# San Diego Astronomy Association

**Celebrating Over 50 Years of Astronomical Outreach**

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

**September 2021**

**Next SDAA Business Meeting**
September 14th at 7:00pm
10070 Willow Creek Rd
San Diego, CA 92131
Via Zoom

**Next Program Meeting**
September 15th at 7:00pm
Live Stream

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September 2021, Vol LIX, Issue 9
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Newsletter Deadline
The deadline to submit articles for publication is the **15th** of each month.

## *SDAA Update*

SDAA is now actively using online facilities like Zoom and YouTube to provide access to club meetings, events, and outreach programs in keeping with state and local mandates regarding physical distancing requirements during the COVID-19 pandemic. In-person events will start again in 2021 as soon as allowed by state and local mandates.
Look for updates on the Lipp telescope.

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

## *September 18, 2021 Program Meeting*

Speaker: David A. Williams, Ph.D., Research Professor in the School of Earth and Space Exploration at Arizona State University and the Co-Investigator and Deputy Imager Lead for the NASA Psyche Mission

Dr. Williams is the Director of the Ronald Greeley Center for Planetary Studies, the NASA Regional Planetary Image Facility at ASU. He is also the Director of the NASA Planetary Aeolian Laboratory at the Ames Research Center in California. He is currently performing research in volcanology and planetary geology, with a focus on planetary mapping, geochemical, and remote sensing studies

The Psyche mission is a journey to a unique metal asteroid orbiting the Sun in the main asteroid belt between Mars and Jupiter. This mission is scheduled to launch in August 2022. What makes the asteroid Psyche unique is that it appears to be the exposed nickel-iron core of an early planet, one of the building blocks of our solar system. Psyche offers a unique window into the violent history of collisions and accretion that created terrestrial planets. Exploring the asteroid Psyche (about 140 miles, or 226 kilometers, wide) could lend valuable insight into how Earth and other planets formed.

You can register in advance for the meeting at the following link. After registering, you will receive a confirmation email containing information about joining the meeting.

https://us02web.zoom.us/j/89298162225?pwd=TVZsTTg3dzRXcERDY0tXeHErVXArQT09

**Link to SDAA Merchandise Store** https://sdaa28.wildapricot.org/SDAA-Store

**Link to Outreach Calendar** https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los_

# San Diego Astronomy Association

***San Diego Astronomy Association Board of Directors Meeting***
***August 10, 2021- Unapproved and subject to revision***

1. **Call to Order**
   The meeting was held via Zoom and was called to order at 7:06pm with the following board members in attendance: Dave Wood, President; Kin Searcy, Vice President; Melany Biendara, Treasurer; Gene Burch, Recording Secretary; Alicia Linder, Corresponding Secretary; Hiro Hakozaki, Director; Dave Decker, Director; Pat Boyce, Director; and member Jerry Hilburn.

2. **Priority / Member Business**
   None

3. **Approval of Last Meeting Minutes**
   The July meeting minutes were approved.

4. **Treasurer's & Membership Report**
   The treasurer's report was approved. Mel reported that our membership numbers continue to grow with a total membership of 851. There has been a big increase in family membership and we now have 90 student members. Mel is also working on updating our insurance coverage and determining exactly what is covered at TDS. She'll report back with her findings to make sure we're adequately insured.

5. **Standard Reports**

   a. Site Maintenance Report:
   Jerry H talked with Alan about the SDGE Power situation and according to him planning has approved and it's in operations. I asked last week, and he had not directly spoken to the ops group yet. Left messages, but no reply. The transformer is in place and we'll wait until cooler weather to start trenching.

   I met with Justin Will who provided us with two quotes for the road work on Tierra Del Luna. He works heavy equipment gigs for the Border Patrol and is not insured for liability. He will sign a release of liability if we hire him to do the work. He does quite a bit of side work out here as he is local, and everyone recommends him. Mel and Jerry are going to do a bit more research before we make a decision.

   b. Observatory/Loaner Scope Report:
   *Observatory:*
   Star parties are in full swing again. Encouraging social distancing (chairs outside) but not requiring masks. Observatory has been running well

   *Loaner Scopes:*
   Program continues to run smoothly with a lot of usage. Four new issues this month! We are looking for a replacement chairperson for the Loaner Scopes program.

   c. Private Pad Report:
   We had 1 returned pad this month, so we are up to 5 unleased pads (if we count 36 which is just a bunch of brush and has never been developed) and 19 people on the waiting list, 2 of which are current pad holders looking to

upgrade. Most of the waiting list has already passed on 4 of the 5 available pads. I'm planning on offering all of the pads to the entire list in the next week or so in case anybody has changed their minds.

I'm starting to contact underutilized pad holders. My hope is that we can get a few to voluntarily relinquish, or at least to share the pads, before we have to go through the process of revoking the leases.

d. Program Meetings Report:
Kin has speakers lined up for the rest of the year and the calendar is up to date. He is still working with Mission Trails, but he's not optimistic that we'll be back in person at MTRP any time soon.

e. AISIG Report:
The July AISIG ZOOM was a real success. Half a dozen imagers showed their results of processing three TARO image sets and we picked two targets for the group next month. In August we are expecting group members to collect images of these objects with their equipment, process the images, and show their results. This should be another fun and enlightening project. In September AISIG is planning to have an in person live meeting to show our equipment, discuss imaging issues, and take pictures. Location is to be determined. The October meeting agenda is open. In November Jerry Hilburn has agreed to present. There is no planned AISIG meeting in December.

f. Newsletter Report:
Congratulations to Andrea for being awarded second place status for the *Mabel Sterns Award* for her diligent and quality work publishing our monthly newsletter. Great job and many thanks Andrea!

g. Website Report:
No issues, except that I would like to get program/speaker info for the website as soon as it is available.

h. Social Media:
No Report.

i. Outreach Report:
In July, several of our regular Outreach venues modified their COVID policies following State guidelines. This has allowed us to re-start programs at Oak Oasis, Sycamore Canyon, and KQ Ranch, along with our own TDS Monthly Public event. We have completed those events and have some numbers for the month of July and for the year 2021, to date as follows:

| **2021** | **July** | **Year to Date** |
|---|---|---|
| **Events Completed** | **4** | **5** |
| **Events Cancelled** | **3** | **38** |
| **Public Attendance** | **180** | **215** |

These events have been very well attended by our members, usually outnumbering the public attendees. We will begin to record member participation for the month of August. Of note, are the large percentage of new members participating in these programs.

Regarding future planning, we have been invited to return to Dixon Lake for 4 monthly events, beginning in September. Those mid-week events have now been calendared. We are also in discussions with Mt. Helix Park and Cabrillo National Monument, to support single events sometime in the near future.

Our virtual outreach program via YouTube live stream has been impacted by several conflicting responsibilities reported last month, but will be partially restored in August. We have scheduled an event for Friday, August 6.

Dave D is working with the City of San Diego and the Fleet Center in an attempt to get our Balboa Park star parties up and running again. He's also working with Mt. Helix and the Cabrillo National Park for events there, so keep an eye on the calendar.

j. TARO Report:
TARO is operational and is accepting DSO/EXO target imaging requests, weather permitting. During extended high heat weather periods, TARO has been shut down to prevent excessive heating on components.

k. Cruzen Report:
Gene and Jerry conducted a test training session with a member, who was able to follow the training material. Several small changes need to be made to the training manual. We had a nice 7mm Nagler eyepiece donated to the club and that should be a good addition to Cruzen.

l. Merchandise Report:
We ended up with 37 sales in response to the email blast and all of the items have been delivered.

m. Astronomical League Report:
The Astronomical League Convention, ALCon, will be virtual again this year. The dates are August 19–21, and will be held via a Zoom meeting. Registration is open and free, available on their website at:

https://www.alconvirtual.org/

Of general interest is the outstanding cadre of presenters, including David Levy, David Eicher, Jocelyn Bell Burnell, Alan Dyer, Larry Crumpler and many more.

Of particular interest for us is a presentation by SDAA member *Ryan Clairmont*, one of our first place awards recipients for the San Diego Science and Engineering Fair. He is also a recipient of the AstroLeague National Young Astronomers Award, (NYAA). His presentation is scheduled for Thursday, August 19, about 3:00 PM, PDT.

And, of course, we are excited that our own *Andrea Kuhl* has been awarded second place status for the *Mabel Sterns Award* for her diligent and quality work publishing our monthly newsletter. By the way, our newsletter contains a rich history of meeting minutes, outreach events, news articles, happenings, program meetings, and general club history, all available from our website back to February of 1999. Presentation for the Mabel Sterns Award is scheduled on Friday, August 20, about 5:00 PM PDT.

Published articles concerning the awards will be included in the September issue of "The Reflector", the magazine of the Astronomical League.

n. JSF Report:
There have been no activities for the Julian Starfest, other than initial planning for next year. The dates for JSF 2022 will be August 25 - 28.

**6. Old Business:**

a. Software Asset Updates – Mike sent out a form to collect all the data

b. September BBQ and Vintage Telescope Night - plans are moving along and we hope to set up the 24" dob

c. MTRP Star Party Updates - Still working on resuming, but no schedule at this time.

d. Other old business - none

**7. New Business:**

a. Tierra Del Luna Road Grading – covered in site maintenance

b. Annual Banquet Planning – Kristina M has agreed to help again and we'll form a committee soon

c. Insurance Coverage – covered in Treasurer's report

d. Other new business - none

**8. Adjournment:** The meeting was adjourned at 8:39pm.

## *2021 TDS Star Party Schedule*

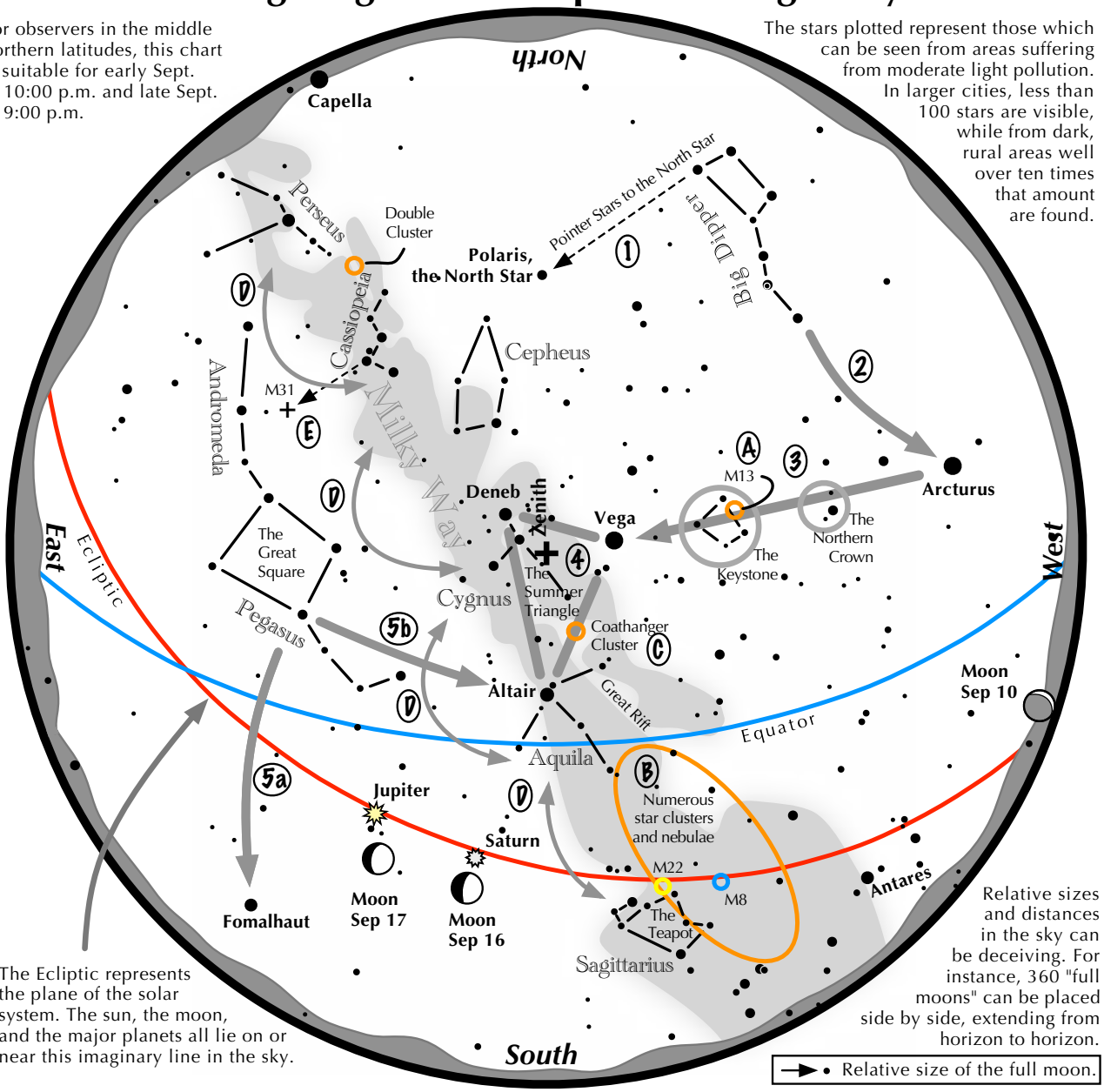
| Date | Type | Sunset | Astro. Twi. | Moonrise(set) | Illumination |
|---|---|---|---|---|---|
| Sep-04 | Private | 7:08 PM | 8:33 PM | 4:52 AM | 6% |
| Sep-11 | Public | 6:59 PM | 8:22 PM | (10:14 PM) | 29% |
| Oct-02 | Private | 6:31 PM | 7:53 PM | 3:38 AM | 17% |
| Oct-09 | Public | 6:22 PM | 7:44 PM | (8:54 PM) | 16% |
| Nov-06 | Private | 5:53 PM | 7:17 PM | (7:34 PM) | 6% |
| Nov-27 | Public | 4:42 PM | 6:09 PM | 12:10 AM | 50% |
| Dec-04 | Private | 4:42 PM | 6:09 PM | (5:12 PM) | 0% |

# San Diego Astronomy Association

## Navigating the mid September Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Sept. at 10:00 p.m. and late Sept. at 9:00 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 mid September 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 September evening sky.
3. Nearly overhead shines a star of similar brightness as Arcturus, 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. The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.
5. The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.

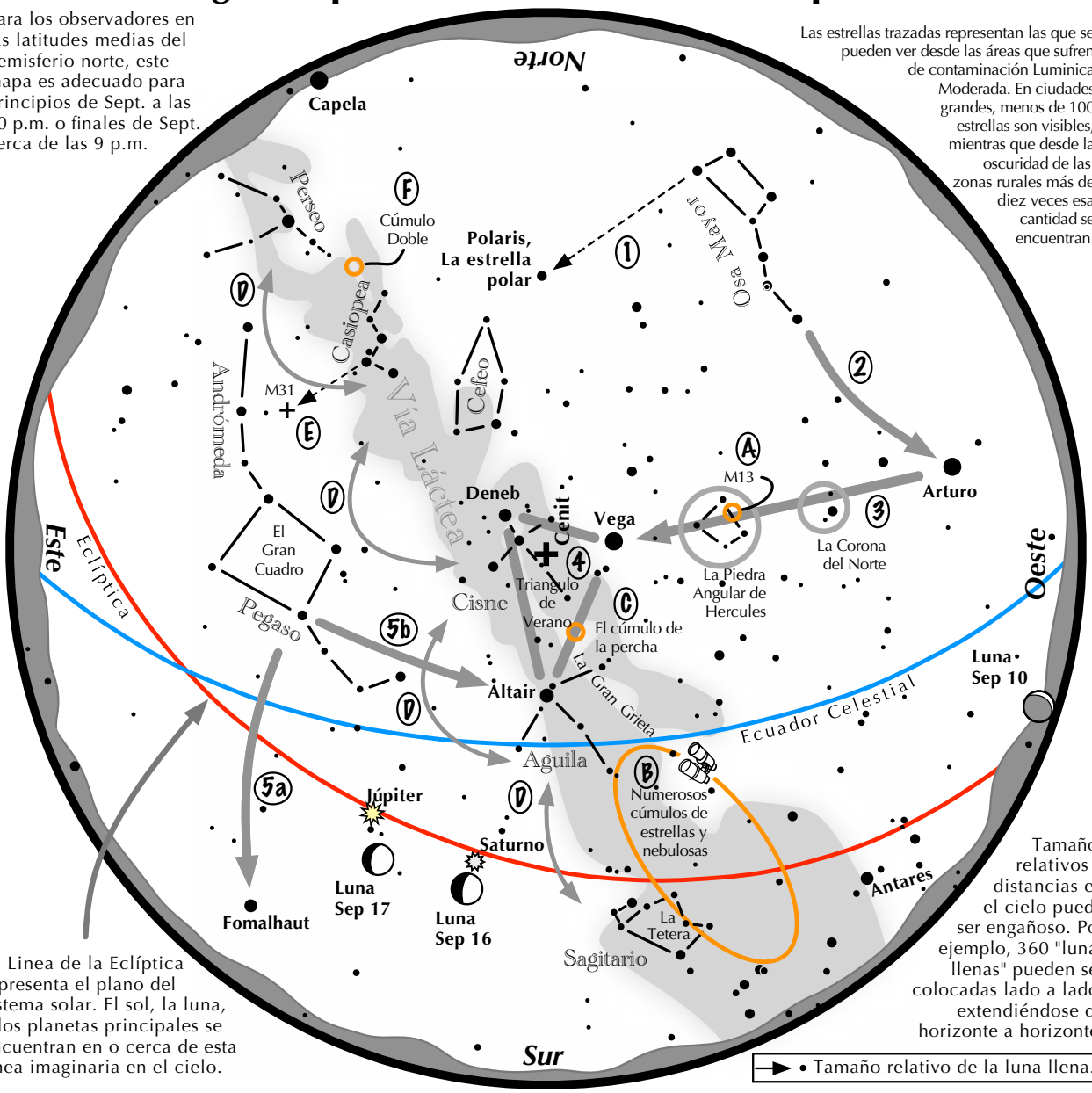
**Binocular Highlights**

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

# Navegando por el cielo nocturno de Septiembre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Sept. a las 10 p.m. o finales de Sept. cerca de las 9 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.




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.

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

→ • Tamaño relativo de la luna llena.

**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 septiembre.
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. Las dos estrellas más al oeste del Gran Cuadro, que se encuentra en el este, apuntan al sur hacia Fomalhaut. Las dos estrellas más al sur apuntan al oeste hacia Altair.

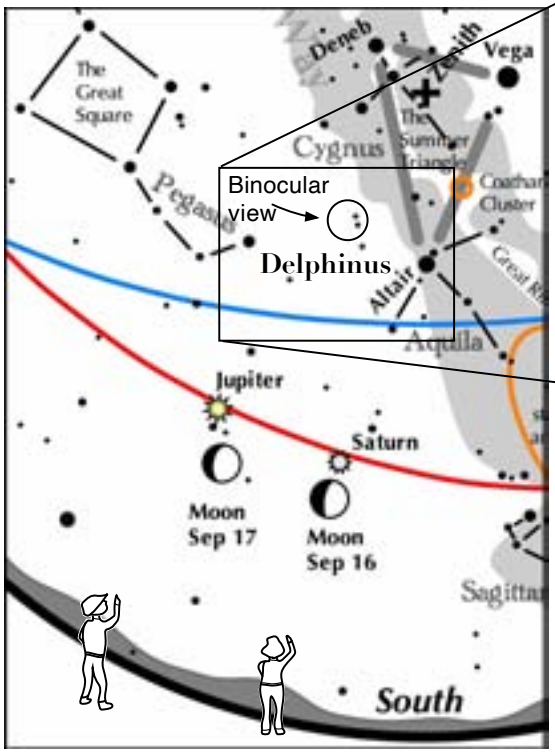
**Puntos destacados con binoculares**

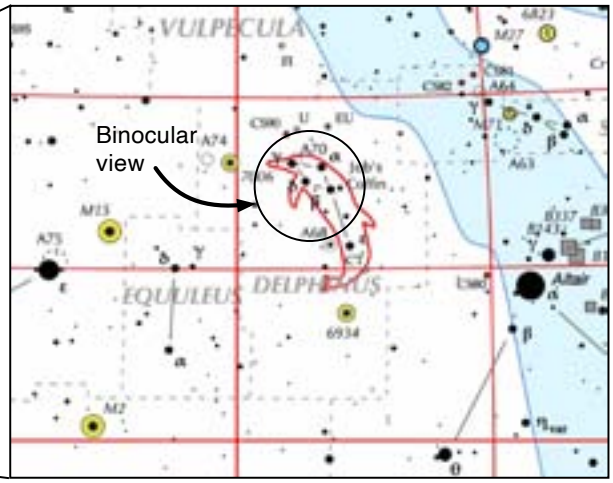
**A:** En el lado occidental de la Piedra Angular brilla el Gran Cúmulo de Hércules. **B:** Entre las brillantes estrellas Antares y Altair, se esconde un área que contiene muchos cúmulos de estrellas y nebulosas. **C:** Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo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

Traducción al español por Dr. Salvador Aguirre

**Liga Astronómica**

## If you can observe only one celestial event this month, view this one:




**South**
**90 minutes after sunset throughout September**

### Meet a new friend, one that gladly greets you every year

In the early evening just as darkness settles throughout September, look towards the south for a splash of five or six faint stars.

- A dark suburban or darker site will be needed.
- The Summer Triangle is near the meridian and the Great Square of Pegasus is rising higher above the eastern horizon.
- Half way between the western side of the Great Square and the southernmost star of the Summer Triangle, Altair, is the pretty grouping of stars known as Delphinus. This small constellation represents a leaping dolphin.
- Once you meet it, you will look for it year after year.

# Orion 80ED w/upgraded focuser (tube only)


Presale price of **$250** for Contributing Members only.
Cloudy Nights & Astromart pricing will be **$300** plus shipping.

Looking to get into astrophotography at a low price. Several "accomplished" SDAA astroimagers have started imaging with this scope. Comparable scopes have been advertised on Astromart from $300 to $425.

The scope is an apochromatic refractor (FPL-53) doublet. Includes the Orion focuser upgrade, and soft case. There is no mount included with this scope (only). The tube is light weight and a suitable mount should be readily available on the used market.

This scope has the expected nicks and blemishes but everything seems to be working fine as the previous owner stated. The doublet is free of scratches but does have observable blotches – see photo taken under the harshest light possible. I suspect that flats would remove them without degrading the results. Focal length is 600mm (*f*/7.5) and is fairly forgiving for astro-photography.

Selling "as is."

The bottom-line, here is a great starter scope for astrophotography. …and did we mention is gives spectacular visual results as well! Check out "Cloudy Nights" for reviews.

Ed Rumsey, erumsey2@san.rr.com, 858.722.3846

# NexStar Evolution 9.25 Telescope - Celestron




Presale price of **$1,725 + $3.00 for PayPal**, for Contributing Members only.
Cloudy Nights & Astromart pricing will be **$2,150 plus shipping.**

Comparable new price **$2,350 plus tax and shipping**;
Not available and back ordered everywhere until September of 2022!

Like NEW, purchased in May of 2020 from High Point Scientific as the "Bundle" version. It includes all the High Point "Bundle" accessories except the Celestron Eyepiece Kit, retained by the donor. Scope and all accessories, packaging, boxes, manuals included. Essentially perfect condition and complete.

The Evolution 9.25 is the standard Celestron 9.25" SCT telescope on the Nexstar Evolution mount with the heavy duty, CPC 1100 tripod. The full feature list is extensive but here are a few details:
Standard Celestron 9.25" SCT, Focal length 2350mm, *Fastar* compatible
Nexstar Evolution Mount, WiFi capable for computer, tablet or phone control
Clutches on both axis for manual pointing if needed
Internal Lithium battery with AC adapter for charging, Phone charge port on mount
(4) Communications ports for guiding etc.
Latest "Nexstar +" Hand Controller with 120,000 object database
Computer control via CPWI, Skyportal, or 3rd party planetarium software, via either USB to HC or wireless
Heavy Duty CPC-1100 2" stainless steel tripod
40 mm Celestron eyepiece
13 mm Celestron eyepiece
1.25" Star Diagonal
Red Dot finder scope
Astrozap flexible dew shield
All original foam and packaging and documentation

We are selling "as-is." Bottom line, you can have this very popular package while others will be waiting another 12 months!

Dave Decker, davemobile8@gmail.com, 619.972.1003

# Celestron 9.25 Black Tube OTA


Presale price of **$500** for Contributing Members only.
Cloudy Nights & Astromart pricing will be **$600** plus shipping.

Comparable new price $1,500 plus tax, backordered everywhere, would include dovetail, finder, and warranty.

Looking to upgrade your 8" SCT or get into the series cheap? 33% light gathering increase over the 8". Also a *f*2.3 primary versus the traditional SCT *f*2.0. Many consider this an image sharpening design. This telescope (tube only) was part of the Terry Arnold donation and is reported to work very well. Optics look great in the daylight. Tube exterior has a few cosmetic blemishes. Missing a dovetail and finder. The tube is not *fastar* compatible.

We are selling "as-is." Bottom line, you can have this very popular 9.25 tube while others will be waiting to pay a lot more.

Ed Rumsey, erumsey2@san.rr.com, 858.722.34846

# Meade Pictor 416XTE (CCD) & 201XT (Guider)


Presale price of **Free** for Contributing Members only.
Cloudy Nights & Astromart pricing will be shipping cost.

Kit looks complete and nearly new condition. Kit includes, CCD, filter wheel, auto guider, pick-off mirror, software, manuals, case, and hand controller.

Ed Rumsey, erumsey2@san.rr.com, 858.722.3846

## *SDAA Outreach at K.Q. Ranch Breaks Previous Participation Numbers!*

By Dennis Ammann
SDAA Center City Outreach Coordinator
SDAA KQR Coordinator

When the San Diego Astronomy Association (**SDAA**) Board of Directors, reopened outreach last July, Dave Decker headed the first outreach event on July 10, 2021, at Oakoasis County Park with about 12 SDAA members providing telescopes for the general public. This event was a 'test' to see how a San Diego County Park and SDAA would perform, the result was excellent. Meanwhile, up at K.Q. Ranch (**KQR**), the same day, there were only three of us because KQR is a lot farther away than Oakoasis by Lakeside. KQR is six miles south of Julian and a 55 mile drive from San Diego.

As August 7th drew nearer, I was wondering if anyone would be volunteering to attend the SDAA stargazing event at KQR on August 7th? Although the event was listed on the SDAA private calendar, I also posted a notice on the SDAA Group email, and *voilà*, I started receiving RSVPs for this event, so many that I ended up with **18** SDAA astronomers!

At KQR, they offer a $4.00 dinner, free overnight camping, a morning breakfast (nominal fee), clear **dark** *starry* night sky which includes the Milky Way, and an altitude of 4,670 feet which puts KQR above the coastal marine layer most of the time. Four of our members took advantage of camping and six of us enjoyed the KQR dinner (employee discount).

I arrived early at 2:00pm to set up my tent and check-in with KQR management before others arrived. My friend and new member Rex Schildhouse arrived first, and I quickly put him to work, walking around the RV resort telling campers about our stargazing event at the tennis court that evening. Doing this alerts more campers, as some don't notice our posters or the KQR Facebook page.

As the SDAA members filed in from 3:00 to 7:00pm, I was very *busy* texting/directing them where to park, where the campsite was, and where to eat dinner. Later about 6:45pm it was time for everyone to set up.

Setting up in the tennis court is usually no problem, but this time was different! In order to accommodate 18 astronomers, I had to extend my 'SDAA Observatory' into the basketball court. I placed each person in an imaginary square as bordered by the white lines on each court. This worked out very well, as there was a grand total of 16 squares, so I had a few extra squares as some astronomers didn't need a square.

With so many new SDAA members, Dave and Cindy Decker volunteered to be trouble shooters instructing new members how to work their telescopes and finding celestial objects. They also told them all about the other outreach events they can attend in the future.

Soon the KQR campers filed in throughout the night with a total of **60** campers viewing the heavens through our telescopes. We received many *"Oh my gosh(s)"*, *"I've never seen Saturn before in a telescope"*, *"Thank you for sharing your telescope with us"*, *"I never saw the Milky Way before"*, etc. They also saw a few 'shooting stars', perhaps the beginning debris field of the upcoming Perseids Meteor Shower?

I was told there were high altitude winds that were distorting Saturn and Jupiter, but everything else was very clear. Other popular targets were: Venus, M4, M6, M7, M8, M13, M20, M22, M57, the summer constellations such as: Big and Little Dipper, Cygnus, Lyra, Sagittarius, Scorpius; plus, numerous stars: Albireo, Antares, Vega, Deneb, Epsilon Lyra, Arcturus, and Mizar to inform them about.

We had all types of telescopes for the campers to look through from 10" reflectors, 9" SCT, small refractors, and Larry Marshall's famous telescope with video camera. New member Alvaro Villamizar and Annette Brown brought 10x50 binoculars for wide field views.

Soon it was 10:00pm and the campers started drifting away, returning to their camping sites. Some of our astronomers were also packing up and leaving for the long ride home down highway 79. Everyone seemed to be very delighted with the flat smooth tennis/basketball courts, relatively **dark** sky, KQR facilities, and socializing with their fellow SDAA members, both new and old.

Those who attended were: Larry Marshall, Diana Sanders, Joseph Burch, Annette Brown, Chris Mason, Sonny Adams, Rex Schildhouse, Alvaro Villamizar, Peter & Danette Boots, Jennifer Koles, William Oliver, Dave & Cindy Decker, Carter Hass, Damon Blackman, Ryan Murphy, and Dennis Ammann.

Joe Burch, Annette Brown, and I were the last to pack-out, but before that we taught Joe how to find Andromeda Galaxy (M31) using his eyes, by star hopping and using his averted vision. Just too bad M31 didn't rise until well after the campers left. We also gave Joe a view through Annette's binoculars and my 10" Dob of M31. Just before departure from the two courts, we conducted a thorough white light sweep, looking for any valuable pieces of equipment that might have been left behind. After halfway through, Joe found his controller and cable where his telescope was positioned that night! Lucky for us, we found it. We were also looking for trash, so that the courts would be clean for the next day's use. After our search, we headed to our campsite and fell asleep at 3:00am.

During the pandemic, I continued to conduct stargazing as a 'private' volunteer for KQR, along with my sister Annette. During November 2020 through March 2021, I was alone with very few campers to share the winter sky. It's too bad because some of the best celestial objects are available for observing such as M31, M35, M42, M44, M47, Double Cluster, and Sirius, along with all the winter constellations. I learned fast how to stay warm at 32F and in my sleeping bag at 25F. I've seen humidity flow off my telescope like a waterfall and in the winter saw those same drops turn to ice.

What a night that August 7th event was! So many astronomers setting up, sharing their scopes with each other and the KQR campers, then packing out helping each other. I took over the duties as SDAA KQR Coordinator in May 2016 from former President Mike Vander Vorst who was ready for a deserved break. In all that time, I've never seen so many astronomers at KQR. It doesn't get better then this!

If you're a SDAA member in good standing, would you like to experience the KQR **dark** *starry* night, excellent dinner, and camp out under the stars, come join us! Don't have a telescope, but want to learn where constellations and other celestial objects are in a dark sky dome? Here's the place to learn! Our next KQR event is on September 11th, the same night SDAA's public night at Terra Del Sol, and SDAA's public stargazing event at Oakoasis County Park. So, there you go, <u>three</u> SDAA events, all for the price of one… ***Free!*** Take your pick, don't sit home, wishing you could view the stars.

Keep looking up!

Annette Brown with her brother Dennis Ammann & 10” Dob

Carter Haas setting up his 8” SCT

Chris Mason & Alex Gambarella with 8” Dob

Damon Blackman ready to go, 10” Dob

Danette Boots with her 9” SCT

Dave Decker SDAA Outreach Coordinator & Jennie Koles with her 8” SCT


Joe Burch with 6” reflector

SDAA Astronomers at KQR

SDAA KQR Tent City

SDAA meeting of the minds

Sonny Adams setting up his 5” Mak

The SDAA Binoc Gang, Alvaro Villamizar & Annette Brown

KQR Nite Sky Scorpius & Sagittarius

Dinner at KQR – Diana Sanders, Dennis Ammann (front), William Oliver (center), Alvaro & Marietta Villamizar (back)

Larry Marshall with KQR campers

Pete Boots setting up 9” SCT

Rex Schildhouse with his 90mm refractor

Rex Schildhouse, Jack Murphy, & Pete Boots setting up


Ryan Murphy & Carter Haas next to Carter's 8" SCT

William Oliver explaining how SCT works

William Oliver with his 8” SCT

# San Diego Astronomy Association

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

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.

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

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

## Catch Andromeda Rising

David Prosper

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.

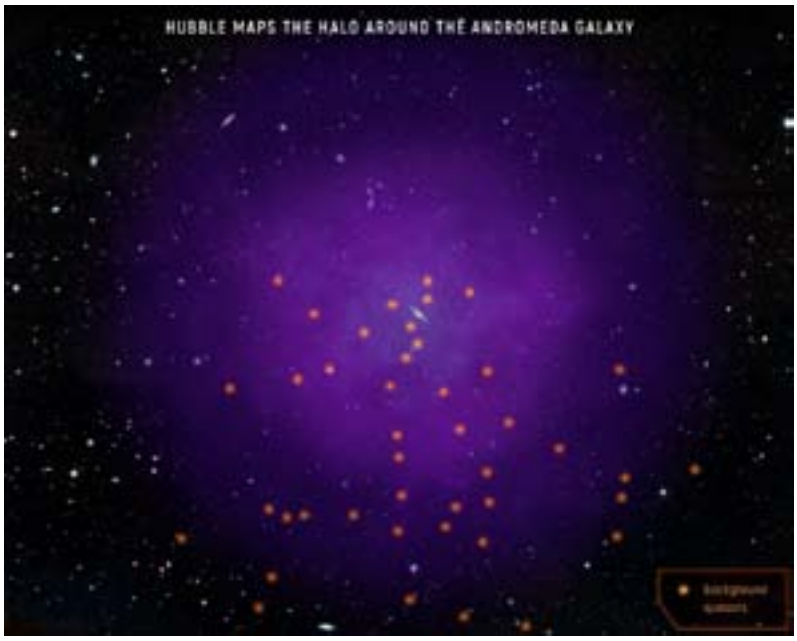
Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, 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.

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.

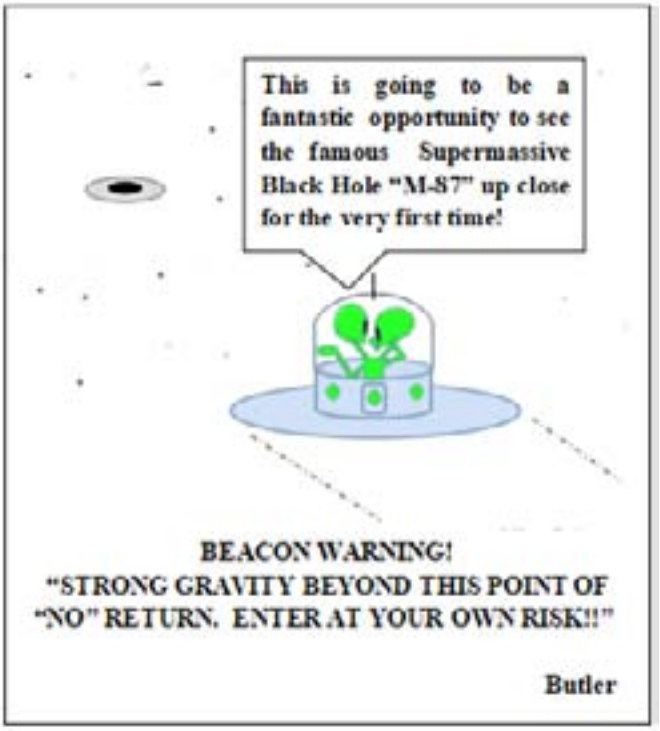
These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT): bit.ly/m31phat . Dig into NASA's latest discoveries about the Andromeda Galaxy, and the cosmos at large, at nasa.gov.

NASA Night Sky Notes September 2021


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 from dark sky sites. Hints of it can even be made out from light polluted areas. *Image created with assistance from Stellarium*




While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" 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 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) Source: https://bit.ly/m31halo*

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