



THE OBSERVER



Blood Moon - Kevin O'Donnell

UPCOMING EVENTS:

- EVAC Riparian Star Party - Nov. 8th
- EVAC Monthly Meeting - Nov. 15th

For more details, and to see all of the upcoming club events, check out the [events page](#) on our website or the [Calendar](#) on Page 11.

INSIDE THIS ISSUE:

From the Desk of the President

by Steve Bradshaw

Just like last month, my article this month is a two-parter. In the first part I share something that I learned about the younger generation. In the second part I move on to some club business.

I had the opportunity to go camping at Lost Dutchman State Park last month. If the weather permits, camping provides lots of time to view the sky both day and night. The night sky is always fascinating with so many types of objects to view. It is no less fascinating to spend an entire day watching the Sun's surface features evolve. But the sky watching was not the most memorable moment of my camping trip.

The most memorable moment came from something that I learned from the four 20-year-old college students

camping in the adjacent site. I knew that five planets, the Moon, and several other interesting objects were going to be visible that night, so I invited them over to look through my telescope. Because public outreach is my first love, I was happy to invite them. They were happy to accept.

The evening started like any other public viewing session. Like everyone that sees them for the first time, they were amazed at Saturn and Jupiter. I heard the normal "wow" and "oh my" that I have come to expect. They were also surprised to find out that Venus goes through phases like our Moon. The Moon was also up, and they loved looking at it too. They got to see Neptune and Uranus too and were impressed by the great distances involved. But their most amazing sight was yet to come...

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From the Desk of the President

by Steve Bradshaw

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During conversation I found out that they were Grand Canyon University students in Phoenix, and that before college they lived their lives in Southern California and Phoenix. I realized that both Southern California and Phoenix have very light polluted skies. It was then that I asked them if they had ever been in dark skies and seen the Milky Way. All four responded with a no.

That's when it hit me. We have an entire generation of city kids that grew up with modern, light-polluted skies. No doubt that a large proportion of this generation have only seen the night sky through the washed-out glow of millions of city lights. They have never seen the pristine sky as it really is, with hundreds to thousands of stars visible overhead. I suddenly felt sad for them. They were 20 years old and had never seen one of nature's greatest spectacles.

It was then that I decided to have them choose a "blank" spot in the sky without any visible stars. They chose an area near Cassiopeia. I put in my widest-angled eyepiece and slewed my telescope to that spot and then asked them if they would like to see the sky more like it really is. Each one of them looked a bit stunned as they peered through the eyepiece and saw a hundred stars visible in the "blank" spot. The third one at the eyepiece summed it up nicely when she turned towards me and said with a very serious tone, "It's so beautiful. I never knew." Those words cut deep, and I felt sad for her and for all those in her generation who have never seen the true beauty of the night sky.

My hope for future generations is that humankind will eventually use technology and ordinances to return to pristine, dark skies. My plan for the present is to turn my telescope towards "blank" spots more often so that others can see the sky more like it really is.

Now, on to a bit of club election business. Last month I mentioned that we needed four members to fill two board member positions along with both vice president and secretary positions. The membership response was awesome and seven people stepped forward to express interest. Out of those seven people, four decided to go for it. Three of these four are first time volunteers as well. Again, awesome!

So, this month we will elect four new people to club leadership positions. For the board members we have Andrew Thorpe and Gordon Rosner. For secretary we have Jeff Foreman. For the vice president position we have Amanda Dolly Duvall. Each will be introduced—and voted on—at our November meeting.

I want to thank each one of these people for offering their service to the club this next year. I would also like to thank all those who considered serving but perhaps couldn't do it this time around. The good news is that you will have another opportunity in January 2026. In fact, one of you will be replacing me in that election.

Until next month enjoy looking up and learning,
Steve

New Moon on November 1st at 5:47 AM

First Quarter Moon on November 8th at 10:55 PM

Full Moon on November 15th at 2:28 PM

Third Quarter Moon on November 22nd at 6:27 PM

EVAC Meeting Minutes for October 18, 2024 at 7:00 PM AZ Time

by James Yoder

YouTube: Many past EVAC monthly meetings can be viewed on our [EVAC Meetings YouTube Channel](#) or select this [link](#) to go directly to last month's meeting recording.

Welcome

EVAC President Steve Bradshaw welcomed club members to the meeting and reviewed the agenda. Two new visitors were recognized and welcomed.

Announcements

Steve Bradshaw reviewed the following club business items:

- Star Parties
 - » All-AZ Star Party – is November 1st & 2nd
 - Hovatter observing site off I-10 towards Quartzsite
- EVAC Website Highlights (<http://eastvalleyastronomy.org/>)
 - » Joining a distribution list for EVAC announcements can be done [here](#).
 - » Joining or renewing membership can be accom-

plished 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](#).
- » Gilbert Rotary Centennial Observatory (GRCO)
 - Friday and Saturday (weather permitting) dusk to 9:30 PM
 - 2nd Friday of every month is the public star party with members telescopes.
- The following positions will be vacant, please contact Steve (president@evaconline.org) if you are interested in any one of these positions:
 - » Vice President
 - » Secretary
 - » Board Member At Large (2)
- Raffle: Two \$25 gift certificates were given out.

The Backyard Astronomer (Excerpt from November 2004)

by Bill Dellings

8x50 Binoculars and Double Stars

You don't need a \$5,000 APO hi-end refractor to split many double stars. Some doubles have enough separation to be resolved in a "lowly" pair of binoculars—even your 8x50 finder! In recent years I've become very fond of observing double stars and noted that many could be split in the binoculars I was using to help me locate them.

There are obviously two factors involved as to whether you will be successful in this endeavor. 1) the size of the binocular and 2) the closeness of the pair's separation. I have chosen to use 8x50 binoculars for this discussion because it's likely many gazers out there have a glass in that size. This is also a standard size finder on many telescopes. In this size of instrument, as we'll see, we'll be limited to splitting double stars (DS's) down to only about 30" (arc seconds).

To a DS nut, such a separation is huge -- a piece of cake in even a crummy telescope. Nevertheless, there is a considerable number of DS's out there with a separation in that range—and larger, such that a binocular armed observer can be kept busy all year.

I have used my 20x100 Miyachis to split closer DS's, down to about 13" at 20x and 7" at 37x. But let's stick with the 8x50's as they're more common and easy to handle. I use Swarovski 8x50's.

One big point here: in attacking DS's with binoculars, it's a must they be tripod mounted. You can get away with hand held binoculars for general viewing or splitting DS's which are arc minutes apart, but under about 1 arc minute they'll have to be tripod mounted.

Let's start with some easy DS's.

Alpha Capricorni: (mag 4.2, 3.6, sep 378" [6.3']) Though not a true physical pair, just an "optical" double, it screams out for attention when the binocular viewer pans by it. The eastern star, a2, is the brighter of the two and 120 light years away; a1's distance is 1600 light years. A telescope reveals a2 to be a binary with an 11th magnitude companion.

The Backyard Astronomer

by *Bill Dellinges*

Continued from page 3

Mu Scorpii: (mag 3.04, 3.57, sep 346" [5.76']) This is a beautiful naked eye DS and good eye test. Burnham states they share a "common proper motion" (CPM) though more than half a light year apart. However, the more updated Sky Catalog 2000 shows distances of 521 and 684 light years, thus this pair is likely only an optical double. What- ever, it's still captivating in binoculars. It's directly above NGC 6231 and h12, the "false comet".

Epsilon Lyrae: (mag 4.5, 4.6, sep 208.5" [3.5']) The two bright stars of the "Double-Double." Good eyes can split it without optical aid. Easy pickings, any binocular or finder will split it. This is a true binary system 160 light years away. Burnham's states a true separation of 13,000 Astronomical Units (1 A.U. = the mean Earth-Sun distance). That's 162 Solar System diameters, yet they're still linked by gravity. He believes the two star's period to be just under a million years.

56 Andromedae: (5.7, 6.0, sep 216" [3.1']) A nearly equal magnitude pair easily split in my 8x50's. Nicely placed next to the open cluster NGC 752.

Nu Draconis (Kuma): (mag 4.9, 4.9, sep 62") One of my favorite DS's. This is the faint star in the head of Draco. They're a perfect match in magnitude, like cat's eyes in a dark alley; a joy to behold in any 8x50 binocular or finder. Kids love it in my 16x Astroscan.

Let us now enter the realm of sub-arc minute doubles...

Zeta Lyrae: (mag 4.4, 5.7, sep 43.7") Nearest "Parallelo- gram" star to Vega, an easy split in the 8x50's. Each star has a separate Flamsteed number (6 and 7 Lyrae).

Delta Cephei: (mag 3.9, 6.3, sep 40.8") The prototype for the Cepheid Variable standard candle for distance mea- suring is also a fine yellow and blue binocular DS.

61 Cygni: (mag 5.2, 6.0, sep 30") The first star to have its distance determined using parallax by Bessel in 1838. An easy double to split in my Swarovski 8x50.

Do we dare try resolving a triple star in our lowly 8x50's? Are they up to the task? No problem! Here are two triples I've busted with my 8x50's:

Rho Ophiuchi: (AC mag 5.0, 7.29, sep 151"; AD mag 5.0,7.0, sep 156.3") This star, along with Antares, can be seen in the ubiquitous colorful photo of red and blue nebulosity above the Scorpion's heart. My 8x50 shows a neat triangle of three stars, a bright one east and two fainter ones to its west. It's actually a quadruple system, the AB pair (mag 5.0, 5.74, sep 3.1") were split in my Televue 85 at 75x.

Beta Capricorni: (AB mag 3.4, 6.2, sep 205.3"; AC mag 3.4, 9.0, sep 226.6") Located just below Alpha Capricorni. The bright star (A) is at the top of your field. B is in the 4 o'clock position from A. C is the faintest star at the 8 o'clock position and is very faint; you'll need dark skies, a sturdy tri- pod, and the eyes of E. E. Barnard to see it.

EVAC Outreach Events

by *Jake LeAlcala*

November Outreach Events:

- November 7th – 6:30 PM – Peralta Park Star Party
- November 8th – 7:00 PM – 2nd Friday Star Party – Gilbert Rotary Centennial Observatory
- November 19th – 7:00 PM – Chandler Gilbert Community College Star Party

Details can be found on the EVAC website - www.evaconline.org/events-meetings. Click on the calendar entry for location and times. Contact [Jake LeAlcala](mailto:jake@evaconline.org), (EVAC's Events Coordinator), if you can volunteer at an event. It is help- ful to know who is coming so we can tell you where the observing field is located and how to gain access.

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

by James Yoder

What's Up? – 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](#)).

WARNING!! – Any event associated with viewing the Sun directly will require the use of a solar filter.

Equipment Requirements are denoted as follows:

- NE – **N**aked **E**ye event, no equipment needed to appreciate this.
- BI – 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	Equipment	Images	Ref	Comments
11/01	New Moon	All Night	N/A			
11/10	Moon/Saturn Appulse	7:00 PM	NE, BI	1, 2	1	The Moon and Saturn will make a close approach, passing within a mere 4.7 arcminutes of each other.
11/11	Moon/Neptune Occultation	6:20 - 7:18 PM	TS	1, 2	1	The Moon will pass in front of Neptune at 39° above the horizon and emerge at 48°.
11/15	Full Moon	All Night	NE, BI, CT, TS			Beaver Moon
11/17	Uranus at Opposition	All Night	TS		1	Uranus lies opposite to the Sun in the sky and will be visible for most of the night.
11/20	Mercury PM Sighting	Sunset (5:22 PM)		1		Mercury will appear 9° above the western horizon just after sunset.

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

Deep Sky Imaging Target Highlights for November 2024

by James Yoder

The [average low temperature](#) for November in the Phoenix metro area is 53° F. November 1st is a new moon with astronomical dusk at 6:59 PM and astronomical dawn at 05:23 AM, giving us 10 hours and 22 minutes of imaging time on that night.

In this month's list there are over 136 object/configuration combinations provided of just about every class of deep sky object including six globular clusters, twenty planetary nebulas, fifty nebula, ten dark nebula, twenty-two open clusters and twenty-eight galaxies/galaxy clusters.

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

The Prospective Imaging Objects Guide ([Download PDF](#)) 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 10 PM and 2 AM when possible. This ensures maximum imaging time over the month.

Happy Hunting!

Some Highlighted Targets (Most of these objects were imaged in Chandler)

Configuration	Page	Object(s)	Type	ImageLink
Hyperstar	21	NGC-288, NGC-253	Galaxy, Globular	105 min
Hyperstar	22	Gamma Cassiopeiae Neb (SH 2-185)	Nebula	372 min
Focal Reducer	22	Packman Nebula (NGC-281)	Nebula	580 min
Focal Reducer	26	Triangulum Galaxy (M-33)	Galaxy	620 min
Primary Focus	20	Needle's Eye Galaxy (NGC-247)	Galaxy	280 min
Primary Focus	30	Heart Nebula Core (IC-1805)	Nebula	145 min
Primary Focus (Moon)	35	Oyster Nebula (NGC-1501)	Planetary Nebula	124 min
Primary Focus (Moon)	36	Cleopatra's Eye (NGC-1535)	Planetary Nebula	124 min

Resources:

- [ArtCentrics.com](#) – [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, and orientation of the image you have taken.

Used Equipment For Sale at Great Prices

The East Valley Astronomy Club (EVAC) has used astronomy equipment for sale. Please note that equipment sales are **“as is”** and are **“pick-up only”**.

For more details and to answer any questions, contact the EVAC Property Director, James Yoder (properties@eva-online.org) or visit the EVAC Sales webpage [HERE](#). This page includes a brief description of the items, photos and reference materials (e.g. users manuals, etc.).

Equipment being offered for sale this month includes:

- [Denkmeier Bino Viewer with Accessories](#) (Sale Price = \$500)
- [Towa Catadioptric Telescope with Equatorial Mount](#) (Sale Price = \$250)
- [Celestron 8SE Schmidt-Cassegrain GoTo Telescope](#) in fair condition (Sale Price = \$500)
- [9” Cassegrain Optical Tube Assembly](#) (Sale Price = \$200)
- [Thousand Oaks Type 2 Solar Filter ID=308mm](#) (Sale Price = \$100)

Non-EVAC Equipment for Sale (This is mostly member sales, EVAC is neither responsible for, nor endorses this equipment).

- [New Celestron Motor Focuser](#) (Kent Bell) Sale Price=\$175
- [12.5” f/5 Dobsonian](#) (Brooks Scofield) Sale Price = \$800
- [Celestron C90 Spotting Scope](#) (David Hopper) Sale Price=\$160

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 begin exploring the night sky.
- **ZWO Seestar S50 All-in-One Smart Telescope** - Everything you need to image the Sun, Moon and some bright, deep-sky objects. Extremely user friendly.
- **Celestron 10” Dobsonian Telescope** - Everything you need to begin exploring the sky.
- **Visual Filters for Deep Sky Objects** - 15 different filters to try before you buy.
- **Imaging Kit for Planetary & Moon Photography** - Everything you need to capture and process images except the telescope.

Telescopes come with all equipment necessary for observation (e.g. eyepieces, finder scope, power supply, etc.)

Contact the EVAC Property Director, James Yoder, at properties@evaonline.org for more details and to answer any questions.



SkyPi Remote Observatory

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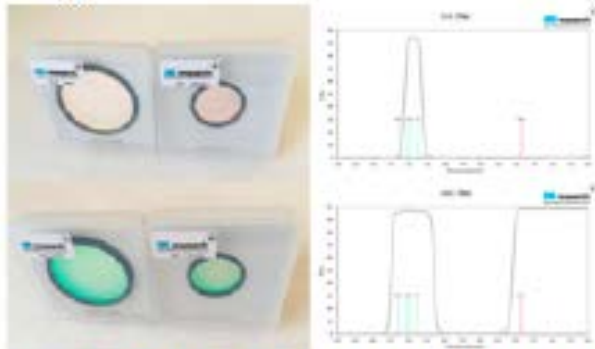
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Monthly Meetings will be held in person and also presented live online using Zoom. See the EVAC Website for updates.

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 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.

Meetings are also available online via Zoom.

Visitors are always welcome!



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



November 2024

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	29	30

November 7th - Pinal Co. Govt. Star Party

November 8th - 2nd Friday Star Party

November 15th - EVAC Monthly Meeting

November 19th - Chandler Gilbert Community
College Star Party

December 2024

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
29	30	31				

December 3rd - Kyrene Del Norte Star Party

December 12th - Step Up Schools Star Party

December 13th - 2nd Friday Star Party

December 15th - Smith Jr High Star Party

December 20th - EVAC Monthly Meeting

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: \$10.00 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 _____

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. EVAC also has a Facebook Group where members may share ideas, photos, and Astronomy related information. Click on the link to join: [East Valley Astronomy Facebook Group](#).

[The Gilbert Rotary Centennial Observatory \(GRCO\) also has a Facebook Group. To visit, please click on Gilbert Rotary Centennial Observatory - GRCO. The 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.](#)

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www.evaonline.org

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