus and the crescent Moon were very close to each other as they hovered over the surrounding hills. The temperature dropped from about 60 degrees to about 50 degrees very quickly. Chris let Frank use his 12-inch Dob during the evening. Frank saw some spectacular views of M42 (Orion Nebula) and M31 (Andromeda Galaxy), and several other objects. From 5 pm until midnight I viewed the following with the 8-inch Newtonian: Sun, Moon, Venus, Comet Garrard, globular clusters M92 and M13, M57 planetary nebula, M27 Dumbell Nebula, NGC 7293 Helix Nebula, M2 globular cluster, Jupiter, M31 Andromeda Galaxy and its companion galaxies M32 and NGC205 (M110), M33 galaxy, M42 and M43 Orion Nebula, M45 Pleiades open cluster, Perseus Double Cluster, M1Crab nebula, and M37 open cluster. I tried sleeping in the back of the SUV from midnight until 3 am. Then from 3am until 6 am I saw galaxies M81 and M82, M97 Owl Nebula, Mars, M101 galaxies and M102, M51 Whirlpool Galaxy, Saturn, and M104 Sombrero Galaxy. This was 30 objects in 10 hours of observing without a goto system, just using the setting circles on my German equatorial mount. I also saw about 15 meteors throughout the night. The skies were very dark and the Milky Way

was very bright. I would go inside the warming hut for a few minutes every hour. It was over 60 degrees in the hut, but it got down to about 34 degrees outside by 6am. There was about a 5 mph wind, but a parka, gloves and a Russian fur hat, and a thermos filled with a blend of hot coffee and hot chocolate, made it bearable. Chris was a great host, and got us some pizza around 10 pm. He also let me see a computer program showing what M102 looked like in an amateur scope, which helped me locate the object in my scope. It had been the toughest object for me all night. I also enjoyed seeing some other objects in some of the other scopes that night. It was a lot of fun and I would love to do it again in the spring.

Eric Steinberg writes: Awesome is not a word I use easily or often, but for one who spends most of his time in urban and suburban areas, the inky-black skies over Mayer (Bortle level 3-4) were spectacular. What a treat to easily see constellations like Cancer and Virgo that one usually sees only in Stellarium or on a planisphere, along with much greater detail than usual on the DSO's. The downside of the trip was that it was seriously cold at least for this writer's thinning blood. I arrived late afternoon in balmy conditions which spiraled down through the night to about 35° with just enough wind to cut through clothing. Eventually it got too cold to do much observing – a slight disappointment that I couldn't find more objects, partially from the cold and partially from somewhat poor seeing that night. My list is below. One other

note: if you haven't seen Chris Johnson's Cuttin' Edge Observatory, I highly recommend you avail yourself of the opportunity when it arises. It's truly impressive in both construction and technology. Viewed on this night: M13, M31, M32, M33 – some detail of arms visible*, M34, M35*, M36, M38*, M42, M44*, M45 (Pleiades), M46*, M47*, M57, M79*, M81*, M82*, M92, M110, NGC 869/884 (Double Cluster), Mars*, Jupiter, Saturn*, μ -Ceiphi (Garnet star). * indicates new this night.

Bob Christ writes: On the evening of Saturday, November the 26th, nine folks (if I counted correctly) spent an evening of viewing at Chris Johnson's observatory in Mayer, AZ. Thank you Chris for your gracious hospitality. As Tim Jones and I drove up to CEO, the winds buffeted our van and hinted at the accuracy of the evening's weather prediction: a cloudless sky, excellent transparency, and suboptimal seeing (inferring a windy night). Prior to darkness we were treated to a nice view of the 4.5% illuminated Moon sliver and 100% illuminated Venus separated just a scant 5° apart. The Moon set just minutes prior to astronomical twilight (point at which the sky will not get darker) so the Moon was not a light pollution factor. Typically winds die down at nightfall, and this was true this evening – but they only slowed down and remained an ever present 5-10 MPH. On rare occasion the wind's velocity fell to zero and provided one's body with momentary relief from the wind chill, and, at its worst, the wind

See CEO Review on page 5

PVCC Telescope Workshop Review 12/8

by Terri, Event Coordinator

It was a small group, but we had a very successful event. And it was COLD! It started out with Eric Steinberg and Frank Insana meeting up with William Finch, Jenny (Neureuther) Weitz, and me in G-147. 2 scopes were borrowed from PVCC: the 18" Light Bridge and a 6" dob. Frank and Eric set up the scopes outside as our RSVP's arrived. Several brighter objects were viewed and enjoyed: Jupiter was the high-

light of the evening. Bryant and Brooke came to find out what type of scope they should purchase. We had a wonderful conversation with them through the night. Ryan and his daughter Sophia brought their scope and were learning how to use it with the help of Frank, William, and Eric. Mike Marron also stole the show, as usual, with his meteorites. This intrigued Sophia. Sara, a student at PVCC, attended for the star party portion of this event. Photos were

taken, so check the PAS Photo Gallery to enjoy them. Jenny and I photographed the extreme lights coming from the parking lot near by so she could submit a review of the lighting to the campus and get the lights changed from flood lights to something more suitable for a star party. It was an awesome night. Thanks goes to all who attended, all who helped, and we hope to see everyone at another PAS event, soon. +

Award from NASA Space Place

By Terri, Event Coordinator

In the mail the other day, PAS received a Certificate of Appreciation from the NASA Space Place. It reads as follows: "NASA Certificate of Appreciation, The

Space Place, A NASA public education & outreach program, recognizes Phoenix Astronomical Society (PAS) for its valuable contributions to its community in the areas of science, technology, education, and in-

spiration. 2011" It is signed by Nancy J. Leon, Space Place Manager and Larua K. Lincoln, Outreach Coordinator.

NASA Space Place provides PAS with many handouts, bookmarks, CD's, and oth-

See Award from Nasa page 7

Meeting of the Minds Review 12/15

By Terri, Event Coordinator

In attendance at this meeting were: Mike Marron, Kevin Harcey, Bob Christ, Tim Jones, Eric Steinberg, Ora Kurland, Chet Schuler, William & Terri Finch, Bruce, Bette & Ed Wurst, John Pulis, Don Boyd, Sam & Frank Insana, Joe & Renee Collins, Ofilia Waters, & Jenny Weitz. We opened the meeting with President Bruce Wurst hosting the PAS 2011 Awards Ceremony.

First awards given was the 2011 Messier Marathon Awards. 2nd Place was awarded to Lou Roberts (not present at meeting), who received a Certificate mentioning his achievement: 52 of 110 Messier Objects viewed. And 1st place winner is Bob Christ with 66 of 110 Messier Objects viewed. Bob received a Certificate and the plaque made by Jerry Belcher. Photos were taken, so watch for them in the PAS Photo Gallery.

Then we moved on to the 2011 International Observe the Moon Night Certificates for Participation. This event was held on Oct 8th at Mike's home in Carefree. Everyone, from PAS, who attended and showed the night sky through their telescope to the attending public, was awarded a certificate of appreciation from the Night Sky Network. Those awarded a certificate were: Don Boyd, Rod Glaze (not present), Mike Marron, Dewell Howell (not present), Albert Tucker (not present), Sam Insana, & Terri Finch. Thank you all for attending and showing the public the night sky, and the Moon, on this awesome evening!

And the Final Awards for the evening were the 2011 Moon Marathon awards. This event was held prior to the International Observe the Moon evening at Mike's on Oct 8th. We held the Moon Marathon first, then let the public view through our scopes. We had 3 judges. Those judges were

awarded their certificates and were given the opportunity to choose a prize from the prize table, first, before the Marathoners. Those Judges, in the order they were drawn from the "hat" on the table are: Bob Senzer (not present), Sam Insana who chose a Moon watch as his prize, and William Finch who also took a Moon watch. Then we awarded the prizes and certificates to the Marathoners: 1st place was Mike Marron with 30 of 30 Features identified on the Moon's surface in 42 minutes. Mike chose a Moon watch for his prize. He was awarded the first place prize of the Moon Marathon plaque, made by Jerry Belcher. A tie for 2nd place was between Don Boyd and Terri Finch for completion of 30 of 30 features in 42 minutes. Don chose a Moon watch and Terri chose the Moon Mis-

sion game. 3rd place went to Kevin Harcey who found 30 of 30 objects in 50 minutes and he chose the Cyber Solar Dragonfly for his prize. 4th place went to Albert Tucker (not present). We also awarded 2 more certificates and prizes for their extra effort in really trying to find all the features of the Moon, to Dewell Howell (not present) for 19 of 30 features, found in 1 hour & 16 minutes, and Rod Glaze (not present) with 14 of 30 features found in 1.5 hours. That concluded the Awards Ceremony.

Next we had a long Meeting of the Minds that ended about 9:45pm. Here is the review of that meeting. Some decisions were made, some great suggestions were heard, now we have to implement what was discussed. Please read more about these decisions in the PAS Private Forums.

Joe's Proposal to donate his scope to PVCC: it was voted upon to donate the 12" Telescope, donated to PAS by Joe Collins, to PVCC to be put to good use. There was a good discussion on this at the meeting, and then we voted. I would like to propose that there be some kind of sign on the donated telescope, prior to giving it to PVCC, that says it was donated by the Phoenix Astronomical Society, so that those using it, know about PAS. Rod Sutter, who is housing the scope currently, will be informed that someone will pick up the scope, on the way to PVCC next time, when convenient, and deliver it. Email has been sent.

Then Joe gave us a brief update about CTCA. The Cancer Treatment Centers of America Star Party that PAS does one per month, contract has been renewed and we will continue to do those events through 2012.

Sky & Telescope offer: In the mail, sometimes, I get offers to have club members join Sky & Telescope Magazine for a subscription at a reduced rate. We had a brief discussion, the briefest of all the topics this evening, about this offer. Tim quoted a lower, better price for just

joining Sky & Telescope and then renewing each year on your own, and so it was bombed. PAS will not be offering a magazine subscription through the club, as the pricing is better as an individual at the moment.

Arizona Science Center: Scottsdale Prep school, when asking us to do an event for them, advertised us on their Website. That was so wonderful of them and I didn't request it, but I thanked them for it. So, the topic we discussed is, due to the lack of the Arizona Science Center's (ASC) willingness

to advertise that PAS is out in the Heritage Square showing the night sky, it was decided a few years ago to stop doing First Friday at ASC. Since then, I have been wondering if it is worth our time to start doing ASC again for First Friday. After a long discussion, and Tim Jones' input about what he was hearing us say during that discussion, it was decided that we are not going to do First Friday at ASC, at this time.

Household Members having access to pasaz.org site with own sign in: Several PAS members have mentioned that they would like to have their own access to the PAS website so they could post in the forums, along with their spouse or parents. We had a long discussion about this, and it was hoped the Chris Johnson would have attended this meeting to know what we were discussing. The result of the discussion is that it was decided that anyone living in the immediate household of a Currently PAS member, and over the age of 16, would be allowed access to the PAS website. Of course, this adds some work to Chris, who right now, is the only one that can update that status on the site. So, an email will go out, as a result of this decision, asking that anyone in the immediate household of a PAS members would be given access, if they requested it, to the PAS website. Example: Sam Insana has a son, Frank who may wish to add his input on the PAS website forums. He will now be given that opportunity. And all future members, when I add them to the PAS emailing list, will be given the opportunity to have their spouses or young adults living with them, added to the site as well. This email has been sent as of writing this review. Along those same lines, it was decided that PAS Officers should be trained in how to do these member updates on the PAS site, by Chris, so that if Chris isn't available to do an update, the Officers can assist. That training date will be announced, soon.

LISTSERVs A discussion was started about LISTSERVs. A LISTSERV is a way to communicate between a group of people where by a list is set up, and the individual can join or leave the list anytime they desire. But the idea is that each person can post to the list, an event or an idea, or what ever they may wish to discuss with the PAS members who are on that list, so that a question or idea can be shared. You sign up, and get emails from the list, as they come in. Tim was mentioning how much easier that will be for me, not having to do so much "copy and paste" of ideas, out to the members, by email. So, Tim set up 3 LISTSERVs and an email about that will go out to everyone who wants to be on

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the list and receive email updates from PAS members.

Cuttin' Edge Observatory: We opened a discussion about events that have been canceled due to lack of attendance by PAS Members. Chris's Virtual Star Parties (VSP) and Cuttin' Edge Observatory (CEO) Star Parties as well as Sonny's Astrophoto Sig at McDowell Mountain Park. What was concluded is that in 2011, there were more bad weather days on the dates these events were to happen, than good days for observing. So, the events were canceled, and no one was attending. What we discussed was the possibility of having 2 CEO events, one in the spring, possibly in April or May, and one in the fall, in October as a PAS members only star party. So, I will look at the calendar and pick a date that falls within those parameters, confirm that they work for Chris, and set them up. If you read the reviews of the last CEO event, in this issue - title "THANKS-GIVING HOLIDAY WEEKEND VIEWING AT CEO NOV 26", you will find out how awesome the event was and you missed it. Let's see you at the next event. Next event is tentatively set for April 21, 2012. Watch for updates on the website calendar. The discussion about the VSP's was that the members who are the most interested in doing a Virtual photography event, already have the equipment to do it, and they don't need to go to Chris's, however, we can set up dates for these events, and hold them at Chris's or Tim's home, as either house has the ability to do these events successfully. And for Sonny's Astrophoto Sig, if you are interested in doing astrophotography at McDowell Mt Park, please contact Sonny and start doing your photography. There are currently 9 people on the interested Astrophoto Sig list. They should get in touch with Sonny and start doing photography together.

Proposal to keep PAS alive during summer months: William proposed this option. In speaking to our good friend Dan Heim, of DFAC, who used to be a very intricate part of PAS, he says that to keep his club alive in the summer months, they hold Social gatherings, one per month, June, July and August. So, in

this discussion, we talked about possibly doing other things, social related, as monsoons usually get in the way of a star party. One option that was suggestion that was mentioned was a field trip, whereby we do some event during the day hours, and then do another event in the evenings, which might or might not include a telescope. For instance, if we go to the Tucson Mirror lab in the morning hours of a Saturday, and then go to Kitt Peak that afternoon / evening, we can cover more in 1 day, with lesson driving expense, than just doing the 1 event. This was widely accepted as a good idea. So, for June 2012, we will have our first event at Mike's house as a potluck and star party, because sometimes in June, the monsoons haven't already taken over. I will set that up, watch for it on the calendar. For July and August, we will try for at least one of those months, a field trip. And then for the other month, we can discuss it in the forums or list serve, as to where we will meet for a social gathering, maybe even just a potluck at Mike's would be ok.

Messier Marathon Mar 24, 2012: Tim started a side topic of of the Messier Marathon for 2012. We have many options of where we can go to do our Messier Marathon this year. Mike is hosting one location with potluck at his home. Another place that Tim thinks is awesome is the Antenna's site which is BLM public land and anyone can go out there and use it, anytime. It's a bring your own everything location, but according to Tim, it is super dark and awesome for the Messier Marathon. This led to the topic of dark sky sites we can drive to, and enjoy. Eric has a place up north of Flagstaff that is super dark. He wants to set up a star party there but wants to know if there is any interested PAS members who would drive up there to do the star party, before scheduling it. Dewell (not present) also has a place he enjoys on a regular basis, but wasn't there to report on it. And William and I have a place we want to investigate that's 1/2 way between Phoenix and Vegas. These are all ideas of where to go, but

Tim says, if you are going to drive an hour, Antenna's site is the best. I will get a

map from him for this site and put it on the website for everyone to have access to, and use. Plus it is the site of the 2012 Messier Marathon, so you may wish to attend. Along these same lines we covered another topic for the evening of Over night Field Trips for star parties. This brought up a bunch of really good locations, such as around Flagstaff, over past Palo Verde Nuclear Plant, etc. Nothing was decided for sure the Antenna's site was discussed some more. Some locations were mentioned like the area near the Navajo Reservation called Leupe where Eric would like to set up a star party. Or Mormon Lake up by Flagstaff.

Proposal to have an event every Thursday: This topic changed a little when it was presented at the meeting. The original idea is in the forums, but what came about at this meeting was that William wishes for some PAS members to meet with me and take some of the load from me of things I do for PAS. The idea is to form a committee or SIG of event planners. There were no takers at this meeting, but I'd like to have help,

now and then. It is a lot to do all the time. The way it was worded in the forums is that PAS would hold some kind of event, every Thursday, whether it is a PAS Meeting, a PAS MOM's, a Telescope workshop, or just a social get together to talk about what is going on in the club and make plans for future events, or make it a MOM's type of meeting. So, the proposal, which didn't happen last night at the meeting, was to ask if anyone was interested in doing a EVERY THURSDAY GET TOGETHER,

for some kind of socializing. I will propose this at a future MOM's, for a more accurate response to this idea.

I'd like to thank Jenny for making the most delicious Gingerbread rabbit cookies, and Ed Wurst for the many cakes and cookies, and Sam Insana for the popcorn, which I was able to have some, and Bruce for bringing and donating the water, and everyone else who brought a snack to share for our awesome Holiday Party! This was a long but interesting and awarding meeting. We hope to see you at the next MOM's. +

Thanksgiving Holiday Weekend Viewing at Ceo Nov 26

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chill factor reached ~ 27°. It was my plan to work on the Astronomical League's Planetary Nebula (PNe) Club, an award program that describes 110 Planetary Nebula to be viewed and logged. I was able to log the first 3 objects and then "hit the wall." The target, Pease 1, is a very small 2 arcseconds

planetary nebula positioned within the globular cluster M15 Pegasus; well placed that night. Pease 1 is the only known planetary that has been detected within a globular cluster. All it takes to view this object is: ~300x magnification, an OIII filter, sufficient aperture, excellent seeing (oops), and a lot of luck. I was short on the last two

criteria. At this point I was chilled, and periodically took advantage of Chris' observatory's "warm room" to restore my core body temperature. Until I retired for the night, I viewed the "usual suspects." The wind gods were not kind to us, but it was still a wonderful evening. +



Dawn Takes a Closer Look

By Dr. Marc Rayman

Dawn is the first space mission with an itinerary that includes orbiting two separate solar system destinations. It is also the only spacecraft ever to orbit an object in the main asteroid belt between Mars and Jupiter. The spacecraft accomplishes this feat using ion propulsion, a technology first proven in space on the highly successful Deep Space 1 mission, part of NASA's New Millennium program.

Launched in September 2007, Dawn arrived at protoplanet Vesta in July 2011. It will orbit and study Vesta until July 2012, when it will leave orbit for dwarf planet Ceres, also in the asteroid belt.

Dawn can maneuver to the orbit best suited for conducting each of its scientific observations. After months mapping this alien world from higher altitudes, Dawn spiraled closer to Vesta to attain a low altitude orbit, the better to study Vesta's composition and map its complicated gravity field.

Changing and refining Dawn's orbit of this massive, irregular, heterogeneous body

is one of the most complicated parts of the mission. In addition, to meet all the scientific objectives, the orientation of this orbit needs to change.

These differing orientations are a crucial element of the strategy for gathering the most scientifically valuable data on Vesta. It generally requires a great deal of maneuvering to change the plane of a spacecraft's orbit. The ion propulsion system allows the probe to fly from one orbit to another without the penalty of carrying a massive supply of propellant. Indeed, one of the reasons that traveling from Earth to Vesta (and later Ceres) requires ion propulsion is the challenge of tilting the orbit around the sun.

Although the ion propulsion system accomplishes the majority of the orbit change, Dawn's navigators are enlisting Vesta itself. Some of the ion thrusting was designed in part to put the spacecraft in certain locations from which Vesta would twist its orbit toward the target angle for the low-altitude orbit. As Dawn rotates and the world underneath it revolves, the spacecraft feels a changing pull. There is always a tug

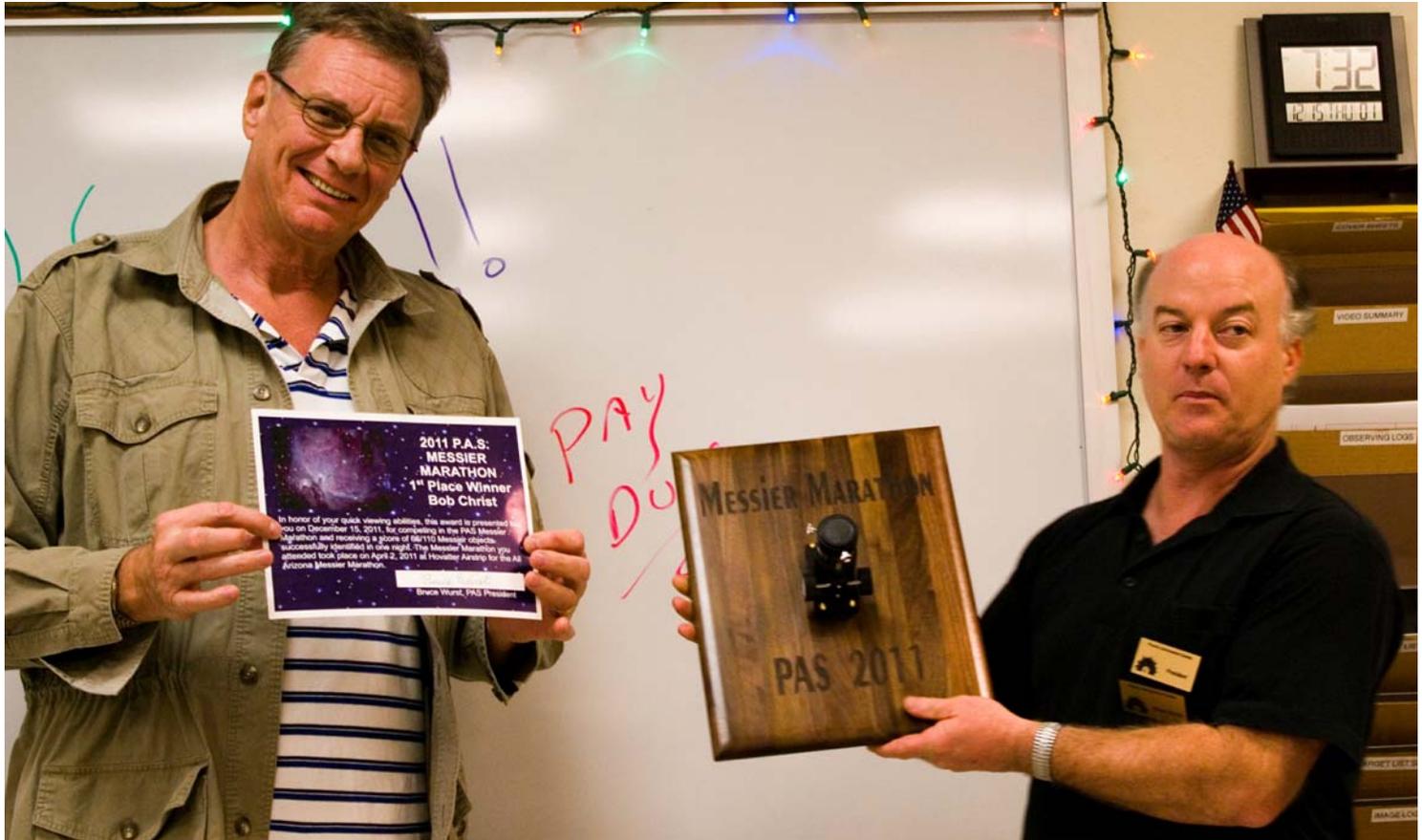
downward, but because of Vesta's heterogeneous interior structure, sometimes there is also a slight force to one side or another. With their knowledge of the gravity field, the mission team plotted a course that took advantage of these variations to get a free ride.

The flight plan is a complex affair of carefully timed thrusting and coasting. Very far from home, the spacecraft is making excellent progress in its expedition at a fascinating world that, until a few months ago, had never seen a probe from Earth.

Keep up with Dawn's progress by following the Chief Engineer's (yours truly's) journal

at <http://dawn.jpl.nasa.gov/mission/journal.asp>. And check out the illustrated story in verse of "Professor Starr's Dream Trip: Or, how a little technology goes a long way," at <http://spaceplace.nasa.gov/story-prof-starr>.

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



Bob Christ (on left) receives the 1st place award and plaque for the 2011 Messier Marathon from Bruce Wurst, PAS President.

TELESCOPE WORKSHOPS IN 2012

By Terri, Event Coordinator

PAS has some exciting FREE Telescope Workshops lined up for 2012. We hold our workshops at two locations throughout the year. 1) Paradise Valley Community College Main Campus, 32nd St & Union Hills Rd, by the Telescope Dome and G-147, 7pm to 10pm, usually on Thursdays. 2) At Bookmans Entertainment Ex-

change at 19th Ave & Northern, 3:30pm to 5:30pm in their Musical Instrument section, usually on Sundays. You can't miss the Instrument section of Bookmans as you walk in the door. Both of these events require RSVP; and when you RSVP by phone (602-561-5398) or email, please inform me of the telescope you will be needing assistance with. We try to match your telescope

to the Telescope Teacher who can best assist you. You may email your RSVP to Events@pasaz.org. Please be sure to check the PAS Calendar for the dates of these events:

<http://www.pasaz.org/forums/calendar.php>.

We would love to help you learn how to use your telescope, so you can enjoy viewing the wonders of the night sky! §

Lunar Eclipse of Saturday Dec 10, 2011

By Sue Theibes

Did you get to see the eclipse on Saturday morning? That was really cool. I went out about 6:30 on Saturday morning, and drove up to Bell Road, where it goes up into the mountain, and parked on the median looking west over the valley. The Moon was over half dark. As the Sun was almost coming up behind me, the sky was almost blue, so it didn't go that ruddy red color. And at totality (7:04 according to my car clock), it just disappeared completely, rather than turn into the red globe we're used to seeing. I waited and waited, but it never came out. Eventually I went back to another car parked there, and the guy said totality was supposed to be for an hour, and by that time it would be below the horizon, or at least behind that little mountain. So I set off

home...but then I saw some people at the trailhead just below there, so I pulled in. A photographer was just packing up, and he took some amazing shots, from practically my viewpoint! Well ok, he lined it up with a saguaro, but that's just because he's a professional! So anyway, here are his pictures: on Facebook, search for "photography by Ron Pelton" and then look at the photos posted on Saturday morning early (first ones after the Friday posts). That guy sure is busy, see how many more he posted on the same day!

by Rod Sutter

My Sony DSLR was in the shop again, I got a call from Best Buy and they said they were going to scrap the camera, it was not worth fixing. So I went out and bought a new camera, not a Sony; this time I pur-

chased a Canon. I thought this would be a good time to try it out, so on the morning of December 9th, 2011, I tried it out with a close pass of the shadow of the Earth across the face of the Moon. The next morning, December 10th, 2011 would be the test, a full eclipse of the Lunar surface. I needed to work that morning, but while working I was also shooting pictures of the Moon, one shot about every thirty minutes. Following is a stack of four images stacked with Photoshop. The first photo was shot at 5:37am local time. Shot number two was at 6:08am, then the third one at 6:24am and the last one just before I lost my view, with the Lunar Eclipse fading behind South Mountain. So at 6:57, the last photo was shot just as sunrise started, and I ended my viewing of the Lunar Eclipse of December 2011. §

12-inch Meade LX200 GPS SMT UHTC for Sale

Great for one who wants to view or do astroimaging. Included in this package is: 12-inch LX200 GPS UHTC telescope, original HEAVY tripod, 50X finder scope, 26 mm lens, electronic micro-focuser, UHTC diagonal mirror with 1.25 mm adaptor, two Losmandy 4-inch rails (for counter weights and guide scope), Bob's Knobs (easy collimation), AstroStar II controller, outer lens cover, Hartman Mask (tremendous focusing aid), Peterson Engineering Clutch Kit (sepa-

rate, not installed), Soft Travel Case (includes original foam for transporting scope), Manual, and Kendrick Dew Removal System. Asking price: \$2690. This whole system is sold as is and can be shipped at the purchaser's expense. Should you decide you want to do astrophotography with this system, I have a de-rotator for this system and an equatorial "Super" wedge available for an additional cost (\$199 each). So, total price would be: [With de-rotator \$2889] or

[With de-rotator and super wedge \$3088]. For Phoenix Astronomical Society Members, I will deliver the telescope and set it up for you free of charge if you can work around my work schedule for delivery date. Interested buyers please contact me at email: marvcope@gmail.com Marvin Cope, Livermore, CA. Full ad can be seen at this link with photos: <http://www.pasaz.org/forums/downloads.php?do=file&id=171> §

Continued from page 3

er media for which I use for my Q & A at schools and other events to promote public outreach.

I wish to thank all the PAS members who have been part of our public outreach group, for making this award possible! That would be anyone who has attended and provided a telescope to public star parties, as well as schools & scout events Thank you so much for helping PAS achieve this

Award from Nasa

award!

A letter came with the Award Certificate. It reads: To: Phoenix Astronomical Society. Dear Terri, The Space Place Team is pleased to award the Phoenix Astronomical Society (PAS) the enclosed certificate of appreciation. As an active NASA Space Place Astronomy Club partner, you encourage science & technology education through your community. Reaching this audience with the message that science &

technology & learning about space are fun is crucial; you & your organization play a vital role in this endeavor. Through your public events, you not only educate, but you also inspire your audiences, both young and old. Through your use of hands-on activities & experiences for children, you play a key part in developing tomorrow's scientists. Please accept this certificate of appreciation with our gratitude. Sincerely yours, Laura K. Lincoln, Outreach Coordinator +

Plans for This Years' PAS Social

By Terri, Event Coordinator

The PAS Social is the once a year EVENT OF THE YEAR! It is usually held in January or February, and is not related to a Christmas Party. It is a Social gathering, where by we get to know our fellow PAS Members. Bring your spouse & immediate Family. PAS Members may invite 1 guest, each.

Location of this event is at Mike's home in Carefree. Map and directions can be found at this link: <http://www.pasaz.org/forums/downloads.php?do=file&id=103>. Event begins on January 21, 2012 at 4pm. We will postpone eating until 5pm to allow everyone to arrive. Those wishing to help me set up, please be there around 3pm. Thanks so very much!

Here are the plans for this years' event!

1) Food - lots of food. This is a potluck. Please bring a main dish to share, enough to feed 15-20 people. It is best if each person brings a dish, if the dish size feeds 10 or under, to assure that there is enough to go around. Please bring a drink to share (a 2 liter bottle of pop, or 6 pack, or some equivalent amount. Please, no alcohol, as kids may be attending. I believe I can get a case of water to be at this event, provided by President Bruce.)

2) This is also a star party, for those who wish to enjoy the outdoors, brave the cold, and share the night wonders. So, if you wish, bring your telescope.

3) We will have the White Dwarf Gift Exchange. What is this? This is a game we play, every PAS Social, where by you bring a wrapped, disguised, gift, astronomy related with the worth of around \$20. Then, you put your gift into the pile of gifts on the gift table and we play our game. Game rules will be posted in another article within this newsletter. It's a fun, silly game but worth the fun. Remember, FIGHT for the gift you want!

4) RSVP is Required! I need to know who is attending. If you bring a guest, they must also bring food, drink and a gift for the game, if they are playing it with us. You can RSVP by email Events@pasaz.org or phone 602-561-5398, up to the day before the event. Please wear your PAS Name tags. Those without name tags may end up with a sticky name tag from me. First name is all I ask to be on the name tag.

5) When you RSVP, inform me of the food dish you are bringing. We are avoiding duplicates. For example: Jerry might bring Pizza and Wings. Therefore, no one else should be bringing pizza, but wings are all different, so if it is from a different location, we might want to have some of those too.

The first to RSVP their food, gets to bring it, so think about it, and let me know. The list will be on line at this link: <http://www.pasaz.org/forums/downloads.php?do=file&id=172> for you to check to see if anyone is bringing that food already. Try to bring something different & unique. It is more fun for our taste buds that way.

6) Bring a movie to share, if you plan to stay later, after the crowd has departed. This way, we can watch something that will keep our attention, as we wind down the evening.

7) Dart Game - We usually have the annual dart game. Mike has the room for it but not the lighting. We need to discuss how to get more lighting outside his home to make the game happen. Ideas are welcome.

This info will be posted in the forums at this link: <http://www.pasaz.org/forums/showthread.php?p=1633#post1633> Please be sure to review this link prior to attending, in case there have been any changes to the event, or things you need to know.

We hope everyone can attend. It is always so much fun and a great get together. The Food and people are a good reason to come, even if you don't wish to play the games with us. Come for the socializing! See you there!+

How to Play the White Dwarf Gift Exchange Game

By Terri, Event Coordinator

We gather in a circle, or somewhat a circle, in Mike's living room. There is a table with gifts on it, each one is wrapped and disguised so no knows what is or who it is from. This is the start of the game. Everyone attending the Social has been given a raffle ticket in trade for their wrapped gift. You must provide a gift to be involved in the game. We randomly draw a ticket and Player 1 takes a prize from the table. Another ticket is drawn, and player 2 takes a prize from the table or steals the gift from Player 1.

Another ticket is drawn, and Player 3 can take from the table or steal from Player 2 or 1.

Rule 1: No stealing gifts from the person who just stole from you. If Player 2 takes from Player 1, Player 1 can not take the gift right back from Player 2. However, Player 1 can take from Player 3, and Player 3 can then take from Player 2, thus if Player 2 takes from player 1, Player 1 can take from Player 3 and get their original gift

back, if they desire.

Rule 2: All gifts must be visible. No hiding gifts behind your legs or under your chairs. Put them out in the open for others to steal.

Rule 3: It is more fun to steal and have been stolen from, than to watch a Player take from the table. STEAL! That's the whole purpose of the game. Fight for the gifts. Just fight nicely, no rough play. And Laugh your head off!

Rule 4: No opening gifts until told to do so.

When all gifts have been taken from the table, a new ticket is drawn. That Player will read anything stuck to the top of their package (if applicable), and then open the gift. When the gift is completely opened, and held up for photos, then the player to the Left or Right (to be decided at time of game) will then open their gift, in the same manner.

Rule 5: Always allow time for the photographers to get the photos they desire with your gifts.

When we are all done opening the gifts, if you received a gift you do not wish to keep, you may put your gift on the gift table, and swap with someone else. Meaning... you got a flashlight, for example. You put it on the table, and before you leave for the night, you choose something else from the table that another player left behind. It is a way to exchange gifts.

Please, everyone playing the game, be sure to help clean up the papers from the wrappings on the floor, and put up the chairs so we can then do another activity, or watch a movie.

This is a fun game. Everyone playing MUST have a gift to exchange. No gift, and you do not play the game with us. Gift should be worth about \$20.

If you aren't playing the game and would like to help out, please bring a digital camera that you can take tons of photos of the event and send them my way for inclusion in the PAS Photo Gallery. That would be greatly appreciated!

PVCC Black Mountain Review Nov 17

By Terri, Event Coordinator

It started out as a chilly evening at the Paradise Valley Community College campus at Black Mountain. As I arrived late, which wasn't my plan, Kevin Hufnagel from MCTV was interviewing Tim Jones and Jenny Neureuther. We snuck in between the cones and parked. William and I set up the PAS table. On it were many interesting handouts, including some lithographs I had just gotten in the mail that day. The public eagerly took those. Jenny greeted me, after her interview. Dave Hellman was there to assist, and around 7pm, Jenny ducked out to take care of her wedding guests.

The lighting situation was awesome this time. PVCC had put in a light switch to be able to turn off the five lights that were most annoying last time. Thank you PVCC! The security team, Kevin and Diane, helped keep things running smoothly and took care of the lighting for us.

The Telescope Team members who attended this event were: Don Boyd, Sam Insana, Tim Jones, Eric Steinberg, Bob Christ, and Chet Schuler. Peg Malloy was there with her scope, but it wasn't working properly. Even with help that she received from other members there, it wasn't possible for her scope to be used that evening. She left early. As I finished setting up, the public arrived. Many attendees were college students from PVCC, Scottsdale CC and Glendale CC. I wish to thank the teachers of those colleges for sending these fine students our way. Two families came, so I did Q & A with two children, a boy and a girl. They left happy. Sam and I estimate we had at least 80+ in attendance.

Around 8:30 the camera group left and the temperature dropped. Brrrrr, but the skies were awesome up to 9pm. Then a

cloud formation moved into the southwest, but it didn't interfere with the viewing until about 9:30. Dave suggested we pack it in, but the Team wanted to stay to 10pm, as scheduled, especially because we had nine people from the public still hanging around chatting with us. It was really an interesting night. When we first set up, we had about six people for the first 30 minutes. Then a few of them started to leave and about six more showed up. As people arrived, I greeted them, gave them a brief on who was set up where, and then told them to come back to my table before departing for handouts and a stamp, if they needed their school astronomy assignment signed. Many of them took me up on the stamp. It was really a great night for an event!

After MCTV interviewed Mike Maron, Mike shared his meteorites with the attending public. I wish to thank my Telescope Team for a wonderful viewing evening. Here is an awesome list of objects that were viewed and enjoyed that night.

Tim showed through his 90MM scope: the Andromeda Galaxy, the Double Cluster, Open Cluster M52, the Hercules Cluster, Albireo, Jupiter, Polaris, the Orion Nebula, and Arcturus. Through his 15x70 binos he showed: Venus, Jupiter, parking lot lights (to demonstrate the effect of the light on the eye), the Andromeda Galaxy, Albireo, the Pleiades, the Hyades, the Double Cluster, and the Orion Nebula.

Eric showed these objects through his 10" Dob: Venus, Jupiter, the Hercules Cluster M13, the Andromeda Galaxy M31 and its companion galaxy M32, open clusters M36 (in Auriga) and M52 (in Cassiopeia), the Orion Nebula M42, the Ring Nebula M57, globular cluster M92 (in Hercules), NGC869/884 (the Double Cluster), Mu Ce-

pei (Herschel's Garnet Star), and Alberio.

Sam showed these objects through his 8" Newtonian: Jupiter, Venus, the Pleiades, the Andromeda Galaxy, Gamma Andromedae double star, and the Orion Nebula.

Bob writes: I showed Jupiter, the Andromeda Galaxy, the Coathanger asterism, the Double Cluster, galaxies M81 and M82 in Ursa major, Alberio, Uranus, Neptune, the Ring Nebula M57, the Dumbbell Nebula M27, the Hercules Cluster M13, plus others that I'm forgetting. Slewed to Comet Garradd, but the combination of waning magnitude and being low in the sky resulted in a view that only a practiced eye would detect its faint glow so I did not show it.

Don showed Jupiter, Uranus, the Pleiades, the ET Cluster NGC 457, the Double Cluster, the Great Orion Nebula, and the Double star Almak (Gamma Andromedae).

We hope to have awesomely more successful viewing evenings at PVCC Black Mountain Campus in the future. The next two scheduled events at this location are Mar 29, 2012 and Nov 15, 2012. Many thanks to Loretta Mondragon, Jenny Neureuther and Dave Helman for helping PAS make this event a success! ***

Public Attendance Reveiwis:

Thanks! It was a great event ... Lora Griffin

Thank you. I just wanted to let you know I very much enjoyed the star party. I will definitely go again. Thank you, ... Rhonda Cary

The event was amazing! I love it and I'm looking forward to attending more. If you could let me know when the next star party is I would greatly appreciate it. Thank you again ... Elayne Nisanov ***

Awesome PAS Event Line-up for 2012!

By Terri, Event Coordinator

2012 is going to be a great year for astronomy. PAS has a bunch of really awesome events to look forward to. Check the PAS Calendar for more events. From early March to mid May there will be an awesome planetary line-up you won't want to miss! These are the highlights of events PAS is planning to do, thus far....

Mar 1 :PAS Meeting will be held in the Q building. We will be having a BIG NAME SPEAKER and inviting other clubs to this meeting. Arrive early.

Mar 17: The Heimhenge Star Party for PAS and DFAC members in New River will be showing a great planetary line-up. RSVP will be with Dan. More details can be found in the calendar.

Mar 24: The PAS Messier Marathon will be at Mike's home. We would love to see you come compete with us. Let's see who takes 1st place in 2012!

Mar 29: PVCC Black Mountain campus star party. You won't want to miss this one!

Apr 28: Public star party lined up at

Mike's home with potluck starting at 5pm for Astronomy Day and open to the public. We can use a bunch of telescopes at this event!

May 20: Solar Eclipse from 3pm to 10pm in which we have a public star party and potluck at Mike's home. This is a Sunday night, so most of us can't stay late, so that is why it ends at 10pm. More details are in the calendar listing for this event. This is also a birthday party for Mike!

June 5: Venus Transit we plan to show, at PVCC Main Campus from 3pm to

2012 Event Line up

Continued from page 9

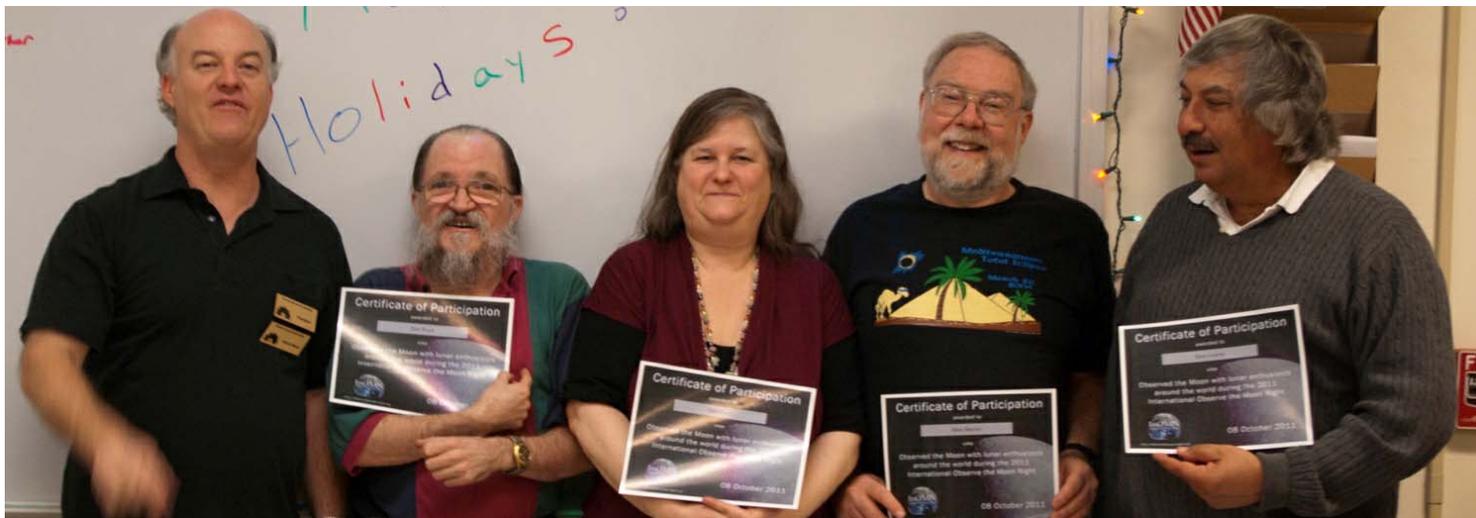
10pm. This is a public event and we'd love to have your help at the event. Even if you can't show the Sun, you can help with hand-

outs, set up, take down, directing traffic, Q & A, etc.

As always, check the PAS Calendar for

updates and more details about these events, and always RSVP when requested to do so. See you there! ***

PAS Awards Ceremony of December 15



International Observe the Moon Certificates. From left to right: Bruce Wurst, President of PAS, Don Boyd, Terri Finch, Mike Marron, and Sam Insana



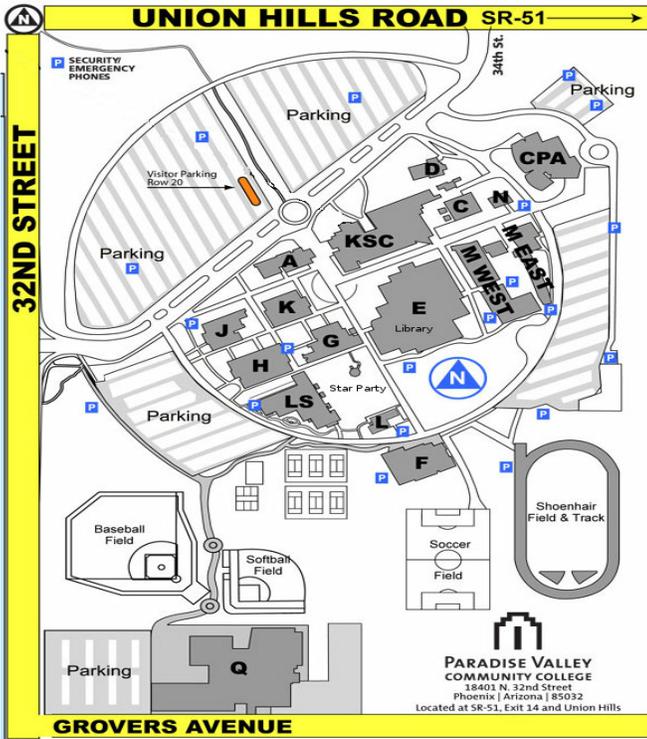
Judges for Moon Marathon. From left to right: Bruce Wurst, President, giving the awards to Sam Insana, and William Finch.



Moon Marathon participants. Left to right: Mike Marron, Don Boyd, Terri Finch, Sam Insana, and Kevin Harecy. Photo by William Finch

Map of PVCC Main Location

18401 N. 32nd Street | Phoenix, AZ 85032



Map of PVCC Black Mountain

34250 N. 60th Street | Scottsdale, AZ 85266



See page 2 for more information

January

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 New Year's Day	2	3	4	5 PAS Monthly Meeting	6	7
8 Bookmans Telescope Workshop	9	10 School Star Party	11	12	13	14
15	16 Martin Luther King Day	17 CTCA Private Star Party	18	19 Telescope Workshop & Star Party at PVCC	20	21 PAS Social (Private Party)
22	23	24	25	26 Meeting of the Minds	27	28
29	30	31 CTCA Back up date				

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

To:

PAS Name Badge Order

Deadline Jan 8, 2012

By Terri, Event Coordinator

The PAS Name Badge order is going in right after the January PAS meeting. If you need to order a name badge, get that order

to Mike, right away. The next order won't be for another 6 months. See this link for more info about how to order: <http://www.pasaz.org/forums/showthread.php?p=1639#post1639>

PAS Guest Speaker Line-up for 2012

By Terri, Event Coordinator, Events@pasaz.org

Do you have an idea for a Guest Speaker?

Feb 2: Chet Schuler "Stellar Spectrums"

Mar 1 in Q Building Rm 120A: William K Hartman "Origin of the Moon" Book sale & signing

Apr 5: Rick Tejera "Astrophotography"

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 January?

By Rod Sutter, PAS Past President

Name	Date	Rise	Set
Mercury	01-15-11	06:37	16:32
Venus	01-15-11	09:33	20:34
Mars	01-15-11	00:46	10:38
Jupiter	01-15-11	12:13	01:11
Saturn	01-15-11	00:55	12:14
Uranus	01-15-11	10:52	22:56
Neptune	01-15-11	09:20	20:19
Pluto	01-15-11	07:26	17:47

All Times Arizona Time

January 15 2011

Sunrise: 07:27

Sunset: 17:39

New: December 24



Q1: January 1



Full: January 9



Q3: January 18

