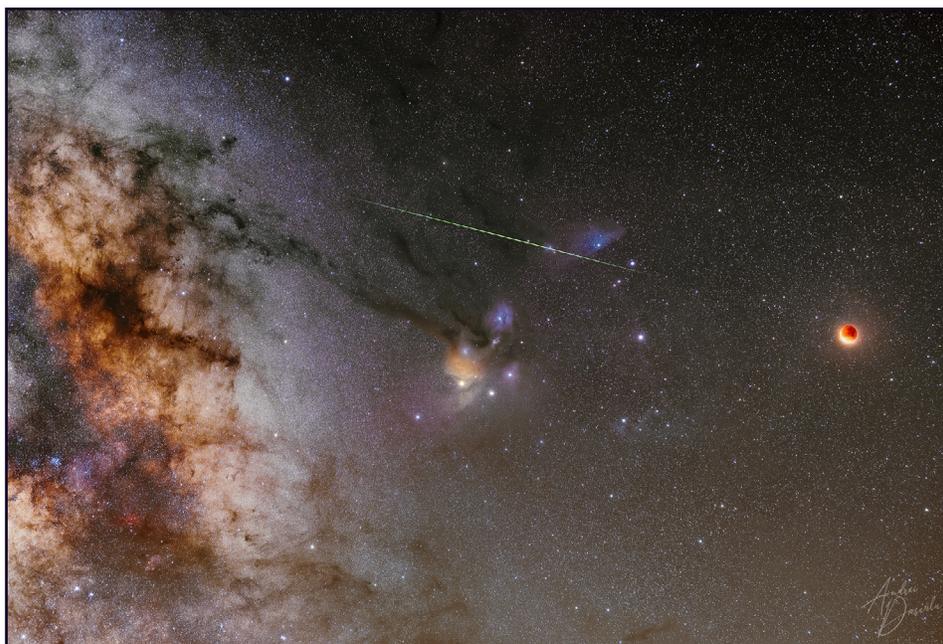
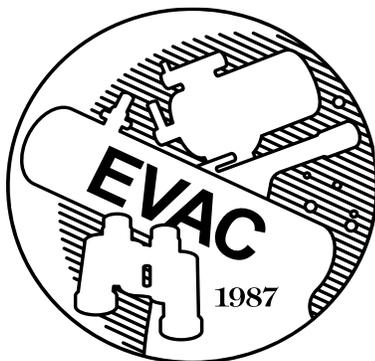


THE OBSERVER

VOLUME 36 ISSUE 6



Deep Sky Behind an Eclipsed Moon (APOD 5/24/22)
Image Credit and Copyright: Andrei Ionut Dascalu

UPCOMING EVENTS:

The June 17th EVAC Meeting will be held both online via Zoom and in person at the Gilbert Library. The speaker will be Sid Frede.

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From the Desk of the President

by Claude Haynes

“June is bustin’ out all over, the feelin’ is getting’ so intense”, or so Rogers and Hammerstein felt in the musical “Carousel”. Actually, June is just bustin’ out HOT! The only observing relief is to get up early and view the planetary freight train of Saturn, Mars, Jupiter and Venus before dawn.

May was a busy month for a lot of reasons. We had several fun outreach events, with a foray to Care-free for solar viewing on Earth Day, celebrating Astronomy Day with similar viewing at the Observatory and culminating with a beautiful Lunar Eclipse. Thanks to all the vol-

unteers who assisted with these activities.

May also saw our first hybrid monthly meeting of in-person at the library and via ZOOM. Thanks to Tom Polakis and the inimitable Dr. Paul Knauth for their presentations. This meeting, and prior ones, are available to view from the EVAC website or our new YouTube channel.

Again this summer, we will partner with the SE Regional Library for sessions on June 27 and July 25. These are family focused events. We begin at 7pm with a lecture in the

From the Desk of the President

by Claude Haynes

Continued from page 1

library meeting room, followed by observing at GRCO. Each session will be different, but with a common focus on the James Webb Space Telescope as the first images begin to be released.

Our next monthly meeting is on June 17. It will again be a hybrid in-person and ZOOM event with Sid Frede as the speaker. We are still looking for someone to join our executive team as Vice-President. Their main task is finding speakers for our meetings, but they are also play an

EVAC Zoom Meeting Notes for 2022 May 20th, at 07:30 P.M. AZ Time

by Club Secretary Gordon Rosner

Happy days are back! We returned to an in person monthly meeting since the pandemic started that had required us to use Zoom as our meeting platform. Through the work of Claude Haynes, Tom Modzden, and James Yoder, we also had a ZOOM simulcast. Our club took a huge step forward with this being the first ever in person and Zoom simulcast meeting. The plan is to continue this monthly format that gives those who do not have the ability to physically come to the meetings still watch all the excellent presentations we have and to catch up on club activities. For this meeting, we had 50 physically in attendance and 57 watching on Zoom. We did have a few technical difficulties but those were worked out and the meeting went quite well. On the bright side, it left us with improvement opportunities.

On with the meeting notes.

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 20 May 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 our club President, Claude Haynes, welcoming those in attendance and our Zoom viewers. He then introduced the club officers. He then noted that club badges were available for those

integral part in managing club operations. Please email me if you are willing to step up to that role. Hopefully I will see some of you at the Grand Canyon Star Party June 18 – 25. It should be a lot cooler, and with that chance for relief I am bustin' out all over.

Keep looking up!

Your President
Claude Haynes

who ordered them and club shirts were located on the back tables for purchase. Also, there were quite a few free astronomy magazines available in the back. Dues were also accepted by our very busy treasurer Alex Nachman. Claude then described some outreach events that club members did showing how the club is further returning to our club activities. A big event was the lunar eclipse that had two to three hundred folks from the public attend. Claude also announced that the Grand Canyon Star Party will be held June 18-25. For more information and signing up to volunteer in helping, visit the [Tucson Amateur Astronomy Association's web site](#). EVAC is also participating in the Library's Summer Family Events by giving presentations on the James Webb Space Telescope on June 27 and July 25. Check out the [Gilbert Library's web-site](#) for more information.

Then Claude handed it over to our club's Tom Polakis who talked on "Seeing Measurements at Two Lowell Observatory Sites Using Differential Image Motion Monitors". By "Seeing Measurements", Tom meant measuring how stable the atmosphere is. Tom described the process in his usual in-depth, interesting, and understandable methods. He described the instruments used and how the process works using two telescopes at different Lowell locations. Details included the charts of results and what they are telling us. This is a presentation that if you missed, you must take a look at the recording available on our club website because of the many explanations and examples Tom presented. You must see the photos of the "LensBall" and what it shows you. He closed his presentation with some photos of the Lowell sites and answering questions. This was an interesting presentation of a very unique subject that you must watch.

EVAC Zoom Meeting Notes for 2022 May 20th, at 07:30 P.M. AZ Time

by Gordon Rosner

Continued from page 2

Our main presentation started at 8:25 with Claude introducing Paul Knauth, Professor Emeritus at ASU. Paul is a Field Geologist/Field Astronomer whose presentation was "Deep Time, the Universe, Table Salt, and the Prospect for Life as We Know it Elsewhere". WOW! What a title and what a unique presentation! Paul began with how elements are formed in the universe. The Earth is mostly silicate minerals, so how was salt formed? Paul presented it as not being difficult to understand, just rather long and complicated. But Paul gave an interesting and understandable theory on how it happened. After understanding this, would salt also have formed on Mars? How about the moons Europa, Ganymede, Enceladus, Titan and other moons that may have subsurface oceans? Are they salty? How about asteroids? Or even Pluto? How salty? What life can thrive on what levels of brine (salty water)? What levels may not allow life? This presentation gets you thinking about how life could start on other worlds contain-

ing salt. Or maybe how too much salt may not allow it. Paul gave one of our more unique presentations that you should watch and even watch again to get you thinking.

Paul then answered questions from the audience. He then invited those in attendance to see a sectioned meteorite he brought that is believed to be older than the Earth. All could see the many details revealed by the section.

Claude thanked the 50 in attendance and the 57 viewing via Zoom. He reminded everyone that the next meeting will be on 17 June at 7:30PM at the library and again is planned to be in person with a Zoom simulcast. He then closed the meeting at 9:25PM.

Gordon Rosner
EVAC Secretary

The Backyard Astronomer

by Bill Dellenges

History Tidbits from the June Sky (6/16)

When you think June, you might think summer, but most of the night sky is actually filled with spring constellations. With the exception of zero magnitude Arcturus and first magnitude Spica, the spring sky is relatively devoid of bright stars. That's because we are looking ninety degrees northward away from the plane of our Galaxy. In fact, the Galactic North Pole can be found almost directly overhead in Coma Berenices (Berenice's Hair). The constellation is very faint, only represented by 3 stars forming an inverted L. It was created in 1551 by Dutch cartographer Gerardus Mercator. While technically not a constellation until then, the faint glow of MEL 111, a large open cluster only 288 light years away, represented since Greek times the legendary hair of Queen Berenice who sacrificed her locks for the safe return of her husband in battle. On some star charts from antiquity, the nebulous appearance of Mel 111 was used to represent the tuft of hair at the end of Leo's tail.

The aforementioned Arcturus is the fourth brightest star in the sky. Lovely as it is, one wonders what it's doing here off the plane of the Milky Way. Edmund Halley discovered proper motion in 1718 when he compared the positions of Arcturus, Aldebaran and Sirius with older star charts

and noticed a slight change in their position. Arcturus was moving more than one degree across the sky every 2000 years. Its velocity relative to us is 76 miles per second in a highly inclined orbit that will position it in the constellation Corvus in 100,000 years. One interesting theory is that Arcturus is one of 52 stars called the Arcturus Group that belonged to another galaxy that collided with our galaxy billions of years ago and had taken up residency in the Milky Way. We have harnessed its light in one unusual manner. Light from Arcturus gathered by the Yerkes's Observatory 40" refractor, utilizing photo-electric cells, turned on the lights at the 1933 Chicago World Fair. At the time Arcturus was thought to be 40 light years away and light leaving the star during the 1893 Chicago World Fair would arrive in 1933 to start that fair. Alas, we have since determined the distance to Arcturus to be 37 light years.

In the north we find the Big Dipper asterism slipping past the meridian into the western sky. Of course these are only the seven brightest stars of Ursa Major, the Great Bear, the third largest constellation in terms of square degrees of sky. The first and second largest constellations, Hydra and Virgo respectively, are also in the June sky. At the bend of the Dipper's handle is Mizar, a popular second magnitude double star often observed by amateur astronomers. Those with keen eyesight might notice

The Backyard Astronomer

by *Bill Dellinges*

Continued from page 3

Mizar has an unrelated companion, fourth magnitude Alcor, twelve arc minutes away. Mizar has three unique distinctions: It was the first double star discovered (G. Riccioli, 1650), the first double star to be photographed (G. Bond, 1857) and the first star discovered to have an unseen companion spectroscopically (E. C. Pickering, 1889). Nicely placed in the north is Draco the Dragon winding its body between Ursa Major and Ursa Minor. A line perpendicular from the two end stars in the bowl of the Little Dipper extended ten degrees takes you to Alpha Draconis or Thuban. This star was our North Star around 2800 BC during the building of the pyramids in Egypt. Due to precession, a gravitational interaction of the Sun and Moon on Earth's equatorial bulge, the Earth's axis of rotation wobbles like a top over a period of about 26,000 years. Where ever the axis points at a given time, that will be Earth's North Celestial Pole and if there happens to be a visible star on or close to that point in the night sky, that will be Earth's North Star. Since 2800 BC that axis has moved to a point less than a degree from Polaris (44'), the star at the end of the tail of Ursa Minor (or handle of the Little Dipper). That's why it's named Polaris, the pole star.

EVAC Outreach Events

by *Alexandra Nachman*

The East Valley Astronomy Club has been slowly opening up since the pandemic hit and it was only right that one of the first public events for EVAC since it went virtual was an actual, bona fide lunar eclipse! While the observatory had been open for a few months to the general public, events had been on hold for over two years. But finally, it was deemed safe enough to try. And what better way to do that than to get to witness one of Nature's greatest events? A total lunar eclipse! This lunar eclipse occurred on May 15, 2022 and was a sight to behold. People milled about, standing in line or sitting on blankets to watch the Moon. Kids ran about as their parents chatted happily or tried to take pictures of the Moon. We had six awesome outreach volunteers come out to help in addition to myself. They set up their own telescopes on the lawn below the observatory and were an excellent complement to the large observatory scope. There were fields of view of all sizes and the Moon was seen up close and far away. Watching the eclipse through various telescopes lent a surreal experience to the night. Clouds threatened to

The closest the axis will point to Polaris will be 28' in 2100 AD.

Earth's Ecliptic North Pole resides very near NGC 6543, the Cat's Eye planetary nebula. In 1728, English astronomer James Bradley was observing Gamma Draconis as he attempted to detect its parallax (unsuccessfully) and discovered the aberration of starlight (and nutation). This interesting effect on the path of starlight traveling down the tube of a telescope on Earth confirmed Earth moved through space – not that many were challenging that in 1728 – and allowed Bradley to determine the best estimate of the velocity of light up to that time. Aberration of starlight would be one of several factors to be untangled from calculating the parallax of a star, which was accomplished in 1838 by Friedrich Bessel when he determined 61 Cygni was 11.4 light years away.

Interesting astronomical tidbits of history can be gleaned behind the panoply of the constellations. Time spent looking at the stories behind great discoveries can be very rewarding.

cover the Moon as the shadow slid toward totality. But, once the Moon reached totality, the clouds stayed away long enough for the Moon to turn a brilliant red and stun everyone with its beauty.

As the new event coordinator for EVAC, I was super stoked that this was my first event with the public. It was cool to see the observatory in action after not seeing it since the pandemic began. And getting to meet and hang out with the volunteers was awesome. My telescope knowledge was a bit rusty- it had been a while since I used a telescope- and I had to remind myself some of the basics of how they worked. But it was cool getting to see the Moon through various telescopes and listen in as people asked questions to our volunteers. Everyone had fun checking out the small telescopes and witnessing the eclipse in the big observatory scope. This wonderful event preceded our first in-person meeting on May 20 and was a wonderful introduction to some of our awesome club members. I look forward to future events - though we may have to

EVAC Outreach Events

by Alexandra Nachman

wait a while before another cool eclipse comes around.

plan to have some more awesome events coming up soon!

Keep an eye out for future announcements for events.

They will be announced via the club meeting, email, or the newsletter. We are still off to a slow start for now, but

Alexandra Nachman
Events Coordinator

Deep Sky Imaging Target Highlights for June

by James Yoder

The average low [temperatures](#) for June in the Phoenix metro area is 78° F. June 29th is a new moon with Astronomical dusk at 9:23pm and Astronomical dawn at 3:39, giving us 6:16 hours of imaging time.

In this months list there are over 100 object/configuration combinations provided of just about every class of deep sky object including 24 Globulars, 13 Open Clusters, 11 Planetary Nebulas, 27 Nebula and 18 Dark Nebula, 6 Galaxies/ Galaxy Clusters.

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 June

Configuration	Page	Object	Type	ImageLink
Hyperstar	9	Dark Horse Nebula (LDN- 42)	Dark Nebula	120 min
Hyperstar	33	Pelican and North American Nebula	Nebula	175 min
Focal Reducer	11	The Pipe Nebula (B-66)	Dark Nebula	No Image
Focal Reducer	8	Globular M-9 and Dark Nebula	Globular, DN	No Image
Primary Focus	20	Omega Nebula (M-17)	Nebula	100 min
Primary Focus	6	Hercules Globular Cluster (M-13)	Globular Cluster	82 min

Resources:

- [ArtCentrics.com](#) – [June 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.

FIRST QUARTER MOON ON JUNE 7 AT 07:48

FULL MOON ON JUNE 14 AT 04:51

LAST QUARTER MOON ON JUNE 20 AT 20:10

NEW MOON ON JUNE 28 AT 10:54

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 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 gccsp@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 or 480-363-9463 if interested in these items.

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

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.



SkyPi Remote Observatory

The darkest, most Pristine, sky in the continental U.S. !

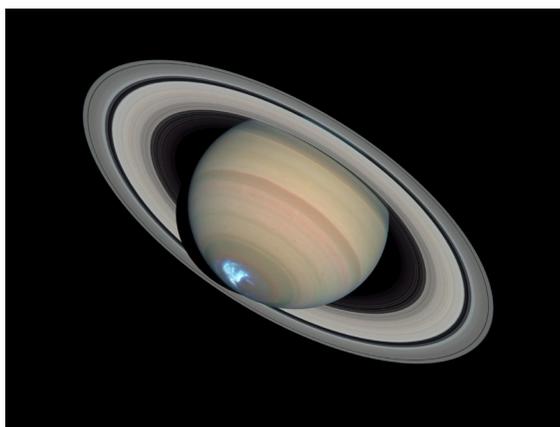
At the site: Bathroom facilities, running water, 5 pads w110v, wifi, acres of grassy camp sites.

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

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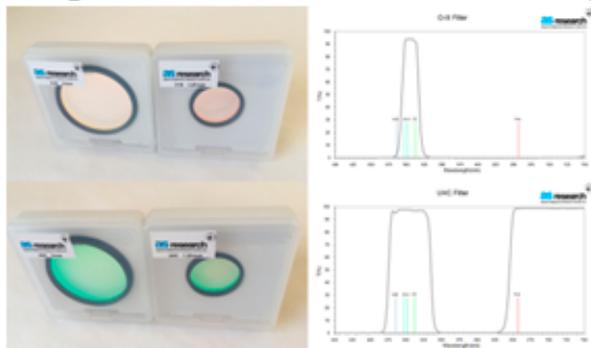
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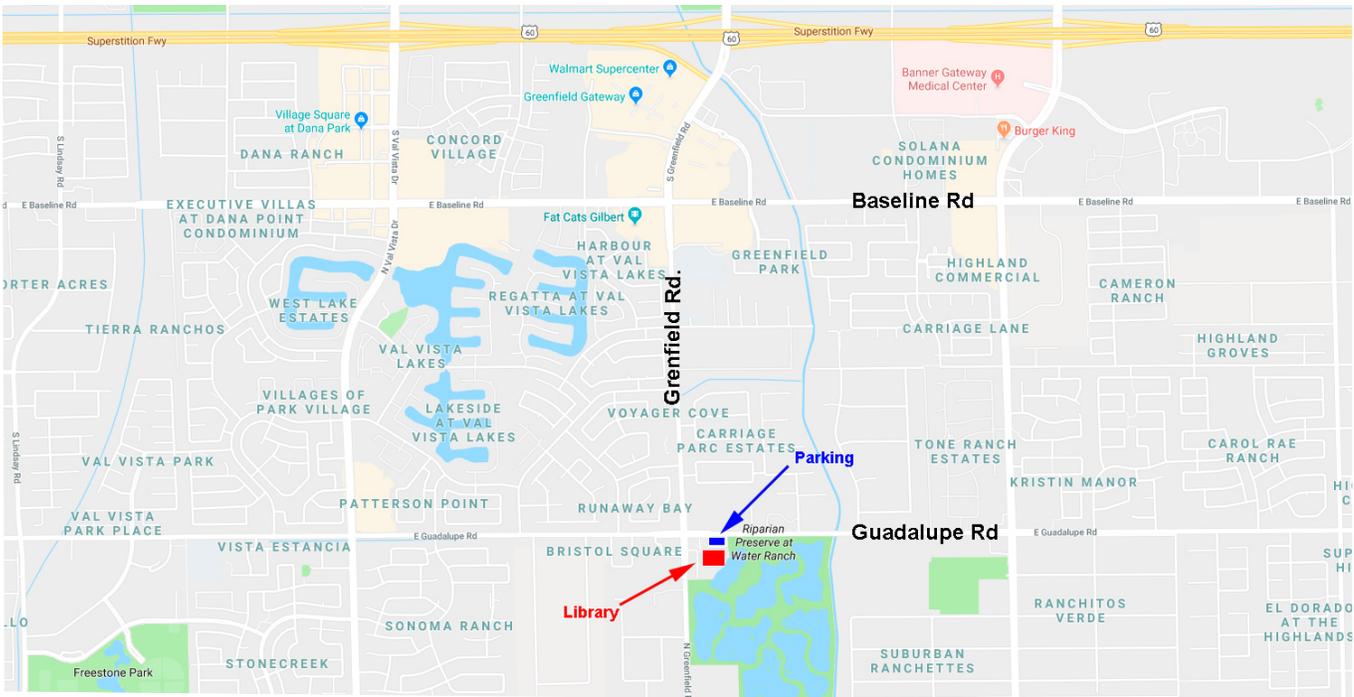
Monthly Meetings will be held in person and also presented live online using Zoom. See the EVAC Website for updates. All other events are on hold until health concerns are resolved.

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



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	17	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.

JULY 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	29	30

July 15 - 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)

	Individual	Family	
January, February & March	\$30.00	\$35.00	
April, May & June	\$22.50	\$26.25	
July, August & September	\$15.00	\$17.50	
October, November & December	\$37.50	\$43.75	<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:

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 _____

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Please send your contributions, tips, suggestions and comments to the Editor at: news@evaonline.org. Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

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www.evaonline.org

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