

San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



October 2024

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

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

October 16th Program

Next SDAA Business Meeting

October 8th at 7:00pm

Via Zoom

Next Program Meeting

October 16th

Via Zoom

Topic: Interferometry

Speaker: Andrew Boden, Ph.D. Caltech Deputy Director for Caltech Optical Observatories

Join us for an interesting and relevant talk about astronomical interferometry. An interferometer is a device that expresses the interference of wave-like phenomena and measures properties with high precision, such as are found in astronomy by taking advantage of the “small” *e.g. 500nm - green) wavelength of light. He covers the science of stellar interferometry, including Michaelson and Mt. Wilson (birthplace of stellar interferometry) and Palomar observatory. In addition he describes his use of the Palomar Testbed Interferometer taking the diameter of Betelgeuse.



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San Diego Astronomy Association

Incorporated in California in 1963

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The meeting will be held via Zoom.

See <https://sdaa.org/program-meeting/>

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>



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San Diego Astronomy Association Board of Directors Meeting September 10, 2024 – Unapproved and subject to revision

1. Call to Order

The meeting was held via Zoom and was called to order at 7:04pm with the following board members in attendance: Dave Decker, President; Bee Pagarigan, Vice President; Mike Chasin, Treasurer; Gene Burch, Recording Secretary; Hiro Hakozaki, Director; Kin Searcy, Director; Gracie Schutze, Director and member Prascilla Morquecho.

We appreciate and thank Steve Myers for his service as Director. He has now stepped down for personal reasons and has recommended Brian McFarland to fill the interim position. Brian has accepted, and the Board has approved with unanimous written consent. Welcome, Brian, to the Board once again.

2. Approval of Last Meeting Minutes

The August meeting minutes were approved.

3. Treasurers & Membership Report

The Treasurer's report was approved. Mike reported that membership is still pretty steady, there were several large expenses including the Mill Law Group, Paul Krizak for eyepieces for the loaner program and a refund for a malfunctioning telescope that was purchased at the banquet. JSF netted \$3,172.

The audit committee produced a very detailed report that was approved by the Board.

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.

b. Observatory:

We have had a couple of excellent star parties recently. Ed Rumsey reports that the DSC's are exceeding expectations for ease, accuracy, and object description. The Wi-Fi interface with Sky Safari on the Samsung tablet is operational. As time progresses, I will explore this alternative interface further. Initial impression is this operating system is extremely capable and may become the default. Continued practice will confirm. Scope continues to provide stunning views.



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A word on the diagonal – first light was August 31, 2024. Replacement was required! Disassembled and cleaned the older. 20-30 fine scratches and a mark that couldn't be removed easily. Suspect that the coatings failed and the mark was from a long barrel eyepiece like a Barlow. Passed the old diagonal to the loaner program.

All is well again and we have trained a couple of new hosts. More in the pipeline.

c. Loaner Scope Report:

Fifteen (!!) loaner items are currently out. A majority of these items are due to be returned in early September.

Three new eyepiece kits (SDAA-045/046/047) have been procured and added to the loaner inventory. This brings the total count of eyepiece kits to 12. We have 11 visual telescopes in the loaner fleet (soon to be 12 with the CPC800 donation noted below) as well as a couple PSTs. And some of the eyepiece kits will be loaned out individually without loaner scopes. So, we are in good shape for eyepieces at the moment, but as the loaner fleet continues to grow, we need to ensure that we're purchasing additional eyepiece kits to keep up.

Two new donations are pending:

- Coronado PST - this will replace a PST already in inventory that has damaged coatings
- Celestron CPC800 - appears to be in ready-to-loan condition, complete with a hard shell carrying case, a 2" diagonal, and a Telrad.

The Loaner Equipment webpage was updated to reflect the availability of eyepiece kits as individually loanable items.

The Loaner Procedures were updated and a draft sent to the president and vice president for comments and approval before updating the website. The updated procedures reflect the new storage location for the loaner equipment.

Storage Facility

Shelving has been added to the storage facility. Two light-duty plastic shelving units, and one heavy-duty steel shelving unit. There is still plenty of room for additional shelving if more is required.

I will also be procuring 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.



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d. Private Pad Report:

We just leased 3 pads so we now have 7 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 for September 2024 -

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.
- 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

Tasks completed during 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 loaded 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.



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- 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.
- The Board approved refunding the pad lease fee (\$70) upon request until the power has been restored to the private pads (contact Mike Chasin at Treasuer@sdaa.org).

e. Program Meetings Report:

Speakers for Science in Space at the ISS National Laboratory confirmed for September 11, 2024. The October speaker slot remains open.

The board favorably considered an alternate location for the November in-person program meeting. Two venues have been identified, but will require research and vetting. Bee and Prascilla will do more research and report back to the board.

f. AISIG Report:

For the August AISIG meeting Jerry Hilburn took AISIG members on a virtual tour of the Great Basin Observatory. The meeting was well received and many thanks to Jerry for the great presentation. The next AISIG meeting is scheduled for 9-25.

g. Newsletter Report:

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

h. Website Report:

Nothing new to report.

i. Social Media Report:

SDAA Social Media Report for September 2024

Pagarigan

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

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

Current Status of SDAA Social Media Accounts

- Instagram, 537 Followers (and concurrently with Threads, a Twitter-like replacement at 72 Followers) - Active
- YouTube, 642 Subscribers - Active
- Facebook Public, Private 440 members - Active
- Twitter (“X”) 124 Followers – Not Active (Last SDAA Admin post in 2021), suggest abandoning this app for now



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- Feedback from numerous SDAA members indicate that it would benefit the club to have a greater social media presence. Most of the activity is on FB via member-posted astrophotography. We could do a better job routinely highlighting more of the club assets such as TARO, CRUZEN, The LIPP, loaner scope program, and photos/videos of weekly outreach events.

Work-in-Progress Goals

- Establish an SDAA Social Media Committee – a few SDAA members who are currently active in the club have expressed interest in joining the effort.
- Write a simple committee charter for board approval to include overall mission and short-term goals, (i.e. consistency of engagement, feature club assets regularly to gain new members, post outreach event photos/short videos, etc.)
- Decide which social media sites to add as we gain committee members to share responsibilities
- Confirm and update SDAA Asset sheet with all usernames and passwords

Requested Board Action

1. Support new SDAA Podcast/Vodcast effort to inform new members about club assets (TDS, Telescope Loaner Program, Outreach Events, etc.), Astronomy 101 topics, OG Club Member Interviews, are just examples. Content ideas will be dynamic/spontaneous.
2. Future purchase of wireless mics x2; current estimate for two is under \$100.

j. Outreach Report:

We started out with a 'Big Bang' on August 3rd with the annual SDAA Julian StarFest (JSF). It was very hot that weekend, so on Saturday afternoon some of the astronomer-campers left early because of the extensive heat. Those that stayed enjoyed a first glimpse of Venus at its gibbous phase at sunset. We couldn't ask for a better dark starry Saturday night. Bill Cecil was in charge of the JSF *Three Ring Circus*, keeping everything rolling along. Many of our members volunteered for various duties. Since there was no meteor shower like last year, the numbers for the general public were reduced this year. Stars-in-the-Park was almost cancelled on August 7th, but Dennis Ammann announced at the end of the second Fleet Science Center planetarium show, 'The Sky Tonight', that those who wanted to hold a 'shooting star', meet him outside where 25 people gathered to do just that and learned all about meteorites. On August 10th, SDAA Outreach ran two events: Stargazing at Oakoasis County Park and Viewing the Perseid Meteor Shower at El Monte County Park. Dennis Ammann, SDAA Outreach and Kamala Venkatesh, Julian Dark Sky Network were interviewed on FOX 5 Morning News about the Perseid Meteor Shower. Unfortunately, both events were subjected to the coastal marine layer that blocked out the view. Only those who stayed late at El Monte Park got a view of Saturn at 11:00pm. The Society of Photo-Optical Instrumentation Engineers (SPIE) held their annual conference at the San Diego Convention Center on August 19th, with about 5 SDAA members giving the engineers a look at the downtown night sky. About six SDAA members shared the K.Q.



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Ranch night sky with the campers up there, giving them a last chance to say good-bye to the Milky Way as it drifts SW toward the brightest part of the SD County light pollution. The next few months, it will hug the western horizon until next year. Finally on August 31st, SDAA scheduled two events at the same time: TDS Public Night and Stargazing at William Heise County Park. Wm Heise was at 100% occupancy during the Labor Day Weekend with the campers ready to see celestial objects through the various telescopes. All in all, August was a very successful night with zero astronomers having to don jackets!

2024	Previous Total	August	YTD
Completed	42	9	51
Canceled	25	0	25
Total Attendance	3962	805	4767

k. TARO Report:

TARO is currently “hibernating” due to the high temps at TDS. Several days have exceeded the 100-degree mark.

Stats:

8 current projects, 160 hours imaging time

1 project completed, 1 project added.

Currently working with two members on 4 new imaging projects.

No new archive requests this month. 55 members have access to the Archives

l. Cruzen Report:

Cruzen remained closed due to the TDS power grid shutdown through August 11. As of August 12, Cruzen is open for reservations again. Cruzen was not reserved between August 12 and August 31. The facility remains in good condition.

The next Cruzen training session will be held during the last quarter of the calendar year. This would be a good opportunity for a member interested in taking over Cruzen directorship, to get trained on the operational details of maintaining the facility.



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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:

Not much going on, but inventory is getting low and we'll need to reorder soon.

n. Astronomical League Report:

Nothing new.

o. JSF Report:

Financial accounting per Treasurer's report.

JSF Committee will be meeting this month to prepare a Mission Statement and Charter for Board consideration and action in October.

p. Grid: Discussion, Options, Mitigation:

Neal Electric has submitted detailed proposal for the grid rebuild. The proposal has been submitted to the Contract evaluation committee for review.

The committee is now reviewing in detail each of the 3 proposals that have been submitted with the final goal of recommending to the board a preference in descending order of each proposal.

q. 2024 BoD Election Nomination Committee, September 2024 Pagarigan

Bee has been appointed to head the nominating committee for next year's election of officers and directors. The President and Recording Secretary along with all four Directors are up for election.

Nominating Committee Candidates

- Bee Pagarigan (Chair – elected by the BOD and appointed chair by Dave Decker)
- Mark Smith – subject to election by membership via ElectionBuddy by October program meeting
- Dorothy Wood – subject to election by membership via ElectionBuddy by October program meeting



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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.
 - 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.

5. Old Business:

- a. Cruzen Director Status – Still looking for a replacement for Paul Krizak
- b. Other Old Business – should we change the LIPP/Warming room wiring back to its original state? The BOD decided to refer the issue to the electrical committee for review

6. New Business:

- a. Election Process – see above
- b. Audit Report – see Treasurer's Report
- c. SDAA Vodcast/Podcast – Bee and Prascilla reported that we have limited communication with our members via social media and they would like to start some podcasts and vodcasts in an attempt to improve our communication with our members and to increase membership. The Board thought this was an outstanding idea and Bee and Prascilla will report back with further details and a proposed budget.
- d. Dave Decker reported that he has reached out to the observatory owners and is working on forming an Observatory Owners Advisory Committee to get their input.
- e. There have been problems in the past with items that were sold at the banquet but didn't work as the purchaser had hoped and one telescope purchase was refunded. Items are sold "as is" but SDAA has some responsibility. The matter will be handled on a case-by-case basis.

7. **Adjournment:** The meeting was adjourned at 9:07pm.

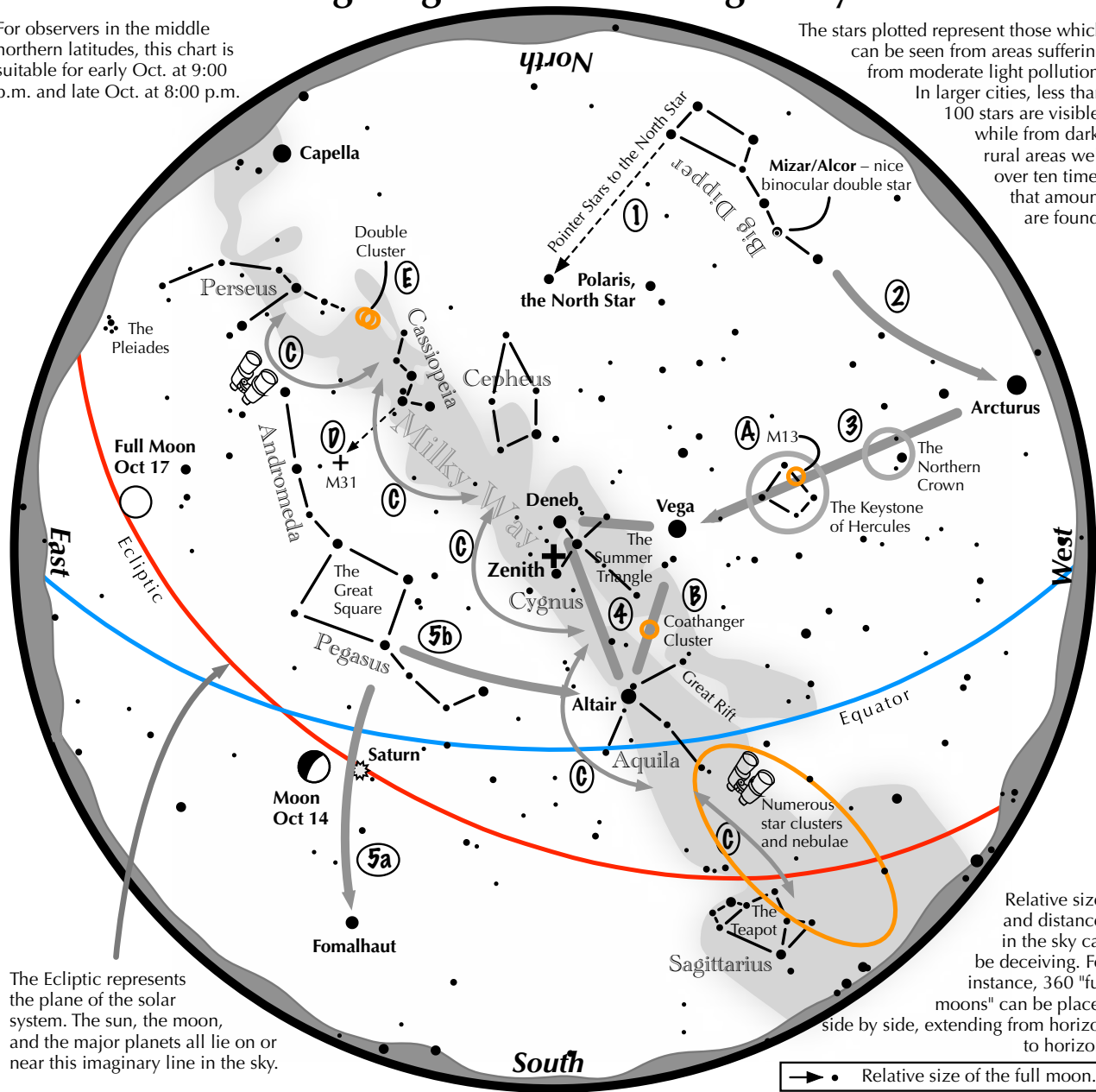


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Navigating the October Night Sky

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.



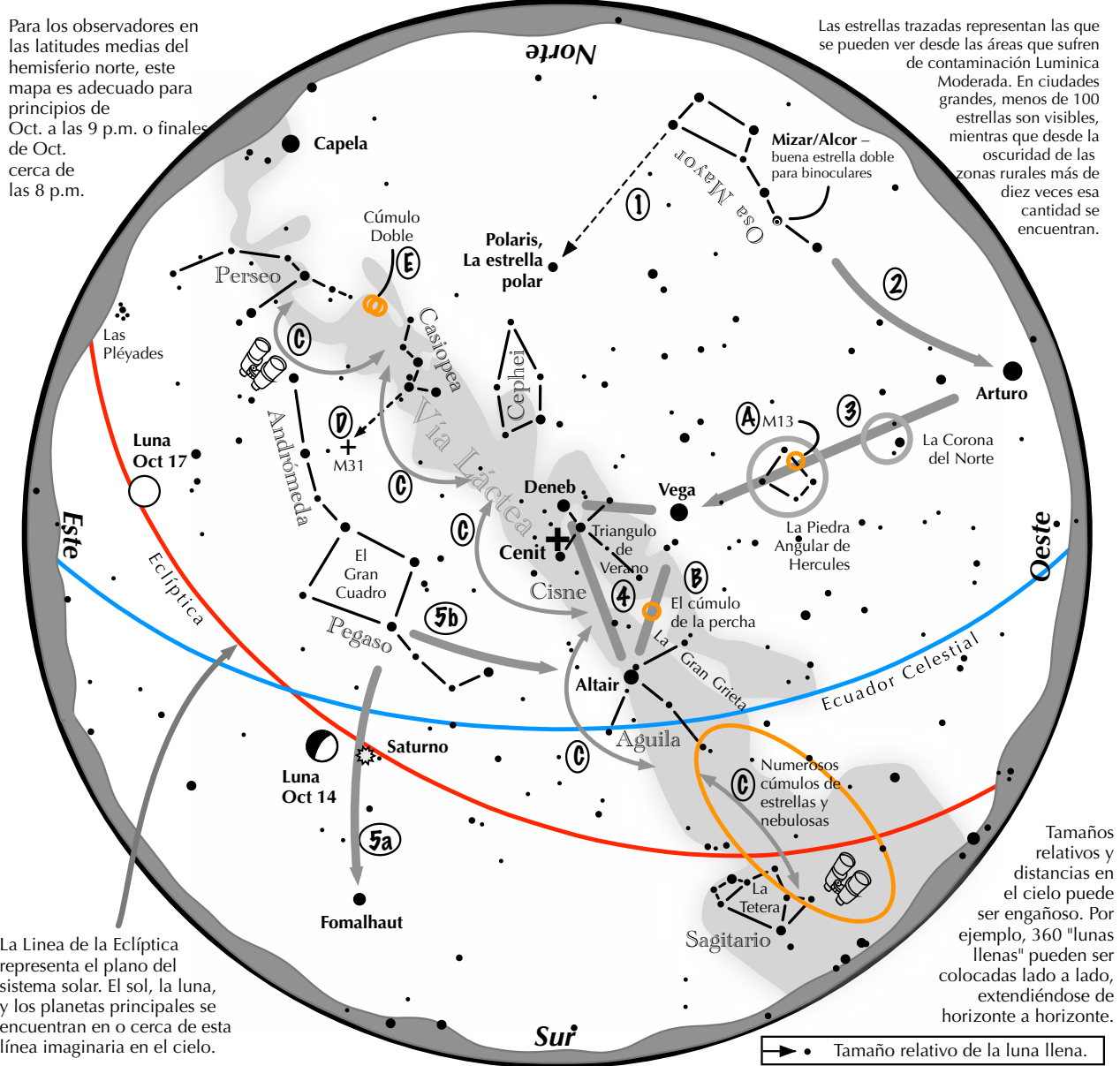


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Navegando por el cielo nocturno de Octubre

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 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.

- 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

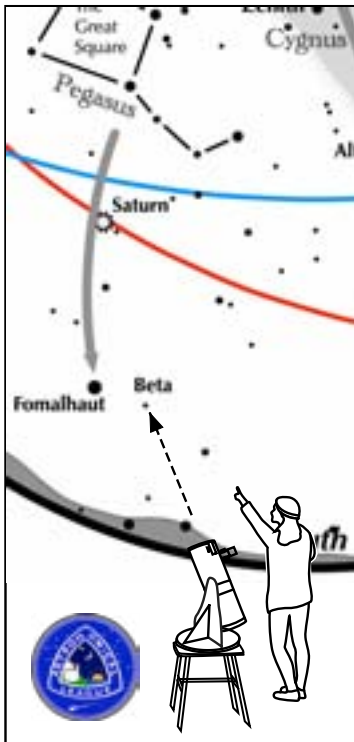
- A: En el lado occidental de la Piedra Angular brilla el Gran Cúmulo de Hércules, un círculo borroso de 500,000 estrellas.
- B: Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo de estrellas que describe un perchero.
- C: Recorre la Vía Láctea en busca de un número asombroso 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.





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ASTRONOMICAL LEAGUE Double Star Activity



Other Suns: Beta Piscis Austrini

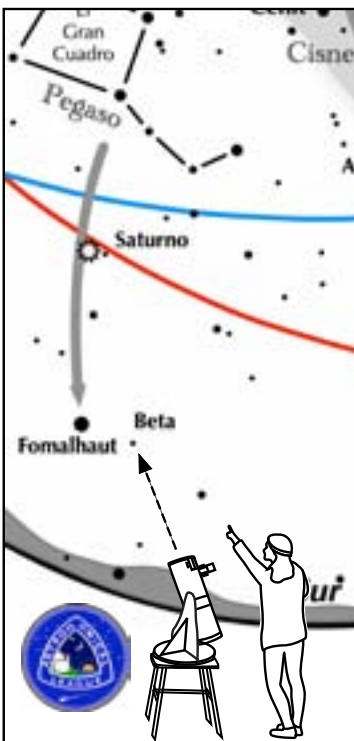
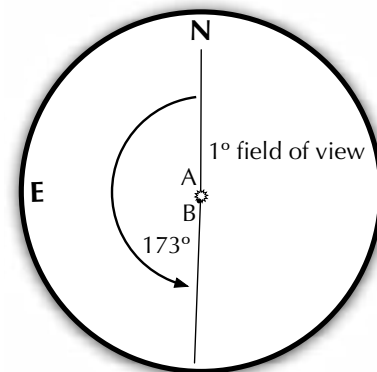
How to find Beta Piscis Austrini on an October evening

The two western stars of the Great Square point southward to the bright star Fomalhaut. One binocular field west lies 4.3 magnitude Beta Piscis Austrini.

Suggested magnification: >20x
Suggested aperture: >2 inches

Beta Piscis Austrini

A-B separation: 30 sec
A magnitude: 4.3
B magnitude: 7.1
Position Angle: 173°
A & B colors:
white, white



Otros Soles: Beta Piscis Austrini

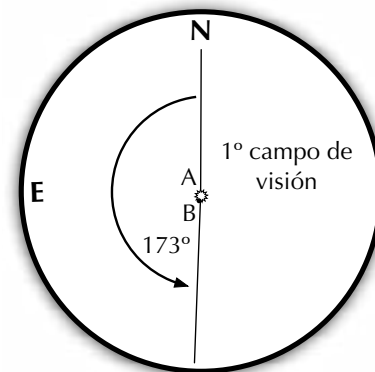
Cómo encontrar Beta Piscis Austrini en una tarde de Octubre

Las dos estrellas occidentales del Gran Cuadro apuntan hacia el sur, hacia la brillante estrella Fomalhaut. Un campo binocular al oeste se encuentra Beta Piscis Austrini, de magnitud 4,3.

Ampliación sugerida: >20x,
Apertura sugerida: >50 mm

Beta Piscis Austrini

A-B separación: 30 sec
A magnitud: 4.3
B magnitud: 7.1
PA: 173°
A & B color:
blanca, blanca





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Scan the area with binoculars for asterisms and stellar groupings



Between the First Point of Aries and the Water Jar

The **First Point of Aries** marks the intersection of the celestial equator and the ascending ecliptic which defines the location of 0 hrs Right Ascension.

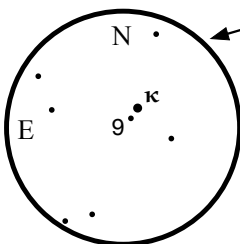
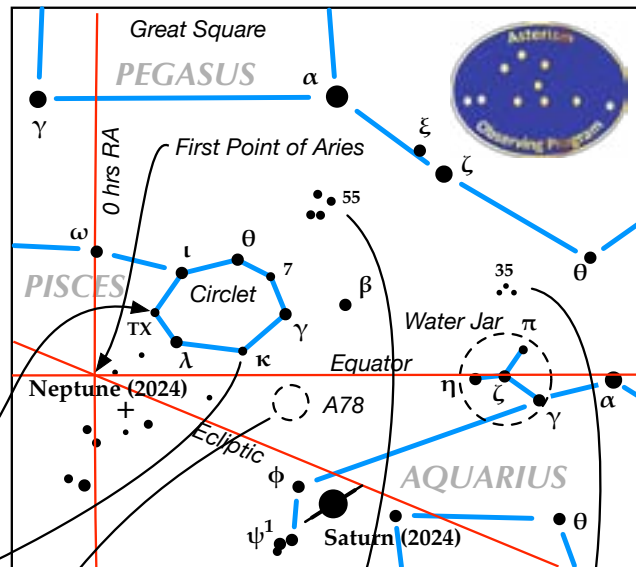
Naked eye and binocular sights

Circlet. These six, maybe seven depending on sky clarity and visual acuity, 4th and 5th magnitude stars trace a squashed circle at the far southwestern corner of Pisces.

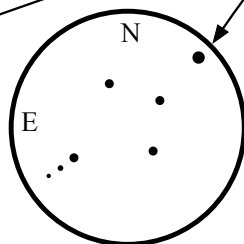
It lies 10° below the southern edge of the asterism the **Great Square** in Pegasus, and less than 15° east of another asterism, the four 4th & 5th magnitude stars of the **Water Jar** in Aquarius.

These features are subtle, not bright. Best seen from a dark location with a transparent sky.

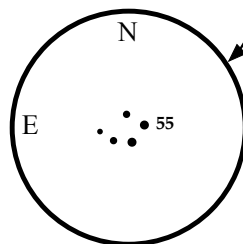
Binoculars users enjoy studying **TX Piscium**. The star varies between 4.8 and 5.2 magnitude, a noticeable amount to the careful observer. It appears as a distinct orange-red hue and its period is irregular, but averages around 224 days.



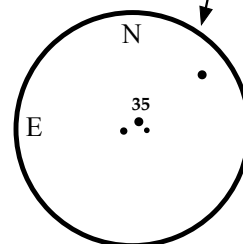
Binocular Double
4.9 mag. Kappa Psc
6.2 mag. 9 Piscium
Separation: 9 min



Asterism A78
7 stars of 7-8 mag.
tracing the outline
of a "rocketship"



Binocular sight
A stellar quintet
Four 5th mag stars
& one 6th mag star.



Binocular sight
A stellar trio
One 5th mag. star &
two 6th mag. stars.

In 2024, Saturn lies 10° southwest of the Circlet and Neptune hides just 5° to its southeast.



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A Great Basin National Park Astronomy Adventure

Ken Hotelling, SDAA, Sept. 16, 2024

The Great Basin National Park has an annual astronomy event called the Great Basin Astronomy Festival open to the public. This star party takes place around the new Moon in the Fall. This year the event took place on the nights of Sep. 5-7.

The Great Basin National Park (GBNP), near Baker, NV, is claimed to be one of the darkest night sky areas (Bortle 1) in all the contiguous forty-eight states. SDAA member Jose Magsaysay told Dave Whigham and I about this location and he had been there twice before. Prascilla Morquecho, also an SDAA member, was interested in going to GBNP as well.

Dave and I headed north on Wed. Sep. 4th and our overnight night stay was in Caliente, NV, about one hundred miles north of Las Vegas. Caliente is a small town located in a picturesque narrow valley next to some beautiful mountains. Trains run right through the town. (Thursday morning, I counted 124 cars being pulled by four linked Engines). Jose also left Wednesday morning and he stayed in Las Vegas. Prascilla planned to drive up on Friday.

On Thursday we finished our drive from Caliente to Great Basin National Park (GBNP). We met Jose in the early afternoon and registered with park ranger Bill at the telescope setup area. We were warmly received as the park rangers make the star party a big event. That day we also met Bradley Mills is the lead park ranger for the astronomy event. We were each given a nice park volunteer pin and custom GBNP lanyards with name tags. Dave brought his 10-inch DOB Orion Go-To scope. Jose trailered up his beautifully made 24-inch DOB scope. We set up the scopes in the afternoon at the parking area site, reserved for us amateur astronomers. We met about a dozen or so other astronomers from Utah, Illinois and as far away as Florida. There were about as many telescopes as astronomers: mostly setting up 8–16-inch reflectors. (Jose had the largest scope there).

The first night was clear and very dark. There was only some slight haze during the day from a distant forest fire. After a presentation in the nearby outdoor amphitheater the public came over to observe. The first night was well attended and I would estimate we had about 80 to 90 people. I met one family from Monterrey, Mexico. They brought their 11-year-old son David to GBNP specifically for this event, as he is extremely interested in astronomy. Dave showed him many objects and we both explained these to David and his parents, who were very gracious and appreciative. We spoke with many of the public who were interested in learning about the sky. Jose and Dave trained their scopes on many objects, such as the Eagle Nebula (M16), the Omega (or Swan Nebula), M17, globular clusters (M4 and M22), open clusters and the Andromeda Galaxy, M31, with its' two companion galaxies, M32 and M110. Overall, a great first night! After most of the public had left, about 11pm, we went after more challenging objects. In particular, Dave hunted down Stephan's Quintet in Pegasus. We also looked at this galaxy cluster through Jose's 24 inch.

My wife Mary baked chocolate chip-caramel cookies for our trip. (She said it's her contribution to science). I shared these with the other amateur astronomers and the rangers at the outreach the first evening. They disappeared quickly.



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One astronomer named Chris brought an image-intensifier eyepiece made by Tactical Night Vision Company that Tele Vue Optical sells. (it's not inexpensive as it retails for around \$4,400). We tried this out in Jose's 24-inch scope and were "blown away"! The Helix Nebula had a very bright spiral structure. We also looked at M16, The Eagle Nebula through this imager and could see lots of amazing detail. (The imager effectively increases aperture by about a factor of three, so it effectively converted Jose's scope into a 72-inch reflector!). Minds blown!

Dave and I stayed at the Stargazers' Inn. A small, nice hotel only five miles away from our observing location in the very small town of Baker. The Inn has a nice little general store with many gifts, snacks, and literature about the park and Nevada.

On Friday, Dave, Jose, and I had reservations at the Lehman Cave, located in the park. There is a very nice Visitor Center near the cave entrance with a small café and gift shop. Before we entered the cave, we had a cave orientation, which included us stepping through a shallow water tray with fungicide. This was to prevent us from carrying in the fungus called "white nose syndrome" that can potentially kill the bats. The cave tour was excellent. While inside the cave, no one should touch the wall or ceiling surfaces to prevent human contamination. There are a few places where you must bend down but most areas are easy walking. The Lehman cave is beautifully lit and there are many features to see, including stalactites (overhead), stalagmites (formations from below), as well as "curtains," "shields" and cave pools. The walk in and out is about one-third mile each way. I highly recommend this as a daytime activity!

Prascilla arrived Friday afternoon, having driven up from San Diego in a single day! (About 650 miles). She set up the club's 10-inch loaner Dobsonian scope next to Dave's and Jose's reflectors. That evening the park rangers hosted an appreciation dinner for the visiting amateur astronomers at the Border Inn (where Jose stayed). After a brief thank you speech by the rangers, we ate roast beef, corn, tri-tip, potatoes and rolls with a few different pie choices for dessert.

The second night was also a spectacular, clear night. The band of the Milky Way was bright and swept across the sky. We had more children this night and maybe 70-80 of the public were there. We pointed out how to find the Andromeda Galaxy (the most distant unaided eye object, at 2.5 million light years). Many of the same objects were shown as the previous night, including Saturn in the eastern sky. Prascilla was very active finding objects with her scope as were Dave and Jose. (I did not bring a scope but had many nice conversations with people. Our club was the best represented, with four of us there. David from Mexico and his parents showed up again on this second night and we were warmly greeted by them. The second night was another big success!

Saturday the clouds moved in. in the morning, the four of us went up the Wheeler Peak scenic drive in Jose's vehicle. Wheeler Peak is over 13,000 feet and the highest in Nevada. We stopped at three different overlooks. A very scenic drive with aspens beginning to change color. At the last overlook, you can see the glacier, which is about 1,000 feet long. It looks small from the vantage point overlook. (Sadly, this glacier, like many others globally, is shrinking). The four of us had a leisurely lunch at the visitor center near the cave. Later in the afternoon, we camped out at our scope site and just took in the fresh pine air.

One rather friendly, but nomadic and eccentric local with his backpack, hung around our site for probably two hours. He spent a lot of his time gathering up pine nuts while he expounded on this



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and that. I told Jose, Prascilla, and Dave that he was “on the spectrum” and “probably into the infrared or ultraviolet”. He was harmless, somewhat entertaining but annoying. We packed up Dave’s and Jose’s scopes in the afternoon, but Prascilla still had her scope available for viewing. (An easy take down scope).

Dave and I decided to attend the amphitheater presentation before it got dark. The presentation was excellent. It was an overview of the DSA 2000, the “Deep Synoptic Survey”. This will be a planned array of 2,000 five-meter radio telescopes in Spring Valley, NV in the Great Basin. (Spring Valley, NV is over a hundred times “quieter” to radio in the 0.7-2 GHz band than Owens Valley, CA). The talk was presented by Dr. Gregg Hallinan of Caltech. A couple revolutionary aspects of this array are the low-cost (\$200) *ambient temperature* low noise amplifier (LNA) and the graphic chip processing (Nvidia) of data at each antenna. The dishes are linked by fiber optics and collected data will be made available immediately to the public. The system has a \$200 million budget and should see “first light” in about 2-3 years. Stay “Tuned”! (Note: There is a YouTube presentation similar to what we saw. Search for “DSA 2000” and “Hallinan”. He talks much faster in the video than he did at Great Basin park).

When it got dark on night three (Saturday) there were quite a few clouds, so we had to find openings to view through. There were still quite a few people but somewhat less (I would estimate about 50-60). Saturn was still visible for parts of the evening.

Dave and I along with Jose headed west out “the loneliest highway,” highway 50, from GBNP Sunday morning after a nice breakfast with fellow amateur John (from Illinois) whom we met the first day. Jose was heading to Sparks, NV, for a week of golf with his friends. Dave and I had Lone Pine, CA as our first night’s destination home. Mt. Whitney, the highest peak in the contiguous US was right across highway 395 from where we stayed Sunday eve. Dave drove us up through Alabama Hills after we ate at the Pizza Factory (which has great pizzas!).

The trip to Great Basin National Park was an incredibly fun adventure! Lots of pristine, beautiful mountains and high plains scenery and great skies! The park rangers are very friendly to us amateur astronomers. Should you plan to go, you will need to contact the park in advance as well as make accommodations in advance, as GBNP is a very remote place in Nevada. Clear Skies!



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JOSE CALIBRATING THE 24"



JOSE , DAVE AND KEN IN LEHMAN CAVE



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NASA Night Sky Notes

October 2024



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 to find local clubs, events, and more!

October's Night Sky Notes: Catch Andromeda Rising!

By Dave Prosper

Updated by Kat Troche

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.



Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes when seen from dark sky sites. Hints of it can even be made out from light polluted areas. Use the Great Square of Pegasus or the Cassiopeia constellation as guides to find it. Credit: Stellarium Web



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Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.



Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110. Credit: Stellarium Web

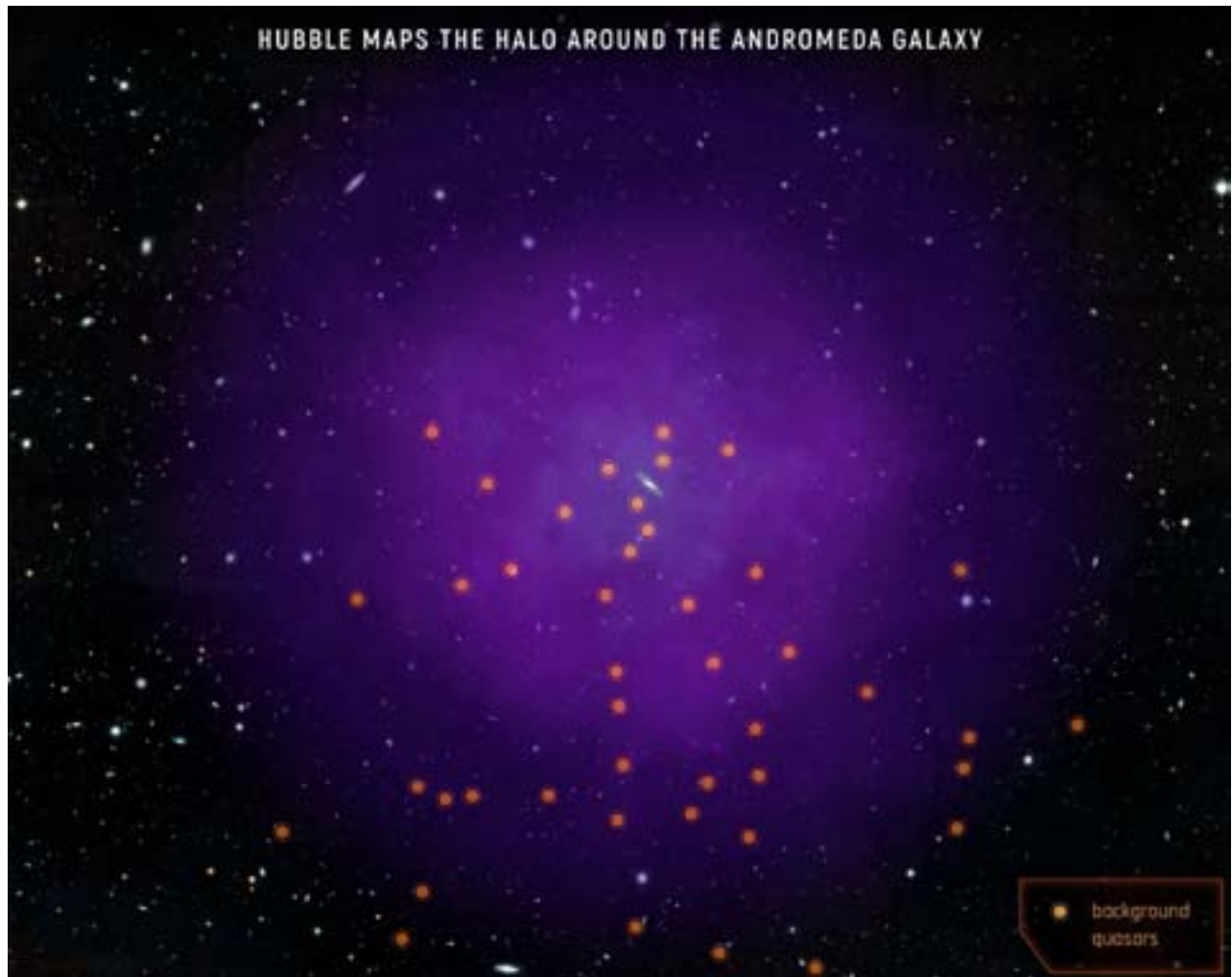


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Modern astronomy was greatly [shaped by studies of the Andromeda Galaxy](#). A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the “Andromeda Nebula.” Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own “island universe,” and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the “Great Debate” of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the “nebula” was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt’s work on Cepheid variable stars as a “standard candle” for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31’s distance as far outside our galaxy’s boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.



While M31’s disc appears larger than you might expect (about 3 Moon widths wide), its “galactic halo” of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way’s own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant



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galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI)

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA's latest discoveries about the Andromeda Galaxy, on their [Messier 31](#) page.

Originally posted by Dave Prosper: September 2021

Last Updated by Kat Troche: September 2024



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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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