



PAStimes

Phoenix Astronomical Society

www.pasaz.org

April 2020

Volume 71 Issue 8

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

Eric Steinburg Remote Presentation for April 2nd Meeting

Data provided by Eric

Eric Steinberg is a Phoenix resident and PAS member with a lifelong interest in astronomy, physics and the way things work. Eric has a BA in Biology/Premed from Rutgers College and an MS in Computer Science from Polytechnic Institute of New York. Combining in-depth exploration with a love of teaching, Eric is a knowledgeable and entertaining presenter. He can be seen these days observing in the deep desert with his 22" Dobsonian scope or giving lectures on a variety of science topics. Eric lives in North Phoenix with his wife and two cats.

The Physics of Chernobyl

What happened in there and how does a reactor blow itself to kingdom-come?

There has been a lot of interest lately in this disaster with a good deal of glossed-over science along with some questionable theories about what went wrong and who was to blame. Join presenter Eric Steinberg at the PAS meeting on Thursday, April 2nd for a more in-depth and fascinating look at the system, the science, the accident chain and some of the latest surprising findings about the worst nuclear accident in history. It's what you won't see on HBO.



Eric Steinberg is the April 2 PAS Guest Speaker. At this time, PAS is planning a remote meeting of the Guest Speaker only.

Photo provided by Eric.

PAS Meeting April 2nd

By Terri, Event Manager

For the April 2nd meeting, there will be NO Physical meeting as PVCC has closed its doors for now and announced that all classes through the end of April are remote only, and so, PAS is considering an electronic meeting with JUST the guest speaker. All announcements and other items that normally would be discussed at a

meeting, will be done through the PAS-Members List Serv. To know the status and how to connect to the online PAS Meeting of April 2nd, please monitor the online Calendar listing for April 2nd at this link: <http://www.pasaz.org/forums/calendar.php?do=getinfo&e=3000&day=2020-4-2&c=1>. There is a 100 connection limit for

this meeting. We are asking that if you wish to drop in to watch the guest speaker, please do so at ONE computer access per household so that we can allow 100+ people to view this awesome presentation by Eric Steinberg.

PAS can not predict the future, so at this time, the April 2nd PAS Meeting is

See PAS Meeting April 2nd on page 2

March Meeting Review

By Don K. Boyd, PAStimes Newsletter Editor

Wednesday March 3rd a small group of about 12 people gathered to hear Michael Line's presentation on the latest discoveries in exoplanets. Below is a brief synopsis of the Guest Speaker's bio and talk.

Michael Line is a theoretical/modeler planetary astrophysicist at Arizona State University. His primary research drive is to understand the nature of exoplanetary and

sub-stellar atmospheres and to help lay some of the theoretical groundwork and tools for ultimately detecting exoplanet biosignatures.

There are approximately 9 planets and countless small bodies within our own solar system. While our solar system is diverse and exciting, there is even more diversity outside of it. Through the hard work of planet-hunting astronomers we now know of thousands of planets (exoplanets) be-



Michael Line was the March 5th PAS Guest Speaker. Photo by Don Boyd.

See March Meeting Review on page 2.

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PAS Upcoming Events for April

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. 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>

Apr 2: PAS Meeting may be held as teleconference. See details at this link. There is NO Physical meeting this month. The meeting teleconference will be limited to 100 households and should start at

7:30pm. Login for the conference may be as early as 7pm. <http://www.pasaz.org/forums/calendar.php?do=getinfo&c=3000&day=2020-4-2&c=1>

*** Please note: All April events are pending the status of the CoronaVirus. If it is safe to hold these events with a few folk at a time, the events will happen. Watch the website for announcements about these events. The links to the events are provided below.

Apr 9: Free Telescope Workshop at PVCC from 7pm to 9:30pm. This event is pending if we have a room to have the event in and PVCC is allowing on-campus gatherings:

<http://www.pasaz.org/forums/calendar.php?do=getinfo&c=2986&day=2020-4-9&c=1>

Apr 16: Huge Public Star Party at Black Mountain Campus of PVCC from 6pm to 9:30pm. More details: <http://www.pasaz.org/forums/calendar.php?do=getinfo&c=2994&day=2020-4-16&c=1>

At the time of completion of this issue of the newsletter, several more events were in the planning stages and will not be listed as "Scheduled" until they are definitely happening. Please see our online calendar for the events that didn't make it into this list: the link is at the top of this article.

PAS Meeting April 2nd

Continued from page 1

planned to be remote via the internet, but it has not been decided how the May 7th PAS meeting will be handled. So, keep an eye on 1) your PAStimes Newsletter for updates, 2) the PAS Calendar on the dates of

events you wish to know more about, and on the 3) PAS Forums News link: <http://www.pasaz.org/forums/forumdisplay.php?f=10> as that is where most of the updates will be posted for events. Thanks to

everyone for your patience while we work through the quarantine and maintain our health and happiness.

March Meeting Review

Continued from page 1

yond our own solar system. These worlds are often much stranger than anything we could have imagined. He discussed the diversity of the population of exoplanets and our inferences of what some of these worlds are like, providing context for our own pale blue dot.

At this meeting, Vice President Paul Facuna managed the meeting due to President Mike Marron being too ill to attend. Many of the regular crowd were absent for

various reasons, but those who were present enjoyed the talk. Many thanks to the 12 who did attend. Snacks were brought by a few, people but there were no plates, napkins, or water, as Terri Finch usually brings those and she could not make the meeting.

Mike Cawley adds: "I like the way they can do measurements of the exoplanet's atmosphere with a spectroscopy analysis as it passes in front of the target star. No need for super high resolution visually. One of

the slides showed the depth of the atmosphere with various gases. No depth? Then no traces of that gas. The video showed a planet passing in front of the star and displayed different diameters depending on which gas was measured."

Paul Facuna also commented: "I had not heard or read how that was done before. That is a technique that is used to measure the height of the atmosphere."

PAS Canceled Most March Events

By Don K. Boyd, PAS Editor

As most of you probably know the Covid-19 virus is wreaking havoc with America and the World and most of Arizona has been affected by it to some extent. PAS is not immune to that.

In light of that most of our activities for March were canceled and most in April are being canceled including our general

monthly meeting. The meeting was canceled because PVCC has closed its campus and all restaurants are closed to dine in patrons so we have no place to meet. It is unclear whether or not the other activities at PVCC in April will be held as PVCC was still formulating what exactly they want to do at the time of the writing of this article.

The officers of PAS are working on a

plan to hold the April meeting via teleconference if we can work out the details. Check your email and the website for more details.

It is unknown if the May meeting will be held in person, teleconferenced, or will be canceled altogether. We appreciate your patience as we all work through the quarantine.

PAS Field Trip to Gem and Mineral Show Feb 1

By Sam Insana, PAS Member

February 1st PAS made a full day trip to the Annual Tucson Meteorite, Fossil, Gem and Mineral Show. Mike Marron and his daughter Marilyn, Bob Ewing and his sister Nancy, Kim Hollingsworth and her daughter Mel McClure, Don Boyd, Paul Facuna, Pete Turner and I had a fun trip. Pete and I each drove our vehicles. We visited five different shows in Tucson and purchased meteorites, fossils, display cases, small lighted microscopes, and other objects we desired. I really lucked out finding and purchasing a piece of the Murchison meteorite, which only 3 weeks before was announced to contain 7 billion year old presolar grains. The photo is of the ten of us having dinner at an Italian Restaurant just before heading back to Phoenix.



Photo by Sam Insana.

What's Up For April?

By Don K. Boyd, PAStimes Editor

Name	Date	Rise	Set
Mercury	04-15-19	05:19	17:26
Venus	04-15-19	08:02	22:39
Mars	04-15-19	02:37	12:58
Jupiter	04-15-19	01:40	11:47
Saturn	04-15-19	02:00	12:13
Uranus	04-15-19	06:29	19:43
Neptune	04-15-19	04:27	06:04
Pluto	04-15-19	01:40	11:41

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 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.

April 15, 2020

Sunrise: 5:58

Sunset: 19:00



Q1: April 1



Full: April 7



Q3: April 14



New: April 22

Star Gazing Tour Feb 7

By Pete Turner, PAS Member

Tonight we had nine people attend the Stellar Adventures Star Party. I showed the

Moon, Mercury, Venus, Orion Nebula, Owl Cluster and Sirius (trying to split it).

In addition, I had about eight meteorites to show. It was a successful event!

Singapore Cruise Feb 2020

By Mark Johnston

Just returned from the cruise. Did the following presentations (45 minutes each):

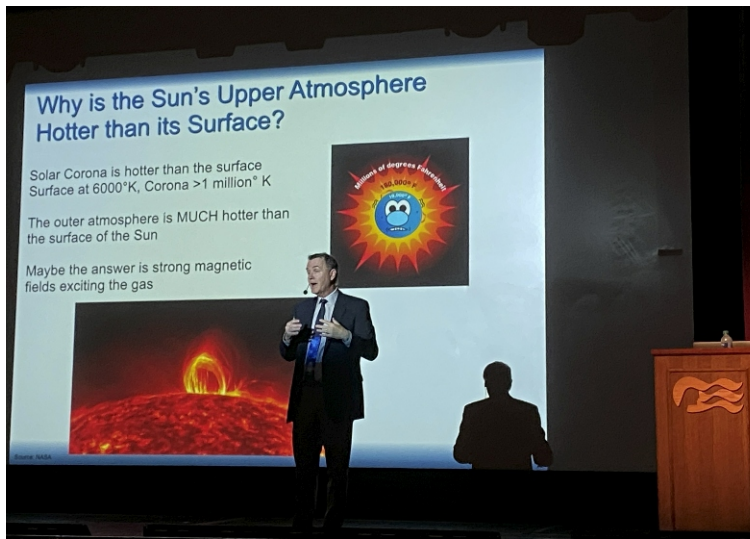
Feb 3: Is there Intelligent Life beyond the Earth? Attended: 75

Feb 4: Mysteries of Astronomy Attended: 120

Feb 5: Space Exploration, Past and Future Attended: 155

Feb 7: Star Party on deck 16 aft (used green laser to point out stars, constellations etc) Attended: 150

Feb 12: UFOs: Fact or Fiction? Attended: 220



Mark Johnston on the stage of the cruise ship presenting "Mysteries of Astronomy" on February 4th. Photo by Mark.



Mark provided several nights of Astronomy on this Cruise Ship to Singapore. Photo taken February 7 by Mark Johnston.



It was a fun cruise with lots to do. Photo by Mark.



A Night Sky Tour on the deck of the cruise ship. Photo by Mark.

For Sale: 8" Celestron SCT + 6 Ft Diameter Observatory \$1599

Contact Michael at 623-931-2158

Here is a brief description and it is a package deal... Please see fliers for full details and what comes with this package at this link:

<http://www.pasaz.org/forums/showthread.php?p=3448#post3448>

. It comes complete with everything you can think of that you would need to have a great time viewing through an 8" SCT, storing it in a telescope dome in your backyard, astronomy guide

books, such as star charts, and on top of that, adapters and the ability to do astrophotography! This is an amazing deal! There are two files to this ad. Please download both of them to get the package deal full list!

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 workshop 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. Always bring something to write on and to write with. We offer lots of advice & you will want to take notes.

You have a telescope, but you don't know how to use it. For this, you bring your scope and accessories to the telescope workshop, and get assistance indoors and then possibly outdoors with 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 workshops

per month, not every month. 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. This workshop is also weather permitting & there has to be the attendance of a minimum of one class member seeking help or the event becomes cancelled.

To RSVP for these events: Send an email to 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. When seats fill up, RSVP's are no longer approved & you will be asked to attend the next telescope workshop on the calendar.

The next several Free Telescope Workshops in 2020 are on Sept 24, Oct 8, Nov 19. RSVP to attend soon as seating is limited to the number of chairs in room G-149.

Star Party at Tonto National Park Feb 16

By Mark Jonnston

Beautiful dark night at the Cookout site for a Stellar Adventures event. Had two guests, and showed many objects including M42 nebula, Trapezium close up, Rosette nebula, Horsehead nebula, M31/32/110, M81/82, M45, Almach, M35, Venus, Uranus, the Heart nebula, the Pacman nebula and Iota Cancer. It was very dark; I measured Bortle 2 on my light meter. M31 and the winter milky way were clearly visible. This would be a great dark site for those on the east side of town vs other further alternative sites. I took this picture as I was arriving to set up.



Sunset over Tonto National Park just before a very successful viewing evening with a small group.
Photo taken by Mark Johnston on February 16, 2020.

Sell Your Astronomical Equipment

By Terri, Event Manager

The PAStimes Newsletter is your means to selling your old, unwanted, but loved and used astronomical equipment. Write an ad with description, your contact info and photos, and get it in the next issue of the PAStimes Newsletter (The newsletter won't have the photos, but the ad I put in the PAS Forums may include your photos). Also, the ad will be posted in the "For Sale" PAS Forums and sent out to the 600 Astronomy Loving Arizona Residents who

are on the Public Email Notification List Serv where I post Upcoming Free/Public Events each month.

PAS Members may post items for sale, in the newsletter, for free. If you are not a PAS Member, please send a check with a donation of \$5.00, payable to Phoenix Astronomical Society, to 3241 E Shea Blvd PMB 249 Phoenix AZ 85028. Please drop me an email to say a check is on its way because I am only checking the PAS Mail

once a week or less until the virus threat is gone.

Send all electronic data to Terri at StarStuff@gmail.com. I will confirm I got the ad and your check, ask any additional questions and prepare your ad to be in the newsletter. Renewing your ad is free until the telescope equipment is sold, with a reminder from you via email to include your ad in the next newsletter by the 10th of the month.

PAS Field Trip February 8

By Sam Insana PAS member

February 8th, PAS had its annual social. Eleven people attended, starting with a 10am breakfast at Harold's Restaurant in Cave Creek.

At noon, people met at Grace's Museum for a fun time looking at the history of the U.S. one decade at a time from the Revolutionary War in the 1770's through the Space Race in the 1970's. There were about twenty rooms filled with clothing, technology, and artifacts from each decade.

At 3 pm Ron Walker entertained us at his Starbarn Planetarium. At 6 pm, the potluck started at Mike's place in Carefree. A couple, Charlie and Ruth, showed up from Canada and observed the night sky with binoculars. Also taking part were Mike Marron, Bob Ewing, Kim and Mel Hollingsworth, Don Boyd, Paul Facuna, Ron Walker, Stu Brackney, and Sam Insana. The gift exchange ended with Mike receiving a pair of tickets to the Arizona Science Center and Sam receiving some small meteorites. To round out the evening, we watched several sci-fi movies.



*1890's Fun Time at Grace Frederick's Museum on February 8, 2020.
Sam Insana is in the photo he provided.*



Sitting on the left with the black hat is Don Boyd, then to the right we have in blue, Mike Marron and Sam Insana. Photo provided by Sam.



The Moon rising over Mike's backyard in Carefree during the PAS Social. Photo by Sam.



This is the room layout at Grace Frederick's Museum in Carefree. Photo by Sam Insana.



David Prosper

Hubble at 30: Three Decades of Cosmic Discovery

The **Hubble Space Telescope** celebrates its 30th birthday in orbit around Earth this month! It's hard to believe how much this telescope has changed the face of astronomy in just three decades. It had a rough start -- an 8-foot mirror just slightly out of focus in the most famous case of spherical aberration of all time. But subsequent repairs and upgrades by space shuttle astronauts made Hubble a symbol of the ingenuity of human spaceflight and one of the most important scientific instruments ever created. Beginning as a twinkle in the eye of the late Nancy Grace Roman, the Hubble Space Telescope's work over the past thirty years changed the way we view the universe, and more is yet to come!

We've all seen the amazing images created by Hubble and its team of scientists, but have you seen Hubble yourself? You actually can! Hubble's orbit -- around 330

miles overhead -- is close enough to Earth that you can see it at night. The best times are within an hour after sunset or before sunrise, when its solar panels are angled best to reflect the light of the Sun back down to Earth. You can't see the structure of the telescope, but you can identify it as a bright star-like point, moving silently across the night sky. It's not as bright as the Space Station, which is much larger and whose orbit is closer to Earth (about 220 miles), but it's still very noticeable as a single steady dot of light, speeding across the sky. Hubble's orbit brings it directly overhead for observers located near tropical latitudes; observers further north and south can see it closer to the horizon. You can find sighting opportunities using satellite tracking apps for your smartphone or tablet, and dedicated satellite tracking websites. These resources can also help you identify other satellites that you may see passing overhead during your stargazing

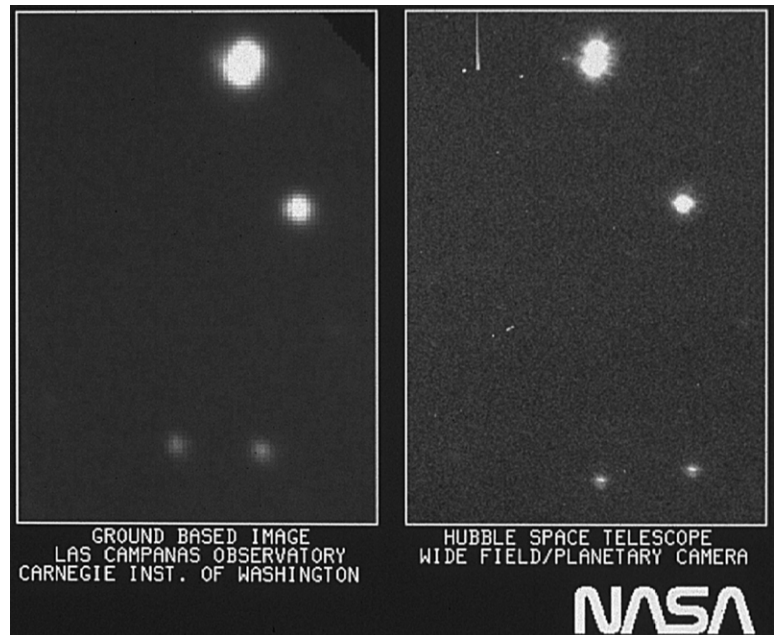
sessions.

NASA has a dedicated site for Hubble's 30th's anniversary at bit.ly/NASAHubble30. The Night Sky Network's "Why Do We Put Telescopes in Space?" activity can help you and your audiences discover why we launch telescopes into orbit, high above the interference of Earth's atmosphere, at bit.ly/TelescopesInSpace. Amateur astronomers may especially enjoy Hubble's images of the beautiful objects found in both the Caldwell and Messier catalogs, at bit.ly/HubbleCaldwell and bit.ly/HubbleMessier. As we celebrate Hubble's legacy, we look forward to the future, as there is another telescope ramping up that promises to further revolutionize our understanding of the early universe: the James Webb Space Telescope!

Discover more about the history and future of Hubble and space telescopes at nasa.gov.



Image Credit: NASA



Hubble's "first light" image. Even with the not-yet-corrected imperfections in its mirror, its images were generally sharper compared to photos taken by ground-based telescopes at the time. Image Credit: NASA

Scope for Sale:

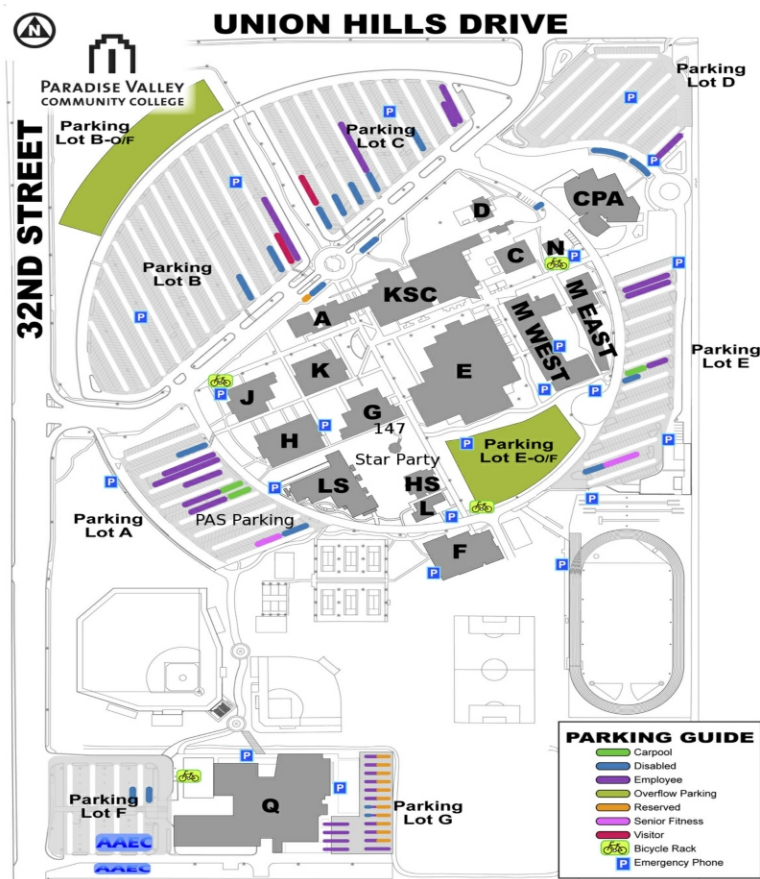
I bought the Cgem used in July 2019. The mount works very well. Included with the mount are the following: Pelican case (the case shows some scratches but is tight, dry and secure); new Nexstar hc with the usb port; new ADM dual saddle; pole

master adapter and 2 inch tripod. I want \$750:00 for the mount and will sell the mount and ed 80 for \$1200.00. I used this telescope less than ten times, the optics are pristine. The telescope is an Explorer Scientific 80 mm ED APO triplet. Included with the

Scope are: 2 inch diagonal and two extenders. I'm asking \$475.00 firm. Contact: Mario Gemini1718@q.com 480-892-3388

Map of PVCC Main Location

18401 N. 32nd Street | Phoenix, AZ 85032



Map of PVCC Black Mountain

34250 N. 60th Street | Scottsdale, AZ 85266



2020 PAS GUEST SPEAKER LINE-UP

By Terri Finch, Event Manager Events@pasaz.org

PAS Meetings are held at PVCC Main Campus on the first Thursday of the month in Room: **LS-205** unless otherwise noted. Do you have an idea for a guest speaker? Email Terri Finch, Paul Facuna, or Mike Marron for the details (their email addresses are at the top of page 2 in this newsletter).

Here are the next scheduled guest speakers at PAS:

Apr 2: Eric Steinberg, Topic: The Physics of Chernobyl
This presentation may be conducted via teleconference.

May 7: Vincent Cataldo, Topic: Planetary Science

More information at:

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

PVCC Telescope Workshop Feb 13

By Terri Finch, Event Manager

It was a super clear night outside and not too chilly for February in Phoenix. Five Telescope Teachers attended this event: William and Terri Finch, Ted Blank, Stu Brackney, Bruce Wurst and Leah Sapir. Many thanks to my Telescope Teachers, as we also had a really busy night with all the Class Attendees who attended.

Naveen Narla brought Kahna with him and they needed help on their G Skyer 90600 AZ - what a nice refractor! Ted and Stu assisted Naveen this evening.

Rudy Ganther, who attended the telescope workshop two weeks prior to this one, brought his Meade ETX 123 and Twin Star scopes. I assisted a little while managing the event and then Bruce helped Rudy after he was done with Jeff.

Jeff Stanlis attended this event after attending the telescope workshop Jan 30th. He needed help collimating his C127EQ. Bruce brought his collimator along with him and spent most of the evening with Jeff.

Joe Robbins brought his Meade LX65 which is an impressive looking scope. Joe was assisted by William for most of the evening.

John Schmitz brought a friend, Ann, and his Meade 450 scope. Ted assisted John.

Joe Robinson attended with his Celestron Mobile Transport 80 and was assisted by Leah.

Matthew Mallicoat attended. He patiently waited for William to finish with Joe, so he could talk about the new Dobsonian telescope he had ordered and was due

to arrive the day after this workshop.

This was a very busy evening with nine Class Members attending. Throughout the night, after the discussion and help session concluded indoors, some of the scopes were taken outdoors to do alignments, find first objects, etc. It was a busy evening and I wish to thank everyone who attended as Class Members. I really appreciate their patience while the Telescope Teachers provided assistance to everyone before the class ended. The event closed about 9pm.

I wish to also congratulate Matthew Mallicoat and Jeff Stanlis for becoming New PAS Members on this night. Congrats to both of you!

The next few Telescope Workshops of 2020 will be Apr 9, Sept 24, Oct 8, & Nov 19. Hope to see you there!