

# San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



**November 2024**

<https://www.sdaa.org/>

A Non-Profit Educational Association  
P.O. Box 23215, San Diego, CA 92193-3215

## Next SDAA Business Meeting

November 12th at 7:00pm

Via Zoom

## Next Program Meeting

November 20th at 7:00pm

Green Acre Restaurant Treehouse Foyer at  
Campus Pointe  
10300 Campus Point Dr, San Diego

## November 20h Program

Topic: SDAA Annual Gadget Night (Meeting will be in-person)  
Speaker: Various members

**Green Acre Restaurant Treehouse Foyer at Campus Pointe** (details and directions coming soon)

Our Annual Gadget Night is around the corner! We look forward to seeing you face to face at this popular event where members are given the floor to share their favorite gadget! Gadgets can be an item you purchased or made, a concept or idea - just about anything you'd like to share about your astronomy setup that may help or inspire fellow members. We want to be sure there's time for everyone to present because we also kick off the SDAA BOD Election that evening, so please send your info to [VicePresident@sdaa.org](mailto:VicePresident@sdaa.org) by Sunday, 11/17/24. Please include a description of the item (or concept/idea) you are bringing and how long (5-10 minutes max) your presentation will be.

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San Diego Astronomy Association

Incorporated in California in 1963

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### Newsletter Deadline

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

<https://us02web.zoom.us/meeting/register/tZMude-sqz4sGN1qXv7qSIBwnYp-gaQEZZ8LU#/registration>

[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* *October 8, 2024* – Unapproved and subject to revision

### 1. Call to Order

The meeting was held via Zoom and was called to order at 7:05pm with the following board members in attendance: Dave Decker, President; Bee Pagarigan, Vice President; Mike Chasin, Treasurer; Gene Burch, Recording Secretary; Hiro Hakozaiki, Director; Gracie Schutze, Director; Brian McFarland, Director and member Prascilla Morquecho.

### 2. Approval of Last Meeting Minutes

The September meeting minutes were approved.

### 3. Treasurers & Membership Report

The Treasurer's report was approved. Mike reported that membership is about the same, interest income is a bit ahead of forecast and we should probably add an expense line in the budget for the storage unit. Utilities are below budget, but since the power was off for a bit and is still off in the private pad areas, this is to be expected.

### 4. Standard Reports

#### a. Site Maintenance Report:

- Power has been restored to the LIPP/Warming building, bathrooms, and public pads.
- Private Pads to be inspected and identified with respective numbers on a date TBD by Private Pad Committee Members.
- Clarify TDS Rules to prohibit use of power strips and extension cords to extend power from powered receptacles to the private pad area.
- Member feedback survey for grid rebuild in-progress

#### b. Observatory:

We continue to have excellent star parties. DSC's and the tablet continue to work flawlessly. Host training is scheduled for October 5<sup>th</sup> – SDAA BBQ night. Thank you for approving UCSD Astronomy Club night.

#### c. Loaner Scope Report:

14 loaner items are currently out. The wave of items returned in September were matched with an equal sized wave of new checkouts.

One new donation is pending:

- Coronado PST - this will replace a PST already in inventory that has damaged coatings



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Three new donations have entered the fleet:

- SDAA-049: Celestron CPC800 - Tested, labeled, and is already loaned out
- SDAA-050: SBIG ST-10XME Mono self-guiding CCD camera with 10-position filter wheel and L,R,G,B,Ha,OIII,and Green Continuum Astrodon filters
- SDAA-051: SBIG ST-2000XM Mono self-guiding CCD camera with 5-position filter wheel and L,R,G,B Astrodon filters
- SDAA-052: SBIG External guide head for SDAA-050/SDAA-051

The Loaner Procedures were updated on the Website to reflect the new process which includes the Miramar storage facility.

R&D was performed with the donated SBIG cameras, and documentation written to guide lessees on how to get the cameras working on modern computers

The remaining loaner equipment in the storage container at TDS will be retrieved on October 5 and moved to the Miramar storage facility

## **Storage Facility**

I (Paul) still need to procure a flat cart with the remaining budget, as we can't necessarily count on the storage facility's flat carts to be available when needed.

The storage unit still has plenty of room (aided by the fact that over half the loaner fleet is loaned out).

Loaner exchanges at the storage facility are a bit more hectic than at TDS, because of the need to let people through the gate and enter a code to go up and down the elevator. But these minor inconveniences are more than made up for by the ease of access and comfortable temperatures in the storage unit.

d. Private Pad Report:

No change from last month. We have 7 unleased pads (3 along the south fence by the water tank) and 8 on the waiting list, all of whom are waiting for a solution on the power situation before committing.

SDAA Private Pad Policy Review Committee Report - Hiro/Gracie/Mark/Bill/Bee

Tasks to be completed by Committee

- Website private pad photos, visible to public, need to be updated.
- A photo catalog of the inside of private pad structures to be completed to satisfy annual audit of structures per current lease agreement statement 6 and 10 (photos will not be posted publicly).
- Method to track remote pad owner annual usage.



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- Clarification of pad transfer process to ensure waiting list is honored.
- Identify all pads with reflective numbers posted on a permanent rebar stake or similar
- Inspection and evaluation report of all pad areas

Ongoing tasks completed and in progress since Friday, September 7, 2024, 7PM meeting

- Begin review/revision of SDAA Private Pad related documents (Lease, Pad Site Development & Regulation, TDS Rules, and Pad Offering Letter.
- Work alongside newly formed Private Observatory Committee to harmonize language where feasible.
- Employ terms and language as advised by legal consultation
- Mark Smith to load all pertinent docs into the BoD Google Workspace and will attempt to make all or most editable by Tuesday, 9/10/24.
- Addressed long term loss of power to private pads and club obligations to provide such per lease agreement.
- Discussed purchasing a fleet of power banks for members to sign-out when at TDS, however obstacles such as proper storage (lease restrictions at current storage unit, need for temp control/security at TDS, to prevent hazards such as thermal run-away, as well as needing to establish admin control for sign-outs and ensuring units are maintained were too much to overcome.
- The agreed upon solution is to refund private pad lessees one full year rate at \$70. Lessees who have been operating their observatories apart from the grid are exempt from this refund. Mark Smith believes the number of exempt pads is five or six but will confirm.
- Once refund is complete, members must supply their own method of powering their equipment which does not include running power strips, or extension cords from any powered receptacle at TDS. This practice, along with all others that pose a fire hazard to TDS, will be prohibited.
- All polices are currently under review and revision via Google Workspace by committee members. Goal is to work alongside Private Observatory to finalize.

## **Board Action**

1. Refund eligible private pad lessees \$70.

e. Program Meetings Report:

SDAA Monthly Programs Report for October 2024 Pagarigan/Searcy/Dorothy Wood

### Tasks Completed

- The October program speaker will feature Andrew Boden, Topic - Astronomical Interferometry
- The 2024 program meeting closes out with the annual member gadget-night which is held in-person as well as virtually. SDAA members are invited to take the floor to share their favorite new toy/tool/idea, etc. on November 20, 2024.
- One quote is work in progress for the November 20, 2024 venue. Green Acres is conveniently located in the UTC area (off I5 and Genesee) with plenty of parking. Restaurant staff will set up



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the conference room, provide snack/drink options, and run all the AV and streaming services. All attendees must RSVP two weeks before the event. Green Acre will apply numerous discounts to include SDAA's non-profit status. If we choose to establish a relationship with GA they will also permit smaller SDAA outreach gatherings during happy hour at the regular restaurant and bar such as "Two Astronomers Walk Into a Bar", and similar.

## Board Action

1. Set budget for November in-person meeting at Green Acres, in UTC. Bid for 30 people is \$5,000, which seemed a bit too high to several board members. Bee is going to see if she can negotiate a better price.
  
- f. AISIG Report:  
No meeting in September due to conflicts in scheduling.  
The next AISIG meeting is scheduled for 10-23
  
- g. Newsletter Report:  
Nothing new to report this month, but as always Andrea is doing a great job.
  
- h. Website Report:  
Webmaster report: updated the contacts page with the new director. Removed the countdown timer for the Articles of Incorporation/Bylaws vote after it was completed.

Please send me information on upcoming programs and speakers as soon as they are available. I took the October meeting information from the newsletter, but could use a better picture of the speaker.

- i. Social Media:

SDAA Social Media Committee Charter Members – Francisco Contreras, Prascilla Morquecho, Pagarigan, Flynn

SDAA Social Media Committee Charter – WIP, overall goal is to increase SDAA club exposure to draw interest and increase membership

## Tasks Completed

- Many new members approved weekly for access to the SDAA Private FB Group
- Business plan is work in progress for new podcast/vodcast to be hosted by Pagarigan/Morquecho. Overall goal is to modernize method to inform new and existing members about club assets (TDS, Telescope Loaner Program, Outreach Events, etc.), introduce Astronomy 101 topics featuring in-house experts, and feature veteran club members in mini-interviews. Content ideas will be dynamic/spontaneous.



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j. Outreach Report:

We started September with a 'Constellation Talk' by Dennis Ammann, at the Canyon Oak Trail 'Observatory', William Heise County Park on September 1st. This 'observatory' consists of two large benches with backrests at 45-degree angles in an open area for stargazing. He brought his small 90mm refractor and started his talk at 20:00 hours. Unfortunately, this was Labor Day Weekend, so there were about 75 people who showed up initially, far too many for this small area. Some of them left, but many stayed, with most coming and going throughout the night. Finally, at 22:00 hours, the last few people left, and Dennis headed back to his campsite. Dennis showed the campers how to find Andromeda Galaxy (M31), the farthest object the human eye can see and told them how it will collide with the Milky Way in 3 billion years. Besides pointing out all the constellations, he showed them: M15, M31, Owl Star Cluster, Mizar/Alcor star system, and double star Albireo through his small telescope. On September 4th, Stars-in-the-Park was shut down at about 20:00 hours from the dreaded coastal marine layer moving in. Kumeyaay Lake Campground suffered the same fate on September 6th, but being inland, shut the sky down at 21:00 hours. Both events had average turn-outs for their events. **TDS Public night?** Oakoasis County Preserve was cancelled on September 14th because of cloudy skies and the same for Sycamore Canyon West on September 20th. K.Q. Ranch didn't suffer this fate because it is 4,500' above sea level. Many campers turned out to see the dark sky and say good-bye to the Milky Way for 2024.

Here are the numbers for September:

| 2024                    | Previous Total | September  | YTD         |
|-------------------------|----------------|------------|-------------|
| <b>Completed</b>        | <b>51</b>      | <b>6</b>   | <b>57</b>   |
| <b>Canceled</b>         | <b>25</b>      | <b>2</b>   | <b>27</b>   |
| <b>Total Attendance</b> | <b>4767</b>    | <b>430</b> | <b>5197</b> |

k. TARO Report:

TARO is operational but scheduled observations have been limited by consistently high temperature levels during the evening. One software issue has been discovered that causes a hard crash of the control software when an observation has been aborted. This issue is being investigated by the software developer.

11 projects are currently scheduled. Three projects are active while the remainder are pending due to horizon constraints. 1 project was completed, and 2 new member imaging requests have been created. Two additional members have requested TARO archive access, bringing the total to 77.

l. Cruzen Report:

Cruzen was reserved zero times in September. The facility remains in working order as far as I am aware.



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There has been some discussion regarding equipment updates for Cruzen. With the recent donation of an 8" Zerochromat folded refractor, as well as the existence of a beefy and unused CGX mount, it seems like the best course of action to remove the TOA130 and Losmandy G11 from Cruzen and replace that pier with the Celestron CGX with the Zerochromat mounted on top. The Zerochromat will be a superior visual instrument compared to the TOA130, as it collects more light. Its extremely slow focal ratio (around f/18 I think) is fine for visual but unusable for astrophotography. Meanwhile, the TOA130 is an imaging beast, but can't be used to its full potential in Cruzen where we don't allow astrophotography. The TOA130+G11 can be put into storage in preparation for a motivated SDAA member to build out a Cruzen-like astrophotography facility (maybe Pad 70?). Regardless of where the TOA130 lands, I feel that the Zerochromat belongs in Cruzen as its permanent home.

The next round of Cruzen training is still pending. I've just been swamped with work and other stuff and just haven't had time to plan another training session.

The Cruzen Director (Paul Krizak) is seeking to transfer management of Cruzen to another member. Interested members should reach out to the club leadership. A current Cruzen certified member with experience using the facility would be ideal. The Board has begun their search and is actively seeking volunteers.

m. Merchandise Report:

Nothing new.

n. Astronomical League Report:

Mark Smith reported that he doesn't have access to the ALCOR e-mail yet so he doesn't know if anything is going on there, but we've started regular ALCOR articles to the newsletter and our dues are paid up.

o. JSF Report:

The JSF committee is working on a Mission Statement for JSF and will present it to the Board for approval.

p. Grid: Discussion, Options, Mitigation:

Committee Members:

Pat Boyce

John Downing

Allen Ruckle

Ed Rumsey

David Wood





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During the past 30 days, the grid evaluation committee met four times. An in-depth review and evaluation was performed on a single proposal during each of the first three meetings. For each proposal, evaluation criteria consisted of noting adherence in responding to specific sections of the current RFP, the narrative depth of each proposal, and specifics relating to clarifications and exclusions. During the fourth and final meeting, a form was created that listed the strengths and weaknesses of each proposal as well as listing the committee's recommendations for the board's selection of a contractor.

After much discussion, Mike Chasin made a motion to accept the bid from Neal Electric. Several Board members said they'd like to review the actual proposals from each vendor (Neal, Baker and SNS) before voting. Dave Wood agreed to send the actual proposals to the Board members for review. Mike agreed to table the motion until the next meeting to allow everyone to review the proposals.

q. 2024 BoD Election Nomination Committee, October 2024 Pagarigan

**Nominating Committee Candidates**

- Bee Pagarigan (Chair – appointed by Dave Decker, to be elected by BoD)
- Mark Smith – elected by membership via ElectionBuddy
- Dorothy Wood – elected by membership via ElectionBuddy

**Tasks to be completed**

1. Committee recommends instructing membership to send candidacy details via email to SDAA VP by deadline to be decided by board. There will also be an announcement at the program meeting next week.
2. Confirm open positions – Director x4, President, and Recording Secretary

**SDAA Bylaws**

**Article 6**

**Section 3 – Nominating Committee**

1. Nominating Committee; Nominations.
  - a. There shall be a Nominating Committee, which shall be an Advisory Committee consisting of three members, one of which shall be elected by the Board of Directors from among the directors, and two elected by the membership at the regular meeting in October who may be either directors or non-directors.
  - b. The President shall appoint the Chair of the Nominating Committee from among the three elected members.





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c. The purpose of the Nominating Committee is to solicit and accept nominations for open director and officer positions in advance of the annual meeting at which such positions are elected.

d. The Nominating Committee shall solicit nominees for each office to be filled and report at the membership meeting preceding the annual meeting at which directors and officers are elected. Following the report of the Nominating Committee, an opportunity shall be given for final nominations from the floor for open positions.

e. Only individuals who have consented to serve, if elected, shall be eligible for nomination either by the Nominating Committee or from the floor.

Bee wondered if we should send out an email soliciting members who would be interested in serving on the Board. We could give them the option to submit a statement if they choose to run. Should we have a deadline to shut down the application process. No decision was made and the nominating committee will review this further.

## 5. Old Business:

- a. Cruzen Director Status – Still looking for a replacement for Paul Krizak Decker
- b. Mike reported that we are looking at 4 different venues for the 2025 banquet Chasin  
and he and Bee are working on a guest speaker as well.

## 6. New Business:

- a. None Decker

7. **Adjournment:** The meeting was adjourned at 9:23pm.

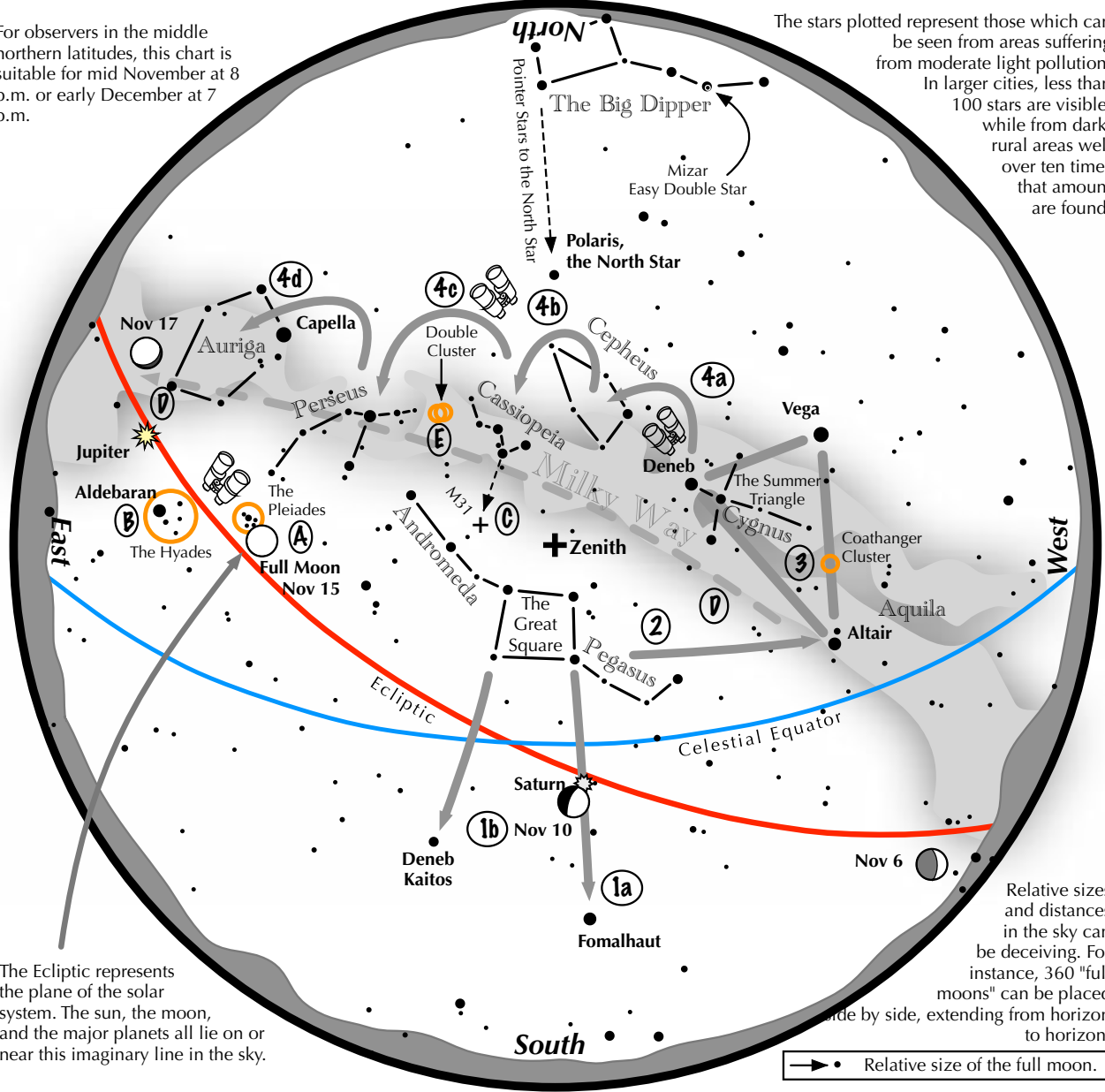


# San Diego Astronomy Association

## Navigating the November Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid November at 8 p.m. or early December at 7 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 November night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead lies the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend a line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brightest star in the south.
- 2 Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the Summer Triangle. Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, then to Perseus, and finally to Auriga with its bright star Capella.

### Binocular Highlights

**A and B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E:** The Double Cluster.



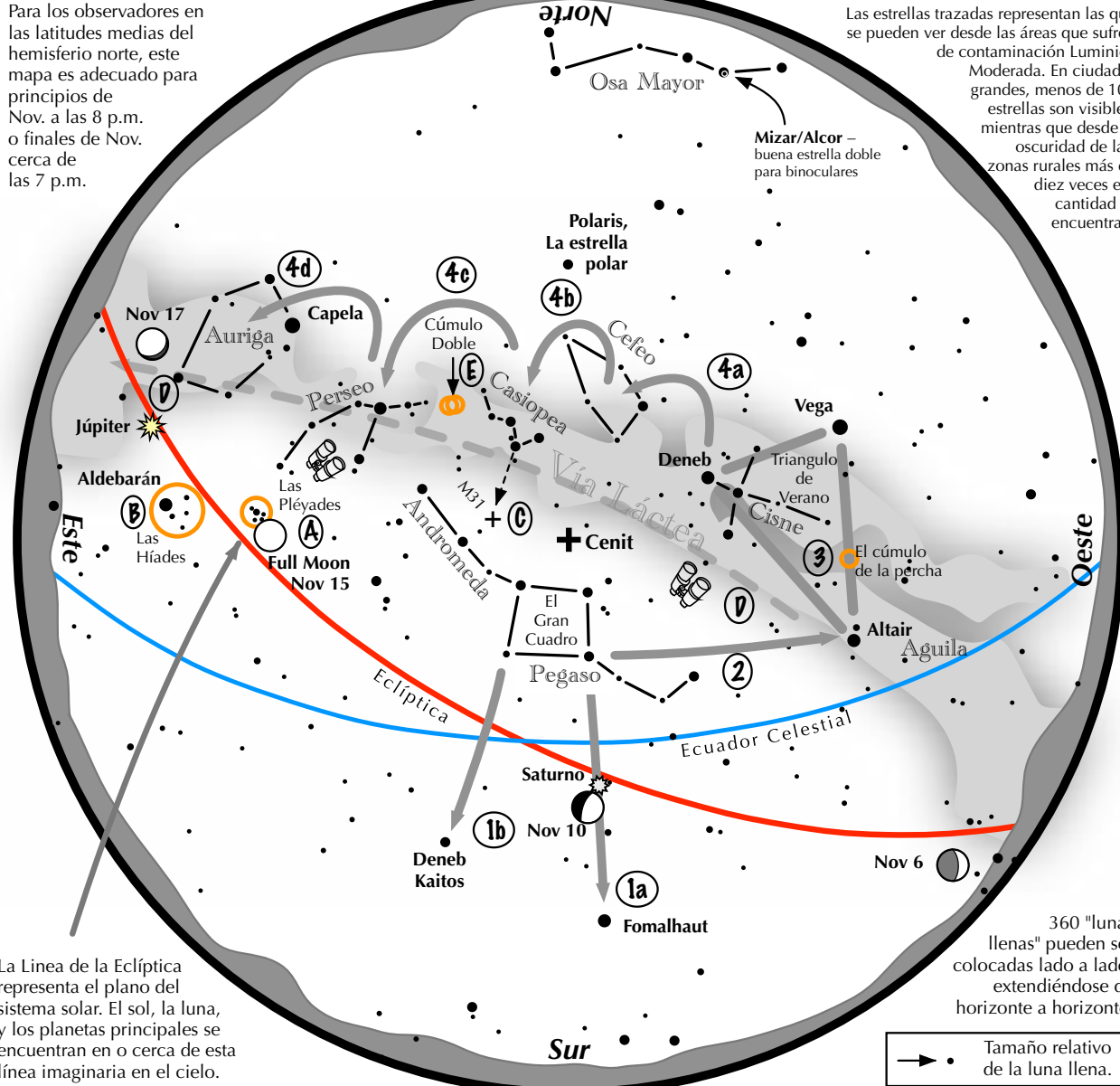


# San Diego Astronomy Association

## Navegando por el cielo nocturno de Noviembre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Nov. a las 8 p.m. o finales de Nov. cerca de las 7 p.m.

Las estrellas trazadas representan las que se pueden ver desde las áreas que sufren de contaminación Luminica 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.

→ • Tamaño relativo de la luna llena.

360 "lunas llenas" pueden ser colocadas lado a lado, extendiéndose de horizonte a horizonte.

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

- Hacia el sur. Casi arriba está el "Gran Cuadro" con cuatro estrellas con el mismo brillo que las de la Osa Mayor. Extiende una línea imaginaria hacia el sur siguiendo las dos estrellas más occidentales del Gran Cuadro. La línea lleva a Fomalhaut, la estrella más brillante del sur. Una línea que se extiende hacia el sur desde las dos estrellas más orientales, lleva a Deneb Kaitos, la segunda estrella más brillante del sur.
- Dibuja otra línea, esta vez hacia el oeste siguiendo el borde sur del Gran Cuadro. Lleva a la estrella Altair.
- Ubique a Vega y Deneb, las otras dos estrellas del "Triángulo de verano." Vega es su miembro más brillante, mientras que Deneb se localiza en el medio de la Vía Láctea.
- Salta a lo largo de la Vía Láctea desde Deneb hasta Cefeo, que se asemeja al contorno de una casa. Continúa saltando a la "W" de Casiopea, a Perseo y finalmente a Auriga con su brillante estrella Capela.

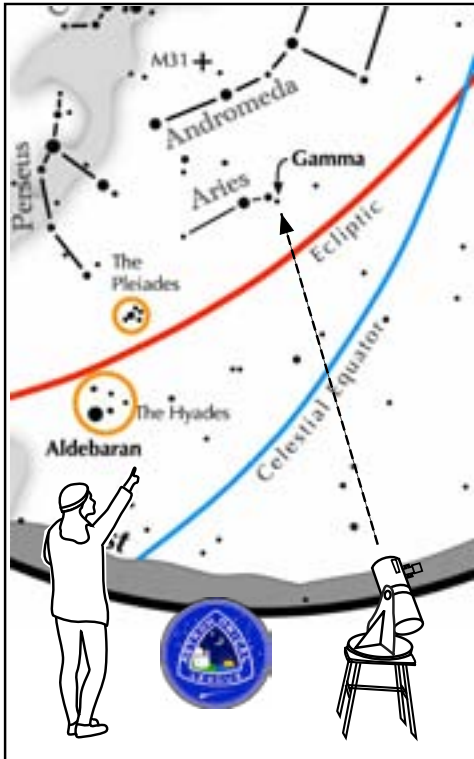
**Destacan con Binoculares. A y B:** examina las estrellas de las Pléyades y las Híades, dos cúmulos de estrellas a simple vista. **C:** Las tres estrellas más occidentales de la "W" de Casiopea apuntan hacia el sur hasta M31, la Galaxia de Andrómeda, un óvalo "borroso." **D:** Barrer a lo largo de la Vía Láctea desde Altair, pasar Deneb, a través de Cefeo, Casiopea y Perseo, y luego a Auriga por muchos intrigantes cúmulos de estrellas y áreas nebulosas. **E:** Cúmulo Doble de Perseo.





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## ASTRONOMICAL LEAGUE Double Star Activity



### Other Suns: Gamma Arietis

#### How to find Gamma Arietis on a November evening

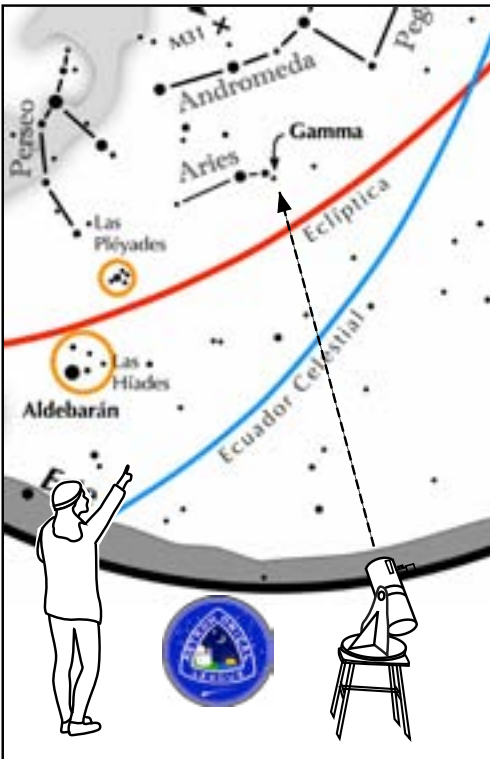
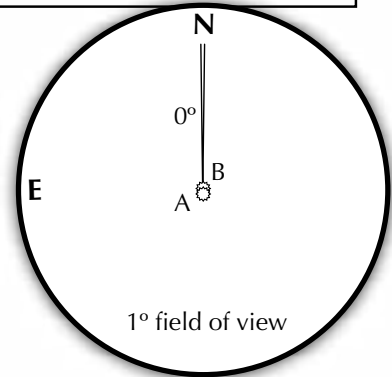
Face east. Locate the Pleiades. Aries lies to its upper right about the same distance that it is from the Hyades. Gamma is a dim star at the end of the string of stars that form Aries.

Suggested magnification: >50x  
Suggested aperture: >2 inches

#### Gamma Arietis

A-B separation: 7.5 sec  
A magnitude: 4.5  
B magnitude: 4.6  
Position Angle: 0°  
A & B colors:  
white, white

Also known as the  
"Ram's Eyes."



### Otros Soles: Gamma Arietis

#### Cómo encontrar Gamma Arietis en una tarde de Noviembre

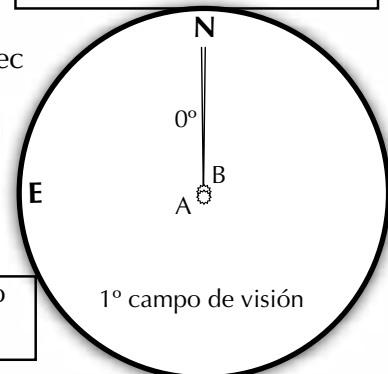
Mire hacia el este. Localiza las Pléyades. Aries se encuentra en la parte superior derecha aproximadamente a la misma distancia que de las Híades. Gamma es una estrella tenue al final de la cadena de estrellas que forman Aries.

Ampliación sugerida: >50x,  
Apertura sugerida: >50 mm

#### Gamma Arietis

A-B separación: 7.5 sec  
A magnitud: 4.5  
B magnitud: 4.6  
PA: 0°  
A & B color:  
blanca, blanca

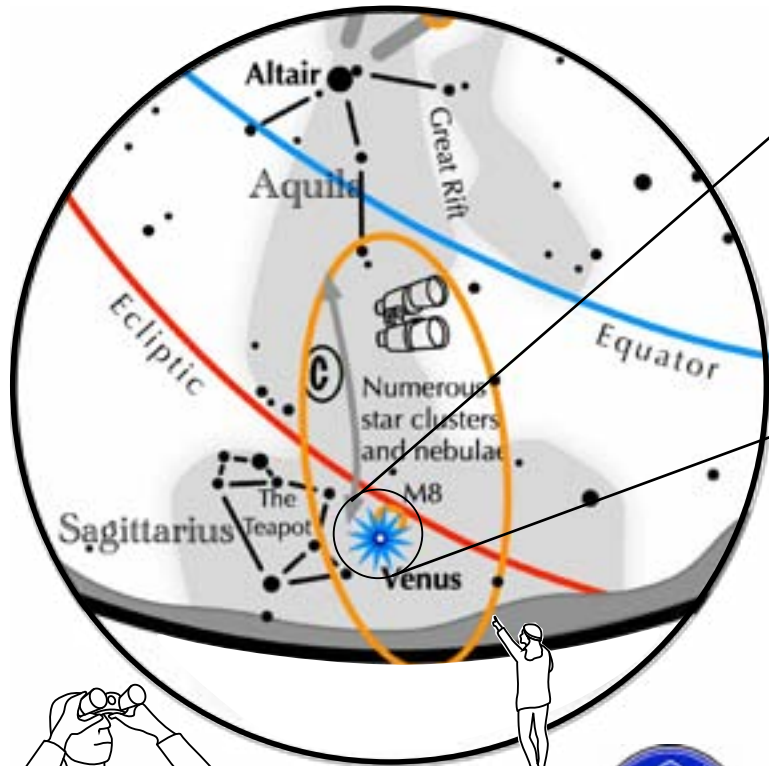
También conocido como  
"Ojos de Carnero".



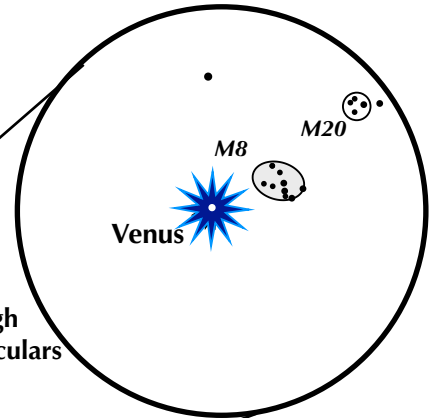


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If you can observe only one evening celestial event this month, consider this one:



View through 10x50 binoculars

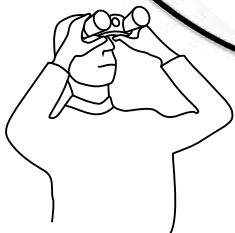


## Venus reveals celestial treasures

Look to the south-southwest 75-90 minutes after sunset.

- On November 11 & 12, look for Venus low in the south-southwest. It will be the brightest object in the area.
- Use binoculars to view Venus. To its immediate upper right, subtly glows a nebulous star cluster, M8, nicknamed "the Lagoon Nebula" (4100 L-Y distant).
- To the upper right of M8 dimly glows another star forming nebula and cluster, M20, called "the Trifid Nebula" (5200 L-Y distant).

South-southwest  
75 minutes after sunset  
on Nov. 11 & 12.





# Astronomical League

on Facebook ...

Monthly sky maps,  
Observing activities,  
AL LIVE sessions,  
League news & a whole lot more!



## AL YouTube Channel

Observing Program Previews: What a program requires of the Observer.

Our View from Earth: How to find interesting celestial objects in three minutes. Perfect for club viewing.





# San Diego Astronomy Association

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## *Astronomical League Notes*

By Mark Smith

I have been introducing you to Astronomical League materials and Observing Programs. This month I'd like to introduce a trio of observing programs that require a bit of planning.

The Astronomical League offers two Observing Programs revolving around specific planets: Mars and Jupiter. Both of these programs are quite involved and require planning and documentation over a period of time. The Mars program is best done around opposition as there are detailed observations of various Martian features including the Ice Caps. The Jupiter program, although it requires more observations, is actually a bit easier largely because the detailed timing charts of the phenomena required to be observed are readily available, so it is fairly straight forward to complete the program. Both programs involve a deep dive into their respective targets, and you will learn a great deal about each planet by pursuing its program.

The third Program I'd like to introduce is the Comet Observing Program. In this program, you will observe and document at least 12 comets. The documentation involves both a written description of the observed comet as well as either a sketch or photograph (remote and smart telescope photographs are acceptable). Two separate observations of each comet are required to document changes in the comet and movement against the background stars. There are two levels to this program. You will get your pin at the Silver Level (12 comets) and will be recognized again at the Gold Level (30 total comets).

There is no time limit for the Observing Programs. You can start them, work on them for a while, and then come back to them months or even years later. The goal is to get you out under the stars, looking at different kinds of objects, and learning about the cosmos.

If you are interested in what you've read, I invite you to explore what the Astronomical League has to offer and use it to help guide or enrich your astronomy. You may even decide to join the next time you renew your SDAA membership. If you have any questions about the Astronomical League, please don't hesitate to contact me at [ALCOR@SDAA.org](mailto:ALCOR@SDAA.org).





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## *Cruzen Training from April 2024*

Paul Krizak demonstrating the scope. His face is obscured by the counterweight. The session was informative and provided the attendees a clear understanding of the use of both scopes.





# San Diego Astronomy Association

## SDAA Contacts

### Club Officers and Directors

|                         |                |  |                |
|-------------------------|----------------|--|----------------|
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since April 2011

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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?

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

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## November's Night Sky Notes: Snowballs from Space

By Kat Troche

If you spotted comet C/2023 A3 (Tsuchinshan-ATLAS) in person, or seen photos online this October, you might have been inspired to learn more about these visitors from the outer Solar System. Get ready for the next comet and find out how comets are connected to some of our favorite annual astronomy events.

### Comet Composition

A comet is defined as an icy body that is small in size and can develop a 'tail' of gas as it approaches the Sun from the outer Solar System. The key traits of a comet are its **nucleus**, **coma**, and **tail**.

The **nucleus** of the comet is comprised of ice, gas, dust, and rock. This central structure can be up to 80 miles wide in some instances, as [recorded by the Hubble Space Telescope in 2022](#) – large for a comet but too small to see with a telescope. As the comet reaches the inner Solar System, the ice from the nucleus starts to vaporize, converting into gas. The gas cloud that forms around the comet as it approaches the Sun is called the **coma**. This helps give the comet its glow. But beware: much like Icarus, sometimes these bodies don't survive their journey around the Sun and can fall apart the closer it gets.

The most prominent feature is the **tail** of the comet. Under moderately dark skies, the brightest comets show a dust tail, pointed away from the Sun. When photographing comets, you can sometimes resolve the *second* tail, made of ionized gases that have been electronically charged by solar radiation. These ion tails can appear bluish, in comparison to the white color of the dust tail. The ion tail is also always pointed away from the Sun. In 2007, NASA's STEREO mission [captured images of C/2006 P1 McNaught and its dust tail](#), stretching over 100 million miles. Studies of those images revealed that solar wind influenced both the ion and dust tail, creating striations – bands – giving both tails a feather appearance in the night sky.



Comet McNaught over the Pacific Ocean. Image taken from Paranal Observatory in January 2007. Credits: ESO/Sebastian Deiries

## Coming and Going

Comets appear from beyond Uranus, in the Kuiper Belt, and may even come from as far as the Oort Cloud. These visitors can be **short-period** comets like Halley's Comet, returning every 76 years. This may seem long to us, but **long-period** comets like Comet Hale-Bopp, observed from 1996-1997 won't return to the inner Solar System until the year 4385. Other types include **non-periodic** comets like NEOWISE, which only pass through our Solar System once.

But our experiences of these comets are not limited to the occasional fluffy snowball. As comets orbit the Sun, they can leave a trail of rocky debris in its orbital path. When Earth finds itself passing through one of these debris fields, we experience meteor showers! The most well-known of these is the Perseid meteor shower, caused by Comet 109P/Swift-Tuttle. While this meteor shower happens every August in the northern hemisphere, we won't see Comet Swift-Tuttle again until the year 2126.



# San Diego Astronomy Association

NASA Night Sky Notes

November 2024



A view of the 2023 Perseid meteor shower from the southernmost part of Sequoia National Forest, near Piute Peak. Debris from comet Swift-Tuttle creates the Perseids. Credit: NASA/Preston Dyches

See how many comets (and asteroids!) have been discovered on [NASA's Comets page](#), learn how you can [cook up a comet](#), and check out our mid-month article where we'll provide tips on how to take astrophotos with your smartphone!

## *Nightfall Star Party & Imaging Conference*

November 1 – 3, 2024  
Palm Canyon Hotel & RV Resort  
221 Palm Canyon Dr.  
Borrego Springs, CA 92004  
<https://nightfallstarparty.com/general-information/>





# San Diego Astronomy Association

## 2024 TDS Star Party Schedule

| Date      | Type   | Sunset  | Astro. Twi. | Moonrise(set) | Closing  | Illumination |
|-----------|--------|---------|-------------|---------------|----------|--------------|
| Jan-06-24 | Public | 4:57 PM | 6:24 PM     | 3:07 AM       | 9:30 PM  | 26.5%        |
| Jan-13-24 | Member | 5:03 PM | 6:30 PM     | (7:50 PM)     | 9:30 PM  | 8.5%         |
| Feb-03-24 | Public | 5:22 PM | 6:47 PM     | 1:55 AM       | 9:30 PM  | 44.0%        |
| Feb-10-24 | Member | 5:29 PM | 6:52 PM     | (6:39 PM)     | 9:30 PM  | 1.4%         |
| Mar-02-24 | Public | 5:47 PM | 7:09 PM     | 12:46 AM      | 10:00 PM | 61.4%        |
| Mar-09-24 | Member | 5:52 PM | 7:14 PM     | 5:52 AM       | 10:00 PM | 0.6%         |
| Apr-06-24 | Member | 7:12 PM | 8:37 PM     | 5:20 AM       | 11:00 PM | 6.0%         |
| Apr-27-24 | Public | 7:27 PM | 8:57 PM     | 11:36 PM      | 11:00 PM | 88.3%        |
| May-04-24 | Member | 7:33 PM | 9:04 PM     | 4:20 AM       | 11:30 PM | 16.0%        |
| May-11-24 | Public | 7:38 PM | 9:12 PM     | (11:53 PM)    | 11:30 PM | 17.7%        |
| Jun-01-24 | Public | 7:51 PM | 9:31 PM     | 2:50 AM       | 11:30 PM | 28.5%        |
| Jun-08-24 | Member | 7:55 PM | 9:36 PM     | (10:31 PM)    | 11:30 PM | 6.8%         |
| Jul-06-24 | Member | 7:59 PM | 9:40 PM     | (9:07 PM)     | 11:30 PM | 1.1%         |
| Jul-27-24 | Public | 7:50 PM | 9:24 PM     | 11:58 PM      | 11:30 PM | 56.6%        |
| Aug-03-24 | Member | 7:44 PM | 9:17 PM     | (7:44 PM)     | 11:30 PM | 0.6%         |
| Aug-31-24 | Public | 7:13 PM | 8:38 PM     | 4:59 AM       | 11:00 PM | 5.2%         |
| Sep-07-24 | Public | 7:04 PM | 8:28 PM     | (9:20 PM)     | 11:00 PM | 20.0%        |
| Sep-28-24 | Member | 6:36 PM | 7:58 PM     | 3:52 AM       | 10:30 PM | 14.5%        |
| Oct-05-24 | Member | 6:27 PM | 7:48 PM     | (7:54 PM)     | 10:30 PM | 8.6%         |
| Oct-26-24 | Public | 6:02 PM | 7:25 PM     | 2:42 AM       | 10:30 PM | 28.1%        |
| Nov-02-24 | Public | 5:56 PM | 7:19 PM     | (6:30 PM)     | 10:00 PM | 1.7%         |
| Nov-30-24 | Member | 4:42 PM | 6:09 PM     | 7:11 AM       | 9:30 PM  | 0.4%         |
| Dec-21-24 | Public | 4:47 PM | 6:15 PM     | 11:15 PM      | 9:30 PM  | 63.2%        |
| Dec-28-24 | Member | 4:51 PM | 6:19 PM     | 6:00 AM       | 9:30 PM  | 5.2%         |

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