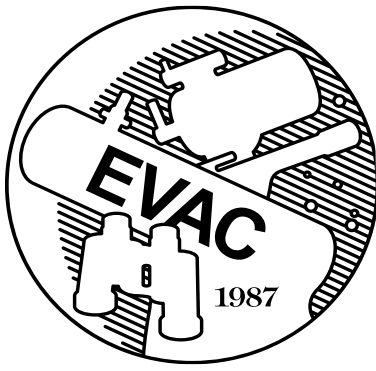


THE OBSERVER

VOLUME 36 ISSUE 2



Blue Straggler Stars in Globular Cluster M53
Image Credit: [ESA/Hubble](#), [Nasa](#)

UPCOMING EVENTS:

All meetings will be held online.

*EVAC Meeting via Zoom - February 18th.
Nat Butler - Software and Small Telescopes:
Searching for the needle in the Haystack.*

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From the Desk of the President *by Claude Haynes*

“Gray skies are gonna clear up, put on a happy face,” was the encouragement from Bye Bye Birdie. Gray skies have impacted our viewing in January, especially for a couple of Saturdays at the observatory. Hopefully the winter rains have now past and we can enjoy the wonders of the Winter Sky. The Orion Nebulae (M42) always brings joy and warms the heart on chill evenings. However, there are things to do on those cloudy nights. One may be to check the EVAC website to view past Zoom meetings. Simply go to www.evaconline.org and look under Events+Meetings. There is a list of past speakers with

links to the recorded presentations. If you missed the January meeting, I would especially encourage you to watch Steve Desch’s presentation on Oumuamua. It is a great talk about his research. Check out the ones from 2021 as well. We are blessed with access to speakers from the U of A, ASU and Lowell Observatory to provide insight into cutting edge research. Our February speaker is Nat Butler from ASU, whose topic is “Software and Small Telescopes: Searching for the Needle in the Haystack” and is about using small telescopes to chase LIGO gravitational wave events in search of electromagnetic counter-

From the Desk of the President

by Claude Haynes

Continued from page 1

parts. On that same website page you can easily click the "Become a Member" link to join in support of the club's activities, or to renew your membership.

Another activity on a dreary night is to buy more stuff. Check the advertisements for used equipment on page 6 from a couple of members who are selling off some nice gear. While we have all experienced the gray skies of the

pandemonium that have caused us to meet via ZOOM and to curtail many of our outreach efforts, there are signs that clearer skies are ahead. Stay safe and well, and hopefully we will be able to meet in person and observe with renewed passion in the coming days.

Your President
Claude Haynes

EVAC Zoom Meeting Notes for 2022 January 21st, at 07:30 P.M. AZ Time

by Club Secretary Gordon Rosner

Greetings from your new club Secretary. Having been our President for the last two years, I must first thank all the club officers for doing such a great job in not only keeping the club active during this pandemic, but actually growing in developing our online meetings. These will certainly be a club tool when we return to in-person events. But most of all, I want to thank you, our club membership. Members kept our club going and continues to be the driving force that made us a premier astronomy club during these restrictive times. Joining in on our monthly online Zoom meetings shows the support our members have. And welcoming non-members to join in shows how our club is dedicated to live astronomy education for all. We now enjoy many new meeting guests joining in from all over the country. And even a few from other countries. Just like I know as you feel, I'm always proud to say I'm a member of the East Valley Astronomy Club.

Now on to my new job.

The following are my notes from our 21 January online General Membership Meeting. All our monthly meetings are recorded and are available to watch via links in our club's website. If you missed this meeting, or want to watch again, you can watch the recording online. My notes published here are only a summary. I will not attempt to provide details in fear of misquoting or mixing up some data presented. Hopefully I will provide just enough to spark a drive for our members, or potential members, to watch the recording and cut out the middle man... me.

The meeting started at 7:30PM with our new club President, Claude Haynes, welcoming our viewers and giving a quick update on the James Webb Space Telescope. He then introduced our club's new officers for the year and

focused on the still open Vice President position. Claude encouraged anyone interested in this position to apply. Claude also provided a Carl Sagan quote regarding why we spread our astronomy enthusiasm: "Not explaining science seems to me perverse. When you're in love, you want to tell the world." How still true for each of us! Claude also mentioned how the club's dues support the club's operations and hopes we all will continue to pay our dues and "Tell the world".

Claude then introduced Hanaan (Hani) Abdulleh that gave our member presentation. Hani is an ASU freshman in astrophysics and an outreach program specialist at the AZ Science Center. She told how she sees a lack of astronomy in schools and wants to fill that gap by increasing opportunities through her outreach events and establishing partnerships with ASU, The AZ Science Center and EVAC. Of course, this requires volunteers and she described the family camp events containing astronomy activities and future star party hopes. This certainly is a volunteer opportunity since many members love sharing our astronomy enthusiasm with everyone and even bringing telescopes for observing events. She said that week-long camps are scheduled for June and July at the AZ Science Center. To help Hani you can contact her at abdulleh@azscience.org.

Our main presentation then began with ASU Professor of Astrophysics Dr. Steve Desch. Who, by the way, has an asteroid named after him (Asteroid 9926 Desch). Dr. Desch focuses on star and planet formation, works in the field of astrobiology, and studies geochemical cycles on exoplanets via a NASA grant. His presentation was about our solar system's visitor "Oumuamua" back in 2017. You will remember it as the first object confirmed to come from outside our solar system. Its long cigar shape sparking

by Gordon Rosner

Continued from page 2

theories of possibly being an alien spacecraft! Over the years Steve has researched Oumuamua and presented his investigation to us and findings on what this object most probably was. After much research, data mining, and testing his theories, his conclusion is now agreed on by the majority of the astronomy community.

Spoiler alert! It was a fragment of a Pluto-like exoplanet that was knocked off the surface and flung into the interstellar abyss eventually passing through our own solar system as a generator of many theories from mild to wild.

If you missed this presentation, you must see it via the link in our club's website. Or, like me, take another look because it is full of fascinating data and many sub-conclusions leading up to a very solid final conclusion. Things like was it really cigar shaped or was it pancake shaped seen edge on? If pancake shaped, how would that have formed? Why did the object receive a non-gravitational speed 'push' as it rounded the Sun? An alien spacecraft accelerating away? Or sublimation of gases off the sur-

face? If so, what gases? How did Steve conclude what gas it must have been? How did we know the shape of the object and its spin without any actual pictures of it? Light curve data? You bet! A comparison of our Pluto to the Pluto-like exoplanet origin theory of Oumuamua was a major part of the presentation and certainly convincing. It appeared nothing was left out of Steve's detailed investigation. Far too much to list here. So, I encourage everyone and anyone to watch this presentation, or watch it again, not only for its compelling science, but also as an excellent example of the fascinating presentations that are a part of our club's monthly meetings.

After Steve answered questions from the online audience that had a high of 82 attendees, Claude thanked those attending and thanked Hani and Steve for their presentations and closed the meeting at 8:55PM.

Gordon Rosner
EVAC Secretary

The Backyard Astronomer

by Bill Dellings

Ten Common Public Astro-Misconceptions

As veteran stargazers, we usually know the basic astronomical principles. But the public who attend our star parties can sometimes surprise us with misconceptions about how the universe works. Let's look at ten things they frequently get wrong.

1) A "shooting star" is a star that has fallen into our atmosphere. No. Long before a star fell into our atmosphere it would have vaporized Earth! Shooting stars are meteors, small rocks plunging through our atmosphere that burn up due to friction with atoms or molecules in the air. Most are as small as a grain of sand, traveling 10 to 40 miles per second. They're mostly space debris ejected from comets, chips off asteroids or stuff left over from the formation of the solar system. Big ones the size of a car can make super bright meteors called fireballs or bolides. About 50,000 years ago, an iron-nickel meteor about 200 feet across produced the famous 4000 foot diameter Meteor Crater in northern Arizona. Watch out for those!

2) The Sun is not a star. Not true. Many people do not understand that the Sun is a star just like the stars they see at night. Furthermore, most don't know a star is a big ball of hydrogen gas producing energy by fusion at its core. Though stars are faint compared to the blinding light of the Sun, if you took a space flight to them, you would see they grow larger and brighter as you approached them until they looked just like the Sun (some might be a little redder or bluer in color depending on their surface temperature). But bring a lunch; at our current rocket technology it would take 100,000 years to get to the nearest star beyond the Sun.

3) Polaris is the brightest star in the sky (excluding the Sun of course). I get this all the time. You can find about 50 stars brighter than Polaris which is only a second magnitude star. It is famous for two reasons. A) Since Earth's rotational axis points very close to it, Polaris marks the direction of north for mid latitude countries in the Northern Hemisphere. B) When a planet's axis points to a star, that star will not appear to move anytime during the night, while all other stars appear to circle around it.

The Backyard Astronomer

by Bill Dellinges

4) A telescope has a set power (magnification): How many times has someone asked you what power your telescope is? The public seems to think the power of a telescope is set in stone, each telescope a specific power. I explain the power can vary depending on eyepiece being used and the one I'm using now gives such and such power. They're usually surprised when I add that 90% of the time I use my lowest power (to get the largest real field).

5) The Earth is closest to the Sun in summer: It amazes me how many people believe this and the converse that it's cold in winter because Earth is farthest from the Sun in its elliptical orbit. Actually Earth was at its farthest distance from the Sun (aphelion), 94,506,507 miles last July 6, 2015, when it was summer in the Northern Hemisphere. And Earth was at its closest distance to the Sun (perihelion), 91,403,812 miles, last month, January 2, 2016, winter in the Northern Hemisphere. It is not the three million mile difference that determines summers and winters, rather the 23 ½ degree tilt of Earth's axis. Though we are farthest from the Sun in summer, the northern hemisphere is tilted toward the sun and its rays hit the planet more directly.

6) The Big Dipper is a constellation: Not really. It's just the seven brightest stars in Ursa Major, the Great Bear. Thus the Big Dipper is an asterism.

7) A comet will streak across the sky like a meteor: Though comets can exhibit high velocities like meteors, they are much farther away (millions of miles beyond our atmosphere) and so appear to move slowly. Movement is noticed only from night to night as it travels across the

night sky, though slight movement of a comet relative to background stars can be detected in a telescope after just a few minutes.

8) The moon does not rotate: Untrue. The moon rotates in 27.322 days keeping the same side facing Earth. If it did not rotate while it revolves around Earth, we would see the back side of the moon at some point during the month.

9) The phases of the Moon are caused by Earth's shadow: No, they are caused by the play of the Sun's light on the moon as it revolves around Earth.

10) The Moon is bigger when rising than later in the night: No, this is the famous "Moon Illusion" effect so called because it's an optical illusion. There is something about an object that is seen adjacent to other objects on the horizon that makes it appear to be larger than when it is seen higher in the sky. You may also have noticed the same phenomenon with constellations. For instance, Orion looks gigantic when rising on the eastern horizon compared to when it's seen on the meridian.

11) A bonus fallacy for no extra charge! **The more massive the star, the longer it will live.** Makes sense doesn't it? After all, it has more fuel to burn. But no, it's quite the opposite situation. The more massive the star, the more its gravitational force induces pressure upon the central hydrogen – burning core, causing it to burn fuel more furiously. Example: A star twice as massive as the Sun will live only 1/10th as long as the Sun – 1 billion years. It gets worse. A 30 solar mass star will live for only a few million years.

FIRST QUARTER MOON ON FEBRUARY 8 AT 06:50

FULL MOON ON FEBRUARY 16 AT 09:06

LAST QUARTER MOON ON FEBRUARY 23 AT 15:32

NEW MOON ON MARCH 2 AT 10:34

Deep Sky Imaging Target Highlights for February

by James Yoder

The average low [temperatures](#) for February in the Phoenix metro area is 49° F. February 01 is a new moon with Astronomical dusk at 7:24pm and Astronomical dawn at 5:58, giving us almost 10:34 hours of imaging time.

In this month's list there are 154 object/configuration combinations provided of just about every class of deep sky object including 6 Globulars, 14 Open Clusters, 9 Planetary Nebulas, 27 Nebula, 66 Galaxies/Galaxy Clusters, and 3 Dark Nebula. We are solidly in Galaxy season now.

The [Prospective Imaging Objects guide](#) (PDF download) covers objects that reach their highest point in the sky and crosses the meridian (aka Transit) sometime between Astronomical Dusk to Dawn. We will be highlighting objects that transit roughly between 10pm and 2am. This ensures maximum imaging time over the month.

Happy Hunting!

Some Highlighted Targets for February

| Configuration | | Object | Type | ImageLink |
|----------------------|----|--------------------------------------|------------------|-------------------------|
| Hyperstar | 11 | Orion Nebula (M-42) | Diffuse Nebula | 159 min |
| Hyperstar | 33 | Bodes nebula, Cigar Nebula (M-81,82) | Galaxy Group | 214 min |
| Reducer(0.7) | 20 | Monkey Head Nebula (NGC-2174) | Diffuse Nebula | No Image |
| Reducer(0.7) | 44 | M106 et. el. | Galaxy Group | 85 min |
| Primary Focus | 28 | Thor's Helmet | Diffuse Nebula | 50 min |
| Primary Focus | 32 | NGC-2903 | MedSpiral Galaxy | Image |

Resources:

- [ArtCentrics.com](#) – [February Potential Targets Guide](#) (PDF download)
- [Telescopius](#) – Lookup objects, plan imaging session.
- [Field of View Calculator](#) – Test Different Telescope, camera & eyepiece combinations.
- [Astrometry.net](#) – Solve images captured by your system. Get image RA/DEC, pixel scale, image size, orientation of the image you have taken.

EVAC Outreach Events

by Alexandra Nachman

Hey there! I am Alexandra Nachman, the new Outreach Events Coordinator for EVAC! I am very excited to work with the public and get to do awesome events when we begin doing them again! I have been a NASA Solar System Ambassador for NASA JPL since January 2020 and have been doing outreach events ever since! I now have 50 events under my belt and I enjoy doing them so much!

I cannot wait to see what this year brings! I hope to bring my own experience to it and offer a range of fun things to do for events in addition to telescope viewings. I love developing new activities for astronomy to make it fun. I also quite enjoy image processing using professional data, like

that from the Hubble Space Telescope and other observatories. It definitely helps to have amazing images with the presentations! This year is going to be amazing and I hope that when we begin doing outreach activities again that you will join me in sharing the amazing Universe with those who seek to learn! Anyone can volunteer to attend events and bring their telescopes to share the night sky-whether it is at a school or a STEM event or an astronomy event! Can't wait to work with you guys in 2022!

Alexandra Nachman
Events Coordinator

Find Out What's Happening – Join EVAC-Announce List

If you would like to receive email announcements about EVAC meetings and activities, please join the EVAC–Announce mailing list. Click on the link below to subscribe. Enter your full email address in the box titled User Options and press OK. You will receive a confirmation email. Your privacy is respected by EVAC and we will never sell your email address, or use it for non-club relevant solicitations. This mailing list is designed for communication from EVAC, and does not enable users to respond to the message. If you wish to contact club officers, please use the list in the Contact-Us area on the Home page of our EVAC website. To subscribe to the EVAC–Announce mail group click: <http://www.freelists.org/list/evac-announce>. To unsubscribe use the same link, enter your email address and select Unsubscribe from the “Choose An Action” list. Another list to consider is AZ-Observing@groups.io, simply click on this link <https://groups.io/g/AZ-Observing> and follow the instructions on the page. EVAC also has a Facebook Group where members may share ideas, photos, and Astronomy related information. To join: [EVAC Facebook Group](#).

The Gilbert Rotary Centennial Observatory (GRCO) also has a Facebook Group where members may share ideas, photos, and Astronomy related information. To visit, please click on [Gilbert Rotary Centennial Observatory - GRCO](#).

Gilbert Rotary Centennial Observatory is open on Saturday from sunset until 9:30pm. We need volunteers. Training is provided. Help us engage the community in the wonders of the night sky. Email grco@evaonline.org for information.

Classified Ads

Used Equipment

Contact Leo Heiland at leo.j.heiland@gmail.com if interested in these items.

Planewave 12.5" astrograph with Electronic Focus Assembly. Excellent shape - \$7,000

Software Bisque Paramount MX mount with newly installed RA gear assembly - \$6,800
Includes two 1.5in bore 20 pound counterweights and pier adaptor plate

Buyer pays for shipping, or can arrange pick up in Phoenix area

Contact Darrell Spencer at darrellspencer10@gmail.com or 480-363-9463 if interested in these items.

Celestron C11 Fiber OTA, Fastar with Losmandy rail - \$1,200

Hyperstar V3 for C11 - \$750

Celestron C1700 mount/tripod with AAM encoders and Sky Commander controller - \$750

Celestron (Vixen) C6 6" Newtonian OTA - \$150

Televue Eyepieces:

Nagler Zoom (3-6) - \$325

Nagler 7mm 7T1 - \$160

Nagler 12mm 12T4 - \$285

Nagler 20mm 20T5 - \$300

Panoptic 27mm - \$275

Numerous classic long focus Japanese Achromats from the '50s – '70s.

Photos available upon request. All prices subject to reasonable negotiation.



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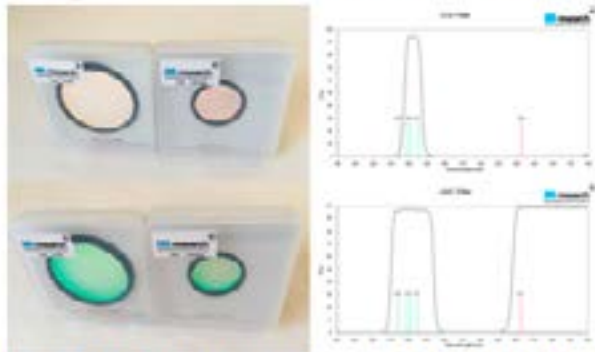
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Monthly Meetings will be presented live online using Zoom. See the EVAC Website for updates. All other events are on hold until health concerns are resolved.

The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our normal in-person monthly meetings have temporarily been cancelled, and are replaced with an online Zoom meeting.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

Visitors are always welcome!



**Southeast Regional Library
775 N. Greenfield Road
Gilbert, Az. 85234**



FEBRUARY 2022

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------|----------|-----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | | | | | |

February 18 - EVAC Monthly Meeting Live Online via Zoom.

The EVAC Monthly Meeting will be held live online via Zoom. All other meetings and events have been cancelled until further notice.

MARCH 2022

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------|----------|-----------|----------|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | |

March 18 - EVAC Monthly Meeting Live Online via Zoom.

The EVAC Monthly Meeting will be held live online via Zoom. All other meetings and events have been cancelled until further notice.

East Valley Astronomy Club — 2022 Membership Form

| | | |
|--|---|--|
| IMPORTANT: All memberships expire on December 31 of each year | | |
| New Member Dues (select according to the month you are joining the club) | | |
| | Individual | Family |
| January, February & March | \$30.00 | \$35.00 |
| April, May & June | \$22.50 | \$26.25 |
| July, August & September | \$16.00 | \$17.50 |
| October, November & December | \$37.50 | \$43.75 <i>(Includes following year)</i> |
| Renewal (current members only): | | |
| <input type="checkbox"/> \$30.00 Individual | <input type="checkbox"/> \$35.00 Family | <input type="checkbox"/> Astronomical League: \$7.50 Annually (per person) |

| | |
|--|------------------------|
| Name Badges: | Quantity: _____ |
| <input type="checkbox"/> \$10.00 Each | |
| Name to imprint: _____ | |

Total amount enclosed:

Please make check or money order payable to EVAC

Payment will be made using PayPal

| | | |
|--|--|--|
| Name: <input style="width: 95%;" type="text"/> | | Phone: <input style="width: 95%;" type="text"/> |
| Address: <input style="width: 95%;" type="text"/> | | Email: <input style="width: 95%;" type="text"/> |
| City: <input style="width: 95%;" type="text"/> | | URL: <input style="width: 95%;" type="text"/> |
| State: <input style="width: 95%;" type="text"/> | | For website: <input style="width: 95%;" type="text"/> |
| Zip: <input style="width: 95%;" type="text"/> | | |

Would you be interested in our outreach program? Yes No

How did you discover East Valley Astronomy Club?

Liability Release Form

In consideration of attending any publicized Star Party hosted by the East Valley Astronomy Club (hereinafter referred to as "EVAC"), the receipt and sufficiency of which is hereby acknowledged, I hereby affirm that I and any related entities, predecessors, successors, affiliates, attorneys, guarantors, insurers, transferees, assigns, parents, spouses, children, subsidiaries, accountants, officers, directors, employees, agents, shareholders, members, and trustees, past and present, hereby forever release, acquit and discharge to hold EVAC and its related entities, predecessors, successors, affiliates, attorneys, guarantors, insurers, transferees, assigns, parents, spouses, subsidiaries, accountants, officers, directors, employees, agents, shareholders, members, and trustees, past and present, from any and all causes of action, claims, losses, damages, liabilities, expenses (including attorneys' fees) and demands of any nature whatsoever, known or unknown, that in any way relate to, arise out of, or concern EVAC and/or my presence on the premises of any EVAC Star Party and related areas, whether or not those causes of action, claims, damages, liabilities, and demands are part of the specific subject matter of EVAC or any EVAC Star Party. This release is intended to and does cover all injuries and damages, and the consequences thereof, whether known or unknown at the time of the execution of this release, which have occurred or may hereafter occur or which may hereafter be discovered, and which may have been caused or may be claimed to have been caused by the said incident, and specifically includes, but is not limited to, bodily injuries, mental and emotional injury, pain and suffering, medical treatments, and loss of earnings or income.

My signature upon this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance. EVAC only recognizes those who are members or invitees and who also have a signed Liability Release Form on file as participants at an EVAC Star Party.

Signature _____ **Date** _____

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www.evaonline.org

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