



The Sonora Astronomical Society's SONORAN STARRY NIGHTS

JANUARY 2025

January Meeting Details

DATE: January 4th, 2025
MEETING TIME: 2:30 PM
PLACE: Sahuarita Library & Zoom
MEETING SCHEDULE:
(2:15 PM ZOOM Waiting Room Available)
2:30 Meeting Intro and Welcome
2:40 Featured Presentation Followed
by Club Activities/Business

Next Member Star Parties

DATE: Thursday, January 30th, 2025
TIME: 5:45 PM *NEW LOCATION*
PLACE: Madera Canyon Parking Lot

- LOOKING AHEAD -
THE FOLLOWING STAR PARTY WILL BE:

DATE: Thursday, February 27th, 2025
TIME: 6:00 PM
PLACE: Madera Canyon Parking Lot

NOTE: If you have a telescope that you don't know how to use, or are looking to buy a telescope and want to compare different telescopes, join us at a star party and we can give you some help.

UPCOMING EVENTS

NEXT CLUB MEETING

DATE: February 8th, 2025
LOCATION: Sahuarita Library & Zoom
TIME: 2:30 PM (in person + Zoom)
Speaker: T B A
Subject: T B A

January Presentation

Speaker: Fr Christopher Corbally,
Vatican Observatory

Subject: Weird Binaries Under Close Surveillance: TU Tau and HD 5501"

Abstract: These two binaries are weird, but different.

TU Tau was long thought to be a regular carbon star, but it has a companion which is recently under investigation, thanks to a Pro-Am group. The companion turns out to be the first example of a "massive" Barium dwarf, caught in the act of becoming a Barium giant. The companion's habit of disappearing requires close surveillance of the system.

HD 5501 is an unusual eclipsing binary with a light curve that does not repeat exactly from one cycle to the next. The system is under strong suspicion of harboring a hotspot on the secondary's disk that shows dynamical chaos, and it defies the usual change of period with mass loss for a reason that is becoming clear. Again close surveillance by the Pro-Am group is being repaid.

Biography: Christopher Corbally is a Jesuit priest, emeritus vice director of the Vatican Observatory, and an adjunct astronomer at the University of Arizona. He was a project scientist for building the Vatican Advanced Technology Telescope and pursues his interest in stars primarily through spectroscopy.

SONORAN STARRY NIGHTS

PRESIDENTS NOTES

Greetings everyone,

Our January meeting will be held on January 4th at the Sahuarita library (670 Sahuarita Rd). There is parking behind the library. The meeting room is just to the left as you enter the front door. The meeting will officially start at 2:30pm this month with ZOOM login available by 2:15pm. Since the library only schedules their meeting room three months in advance, I will be rescheduling for the February through April dates. We are looking at possibly moving the meeting to a later Saturday if possible.

We will no longer have access to Canoa Preserve Park for our club star parties now. There is a site on the way up to Madera Canyon which we are looking at as a possible replacement. We will have a map available next month for this location. Our January club star party is scheduled for the 30th. The site can be a little difficult to find, so if you wish to attend and have any questions about the site, let me know.

Stay safe,

John Dwyer
President

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MEMBER EQUIPMENT FOR SALE

Have a telescope or other astronomy equipment for sale? Contact John Dwyer with your item(s) to get them listed here.

The SAS website has a good one-page article from Sky & Telescope that can help get you started. Copy and paste this link:

<https://sonoraastronomicalsociety.org/newsletters/>

Basic monthly star charts are now available. Look on the website Home page yellow banner.

The website also has a list of suggestions of Planetarium Apps for your phone, several FREE!

SONORAN STARRY NIGHTS

THE JANUARY SKY

SKY HIGHLIGHTS FOR JANUARY

The evening night sky is still loaded with planets again this month. **Mars** is the star this month as it reaches opposition on the 16th while making its closest approach to the Earth four days earlier. Unfortunately, it will only have a disk size of about 14.5", a lot lower than in 2020 when it was much closer and had a disk size of 22.6". **Saturn** is low in the southwest evening sky at sunset and will be setting from 10pm early this month to shortly after 8pm by the end of the month. **Neptune** is about 12° behind Saturn. **Venus** is still very bright in the southwestern evening sky at about mag -4.6. It keeps rising higher as the month goes on and, on the 18th, it will pass Saturn within 3°. **Jupiter** reached opposition early last month and still will be visible most of the evening. **Uranus** reached opposition in November and is about 18° in front of Jupiter. **Mercury** is in the morning sky this month and reach greatest western elongation late last month.

There will be an occultation of Mars by the Moon on the evening of the 13th from about 6:49pm to 7:48pm. Mars is near opposition and is very bright so it should make a good show. You can't miss the red color of Mars.

There will be no bright comets this month. Comet **C/2023 A3 (Tsuchinshan-ATLAS)** is now over 10th magnitude. Comet **C/2024 G3 (ATLAS)** will reach perihelion this month and was predicted to be naked eye. However, it will be a sungrazing comet which means that it will come very close to the Sun and might very well not survive the pass. Even if it does survive, it will not be visible from the Northern hemisphere. No other comets are worth viewing at this point.

If you have any solar viewing equipment, the Sun is extremely active now as it has officially reached maximum. As it is getting a little cooler now, break out the solar equipment and take a peek.

JANUARY MOON/SUN TIMES

DATE	M-Rise	M-Set	M-Phase	Sun-set	Star Party
Wed 01/01	22:53	11:11		17:30	
Thu 01/02	23:47	11:36		17:31	
Fri 01/03	-----	12:00		17:32	
Sat 01/04	0:42	12:25		17:33	SAS Meeting
Sun 01/05	1:38	12:52		17:33	
Mon 01/06	2:38	13:23	1st Qtr	17:34	
Tue 01/07	3:41	14:01		17:35	
Wed 01/08	4:47	14:46		17:36	
Thu 01/09	5:54	15:41		17:37	
Fri 01/10	6:58	16:46		17:38	
Sat 01/11	7:56	17:57		17:38	
Sun 01/12	8:46	19:12		17:39	
Mon 01/13	9:28	20:25	Full	17:40	
Tue 01/14	10:04	21:36		17:41	
Wed 01/15	10:37	22:44		17:42	
Thu 01/16	11:07	23:50		17:43	
Fri 01/17	11:37	-----		17:44	
Sat 01/18	12:08	0:55		17:45	
Sun 01/19	12:43	2:01		17:46	
Mon 01/20	13:22	3:07		17:47	
Tue 01/21	14:07	4:11	3rd Qtr	17:47	
Wed 01/22	14:59	5:13		17:48	
Thu 01/23	15:55	6:09		17:49	
Fri 01/24	16:54	6:58		17:50	
Sat 01/25	17:54	7:39		17:51	
Sun 01/26	18:53	8:15		17:52	
Mon 01/27	19:50	8:46		17:53	
Tue 01/28	20:45	9:13		17:54	
Wed 01/29	21:39	9:38	New	17:55	
Thu 01/30	22:33	10:02		17:56	S.A.S. SP
Fri 01/31	23:28	10:26		17:57	

(S)=Solar

SONORAN STARRY NIGHTS

THE STARGAZER'S CORNER:

This article is distributed by NASA's Night Sky Network (NSN).

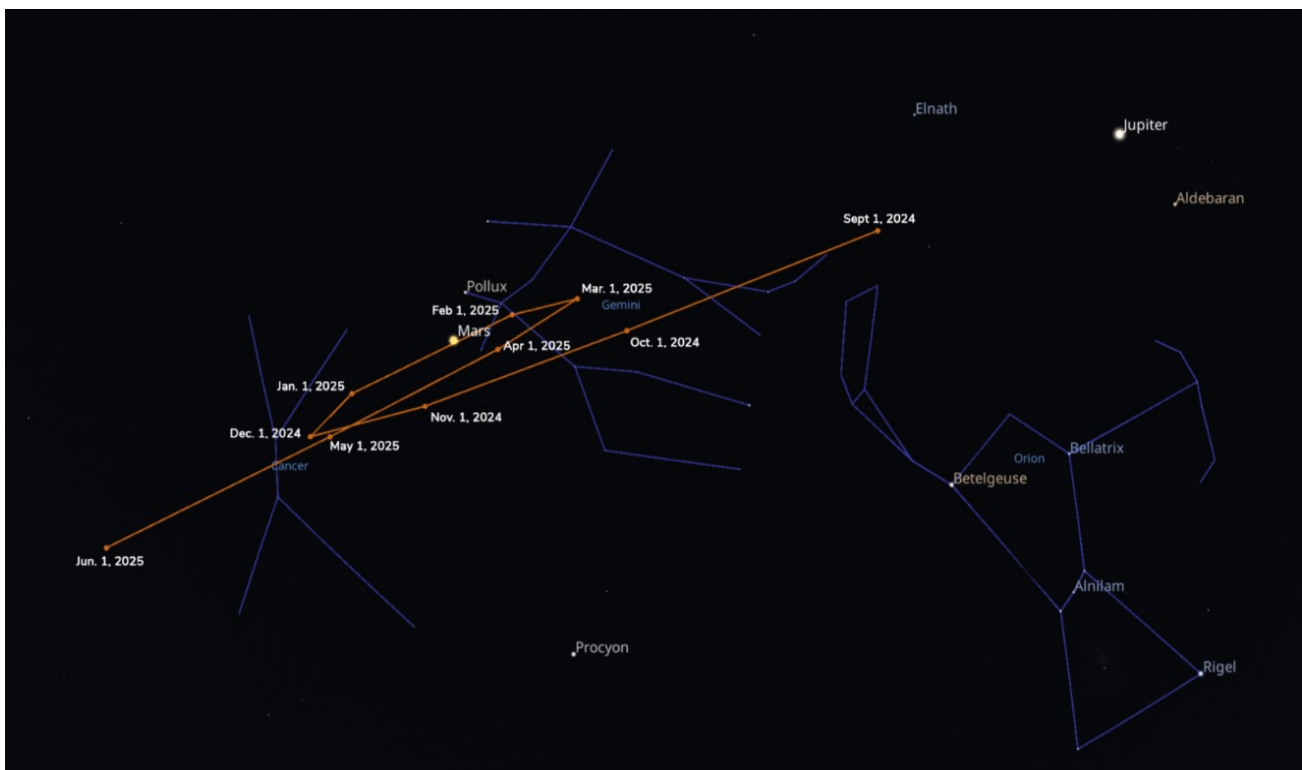
January's Night Sky Notes: The Red Planet

by Kat Troche

Have you looked up at the night sky this season and noticed a bright object sporting a reddish hue to the left of Orion? This is none other than the planet Mars! January will be an excellent opportunity to spot this planet and some of its details with a medium-sized telescope. Be sure to catch these three events this month.

Martian Retrograde

Mars entered retrograde (or backward movement relative to its usual direction) on December 7, 2024, and will continue throughout January into February 23, 2025. You can track the planet's progress by sketching or photographing Mars' position relative to nearby stars. Be consistent with your observations, taking them every few nights or so as the weather permits. You can use free software like Stellarium or Stellarium Web (the browser version) to help you navigate the night as Mars treks around the sky. You can find Mars above the eastern horizon after 8:00 PM local time.



This mid-January chart shows the path of Mars from September 2024 to June 2025 as it enters and then exits in retrograde motion. Mars appears to change its direction of motion in the sky because Earth is passing the slower-moving Mars in its orbit. Credit: Stellarium

Hide and Seek

On the night of **January 13th**, you can watch Mars 'disappear' behind the Moon during an occultation. An occultation is when one celestial object passes directly in front of another, hiding the background object from view. This can happen with planets and stars in our night sky, depending on the orbit of an object and where you are on Earth, similar to eclipses.

(Continued Next Page)



A simulated view of the Moon as Mars begins its occultation on January 13, 2025. Credit: Stellarium

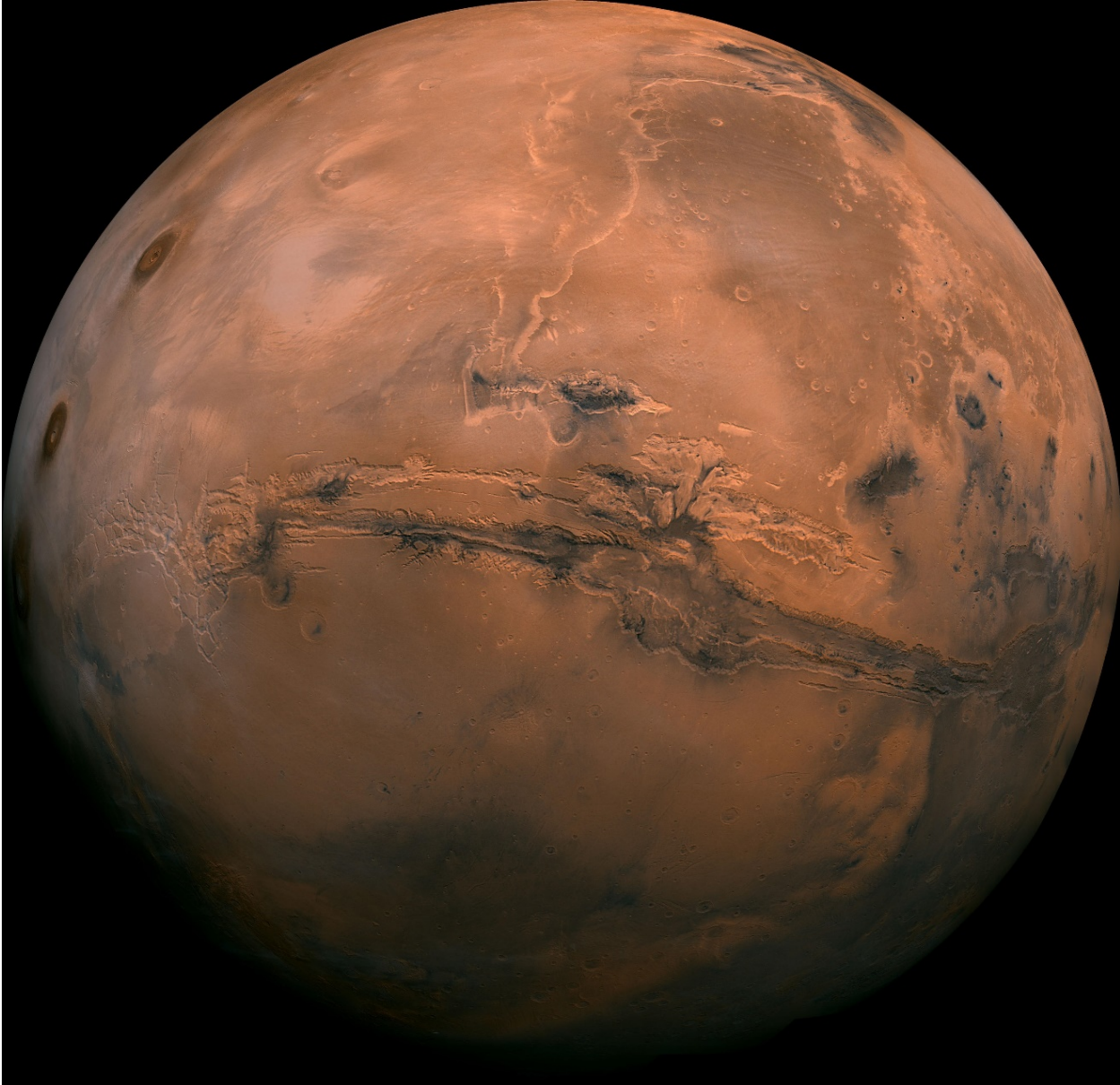
Depending on where you are within the contiguous United States, you can watch this event with the naked eye, binoculars, or a small telescope. The occultation will happen for over an hour in some parts of the US. You can use websites like [Stellarium Web](#) or the Astronomical League's [‘Moon Occults Mars’ chart](#) to calculate the best time to see this event.

Closer and Closer

As you observe Mars this month to track its retrograde movement, you will notice that it will increase in brightness. This is because Mars will reach **opposition** by the evening of January 18th. Opposition happens when a planet is directly opposite the Sun, as seen from Earth. You don't need to be in any specific city to observe this event; you only need clear skies to observe that it gets brighter. It's also when Mars is closest to Earth, so you'll see more details in a telescope. Want a quick and easy way to illustrate what opposition is for Jupiter, Saturn, Mars, or other outer worlds? Follow the instructions on our [Toolkit Hack: Illustrating Opposition with Exploring the Solar System](#) page using our [Exploring Our Solar System](#) activity!

Mars has fascinated humanity for centuries, with its earliest recorded observations dating back to the Bronze Age. By the 17th century, astronomers were able to identify features of the Martian surface, such as its [ice caps and darker regions](#). Since the 1960s, exploration of the Red Planet has intensified with robotic missions from various space organizations. Currently, NASA has [five active missions](#), including rovers and orbiters, with the future focused on human exploration and habitation. Mars will always fill us with a sense of wonder and adventure as we reach for its soil through initiatives such as the [Moon to Mars Architecture](#) and the [Mars Sample Return](#) campaign.

(Continued Next Page)



A mosaic of the Valles Marineris hemisphere of Mars projected into point perspective, a view similar to that which one would see from a spacecraft. The mosaic is composed of 102 Viking Orbiter images of Mars. Credit: NASA/JPL-Caltech

BONUS PAGE

Rare Sight Coming In 2025 – A Celestial Symphony

In case some of you are not aware, a rare planetary alignment, known as a conjunction and as a “planet parade” will occur in early 2025. Alignments between two planets are relatively common, but full alignments are far more rare. This is because each planet has its own unique orbit within the ecliptic, an imaginary line in the sky that marks the sun’s apparent path in the sky.

This alignment will begin in January and continue into February. It will be visible in the days leading up to January 21, 2025, and for about four weeks afterward, however the week of January 29th will be an optimal week to view all the planets due to a new moon. The shadowed moon will reduce light pollution and make it easier to spot the planets. The best time of day to view the planets will be just after sunset or between 5:30 pm and 8:30 pm depending on your location.

The six planets that will form an arc in the evening sky will be: Venus, Mars, Jupiter, Saturn, Uranus and Neptune. It will turn into a seven planet parade when Mercury joins the alignment briefly towards the end of February. Viewing this rare sight will be in the USA, Canada and Mexico.

For beginners, Venus and Jupiter will be the easiest to spot because they are very bright. Mars and Saturn will be slightly dimmer but still easy to spot with the naked eye. Neptune and Uranus will be too faint to see with your eye, and require a telescope or high-powered binoculars. Online and Offline tools such as Time and Date’s Night Sky Map or Stellarium respectively are freely available to help assist with choosing viewing dates and finding the planets in the sky.

The main dates to remember:

January 21, 2025 – A full alignment of Venus, Mars, Jupiter, Saturn, Neptune, and Uranus.

January 29, 2025 – As mentioned before, the best time to view the alignment thanks to the new moon.

February 28, 2025 – A “planet parade” with seven planets visible; including Mercury, Saturn, Neptune, Venus, Uranus, Jupiter and Mars. This will be best viewed right at sunset.

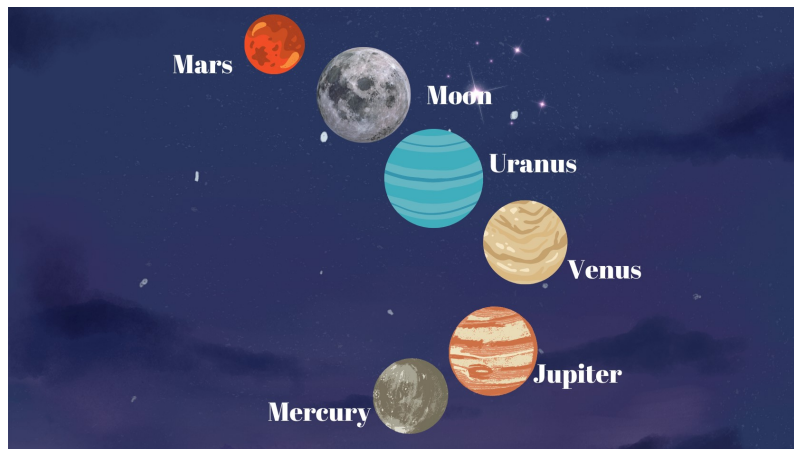
In March, the alignment will be over but Jupiter, Mars and Uranus will still be in the night sky to enjoy. For those interested, it was predicted by Christopher Baird who is an associate professor of physics at West Texas A&M University that an eight planet aligned in the same 180 degree wide patch of sky will happen on May 6, 2492.

In closing, did you know that there are four types of planetary alignments? These are:

Mini – Three planets, Small – Four planets, Large – Five or six planets and

Great (full) – All solar system planets (with Pluto sometimes being included).

(Article copied from Lake Afton Public Observatory, Goddard, KS)



SONORAN STARRY NIGHTS

S.A.S. CLUB OFFICERS

OFFICE/POSITION	NAME	PHONE NO.
Chairman of the Board	Open	
President	John Dwyer	(520) 393-3680
Secretary	Michael Moraghan	(520) 399-3352
Treasurer	John McGee	(520) 207-6188
Star party Coordinator	Open	(520) 303-6920
Newsletter Editor	Joe Castor	(620) 584-4454
Webmaster	Joe Castor	(620) 584-4454
ALCOR* (Currently Inactive)	Inactive	(520) 396-3576
NSN** Representative	Open	(520) 303-6920
Past President Emeritus	Open	
*Astronomical League		
**Night Sky Network		

WHY JOIN SAS

1. SAS Family Membership Fee is only \$25.00 per year.
2. SAS monthly newsletter "The Sonoran Starry Nights."
3. Top-quality astronomy lectures by local astronomers!
4. SAS Discount for Astronomy Magazine \$34.00 for 1yr or \$60.00 for 2 yr renewed through our treasurer.
5. SAS Discount subscription rate for Sky & Telescope Magazine — self-renewed.
6. RASC Observer's Handbook at a discount, \$30.00.
7. SAS T-Shirts for sale for \$10.00—M, L, XL.
8. Member of International Dark-sky Association (IDA).
9. SAS Discount for Astronomy 2020 Calendar \$10.00
10. SAS monthly Member Star Parties.
11. SAS Telescope and astronomy book loan programs.
12. SAS outreach to astronomy education in schools.
13. SAS fellowship with other amateur astronomers!

CLUB DUES

Dues (family or individual) are \$25 annually, payable each year in the month you initially joined the club. You will receive a reminder in the monthly newsletter e-mail of your due date. You can either pay at the club meeting or mail it to the club's address (S.A.S., P.O. Box 1081, Green Valley, AZ, 85622).

SAS WEBSITE

If you want to keep up-to-date with club activities, such as star parties, etc., check out our website (and Calendar) at:

[HTTPS://sonoraastronomicalsociety.org](https://sonoraastronomicalsociety.org)

SAS STATISTICS & FINANCES

Lifetime Members: 1
 Individual & Family Members: 104
Total Membership: 105

Bank Balance as of Nov.. 30: \$ 1,242.61
 Deposits / (D/Ws): \$ 100.00/ (\$.182.00)
Bank Balance as of Dec. 31: \$ 1,160.61

SONORAN STARRY NIGHTS

LOCAL ASTRO-IMAGING GROUP: Sonoran Desert Astro Imagers (SDAI), Larry Phillips, Coordinator

Are you interested in Astrophotography or are you currently involved in imaging the skies? If so, you are invited to join the Sonoran Desert Astro Imagers group. Our meetings focus on improving our skills, helping each other, workshops, and field trips. We meet on Thursdays at 9 AM. The meetings are on Zoom, except once-a-month we get together in-person at the Quail Creek Conference Center. Email notifications are sent to members before each meeting.

Please send your Name and E-mail address to my address below and we'll include you in the emailing notices of monthly meetings; "the when and where meeting notice." Do you have any questions? If so, call me (Larry Phillips) at (520) 777-8027 or email to lp41astro@cox.net. Clear Skies! Larry Phillips

ABOUT THE ASTRONOMICAL LEAGUE



While SAS is no longer an active member of the Astronomical League, a SAS member may join the Astronomical League as an at-large member. What are the advantages to joining the AL?

1. You can receive various observing awards by joining an "observing club" and observing the required number of objects. There are all levels of clubs from beginner to advanced, viewing constellations to deep-sky objects and using either your naked eyes, binoculars, or a telescope. Contact our ALCOR rep Burley Packwood for details.

2. You can get a 10% discount on books purchased through the AL Book Service.

3. You will receive the AL's quarterly "Reflector" magazine which keeps you up to date on all the AL activities.

More info at www.astroleague.org

SAS IS A MEMBER OF IDA



SAS is proud to be a member of the International Dark-Sky Association, supporting the reduction in light pollution around the U.S. and the world. More info at www.darksky.org

SAS NON-PROFIT STATUS

The Sonora Astronomical Society is a 501 (c) (3) nonprofit charitable organization! SAS has a CERTIFICATE OF GOOD STANDING from the State of Arizona Corporation Commission!

MAGAZINE SUBSCRIPTIONS

To renew your Sky and Telescope Magazine at the Club Rate, you can go directly to their website, or to order it new, or to order or renew Astronomy Magazine, contact the Club Treasurer.

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