Volume 37 Issue 7

July 2023

The Observer

The Andromeda Galaxy in Ultraviolet
APOD July 18, 2021 - Image Credit: Nasa, JPL-Caltech, GALEX

Upcoming Events:

EVAC Public Star Party - July 14th
EVAC Meeting - July 21st

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From the Desk of the President
by Claude Haynes

July – in the words of Cole Porter "it's too darn hot", (Kiss Me Kate). Hopefully the Monsoon season will bring some showers and relief but may just bring annoying clouds without rain. Looking at the EVAC Facebook page it seems some of you are escaping to cooler sites and posting some lovely pictures along the way. Stay safe out there and hydrate.

Our summer partnership with the SE Regional Library continues with a session on July 24. There is a lecture at 7:30pm in the Shakespeare Room given by Gordon Rosner, with observation afterwards at GRCO. The June event was well attended, and we had many excited children who made their first visit to the observatory. I would encourage you to mention this opportunity to family and friends, as well as the regular GRCO viewing on Friday and Saturday evenings from sunset until 9:30pm.

School will be starting soon, and we are already receiving inquiries about Star Parties. Our volunteers who participate by sharing their telescopes and expertise have a great time interacting with children and their families. We provide a great service to the community with our outreach programs, and if you aren't a volunteer yet, I encour-

From the Desk of the President

by Claude Haynes

Continued from page 1

age you to think about giving it a try. Small telescopes often provide the best view and easiest transport. Many children have never viewed through a telescope (as well as their family members) and they are creating lasting memories. We are still looking for an Events Coordinator. This is an important job and I hope someone will come forward to accept this position. Email me at president@evaconline.org if you are interested or have questions about outreach.

Our July meeting will feature presentations from two members. Steve Bradshaw will discuss "How Far Away is That?" and James Yoder will present Part 2 of his information on "Observing with Filters". Be sure to check out past recordings of meetings that are posted on the EVAC website and our YouTube channel.

The good news is that summer in the Valley of the Sun doesn't last forever – it just feels that way. Keep looking up!

Your President
Claude Haynes

EVAC ZOOM Meeting Minutes for June 16th, 2023 at 07:30 P.M. AZ Time

by James Yoder

YouTube

Many 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 to view this month's meeting.

Welcome

EVAC president Claude welcomed club members to the meeting and reviewed the agenda. New visitors were recognized and welcomed. Introduction of Officers and Board for 2023:

- President – Claude Haynes
- Vice President – Woody Sims
- Secretary – James Yoder
- Treasurer – Brooks Scofield
- Board Members: Don Wrigley, Tom Mozdzen, Steve Bradshaw, Alex Beck, David Coshow
- Property Manager: James Yoder
- Webmaster/Newsletter Editor: Marty Pieczonka
- Events Coordinator – (Position is Open)

General Business

- EVAC has used equipment for sale. Get some really good deals on used astronomy equipment that was donated to EVAC.
- EVAC also has an Equipment Rental Program. We currently have a 10" Dobsonian and a 8" NexStar goto telescope available for weekly rental at extremely reasonable rates ($25 for the first week).
- Visitors Recognition
- Membership Renewal: Reminder that it is time for members to review their annual membership.
- GRCO – Has just had a new paint job.
- Chandler Lights – The city is in the process of installing LED lighting (4,000 K). You may want to contact your local official to let them know member and let them know we would prefer a lower number to help with light dispersal.
- Claude Grand Canyon Trip Summary

Member Presentation: Filters Part 1

Presenter: James Yoder

Part 1 of a two part series on filters for observation of deep sky objects. In this presentation fundamental concepts of Exit Pupil, Know your Pupil Size, Highest Useful Magnification for Deep Sky Objects, Types of Deep Sky Object. Download the full 20 page paper at https://tyny-url.com/VisualFilters-2023 if you would like the full details.

Main Presentation:

Presenter: Tom Polakis

Tom showed us outstanding images he has taken over the years and discussed many of the aspects of these photos including effects of the earth's atmosphere, geometry and perspective, what color tell us, actual brightness, distance and velocities, astrophysics and geology lite. He also provided a number of pointers to consider when taking images. Images were shown according to topic starting with the Atmosphere, Landscapes, Solar System, Deep Sky.

Next Monthly Meeting

July 21st 7:45 pm

The Backyard Astronomer

by Bill Dellinges

Meet the Summer Triangle Stars

Early July and August evenings are a great time to treat yourself to the splendid Summer Triangle. Two reasons come to mind. One, it's rising in the east, the darkest part of sky for most East Valley stargazers. Two, it's relatively low in the sky for convenient viewing (no sore necks!). To my eye the Summer Triangle is not a perfect equilateral triangle, but more along the lines of a scalene or acute triangle. But I'll take it. It's still a triangle!

In the realm of asterisms, the Summer Triangle is probably the second most recognized star grouping after the Big Dipper asterism, which of course is the seven brightest stars in the constellation of Ursa Major. An asterism is simply an interesting pattern of stars that are not technically a constellation. They can be part of a constellation and easily seen with the naked eye, like the Big Dipper and the Great Square of Pegasus. Or small and require binoculars or a telescope to see, like the Coathanger in Vulpecula.

To create the Summer Triangle, we must utilize the three brightest stars in Lyra the Lyre, Aquila the Eagle, and Cygnus the Swan. Respectively they are **Vega**, **Altair** and **Deneb** forming a conspicuous triangle about 24, 34 and 38 degrees in length per side. The three constellations are embedded in the northern regions of the Milky Way band between Sagittarius and Cepheus. Their Lucida's really stick out amongst the panoply of stars, especially if the night sky is slightly light polluted – which unfortunately, applies to most of us.

Let's take a closer look at their stars, in order of brightness. First up is **Vega**, 25 light years away. At magnitude +0.03, it's the brightest of the threesome. Vega is the third brightest star seen from the northern hemisphere (after Sirius and Arcturus) and this month is only outshone these evenings by Arcturus low in the west, and the moon. It's 2.5 times the mass of our Sun and 40 times as luminous. Its spectral class is A0 V with a surface temperature of 16,800ºF (the Sun cooks along at 10,400°F.). Because this class of star shines with a blue-white color, Vega is sometimes referred to as "the Sirius of Summer." Precession will make Vega our North Star in 13,000 years, albeit 4.5 degrees from Earth's celestial north pole versus the current 0.73 degrees for Polaris.

Our second Summer Triangle star is **Altair**, a magnitude +0.76 star only 17 light years distant. Altair's spectral class is A7 V. It shines with the white light of a 13,000° F. surface temperature, mass 1.8 that of the Sun and luminosity 10.6 times that of our humble Sun.

Deneb is the third and faintest member of the Summer Triangle at magnitude +1.25. But don't feel sorry for it. It appears dim because it's much more distant than Vega and Altair. In realty it's a monster blowtorch of a star. Deneb is a spectra class A2 1a blue - white supergiant 200 times the diameter of the Sun (almost filling Earth's orbit) and 19 times as massive. Its distance is somewhat uncertain but thought to be in the range of 2,600 light years. Its surface temperature is estimated at 14,700°F. with a luminosity 196,000 times that of the Sun. It puts out more energy in one second than the Sun does in 24 hours. Earth would have to be 400 Astronomical Units from Deneb for humans to survive (we are 1 A.U. from our Sun). To appreciate the intrinsic power of Deneb, we can use the Absolute Magnitude scale by which we measure a star's brightness as if they were all at the same distance. Astronomers chose this distance to be 10 parsecs* (32.6 light years). If we change the distance of Deneb from 2,600 to 32.6 light years, its apparent magnitude increases to -8.38! (Vega and Altair's magnitude's decrease because their distances are being increased. Before/after: (Vega) +0.03 to +0.58, (Altair) +0.76 to +2.20 respectively.

What if we did this to the Sun? The Sun's apparent magnitude at 93 million miles is -26.7. Move it out to a distance of 32.6 light years and its magnitude drops down to +4.8, almost the limit of naked eye visibility. Imagine that. Deneb -8.38, Sun +4.8. at the same distance. Makes the Sun look puny. Maybe so, but the Sun gets the last laugh by outliving Deneb. Stellar lifetimes are determined by their mass. The more massive a star is, the shorter their life. A one solar mass star like the Sun will live for 10 billion years (we're about halfway through that). Deneb, at 19 solar masses has an estimated life expectancy of only 6 million years.

*One parsec equals 3.26 light years, the distance at which a star would exhibit parallax of one arc second as seen from Earth. But there are no stars that close to us which is why our nearest stellar system, Alpha Centauri, has a parallax less than one arc second: 0.75 arc seconds.

Deep Sky Imaging Target Highlights for June

by James Yoder

The average low temperature for July in the Phoenix metro area is 83° F. July 17th is a new moon with Astronomical dusk at 9:16 pm and Astronomical dawn at 03:51 am, giving us 6:35 hours of imaging time.

In this month's list there are over 118 object/configuration combinations provided of just about every class of deep sky object including 20 Globulars, 13 Open Clusters, 33 Planetary Nebulas, 29 Nebula and 18 Dark Nebula, 05 Galaxies/ Galaxy Clusters. There is a wide variety of various objects accessible this time of year.

Bright Moon Targets – As discussed in last months article we will be including some small planetary nebulas and globular clusters as near full moon targets.

The Prospective Imaging Objects Guide (PDF download) covers objects that reach their highest point in the sky and crosse 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(s)	Type	Image Link
Hyperstar	12	Lagoon Region (M-20, M-08 et. EL.)	Nebula	368 min
Hyperstar	25	Loch Ness Monster (LDN-772)	Dark Nebula	204 min
Focal Reducer	39	Pickering's Triangular Wisp	Supernova Remnant	460 Min
Primary Focus	10	Praying Mantis Nebula (B-84)	Dark Nebula	180 min
Primary Focus	12	Trifid Nebula (M-20)	Diffuse Nebula	180 min
Primary (Moon)	20	M-54	Globular	110 min

Resources:

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

EVAC Outreach Events

by Claude Haynes

May Outreach Events:

- Friday, July 14 – 2nd Friday Riparian Star Party.

Details can be found on the EVAC website. Just go to www.evaconline.org/events-meetings. Click on the calendar entry for location and times. Contact Claude Haynes (interim 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.

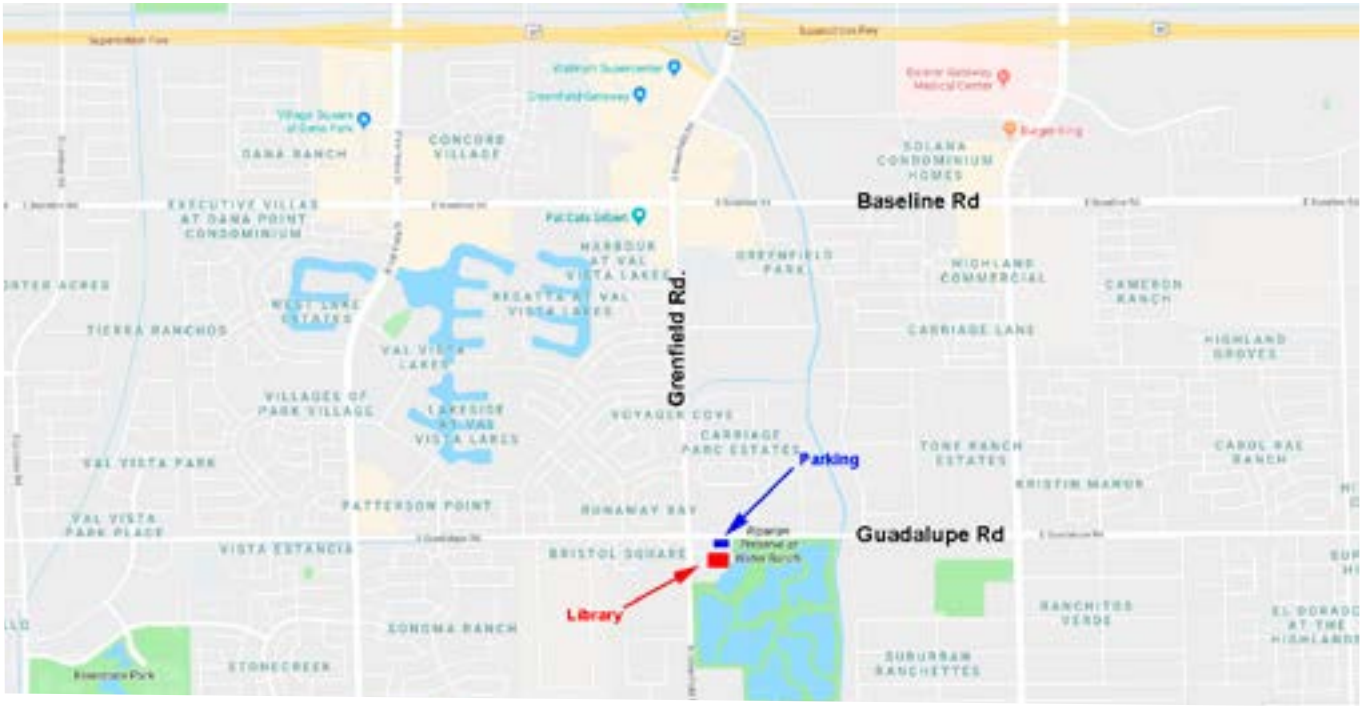
Monthly Meetings will be held in person and also presented live online using Zoom. See the EVAC Web-site for updates.

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 7:30 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 consder 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@evaconline.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@evaconline.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 NexStar 8 GPS**
- **Celestron Astro Fi 90mm Refractor Telescope**
- **Homemade 15" Truss Dob**

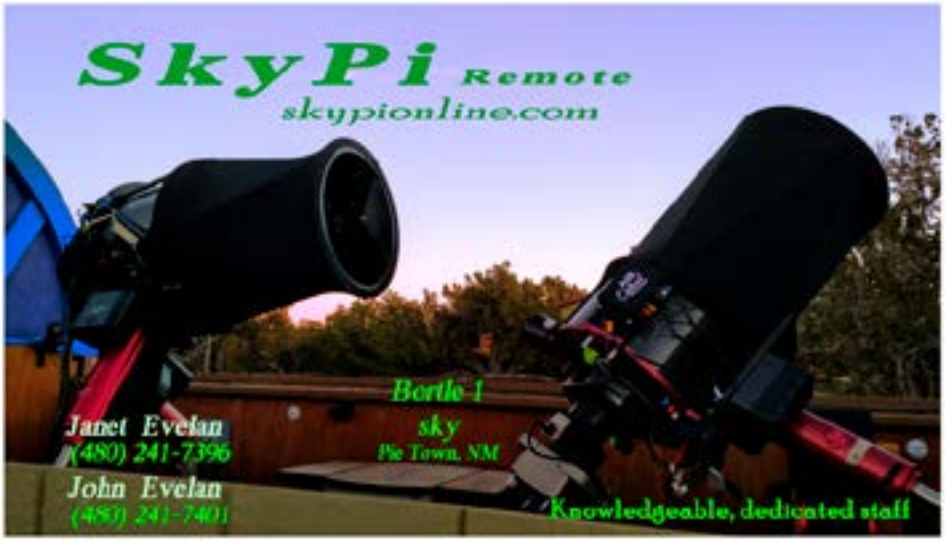
EVAC Equipment Rental Program

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 Rent page. Currently the following items are available for rent:

- **Celestron C-8 with Nexstar GoTo Mount** $25 first week, $20 each week after (up to 4 weeks).
- **Celestron 10" Dobsonian Telescope** $25 first week, $20 each week after (up to 4 weeks).

Telescopes come with all equipment needed for observation (ie eyepieces, finder scope, power supply, etc.)

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



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

July 2023

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

July 14 - EVAC Riparian Star Party

July 21 - EVAC Monthly Meeting

August 2023

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		

August 11 - EVAC Riparian Star Party

August 21 - EVAC Monthly Meeting

East Valley Astronomy Club - 2023 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 (*Renew in January)*	**$15.00** ☐	**$20.00** ☐	**$10.00** ☐

Renewal Dues (Current Members Only**)** Astronomical League: $7.50 Annually: ☐

Individual	Family	Student (18yr+ with ID)
$30.00 ☐	$35.00 ☐	$20.00 ☐

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.

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@evaconline.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.

The East Valley Astronomy Club is a 501(c)(3) nonprofit charitable organization.

www.evaconline.org

East Valley Astronomy Club
PO Box 2202
Mesa, Az. 85214-2202

Full Moon on July 3 at 04:38

Last Quarter Moon on July 9 at 18:47

New Moon on July 17 at 11:31

First Quarter Moon on July 25 at 15:06