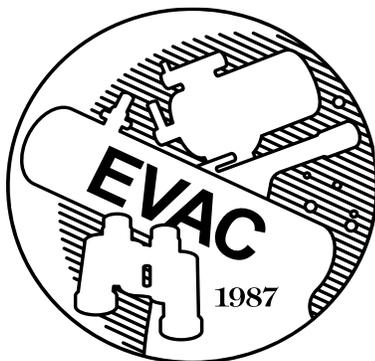


# THE OBSERVER

VOLUME 36 ISSUE 5



Millions of Stars in Omega Centauri  
Image Credit: Ignacio Diaz Bobillo

## From the Desk of the President by Claude Haynes

If April showers bring May flowers, what do May flowers bring? The answer is “Pilgrims”, which was one of my daughter’s favorite jokes as a child. So “listen up, Pilgrims”; we’ve got a lot to talk about.

First, some special events. Saturday, May 7, is Astronomy Day and the observatory will be open for solar viewing from 10am – 2pm. It is always fun to view the Sun, and with the end of solar minimum it is now much more active. On Sunday, May 15, there is a Lunar Eclipse. The observatory will be open from sunset until 9:30pm. The eclipse will have already started when the

Moon rises at 7:10pm. The observatory telescope won’t be able to see the Moon for an hour and a half, so we need volunteers to bring telescopes to view from the lawn. It is hard to guess the crowd size, but we are limited on space. We probably need 4–5 telescopes at the most. We can’t drive on the grass, but will have wagons available to bring equipment in. Please contact me at [grco@evaonline.org](mailto:grco@evaonline.org) or Alex Nachman at [events@evaonline.org](mailto:events@evaonline.org) if you can volunteer a telescope for lunar viewing during the eclipse.

Secondly, we are finally returning to our previous schedule of public

## UPCOMING EVENTS:

*The May EVAC Meeting will be held both online via Zoom and in person at the Gilbert Library. The speaker will be Paul Knauth.*

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# From the Desk of the President

by Claude Haynes

*Continued from page 1*

viewing at GRCO on both Friday and Saturday evenings from sunset until 9:30pm (weather permitting as always). We have several new volunteers, and we are always looking for more help if you are interested. Give me an email and we can discuss opportunities. Thanks again to all the great folks who volunteer at the observatory. It is a wonderful place to introduce children to the beauty of the night sky, and to remind adults about the importance of preventing light pollution.

Finally, our club meeting on May 20 will be both live and simulcast on ZOOM. We are back at our regular meeting place in the large conference room at the Southeast Regional Library, and we will start at our regular time of 7:30pm. Our speaker is Paul Knauth, who many of you know as a Professor Emeritus from ASU and is an active observer with his massive Dobsonian telescope. The library has invested in some new technology which in-

cludes a higher resolution projector and cameras to show the room to remote viewers. We are planning on spacing seating a little farther apart than in the past and encourage people to wear masks if they are so inclined. We understand that some members are still hesitant to return to live events, and the board has committed to simulcast on ZOOM until the end of the year. We are not serving refreshments this month. While we all desire to return to normal activities, the infection rate in Arizona is still well above the national average and the virus has a way of developing new strains quickly. If you are hesitant, or don't feel well, the ZOOM meeting is still the best option for now.

Celebrate May and the many opportunities that flower.

Your President  
Claude Haynes

## EVAC Zoom Meeting Notes for 2022 April 15th, at 07:30 P.M. AZ Time

by Club Secretary Gordon Rosner

Greetings from your club Secretary.

First, and again, the standard monthly stuff for you first time readers. For those who are regular readers, you can skip this paragraph. The following are my notes from our 15 April 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 and certainly do not replace watching the actual video presentation. Hopefully I will provide just enough to spark a drive for our members, or potential members, to watch the recording.

The meeting started at 7:30PM with some technical difficulties. But those were soon overcome by our club President, Claude Haynes, who then welcomed our viewers by showing a beautiful nebula image taken by one of our club's very well accomplished astrophotographers, Bernard Miller. He then introduced our club's officers and mentioned that the Vice President position is still open. Anyone interested was encouraged to let him know. Claude then had some happy and long awaited news that the upcoming May General Membership Meeting is

scheduled to be in person at the usual Gilbert Library location, with a Zoom simulcast. See Claude's column above for specific details. He then mentioned that club membership dues are due. The club still has bills to pay.

Claude then gave a reminder of the upcoming lunar and solar eclipses and described how the club and GRCO will be providing the public with telescope viewing opportunities at the GRCO site for the 15 May lunar eclipse.

Tom Mozdzen then introduced the main presenter, Dr. Jenny Patience. Jenny is an astrophysicist at ASU, who uses large, ground-based, and space-based telescopes to investigate a range of topics in star and planet formation. In addition to astronomical research projects, she is involved in innovative teaching and research experience programs for undergraduate students from all backgrounds. Jenny's presentation was titled simply "Exoplanets".

Jenny started the presentation with a video of exoplanet detection techniques that brought these technical methods down to simple, understandable explanations that included images and videos of each method. These methods included Wobble/Radial Velocity, Transit, Micro-

# EVAC Zoom Meeting Notes for 2022 April 15th, at 07:30 P.M. AZ Time

by Gordon Rosner

*Continued from page 2*

lensing, Direct Imaging, and Pulsar Timing. Slides of how many exoplanet discoveries by method was shown. Each method was presented in detail with the challenges of each and how they were overcome. A very interesting slide showing exoplanet mass versus host star separation comparing them to our solar system was shown and explained.

Jenny then presented the exoplanet formation models of Core Accretion and Gravitational Instability and explained each one. She then went into the details and many challenges of using the Direct Imaging method of detection. Technical advances such as adaptive optics was explained. Actual images of exoplanets orbiting their host stars were provided. Lots of WOWs here. Jenny showed a video simulating the structures that preceded exoplanet formation. Audience questions were then answered by Jenny.

This presentation by Dr. Patience provided a wealth of information on a subject that the majority of us are in-

## The Backyard Astronomer

by Bill Dellinges

### Low Hanging Fruit of May (5/16)

In spring the Milky Way is missing or too low to the horizon to block our view into deep space. Why not take advantage of this window to harvest the fruitful field?

*Galaxies:* Ursa Major is well placed above Polaris to observe M-51 (technically in Canes Venatici), M-81, and M-82. In a dark sky M-51, the Whirlpool Galaxy, and its companion NGC 5195 are fairly bright for face-on galaxies. I was astounded by the detail I saw in M-51 with an 8" SCT one year at the Grand Canyon. M-81 and M-82 are close enough to each other that they can be viewed in the same low power field of view. In my opinion, the latter is the more interesting of the two - it's elongated with a hint of a distressed morphology. M-104, the Sombrero Galaxy in Virgo, is not to be missed. It's slightly tilted to our line of sight with a conspicuous dark lane running its length. The "Leo Trio," M-65/66 and NGC 3628 is a tasty morsel worth a bite. M-65 and M-66 are only about 1/3 a degree apart and also easily fit in your low power field. NGC 3628 is just north about 1/2 degree and considerably

interested in but is difficult to find at this understandable detail. If you missed this presentation, I encourage you to see the recording on our club's website. Super stuff!

Tom Mozdzen then showed the club's new YouTube Channel "EVAC Meetings". Meeting recordings are being uploaded so you now have a YouTube option to see our recorded meetings in addition to them being on the club's web site. Another example of how our club is growing. Tom then mentioned that club shirts will be offered for sale at the planned 20 May in person meeting.

Claude thanked the 70 attending online and thanked Jenny for a unique and interesting presentation. He reminded everyone that the next meeting is planned to be in person with a Zoom simulcast on 20 May starting at the usual 7:30PM and closed the meeting.

Gordon Rosner  
EVAC Secretary

fainter. Long exposure images of it show it to be interestingly warped, perhaps by a past interaction with M-65/66.

*Double stars:* While in the area of M-104, visit two interesting multiple star systems nearby. Farley's Triangle, aka Stargate, can be found about one degree southwest of M-104. Six stars form a triangle within a triangle, an unusual stellar formation to say the least (Struve 1659, SAO 157379). Seven degrees west of M-104, but just inside Corvus' northern border is Struve 1604 (SAO 157111), a neat triple star making a tiny perfect triangle. Though it might not be easy pickings, Izar in Bootes is always worth a look. The AB stars are magnitude 2.6 and 4.7 but only separated by 2.9 arc seconds. The primary's brightness makes splitting Izar a challenge (Struve 1877, SAO 83500).

*Planetary Nebulae:* NGC 3242 in Hydra, the largest constellation in terms of square degrees (1,302.84) is home to the "Ghost of Jupiter," so called because of its similar size and roundness to the planet. This is one of the more impressive planetary nebulae in the sky. It's bright at magnitude 7.8 and easily found two degrees south of Mu Hydrae.

# The Backyard Astronomer

by Bill Dellinges

*Continued from page 3*

**Globular Star Clusters:** M-3 in Canes Venatici is a fine globular cluster. Your finder can sweep it up by following a line from Gamma and Beta Comae Berenices east an equal distance. M-5 in Serpens Caput is another excellent globular. Like M-3, two stars, Tau and 109 Virginis, point east to M-5. Southeast and very close to M-5 is the double star 5 Sepentis (SAO 120946). Serpens is the only constellation that is split into two parts. Serpens Caput [head] and Serpens Cauda [tail] emanate from the west and east sides of Ophiuchus, respectively. M-13 in Hercules is the most impressive globular cluster in the northern skies with the possible exception of M-22 in Scorpius. But it's spring so M-13 is king of the mountain these evenings. It never disappoints.

Our last item is not exactly low hanging fruit. The brightest quasar seen from Earth, 3C273, is an interesting challenge to bag. It resides in Virgo's "Wineglass" asterism, basically western Virgo bounded by the stars Spica, Vindemiatrix (Epsilon), and Zavijava (Beta). Don't you just love those last two star names? The Wineglass contains the Virgo Super Cluster of 2,000 galaxies formally known

as the Realm of the Nebulae in star charts (and a speed bump to Messier Marathon participants). Even after it was known these objects were galaxies and not nebulae, the two terms were used interchangeably for a time likely due to the influence of Edwin Hubble (of all people!) who preferred the term nebulae to describe galaxies. My 1967 copy of The Telescope Handbook and Star Atlas by Neale Howard still showed "Realm of the Nebulae" in Virgo's Wineglass. Modern atlases use the term "Realm of the Galaxies" (if they use the term at all). The magnitude 12.8 quasar is about two billion light years away. I first found it in 1989 with a C-14 using a helpful star hopping chart from S&T (March 1988, page 294). The quasar was the dimmest blue star I could pick out in the field. RA 12h 29m DEC +02° 03' will get you there but you'll still need some kind of reference to identify which faint "star" is the quasar.

As I drove home that morning after an all-nighter at a dark sky site, I thought of the people I saw going to work and thinking, "You folks have no idea that while you slept, I was looking at a quasar two billion light years away."

## 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

# Deep Sky Imaging Target Highlights for May

by James Yoder

The average low [temperatures](#) for May in the Phoenix metro area is 69° F. May 30th is a new moon with Astronomical dusk at 9:11pm and Astronomical dawn at 3:38, giving us 6:27 hours of imaging time.

In this months list there are 81 object/configuration combinations provided of just about every class of deep sky object including 23 Globulars, 10 Open Clusters, 7 Planetary Nebulas, 12 Nebula and 16 Dark Nebula, 13 Galaxies/Galaxy Clusters.

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 April

Configuration	Page	Object	Type	ImageLink
<b>Hyperstar</b>	9	Ophiuchus Complex ( <a href="#">IC-4604</a> )	DN, N, Glob, & More	<a href="#">120 min</a> -4 panels
<b>Hyperstar</b>	14	Pipe Nebula ( <a href="#">LDN 1773</a> )	Dark Nebula	<a href="#">43 min</a>
<b>Focal Reducer</b>	15	The Snake Nebula ( <a href="#">B-72</a> )	Dark Nebula	<a href="#">125 min</a>
<b>Focal Reducer</b>	21	Bright Nebula ( <a href="#">IC-1274</a> )	DN, Nebula	<a href="#">230 min</a>
<b>Primary Focus</b>	8	Globular Cluster <a href="#">M-80</a> (NGC-6093)	Globular Cluster	<a href="#">268 min</a>
<b>Primary Focus</b>	19	Trifid Nebula ( <a href="#">M-20</a> )	Diffuse Nebula	<a href="#">180 min</a>

Resources:

- [ArtCentrics.com](#) – [May 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.

## 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@evaconline.org](mailto:grco@evaconline.org) for information.

## Grand Canyon Star Party

The annual star party returns to in-person viewing this year. The event is scheduled for June 18 – 25, 2022 and is a great opportunity to share your telescope with visitors to the park, as well as to get in some time under really dark skies. Over the past few years, the staff has worked hard to replace inefficient lighting fixtures and achieve International Dark Sky recognition. Contact Jim O'Connor with the Tucson Amateur Astronomy Association via email at [gcsp@tucsonastronomy.org](mailto:gcsp@tucsonastronomy.org) for information on volunteering. There are some forms to fill out with the park service and volunteers are responsible for their own accommodations.

## Classified Ads

### Used Equipment

Contact Darrell Spencer at [darrellspencer10@gmail.com](mailto: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

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

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



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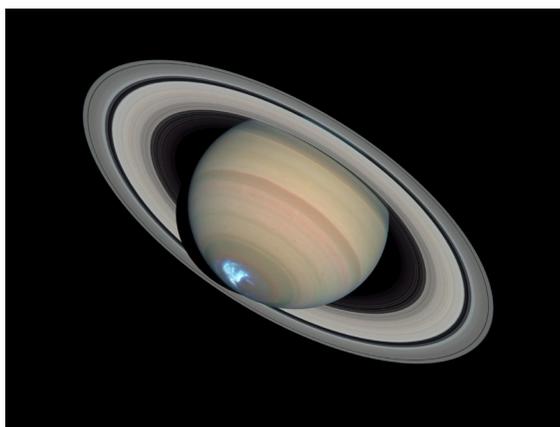
At the site: Bathroom facilities, running water, 5 pads w110v, wifi, acres of grassy camp sites.

From the site: Very Large Array 42mi E, The Astronomical Lyceum 55mi E, MRO Observatory 80mi E

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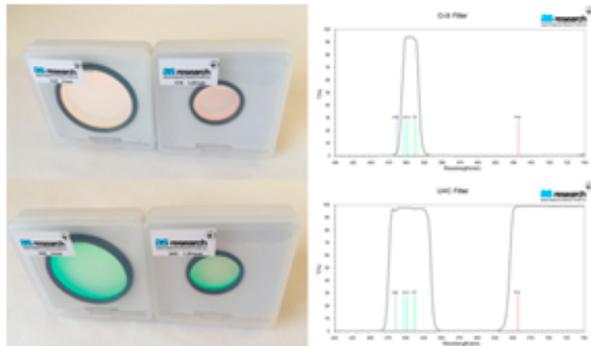
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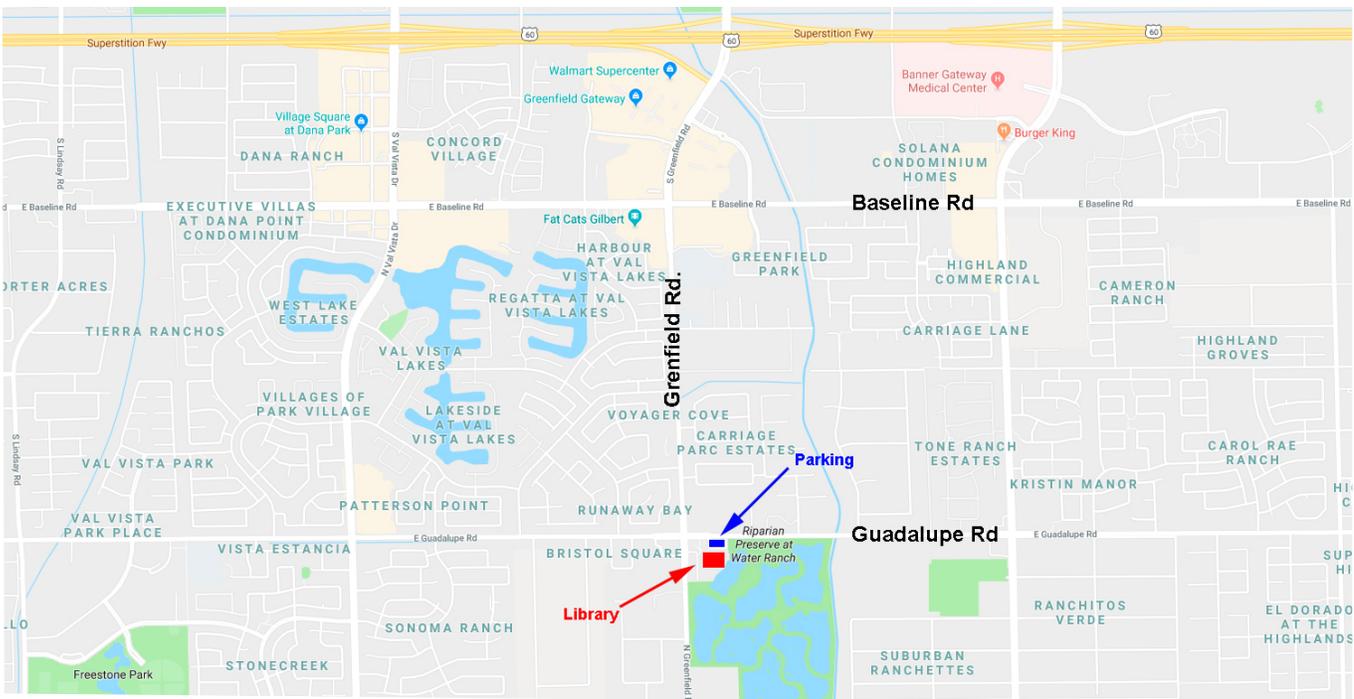
Monthly Meetings will be held in person and also presented live online using Zoom. See the EVAC Website for updates. All other events are on hold until health concerns are resolved.

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 will resume with the May 20, 2022 meeting. Also, the meetings will continue to be available online via Zoom.**

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**



# MAY 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	<b>20</b>	21
22	23	24	25	26	27	28
29	30	31				

**May 20** - EVAC Monthly Meeting Online via Zoom and in Person at the Gilbert Library.

**All other meetings and events have been cancelled until further notice.**

# JUNE 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	<b>17</b>	18
19	20	21	22	23	24	25
26	27	28	29	30		

**June 17** - EVAC Monthly Meeting Online via Zoom and in Person at the Gilbert Library.

**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)

	<b>Individual</b>	<b>Family</b>	
January, February & March	<b>\$30.00</b>	<b>\$35.00</b>	
April, May & June	<b>\$22.50</b>	<b>\$26.25</b>	
July, August & September	<b>\$15.00</b>	<b>\$17.50</b>	
October, November & December	<b>\$37.50</b>	<b>\$43.75</b>	<i>(Includes following year)</i>

**Renewal** (current members only):

**\$30.00 Individual**       **\$35.00 Family**

**Astronomical League: \$7.50 Annually (per person)**

**Name Badges:**                      Quantity: \_\_\_\_\_

**\$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: 90%;" type="text"/>	Phone: <input style="width: 90%;" type="text"/>
Address: <input style="width: 90%;" type="text"/>	Email: <input style="width: 90%;" type="text"/>
City State Zip <input style="width: 90%;" type="text"/>	URL For website <input style="width: 90%;" 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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East Valley Astronomy Club  
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*Vice President: Open*

*Secretary: Gordon Rosner*

*Treasurer: Alexandra Nachman*

*Board Members at Large: David Coshow,  
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*Events Coordinator: Alexandra Nachman*

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*Observing Program Coordinator: Wayne  
Thomas*

*AL Representative: Brooks Scofield*

*Newsletter Editor: Marty Pieczonka*

*Webmaster: Marty Pieczonka*

*SkyWatch Coordinator: Claude Haynes*

*Observatory Manager: Claude Haynes*

**FIRST QUARTER MOON ON MAY 8 AT 17:21**

**FULL MOON ON MAY 15 AT 21:14**

**LAST QUARTER MOON ON MAY 22 AT 11:43**

**NEW MOON ON MAY 30 AT 04:30**