



# PAStimes

Phoenix Astronomical Society

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PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

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## David Lee Summers at May 9th Meeting

"Surveying the Universe" is a look behind the scenes at the Kitt Peak National Observatory new Dark Energy Spectrographic Instrument and a discussion of its five-year mission to survey the northern sky and better understand the nature of dark energy.

David Lee Summers is an astronomer who has worked as a telescope operator at Kitt Peak National Observatory over the past decade. He's also worked at such sites as Apache Point Observatory and the Very Large Array in New Mexico. Over the last year, he's been helping with the installation of the new Dark Energy Spectrographic Instrument at the Kitt Peak Mayall 4-meter and has just started re-commissioning the telescope after a year-long refit. When he's not working at the observatory, he writes science fiction and more!

The May 9th meeting will open with PAS Officer Elections. Come cast your vote for new officers, and congratulate those who are leaving their offices. Everyone welcome! Doors open at 7:00pm for set up, snacking and socializing until 7:30pm, when the meeting begins.

Come enjoy this fantastic Guest Speaker who will be informing the audience on May 9th at the PAS meeting. Bring a snack to share or donate to the snack fund and enjoy this meeting with PAS. Bottled water will be provided by Bruce Wurst.

David Lee Summers has written many books, and we are anticipating a selection of these for sale and book signing after his presentation. If you are interested in purchasing his books, please bring cash. Some of the books he may have available and their prices, at the May 9th meeting are:

*See "More About May Meeting" on page 4*



*Photo courtesy David Lee Summers*

## April 4 PAS Meeting Review

*By Terri, Event Manager*

This PAS Meeting was held in KSC 1000A to accommodate the larger crowd. We saw many new faces at this meeting as well as members of PAS who we haven't seen in a very long time.

President Mike opened the meeting about 7:30pm. He made a few brief announcements:

Mike will be doing three lectures this summer, free and open to the public, one of which could include a museum tour of the Grace Fredericks Museum in Carefree. The three lectures, not necessarily in this order, are planned to be: 1) The Discovery of Cave Creek Crater - possibly with a tour of the meteor location, 2) Earth Shattering Evolution, and 3) Upcoming Astronomical

Disasters.

Bruce Kosaveach, Lowell Observatory Philanthropy Manager, gave a brief update of the GODO project at Lowell Observatory after jokingly announcing he had 400 slides about what's going on at Lowell. Everyone giggled. His info about Lowell lasted about five minutes. Then he introduced the guest speaker, Dr. Will Grundy.

Dr. Grundy's presentation was about 1.5 hours long and was enjoyed by all. He talked about the flyby of the Kuiper Belt Object Ultima Tulle and shared the excitement of the findings from this flyby.

At the end of Dr. Grundy's presentation, Bruce came to the front of the room, thanked everyone for attending and acci-

*Please see "April Meeting Review" on page 3*



*Dr. Will Grundy gave an exceptional presentation to a crowd of over 80 attendees at the April 4th PAS meeting. Photo by Terri Finch.*

|                                                                                  |                 |              |                                                                      |
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# PAS Upcoming Events for May, June, July & August 2019

By Terri Finch, Event Manager

Check out these and other fun events on the PAS Calendar: <http://www.pasaz.org/forums/calendar.php>. RSVP where requested to [Events@pasaz.org](mailto:Events@pasaz.org). On the PAS Calendar, "Private" means the event is for PAS members only. If you wish to become a PAS member and attend the private events, please download a membership form here: <http://www.pasaz.org/forums/downloads.php?do=file&id=129>

**May 8:** School star party (private)

**May 9:** PAS Meeting at PVCC Main Campus in LS-203 at 7pm. Please see page 1 of this newsletter for info about the Guest Speaker and more details are at this link: <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=2742&day=2019-5->

## 9&c=1

**June 1:** Public Star Party in Carefree. RSVP required. Everyone welcome! Potluck at 6pm. Sunset is at 7:30pm Star Party at 7:30. No Moon in the night sky.

**June 15:** Public Lecture in Carefree "Cave Creek Crater." Potluck at 6pm. Lecture 7pm. This lecture takes place just two days before full moon. No star party planned, but instead, movies to enjoy after the lecture.

**July 3:** Fireworks & PAS Public Star Party in Carefree. More details will be in the PAS Calendar. RSVP required. Potluck at 6pm. Sunset 7:45pm and star party can begin at 8pm. Fireworks at 9pm. Star Party after fireworks. Small sliver of moon setting early will be awesome night for a star

party. 11 day old moon. May be good evening for a star party after lecture.

**July 13:** Public Lecture #2 "Upcoming Astronomical Disasters." Potluck at 6pm. Lecture begins 7pm.

**Aug 3:** Public Summer Star Party #3 in Carefree. Potluck at 6:30pm, sunset at 7:30pm, Star Party at 7:30pm. 3 day old moon, great night for a star party.

**Aug 17:** Public Lecture #3 in Carefree "Earth Shattering Evolution." Sunset is 7:10pm. Potluck at 6:00pm. Lecture at 7:00pm. Two days after full moon. Not the best night a star party with a larger moon, but it is a possibility if anyone wants to do a star party on this night. List it in your RSVP.

## Scopes for Sale:

Purchased July 2018, and accessories as a bundle. They were used only long enough to align the scope. Package includes:

1. Celestron CPC Deluxe 925 HD Computerized Telescope Original cost \$2,999.00

Stellarvue scope, UniStar mount and eyepieces. Selling a scope and mount from my father's estate. Only used a couple of times. Stellarvue 80ED Raptor with diagonal, finder and case: \$350 UniStar Light

C11 Edge Scope, CGEM EQ mount, TPI Spreader for tripod, 23MM Luminos eyepiece, Diagonal and various backs

Starizona Virtual View visual back,

2. 2 inch color filter set \$19.99
3. 2 inch 13% moon filter \$19.99
4. Celestron Wedge HD Pro \$349.00
5. Orion Scope Clock \$87.19
6. Celestron car battery adapter \$19.95
7. Celestron WiFi \$100.00

Deluxe mount with eyepiece tray: \$150 Eyepieces: TMB Optical Planetary II 5mm and 9mm, Tele Vue 25mm Plossl, Astro-Tech 3mm LER FMC: \$150 Please contact me by E-mail at [burky1325@aol.com](mailto:burky1325@aol.com) or

8X50mm finder scope, Pacific Design case for scope, Hard shell Case for CGEM mount head, AstroZap metal dew shield in matching white, Starizona power pack, Celestron Skyportal for WIFI connection, Telrad

Total \$3,593.07

Sell for \$2,500.00

Must be picked up by buyer at residence in Gilbert. Can be dismounted from tripod. Weighs about 100lbs. total. Please call Bob (480) 231-7012

telephone at (309)265-3054 (text only during weekday hours) Located in NE phoenix near I-17 and Jomax. Thank you, Brett.

(never used)

Have photos of everything, please email if interested. Asking \$3,500 Contact Mike at [dusty\\_85023@yahoo.com](mailto:dusty_85023@yahoo.com).

## April Meeting Review

Continued from page 1

dentially closed out the meeting. So, we took a ten minute break to allow those who wanted to, to depart, and the PAS Members stuck around for the announcements and raffle.

Upon return from the break, Mike announced a possible tour of the Cave Creek Crater for July 11th, and on April 11th, Jenny Weitz is planning a get together to remotely hook up the PVCC Main Campus to the BMC 14" scope on the Aquila Building Observing Deck.

I, Terri, Event Manager, did a quick review of upcoming events that everyone wants to know about, including a few events in May. For this review, about twelve PAS Members stayed after the public had departed.

Then we had the raffle. The first raffle was the main raffle and Sam won. The second raffle we held was for a poster, donated by Mark Johnston, and Bruce won.

It was a very awesome meeting and it concluded about 9:25pm. By 9:40pm, the room was empty and everyone had gone home.

Many thanks to Bruce Kosaveach and Dr. Will Grundy for their amazing presentations. We may wish to have Dr. Grundy return when more data is available to share with PAS



*At the April Meeting in room KSC-1000A, PAS had a very nice turnout of attendees. There were about 30+ attendees who had donated to the Lowell Observatory GODO project (PAS did this as well), and about 35+ PAS Members and several attendees from the public. Photo by Don Boyd.*



*Mark Johnston (Right) donated this fantastic poster to the PAS Raffle and Bruce Wurst won it. Thank you Mark and congratulations to Bruce. Photo by Terri.*

## What's Up For May?

By Don K. Boyd, PAStimes Editor

| Name           | Date             | Rise         | Set          |
|----------------|------------------|--------------|--------------|
| Mercury        | 05-15-19         | 05:11        | 18:45        |
| Venus          | 15-15-19         | 04:23        | 17:20        |
| <b>Mars</b>    | <b>05.-15-19</b> | <b>07:42</b> | <b>22:06</b> |
| <b>Jupiter</b> | <b>05-15-19</b>  | <b>21:22</b> | <b>07:23</b> |
| Saturn         | 05-15-19         | 23:19        | 09:28        |
| Uranus         | 05-15-19         | 04:28        | 17:38        |
| Neptune        | 05-15-19         | 02:28        | 14:02        |
| Pluto          | 05-15-19         | 11:32        | 09:38        |

All Times Arizona Time

Bold means the object is "visible" in the evening

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 via the Internet. All Issues are available for download on our website [www.pasaz.org](http://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.

## May 15, 2019

**Sunrise: 05:29**

**Sunset: 19:22**



**New: May 4**



**Q1: May 11**



**Full: May 18**



**Q3: May 26**

## More About May Meeting

*Continued from page 1*

"A Kepler's Dozen" -- a collection I edited with Steve Howell at NASA Ames imagining planets discovered by the Kepler mission which I sell for \$12.00.

"Kepler's Cowboys" -- a follow-up to the above with even more stories. That sells

for \$14.00.

"The Solar Sea" -- imagines a voyage through the solar system aboard a light sail spacecraft. It sells for \$12.00.

"The Astronomer's Crypt" which is a horror tale set at an observatory inspired by

my work at Kitt Peak. It sells for \$14.00.

There is a Meet and Greet Dinner at 4:30pm, prior to this meeting at Chili's by reservation only through: <http://www.pasaz.org/forums/calendar.php?do=getinfo&c=2891&day=2019-05-09>

## Mike's Summer Lecture Series 2019

*Info provided by President Mike Marron and prepared for newsletter by Terri Finch, Event Manager*

Mike writes: **June 15th** for the Cave Creek Crater talk, **July 13th** for the Upcoming Astronomical Disasters and **August 17th** for the Earth Shattering Evolution talk. All events open to public. Star parties work best at **June 1, July 3rd** and **Aug 3rd**.

Terri adds: All of these events listed will be public events. They will all have a potluck an hour prior to the main event.

For the lectures, feel free to park organized around Mike's home. If you are not attending the potluck but you are attending the Lecture, please note, additional parking, if you can't find any around Mike's home, is below his house in the nearby wash which is part of his property. The lecture dates are set on Larger Moon nights and the plan is to have Movies after the lecture.

For the Star Parties, if you are bringing a scope, park at the pack of Mike's house and please angle park so all the vehicles with scopes can fit neatly at the back of the house for ease of set up of equipment. Star Parties will be open to everyone to attend.

Public can bring their telescopes if they wish to. The star party will go until the last person leaves. For those of you who finish early with the star party and would like to watch a movie, bring it along and I am sure someone will join you for a movie.

To maintain dark adapted eyes, NO white light at this event in the observing area, please. Also, RSVP is required for all attendees. Everyone is invited, kids included. If you bring young kids, bring a movie for them to watch while we do the star party, for if they become tired of the star party.

For the potluck, please bring a dish to share with enough to feed everyone in your attending party, plus one... and a drink to share. An example: If you are attending with 4 people in your car (including you), bring enough food as if this was the only thing you were eating that night, for all 4 people in your car, plus one. Then also bring a drink such as canned soda, a 2 liter bottle, to help out. Mike will provide bottled water but anything extra you wish to drink should be brought with you. It is

highly suggested no alcohol as that destroys your night vision. If you wish to drink at this event, you must have a designated driver with you who isn't drinking. And keep the alcohol away from the attending kids, please.

Public RSVP's can be sent directly to Mike, and he can also provide the data you need to get to his home that night. RSVP needs to be received no later than the night before the event. Call Mike at 480-488-3031 and leave a message with your call back number. For Private PAS Members RSVP, please do so on the site. I don't have the event on the site just yet, but once it is, you will get an email invite to RSVP your attendance.

RSVP is required because of the Phoenix Monsoon Season (usually mid-May to end of September) which can cancel an event at a moment's notice. You need to be reachable for that cancellation notice. We hope to see you there. More info will be in the public calendar once I get it set up.

## Meteorite Presentation at Black Mountain Campus March 6

*By Terri, Event Manager*

On Wednesday March 6, Mike Marron took his meteorites and went to Black Mountain Campus for about 1.25 hours of show and tell for Lori Prause's class. Lori is a teacher at PVCC and she wrote: "We will be having a lecture on comets and asteroids that day so a meteorite presentation afterwards will be perfect." PAS Members were invited to attend, but no one did as that evening we also had a PAS meeting. Lori sends her thanks for Mike's attendance. The notice about this presentation went out to the PAS Members 'List Serv'.

Thank you, Lori, for having Mike entertain and educate your college students.

Lori writes: Terri, Mike was very energetic and brought many nice specimens of meteorites. There were no other members from your club that came. I had about 13 students. Thank you for arranging the visit.



*Prior to the start of the event, and during setup of Benchmark School Star Party on Apr 12, a freak rain storm came over the school and left a beautiful double rainbow for the Telescope Team and Teachers to enjoy! Read about this event on page 12. Photo taken by Terri*

# What is a Free Telescope Workshop?

*By Terri Finch, Event Manager*

*For all PAS Events: <http://www.pasaz.org/forums/calendar.php>*

PAS hosts 1 free telescope workshops a month. As the name implies, this is a free event to attend, but your RSVP is required as seating is limited and as the Event Manager, I need to know what telescope you are bringing to the event in order to make sure I have a teacher at the event available to help you.

There are several reasons we have found for you to attend a Free Telescope Workshop.

You have a telescope, but you don't know how to use it. For this, you bring your scope and accessories to a telescope workshop, and get assistance indoors and instruction on how to use your telescope and enjoy it.

You have a telescope and you need help aligning it. This can be as simple as aligning the main scope to the finders scope, or maybe the collimation is off and needs adjustment.

You have a telescope that might need parts and you don't know what to get or where to find those parts. Bring your scope and accessories, come ask the questions you need answered, and as long as a teacher is available to help you with that type of scope, you can get the answers you need.

You don't own a telescope yet and would like advice on what to purchase. This is a big question and the answers you get will depend on the answers to these questions:

What is your price range?

What vehicle will you be transporting your scope in, to get to star parties or dark sky locations for the best observing night?

What do you want to do with the scope you wish to own? What do you want to see? Do you need it motorized, computerized, manual, etc.?

Or maybe you just want to meet the

people at PAS before you join the club. This has been an option as well, for those who want to learn more about the club before joining.

PAS hosts 1 free telescope workshop per month from September to the end of May.

PVCC Telescope Workshops are held on a Thursday night from 7pm to 9:30pm in G-147 on the PAS Main Campus at 32nd Street and Union Hills Rd in Phoenix. This workshop is both indoors and outdoors, which means if you need help finding your first objects in the night sky, this is a good workshop for you.

To RSVP for these events: Send an email to [Events@pasaz.org](mailto:Events@pasaz.org) and include the number in your party, the Make and Model of your telescope, the date and name of the event, and Terri will confirm the workshop is happening and that you have a seat reserved for you and your party members.

## Annual PAS Social at Mike's March 9

*By Stuart Brackney*

Oh my, what fun, what fun, especially for a new guy like me. I arrived with two bags of chicken to find Mike, Paul and Peter gathered around the dining room table with some delicious pizza.

This annual event was at Mike's place way up in the rolling hills of Carefree where coyotes, snakes and star gazers roam.

As the sun continued to hide behind clouds, more PAS members arrived bringing with them of course, delicious food,

causing me panic. I could see myself having to spend hours on the treadmill at the gym after this event!

Besides good food, of course amateur astronomers always have good conversations, led by the master host, our president Mike, who by the way could easily turn his house into a museum with all of the historic items he has.

So, who was there? Well, because you asked, the list looks like this: Mike Marron,

Sam Insana, Paul Facuna, Bob Ewing, Don Boyd, Eric Steinberg, Pete Turner, Frank Insana, Kim Hollingworth, Mel McClure, and I sure hope I did not miss anyone!

Bottom line: when cosmology people get together, it's never a boring event, as they love to share, which truly helps a novice like this guy.

**Paul** adds: Thanks for hosting the annual PAS social. I enjoyed it and had fun.

## Heritage Days at Tonto National Monument March 10

*By Sam Insana, PAS Member*

Sunday, March 10th, PAS was asked by Tonto National Monument to attend with meteorites and a solar scope for their big Heritage Day event from 8 am to 5 pm. I attended the full day with my PST solar scope and my meteorite presentation. From 8 am to 12 noon, I showed a solar flare about 50,000 miles long on the edge of the sun. This was lucky since we are in a solar minimum. About 50 people looked at this, then clouds came in so I stopped the viewing. I did show my meteorites the entire day

to about 100 people. One lady from Manson, Iowa, told me she thought there was a large meteor crater where she lived. I looked it up on my display board and sure enough, it is one of the largest in the USA at over 30 kilometers in diameter. She was thrilled I had that info and she sent several of her friends and relatives over to my display to see the info. The impact was about 74 million years ago, so the crater has mostly filled in from various ice ages.

Another guest, a teenage boy, wants to join PAS so I gave him material about the club and told him how to join. He wants to be an astrophysicist. There were about a dozen booths from various organizations having to do with nature and parks. The guests were allowed free admission to Tonto and could visit the booths, the museum, and both sets of cliff dwellings. It was a beautiful day, but a long drive after attending the Annual PAS Social at Mike's the night before.

# Black Mountain Campus S.T.E.A.M. March 7

By Terri, Event Manager

This was a huge event. The plan within PAS was to have a star party outdoors with 10 to 14 telescopes set up and indoors we'd have Terri with Q&A for the kids, and Mike with his meteorites. Things didn't happen according to plan.

Clouds, clouds and more clouds, and we had overcast skies the entire evening, so prior to heading up to BMC to set up for this event, it was decided around 2pm that no telescopes from PAS would attend. But, I went up there, arriving about 4:30pm to set up indoors with the PAS table and Q&A for the kids.

Outdoors, there were quite a few tables set up with various activities. The sky was totally cloudy which helped with the outdoor activities by making it easier to see without being blinded by bright sunlight. There were 80 indoor activities. The rooms had tons of great things for kids of all ages (adults included) and it was a fantastic event! There were a few people from the public who continued to hope that a telescope would be set up on the Aquila Building Observing Deck with a view of something, but with the cloud cover, the Observing Deck Dome was not even open for viewing of the telescope inside.

The public began to arrive and activities started at 5pm. I did Q&A with about 25 kids. I estimate I saw about 600 kids and adults in attendance. Everyone at BMC was in scientist jackets, except for myself and Mike Marron with his meteorites. The indoor activities slowed down about 7:30pm, and were totally done by 8pm. Mike had been at another school this night, and arrived about 7:30pm. We were set up until about 8:15pm, and then we packed up for the night.

Even though this is the second year in a row telescope viewing was cancelled due to weather, the indoor portion of the S.T.E.A.M. event at BMC was a great success, and this event was enjoyed by all who attended. Most everyone left with some project in their hands to take home and remember the fun learning experience they had this night at BMC. My favorite room was the Glow in the Dark room. There were many great activities and displays at this event.

I wish to thank the TEAM at BMC for setting up this wonderful, extremely interactive, educational and busy night. Many thanks to Daren Dorm for providing me with my normal location to set up the PAS

table, and thanks to Loretta Mondragon for the copies of the upcoming events at BMC as handouts for this event, as well as for the future events PAS is doing around Phoenix. I'd also like to thank three awesome PAS helpers who did things for me while at the event. Many thanks to Bob Ewing who sat in for me at my table to allow me a few minutes to walk around and check out the various activities and take some photos. I wish to thank Stu Brackney who was very helpful this night, and Frank Otusuka who brought his telescope, just in case the weather cleared.

However, what he did do and I really thought this was fantastic, he set up an old laptop on the PAS Handout table, and shared Stellarium with anyone wanting to play with the program for a little while. Frank was set up for about 45 minutes, and had one gal who was super interested in the program and spent much of the 45 minutes trying it out. Having a few PAS Members assist where needed is greatly appreciated!

There are three more BMC star parties



*This is the hall way on the way to the Telescope Observing Deck at BMC. The table next to the PAS table was drilling holes in rocks and had a ton of participants throughout the nights. Photo by Terri Finch.*



*In this area, there were many kid related activities including a color station. Photo by Terri.*



*When you first walk into the Aquila Building at BMC, you see this wonderful table set up with a fun movie coming out with fliers and coloring projects for the kids. Photo by Terri.*

planned for Spring 2019: March 28, April 25 and May 2. If you missed this fantastic event with the 80 fun activities and you don't want to miss the next one, put the date on your calendar. It will be March 5, 2020, on the first Thursday in March. Hope to see you at these fun, free events!!!

# Canon Elementary School in Black Canyon City Mar 8

*By Roger Anzini, Sam Insana & Susan Mullarkey, Members of PAS*

**Roger** writes: Canon Elementary School was enjoyed by all, seems the entire town came out to look through the telescopes. The school is Kindergarten through 8th grade. Everyone was ready to meet and greet us. The sky there is remarkably dark considering it's so close to Phoenix.

**Sam** writes: Friday, March 8th, the Canon Elementary School in Black Canyon City had astronomy night. The students had many inside booths where they demonstrated the solar system, robotics, aliens in spaceships, and more. PAS was asked to provide telescopes and meteorites. Rick Cunningham and Roger Anzini brought their scopes and showed the Orion Nebula, Perseus Double Cluster, and several other heavenly delights. They had a constant line of people wanting to view through their telescopes. It had been cloudy all day, but in line with 8 weather forecasts, it started to clear up as it got dark. I was inside the gym with my meteorites, and about 100 students, parents, and teachers dropped by my presentation. An 8 year old student named Michael came by to see my meteorites and he was dressed as a NASA astronaut (his mother outfitted him at the Lowell Observatory gift shop). Michael was exceptionally sharp in astronomy knowing a lot about planets, comets, meteors, asteroids, our sun and various other topics. His mom took information I gave her about PAS and they may join in the near future. Susan Mullarkey and her son, dropped by to say hello. They are newer members of PAS and live in Black Canyon City.

Rick and Roger stayed about 30 min-

utes longer to let the line of people get a chance to view through the telescopes, since it only got dark at 7:30 pm and the school wanted to pack up at 8 pm.

Afterwards, I dropped by the Rock Springs Cafe for Pecan Pie. The waitress was so happy PAS showed meteorites and the night sky to Black Canyon City children that she wouldn't let me pay. Many thanks to that wonderful waitress.

**Susan Mullarkey** writes: Last night was really fun with the astronomers :-). Everyone really enjoyed looking at the stars and the Moon, Mars, and the meteorites! There were Smiles everywhere. The students made some really cool things, too. Aidan and I really enjoy talking to Sam, Rick, and Roger. We're so glad they came up! Thank you to All!



*Roger Anzini & Rick Cunningham are seen setting up their telescopes at Canon School in Black Canyon City on March 8. Photo by Sam Insana.*



*Sam Insana set up in the cafeteria of Canon School with his impressive Meteorite Display. Photo provided by Sam.*

## Star Party at the Phoenician March 17

*By Mark Johnston*

On March 17, Bruce Wurst, Mike Maron and I supported a Bank of America leadership meeting at the Phoenician resort in Scottsdale. While the weather was excellent, there was a waxing gibbous Moon, plenty of bright lights in the observing area and several nearby obstructions which made it difficult to show several key objects. About 400 guests attended and Bruce with his 12" scope and my self with my 5.5" refractor showed the Moon, M42, Iota Cancri, the Pleiades, M81, M82,

Alcor/Mizar and a few other objects. Mike has his Meteorites on display. We were busy most of the evening and the hosts were very happy with our participation and the guests' engagement.



*Mark Johnston at the Phoenician on March 17 with his 5.5" refractor. Photo provided by Mark.*



# Watching the Late Spring Skies

By David Prosper

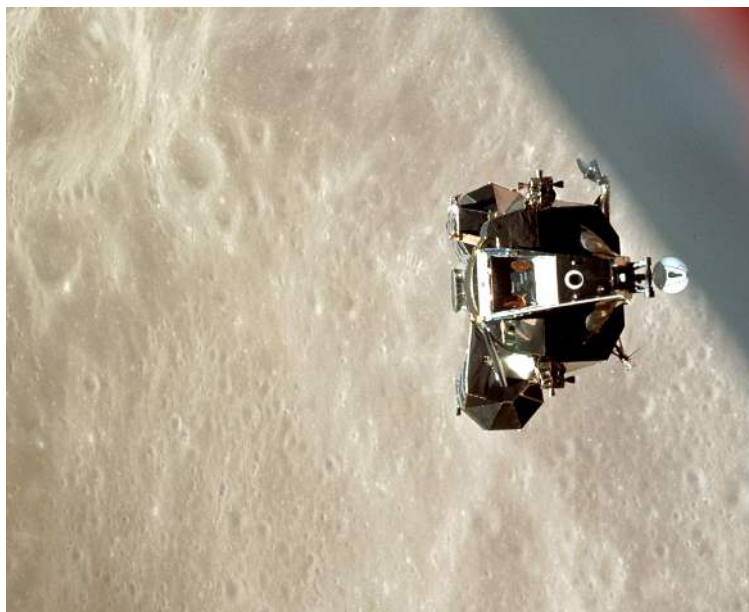
Late spring brings warmer nights, making it more comfortable to observe a good showing of the **Eta Aquarids** meteor shower. Skywatchers can also look for the delicate **Coma Star Cluster**, and spot the **Moon** on the anniversary of **Apollo 10's** "test run" prior to the Moon landing in 1969.

The **Eta Aquarids** meteor shower should make a good showing this year, peaking the morning of May 6. This meteor shower has an unusual "soft peak," meaning that many meteors can be spotted several days before and after the 6th; many may find it convenient to schedule meteor watching for the weekend, a night or two before the peak. You may be able to spot a couple dozen meteors an hour from areas with clear dark skies. Meteors can appear in any part of the sky and you don't need any special equipment to view them; just find an area away from lights, lie down on a

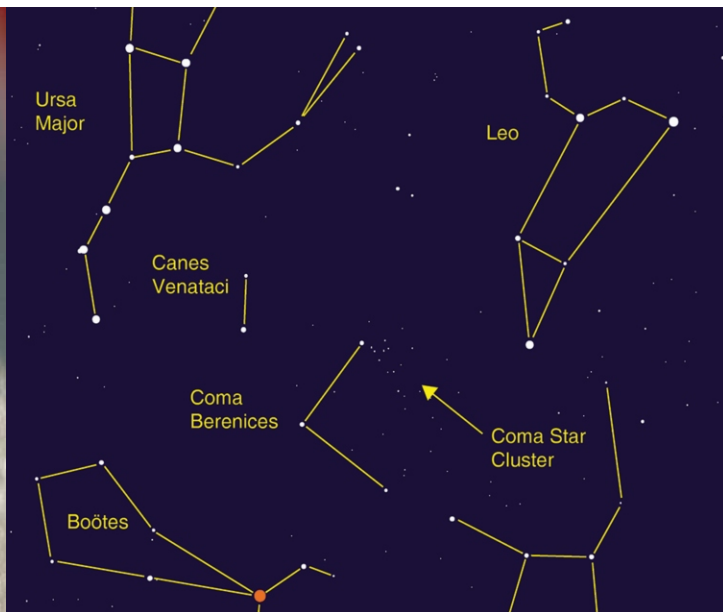
comfy lawn chair or blanket, relax, and patiently look up. These brief bright streaks are caused by Earth moving through the stream of fine dust particles left by the passage of Comet Halley. While we have to wait another 43 years for the famous comet grace our skies once more, we are treated to this beautiful cosmic postcard every year.

While you're up meteor watching, try to find a delightful naked eye star cluster: the **Coma Star Cluster** (aka Melotte 111) in the small constellation of Coma Berenices. It can be spotted after sunset in the east and for almost the entire night during the month of May. Look for it inside the area of the sky roughly framed between the constellations of Leo, Boötes, and Ursa Major. The cluster's sparkly members are also known as "Berenice's Hair" in honor of Egyptian Queen Berenices II's sacrifice of her lovely tresses. Binoculars will bring out even more stars in this large young cluster.

May marks the 50<sup>th</sup> anniversary of the Lunar Module's test run by the **Apollo 10** mission! On May 22, 1969, NASA astronauts Thomas Safford and Eugene Cernan piloted the Lunar Module - nicknamed "Snoopy" - on a test descent towards the lunar surface. Undocking from "Charlie Brown" - the Command Module, piloted by John Young - they descended to 47,400 feet above the surface of the Moon before returning safely to the orbiting Command Module. Their success paved the way for the first humans to land on the Moon later that year with Apollo 11. Look for the Moon on the morning of May 22, before or after dawn, and contemplate what it must have felt like to hover mere miles above the lunar surface. You'll also see the bright giant planets Saturn and Jupiter on either side of the Moon before sunrise. When will humans travel to those distant worlds? You can catch up on all of NASA's current and future missions at [nasa.gov](http://nasa.gov)



A view of Apollo 10's Lunar Module from the Command Module as it returned from maneuvers above the lunar surface. Photo Credit: NASA  
Source: <http://bit.ly/apollo10view>



Try to spot the Coma Star Cluster! Image created with assistance from [Stellarium](http://Stellarium)

## Trivia: Moon Facts

Originally received from Stu Brackney. Source: [www.moonconnection.com/moon\\_facts.phtml](http://www.moonconnection.com/moon_facts.phtml)

Dr. Eugene Shoemaker, a Geological Surveyor, who educated the Apollo mission

astronauts about craters, never made it into space himself, but it had always been one

of his dreams. He was rejected as an astronaut because of medical problems.

## Sci-Fi Movie Trivia:

Sci-Fi Movie Trivia: Contact (1997) - During the filming of the few exterior scenes at

the Very Large Array, the array was actually collecting data. Most of the scenes shot at the

VLA were actually done at a full scale reproduction set of the control facility in Culver City, CA.

# Crystal Gardens Star Party March 16

By Terri Finch

As the evening began, we arrived near the location but were unable to find it quickly, about 5:45pm. William Finch and I, along with Storm Moon in our vehicle arrived to find Marcia Landis, the contact for this event and the wonderful lady of the HOA that asked us to do this event, looking for a place to set up the telescopes. We were given a concrete path to set up on near a lake within the Crystal Gardens community. Marcia was a wonderful contact and host for this party. She spent most of the night, not only looking through our telescopes and enjoying Sam Insana's meteorites, but also drawing people in to the event as they wandered by. Mark Johnston was there as well with his 5.5" refractor and he had a night vision eyepiece. This was an extremely fantastic way to view the night sky!

While there, I met a gentleman who lived in the community and has a telescope he wishes he could set up and learn to use. His name was Brian and he spent a lot of time talking to all of the telescope team members. The temperature was perfect. No jacket was needed. The two hours scheduled for the event, plus the early start time due to the large Moon being in the daytime sky, meant the team was busy for 2.5 hours, and it flew by quickly. With two annoying street lights in the way, and a 75% lit moon, I was able to show only the Orion Nebula,

and it took two filters to do it; I had my favorite Nebula filter on, as well as the Sky Glow filter, in order to observe the nebulousity. Using both filters was William's idea, and I was able to show Orion fairly well. I used the Moon filter and a Dark Red filter to cut down on the brightness while observing the moon. With a bunch of bent neck viewing, I was also able to show E.T. Open cluster.

The 50-75 people who dropped by to explore what we had to offer were fantastic, enthusiastic, and a joy to chat with. They were all intrigued and one couple mentioned to me that their HOA had tried to set up something like this the year before, but it was cancelled due to cloud cover. As we packed up, Marcia seemed very interested in doing this event again next year. The attendees asked if we were going to do this yearly, and I suggested they talk to Marcia about the possibility of having PAS return. Next year I would choose a better viewing location. Mark had selected an area back behind some trees that shielded his scope from the two most annoying street lights. I chose to be out closer to the road so I could clear the trees and see Orion and the Moon. We had Sam back against a railing, down the path from us, which seemed to work well. With all the ambient light pollution, we didn't have to ask Sam to point his

white light away from the scopes viewing area.

The event was a huge success! We couldn't have asked for better weather. Marcia picked a perfect night to do this event. Many thanks to my Telescope Team for helping to make this event a success!

**Mark** writes: At Crystal Gardens I showed M42 Orion, IC434 the Horsehead, and M81/82 galaxies through the night vision. I also showed the Moon, Pleiades, and Mars in the normal way.

**Sam** adds: PAS did a star party for Crystal Gardens Home Owners association in Avondale, Saturday night, March 16th. Mark had his refractor, Terri, Storm and William had an 8 inch SCT.

I did a presentation with 20 meteorites and 3 tecktites. Our host, Marcia Landis, came by and told me everyone loved PAS and we will be asked back again next year. Two police officers spent quite a while looking over my meteorites and asking many questions. There were 4 police officers in attendance for the majority of the evening enjoying the views. Over 50 people came by my table throughout the night. There was a beautiful lake with ducks, trees, grass, and it was a perfect night with no winds. Marcia, said my enthusiasm was contagious and everyone became excited about the meteorites.

# Black Mountain Campus Star Party March 28

By Terri, Event Manager

**Don** writes: I had scope trouble and my Dec motor was not working, but I found and showed Alcor and Mizar, the Sextuple star system in Ursa Major.

**Mark** writes: Weather started off with high clouds but they dissipated within 90 minutes of sunset. Had a decent turnover, several people I'd invited showed up and I showed M42, the Horsehead, the Rosette, Rigel, the Ghost of Jupiter, Mars, M66/65 and the Crab Nebula. Took a camera phone picture of the Rosette using night vision. Seemed like the guests really enjoyed themselves, several very young kids had their first peeks through a telescope and were delighted.

**Terri** adds: Attending this event with telescopes was Rick Cunningham, Ray Adams, Calvin Vance, Don Boyd, Sam Insana, and Mark Johnston. They set up outdoors on the Aquila building Observing Deck. The star party began about 7:15pm due to the sky

being too bright from the Phoenix light pollution as well as the cloud cover. Indoors, we had Mike Marron with his meteorites and Terri Finch with the PAS Table. Mike had a crowd at his table all night long. The event ran from 6:30pm to 9:30pm. At the PAS table, only two youngsters (ages 0 -17) stopped by to do Q&A with me. I was told there was a ton of people at this event, outdoors, but most of them never came indoors to discover Mike and his meteorites. I had over 60 RSVP's for this event. It was a great event that started with clouds and then I was told the clouds left and the sky cleared up and that's when the event really got going.

I wish to thank the PAS Members involved in this event as well as Daren Dorm, Manager of the PVCC BMC, and Matt Hall, the security at PVCC who assists with these events. Daren and Matt are awesome helping to make

these BMC star parties a success! Looking forward to the next events at BMC for star parties on April 25th and May 2nd. Hope to see you there!



*This photo of the Rosette Nebula is taken by Mark Johnston at the BMC Star Party of Mar 28 through his awesome 5.5 refractor telescope using an amazing night vision eyepiece. Photo provided by Mark.*

# McDowell Mountain Park Star Party March 22

By Terri Finch and Sam Insana

**Sam** writes: McDowell Mountain Regional Park was the site of a large RV outing Friday night, March 22nd. They asked PAS to provide telescopes and meteorites. We set up at the 4 Peaks trailhead parking lot where I took a Bortle reading of 4.6, which is a little better than BMC at PVCC, but not as good as Mike's place. The weather was beautiful, with no clouds or wind or rain. Mike Marron handled the meteorite presentation. Pete Turner, Roger Anzini, Rick Cunningham, Mark Johnston, Don Boyd and Paul Facuna, Terri Finch and Storm Moon, along with Frank and Sam Insana, handled the telescopes. Frank assembled and collimated his 16 inch Meade Dobsonian, and he and I showed the M42 Orion Nebula, M81 and M82 galaxies, M31 Andromeda Galaxy, M44 beehive cluster, and the moon, which appeared just as the event was ending. Mark had his new night vision device which knocked us all for a loop. It was so powerful that the California Nebula, the Horsehead nebula, the Rosetta nebula, and many other usually

faint deep sky objects could be viewed optically. They are normally only seen with long exposure or stacked photos. This could revolutionize stargazing! Mark is willing to put on a presentation and demonstration at Mike's house in the future for PAS members. Thank you Mark!!!

**Don** writes: It was a great star party and I talked about astronomy with some very knowledgeable people. One man used to sell telescopes from his camera store, but I did not catch where he was from. I showed The Pleiades and Beehive, and was just able to catch the rising moon before we packed up.

**Terri** adds: There crystal clear skies the night of this event. Sam was first to arrive, followed by Storm and myself. We scouted out a location to have the event and then as the telescope team arrived, I directed them to where they should park, and they set up their telescopes near their vehicles. We were treated to a food truck dinner by the hostess of the party, Stefany. We ate

quickly, set up and waited for dark to come. The event was from 7pm to 9pm with set up at 6pm. With nothing visible in the sky until 7pm, we all stayed set up an additional ½ hour to let the attendees enjoy a little extra viewing time. Plus, some of us were really enjoying staying later because the viewing was extremely fantastic and dark. We had a total of eleven Star Tour Members in attendance with nine vehicles and nine telescopes. It was a really astronomical event!

I wish to thank Stefany Adinaro, BNR Rally Coordinator, for having us at her fantastic RV event. Many thanks also go to the eleven PAS Telescope Team members who attended this event. A big thank you to Wes Nave, who was very accommodating of the changes to attendance while getting this event set up. All were truly a pleasure to work with.

**Rick** adds: I showed the Perseus double cluster, the moon as it rose, Orion Nebula, Mizar double, and Mars.

# Desert Botanical Gardens Star Party Mar 25

By Terri, Event Manager

The evening began with setting up telescopes at the Desert Botanical Gardens for a private star party for a group of 25 people. The weather forecast said possible clouds, and although there were not many clouds, the horizon wasn't very clear. We set up near the new Steele Herb Garden, a beautiful place for a star party. The view was limited to mostly to the South and West due to structures and plants blocking the view in the other directions. Attending this event was Storm Moon with an 8" scope and Roger Anzini with his 16" scope and Terri Finch as a helper. The event was from 6pm to 9pm. The attendees of this event were treated to a mini-presentation by Roger, with which I assisted, and then some great views of E.T. Open Cluster and a wonderful, very extensive talk and tour about the Orion Nebula and constellation.

Many thanks to Christine Eschenauer for having us at her event, and to Kathy

Klock who was the on-site event manager, and Aly Reese and Katelyn Paulson at DBG for providing the electric carts to transport the equipment to the viewing location.



Around sunset, Roger was setting up his telescope. Photo by Terri Finch.

**Katelyn** writes: Terri, It was so great to have you here! Glad everything went well and hope to see you here again soon! Thanks.



PAS was set up in the Steele Herb Garden at DBG with 2 telescopes for this private event. Beyond Roger was a sit down meal dining area for the attendees of this event. It was a wonderful event with a lot of inquisitive people viewing through our telescopes. Photo by Terri.

# Foothills Fine Arts Academy March 29

By Terri, Event Manager

It was a beautiful night for a star party. Storm and I arrived about 40 minutes prior to when we needed to be at the school. This wasn't on purpose, it just was good traffic. The set up was for 6pm and the event ran from 7pm to 9pm. Our contact was Teri Haugen and she was amazing. We also had the honor of meeting the student teacher, Mady, who was fantastic to work with as well.

Storm and I arrived with our 8" telescopes, and Mady showed us where to set up. Then Mike Marron arrived with his meteorites, and Bruce Wurst arrived with his 12" telescope closer to set up time. Pizza was being served by the time Bruce got there, and the four of us enjoyed food while we set up and waited for the crowd of about 80 students to come out to see us. The students ranged in age from 5 years old to 14 years old. The pizza and bottled water were quickly consumed, and the crowd began to show up a bit earlier than the start time.

When the group arrived at the back end of the school where we were set up, the two lovely ladies running the event at the school (Teri and Mady) turned the attention of the kids over to me. I did a quick introduction of who was at the event, what we planned to show, gave a few quick rules like "Please do not touch the telescopes," and then suggested that while the sun had set, it wasn't yet dark enough to find an object, so the group could take a peek and enjoy Mike's meteorites.

The two teachers at this event were so well organized. All they had to do was clap and the attending kids were drawn in to a song that they sang and got everyone's attention. This worked well throughout the night when the group got a little too excited, now and then. When it was dark enough, Storm and Bruce aligned their scopes, but I had a crowd around me doing Q&A, and they were enthusiastic and eager to earn a prize.

When it did become dark enough for me to align, the teacher saw I had too many kids around me and drew them away, and had all the kids sit down and listen. Then she asked me to talk about what we were planning to show in the three scopes and I told them my plans, then turned it over to Storm and Bruce to announce what they were showing. The teacher then divided her

group up into eight smaller groups with leaders. The groups were assigned to the three telescopes and the meteorite table with the plan of having the groups rotate to each presenter in an orderly fashion. Bruce showed M103, and Storm had E.T. Open Cluster for this first round.

After a short while, I asked the teacher if she would let me do a sky tour while my other two telescopes set up on something different. Bruce moved to another object, and Storm went to the Perseus Double Cluster while I did a sky tour for about 20 minutes with the kids sitting down. When I finished, I took about five questions before I mentioned we should view more objects before we run out of time.

It was a fascinating time at this event. The school kids were attending an overnight Space Camp. Several of them were in Astronaut outfits the teachers said they got at a party store. Also, many of the kids had a lot of knowledge about the objects we were showing. The majority of the children were well behaved and were more than eager to spend time talking to Bruce, Storm, myself and Mike about anything space related.

The weather was fantastic for this event. I did use my scarf part way through the night but only because there was a slight chilling breeze. The kids and teachers thanked us a bazillion times for being there. They also said they want another event next year.

We did stay set up about 15 minutes longer than planned but the viewing was spectacular and the kids had tons of su-

per wonderful questions and could answer my Q&A questions very well. I really appreciated doing this event and knowing there is enthusiasm for learning about our night sky at this school. I look forward to another chance to do an event for this school. Thank you Teri and Mady. You were terrific and your class was amazing!!! I also wish to thank the Telescope Team because we all worked together like a well oiled machine. When the crowd got to be too large at my scope, Storm called a few of them over to look through her scope, and Bruce did the same. It's nice to have a team that can help each other out so that everyone can enjoy the event. I have the best Telescope Team in the Universe!!!



Mike Marron, PAS's own Meteorite Man, steals the show from the telescopes at every event. His enthusiasm is so contagious. Here we have a very interested group of students gathered around Mike's table, enjoying his stories, facts and excitement about meteorites. Photo by Terri.



PAS provided 3 telescopes at this school star party. Left to is Terri's 8" scope, Storm's 8" scope and Bruce's 12" scope. It was a beautiful night for a star party. The children at this school were very knowledgeable about space and they were having their overnight space camp on this evening. Photo by Terri Finch.

# Agave Farms Star Party March 30

By Terri, Event Manager

Storm Moon and I arrived at Agave Farms in the SUV with our two 8" telescopes. Paul Facuna had given a ride to Don Boyd and his 8" telescope and got there before I did. The four of us set up our three telescopes in a designated area behind the stage. The set up time was 6:30 pm, but the four of us were there and ready by 6:00 pm. Then Bruce Wurst arrived with his 12" scope and Pete Turner came with his 12" scope. We parked our vehicles away from the telescopes, further down the garden along a road.

This event was a fundraiser for Agave Farms and 200-400 people were expected to attend. During the evening it looked like a minimum of 400 in attendance. At the event there was music, magic, acrobatics, the telescopes and a bunch of other activities and sights to see. It was a very well planned, super big event. The location of the scopes wasn't as dark as it could have been, but the scopes were wanted where people would stop by during the night. People were so busy with the other entertainment, I would guess maybe 300 of the 400 came to see through our telescopes. Several times during the evening, announcements were made reminding everyone we were back behind the stage, and to go look through our telescopes.

My contact at this event was Tony Acosta. He was super! He was there for anything we needed. So, we got to enjoy drinks - soda was all they had - and we were

served food. The food we had was all freshly grown or obtained from this farm and another farm location they have (don't know where). We had lamb, salad with flowers we could eat, a desert, and it was all yummy.

From 7:30 to 9:30 pm, we showed the night sky through our five telescopes. Since many of the people running the event didn't have the opportunity to view much during the event, I asked my team to hang out for dessert and stay a half hour longer, so they could look through our scopes. They did, and then they started packing up. While Bruce was loading his scope into his vehicle, Storm and I took a walk over to where the drinks were. We were given some flowers to take home, and while we were looking to get a blanket that everyone had, we invited people working there and cleaning up, to come see through our telescopes before we took everything down. I had Orion Nebula in my scope, but the later it got, the worse it looked. I showed it anyway, and after 9:30 pm, the clouds set in and got in the way and made seeing Orion Nebula that much more chal-



Terri & Storm at their scope set up at Agave Farms waiting it to become dark enough to align their telescopes. Photo by Don.

lenging. Storm and I took down our scopes and left the location about 11:00 pm.

The sky had been cloudy when we arrived, and then cleared up about 7:30 pm when it started to get dark. Then thick clouds come in and hid all our objects for about 45 minutes, and then it cleared again. As the team was packing up, a few clouds came in, and then when Storm and I went to get people to look through our scopes, the clouds were not as thick, so we showed Mars and E.T. a while longer before losing them below the horizon or to clouds.

Many thanks to Tony Acosta for having PAS at this fun event. They were talking about doing this again next year. And thanks so much to my Telescope Team for hanging out just a little longer before packing up to go home.

# Benchmark School Star Party April 12

By Terri, Event Manager

This was one wild event! Heather Rheinfelder invited PAS to do a star party at Benchmark School on April 12. The weather was a topic of conversation for a few days leading up to this event, because it looked like it would be totally overcast. Then, on the day of the event, several PAS Weather Watchers looked at many sources for the weather forecast and concluded that 50% of the forecasts said bad weather, and the other 50% said super great weather. When the weather is so questionable, I usually cancel the event. However, since it was a 50/50 split in weather forecasts, I asked the team what they thought we should do. One of them answered with "We might want to cancel." The rest of them never gave me their input except to say that the weather forecasts were split in half and it was rough

to make a decision. So, I decided to have the event!

Storm Moon and I drove over to Benchmark in one vehicle with two telescopes and William Finch joined us in his car. We arrived about 5:15pm for a 5:45pm set up. Heather was a bit busy, so she sent Kyle to greet us and unlock the gates to get into the school to set up. Kyle came to my vehicle and I asked him "Did you order these dark clouds for tonight's event?" He replied, "No, I didn't." So we agreed to drive onto the campus, park the cars, and wait out the situation as it was raining when Kyle arrived. The rain continued lightly for about 20 minutes, and the sprinklers were on on the grass around the basketball court where we were to set up. So, we discussed what we were going to do and then I got a notice from Mark Johnston that it was raining at

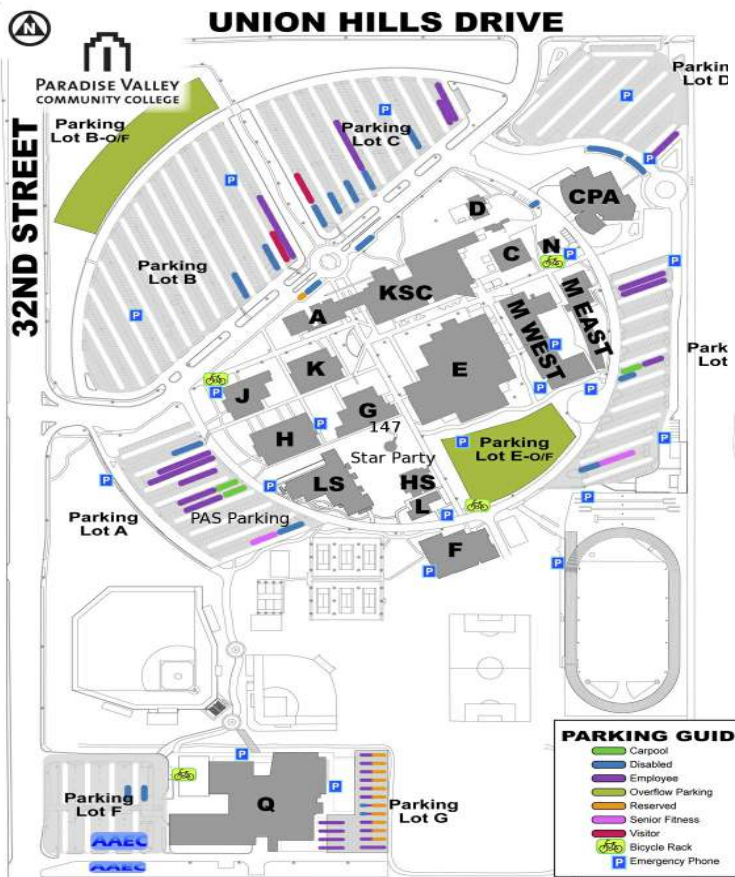
his home. I texted back to him "I'm at Benchmark." He replied that he'd be there in 20 minutes. Mark and Roger Anzini arrived at the same time, walked onto the campus where we were enjoying the pizza for dinner, and we discussed the weather, couldn't decide what we were doing and then while enjoying the pizza a beautiful double and full rainbow appeared. Mike Marron and Bruce Wurst arrived around that time and we had all the cars pull on to the grassy area near, but not on, the basketball court that had an interesting plastic grid over it.

It continued to rain and several attendees were shooting beautiful pictures of the rainbows, sunset, rain clouds, etc. The attendees of the school started arriving about

See " Benchmark School Star Party April 12" on page 13

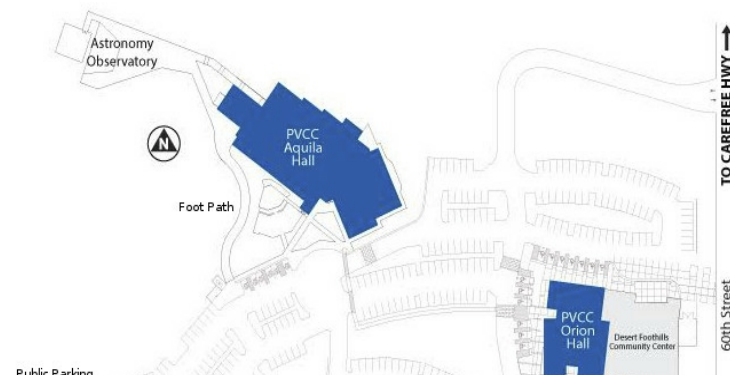
## Map of PVCC Main Location

18401 N. 32nd Street | Phoenix, AZ 85032



## Map of PVCC Black Mountain

34250 N. 60th Street | Scottsdale, AZ 85266



## 2019 PAS GUEST SPEAKER LINE-UP

By Terri Finch, Event Manager [Events@pasaz.org](mailto:Events@pasaz.org)

PAS Meetings are held at PVCC Main Campus on the first Thursday of the month in Room: LS-203 unless otherwise noted. Do you have an idea for a guest speaker? Email Terri Finch, Paul Facuna, or Mike Marron the details (their email addresses are at the top of page 2 in this newsletter).

--- Summer Break ---

PAS is having the 2019 Summer Lecture Series for June, July & August in Carefree. Plan to attend!

The next PAS Season (Sept to May) of General Meetings with Guest Speakers will be (Fall 2019) Sept 5, Oct 3, Nov 7, Dec 5 and (Spring 2020) Jan 16, Feb 6, Mar 4, Apr 2, and May 7. We hope to see you at these PAS Meetings. More information at:

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

## South Mountain Star Party April 6

By Sam Insana, PAS Member

Saturday night April 6th the South Mountain Environmental Center hosted a star party for the public. SAC furnished one scope, the newly formed South Mountain astronomy club furnished a scope, and I was there with my 8 inch Newtonian representing PAS.

First up was a very thin sliver of the

moon, which the guests enjoyed seeing. Then I showed the Orion Nebula, always a treat.

I followed with Mizar and Alcor double star that I showed with binoculars and then the telescope. The Pleiades was next up. Then I showed M81 and M82 galaxies. Finally we looked at M3 globular cluster. It

was nice weather, just a few clouds and mild temperatures with no wind.

They need to turn off more lights, however, to take advantage of the darker skies. About 50 people showed up and it was a fine example of diversity and people who had never had a chance to look through telescopes.

## Benchmark School Star Party April 12

Continued from page 12

5:45pm. Once we saw people were going to attend even if it was raining, we decided to have the event. We finished eating and it was about 6:15pm when we started setting up for the event. The five scopes gathered at the far NE corner of the basketball courts in order to have Orion Nebula and Mars visible for longer than just one hour. This turned out to be a wonderful decision as the five of us were able to show our objects through most of the night. There was great doubt that the weather was going to clear, but it worked out great in the end.

Storm brought her 8" telescope, I had my 8" scope, we had Bruce's 12", Roger's 16" and Mark brought his 5.5" refractor. The storm clouds cleared about 7:15pm, and

it was a super crystal clear evening from then to the end of the event. William played Runner and watched a few scopes while there were bathroom breaks, I did Q&A, Mark and Roger kept the crowd busy at the eyepieces, and Mike was set up under a light on a building, sharing his meteorites with a crowd all night long.

It turned out to be a fantastic evening and I wish to thank Heather and Kyle for having us at this great event. I wish to thank my Telescope Team for going along with my decision to have the event in spite of the rain at the beginning. Thank you to everyone who attended and had a great time at our event. There was a trailer set up with an interactive space station program inside for

the kids and adults to enjoy. And those who attended, really were engaged in seeing some great things. Kyle announced 9pm and we started to pack up, but one family stuck around a bit longer as Mark and I had our objects visible in our scopes still, so we stayed set up for an additional ten minutes. The storm created a cold breeze and by the end of the event, we were all looking for a light jacket to put on. It was a fantastic event! Looking forward to doing this event again next year, but without a storm at the beginning.

**Mark** writes: I showed M42, M66/65, M81/82, M104, Stargate cluster, Tau Leonis (quadruple star), Algieba, and the XY cluster.