

# THE OBSERVER



Odysseus to the Moon  
APOD 02/24/2024: Image Credit: [Intuitive Machines](#)

## From the Desk of the President by Steve Bradshaw

Just a few nights ago, I wanted to watch something entertaining, but not mindless entertainment. Yes, there are nights for watching things like "Tremors", but this night wasn't one of them. I found a 2-hour streaming program named "Fireball: Visitors from Darker Worlds."

The program turned out to be just what I wanted. The program chronicled various meteorite impacts around the globe, big and small. And I mean **BIG** and small. At one end of the spectrum, they told the stories and showed the scars of large impacts like the Yucatan Peninsula meteorite from 65

million years ago that ended the dinosaurs. At the other end of the spectrum, they told the story of the thousands of micro meteorites that fall every day. Apparently around 100 metric tons of them fall to Earth each year and like snowflakes, no two are exactly alike. They said that tonnage works out to about one grain per square meter per year.

Although the whole program was fascinating, I did have two specific memorable moments to share.

The first was the description of meteorites as containing the ashes of a previous generation of dead stars.

### UPCOMING EVENTS:

- EVAC Riparian Star Party - March 8<sup>th</sup>*
- Messier Marathon Star Party - March 9<sup>th</sup>*
- EVAC Monthly Meeting - March 15<sup>th</sup>*

*Check out all of the upcoming club events in the Calendar on Page 11.*

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# From the Desk of the President

by Steve Bradshaw

*Continued from page 1*

I was aware that nearly all the elements that we know here on Earth were formed by nuclear fusion inside a star. But the phrase ashes of previous generation of dead stars captured my imagination in a new way and got me thinking about the meteorite case that we display outside of the Gilbert Rotary Centennial Observatory on most week-ends.

I am particularly looking forward to holding a meteorite from our case in my hand again. I mean why shouldn't I feel this way? They do, after all, contain the ashes of a previous generation of dead stars. Think about that. It is not "just a rock" because inside it can contain what is likely some of the most pristine material from the interior of a star that we will ever see or touch. The next time that you hold a meteorite in your hand I hope that you get to wonder where it was made and how far it has traveled across billions of years to reach you.

My other memorable moment was from the last segment of the program. That segment profiled a South Korean scientist named Dr. Jong Ik Lee who hunts for meteorites on the blue ice of the Antarctic Polar Plateau each summer. The logic is that if everything for a mile or more down is

ice, then a rock on the surface is very likely a meteorite. During the filming they found an iron-nickel meteorite about the size of a small microwave oven. It was Dr. Lee's reaction to the find that created my second moment. He just fell on his back on the ice laughing while waving his arms and legs in the air. Moments later, he was so happy that he just cried. "That", I thought, "is how I want to be for the rest of my days." I want to be a joyful life-long learner as I discover new things.

If you would like to add a little more joy and discovery to your life this March, please remember to join us on Saturday March 9 at our Spring Star Party / Messier Marathon. If you are so inclined, you have up to 110 Messier catalog objects to find that night. Who knows, just maybe we might get to hear you out there in the dark, lying on the ground laughing with joy. It's what Dr. Lee of South Korea would do.

Here's wishing for clear, dark skies and a great time.

Your President  
Steve Bradshaw

## EVAC Meeting Minutes for February 16<sup>th</sup>, 2024 at 07:30 P.M. AZ Time

by James Yoder

### Meeting Minutes

YouTube: EVAC monthly meetings can be viewed on YouTube. Just search for the East Valley Astronomy Club on the YouTube website to locate the recordings or select this [link](#) for the meeting recordings.

### Welcome

EVAC President Steve Bradshaw welcomed club members to the meeting and reviewed the agenda. Attendance was 68 in person and 27 online.

### General Business

Steve Bradshaw toured the EVAC Website (<http://www.evaconline.org>) and highlighted the following areas on the website:

- Basic astronomy classes such as Beginners guide to small telescopes and Planetary imaging Primer consist of ZOOM classes and hands-on labs and are periodically available based on interest. Contact James

Yoder ([jty.astro@ArtCentrics.com](mailto:jty.astro@ArtCentrics.com)) if you would like to be added to the waiting list for either class.

- To join a distribution list for EVAC announcements can be done [here](#).
- Joining or renewing membership can be accomplished online [here](#).
- [EVAC Calendar](#) shows what events and meetings are slated for EVAC members.
- Past newsletters can be accessed [here](#).
- Used equipment for sale can be viewed [here](#).
- Equipment that can be rented by members can be viewed [here](#).

### Special Announcements

- EVAC monthly meetings will start at 7pm going forward. Please update your calendar!
- Spring Star Party/Messier Marathon will be held Saturday, March 9th at the Hovatter Observing site (Driving Instructions are [here](#) at the bottom of the page).

# EVAC Meeting Minutes for February 16<sup>th</sup>, 2024 at 07:30 P.M. AZ Time

by James Yoder

## Getting Involved and Volunteering

There are a number of volunteering opportunities including:

- Assisting at the Gilbert Rotary Centennial Observatory (GRCO). Email: [grco@evaconline.org](mailto:grco@evaconline.org) to be added to the mailing list.
- Attend the monthly star party on the 2nd Friday of each month
- Volunteer at Private Star Parties. Email [events@evaconline.org](mailto:events@evaconline.org) to be added to the mailing list.

## Citizen Science Participation Opportunity

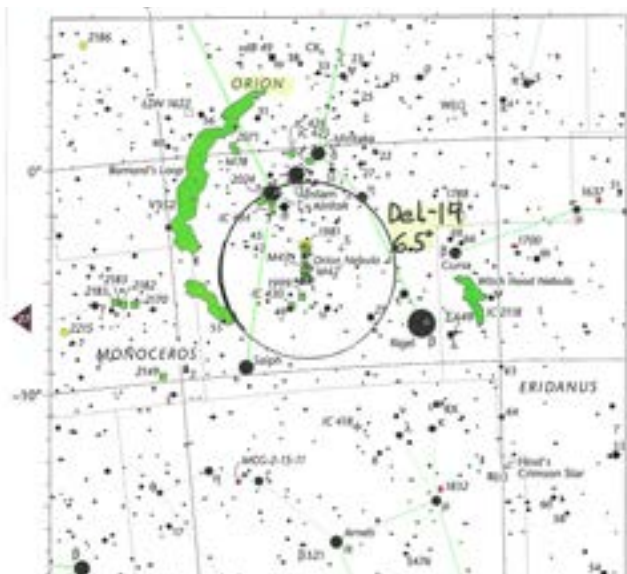
Bob Buchheim talked about the American Astronomical Society (SAS) June 2023 Meeting which discussed the Role of small telescopes in the new era of large telescope surveys and the opportunities of amateur astronomers to contribute to research. Anyone interested in contributing should consider attending the SAS 2024 meeting either in person or virtually. Visit the website at [www.SocAstroSci.org](http://www.SocAstroSci.org) for more information

## The Backyard Astronomer

by Bill Dellings

### Final Edition of the Dellings Catalog of Stellar Rich-Fields for Binoculars (7th Edition)

With this final seventh edition of my catalog, which I began in September of 2022, I end with Del-19 (Ori), 20 (Mon) and 21(Hya). It was fun tracking down these unsung stellar delights for binocular nuts out there (You know who you are).



## Member Presentation

Speaker: Jake LeAlcala

Topic: A Short Introduction to Astrophotography

Jake's presentation was a high-level view of Astrophotography. Information on various aspects of Astrophotography including what hardware is required, various aspects of sky conditions, utilization of filters and a review of some of the software used to control instrumentation and process images was discussed.

## Main Presentation

Featured Speaker: Dr. Rogier Windhorst(ASU).

Topic: The World of Webb, the Cosmic Circle of Life, and seeing through the Eyes of Einstein.

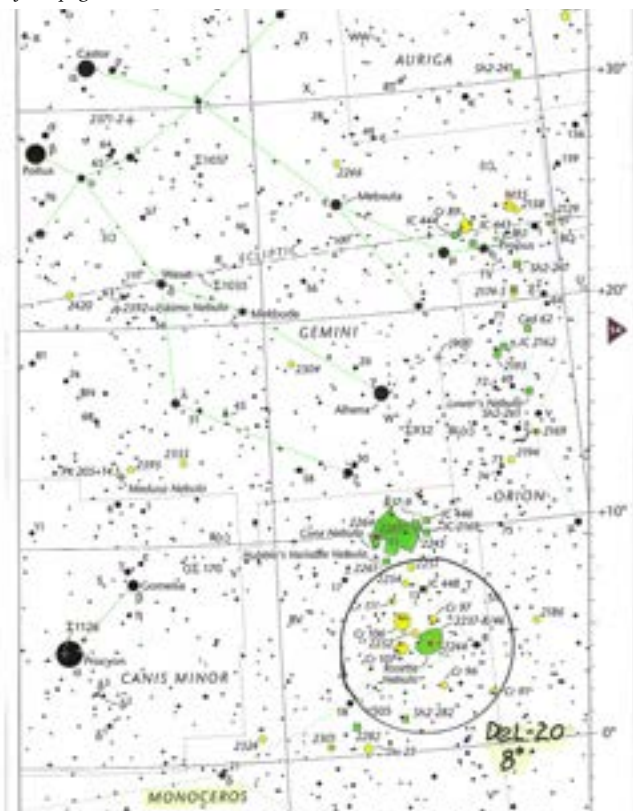
Dr. Windhorst discussed the JWST and some of the fallout from the data captured. He also discussed the formation of the elements, solar systems and the demise of stars. A discussion on gravitational lensing along with a number of images exhibiting this behavior was presented.

**Del-19, Orion's Sword:** "One of the most magnificent showpieces of the night," Sue French, former S&T columnist. I agree wholeheartedly. The Sword of Orion has been a favorite binocular target for me for years. Its Crown Jewel is M42, the Orion Nebula, the finest emission nebula in the northern skies. As it's midway in the 2-degree long Sword, just put M42 in the center of your field. Above and below M42 are several NGC objects – it's a very busy area! South of M42 there's a bright star, Iota Orionis (A nice triple star in a telescope) and 5' to its southwest the conspicuous wide double star Struve 747 (Sep. 36"). I claim this region as a Del object because the entire Sword has no specific numerical designation. Note: In this series I've emphasized using a binocular with the widest field possible, so I used an 8x42 with an 8.3° degree field on my other 20 objects. However, for this object I'm making an exception. I recommend something like my 10x50 (6.5°), which displayed a brighter nebula than my 8x42 or 7x50, yet still encased the entire Sword. For a wonderful photograph of the scene, similar to what you'll see through binoculars, see page 46 in Sue French's Celestial Sampler or page 33 in her Deep-Sky Wonders. Chart references: Sky Atlas 2000, Chart 11. Bright Star Atlas Chart 4. S&T Pocket Sky Atlas, Chart 16.

# The Backyard Astronomer

by Bill Dellenges

Continued from page 3



**Del-20, Monoceros:** RA 5h 32m DEC +5°. Good luck trying to even find this constellation, its brightest star is only magnitude 4.5! Fortunately, you can use these coordinates to find the target area in your star atlas of choice. Note it's about midway between Betelgeuse (in Orion) and Procyon (in Canis Minor). I find placing the Rosette Nebula, NGC 2237 and interior star cluster NGC 2244 (a few of its stars were apparent in the 8x42), in the center of your binocular field to reap the maximum benefits of Del-20. You may notice the star count is slightly sparser above the Rosette than below it. I also found the combined light of the nebula/cluster helpful in navigating my way around, as it looked like a smudge a little brighter than the dim background stars, and that tended to catch my eye. In this field the brightest stars will be 8 (Epsilon) Monocerotis at right and 13 Monocerotis above the Rosette. Just out of the eight-degree field at upper left was 15 Monocerotis which anchors the Christmas Tree Cluster NGC 2264 (best seen with a telescope). I have used 8, 13 and 15 Monocerotis as markers to help me find this northern part of the Unicorn which represents the mythical beast's Head - the stars are equally spaced apart in a straight line with equal magnitudes. Throw in 17 Monocerotis, also out the field at upper left, and you have a long narrow, slanted triangle to complete the Head asterism. Chart references: Sky Atlas 2000, Chart 12. Bright Star Atlas, Chart 4. S&T Pocket Sky Atlas, Chart 25.



**Del-21, Hydra's Head:** RA 8h 40m DEC +5°. Hydra, the Water Snake, has the distinction of being the largest of the 88 constellations in terms of square degrees (1302.84°, or 3.158% of the sky). Del-21 is a simple affair. Five stars, ranging in magnitude 3.3 to 4.5, form a pentagon with a sixth one just tucked under the northern-most star, Epsilon Hydrae. Utilizing the sixth star, I see it as an asterism shaped like the profile of a knight chess piece. It fits comfortably in my 8x42's 8.3° field. While it is devoid of deep sky objects, I counted about 35 sixth magnitude background stars sprinkled through the field, making it a fine binocular sight. This stellar grouping is 15 degrees due south of M44, the Beehive Cluster in Cancer. In my slightly light polluted sky, I find it easier to pick out the stars of Hydra's Head than M44. I'm surprised this asterism in Hydra doesn't get more attention considering the pickings are mighty slim in this sector of the sky. Chart references: Sky Atlas 2000, Chart 12. Bright Star Atlas, Chart 5. S&T Pocket Atlas, Chart 24.

Addendum: The ones that got away. I wish I could have used M24, M45, Perseus OB Assoc. (Mel 20), Orion's Belt (Cr 70), the Double Cluster (NGC 869, 884), the Hyades (Mel 25) and Wedel's Sting Ray (Cr 65, see my 6th Edition).

# What's Up - Some Astronomical Events of Note for March 2024

by James Yoder

Here we make note of some interesting astronomical occurrences for the month that are visible from the Phoenix Metro area. Events we are on the lookout for include:

- [Transits](#) – When a celestial body passes directly between a larger body and the observer. For example when one of the inner planets such as Venus passes in front of the Sun ([image](#)).
- [Eclipses](#) – Specifically we are focused on [Lunar Eclipses](#) (where the Earth passes between the Sun and the Moon) and [Solar Eclipses](#) (where the Moon passes between the Sun and the Earth).
- [Comets](#) – For the comets we are focused on bright comets ([image1](#), [image2](#)) or ones that may have a near miss with other astronomical objects such as globular clusters, planets, nebula, etc ([image](#)).
- Planet Activity – [Oppositions](#), [Conjunctions](#) ([image1](#)) and [Occultations](#) ([image2](#)) of note that may be an opportunity for observation or photography. For Jupiter, we also note when multiple moon shadow transits are visible.
- Visually Interesting astronomical alignments such as Moon & planets arrangement in the morning or evening sky ([image1](#)).

Equipment Requirements are noted as follows:

- NE – **N**aked **E**ye event, no equipment needed to appreciate this.
- BL – A decent pair of **B**inoculars are recommended.
- CT – **C**amera on a **T**ripod can be used to capture this event.
- TS – **T**elescope is required to view this event.

Date	Event	Time	Equip-ment	Images	Ref	Comments
03/10	New Moon					
03/13	Moon-Jupiter Appulse	8:00 PM	NE, BL, T	<a href="#">1</a>	<a href="#">1</a>	At 8:00 PM Jupiter and the Moon will be within 3° 38' of each other at an altitude of 31°.
03/20	Equinox		NE		<a href="#">1</a>	
3/21	Venus-Saturn Appulse		NE, BL, T	<a href="#">1</a> , <a href="#">2</a>	<a href="#">1</a>	At 6:30 AM, Venus Saturn will be 33' apart about 10° above the horizon.
3/25	Full Moon					
3/25	Mercury PM Sighting	NE, BL	NE, BL	<a href="#">1</a>	<a href="#">1</a>	Mercury will be 13° above the horizon.

These events and others throughout the year can be viewed on my webpage [here](#), Happy hunting!

## EVAC Outreach Events

by Jake LeAncala

### March Outreach Events:

- March 7th – Grande Innovation Academy
- March 8th – 2nd Friday Star Party
- March 20th – AJ Public Library
- March 27th – Vista Peaks Church Star Party
- March 30th – Fountain Hills Community Center Star Party

Details can be found on the EVAC website. Just go to [www.evaconline.org/events-meetings](http://www.evaconline.org/events-meetings). Click on the calendar entry for location and times. Contact [Jake LeAncala](#) (Events Coordinator) if you can volunteer at an event. It is helpful to know who is coming so we can inform you of where the observing field is located and how to gain access.

# Deep Sky Imaging Target Highlights for March 2024

by James Yoder

The average low [temperature](#) for March in the Phoenix metro area is 53° F. March 10<sup>th</sup> is a new moon with Astronomical dusk at 7:54 pm and Astronomical dawn at 5:21 am, giving us 9:15 of imaging time.

In this month's list there are over 92 object/configuration combinations provided of just about every class of deep sky object including 7 Globulars, 7 Open Clusters, 12 Planetary Nebulas, 6 Nebula and 4 Dark Nebula, 60 Galaxies/Galaxy Clusters.

Bright Moon Targets – These are small targets that have a high surface brightness, these would be globular clusters and Planetary Nebula, that with appropriate filters can likely be imaged even in a near full moon situation.

The [Prospective Imaging Objects Guide](#) (PDF download) covers objects that reach their highest point in the sky and cross 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	Page	Object(s)	Type	ImageLink
Hyperstar	14	Leo Galaxy Group (M95, M96, et. El.)	Galaxy Group	<a href="#">Unknown Exposure</a>
Hyperstar	23	Markarian Chain (M-84 et. EL.)	Galaxy Group	<a href="#">170 min</a>
Primary Focus	9	NGC-2903	Galaxy	<a href="#">Unknown Exposure</a>
Primary Focus	12	Hickson 44	Galaxy Group	<a href="#">616 min</a>
Primary (Moon)	13	Ghost of Jupiter (NGC-3242)	Planetary Nebula	<a href="#">73 min</a>
Primary (Moon)	23	NGC-4361	Planetary Nebula	<a href="#">116 min</a>

Resources:

- [ArtCentrics.com](#) – [March 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.

**THIRD QUARTER MOON ON MARCH 3 AT 05:30**

**NEW MOON ON MARCH 10 AT 02:00**

**FIRST QUARTER MOON ON MARCH 16 AT 21:10**

**FULL MOON ON MARCH 25 AT 00:00**

Monthly Meetings will be held in person and also presented live online using Zoom. See the EVAC Website for updates.

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 resumed. 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 7:00 pm.

***Visitors are always welcome!***



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



## 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 Friday and 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](mailto:grco@evaonline.org) for information.

## Used Equipment For Sale at Great Prices

The East Valley Astronomy Club (EVAC) has just posted used astronomy equipment for sale.

- Sales are “As Is”
- Pick-Up-Only

Contact the EVAC Property Director (James Yoder) at [properties@evaonline.org](mailto:properties@evaonline.org) for more details and to answer any questions. Detailed information on products being offered can be found on the EVAC Sales webpage [HERE](#). This page includes a brief description of the items, photos and references (i.e. users manuals, ect.)

Equipment being offered for sale this month includes:

- **Celestron AVX Mount in excellent condition (\$1,180 new, Sale Price = \$650)**
- **Meade 4.5” Newtonian telescope in fair condition (Sale Price = \$75)**

## EVAC Equipment Rental Program

The East Valley Astronomy Club (EVAC) Is introducing a rental program for EVAC Members. Details on terms and equipment can be found on the [EVAC Rental page](#). Each item below rents for \$25/week for up to 4 weeks. Currently the following items are available for rent:

- **Celestron C-8 with Nexstar GoTo Mount** - Everything you need to beginning exploring the night sky.
- **Seestar S50 All-in-One Smart Telescope** - Everything you need to get started capturing images of the Moon of the Moon, Sun and deep sky objects in one small easy to use package.
- **10” Dobsonian Telescope** - Everything you need to beginning exploring the sky.
- **Visual Filters for Deep Sky Objects** - 15 different filters to try before you buy.
- **Imaging Kit for Planetary & Moon Imaging** - Everything you need to capture and process images except the telescope.

Telescopes come with all equipment needed for observation (ie eyepieces, finder scope, power supply, etc.) Contact the EVAC Property Director (James Yoder) at [properties@evaonline.org](mailto:properties@evaonline.org) for more details and to answer any questions.





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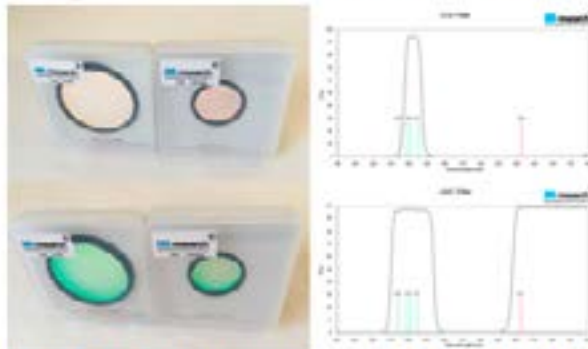
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# MARCH 2024

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

**March 7<sup>th</sup>** - Grande Innovation Academy

**March 20<sup>th</sup>** - AJ Public Library

**March 8<sup>th</sup>** - 2<sup>nd</sup> Friday Star Party

**March 27<sup>th</sup>** - Vista Peaks Church Star Party

**March 9<sup>th</sup>** - Messier Marathon at Hovatter

**March 30<sup>th</sup>** - Fountain Hills Community Center

**March 15<sup>th</sup>** - EVAC Monthly Meeting

Star Party

# APRIL 2024

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

**April 12<sup>th</sup>** - EVAC Riparian Star Party

**April 19<sup>th</sup>** - EVAC Monthly Meeting

**April 13<sup>th</sup>** - Girl Scouts (Central AZ College) Star Party

# East Valley Astronomy Club - 2024 Membership Form

## Member Dues (Based on the month you are joining the club)

	Individual	Family	Student (18yr+ with ID)
January - June	\$30.00	\$35.00	\$20.00
July - December ( <i>Renew in January</i> )	\$15.00	\$20.00	\$10.00
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Renewal Dues (Current Members Only)

Astronomical League: \$7.50 Annually:

Individual	Family	Student (18yr+ with ID)
\$30.00	\$35.00	\$20.00
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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:

Phone:

Address:

Email:

City  
State  
Zip

URL  
For website

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](http://www.evaonline.org)

East Valley Astronomy Club  
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Mesa, Az. 85214-2202

*President: Steve Bradshaw*

*Vice President: Woody Sims*

*Secretary: James Yoder*

*Treasurer: Brooks Scofield*

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*Don Wrigley*

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*Property Director: James Yoder*

*Refreshments: Open*

*Observing Program Coordinator: Wayne Thomas*

*AL Representative: Brooks Scofield*

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*Webmaster: Brandon Feldman*

*SkyWatch Coordinator: Claude Haynes*

*Observatory Manager: Claude Haynes*