

# San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



December 2024

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

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

### Next SDAA Business Meeting

December 12th at 7:00pm

Via Zoom

### Next Program Meeting

January 11th

Hyatt Regency Mission Bay Spa &  
Marina  
1441 Quivira Rd, San Diego



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## *Annual Banquet January 11th 2025*

2025 SDAA BANQUET REGISTRATION

Click [HERE](#) to register

### Newsletter Deadline

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

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



We're excited to announce that the annual SDAA banquet will be held at the Hyatt Regency Mission Bay Spa and Marina, 1441 Quivira Rd, on January 11, 2025. This year the Board opted to reduce ticket prices to only \$65 per person!

The evening begins with a no-host cocktail hour from 5:00 to 6:00 pm, which will be the perfect opportunity to renew old friendships and make new ones. It's also a great time to look at auction items and buy raffle tickets!

Our dinner and program meeting will be from 6:00 to 7:00, followed by our guest speaker, world renowned astroimager Adam Block. Adam has won over 100 NASA APOD awards. His presentation is titled "Ancient Echoes of a Forgotten Sky". This will give us a view of the night sky through the eyes of one of the best astroimagers on Earth! This will NOT be a class on PixInsight, Photoshop, or how to autoguide!

We will continue to post information about our sweepstakes and auction items, so stay tuned! If you'd like to make a tax-deductible donation to help us with our mission, please click here: [Donate Now](#)

More details on how to donate items for the auction will be provided soon.

For those wanting to turn this event into a staycation, discounted room rates are available for \$179.

Free street parking is available. Paid valet or self parking in the resort lot is also an option.

Want to volunteer at the Banquet? Have other questions? Please email Mike Chasin at [treasurer@sdaa.org](mailto:treasurer@sdaa.org).

We have a lot more to do and your participation and generosity is key to our success! If for some reason you can't attend, please consider making a donation to keep SDAA moving forward! Tickets will not be refundable after January 4, 2025.

Wishing you clear skies,

Your SDAA Board of Directors



# San Diego Astronomy Association

## *San Diego Astronomy Association Board of Directors Meeting* *November 12, 2024* – Unapproved and subject to revision

### 1. Call to Order

The meeting was held via Zoom and was called to order at 7:03pm with the following board members in attendance: Dave Decker, President; Bee Pagarigan, Vice President; Mike Chasin, Treasurer; Gene Burch, Recording Secretary; David Wood, Corresponding Secretary; Gracie Schutze, Director, Kin Searcy, Director; and members Prascilla Morquecho, Paul Laikind, Woody Schlom, Jennifer Koles, Ross Salinger, Nathan Erb, Hiro Hakozaki, Brian McFarland, Sonny Adams, Tom Kennedy and Khushrow Machhi.

### 2. Approval of Last Meeting Minutes

The October meeting minutes were approved.

### 3. Treasurers & Membership Report

The Treasurer's report was approved. Mike reported that we made a net profit of \$3,172 from JSF and we paid \$2,458 to Green Acre as a deposit for the November program meeting. Mike also said that the SDAA 2023 Fed and State taxes were filed, the DOJ raffle application has been completed and the County property taxes were paid for TDS. We have maintained our tax-exempt status.

The SDAA Foundation received another deposit from the Chalmers donation, and the SDAA Foundation now has about \$13.2 million dollars. We are still expecting about \$7 million more, but won't receive that until the Chalmers estate is completely settled, probably sometime in 2026.

We are running a deficit in the current budget, but that is to be expected, even though dues and interest income are higher than 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. UCSD Astronomy Club attended the October 26<sup>th</sup> Public Star Party. Cruzen, TARO, Lipp, and 8" D&G, were all set up. A good number of members set up on the public pads and shared views or imaging techniques also. 23 of our private pad holders shared their sites as safe camping locations for the students. The visitors were polite, attentive, brilliant, engaged, and a delight to share the night with. Thank you again to all that supported.



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c. Loaner Scope Report:

20 loaner items are currently out. 4 loaner items were returned in October; 8 were checked out.

One new item has entered the fleet:

Donated Coronado PST - replaces the PST with damaged coatings in SDAA#034. The old PST has been retained for parts.

SDAA#027 (intermediate astrophotography kit) has been reworked such that it is now just the Celestron CG-5 AS-GT mount. The associated OTA has proven to be sufficiently troublesome for lessees to use for the purposes of astrophotography. The Celestron NexYZ cell phone adapter that was acquired for SDAA#027 has been reassigned as SDAA#053 and now may be loaned out separately.

On October 5, all remaining loaner equipment and associated spare parts were retrieved from TDS and now reside in the Miramar storage facility.

Storage Facility:

I 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.

All is well; no updates this month.

d. Private Pad Report:

1 returned pad since last time so we now have 8 unleased pads and 8 people on the waiting list. Right now, a lot of people seem to be waiting on the electrical issues to be resolved until committing to a pad.

SDAA Private Pad Policy Review Committee Report -

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.
- 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



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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 the 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 policies are currently under review and revision via Google Workspace by committee members. Goal is to work alongside Private Observatory to finalize.
- We're open to including Private Observatory owners in the process.

## Board Action

1. Refund eligible private pad lessees \$70 upon request. As of now nobody has requested a refund.

e. Program Meetings Report:

### Tasks Completed

- The October program speaker featured Andrew Boden, Topic - Astronomical Interferometry – talk was very well received and attended. Considering having Andy return for the March 2025 in-person meeting. Suggested Venue: Natural History Museum.
- The 2024 program meeting closes out with the annual member gadget-night which will be held both in-person and virtually. SDAA members are invited to take the floor to share their favorite new toy/tool/idea, etc. on November 20, 2024. The candidates running for open board seats for



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be announced from the floor. The tentative agenda for the meeting is a Board Action Item on the Nominations Committee Report.

- The initial quote for reserving the Green Acre Treehouse Foyer/Salon A was 5.9K which was not approved. The Board decided 5K would be acceptable. The quote was negotiated for the final cost of \$4916.63. A deposit was made to secure the venue. Green Acre is conveniently located in the UTC area (off I5 and Genesee) with plenty of parking. Restaurant staff will set up the conference room, provide snack/drink options, and run all the AV and streaming services. All attendees must RSVP one week before the event. Green Acre applied numerous discounts to include SDAA's non-profit status. If we choose to establish an ongoing relationship with Green Acre 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. Green Acre/Treehouse Foyer was selected because it sits within renowned Alexandria Real Estate Equities, mega clusters of dense, life science and high-tech businesses, constantly growing, with great outreach potential for SDAA. It also fit in nicely with the heat map of member zip codes produced for our Big Reveal Event to identify a central location to achieve greatest club member participation. Alexandria is currently building a new 427,000 sq ft laboratory science building and adding to the already rich amenities available to include event venues that will accommodate 800 attendees. Project is slated for completion in 2026.
- We also hope to attract curious Green Acre Happy Hour customers dropping by to check out our gadgets and by extension, our club.

## Completed Tasks

1. Budget for November in-person meeting at Green Acre Venue (Alexandria properties), in UTC was set for 5K.
2. Contract parameters set by board met and signed, venue secured.
3. Wild Apricot email and registration completed and sent to membership.
4. Discuss agenda for 11/20/24 meeting to ensure ample time for BOD Election updates and opportunity for members to deliver nominations from the floor.
5. Announce Election Buddy voting process.

## Board Action

- Discuss agenda for 11/20/24 meeting to ensure ample time for BOD Election updates and opportunity for members to deliver nominations from the floor.
- Announce Election Buddy voting process.
- Discuss forming *Program Location Vetting Team/Committee* in 2025.

We are looking at having more in-person meetings, and some have some suggestions for Program Meeting venues by members:

1. Natural History Museum – John Downing is the contact (We've done this before)



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2. Brian McFarland provided pricing from a Mission Valley venue – options vary, price range is 2.5K to \$3350

f. AISIG Report:

For our last meeting of the year, SDAA member Gary Hawkins presented a very well received overview of the processes and equipment needed to capture Flare Star data, in addition, Gary presented overview of his remote observatory operations that included an “under the hood” view of the software he’s used to enable nightly automated operation.

Our next scheduled AISIG meeting will be held in February. Until then, I’ll be soliciting AISIG members for meeting subject ideas.

g. Newsletter Report:

Nothing new to report this month, but as always Andrea is doing a great job.

h. Website Report:

Replaced the old Bylaws and Articles of Incorporation with the new ones on the Website. Posted the basic information about the November meeting on the Website.

i. Social Media:

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

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

Work in Progress (Board Review)

1. Google.io groups “Group Rules” requirement similar to Facebook Rules agreement
2. Pre-screen repeat violators’ submissions

Tasks Completed

- Many new members approved weekly for access to the SDAA Private FB Group
- Added instructions to use SDAA club name when applying for access

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.

Jennifer Koles offered to help. Dave Decker said we need to have a way to track our Social Media/Virtual assets, network security and password access.



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j. Outreach Report:

Dave Decker reported that Dennis Ammann is doing an outstanding job as the Outreach coordinator and his efforts are greatly appreciated by the club as well as the general public – Thanks Dennis!!!

On October 1st, Dennis was invited to speak to the Astronomy Club at Oak Valley Middle School during their lunch break about the three most popular telescopes and how they work: Reflector, Refractor, and SCT. Saturn was the most popular object to see at Balboa Park's Stars-in-the-Park the first Wednesday and also Kumeyaay Lake Campground the following Friday. There was a conflict with SDAA's annual BBQ at TDS, the same night as Mt. Helix stargazing that was planned almost six months in advance. Nevertheless, both events were successes with club members turning out and the weather cooperating. During the middle of the month, Dr. Andrew Boden, PhD, Caltech Deputy Director for Caltech Optical Observatories spoke about Interferometry during the monthly SDAA Program Zoom Meeting. Two events were cancelled because of foul weather: Arroyo Vista Charter School's Science Night and the annual Cabrillo National Monument's Stargazing for the Volunteers. A few days later, our forces were split between Sycamore Canyon West and Mataguay Boy Scout Camp - Webelos Woods; both events were successfully completed with enough astronomers attending each event. The last SDAA event for October was at TDS; Public Night. There was no K.Q. Ranch Stargazing event because of their desire to have a Trick or Treat Halloween event for their children on October 26th which required every available light turned on, chasing the stars and SDAA astronomers away.

Here are the numbers for October:

2024	Previous Total	October	YTD
Completed	67	10	67
Cancelled	27	3	30
Total Attendance	5197	815	6012

k. TARO Report:

TARO is operational and accepting new projects.

2 new projects have been received bringing our current pending projects to 11

Scheduled Observation time - Approximately 200 hours.

Completed Projects - 4

New Projects - 1

Observatory automation crashes were finally identified as an incompatibility issue between two of the primary pieces of software. We obtained a prerelease version of ACP which seems to have addressed the issue. Since the software updates have been completed automated operations have been much more reliable.





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i. Cruzen Report:

Cruzen was reserved one time in October. The facility remains in working order as far as I am aware.

On October 5 at TDS, further research was performed into the use of the Zerochromat refractor riding on the CGX mount, as a viable replacement system for the Losmandy G11 + Takahashi TOA130. Despite numerous valiant attempts at field troubleshooting, we were never able to get the CGX mount to power up. A more detailed and careful troubleshooting session needs to be performed on a workbench instead of in the field.

Those at TDS on Oct 5 may have recalled that we had trouble mounting the Zerochromat to the CGX mount due to a lack of tube rings. It turns out that we \*do\* have the tube rings, they're in a box in the Miramar storage facility and I missed them when I brought the Zerochromat out to TDS. Next time I go to TDS I'll bring the tube rings and store them in the conex box along with the Zerochromat.

If a member wants to volunteer to work on getting the CGX mount working, it's sitting in the conex box on top of the Zerochromat case.

The next round of Cruzen training is still pending. I've continued to be 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 is doing a great job promoting AL to the club.

o. JSF Report:

Bill Cecil will be stepping down from JSF Coordinator as of Dec 31. We thank him for managing this huge annual project and giving us two very successful years of service. He will be available to share his experience and records with those who will tackle Julian StarFest, 2025. Thanks also to Dan and Sandy Kiser who served previously and have continued to assist in many ways.

Dave Decker said we need to decide what our vision is for JSF in the future.



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p. Grid: Discussion, Options, Mitigation:

There was a motion pending from last month's meeting to enter into a contract with Neal Electric to begin work on the North part of the electrical grid upgrade at TDS. The motion was approved and David Wood will contact Neal Electric to get the contract signed and the work scheduled.

We are still discussing the scope of the work that needs to be done on the South part of the site, including the private pad area. Once this is complete, we'll enter into negotiations to begin that phase of the project.

q. 2024 BoD Election Nomination Committee, November 2024 Pagarigan

Nominating Committee Candidates

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

Tasks completed

1. Committee recommends instructing membership to send candidacy statements via email to SDAA VP by deadline, 11/17/24.
2. Confirm open positions – Director x4, President, Treasurer, and Recording Secretary
3. Green Acre food order submitted by deadline, 11/6/24

Tasks to be completed

- Complete vetting process for candidate nomination statements received

President – Dave (Inc.)

Treasurer – Mike (Inc.)

Recording Secretary – None to date

Directors: Prascilla, Kin (Inc.), Gracie (Inc.), John Rains, Drew Koning, Sepi Gilani

- Confirm Dave Wood is in contact with Daniel from Alexandria for Zoom logistics
- \*\*\*Report total attendance to Daniel on 11/13/24\*\*\*
- Clarification on the “conflicting” statements about not needing an election if there is just one candidate, and the requirement to have a place for a write in candidate (which would imply that you need to have an election regardless).

Board Action – Approve agenda for 11/20/24 program

November 20, 2024 Program Meeting - Tentative Agenda

7pm - Members gather in the Treehouse Foyer to enjoy light snacks and beverages



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~7:15pm - Membership meeting begins in the adjacent conference room. Live stream via Zoom starts. BOD Candidates announced and Nominations from the floor (and Zoom) received.

~7:30pm - 8:45pm - Members take the floor to share their gadgets, concepts, stories, etc.

~8:45pm – 9pm - Gadgets packed up and meeting ends

If there are candidate nominations from the floor, the nomination committee will need 1-2 days to vet candidates. Election Buddy, our online voting app, goes live soon afterwards. Candidate statements can be uploaded to Election Buddy

## SDAA Bylaws

### Article 6; Section 3 - Nominating Committee

1. Nominating Committee; Nominations.
2. 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.
3. The President shall appoint the Chair of the Nominating Committee from among the three elected members.
4. 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.
5. 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.
6. Only individuals who have consented to serve, if elected, shall be eligible for nomination either by the Nominating Committee or from the floor.

President - Dave

Treasurer - Mike

Recording Secretary - None, ask Gracie or Kin

Directors:

Prascilla, Kin, Gracie, John Rains, Drew Koning, Sepi Gilani

Dave Decker asked whether we need to provide members with the opportunity to write-in candidates during the election. If so, how much time would be needed to vet the write-in candidates. Mike was able to confirm that Election-Buddy does have an option for write-in candidates.

## Gadget Night Participants

Currently seven members participating, total time 65 minutes



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## 5. Old Business:

- a. Cruzen Director Status – Still looking for a replacement for Paul Krizak Decker
- b. Mike reported that the 2025 SDAA Banquet will be held on January 11th at the Hyatt Mission Bay, and the ticket price will be \$65 per person. Chasin  
The price is heavily subsidized to allow more members to attend. The speaker will be Adam Block. More information will be coming soon.
- c. Bee said she has received 3 designs for a new logo and is hoping for 2 more. Bee  
She will need to get in touch with John Downing who has a contact for a graphic designer who can help with the final design.

## 6. New Business:

- a. Strategic Planning – Kin presented a draft proposal for a new strategic plan. The draft was well received and will be a work in progress. Searcy
- b. It was recommended that all club members should be aware of, and agree to uphold the club rules (e.g.; Ethics, Conflict of Interest, Whistle Blower, etc., as prepared by our attorney’s) when serving on club committees or representing the club in public. Decker  
This was voted on and unanimously approved by the Board. We now need to implement a plan to inform members.
- c. Bee said there have been inquiries from members about business cards, brochures, magnets, or something we can hand out to members, possibly with a QR code directing people to our website. Bee

## 7. Adjournment: The meeting was adjourned at 9:03pm.

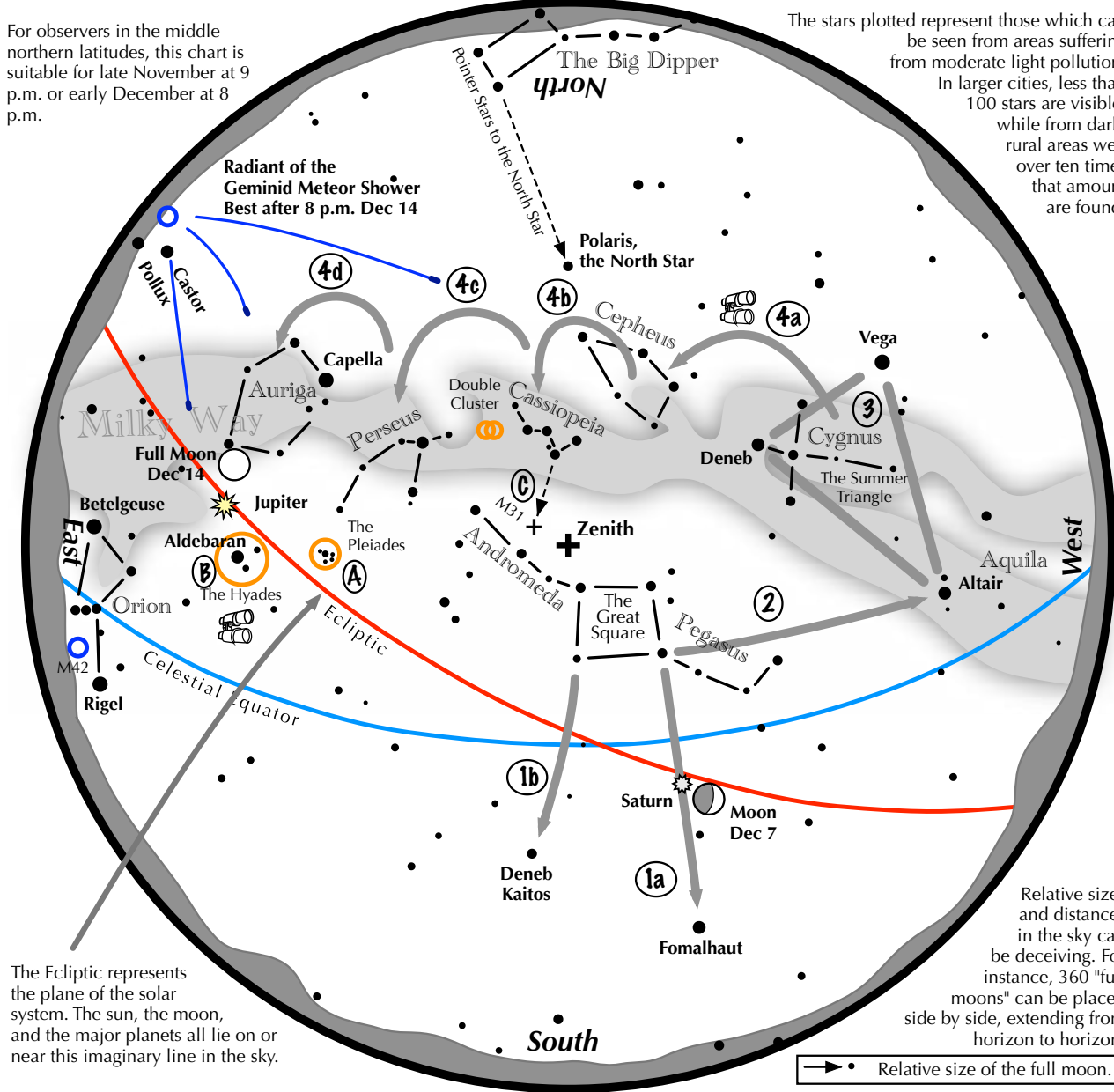


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## Navigating the December Night Sky

For observers in the middle northern latitudes, this chart is suitable for late November at 9 p.m. or early December at 8 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 December night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second bright star in the south.
- 2 Draw another line, this time westward following the southern edge of the Square. 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, 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.



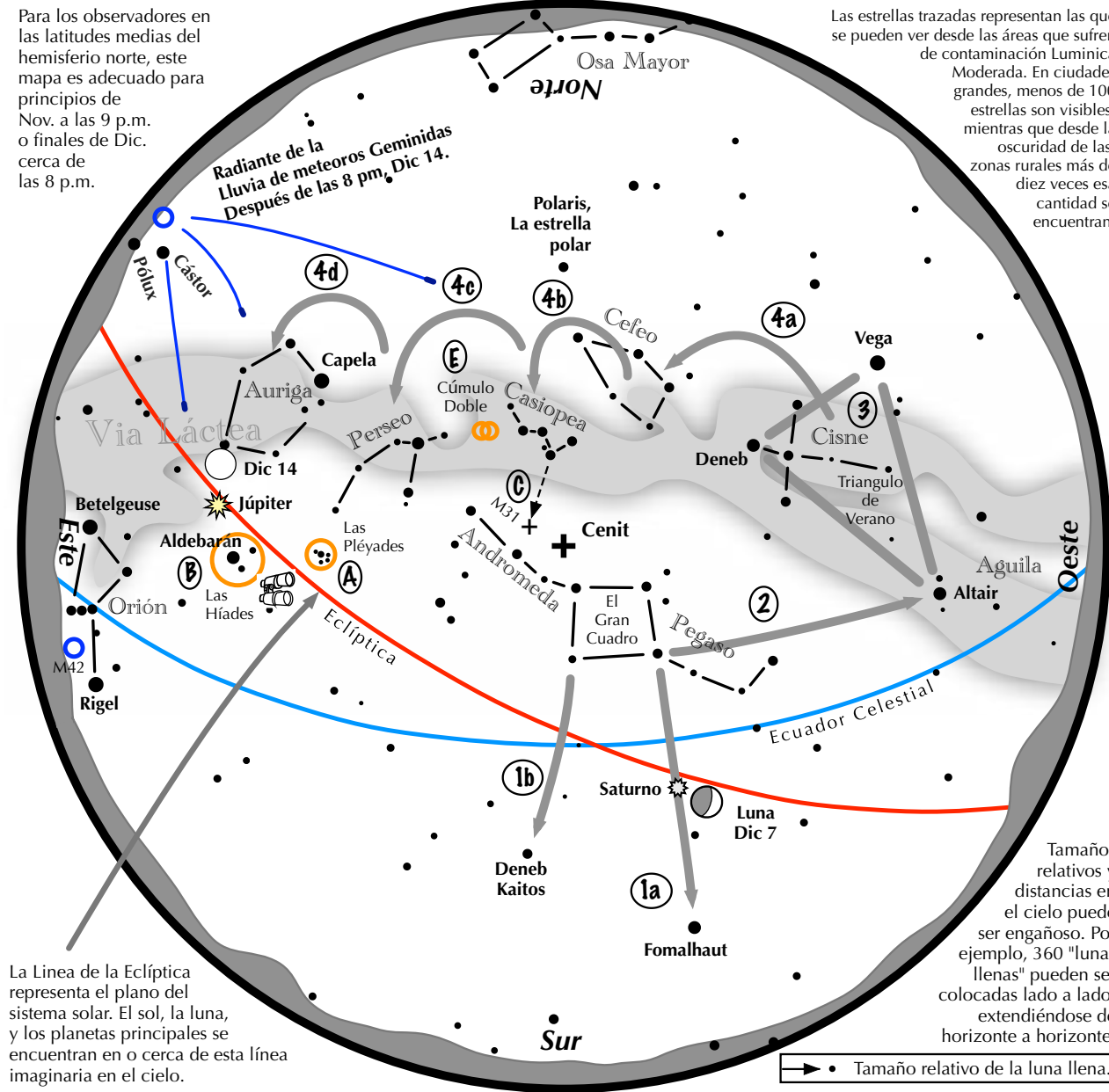


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## Navegando por el cielo nocturno de Diciembre

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

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.

- 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 para visualizar muchos intrigantes cúmulos de estrellas y áreas nebulosas. **E.** Cúmulo Doble de Perseo.

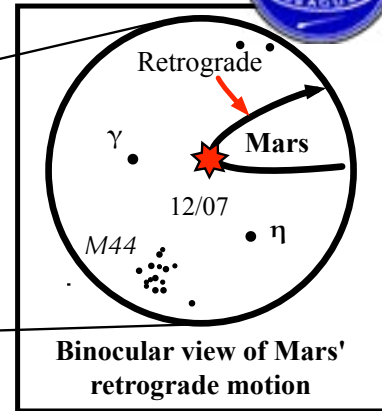
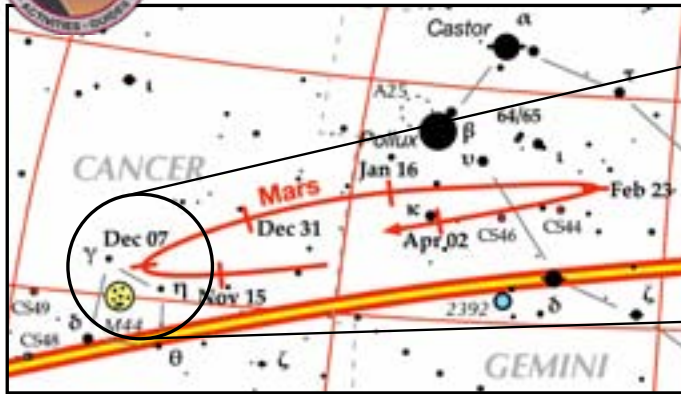





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## Observing Project: Retrograde Motion of Mars


See this for yourself!



### Relative apparent size of Mars

 94% illuminated  
Dec. 7, 2024  
Magnitude: -0.6  
Diameter: 12 seconds  
Distance: 71 million miles

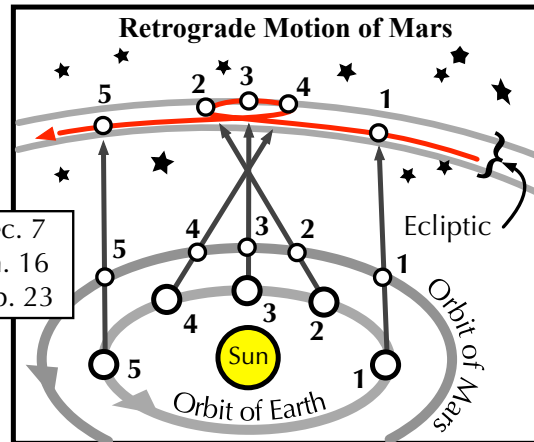
100% illuminated   
Opposition  
Jan. 16, 2025  
Magnitude: -1.4  
Diameter: 15 seconds  
Distance: 60 million miles

94% illuminated   
Feb. 23, 2025  
Magnitude: -0.4  
Diameter: 11 seconds  
Distance: 76 million miles

Over the next four months, observe Mars using binoculars on every clear night, then plot its changing position among the background stars.

Mars nears M44, the Beehive star cluster, in central Cancer in early December. It reaches its closest point to it on December 7, after which it enters retrograde motion, inching westward each evening until February 23, 2025. Mars then lies in central Gemini.

Mars will also be growing in angular size as Earth slowly overtakes it on January 16, 2025. (Actually, the two planets are closest on January 11. The discrepancy is due to Mars' elliptical orbit.) At this time, it shows its largest angular size – 15 arc seconds – until April 2031. By February 23, the Red Planet ceases moving westward nightly, shifting its direction eastward (called prograde motion).



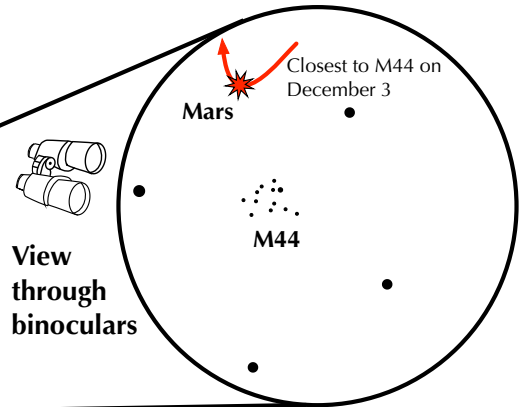
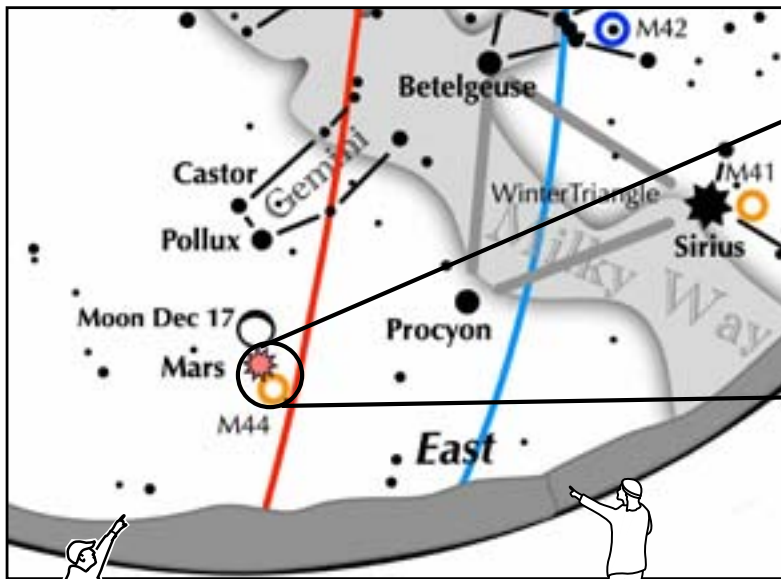
**Mars at its brightest, largest & closest:**  
Jan. 11, 2025  
-1.4 mag., 15 arc seconds, 59.8 million miles  
It won't come any closer until Apr 11, 2031.

**Why do this activity?** This planetary dance can only be explained if both Earth and Mars orbit our sun following definable elliptical paths. Our view from Earth clearly shows this to those people who take the time to look carefully enough.



# San Diego Astronomy Association

On a moonless evening in December, try this challenge:



View through binoculars

## Mars approaches the Beehive

On evenings in December, the Red Planet flies near the Beehive star cluster. On the night of December 3, it is closest.

Be sure to use binoculars to spot the many stellar bees of M44. The cluster has over 1000 stars, but only two dozen or so will be picked out with binoculars.

View to the east-northeast  
in December  
90 minutes after sunset

On December 7, Mars starts its retrograde motion, moving slightly each evening westward until February.

Even though Mars and M44 lie near each other in binoculars, they are nowhere near each other in three-dimensional space. M44 is 50 million times farther than the Mars!

It has taken the light from M44's stars over 575 years to reach your eyes!







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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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## *Organizational Meeting for Radio Astronomy Special Interest Group*

Are you fascinated by the mysteries of the cosmos? Do you have an interest in amateur radio astronomy? Join us for an organizational meeting to form a Radio Astronomy Special Interest Group (RASIG)!

When: Wednesday December 4, 7:00 PM

Where: In-person at 817 Bowsprit Road, Chula Vista, CA or via Virtual Meeting Link (RSVP with Curt Kinghorn at [CurtKinghorn@gmail.com](mailto:CurtKinghorn@gmail.com) to be sent the Link)

Who Should Attend: Anyone with an interest in radio astronomy, amateur radio, or exploring the universe through radio signals—whether you're a beginner or an experienced enthusiast!

Purpose of the Meeting:

Discuss the vision and goals for our new Radio Astronomy SIG

Identify areas of shared interest and potential projects

Plan future meetings, activities, and observation sessions

Network with like-minded individuals passionate about exploring and imaging space through radio waves

Bring your ideas, enthusiasm, and curiosity as we lay the groundwork for a group dedicated to learning, exploring, and advancing our understanding of the universe through radio astronomy. We look forward to meeting you!

For more information or to RSVP, please contact Curt Kinghorn at [CurtKinghorn@gmail.com](mailto:CurtKinghorn@gmail.com).





# San Diego Astronomy Association

## SDAA Contacts

### Club Officers and Directors

President	Dave Decker	<a href="mailto:President@sdaa.org">President@sdaa.org</a>	(619) 972-1003
Vice President	Bee Pagarigan	<a href="mailto:VicePresident@sdaa.org">VicePresident@sdaa.org</a>	(760) 703-6183
Recording Secretary	Gene Burch	<a href="mailto:Recording@sdaa.org">Recording@sdaa.org</a>	(858) 926-9610
Treasurer	Mike Chasin	<a href="mailto:Treasurer@sdaa.org">Treasurer@sdaa.org</a>	(858) 210-1454
Corresponding Secretary	Dave Wood	<a href="mailto:Corresponding@sdaa.org">Corresponding@sdaa.org</a>	(858) 735-8808
Director Alpha	-Vacant-	<a href="mailto:DirectorAlpha@sdaa.org">DirectorAlpha@sdaa.org</a>	
Director Beta	-Vacant-	<a href="mailto:DirectorBeta@sdaa.org">DirectorBeta@sdaa.org</a>	
Director Delta	Gracie Schutze	<a href="mailto:DirectorDelta@sdaa.org">DirectorDelta@sdaa.org</a>	(619) 857-0088
Director Gamma	Kin Searcy	<a href="mailto:DirectorGamma@sdaa.org">DirectorGamma@sdaa.org</a>	(858) 586-0974

### Committees

Site Maintenance	Committee	<a href="mailto:TDS@sdaa.org">TDS@sdaa.org</a>	
Observatory Director	Ed Rumsey	<a href="mailto:Observatory@sdaa.org">Observatory@sdaa.org</a>	(858) 722-3846
Private Pads	Mark Smith	<a href="mailto:Pads@sdaa.org">Pads@sdaa.org</a>	(858) 484-0540
Outreach	Dennis Ammann	<a href="mailto:Outreach@sdaa.org">Outreach@sdaa.org</a>	(619) 247-2457
N. County Star Parties	-Vacant-	<a href="mailto:NorthStarParty@sdaa.org">NorthStarParty@sdaa.org</a>	
S. County Star Parties	-Vacant-	<a href="mailto:SouthStarParty@sdaa.org">SouthStarParty@sdaa.org</a>	
E. County Star Parties	Dave Decker	<a href="mailto:EastStarParty@sdaa.org">EastStarParty@sdaa.org</a>	(619) 972-1003
Central County Star Parties	Dennis Ammann	<a href="mailto:CentralStarParty@sdaa.org">CentralStarParty@sdaa.org</a>	(619) 247-2457
Camp with the Stars	-Vacant-	<a href="mailto:CampWiththeStars@sdaa.org">CampWiththeStars@sdaa.org</a>	
K.Q. Ranch Coordinator	Dennis Ammann	<a href="mailto:KQ@sdaa.org">KQ@sdaa.org</a>	(619) 247-2457
Newsletter	Andrea Kuhl	<a href="mailto:Newsletter@sdaa.org">Newsletter@sdaa.org</a>	
New Member Mentor	Dan Kiser	<a href="mailto:Mentor@sdaa.org">Mentor@sdaa.org</a>	(858) 922-0592
Webmaster	Jeff Stevens	<a href="mailto:Webmaster@sdaa.org">Webmaster@sdaa.org</a>	(858) 566-2261
AI SIG	Dave Wood	<a href="mailto:AI SIG@sdaa.org">AI SIG@sdaa.org</a>	
Site Acquisition	-Vacant-	<a href="mailto:SecondSite@sdaa.org">SecondSite@sdaa.org</a>	
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	Bill Cecil	<a href="mailto:info@julianstarfest.com">info@julianstarfest.com</a>	
Merchandising	Gene Burch	<a href="mailto:Merchandising@sdaa.org">Merchandising@sdaa.org</a>	(858) 926-9610
Publicity	Jeff Flynn	<a href="mailto:Publicity@sdaa.org">Publicity@sdaa.org</a>	(619) 806-6505
Loaner Scopes	Paul Krizak	<a href="mailto:loanerscopes@sdaa.org">loanerscopes@sdaa.org</a>	
Cruzen Observatory Director	Paul Krizak	<a href="mailto:cruzen@sdaa.org">cruzen@sdaa.org</a>	
TARO Observatory Director	Dave Wood	<a href="mailto:TARO@sdaa.org">TARO@sdaa.org</a>	
TDS Network	Dave Wood	<a href="mailto:TDSNet@sdaa.org">TDSNet@sdaa.org</a>	(858) 735-8808
TDS Operations	Bee Pagarigan	<a href="mailto:TDS@sdaa.org">TDS@sdaa.org</a>	
ALCOR (Astronomical League Correspondent)	Mark Smith	<a href="mailto:ALCOR@sdaa.org">ALCOR@sdaa.org</a>	(858) 484-0540

#### SDAA Editorial Staff

Editor - Andrea Kuhl  
since April 2011

[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).



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

The NSN 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!

## December's Night Sky Notes: Spot the King of Planets

By Dave Prosper

Updated by Kat Troche

Jupiter is our solar system's undisputed king of the planets! Jupiter is bright and easy to spot from our vantage point on Earth, helped by its massive size and banded, reflective cloud tops. Jupiter even possesses moons the size of planets: Ganymede, its largest, is bigger than the planet Mercury. What's more, you can easily observe Jupiter and its moons with a modest instrument, just like Galileo did over 400 years ago.



NASA's Juno mission captured this look at the southern hemisphere of Jupiter on Feb. 17, 2020, during one of the spacecraft's close approaches to the giant planet. This high-resolution view is a composite of four images captured by the JunoCam imager and assembled by citizen scientist Kevin M. Gill. Credit: NASA, JPL-Caltech, SwRI, MSSS | Image processing by Kevin M. Gill, © CC BY

Jupiter's position as our solar system's largest planet is truly earned; you could fit 11 Earths along Jupiter's diameter, and in case you were looking to fill up Jupiter with some Earth-size marbles, you would need over 1300 Earths to fill it up – and that would still not be quite enough! However, despite its formidable size, Jupiter's true rule over the outer solar system comes from its enormous mass. If you took all of the planets in our solar system and put them together, they would still only be half as



# San Diego Astronomy Association

NASA Night Sky Notes

December 2024

massive as Jupiter all by itself. Jupiter's mighty mass has shaped the orbits of countless comets and asteroids. Its gravity can fling these tiny objects towards our inner solar system and also draw them into itself, as famously observed in 1994 when Comet Shoemaker-Levy 9, drawn towards Jupiter in previous orbits, smashed into the gas giant's atmosphere. Its multiple fragments slammed into Jupiter's cloud tops with such violence that the fireballs and dark impact spots were not only seen by NASA's orbiting Galileo probe but also by observers back on Earth!



Look for Jupiter near the Eye of the Bull, Aldebaran, in the Taurus constellation on the evening of December 15, 2024. Binoculars may help you spot Jupiter's moons as small bright star-like objects on either side of the planet. A small telescope will show them easily, along with Jupiter's famed cloud bands. How many can you count? Credit: Stellarium Web

Jupiter is easy to observe at night with our unaided eyes, as well-documented by the ancient astronomers who carefully recorded its slow movements from night to night. It can be one of the brightest objects in our nighttime skies, bested only by the Moon, Venus, and occasionally Mars, when the red planet is at opposition. That's impressive for a planet that, at its closest to Earth, is still over 365 million miles (587 million km) away. It's even more impressive that the giant world remains very bright to Earthbound observers at its furthest distance: 600 million miles (968 million



# San Diego Astronomy Association

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NASA Night Sky Notes

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km)! While the King of Planets has a coterie of 95 known moons, only the four large moons that Galileo originally observed in 1610 – Io, Europa, Ganymede, and Calisto – can be easily observed by Earth-based observers with very modest equipment. These are called, appropriately enough, the Galilean moons. Most telescopes will show the moons as faint star-like objects neatly lined up close to bright Jupiter. Most binoculars will show at least one or two moons orbiting the planet. Small telescopes will show all four of the Galilean moons if they are all visible, but sometimes they can pass behind or in front of Jupiter or even each other. Telescopes will also show details like Jupiter’s cloud bands and, if powerful enough, large storms like its famous Great Red Spot, and the shadows of the Galilean moons passing between the Sun and Jupiter. Sketching the positions of Jupiter’s moons during the course of an evening – and night to night – can be a rewarding project! You can download an activity guide from the Astronomical Society of the Pacific at [bit.ly/drawjupitermoons](https://bit.ly/drawjupitermoons)

Now in its eighth year, NASA’s Juno mission is one of just nine spacecraft to have visited this impressive world. Juno entered Jupiter’s orbit in 2016 to begin its initial mission to study this giant world’s mysterious interior. The years have proven Juno’s mission a success, with data from the probe revolutionizing our understanding of this gassy world’s guts. Juno’s mission has since been extended to include the study of its large moons, and since 2021 the plucky probe, increasingly battered by Jupiter’s powerful radiation belts, has made close flybys of the icy moons Ganymede and Europa, along with volcanic Io. What else will we potentially learn in 2030 with the Europa Clipper mission?

Find the latest discoveries from Juno and NASA’s missions to Jupiter at [science.nasa.gov/jupiter/](https://science.nasa.gov/jupiter/)

*Originally posted by Dave Prosper: February 2023*

*Last Updated by Kat Troche: November 2024*



# 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%



# San Diego Astronomy Association

## 2025 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Closing	Illumination
Jan-04-2025	Public	4:56 PM	6:23 PM	(10:11 PM)	9:30 PM	28.3%
Jan-25-2025	Member	5:15 PM	6:40 PM	4:44 AM	9:30 PM	16.3%
Feb-01-2025	Public	5:21 PM	6:46 PM	(9:08 PM)	10:00 PM	14.9%
Feb-22-2025	Member	5:40 PM	7:02 PM	3:26 AM	10:00 PM	31.8%
Mar-01-2025	Public	5:46 PM	7:08 PM	(8:00 PM)	10:00 PM	5.0%
Mar-29-2025	Member	7:06 PM	8:30 PM	(7:47 PM)	11:30 PM	0.2%
Apr-19-2025	Public	7:21 PM	8:49 PM	1:47 AM	11:30 PM	65.5%
Apr-26-2025	Member	7:26 PM	8:56 PM	5:45 AM	12:00 PM	1.7%
May-17-2025	Public	7:42 PM	9:17 PM	12:27 AM	12:00 PM	79.6%
May-24-2025	Member	7:46 PM	9:24 PM	4:16 AM	12:00 PM	8.6%
Jun-21-2025	Member	7:59 PM	9:41 PM	2:50 AM	12:00 PM	19.3%
Jun-28-2025	Public	8:00 PM	9:41 PM	(10:55 PM)	12:00 PM	15.1%
Jul-19-2025	Public	7:55 PM	9:32 PM	1:29 AM	12:00 PM	32.1%
Jul-26-2025	Member	7:51 PM	9:26 PM	(9:22 PM)	12:00 PM	5.2%
Aug-16-2025	Public	7:31 PM	9:00 PM	12:15 AM	12:00 PM	46.0%
Aug-23-2025	Member	7:23 PM	8:50 PM	7:39 AM	12:00 PM	0.4%
Sep-13-2025	Public	6:56 PM	8:19 PM	11:06 PM	11:00 PM	60.5%
Sep-20-2025	Member	6:47 PM	8:09 PM	6:27 AM	11:00 PM	1.1%
Oct-18-2025	Member	6:11 PM	7:33 PM	5:17 AM	10:30 PM	7.1%
Oct-25-2025	Public	6:04 PM	7:26 PM	(8:37 PM)	10:30 PM	16.9%
Nov-15-2025	Public	4:47 PM	6:12 PM	3:07 AM	9:00 PM	18.1%
Nov-22-2025	Member	4:44 PM	6:10 PM	(6:26 PM)	9:00 PM	6.3%
Dec-13-2025	Public	4:43 PM	6:11 PM	1:58 AM	9:00 PM	33.2%
Dec-20-2025	Member	4:46 PM	6:14 PM	(5:17 PM)	9:00 PM	0.7%

SDAA is now registered with the employer fund-matching platform Benevity. If your workplace offers matching charitable donations for non-profits and uses Benevity to distribute funds, you can now designate the San Diego Astronomy Association. Thank you for supporting the SDAA!

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