



# PAStimes

Phoenix Astronomical Society

[www.pasaz.org](http://www.pasaz.org)

May 2021

Volume 72 Issue 9

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

## Sam Insana Passed on Apr 7 2021

By the many PAS Members and Friends who will miss Sam and wanted to share their remembrances of him

President **Mike Marron** writes:

We are pained to announce the loss of a superstar of the Phoenix Astronomical Society. While playing golf 4/7/21 Sam Insana passed away. Gentle, knowledgeable, and friendly Sam was a fountain of information and carefully thought out advice. Sam had a career as a lawyer successfully defending the downtrodden. Sam married Vera who is also a lawyer and they had Frank. Sam loved to educate the public for PAS with his telescopes and meteorites. Frank and Sam were such expert birders that one year they were so successful they made the wash that runs through my property have one of the nation's highest bird

counts. Sam was such a long serving member of the Phoenix Astronomical Society that we were privileged to have Sam's son Frank born into the club and grow up with us. Sam did not often talk about how he was briefly in the astronaut corp but was washed out for a minor eye problem. Clearly a major loss for NASA but a huge gain for PAS. Sometimes he talked about his CalTech days. He really enjoyed grading quantum physics papers in Richard Fineman's favorite strip bar but Sam was not one of the two or three Fineman would pass. It meant a lot to me when Sam encouraged me after my The Electromagnetic Universe talk when Sam declared that I had thoroughly explained quantum physics in a far more understandable way than Fineman. See "Celebration Of Sam's Life" On page 4.



*Sam Insana, a long-time, very active, fun PAS Member passed away on Apr 7, 2021 while doing his other favorite activity, golfing. Photo by Terri Finch, taken at Lowell Observatory GO-DO Grand Opening on Sept 14, 2019.*

## Presenting Dolores Hill at PAS Meeting May 6th

By Dolores Hill

### OSIRIS-REx Asteroid Mission to Bennu: A Familiar and a Foreign World

NASA's OSIRIS-REx mission has made important scientific discoveries along its journey and overcome unforeseen challenges including house-sized boulders in its path and pandemic. The mission combines the best of engineering, astronomy, remote sensing, and sample analysis, making ground-truth comparisons of distant astronomical observations and asteroid materials up close. Bennu is a "rubble-pile" asteroid that reveals information about primordial asteroid formation and history of the Solar System. On October 20, 2020, the never-before-tried Touch-and-Go Sample Acquisition Mechanism (TAGSAM) collected an abundance of precious, pristine samples that will return to Earth on Sept. 24, 2023. We expect the returned samples to reveal important details about Bennu's parent as-

teroid and organic materials important to life. This talk will explore some amazing ways the science team was able to combine data from its perfect suite of instruments to select the best sample site and help the sample analysis team compare meteorite types in laboratories that may be similar to Bennu... or not.

Dolores H. Hill is a Sr. Research Specialist, Lunar and Planetary Laboratory, University of Arizona. Since 1981 Dolores has analyzed a wide range of meteorites at the University of Arizona's Lunar and Planetary Laboratory in Tucson, AZ, provided technical support, and participated in public outreach for space missions and LPL laboratories. Dolores currently works with sample teams for NASA's OSIRIS-REx asteroid sample return mission, LPL laboratories, and coordinates LPL outreach activities. She is a volunteer co-coordinator of the Astronomical League's Target NEOs! See "Dolores Hill to Speak May 6" on page 2.

observing program, formerly the mission's Target Asteroids! citizen science program



*Meet Dolores Hill: Sr. Research Specialist, Lunar & Planetary Laboratory, Kuiper Space Sciences at the University of Arizona in Tucson. Photo provided by Dolores.*

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## Dolores Hill To Speak May 6

that was honored as a White House Champion of Change for Citizen Science in 2013. Dolores has a lifelong interest in amateur astronomy. She is a longtime member of

the Tucson Amateur Astronomy Association, co-founded the Sunset Astronomical Society in Midland, Michigan, and was a member of the Warren Astronomical Soci-

ety in the Detroit-area. Near-Earth asteroid (164215) Doloreshill is named after her.

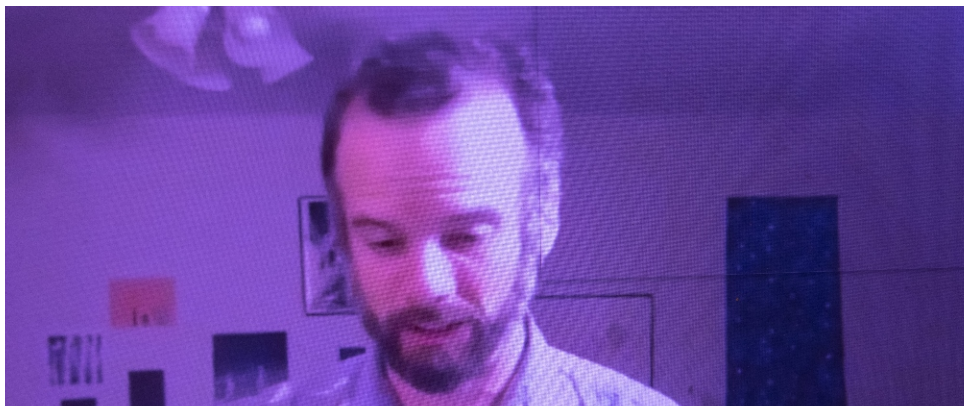
*See May 6th PAS Meeting on page 3.*

## PAS Meeting of April 1st

By Terri, Event Manager

This meeting was a very good meeting to attend. We had a super guest speaker, Danny Jacobs, who told us about Cubesats. We had an attendance of 24 with most of the attendees being PAS Members.

I wish to thank Stu Brackney for hosting the meeting. The meeting began at 7:30pm and Danny finished his presentation about 8:30pm and we closed the meeting by 8:45pm. We thank everyone for attending this meeting on April Fool's Day. Looking forward to the next meeting which falls on April 15th. See you there!



*Danny Jacobs, at the Apr 1st PAS Meeting, provided a very enjoyed presentation about Cubesats. Photo taken during the Zoom meeting by Don Boyd.*

## What's Up For May?

By Don K. Boyd, PAStimes Editor

| Name           | Date             | Rise         | Set          |
|----------------|------------------|--------------|--------------|
| <b>Mercury</b> | <b>05-15-21</b>  | <b>06:41</b> | <b>21:10</b> |
| <b>Venus</b>   | <b>05-15-212</b> | <b>06:16</b> | <b>20:25</b> |
| <b>Mars</b>    | <b>05-15-21</b>  | <b>08:42</b> | <b>23:03</b> |
| Jupiter        | 05-15-21         | 01:35        | 12:54        |
| Saturn         | 05-15-21         | 12:45        | 11:13        |
| Uranus         | 05-15-21         | 04:48        | 18:13        |
| Neptune        | 05-15-21         | 02:38        | 14:21        |
| Pluto          | 05-15-21         | 23:48        | 09:51        |

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, 2021

**Sunrise: 05:28**

**Sunset: 19:22**

**Q3: May 3**

**New: May 11**

**Q1: May 19**

**Full: May 26**



## May 6th PAS Meeting

By Terri Finch, Event Manager

Everyone is welcome to attend this Zoom Meeting. Bring your friends and family. You may log in as early as 7pm, and the meeting and Guest Speaker begin at 7:30pm. Please mute your viewing devices

(tablet, computer, cell phone, etc) and turn off your microphone so that we may give Dolores our complete and quiet attention during the meeting. All Q&A will be done through the Chat and Q&A will be at the end of Dolores's presentation. Come wel-

come this fantastic gal who has so much fun knowledge to share with us. Here's the Zoom link to this meeting: <https://us02web.zoom.us/j/82267698319?pwd=TEswUzh5dzVDY1ZmVmduSEVpQXpmUT09> See you there!

## Mike Marron Speaking at May 20 Meeting

**Presentation Starts at 7pm Sharp**  
**"Earth Shattering Evolution: the impact history of Earth and across the solar system"**

Mike was born into amateur astronomy. His parents have been officers of the Grand Rapids Amateur Astronomical Association GRAAA.org for over 60 years. As a child Mike grew up in the Grand Rapids Public Museums as his father gave planetarium shows at the Roger B. Chaffee Planetarium at the GR Public Museum and his mother was a GR Art Museum docent. Together, with these organizations, they built the public James C. Veen Observatory on a hilltop in Mike's parents' back yard in Lowell Michigan, where Mike began to teach astronomy to the public while in middle school. The observatory was recently expanded into a public park. Mike got a B.S. from Michigan State University and worked at a variety of labs doing qualification testing and failure analysis. Mike continues to teach astronomy at schools and events, often with a spectacular collection of meteorites. Mike has developed methods of teaching that give better details about the history of the universe and can be understood by all ages. A few of Mike's PowerPoint presentations on advanced astronomy

and physics are online at PASAZ.org under Mike Marron's Presentations. The "Tails of Plasma" series teaches how jets are made by astronomical objects and can be read for very detailed histories of each astronomical object. Comments overheard. "Better than years of college astronomy" - parent, "Before I could wrap my head around the last slide, you were blowing my mind with the next slide" - Mensan, "Like drinking from a fire hose of new information" - Mensan.

### May 20 PAS Meeting

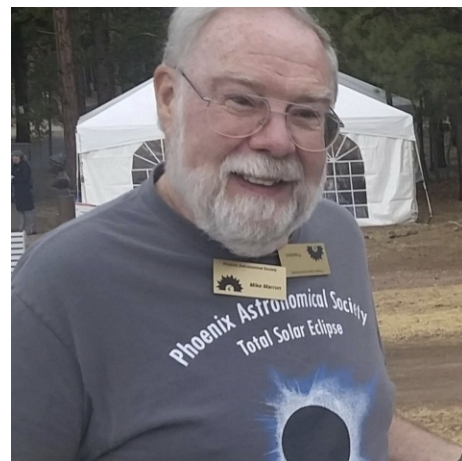
By Mike Marron

The May 20th Presentation will be broken into two parts of 45 minutes each with a fifteen minute break. Part 1 covers my concepts on the formation of the solar system and the record of planetary growth evidenced by impacts. Part 2 builds on the concepts of crustal evolution to illustrate the exact details of the largest early impacts that grew the solar system's most massive solid object, Earth.

By Terri Finch, Event Manager

Please join PAS in welcoming President of PAS: Mike Marron to the May 20th meeting. Bring your family and friends for this enthusiastic presentation. Log into this

Zoom link as early as 6:30pm: <https://us02web.zoom.us/j/88623797740?pwd=aDhja2Vuc1c2TkE3TkxhNGRvRzFIdz09>. Please mute your device and turn off your camera so that Mike can have our full uninterrupted attention for this presentation. Q&A will be through the Zoom Chat and will happen after Mike is done presenting. We hope to see you there!



*Mike Marron is PAS's Meteorite Man. Mike has an extensive knowledge of Astronomy & Astrophysics which he brings to his presentations with enthusiasm. This photo was borrowed from the PASaz.org website.*

## Mark Johnston Presenting July 15th

**"EAA: A Revolution in Astronomy Outreach"**

How to show more guests more objects, in more detail than ever before, while keeping your eyepieces crud-free at the same time....

Mark Johnston:

- NASA Solar System Ambassador
- Member of PAS, The Astronomical League, and the Astronomical Society of the Pacific
- Astronomical League Master Outreach Award recipient
- City of Scottsdale Volunteer of the

Year Award recipient for astronomy outreach

- Cruise ship speaker on Astronomy and Space Science
- 50+ year amateur astronomer

Join Zoom Meeting:

<https://us02web.zoom.us/j/86002564468?pwd=VVp4NU1HNzMzQnJhZjFGTUhQb0Z6UT09>

*Mark Johnston is a very active member of PAS. He does many outreach events that are free for the public to attend. Photo provided by Mark.*



*Continued from page 1*

## Celebration Of Sam's Life

ever had. We will all miss him, his encouragement, advice, and help. Our condolences to Sam's many various friends and relatives. The club needs your help to fill the huge gap left by Sam's passing. Please volunteer. Mike Marron, President of the Phoenix Astronomical Society, PASAZ.org

By **Sam Insana**, Long time PAS Member - this was written by Sam for the Virtual Star Parties PAS was hosting before he passed away.

Sam Insana is an engineering graduate of CalTech, worked with NASA in its Planetary Quarantine Unit, and practiced law for 35 years. He has been a member of PAS for 35 years where he enjoys public outreach showing the night sky with his telescopes and binoculars, and showing his meteorites. Sam also helps with telescope workshops, helps plan field trips to observatories and planetariums, conducts occultation timings of asteroids, does meteor counts for the International Meteor Society, does astrophotography, does dark sky analyses around Arizona, writes articles for the PAS newsletter, helps with the PAS Paradise Valley Community College scholarships, and has been a Past President and is currently Secretary of the Phoenix Astronomical Society.

By **Paul Facuna**, PAS Vice President

I do not remember when I first met Sam at a Phoenix Astronomical Society meeting. I got to know him better on the first three trips I took with PAS. Those were the weekend Kitt Peak, Mount Graham, Steward Observatory Mirror Lab trip, the Tucson Gem and Mineral show and the last Arizona Science and Astronomy Exposition in Tucson. He was outgoing, friendly and interesting. I enjoyed talking with him about different subjects and ideas including astronomy. He became interested in meteorites and was learning about and collecting them. He began giving meteorite presentations at schools and the Desert Botanical Garden Luminaria. He became interested in occultation timing and was learning about it. Don and I assisted him with timings as we were also interested. He was willing to share what he knew. I enjoyed his company and will miss him.

By **Howard Moneta**, PAS Member

I'm having a hard time processing this. Of all the people I know Sam just seemed like one that would always be there. I have always admired him and really feel thankful to have known him.

Sam Insana was a dear friend whose energy and enthusiasm filled us all with his spirit of adventure. Some of my fondest memories over the years are of Sam and his wonderful family. Together we took trips to the great observatories in Arizona and to Flagstaff for the science festival. We learned from Sam how to star-hop the night sky and we taught each other binocular astronomy. Sam educated countless children at school science nights. He was especially willing to volunteer in communities where the kids did not otherwise have much exposure to science. Sam was a model citizen scientist. He contributed key occultation timing used to discover the existence of a moon orbiting a main-belt asteroid and was recognized for this achievement internationally and in Sky and Telescope magazine.

Sam was always ready to take his telescope out into the desert for dark sky observing with his friends. He packed a sky-quality meter, a detailed observing plan, and hot apple cider for everyone. Diligently he worked through his viewing list, item by item, under the darkest skies in Arizona until the break of dawn. We passed the hours talking about everything from geology to bird watching to



*Sam was very involved in the Field Trips that PAS provided to the members. Sam usually provided transportation for many members to many various locations. Here's Sam at the Meteor Crater Visitor's Center on June 2, 2018. Photo by Terri Finch.*



*Through the many years Sam was involved with PAS, PAS provided many awards for Public Outreach and other activities Sam attended. Sam was a very active member of PAS. This photo was taken by Terri Finch on Dec 15, 2011 at a PAS Awards Ceremony.*



*Sam helped at many public and private star parties and events held by PAS. Here's Sam and his scope set up for the Bookmans Sidewalk Astronomy Event held on June 3, 2017. Photo by Terri Finch.*

social justice and sports. In the morning we would pack up our equipment and stop in Buckeye for a delicious buffet breakfast that Sam discovered on the way back to town.

Sam will be greatly missed. His kindness and friendship positively influenced many and enhanced our lives.

**Eric Steinberg**, PAS Treasurer writes:

Sam was a good friend. So sad to hear of his passing.

**Susan Mullarkey**, PAS member writes:

Oh my gosh...we love Sam. I just can't believe it!

By **Leah Sapir**, Long time PAS Member

It was quite a shock to hear that Sam Insana is no longer with us. He had been a much-respected member of PAS for as long as I can remember. My heart goes out to his family. We will all miss him.

From **Mark Johnston**, PAS Member

I was devastated when I heard Sam was gone. He was always so positive and looked for ways to help. He did a great job as PAS President and helped build the club and engage with members. He was very knowledgeable on many subjects yet always humble. Over the last couple of years we went often to dark sites together: the Antennas, Needle Rock recreation area, Picketpost, and Doney north of Flagstaff. He was a great companion - knowledgeable, funny, helpful, and a genuine pleasure to hang out with. We had planned to go to the Antennas just 2 days after his passing. Sam was also the champion weather forecaster. He had the weather forecast sites nailed down and provided accurate insights into cloud cover, wind, and temperatures to help us all make observing decisions. I also enjoyed birding with Sam and his son Frank. They really knew their birds and we went out on several trips in the valley identifying birds and enjoying each other's company. Sam will be sorely missed by all who knew him.

**Kevin Harcey** writes: We miss you Sam. With love Kevin.

By **Dennis Young**, President of Sirius Looker Astro Club in Sedona

So sorry for the loss of a great man that so many knew. His family and PAS will of course miss him dearly. Always was a fun man to be around. Much appreciate the insight. Sincerely Dennis

**Kimberly Hollingsworth**, PAS Member writes:

Oh my goodness, I'm so very sorry and shocked to hear this!! We just saw Sam and Frank at our last star gathering at Ron's planetarium. Sam had survived his cancer, yet he was doing what he loved, golf, and a heart attack was the culprit. My heart goes out to his wife Vera and son Frank!! I'm so saddened and it almost seems unreal.... My prayers and sympathy to the family! Kim and Mel McClure.

**Mary (Darlene) Ashlefeld**, PAS Member adds:

So sorry to hear about Sam, he will be missed. I think about PAS often. I took my milky way poster to our church's Trunk or Treat and had fun-size Milky Way bars for the treat. You would be surprised at the answers to my question of, "what is this?: Top answer was "the universe." Sad to say it was overcast so I couldn't show them where it is in the night sky. I settled on sharing some stats from NASA. My condolences to all of us on Sam's passing. Love Dar.

**Dr. Jim Lynch**, PAS Member writes:

We're very sad to hear about Sam Insanas passing. He was a high school classmate of my cousin's wife, and also a good friend of our local club (who also encouraged me to join PAS). Best, Dr. Jim Lynch, Senior Scientist Emeritus, Woods Hole Oceanographic Institution



*Sam with his awesome meteorite display at the Sept 1, 2019 Leprecon event at Double Tree at Metro Center Mall. Photo taken by William Finch.*



*Mark Johnston took this awesome photo of Sam and his setup in February 2021 when they went to the Antennas dark site together.*



*Sam Insana sitting with Kimberly Hollingsworth at a Black Mountain Campus Star Party on Mar 5, 2020. This is Sam enjoying life wearing a smile as he talked about meteorites and our cosmos.*

*Photo provided by Stu Brackney.*

By **Alex Vrenios**, PAS Member

How very sudden; very sad. He will be missed. I believe Sam was PAS' most senior member, having been a member since the 1950s, or something like that. What a terrible loss, Alex & Diane.

What a loss, to both PAS and to the hobby. I was having two email conversations with him over the last couple of days. One was about H-alpha solar observation. He was helping me organize my thoughts for my presentation in August. Another was more general, about a real-time camera setup on my telescope for star parties, to allow the public to view an object on a laptop screen rather than

# Celebration Of Sam's Life

through an eyepiece - easier, safer and more satisfying for the viewer than trying to view through an eyepiece for the first time. Sam's ideas were very helpful to me; he was like that.

**Dr. David Williams**, Many times Guest Speaker and good friend of PAS writes:

My sincerest condolences to the members of the PAS, as well as to Sam Insana's family. Sam was a great enthusiast for amateur astronomy as well as NASA's Solar System Exploration Program. May his spirit of exploration continue in all members of the PAS and in future generations of astron-

omers! Dr. David A. Williams, Research Professor, School of Earth and Space Exploration, Arizona State University

**Pamela Kielbowicz**, PAS Member writes:

I was so sorry to hear of the passing of Sam. I did not know him well, as my work hours and family demands prevented my attending many events, but I do remember him as a patient and knowledgeable teacher at various star parties. My condolences. I know his loss will be deeply felt by the PASAZ. Pamela K.

**Terri Finch**, PAS Event Manager

adds:

If you would like to send a sympathy card to Sam's wife Vera, and or his son Frank, here is their mailing address: Vera Stiesmeyer & Frank Insana 1940 E Palo Verde Drive, Phoenix AZ 85016

I wish to thank everyone mentioned above, for their very kind remembrances of Sam shared in this obituary. Sam will definitely be missed tremendously. He was a good friend to many PAS Members. It's a great loss to have lost Sam, but it was fantastic to know him. PAS sends condolences to Vera & Frank.



Sam shows the Sun to a guest at a Paradise Valley CC event, June 17, 2016. Photo provided by Alex Vrenios.



Sam Insana took part in many fun activities PAS had to offer including the Annual White Dwarf Gift Exchange held at Mike Marron's home in Carefree. This is a game PAS played at the Annual PAS Social usually held in January. This photo is by Don Boyd and taken on Jan 21, 2012.



Sam at Canon Elementary School on Mar 8, 2019. Sam loved to share his meteorites with all ages. Photo provided by Sam.



Star Trek was one of Sam's favorite things. This photos is taken during the Halloween Costume Contest of Oct 26, 2013 at Mike Marron's home in Carefree. Photo by William Finch.

# PAS Officer Elections at May 6th Meeting

By Terri, Event Manager

At the May Meeting, AFTER the Guest Speaker does her presentation, we will have the Yearly Officer Elections. It is advised that ALL PAS Members attend this meeting so they can put in their vote for the new officers of the PAS year Sept 2021 to May 2022.

Here are the current positions of Officers in PAS: President Mike Marron, Vice President Paul Facuna, Editor Don Boyd, Secretary Sam Insana, and Treasurer Eric Steinberg. Here are the current Directors and appointed positions of PAS: Webmaster Pete Turner, Event Manager Terri Finch, PAS Host Stu Brackney, Member at Large Jenny Neujoy and Member at Large Bruce Wurst.

We hope to see you at the May Elections Meeting so you can help decide who takes care of PAS for the next year!

Running for President is Stu Brackney. Here is his bio:

Stu received his BA degree from Florida Southern College in Sociology, and a Masters' Degree from the University of Arizona in Rehabilitation Counseling for Deaf People. He served his country as a Captain, US Army Infantry in Vietnam. He hosted a television program for twenty-three (23) years on a local ABC affiliate directed towards the deaf community, interviewing local politicians (Arizona Govern-

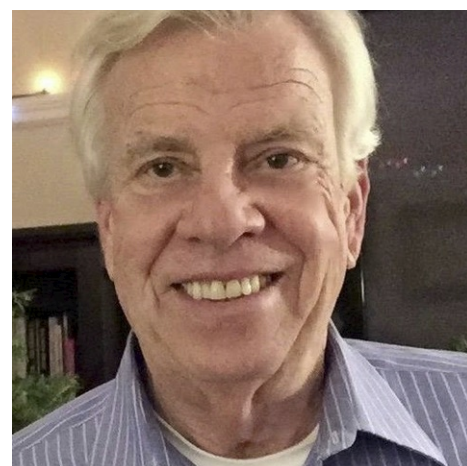
nors Bruce Babbitt, Raul Castro and Rose Mofford) and famous classic Hollywood personalities (dancer Cyd Charisse, actors Mickey Rooney and Ed "Cooky" Burnes). The show was ultimately broadcast nationwide on the Kaleidoscope network. His energy level led him to be a stadium announcer for the Milwaukee Brewers Spring training and ten years as a high school sports announcer. He was the host of a radio program on KFYI in Phoenix, conversing with local personalities who worked with the disabled community and taking calls from the public. He was an instructor in communication at Arizona State University.

His prior work history includes being a city manager in two Arizona communities and the Director of two state agencies, The Arizona Council for the Deaf and Hearing Impaired and the Arizona Corporation Commission.

During the last two years Stu has been a member of the Phoenix Astronomical Society (PAS) where he was elected to the Board of Directors. He has been a spokesperson and visual guide during PAS star parties which are organized events that set up telescopes to allow members of the public to view celestial objects. Stu's informed explanations enhance the viewers visual travel through the skies above. Additionally, Stu provides tutorial assistance in monthly classes held by PAS to individuals

who either want to buy a telescope or just did and have many questions about both. Stu is an effective communicator in both Spanish and American Sign Language. He has been married to his wife, Mary, for 45 years and has two grown children, a son and a daughter and a new son-in-law.

With the passing of Sam Insana, the Secretary position in PAS is now open. If you are interested in running for PAS Secretary, please be at the May Meeting Elections and let an officer know you are interested in the position so that you can be elected into position during the Elections of Officers at this meeting.



*Stu Brackney is running for PAS President.  
Photo provided by Stu.*

## Richard Sauerbrun Presenting Aug 5th

**"Enjoy your astronomy and still get some sleep"**

Discover how your computer and various software applications can enhance the use of your telescope. Replacing the eyepiece with a camera enables you to see farther into the universe and observe even very faint objects with greater detail. And best of all, you can get more sleep and still enjoy wandering the cosmos.

Richard Sauerbrun, Ph.D.

PAS member since October 2019

Astronomy Beginner

Astrophotography Beginner

30+ year career in Information technology

### PAS Meeting Aug 5th

By Terri, Event Manager

Please Join PAS in welcoming PAS Member Richard Sauerbrun for a Virtual Presentation on Aug 5, 2021. Meeting doors open 7pm and the Guest Speaker begins about 7:30pm after a brief introduction. Everyone is welcome. Bring a Friend! Join Zoom Meeting:

<https://us02web.zoom.us/j/89246847043?pwd=OWd2ZEFLaVBHcm1UbXUrUnpLU2lGUT09>



*Richard presents "Enjoy Your Astronomy and Still Get Some Sleep." Photo provided by Richard.*

# Alex Vrenios to talk on Aug 19th

## By Alex Vrenios, PAS Member Here Comes the Sun: An Introduction to Solar Observing

Alex is a retired computer scientist and an avid amateur astronomer, with over a dozen completed programs offered by the Astronomical League. He got his first telescope, a cardboard tube Newtonian with a 3-inch metal mirror on a rickety mount, from his older brother. First light was a street lamp; next was the Moon he was aiming for - hooked!

Alex is doing a presentation like no other you have seen before. Come enjoy this PAS meeting which will share a primer on solar observing in white and Hydrogen-alpha light. What's the difference? What can you see on the Sun? What equipment do you need?

## Aug 19th PAS Meeting

By Terri, Event Manager

You don't want to miss this exciting topic and meeting. Virtual log-in starts as early as 7pm. The meeting begins at 7:30pm after a brief introduction by President Mike. Bring the whole family to this Super HOT (the Sun) topic!!! Here's the link to log in via Zoom:

<https://us02web.zoom.us/j/82528582791?pwd=Nkpwa1NUa2hLTVBvU01aZmtnOUlHdz09>

See you there!



*Alex provides this fantastic photo of himself with his Coronado 70mm SolarMax III Solar Scope.*

# PAS Telescope Teachers are Available!!!

By Terri, Event Manager

Do you have a telescope you need assistance with, whether it is to get it aligned, get it running, or just get help finding objects in the night sky? PAS Members can assist you for a fee.

Email me today to set up your Telescope Help Session with qualified, very knowledgeable and friendly PAS Members.

Email Terri at [StarStuff@gmail.com](mailto:StarStuff@gmail.com).

Include the make and model of your telescope as well as your main cross streets where you wish to meet the Telescope Teacher for help (your home location is preferred). Then fill out and send back the booking document and I will find you a telescope teacher who knows how to help you with your model telescope.

By **Bruce Mendenhall**, PAS Member

Richard Sauerbrun is magic. Richard came to my home and assisted me with my Obsession Telescope. This is the first time in 16 years the guiding on my telescope has worked. It's also the first time the motors have run. Thanks so much Terri, for helping set up this Telescope Help Session. And a huge thanks to Richard!!!

# Virtual Star Party for PAS Members Mar 18

By Terri Finch, Event Manager

This was a well oiled cog. PAS held a Virtual Star Party on March 18th and invited all of PAS to attend and give input as to how it went and what to do to improve the experience before making our Virtual Star Parties (VSP) available for the public. This was the 3rd and best rehearsal yet.

I wish to thank the VSP Team for attending this rehearsal: Stu Brackney, Wil-

liam and Terri Finch, Don Boyd, Ted Blank, Mark Johnston, Sam Insana, Richard Sauerbrun, Mark Savan, Mike Marron, Bruce Wurst and Pete Turner. Everyone attending did a spectacular rehearsal from which I hope we all learned what to do to make things better and keep the attention and interest of the public, when we turn these VSP's into Public VSP's.

We had 19 in attendance (12 were the

VSP Team members) and I'd like to thank the audience of attendees: Susie, Peggy, John, Ron, Chris, and Barb.

The VSP started at 7:33pm and ended around 8:35pm. It was hosted very professionally and skillfully by Stu Brackney. I can't wait for our first Public VSP. Watch the calendar for the announcement!!! Invite everyone you know. See you there!

# Virtual Star Party (VSP) Meeting Review of Mar 18

By Terri, Event Manager

On March 21st, PAS held a meeting to discuss how to improve the Mar 18th VSP. There were 12 VSP Team members plus one PAS Member, John Millstine. I wish to thank John for his input, as he had some very good ideas.

The rest of the Team is William &

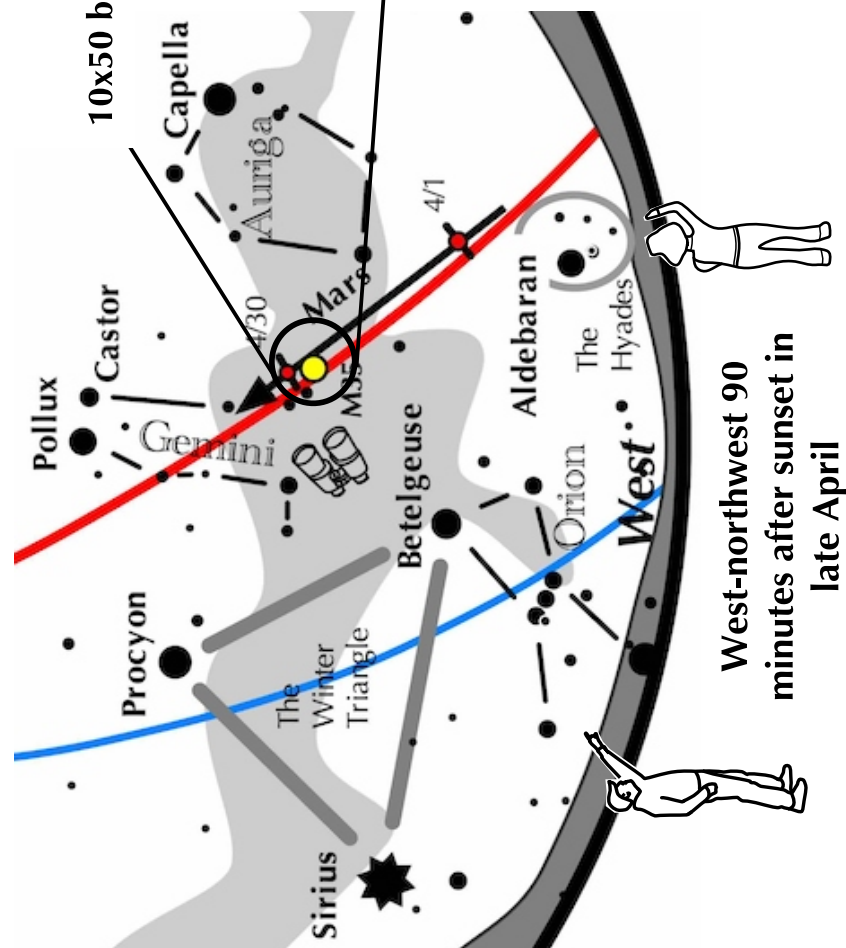
Terri Finch, Stu Brackney, Pete Turner, Don Boyd, Sam Insana, Ted Blank, Mark Johnston, Mike Marron, Mark Savan, Richard Sauerbrun, & Bruce Wurst.

We all met on Zoom at 3pm on Sunday afternoon and the meeting ended at 5pm. A lot of great ideas were shared and suggestions were made to make this event run

more smoothly. Many thanks to all who attended.

From this meeting, the April 2nd VSP open to PAS Members was scheduled. We'd love for all PAS Members to attend this event. Hope to see you there! After the Apr 2nd VSP, the future VSP's will be open to everyone!

**If you can observe only one celestial event this month, consider this one:**



# Mars uncovers M35

Look to the west-northwest 90 minutes after sunset on the 1st week of April for red Mars.

It will be a little brighter than the three belt stars of Orion.

Draw a line from the easternmost Belt star through Betelgeuse. It will strike Mars.

Mars moves immediately north of the star cluster M35 on April 26. Unfortunately, bright moonlight will likely obscure the view.

On April 28, before the moon rises, look again with binoculars and the fuzzy glow of M35 will be revealed one-third of a field to the southwest of Mars.

Each night afterwards, the Red Planet moves a little further east of M35.





# Watch the Lion: Celestial Wonders in Leo

Leo is a prominent sight for stargazers in April. Its famous sickle, punctuated by the bright star Regulus, draws many a beginning stargazer's eyes, inviting deeper looks into some of Leo's celestial delights - including a great double star and a famous galactic trio.

Leo's distinctive forward sickle, or "reverse question mark," is easy to spot as it climbs the skies in the southeast after sunset. If you are having a difficult time spotting the sickle, look for bright Sirius and Procyon - featured in last month's article - and complete a triangle by drawing two lines to the east, joining at the bright star Regulus, the "period" in the reverse question mark. Trailing them is a trio of bright stars forming an isosceles triangle, the brightest star in that formation named Denebola. Connecting these two patterns together forms the constellation of Leo the Lion, with the forward-facing sickle being the lion's head and mane, and the rear triangle its hindquarters. Can you see this mighty feline? It might help to imagine Leo proudly sitting up and staring straight ahead, like a celestial Sphinx.

If you peer deeper into Leo with a small telescope or binoculars, you'll find a notable double star! Look in the sickle of Leo for its second-brightest star, Algieba - also called Gamma Leonis. This star splits into two bright yellow stars with even a small magnification - you can make this "split" with binoculars, but it's more apparent with a telescope. Compare the color and intensity of these two stars - do you notice any differences? There are other multiple star systems in Leo - spend a few minutes scanning with your instrument of choice, and see what you discover.

One of the most famous sights in Leo is the "Leo Triplet": three galaxies that appear to be close together. They are indeed gravitationally bound to one another, around 30 million light years away! You'll need a telescope to spot them, and use an eyepiece with a wide field of view to see all three galaxies at once! Look below the star Chertan to find these galaxies. Compare and contrast the appearance of each galaxy - while they are all spiral galaxies, each one is tilted at different angles to our point of view! Do they all look like spiral galaxies to you?

April is Citizen Science Month, and there are some fun Leo-related activities you can participate in! If you enjoy comparing the Triplets, the "Galaxy Zoo" project ([galaxyzoo.org](http://galaxyzoo.org)) could use your eyes to help classify different galaxies from sky survey data! Looking at Leo itself can even help measure light pollution: the Globe at Night project ([globeatnight.org](http://globeatnight.org)) uses Leo as their target constellation for sky quality observations from the Northern Hemisphere for their April campaign, running from April 3-12. Find and participate in many more NASA community science programs at [science.nasa.gov/citizenscience](http://science.nasa.gov/citizenscience). Happy observing!

## Additional Skywatching Resources

Plan your skywatching with help from our planner page: <https://nightsky.jpl.nasa.gov/planner.cfm>, featuring daily stargazing tips courtesy EarthSky monthly sky maps, and videos from NASA/JPL. You can even find out how to spot the International Space Station! Both Astronomy and Sky and Telescope magazines offer regular stargazing guides to readers, both in print and online. Want to join a group of folks for a star party? Find clubs and astronomy events near you, and may you have clear skies!



*The stars of Leo: note that you may see more or less stars, depending on your sky quality. The brightness of the Leo Triplet has been exaggerated for the purposes of the illustration - you can't see them with your unaided eye.*



*Your view of the three galaxies in the Leo Triplet won't look as amazing as this image taken by the VLT Survey Telescope, unless you have a telescope with a mirror 8 feet or more in diameter! Still, even a small telescope will help your eyes pick up these three galaxies as "faint fuzzies": objects that seem blurry against a background of pinpoint stars. Let your eyes relax and experiment with observing these galaxies by looking slightly away from them, instead of looking directly at them; this is called averted vision, a handy technique that can help you see details in fainter, more nebulous objects. Image Credit: ESO, INAF-VST, OmegaCAM; Acknowledgement: OmegaCen, Astro-WISE, Kapteyn I*

**If you can observe only one celestial event this month, see this one:**

**View through  
10x50 binoculars  
on May 12**



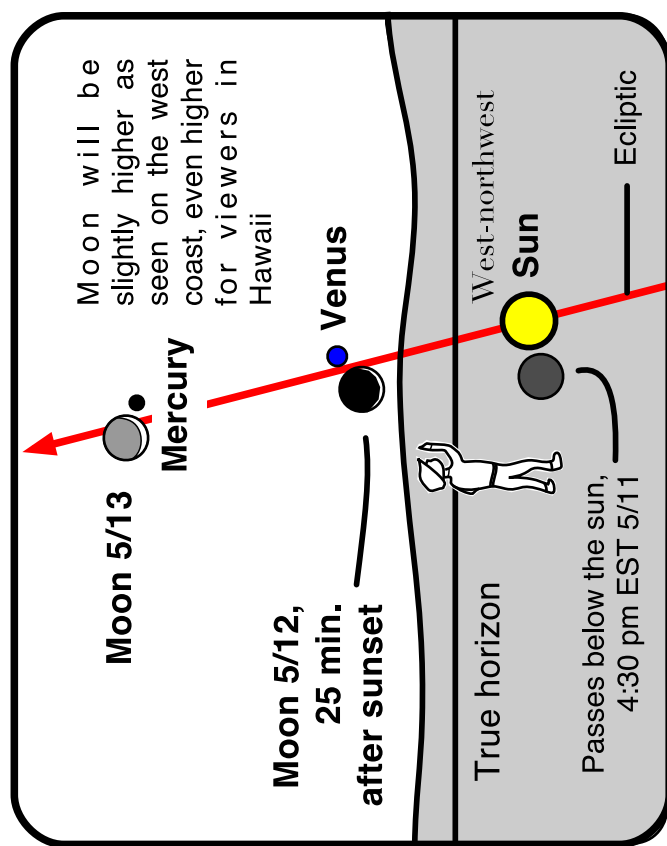
### **Young, thin Moon in the evening twilight**

Crescent moons, sporting Earthshine, are always pretty to view. How thin of a crescent have you seen? May 12 and 13 present a good opportunity to catch a very thin moon, but binoculars may be needed. Look low into the western twilight 25 minutes after sunset on May 12 when the moon is just 1.25 days old, i.e., 1.25 days after it passed below the sun.

Its thin sliver should be a tad easier to spot for west coast observers than east coasters. Venus will lie just to its right which may aid in discerning the moon. If you are unable to find the crescent, try again the following evening when the moon is a little higher in the sky and shows a slightly thicker slice. It is then 2.25 days old and lies next to Mercury.

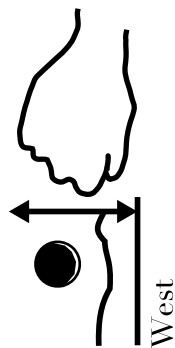
Very clear skies and an unobstructed western horizon are needed.

Use binoculars. The bright twilight will likely prevent Earthshine from being seen on May 12. A much better chance occurs on May 13, the moon lies higher in the sky next to Mercury. Again, bring out the binoculars.



**May 12 & 13, 2021:  
Young Moon 25 minutes after sunset  
very low in the west. Tough to see.**

May 12, 25 min. after sunset  
Moon appears about "1/2 st width on a fully extended arm" above the true western horizon 25 minutes after sunset.



# 2021 PAS Virtual GUEST SPEAKERS

By Terri Finch, Event Manager  
Events@pasaz.org

Due to the Covid-19 pandemic, PAS Meetings are being held via Zoom over the internet. The Zoom link has been added to the calendar listing for that night's meeting and in the Newsletter in the article about the next PAS Meeting. Please visit the PAS calendar at PASaz.org to find out more about

these upcoming Virtual Meetings and Guest Speakers. For a complete list of Guest Speakers, visit:

<https://docs.google.com/document/d/1OO-UpaYNvw3p7JCRXCKSjDcbsK60DnvWOoifbqPrNp8/edit?usp=sharing>

Do you have an idea for a guest speaker?  
Email Paul Facuna

VicePresident@pasaz.org the details and contact info for that possible Guest Speaker.

Here are the next scheduled virtual guest speakers at PAS:

**May 20:** Mike Marron: AZ Shattering Impact

**Sept 2:** Anna Engle: Outer Solar System Ices

## Public Invited Virtual Star Party Apr 2

By Terri, Event Manager

The evening began at 8pm. PAS provided 4 astronomers with telescopes, 2 astronomers who talked about the objects, 2 astronomers in the Public Chat Room to answer questions, 2 Meteorite Men, and Stu who managed and ran the whole show.

PAS was able to provide fantastic views of the Rosette Nebula, Orion Nebula, Beehive Cluster, the Whirlpool Galaxy and the Horsehead and Flame Nebula in the first half of the evening. Then there was a brief break during which the Meteorite Men shared

some great info about meteorites. The second part of the evening we shared Bode's Galaxy with the Cigar Galaxy, Pinwheel Galaxy, M67 Open Cluster, the Seagull Nebula and M3 Globular Cluster. The evening concluded at 9:15pm.

At this virtual event we had 26 in attendance. The weather for the evening was beautiful which helped the 4 telescope astronomers really show some gorgeous objects. I wish to thank everyone who attended and for the awesome Virtual Star Party (VSP) Team. The next VSP hasn't been

scheduled yet, but watch for it on the PAS online Calendar. See you there!

By **Frank Otsuka**, PAS Member

In spite of the usual glitches of a startup venture, I found last night's VSP to be much more entertaining than the Flagstaff program. The banter, back and forth, and occasional joke made this perfect. Various voices and equipment kept my interest far better than a single presenter and a single scope. Mixing in the meteorites with microscopic views is also perfect. Keep up the good work Virtual Star Party Team. Best regards, Frank

## 10 Great Reasons to Become a Member of PAS

By Kevin Witts

For anyone out there who may be hesitant to join the PAS, here are 10 great reasons to do so:

**Reason 1 - Share Your Passion of Astronomy with Others**

The group provides access to a community of passionate, knowledgeable people who all share a love of astronomy, the sky and even earth sciences. PAS provides information, recommendations and many resources which allow in-depth exploration and learning.

**Reason 2 - Observe with Others**

There are regular nighttime gatherings to study the sky and discuss topics of interest. Sometimes members meet at selected locations to get the true "dark-sky" experience and see things unviewable in urban areas. Because it's important not to be out alone in these remote areas, PAS provides an opportunity to meet up with others there.

**Reason 3 - Make New Friends**

Not only are PAS members knowledgeable, they are also nice people. Whether observing with sophisticated high-end equipment or just binoculars, they are all eager to welcome others who share a passion for the sky and astronomy.

**Reason 4 - Share Your Knowledge with Us**

PAS members share knowledge with each other. Knowledgeable members give lectures, submit articles to the newsletter or simply alert others in the club to useful, interesting information.

**Reason 5 - Receive Expert Advice / Information/ Instruction**

Many of our members can offer training on the use of various types of telescopes, eyepieces and related equipment. Others are experts on the night sky and can provide detailed observing advice. Still others provide weather updates, alerts to astronomical events or relevant articles and websites. The pool of knowledge is extensive.

**Reason 6 - Try It Before You Buy It**

All equipment used by PAS members is personally owned, but members are generous in allowing others access to their equipment. The best way to choose the right equipment is to try it out first, and members often take advantage of that option. PAS even offers a forum for members to trade or sell equipment to others in the group.

**Reason 7 - Gain Access to the Larger Astronomy Community**

PAS maintains relationships with other

astronomy groups including NASA, ASU and the University of Arizona. There are frequent opportunities to hear from and connect with experts in the field. PAS members also become members of the Astronomical League, which provides resources worldwide.

**Reason 8 - Attend Exclusive Events**

PAS affords members the opportunity to attend exclusive events that would not ordinarily be available to the general public. These events include lectures, private star parties, gatherings and even social events.

**Reason 9 - Join in on Public Outreach**

Once certified, PAS members can take part in numerous outreach events where members can share knowledge and expertise with schools and the general public. On other occasions, the group is hired to do events hosted by private parties as well. These events are greatly appreciated by the public.

**Reason 10 - It's Inexpensive to Join**

A full year of PAS membership costs only \$25 and includes the immediate family. This membership provides access to resources, a monthly newsletter and all PAS sponsored events.

I would highly encourage anyone with an interest in astronomy to explore the benefits of a PAS membership.

# Summer 2021 Guest Speaker Line-up

By Terri Finch, Event Manager

PAS hasn't had a summer time Guest Speaker line up for quite some time. The reason for this is that the school at which PAS has the general meeting, doesn't have summer classes or isn't able to accommodate lending PAS a room to use for June, July and August 1st Thursdays. So, PAS hasn't had any "General with Guest Speaker" meetings in the summer time for many

years.

This year, due to Covid sticking around and several PAS Members planning ahead, PAS has a schedule of Guest Speakers for your enjoyment!!!

The Summer Schedule of Meetings with Guest Speakers for June, July and August 2021 will be:

**July 15th:** Mark Johnston

**August 5th:** Richard Sauerbrun

**August 19th:** Alex Vrenios

Please read about these upcoming meetings in this issue of PAS's PASTimes May 2021 Newsletter and join PAS in welcoming some very interesting, skilled PAS Members who will be sharing their knowledge with everyone who attends. Hope to see you there!

## Sky Charts on PASaz.org - Where to find them

By Terri, Event Manager

The Astronomical League has been providing monthly sky charts for inclusion in our club newsletter. As many of you know, PAS does not produce a Summer issue of the newsletter unless there is enough submissions to make a minimum of a 6-page issue. So, for the months of June, July & August of 2021, the Astronomical League will be providing PAS with the

same fantastic sky charts, but they will only be available at this link:

<https://www.pasaz.org/observing/sky-charts-for-this-month> on the PASaz.org website, and not in the club newsletter. To find this link on the site, click on "observing" in the left hand navigation column, and then you will see that under the "observing" link is another link that says "Sky Charts for this month" and if you click on

that link, it will provide the current month's sky chart created by the Astronomical League for everyone to enjoy.

For the September issue, Don and I will start including the star charts again in the newsletter when they are received before the newsletter submission deadline. I hope you are enjoying using these awesome sky charts. Happy Star Gazing!

## Sky Charts From Astronomical League

By Terri Finch, Assistant Editor

Pete Turner, the PAS Webmaster, has been doing a great job of posting the newest Star Charts to the club website each month that star chart is active, meaning: the May Star Chart shows up at the beginning of May, etc. The link to get to that part of the website can be found at PASaz.org under "Observing" and then "Sky Charts For This Month" or use this direct link:

<https://www.pasaz.org/observing/sky-charts-for-this-month> The plan for the Summer months in which PAS does not usually put out a monthly newsletter, is that the Star Charts will be updated on the PAS website. If there happens to be a PAS newsletter for June, July or August the Star Chart will not be included.

Many thanks to Pete, PAS's Webmas-

ter, and to John Gross who sends these star charts to me from the Astronomical League. You can access June, July and August star charts created by the Astronomical League at the Astro League's Facebook page: <https://www.facebook.com/AstronomicalLeague>. PAS appreciates being able to provide these wonderful star charts for everyone to use. Enjoy!

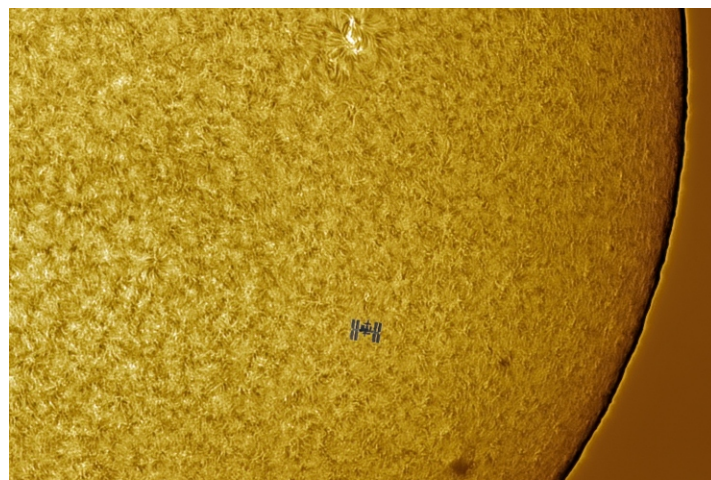
## ISS Solar Transit Mar 4

By Mark Johnston, PAS Member & Solar System Ambassador

I captured my first successful ISS transit of the Sun yesterday. Was quite the adventure, I thought I had allowed enough time to get to the park right on the centerline of the transit, but when I arrived the driveway was gated and chained shut (thank you City of Phoenix). So I had to scramble and find a nearby side street without much traffic also on the centerline. Then I had alignment problems, the Sun kept drifting out of the field of view. Finally after 2 retries I got things aligned and stable with 3 minutes to spare.

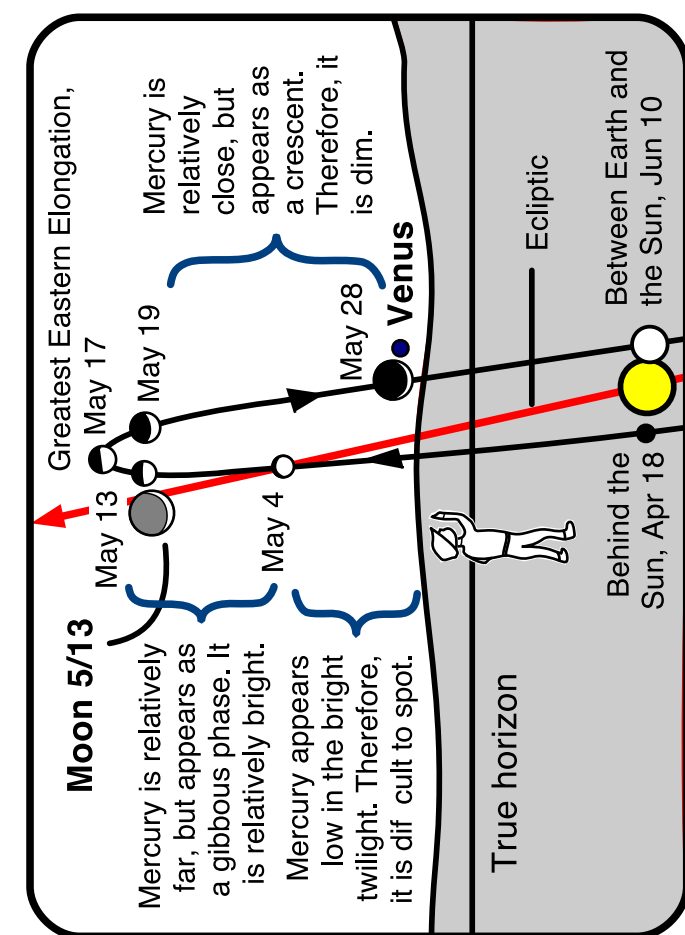
On the advice of an expert, I

used my Esprit 100ED with a Herschel Wedge and a 2.5x barlow (white light) to maximize ISS detail. Exposure was 160 microseconds. I started capturing video at 85 fps about a minute before the scheduled time. Even though the ISS transit finder said where I was should be the centerline of the transit, I actually just caught it on the edge. Then, after I got the fleeting glimpse as it zipped across the edge of the Sun, I switched scopes and took a hydrogen alpha photo of the surface at the same scale.

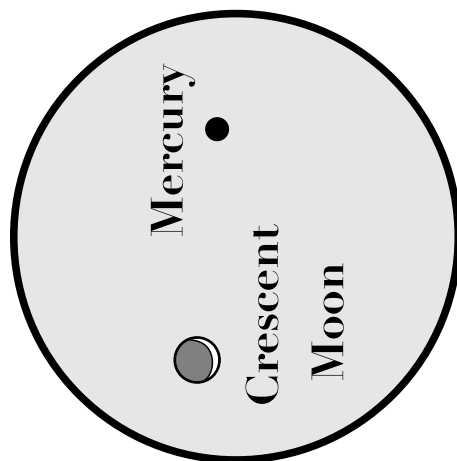


*This photo shows the original ISS photo (inset) and then I placed it on the HA view of the Sun (from 5 minutes later) at scale  
Photo taken by Mark Johnston.*

# If you can observe only one celestial event this month, see this one:



View through  
10x50 binoculars  
on May 13



## Mercury in the evening twilight

Have you ever spotted Mercury? Many stargazers have not. From early through mid May presents a good opportunity to catch the elusive little planet. Look low into the west-northwestern twilight forty minutes after sunset.

Mercury comes between the Sun and Earth on April 18, then two weeks later, it is found climbing higher above the western horizon each evening as it moves away from the Sun. Between May 4 and 19, it is bright enough and high enough in the twilight sky that it can be seen rather easily if the sky is clear and if the horizon is unobstructed. After May 19, it dims significantly, making it again difficult to spot.

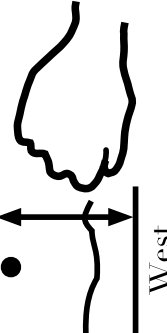
Using binoculars, look on May 13 for the crescent Moon entering the scene to the left of Mercury. Can you see Earthshine on the Moon's dark side?

Bright Venus shines immediately above the horizon on May 28 and lies to the right of Mercury. Binoculars might be able to reveal this pairing, but the sky may prove to be too bright.

## May 2021: Mercury forty minutes after sunset in the west-northwest



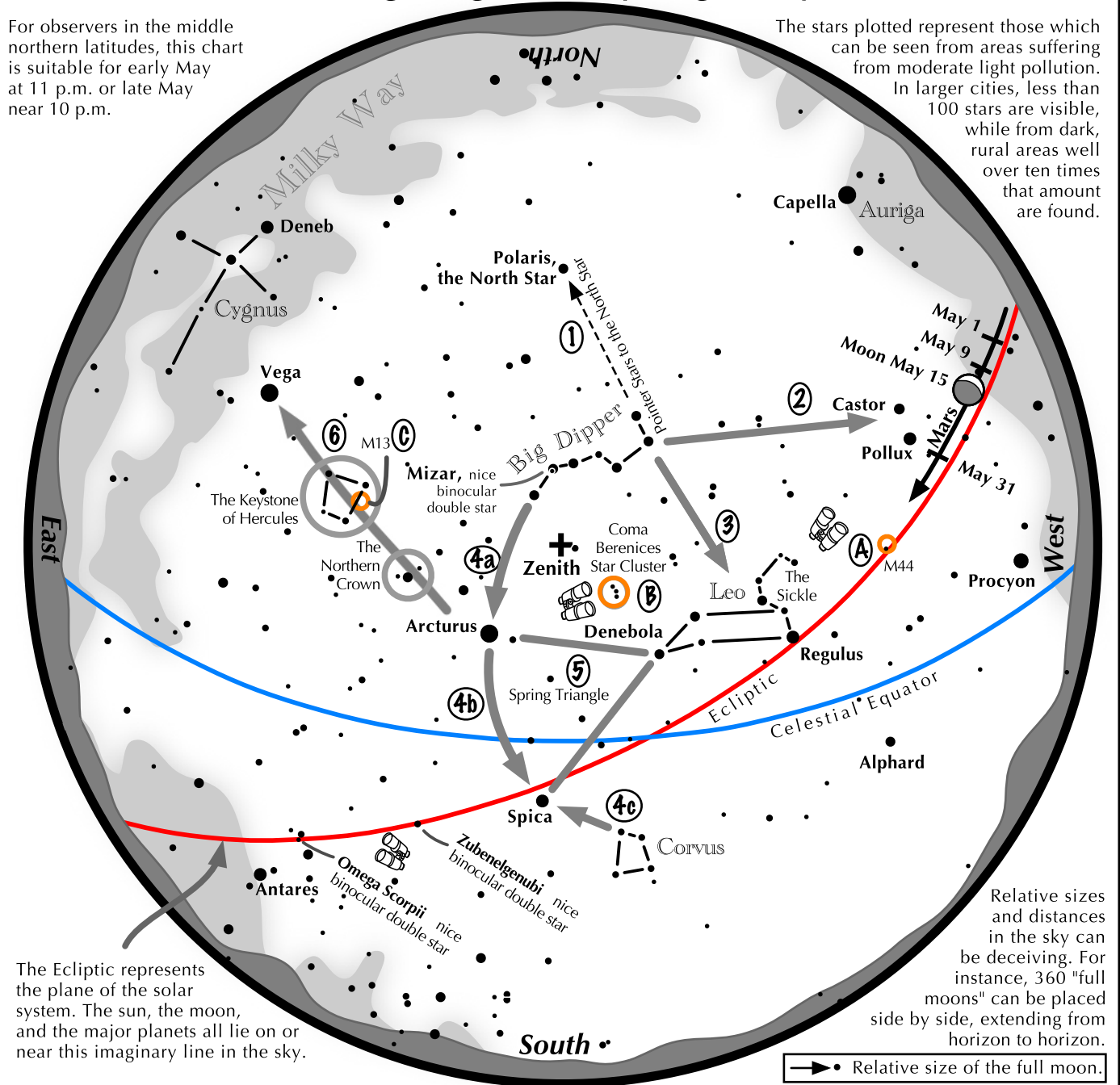
Mercury appears about "1" st width on a fully extended arm" above the true western horizon forty minutes after sunset.



# Navigating the May Night Sky

For observers in the middle northern latitudes, this chart is suitable for early May at 11 p.m. or late May near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



## Navigating the May night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
- 3 Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
- 4 Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica. Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
- 5 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 6 Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

### Binocular Highlights

**A:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **B:** Look near the zenith for the loose star cluster of Coma Berenices. **C:** M13, a round glow from a cluster of over 500,000 stars.

