

# San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



October 2020

<https://www.sdaa.org/>  
A Non-Profit Educational Association  
P.O. Box 23215, San Diego, CA 92193-3215

## *SDAA Update*

In keeping with state and local mandates in regards to social distancing, the **SDAA has cancelled all public outreach and club events** for the foreseeable future. These include our regularly scheduled monthly meetings at Mission Trails Regional Park.

The LIPP telescope will also be closed until further notice.

Since TDS is private space there is no reason to lock down the facility but there are actions you can take to help keep the site safe for all of us. If you plan to visit and use the facility, please bring along some disinfectant wipes or disinfectant spray cleaner. When you finish using the restrooms or the warming room, please wipe down the areas that you touched in order to help prevent the spread of any viruses. As much as we love sharing the views of the night sky, try to maintain the recommended 6-foot social distance guideline.

### Next SDAA Business Meeting

October 8th at 7:00pm  
10070 Willow Creek Rd  
San Diego, CA 92131  
Via Zoom

### Next Program Meeting

October 16th at 7:00pm  
Live Stream

## CONTENTS

October 2020, Vol LVIII, Issue 10

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San Diego Astronomy Association

Incorporated in California in 1963

Update.....	1
Program Meeting.....	1
September Minutes.....	2
Astronomical League Star Charts....	4
Vivek V. Awards.....	7
TDS Schedule.....	8
Citizen Science.....	8
Orange County Astronomers.....	9
SDAA Contacts.....	10
NASA Night Sky Notes.....	11
Astronomy Cartoon.....	13

### Newsletter Deadline

The deadline to submit articles for publication is the **15th** of each month.

## *October Program Meeting*

### 21 October 2020 - Mia de los Reyes - Caltech



Status: Confirmed

Talk: The Loneliest Galaxies in the Universe

Contact: [mdelosre@caltech.edu](mailto:mdelosre@caltech.edu)

Abstract: Most of the matter in the universe is located in long and thin structures called "cosmic filaments" that stretch across the universe in web-like formations. However, some galaxies live in the much emptier spaces between cosmic filaments, called cosmic voids. By comparing the chemical makeup of void galaxies and filament galaxies, we can learn about how galaxies' environments shape their formation and evolution.

YouTube: <https://youtu.be/NHUzYB8siF8>

[Link to SDAA Merchandise Store](#)

<https://sdaa28.wildapricot.org/SDAA-Store>

[Link to Outreach Calendar](#)

<https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los>



# San Diego Astronomy Association

## *San Diego Astronomy Association Board of Directors Meeting* *September 10, 2020* – Unapproved and subject to revision

### 1. Call to Order

The meeting was postponed from the 8<sup>th</sup> to the 10<sup>th</sup> and was held via Zoom. It was called to order at 7:09pm with the following board members in attendance: Dave Wood, President; Steve Hallman, Vice President; Melany Biendara, Treasurer; Gene Burch, Recording Secretary; Alicia Linder, Corresponding Secretary; Dave Decker, Director; Hiro Hakozaiki, Director; Mike Chasin, Director; Pat Boyce, Director.

### 2. Approval of Last Meeting Minutes

August meeting minutes were approved.

### 3. Priority / Member Business

None

### 4. Treasurer's & Membership Report

a. Report approved and Mel is working with the accountant to prepare our taxes

### 5. Standard Reports

a. Site Maintenance Report: Nothing to report

b. Observatory/Loaner Scope Report: Nothing to report

c. Private Pad Report: We currently have 6 free pads and 10 people on the waiting list. Two of the people on the waiting list are current pad holders looking to upgrade. The holder of Pad 5 (a grandfathered pad) has moved to Arizona. His membership is current through early next year and he still has a pier on Pad 5 that he wants to keep. As soon as the pier has been removed, he will let us know and we can offer the pad for lease. Of the pads available for lease, I expect at least two of them to be leased within a month.

d. Program Meetings Report: 19 Aug 2020 Speaker / Topic:

Speaker: Dr. Nicholas Galitzki

Presentation: CMB Simons Observatory (SO) Small Aperture Telescope (SAT)

Attendees: 58

Current Program Meeting Petty Cash as of 6 Aug 2020 = \$524

Expenses Since Previous Report - None

e. AISIG Report: The August Zoom meeting went well. Jeff Beach told us about his experiences as a young man at the Air Force observatory on Maui and Steve Hallman gave a great talk on a new telescope design. We also discussed imaging a deep space object for the next AISIG Zoom.

f. Newsletter Report: Current issue looks good with nothing new to report.

g. Website Report: I (Jeff Stevens) have been working with Hiro on a new website based on WordPress. I set up a test website for prototyping and experimentation. Working on design now.

From Hiro:

- Benefit of WordPress
- No web design skill is required to edit the contents.
- Most famous web design platform
- Documentation
- Tutorial
- Easy to maintain the history
- Secure

Status

- Jeff created preliminary page to start with
- Jeff created test site where Jeff and I can work on
- Hiro analyzed current SDAA site and draft web site structure
- Jeff and Hiro will have first meeting on 9/8 Tuesday

h. Social Media Report: No report



# San Diego Astronomy Association

- i. Outreach Report: Helix Charter HS - We are preparing to teach a one-hour class on "Stellar Evolution" for a 9th grade science class. The virtual class will be hosted by their teacher using the Zoom format, and I will be the domain expert instructor. We will conduct the class from atop Mt. Helix to test their bandwidth for future events. The class will be offered in two sessions on Tuesday, Sept 15.

EAA Protocols - One of our members, Gary Hawkins, has developed and tested a protocol for sharing excellent live views via his YouTube Live channel. Given our COVID-19 limitations on traditional, hands on "Star Parties", the Electronically Assisted Astronomy (EAA) paradigm is a natural solution. Gary has posted his camera feed and laptop webcam to a live YouTube program that includes a nice chat feature in the sidebar. I have participated in Gary's sessions, showing great success with this inexpensive protocol and small audiences. He hopes to continue as part of the SDAA outreach program.

- j. TARO Report: Operations have been minimized due to hot weather. Internal temps in the observatory during the day have exceeded 115 degrees. Nighttime temps have been above the minimum temps needed to cool the camera down to proper operating parameters.
- k. Merchandise Report: No new sales
- l. Cruzen Report: Observatory is ready to go. Looking for members who want to be involved in developing standards for operations.
- m. Astronomical League Report: One of our SDAA members, *Vivek Vijayakumar*, has received two awards from the Astronomical League. The awards were announced with photos and descriptions in the September, 2020, issue of the "Reflector" magazine, published quarterly. *Horkheimer/Smith Service Award* - First Place award from AL for Vivek's exceptional work in public outreach programs, includes \$1000. He was honored for his work with the Julian Dark Sky Network as well as other outreach efforts. *Horkheimer/Parker Youth Imaging Award* - Second Place award for Vivek's image titled "The Pacman Nebula in SHO". The SDAA Congratulates Vivek for his continued successes.
- n. JSF Report: none (canceled)

## 6. Old Business

- a. October/Fall BBQ has been canceled due to COVID
- b. Warming room roof has been repaired and we're waiting for a bid to repair the drywall.
- c. Will wait until cooler weather to do the grading

## 7. New Business

- a. Discussed the possibility of holding our annual banquet in a "virtual" format and will begin plans for it.
- b. Time to organize the nominating committee for next year, with the President, Vice President and Corresponding Secretary up for election. Gene will be the Board representative and at the next monthly meeting, Steve will ask for 2 members to volunteer to work on the committee with him.

## 8. Adjournment

Adjourned at 9:08pm.

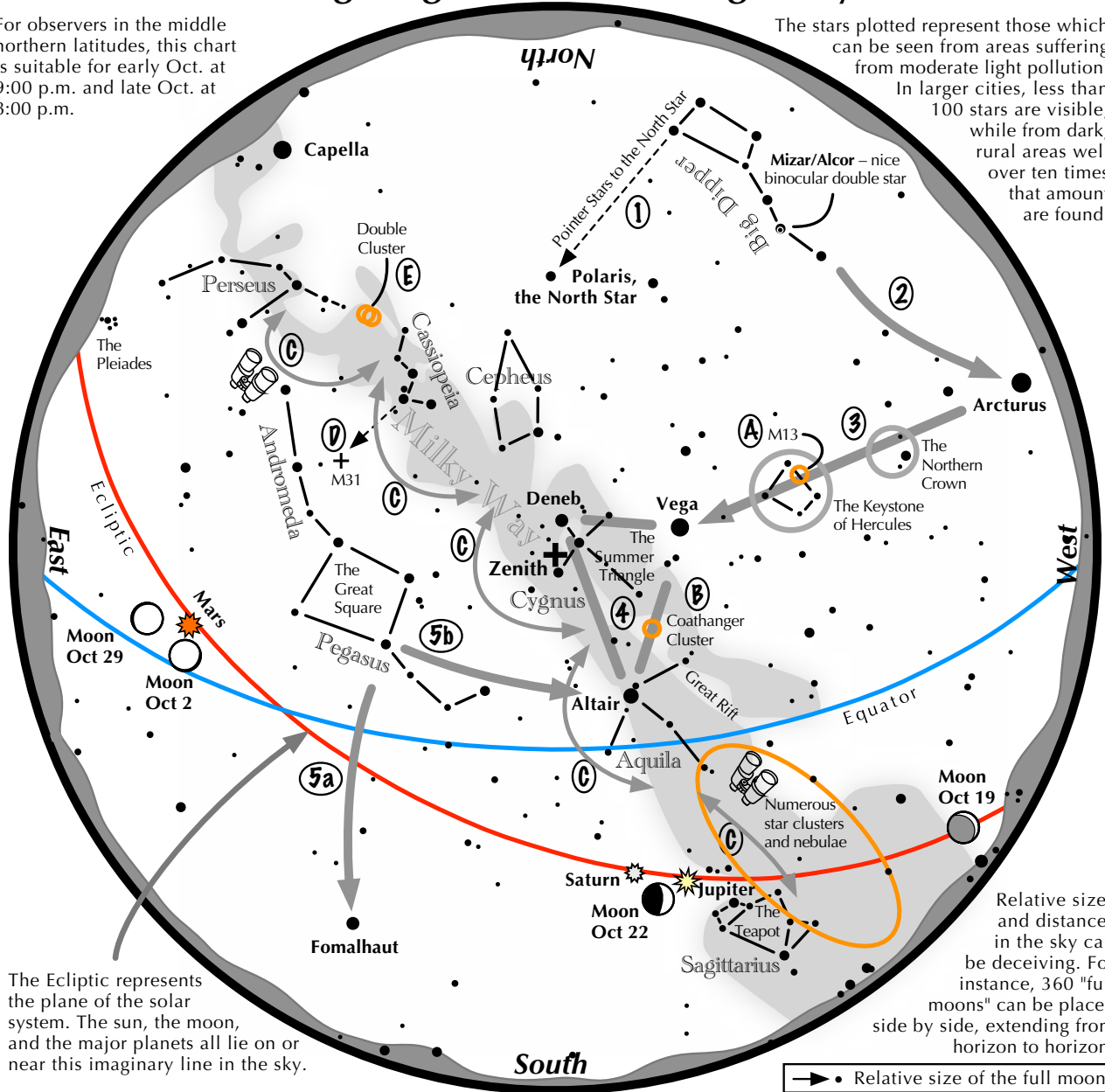


# San Diego Astronomy Association

## Navigating the October Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Oct. at 9:00 p.m. and late Oct. at 8:00 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

### Navigating the October night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- 3 To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- 5 High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

### Binocular Highlights

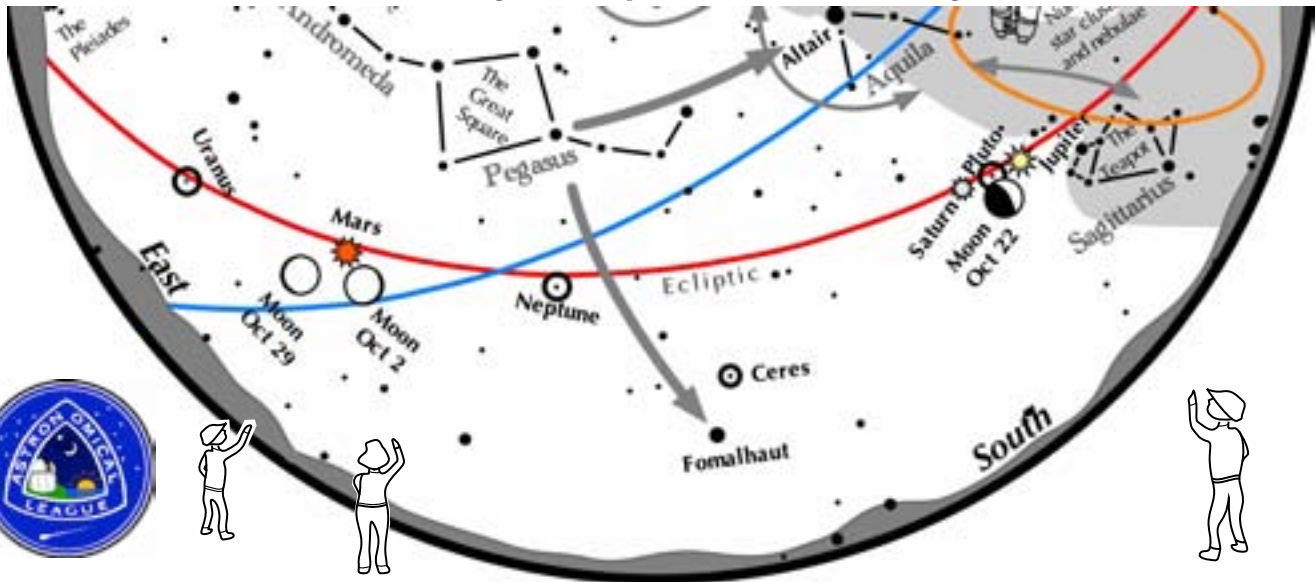
**A:** On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.





# San Diego Astronomy Association

If you can observe only one celestial event this month, consider this one:  
See all three bright outer planets and a not-so-bright one



75 minutes after sunset, scan from the southwest to the south, then to the east: the Seen and the Unseen...

Find bright Jupiter and Saturn in the south-southwest, then locate Mars in the east.

- On the night of October 2, climbing in the east, brightly shines ruddy Mars with the near full moon glowing to its right.
- On the night of October 22, the near first quarter moon is positioned between bright Jupiter and Saturn. **Unseen Pluto** lies immediately above the moon.
- On the night of October 29, the near full moon hovers to Mars' lower left.
- **Unseen Neptune** lies one-third of the distance across the sky from Mars to easily seen Saturn.
- **Difficult to see Uranus**, which can be spotted by the keen-eye observer under dark skies, is found an equal distance that Mars lies from Neptune but on the other side of Mars. Binoculars will definitely help.
- The dwarf planet **Ceres** lies **unseen** just north of Fomalhaut shining low in the south-southeast.

A curious fact: all these bodies of the solar system currently are placed just below the plane of the ecliptic.

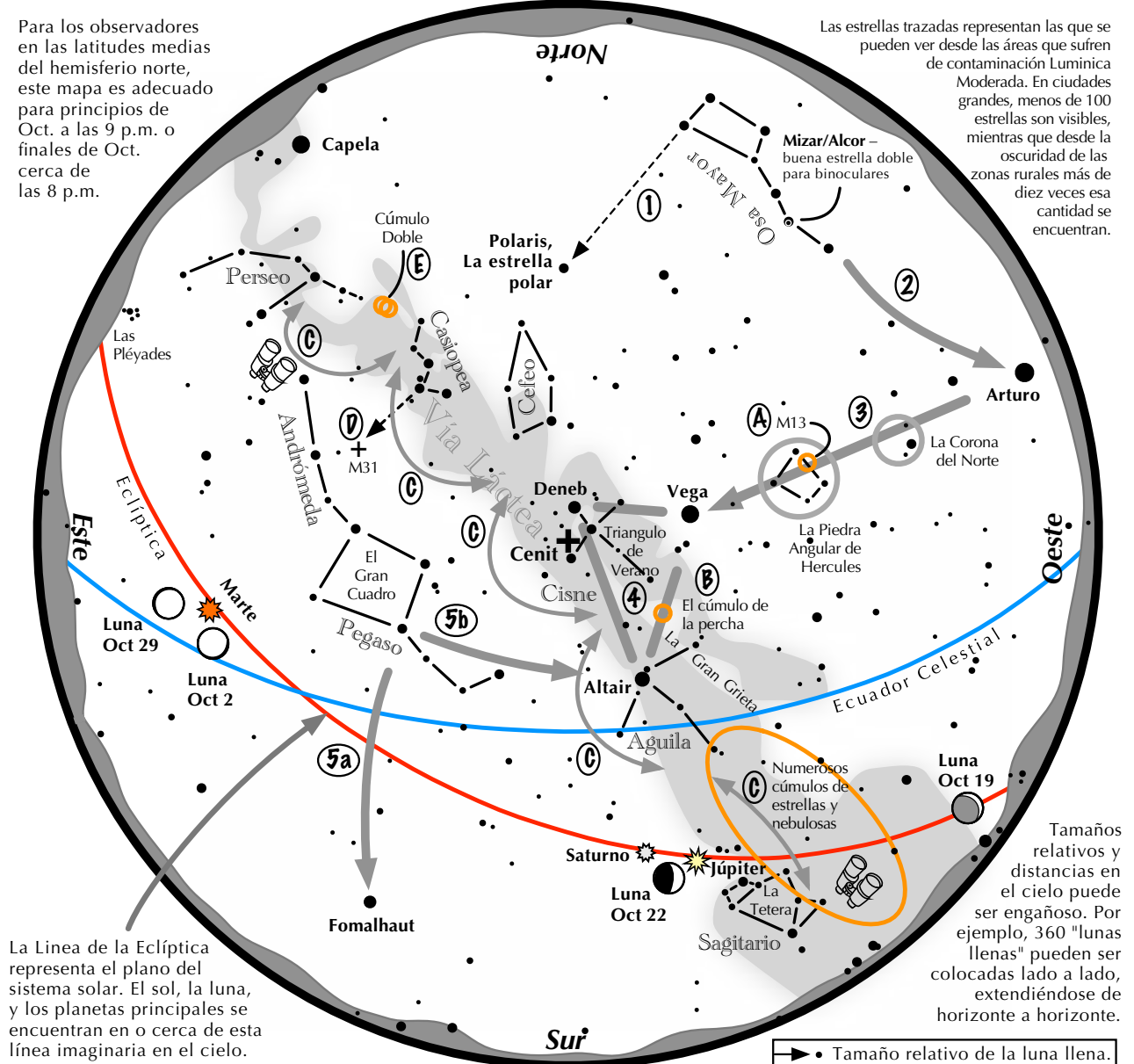


# San Diego Astronomy Association

## Navegando por el cielo nocturno de Octubre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Oct. a las 9 p.m. o finales de Oct. cerca de las 8 p.m.

Las estrellas trazadas representan las que se pueden ver desde las áreas que sufren de contaminación Lumínica Moderada. En ciudades grandes, menos de 100 estrellas son visibles, mientras que desde la oscuridad de las zonas rurales más de diez veces esa cantidad se encuentran.



La Línea de la Eclíptica representa el plano del sistema solar. El sol, la luna, y los planetas principales se encuentran en o cerca de esta línea imaginaria en el cielo.

Tamaños relativos y distancias en el cielo puede ser engañoso. Por ejemplo, 360 "lunas llenas" pueden ser colocadas lado a lado, extendiéndose de horizonte a horizonte.

→ • Tamaño relativo de la luna llena.

### Navegando por el cielo nocturno: simplemente comience con lo que sabe o con lo que puede encontrar fácilmente.

- 1 Haz una línea hacia el norte desde las dos estrellas en la punta de la Osa Mayor. Pasa por Polaris, la estrella polar.
- 2 Siga el arco del mango de la Osa Mayor. Se cruza con Arturo, la estrella más brillante en el cielo de la noche de octubre.
- 3 Dibuja una línea desde Arturo a Vega. Un tercio del camino se encuentra "La Corona del Norte". Dos tercios de esa distancia llevan a la "piedra angular de Hércules." Se necesita un cielo oscuro para ver estas dos configuraciones estelares tenues.
- 4 Las estrellas del Triángulo de verano, Vega, Altair y Deneb, brillan en el Cenit.
- 5 En lo alto del Este se encuentran las cuatro estrellas brillantes de la Gran Cuadro de Pegaso. (5a) Sus dos estrellas occidentales apuntan al Sur hacia Fomalhaut. (5b) Sus dos estrellas meridionales apuntan al Oeste hacia Altair.

### Puntos destacados con binoculares

- A:** En el lado occidental de la Piedra Angular de Hércules, un círculo borroso de 500,000 estrellas.
- B:** Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo de estrellas que describe un perchero.
- C:** Recorre la Vía Láctea en busca de un número asombroso de destellos tenues y bahías oscuras, incluido La Gran Grieta.
- D:** Las tres estrellas más occidentales de las "W" de Casiopea apuntan hacia el sur hasta M31, la Galaxia de Andromeda, un óvalo "borroso."
- E:** Entre la "W" de Casiopea y Perseo se encuentra el Doble Cúmulo.





# San Diego Astronomy Association

## *Congratulations to Vivek Vijayakuma !*

Vivek, well known to SDAA members, continues to demonstrate exceptional skills and knowledge with his continued research and outreach efforts. He has dominated the Astronomy and Physical Sciences division of the San Diego Regional Science and Engineering Fair for several years, and the SDAA has recognized him with our own awards program. The *Astronomical League* has also honored him with no less than three awards this year. Here they are:

### *The Horkheimer/Smith Service Award, First Place*

Vivek was nominated for this award for his outreach efforts with the Julian Dark Sky Network. The winner of the Horkheimer/Smith award will be offered the opportunity to attend ALCon 2021 to receive their plaque in person and give a presentation. All first place Horkheimer winners receive \$1,000 for their fabulous achievements. Thanks to Dwight Horkheimer and the Horkheimer Foundation for the continuing outstanding support for these youth award programs.

### *Horkheimer/Parker Youth Imaging Award, Second Place*

Second place: Vivek Vijayakumar; The title of Vivek's image is "The Pacman Nebula in SHO." The image was taken from Julian, California, with a C8-N, ASI-1600mm Pro, CEM60, and Astrodon 5 nm S-II, H-alpha, and O-III filters. Vivek will receive a plaque and a \$500 check for his second-place finish.

### *National Young Astronomer Award, Second Place*

NYAA Awards Second place: Vivek Vijayakumar is a rising senior at San Marcos High School in San Marcos, California. He is a youth Member-at-large of the Astronomical League. His project is titled "Characterizing the pulsations of Delta Scuti stars using the Mg Ib triplet." Vivek's research objective "is to study the relation between pulsations and changes in the light curves of Delta Scuti variables and the profiles of the Mg Ib triplet spectral feature, including optical depth, Doppler shifts, and broadening. Question: How do the pulsation of Delta Scuti stars correlate to the profiles of the Mg Ib triplet?"

The SDAA is a Member Society of the *Astronomical League*. Any SDAA member can join the AL through the SDAA at a substantial saving by contacting our Treasurer or myself, Dave Decker, Astronomical League Coordinator (See contacts menu on website). Check out the *Astronomical League Reflector* magazine, which is available, on line, from the AL website. It provides a "down home" perspective on amateur astronomy around the world. Please check any of the past editions, and especially, the September, 2020, edition, for further details about Vivek's awards.

[https://www.astrleague.org/files/reflector/reflector\\_Sept\\_2020\\_Final\\_web\\_pages.pdf](https://www.astrleague.org/files/reflector/reflector_Sept_2020_Final_web_pages.pdf)

And don't forget to check out the SDAA Program Meeting videos. Go to "YouTube", then search for "San Diego Astronomy Association". Find a link to one of our programs and then subscribe.

Here is a screen shot from our September Program meeting, featuring a photo of Vivek and his Second Place image of the Pacman Nebula.





# San Diego Astronomy Association

## 2020 Star Party Schedule

Date	Hours	Type	Sunset	Twilight	Moonrise(set)	Illumination
10/10/2020	7:00 to 10:00 PM	Public	6:20 PM	7:42 PM	12:55 AM	44%
10/17/2020	7:00 to 10:00 PM	Member	6:12 PM	7:34 PM	(7:13 PM)	2%
11/7/2020	5:30 to 8:30 PM	Public	4:52 PM	6:16 PM	10:46 PM	61%
11/14/2020	5:30 to 8:30 PM	Member	4:47 PM	6:12 PM	6:48 AM	0%
12/5/2020	5:30 to 8:30 PM	Public	4:42 PM	6:09 PM	9:42 PM	76%
12/12/2020	5:30 to 8:30 PM	Member	4:43 PM	6:11 PM	5:34 AM	0%

### AAVSO Webinar Series for Citizen Science

The first AAVSO Webinar series is now available to view on AAVSO's YouTube channel:

- [Bright Star Monitor](#)
- [Eclipsing Binaries](#)
- [Exoplanet Observing](#)
- [High Energy Network](#)
- [Long Period Variables](#)
- [Short Period Pulsators](#)
- [Photoelectric Photometry](#)
- [Spectroscopy](#)
- [Young Stellar Objects](#)
- [Solar Observing](#)
- [Cataclysmic Variables](#)
- [Instrumentation & Equipment I: The Tools of the Trade](#)

They are loaded with ideas for how you can contribute to science as well as learn astronomy. Go to <https://www.aavso.org/> to learn more.





# San Diego Astronomy Association

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You are invited to join your fellow astronomy enthusiasts at the following online events:

## General Meeting

Friday October 9th, 7:30pm PDT

Dr. Marcel Pawlowski from the Leibniz-Institute for Astrophysics will be talking about "Dark Matter and the Dance of Dwarf Galaxies"

<https://ocastronomers.org/calendar/online-general-meeting-october-2020/>

## Open Spiral Bar

Saturday October 10th, 10:00pm PDT

Come and present your club, astrophotos, activities, etc. or not, ask your astronomy questions and socialize.

<https://ocastronomers.org/calendar/open-spiral-bar-october-2020/>

## Beginner's Class

Friday October 2nd, 7:30pm PDT

David Pearson will talk about the different types of equipment used to observe the night sky.

<https://ocastronomers.org/calendar/beginners-class-october-2020/>

## Ventura County Astronomical Society's General Meeting (held by OCA)

Friday September 25th, 8:30pm PDT

Dr. Marc Rayman from JPL will show a documentary on how he led the team who fixed the Deep Space 1 mission.

<https://ocastronomers.org/calendar/vcas-general-meeting-september-2020/>

All meetings are free and open to the public. To attend please register in advance by visiting the respective page for each event.

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Reza AmirArjomand  
Vice President  
Orange County Astronomers



# San Diego Astronomy Association

## SDAA Contacts

### Club Officers and Directors

President	Dave Wood	<a href="mailto:President@sdaa.org">President@sdaa.org</a>	(858) 735-8808
Vice President	Steve Hallman	<a href="mailto:VicePresident@sdaa.org">VicePresident@sdaa.org</a>	(858) 371-9706
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### Committees

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Field Trips	-Vacant-	<a href="mailto:FieldTrips@sdaa.org">FieldTrips@sdaa.org</a>	
Grants/Fund Raising	-Vacant-	<a href="mailto:Grants@sdaa.org">Grants@sdaa.org</a>	
Julian StarFest	-Vacant-	<a href="mailto:info@julianstarfest.com">info@julianstarfest.com</a>	
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Publicity	Jeff Flynn	<a href="mailto:Publicity@sdaa.org">Publicity@sdaa.org</a>	(619) 806-6505
Loaner Scopes	Ed Rumsey	<a href="mailto:loanerscopes@sdaa.org">loanerscopes@sdaa.org</a>	(858) 722-3846
Governing Documents	TBD		
TDS Network	Dave Wood	<a href="mailto:TDSNet@sdaa.org">TDSNet@sdaa.org</a>	(858) 735-8808
Amateur Telescope Making	-Vacant-		
ALCOR (Astronomical League Correspondent)	Dave Decker	<a href="mailto:ALCOR@sdaa.org">ALCOR@sdaa.org</a>	(619) 972-1003

#### SDAA Editorial Staff

Editor - Andrea Kuhl

[newsletter@sdaa.org](mailto:newsletter@sdaa.org)

Assistant Editor: Craig Ewing

Have a great new piece of gear? Read an astronomy-related book that you think others should know about? How about a photograph of an SDAA Member in action? Or are you simply tired of seeing these Boxes in the Newsletter rather than something, well, interesting?

Join the campaign to rid the Newsletter of little boxes by sharing them with the membership. In return for your efforts, you will get your very own byline or photograph credit in addition to the undying gratitude of the Newsletter Editor. Just send your article or picture to [Newsletter@SDAA.Org](mailto:Newsletter@SDAA.Org).



# San Diego Astronomy Association

NASA Night Sky Notes

October 2020



**This article is distributed by NASA Night Sky Network**

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

## Observe the Skies Near Mars

David Prosper

October is a banner month for Mars observers! October 6 marks the day Mars and Earth are at closest approach, a once-every-26-months event. A week later, on October 13, Mars is at opposition and up all night. Mars is very bright this month, and astronomers are eager to image and directly observe details on its disc; however, don't forget to look at the space around the planet, too! By doing so, you can observe the remarkable retrograde motion of Mars and find a few nearby objects that you may otherwise overlook.

Since ancient times, Mars stood out to observers for its dramatic behavior. Usually a noticeable but not overly bright object, its wandering path along the stars showed it to be a planet instead of a fixed star. Every couple of years, this red planet would considerably flare up in brightness, for brief times becoming the brightest planet in the sky before dimming back down. At these times, Mars would also appear to slow down its eastward motion, stop, then reverse and head westward against the stars for a few weeks, before again stopping and resuming its normal eastward movement. This change in the planet's movement is called "apparent retrograde motion." While all of the planets will appear to undergo retrograde motion when observed from Earth, Mars's retrograde appearances may be most dramatic. Mars retrograde motion in 2020 begins on September 10, and ends on November 16. You can observe its motion with your eyes, and it makes for a fun observing project! You can sketch the background stars and plot Mars as you observe it night after night, or set up a photographic series to track this motion. Does the planet move at the same rate night after night, or is it variable? As you observe its motion, note how Mars's brightness changes over time. When does Mars appear at its most brilliant?

NASA has tons of great Mars-related resources! Want to know more about apparent retrograde motion? NASA has an explainer at: [bit.ly/marsretromotion](https://bit.ly/marsretromotion). Find great observing tips in JPL's "What's Up?" videos: [bit.ly/jplwhatsup](https://bit.ly/jplwhatsup). Check out detailed views with NASA's HiRISE satellite, returning stunning closeups of the Martian surface since 2006: [hirise.jpl.arizona.edu](https://hirise.jpl.arizona.edu). NASA's Curiosity Rover will be joined in a few months by the Perseverance Rover, launched in late July to take advantage of the close approach of Mars and Earth, a launch window that opens two years: [nasa.gov/perseverance](https://nasa.gov/perseverance). Calculate the ideal launch window yourself with this handy guide: [bit.ly/marslaunchwindow](https://bit.ly/marslaunchwindow). The Night Sky Network's Exploring Our Solar System handout invites you to chart the positions of the planets in the Solar System, and NSN coordinator Jerelyn Ramirez recently contributed an update featuring Mars opposition! You can download both versions at [bit.ly/exploresolarsystem](https://bit.ly/exploresolarsystem). Young astronomers can find many Mars resources and activities on NASA's Space Place: [bit.ly/spaceplacemars](https://bit.ly/spaceplacemars). Here's to clear skies and good seeing for Mars's best appearance until 2033!



# San Diego Astronomy Association

NASA Night Sky Notes

October 2020

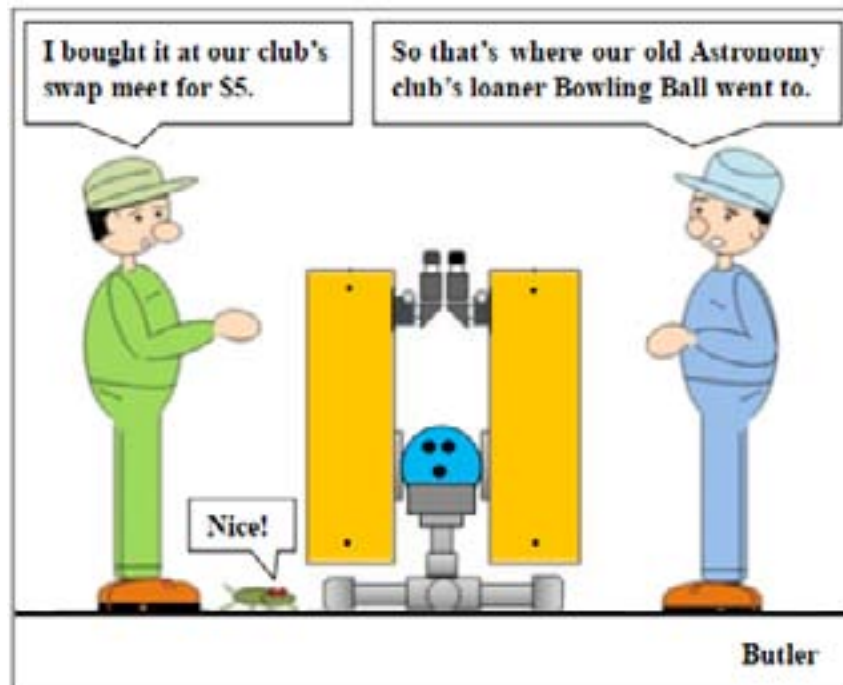


*(left) If you are paying this much attention to Mars, you're likely curious about the skies surrounding it! Find Mars in the constellation Pisces, with constellations Aries, Triangulum, and Cetus nearby. Aries may be the only one of these dimmer patterns readily visible from light-polluted areas. The Pleiades rises shortly after Mars. Dim Uranus is found close by, in Aries. If you are observing Mars up close, use the same eyepiece to check out Uranus's tiny blue-green disc. If you are uncertain whether you spotted Uranus, you didn't see it! Unlike stars, Uranus doesn't resolve to a point at high magnifications.*

*(right) The path of Mars during the last five months of 2020. Notice the retrograde motion from September 10 to November 16, with prime Mars observing time found in between. October 6 is the day of closest approach of Earth and Mars, "just" 38.6 million miles apart. Images created with help from Stellarium: [stellarium.org](http://stellarium.org)*



# San Diego Astronomy Association



## MEMBERSHIP INFORMATION

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