The Sonora Astronomical Society's
SONORAN STARRY NIGHTS

# MAY 2025

## May Meeting Details

**DATE: May 17th, 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, May 22nd, 2025
**TIME: 7:00 PM *NEW LOCATION***
**PLACE:** Madera Canyon Parking Lot
**(300 ft past 9 mile marker, Madera Canyon Rd)**

**- LOOKING AHEAD -**
**THE FOLLOWING STAR PARTY WILL BE:**
**DATE:** Thursday, June 26th, 2025
**TIME: 7:15 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:** **September 2025 (Date T B A)**
**LOCATION:** Sahuarita Library & Zoom
**TIME:** **T B A (in person + Zoom)**
**Speaker:** **T B A**
**Subject:** **T B A**

## May Presentation

**Speaker:** Speaker and topic will be announced at the meeting

**Subject:** To be announced at the Meeting
Abstract: .
Biography:

### Did you know?

**NASA's Night Sky Network** has a live YouTube Webinar each month (and a video that can be viewed following the live presentation) featuring an interesting array of subjects.
.
May 15th topic is:
Placing Worlds and Suns in Context with Dr Eric Mamajek.

**Details** and the YouTube link can be found on our website, News & Letters page, and on the Events page/Calendar @ **https://sonoraastronomicalsociety.org/**

You can also search the internet for YouTube, then Night Sky Network, for the videos, or click: https://www.youtube.com/@NASANightSkyNetwork

# SONORAN STARRY NIGHTS

## PRESIDENTS NOTES

Greetings everyone,

Our May meeting will take place on May 17th 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.

There will be a public star party on Friday the 23rd to be held at Sahuarita's Anamax Park. This will take place on the soccer field at the south end of the park.

We no longer have access to Canoa Preserve Park for our club star parties now. We are now using our new site on the way up to Madera Canyon. We had several people show up for the April star party. The sky was again great. We were treated to an amazing event. What looked like a small white circular cloud passed from west to east and then disappeared when overhead. At first I thought it was another rocket launch from Vandenberg SFB. But most of these we have seen moved south. I did some digging and found this was another Starlink shot, but launched from Cape Canaveral instead of Vandenberg. When it got to our area about 90 minutes after launch, it started its re-entry burn which caused the cloud. Some people actually saw it as red instead of white. There have been a number of these within the past two months so keep an eye out for them. There is a map to our new site available on our website. I will have a sign at the entrance to the road into the site. Our May club star party is scheduled for the 22nd. If you have any questions about the site, let me know.

Stay safe,

John Dwyer
President

## IN THIS ISSUE


| TOPIC | PAGE # |
|---|---|
| Meeting Date and Time | 1 |
| Meeting Presenter/Presentation | 1 |
| Upcoming Club Star Party Dates | 1 |
| President's Notes | 2 |
| Member Equipment foe Sale | 2 |
| This Month's Sky by John Dwyer | 3 |
| Moon /Sun Times Table | 3 |
| Stargazers Corner (NSN) | 4—6 |
| About Our Organization | 7 |
| Statistics and Finances | 7 |
| Associations and Supporters | 8 |


## 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!**

## THE MAY SKY

### SKY HIGHLIGHTS FOR MAY

The evening night sky is down to almost one planet this month. **Mars** is in the southwest evening sky at sunset this month but its disk size (now about 6") as well as its magnitude (now down to about mag +1) continue to drop. **Jupiter** is low in the northwestern sky at sunset at mag -2. **Saturn** is getting higher in the morning eastern sky, rising less than two hours before the Sun early in the month and over three hours before the Sun at the end of the month.

**Neptune** is trailing just a few degrees behind Saturn in the morning sky. **Venus**, very brilliant in the morning sky, will be very close to Saturn and Neptune early in the month, but is left behind as the month goes on. **Mercury** with be low in the eastern sky before sunrise. **Uranus** will be reaching conjunction with the Sun on the 17th.

There are no comets under magnitude 10 visible this month.

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.

## MAY MOON/SUN TIMES

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

(S)=Solar

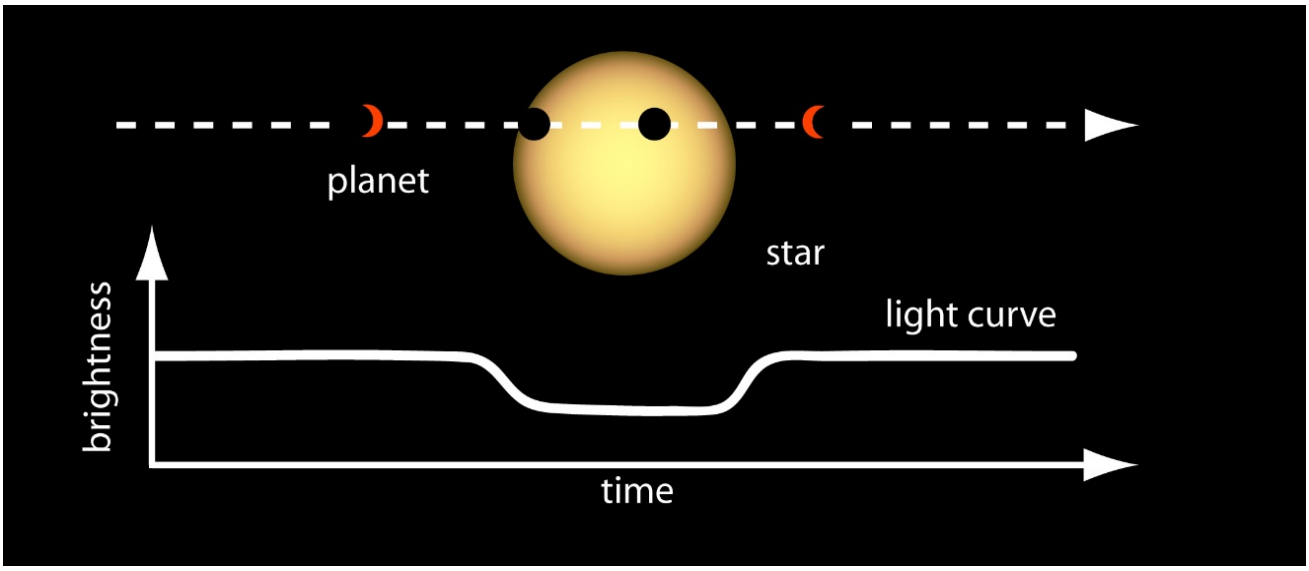
This article is distributed by NASA's Night Sky Network (NSN).

# May's Night Sky Notes: How Do We Find Exoplanets?

By: Dave Prosper
Updated by: Kat Troche

Astronomers have been trying to discover evidence that worlds exist around stars other than our Sun since the 19th century. By the mid-1990s, technology finally caught up with the desire for discovery and led to the first discovery of a planet orbiting another sun-like star, Pegasi 51b. Why did it take so long to discover these distant worlds, and what techniques do astronomers use to find them?

## The Transit Method

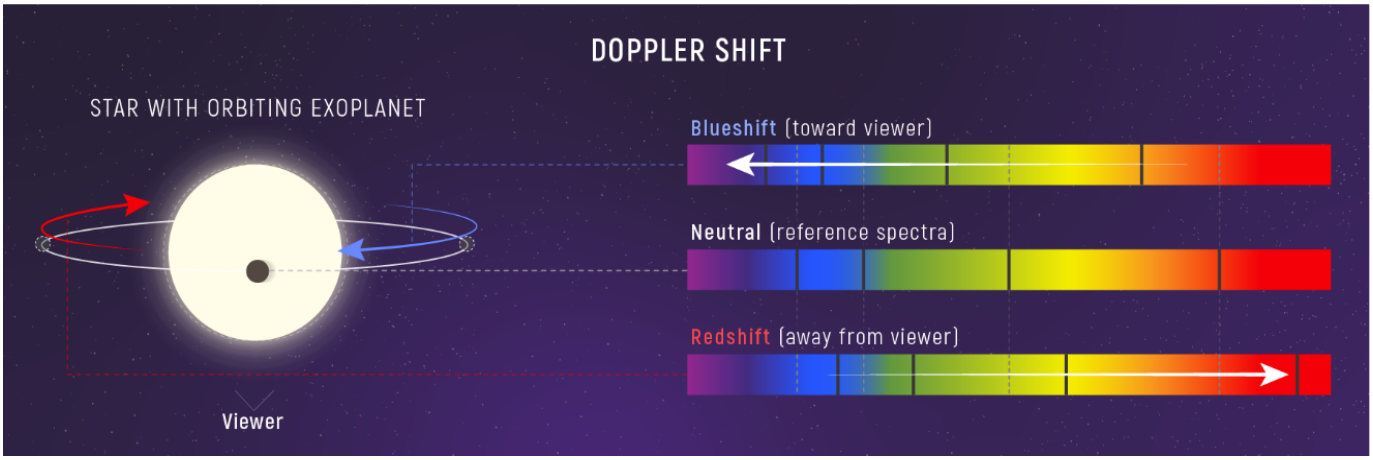



*A planet passing in front of its parent star creates a drop in the star's apparent brightness, called a transit. Exoplanet Watch participants can look for transits in data from ground-based telescopes, helping scientists refine measurements of the length of a planet's orbit around its star. Credit: NASA's Ames Research Center*

One of the most famous exoplanet detection methods is the **transit method**, used by Kepler and other observatories. When a planet crosses in front of its host star, the light from the star dips slightly in brightness. Scientists can confirm a planet orbits its host star by repeatedly detecting these incredibly tiny dips in brightness using sensitive instruments. If you can imagine trying to detect the dip in light from a massive searchlight when an ant crosses in front of it, at a distance of tens of miles away, you can begin to see how difficult it can be to spot a planet from light-years away! Another drawback to the transit method is that the distant solar system must be at a favorable angle to our point of view here on Earth – if the distant system's angle is just slightly askew, there will be no transits. Even in our solar system, a transit is very rare. For example, there were two transits of Venus visible across our Sun from Earth in this century. But the next time Venus transits the Sun as seen from Earth will be in the year 2117 – more than a century from now, even though Venus will have completed nearly 150 orbits around the Sun by then!

(Continued Next Page)

## The Wobble Method




*As a planet orbits a star, the star wobbles. This causes a change in the appearance of the star's spectrum called Doppler shift. Because the change in wavelength is directly related to relative speed, astronomers can use Doppler shift to calculate exactly how fast an object is moving toward or away from us. Astronomers can also track the Doppler shift of a star over time to estimate the mass of the planet orbiting it. Credit: NASA, ESA, CSA, Leah Hustak (STScI)*

Spotting the Doppler shift of a star's spectra was used to find Pegasi 51b, the first planet detected around a Sun-like star. This technique is called the **radial velocity or "wobble" method.** Astronomers split up the visible light emitted by a star into a rainbow. These spectra, and gaps between the normally smooth bands of light, help determine the elements that make up the star. However, if there is a planet orbiting the star, it causes the star to wobble ever so slightly back and forth. This will, in turn, cause the lines within the spectra to shift ever so slightly towards the blue and red ends of the spectrum as the star wobbles slightly away and towards us. This is caused by the blue and red shifts of the planet's light. By carefully measuring the amount of shift in the star's spectra, astronomers can determine the size of the object pulling on the host star and if the companion is indeed a planet. By tracking the variation in this periodic shift of the spectra, they can also determine the time it takes the planet to orbit its parent star.

## Direct Imaging

Finally, exoplanets can be revealed by **directly imaging** them, such as this image of four planets found orbiting the star HR 8799! Space telescopes use instruments called **coronagraphs** to block the bright light from the host star and capture the dim light from planets. The Hubble Space Telescope has captured images of giant planets orbiting a few nearby systems, and the James Webb Space Telescope has only improved on these observations by uncovering more details, such as the colors and spectra of exoplanet atmospheres, temperatures, detecting potential exomoons, and even scanning atmospheres for potential biosignatures!

(Continued Next Page)

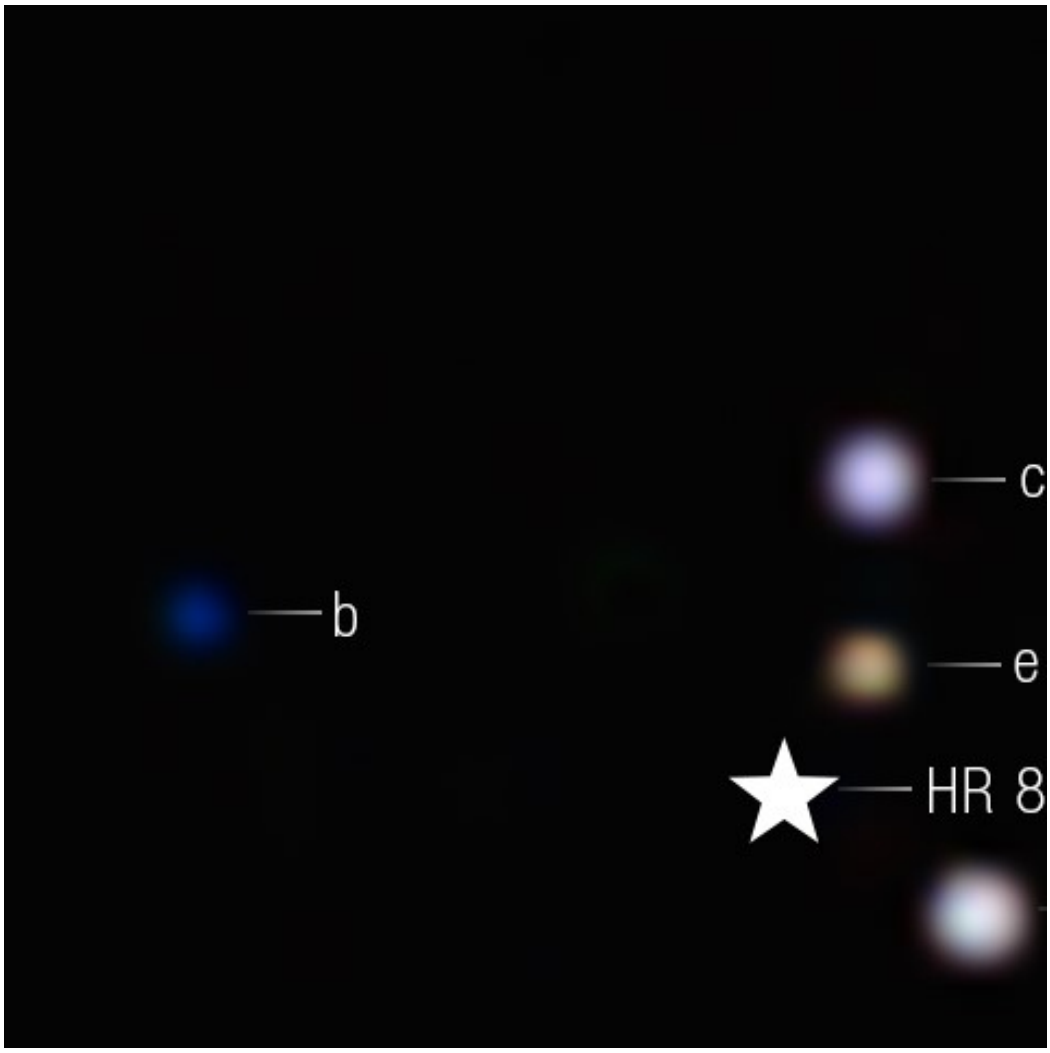



*Image taken by the James Webb Space Telescope of four exoplanets orbiting HR 8799. Credit: NASA, ESA, CSA, STScI, Laurent Pueyo (STScI), William Balmer (JHU), Marshall Perrin (STScI)*

You can find more information and activities on NASA's Exoplanets page, such as the Eyes on Exoplanets browser-based program, The Exoplaneteers, and some of the latest exoplanet news. Lastly, you can find more resources in our News & Resources section, including a clever demo on how astronomers use the wobble method to detect planets!

The future of exoplanet discovery is only just beginning, promising rich rewards in humanity's understanding of our place in the Universe, where we are from, and if there is life elsewhere in our cosmos.

# 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 | (**6**20) 584-4454 |
| Webmaster | Joe Castor | (**6**20) 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**

## SAS STATISTICS & FINANCES

| | |
|---|---|
| Lifetime Members: | 1 |
| Individual & Family Members: | 104 |
| **Total Membership:** | **105** |

| | |
|---|---|
| Bank Balance as of Mar 31: | $ 1,424.74 |
| Deposits / (D/Ws): | $ 50.00 / ( $.00) |
| **Bank Balance as of Apr 30:** | **$ 1,474.74** |

## 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 llp41astro@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.

## OUR SPONSORS