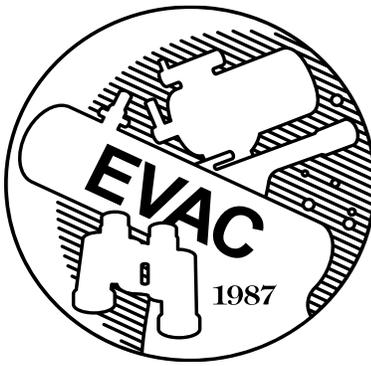


THE OBSERVER

VOLUME 36 ISSUE 3



M64: The Evil Eye Galaxy
Image Credit: [ESA/Hubble](#), [NASA](#)

UPCOMING EVENTS:

All meetings will be held online.

EVAC Meeting via Zoom - March 18th.

Phil Mauskopf - Applications of Single Photon Detectors in Astronomy and in Breakthrough Starshot's Downlink Communications.

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From the Desk of the President by Claude Haynes

March already? This is the month to look at things we shouldn't pay attention to. Charles Messier, and his assistant Pierre Mechain (whose last name starts with "M" but doesn't get much mention), created a list of "not comets"; faint fuzzies that weren't to be confused with their more exalted brothers. This year the Saguaro Astronomy Club is hosting the Messier Marathon at the Antenna site on Saturday, March 26. Regrettably they do not have permission to use the Salome Airfield site because it has been transferred from the Bureau of Land Management to LaPaz county. Even though it appears no

construction at the site seems imminent, permission to use the field could not be negotiated. Hopefully the skies will be clear. More information will be available soon on the Saguaro Astronomy Club website.

The Gilbert Outdoor Expo will be held at the Riparian Preserve on March 5th from 9am – 2pm. It showcases a wide range of outdoor activities and is a great family event. GRCO will be open for solar viewing during the day. The observatory is also open for public viewing on Saturday evenings from sunset until 9:30pm. Thanks to all of our vol-

From the Desk of the President

by Claude Haynes

Continued from page 1

unteers for their support of astronomy education.

We are continuing to hold meetings remotely via ZOOM. Our March speaker is Phil Mausekopf, who will be speaking on his research using single photon detectors in astronomy. Hopefully we will return to in person meetings soon,

EVAC Zoom Meeting Notes for 2022 February 18th, at 07:30 P.M. AZ Time

by Club Secretary Gordon Rosner

Greetings from your club Secretary.

First, the standard stuff. The following are my notes from our 18 February online General Membership Meeting. All our monthly meetings are recorded and are available to watch via links in our club's website. If you missed this meeting, or want to watch again, you can watch the recording online. My notes published here are only a summary. I will not attempt to provide details in fear of misquoting or mixing up some data presented. Hopefully I will provide just enough to spark a drive for our members, or potential members, to watch the recording and cut out the middleman... me.

The meeting started at 7:30PM with our club President, Claude Haynes, welcoming our viewers and again giving a quick update on the James Webb Space Telescope. He showed a picture of the JWST's "Initial Alignment Mosaic" showing the telescope is still working well. He then introduced our club's officers and mentioned that the Vice President position is still open. Anyone interested was encouraged to let him know. Claude said that any questions could be directed to any of the club's officers via the links in the club's website. Claude then provided an Isaac Newton's quote "If I have ever made any valuable discoveries, it has been due more to patient attention, than to any other talent". Claude said it was an appropriate quote as our membership supports the talents of all and is one reason that encourages membership in our club.

Claude presented a slide showing the upcoming astronomy lectures that will be given by the Tempe Public Library at Rural and Southern roads in Room A, all starting at 11:00AM. The ones remaining are: 5 March "Our Galaxy: the Milky Way"; 19 March "The First Galaxies: How They Grew"; and 2 April: "Life Beyond Our Planet". No reservations are required.

but we do appreciate your support of the club until then.

Keep looking up

Your President
Claude Haynes

Claude then introduced Bob Buchheim who gave our member presentation. Bob presented the various ways we can contribute to science. Small telescope research is a way we can contribute to push the science forward. We can devote much more time to individual objects than the big professional telescopes can. Some of these methods will be presented during the upcoming Society for Astronomical Sciences (SAS) 2022 Symposium on June 2, 3, and 4 in Ontario, California. Online events will also be available. For more information, visit SocAstroSci.org. For questions, you can email Bob directly at oca_bob@yahoo.com.

Claude then mentioned that our observatory, GRCO, is open to the public on Saturdays, sundown to 9:30PM, weather permitting. A demonstration of a Unistellar 'eVscope' owned by ASU was given at GRCO on Saturday, 19 February (too bad if you missed it). This is a telescope containing a camera that provides a live stacked image to those having the app on their phone. Folks can then copy the picture. Claude also announced that Gilbert's Outdoors Expo will be on Saturday, 5 March 9:00AM to 2:00PM at the Riparian Preserve. GRCO will have solar viewing during the event. Claude then mentioned that this year's Messier Marathon is scheduled for Saturday, 26 March at the 'Antenna Site'. Check with the Saguaro Astronomy Club's website at saguaroastro.org.

Our main presentation then began with ASU Professor of Astrophysics Dr. Nat Butler titled 'Software and Small Telescopes: Searching for the Needle in the Haystack'. Nat received his Ph.D. in Physics from the Massachusetts Institute of Technology... yeah, that one! He is interested in the properties and evolution of the early universe. His current research focuses on experiments to observe and study astrophysical explosions and to use these to probe the first stars and galaxies and their environments.

EVAC Zoom Meeting Notes for 2022 February 18th, at 07:30 P.M. AZ Time

by Gordon Rosner

Continued from page 2

(Whew! Take a breath!) Nat started his presentation by saying "A new window to the universe has opened". OK, he certainly then had everyone's attention! To set the pace, he started with a descriptive video about Gravitational Waves and described the first 'chirp' signal received by the Laser Interferometer Gravitational Wave Observatory (LIGO). He then went into deep descriptions about the history of LIGO, other events that LIGO discovered, what they were, and showed who received Nobel Prizes because of it. To grow on that, Nat discussed the life cycle of massive stars and how they cause Gamma Ray Bursts. Now that the audience had a grasp of all this, Nat moved into the design and operation of LIGO and how small telescopes can also support this new vehicle of discovery by detecting the electromagnetic bursts also emanating from the Gravitational Wave event. Really! Small telescopes like we amateurs have support this new cosmic event detection method by having a larger field of view! So, Nat continued to explain how this is done and the groups doing it, the challenges faced, and the successes won. He described the challenges such as satellite trails,

the software tools used, and the immediate 'fire alarm' scurrying that small telescope folks do when a new event is detected.

After all the fascinating details of how this new way to investigate the universe works, Nat described the hopes and desires of the future then answered questions from the audience that had a high of 74 attendees. This was a unique and in-depth main presentation that certainly was an example of the premier presentations that our club provides. If you missed this one, you must view the recording included in our website. Good stuff!

Claude thanked those attending and thanked Bob and Nat for their presentations. He reminded everyone that the next Zoom meeting is 18 March starting at the usual 7:30PM. He then closed the meeting at 9:30PM.

Gordon Rosner
EVAC Secretary

The Backyard Astronomer

by Bill Dellinges

Flea-Flicking Through Canis Major

(March Skies are Going to the Dogs)

If you follow Orion's Belt southeast, you'll arrive at one of his two faithful hunting dogs. Canis Major (Best in Show) can't wait to get his paws on Lepus the Hare hiding below his master's feet. Meanwhile to the east smaller Canis Minor waits patiently for the Hunter to throw him a bone. The greater dog's head is marked by the sky's brightest star Sirius – Greek, "scorching." Its brightness is attributed to two factors, its intrinsic luminosity and closeness. Sirius is only 8.6 light years away, the 6th closest star to the Sun. This spectral type A1V star is almost twice the diameter and mass of our Sun and 23 times more luminous, a real chowhound when it comes to burning hydrogen. By an interesting coincidence, the sky's second brightest star, Canopus, is 36 degrees due south of Sirius. When the latter transits the meridian, an observer with a clear southern horizon can collar the former.

To the right of Sirius is the star Mirzam, representing the left leg of the pooch. The Arabic word means "Announc-

er" for it rises before Sirius. Interestingly, Procyon, the bright star of Canis Minor is from a Greek word meaning "Before the Dog" because it too rises before the top Dog of the night sky. Sirius was known as Sothis or the Dog Star by the Egyptians long before Canis Major was created. Because its heliacal rising heralded the flooding of the Nile River, Sirius became equated with the warning cry of barking dogs. Over time, it was thought that the heat from Sirius added to that of the Sun during summer days and thus the phrase Dog Days of summer was coined.

Think Canis Major and two things pop into your mind instantly: Sirius and its best deep sky object M-41. This open star cluster resides four degrees due south of Sirius and is very easy to find. It can even be seen with the naked eye in a dark sky. The cluster is 2,100 light years away yet its stars appear bright and fill a low power field. Perhaps the best view of this object would be in binoculars such as a 15x70, 20x80 or 20x100 where a larger field can frame the star group distinguishing them from background stars, a useful trick of the trade. Our next doggy biscuit is 17 Canis Majoris (SAO 172569) just east of M-41 on the bloodhound's spine. This is a lovely quadruple star with

The Backyard Astronomer

by Bill Dellinges

magnitudes 5.8 to 9.5, easily split in an 11" telescope at 90x. Its three orbiting components are south of the primary. If you put M-41 on the right edge of a four degree 16x70 binocular field, you'll see on the opposite side a triangle of stars of which 17 Canis Majoris is the bottom dim star.

What other kibble might we sniff out in our doggie bag? South of M-41 there is a string of three large sparse open clusters running the length of our canine. Per Collinder (1890-1975) was a Swedish astronomer who published a catalog (Cr) of 471 such clusters in 1931. (Many amateurs are familiar with the Coathanger Cr 399 or the rich star field around Orion's Belt Cr 70.) Cr 121 is west of Omicron 2 Canis Majoris. Cr 132 is below a line connecting Delta (Wezen) and Epsilon (Alhara) Canis Majoris. Cr 140 lies two degrees southeast of Cr132. The clusters are plotted in Sky Atlas 2000, Chart 9. Try observing them on a moonless night to appreciate the many dimmer stars in the trio. A 16x70 binocular with a four degree field is the perfect instrument for observing star clusters of this size.

Standard dogma dictates that after M-41, NGC 2362 is the finest open cluster in Canis Major. Star hoppers who find Goto technology abhorrent (you can't teach an old dog new tricks) can find this neat little cluster by following a line from Alhara to Wezen east to Tau Canis Majoris. Once you're on this 4.4 magnitude blue supergiant star, you have arrived as this star is an overwhelming bright member of a tight group of 60 stars 5,200 light years away. Tau is also a triple star whose 10.5 and 11.2 magnitude companions are fairly easy to pick out in an 11" telescope at

165x. Separations are 8.2" and 14.5". Position angles are 90 and 79 degrees (SAO 173446). If you take a dogleg turn north 1.5 degrees from Tau, you'll find a fine morsel, h3945, the "Winter Albireo" (SAO 173349). Cataloged by John Herschel, this beautiful gold and blue double is an optical double (line of sight accident, not physically linked gravitationally). But you'll find in this dog eat dog world, double star observers are benevolent and look the other way and still adopt them as "double stars."

Now to address the 900 pound Saint Bernard in the room – Sirius B! One of the biggest challenges in amateur astronomy is to someday, somehow, spot the "Pup," the white dwarf star orbiting Sirius. Now is the time to try. Sirius B is almost at its greatest distance from Sirius A in its 50 year orbit. Currently the Pup is 10" away from A at a position angle of 76 degrees and will max out at 11" in 2019. Normally a 10" double is not that difficult to split but the problem of course is Sirius' immense brilliance. The B star gets swallowed in the glare of Sirius. To work around the glare problem consider the following strategies: observe before the sky becomes totally dark, use a neutral density filter, try a hexagonal mask (Google for details), try using an occulting bar in the eyepiece, move Sirius slightly out of the field. If possible, try to observe during excellent seeing and when Sirius is near the meridian. And though you might be barking up the wrong tree, it wouldn't hurt to practice on Rigel in Orion and Canis Major's Alhara which have similar but more forgiving parameters. If you are successful in finding the little white dwarf around Sirius, wag your tail in victory.

NEW MOON ON MARCH 2 AT 10:34

FIRST QUARTER MOON ON MARCH 10 AT 03:45

FULL MOON ON MARCH 18 AT 00:17

LAST QUARTER MOON ON MARCH 24 AT 22:37

Deep Sky Imaging Target Highlights for March

by James Yoder

The average low [temperatures](#) for March in the Phoenix metro area is 53° F. March 02 is a new moon with Astronomical dusk at 7:48pm and Astronomical dawn at 5:32, giving us almost 9:44 hours of imaging time.

In this month's list there are 101 object/configuration combinations provided for just about every class of deep sky object including 5 Globulars, 9 Open Clusters, 5 Planetary Nebulas, 16 Nebula, 66 Galaxies/Galaxy Clusters. We are solidly in Galaxy season now.

The [Prospective Imaging Objects guide](#) (PDF download) covers objects that reach their highest point in the sky and crosses the meridian (aka Transit) sometime between Astronomical Dusk to Dawn. We will be highlighting objects that transit roughly between 10pm and 2am. This ensures maximum imaging time over the month.

Happy Hunting!

Some Highlighted Targets for February

Configuration	Page	Object	Type	ImageLink
Hyperstar	21	Galaxy & Planetary (M-108, NGC-3587)	Galaxy, Planetary	147min
Hyperstar	20	Leo Galaxy Group (M-95, M-96)	Galaxies	115 min
Reducer(0.7)	31	Galaxy Pair (M-91, NGC-4548)	Galaxies	No Image
Primary Focus	13	Cluster & Planetary (M-46)	OCluster & Planetary	Image
Primary Focus	24	Arp-214	Galaxies	170min

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.

EVAC Outreach Events

by Alexandra Nachman

Hey there! I am Alexandra Nachman, the new Outreach Events Coordinator for EVAC! I am very excited to work with the public and get to do awesome events when we begin doing them again! I have been a NASA Solar System Ambassador for NASA JPL since January 2020 and have been doing outreach events ever since! I now have 50 events under my belt and I enjoy doing them so much!

I cannot wait to see what this year brings! I hope to bring my own experience to it and offer a range of fun things to do for events in addition to telescope viewings. I love developing new activities for astronomy to make it fun. I also quite enjoy image processing using professional data, like

that from the Hubble Space Telescope and other observatories. It definitely helps to have amazing images with the presentations! This year is going to be amazing and I hope that when we begin doing outreach activities again that you will join me in sharing the amazing Universe with those who seek to learn! Anyone can volunteer to attend events and bring their telescopes to share the night sky-whether it is at a school or a STEM event or an astronomy event! Can't wait to work with you guys in 2022!

Alexandra Nachman
Events Coordinator

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@evaonline.org for information.

Classified Ads

Used Equipment

Contact Leo Heiland at leo.j.heiland@gmail.com if interested in these items.

Planewave 12.5" astrograph with Electronic Focus Assembly. Excellent shape - \$7,000

Software Bisque Paramount MX mount with newly installed RA gear assembly - \$6,800
Includes two 1.5in bore 20 pound counterweights and pier adaptor plate

Buyer pays for shipping, or can arrange pick up in Phoenix area

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

Hyperstar V3 for C11 - \$750

Celestron C1700 mount/tripod with AAM encoders and Sky Commander controller - \$750

Celestron (Vixen) C6 6" Newtonian OTA - \$150

Televue Eyepieces:

Nagler Zoom (3-6) - \$325

Nagler 7mm 7T1 - \$160

Nagler 12mm 12T4 - \$285

Nagler 20mm 20T5 - \$300

Panoptic 27mm - \$275

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

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



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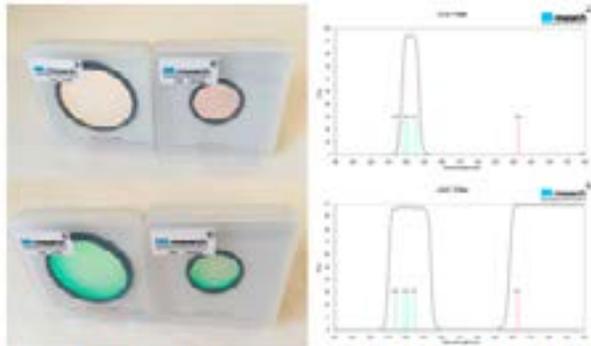
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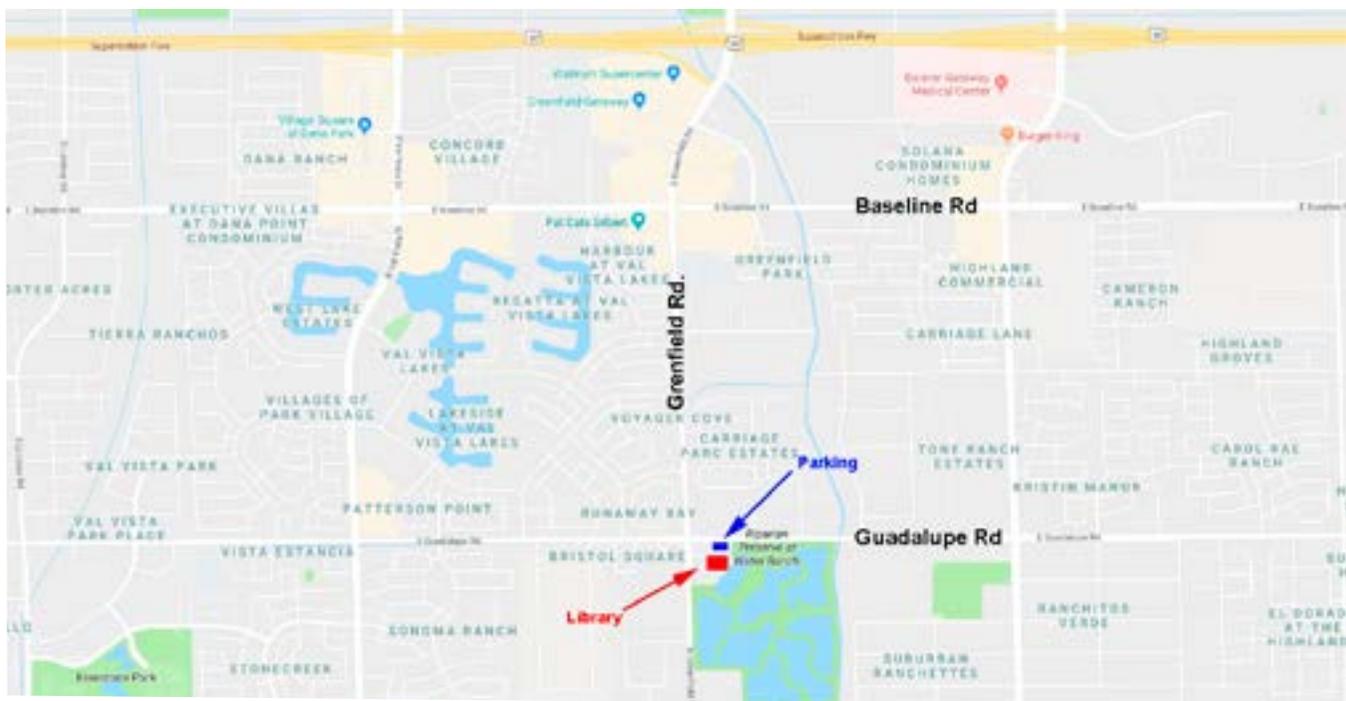
Monthly Meetings will be presented live online using Zoom. See the EVAC Website for updates. All other events are on hold until health concerns are resolved.

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 have temporarily been cancelled, and are replaced with an online Zoom meeting.

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**



MARCH 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	31		

March 18 - EVAC Monthly Meeting Live Online
via Zoom.

**The EVAC Monthly Meeting will be held live
online via Zoom. All other meetings and events
have been cancelled until further notice.**

APRIL 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

April 15 - EVAC Monthly Meeting Live Online via
Zoom.

**The EVAC Monthly Meeting will be held live
online via Zoom. 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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