

San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



June 2023

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

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

Next SDAA Business Meeting

June 13th at 7:00pm
10070 Willow Creek Rd
San Diego, CA 92131
Via Zoom

Next Program Meeting

June 21st at 7:00pm
Mission Trails Regional Park
Visitor and Interpretive Center
1 Father Junipero Serra Trail

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June 2023, Vol LXI, Issue 6

Published Monthly by the

San Diego Astronomy Association

Incorporated in California in 1963

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Program Meeting June 21st

Topic: Stellar Evolution and the Origin of Elements

Speaker: Tim Thompson



Tim will walk us through the history and physics of stellar evolution, starting with the big deal that everything we know about stars is derived from the light we see.

Tim Thompson holds an MS degree in Physics and enjoyed a career at JPL in the radio astronomy group. He has been president of the Astronomical society and is a popular speaker and docent at Mt. Wilson Observatory, where he has given a series of talks on astronomy, "Saturday Evening Talks and Telescopes with Tim Thompson." In addition to his science career, he is a rated tournament chess player.

The June 2023 Program Meeting will be in-person at the Mission Trails Regional Park visitor center and online with Zoom.

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

Julian StarFest 2023

Julian StarFest brought to you by the San Diego Astronomy Association will be August 11-13, 2023 at the Menghini Winery, located outside the town of Julian. The town is famous for its apple pies, specialty shops, restaurants and back country hospitality.

Events planned for StarFest include:

- Free public star party on Saturday night, August 12
- Camping availability for tent and RV campers from August 11 to 12
- Exhibits by major telescope and accessory vendors
- Lectures by astronomers
- Electronically assisted viewing of the sun and night sky
- Food and beverage vendors
- Astronomy games and crafts for kids
- Raffle for donated astronomy equipment on Saturday
- Optional behind the scenes tour of the Mount Laguna Observatory on Saturday, available to a limited number of visitors
- Julian StarFest is operated by a volunteer staff. Please contact the JSF Coordinator if you are interested in supporting this great SDAA event.

For more information, please contact info@julianstarfest.com

San Diego Astronomy Association Board of Directors Meeting ***May 9, 2023*** – Unapproved and subject to revision

1. Call to Order

The meeting was held via Zoom and was called to order at 7:02pm with the following board members in attendance: Dave Decker, President; Kin Searcy, Vice President; Mike Chasin, Treasurer; Gene Burch, Recording Secretary; Alicia Linder, Corresponding Secretary; Dave Wood, Director; Bee Pagarigan, Director; Gracie Schutze, Director; Hiro Hakozaki, Director. Also present were Steve Myers, Primary Grid Reconstruction committee; Dennis Ammann, Outreach chairperson; Bill Cecil, JFS Chairperson and member Tom Kennedy.

2. Approval of Last Meeting Minutes

The April meeting minutes were approved.

3. Treasurers & Membership Report

The treasurer's report was approved. Mike reported that he's updated the CA Secretary of State Statement of Information to reflect our new officers, that the Directors & Officers insurance premium has been paid, and he has purged memberships that were lapsed for over 3 months, which decreased our membership numbers. Mike also reported that we've established a savings account with Live Oak Banking, which is FDIC insured. The interest rates at Live Oak are much higher than those at Chase Bank where we currently have all our money. We have instructed our attorney to proceed with a small claims action against Chase for the counterfeit check they cashed against our account. The first step is sending a demand letter to Chase, which the attorney is working on.



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4. Standard Reports

a. Site Maintenance Report:

Bee suggested that we have a Site Maintenance committee and that she, Steve Myers and Tom Kennedy would be happy to get it started. She presented the board with a detailed analysis of current, future and ongoing needs at the site. The board agreed this is a great idea,

b. Observatory:

Pending request for reimbursement, submitted to treasurer.

For the next budget meeting: Please include a proposed line item of \$750 for the Lipp. No identified purchase to date – routine maintenance

c. Loaner Scope Report:

Five loaner scopes are out: SDAA-004 Meade LX-90; SDAA-023 Orion XT10; SDAA-026 8" Zhumell; SDAA-027 beginner astrophotography rig; SDAA-028 Bushnell Voyager. All but SDAA-027 are due back in May; SDAA-027 is due back in June. SDAA-030 (AWB OneSky) may be loaned out in early May.

Dave D. has delivered the 8" Astrograph and CGX mount to the storage box. We also had a CG-5 ASGT donated that I'm going to cannibalize to tune up SDAA-027. We also had a very nice Orion SkyQuest 8" classic dob with eyepieces, donated. I'll be picking that one up from Dave D. and getting it onboard to the loaner program.

It may be time to go ahead and sell the other Coulter Dob, to ensure we have sufficient space in the storage box for the new donations.

d. Private Pad Report:

Pad 43 Update:

Tom would like permission to go ahead and set the dome up and keep it covered to see if the glow fades. His mitigation proposal is to cover the come with the same opaque UV film that they use to cover boats in storage. He would use metal strips to ensure the film didn't delaminate and would put on a second layer if the first layer didn't block all of the light. His longer-term mitigation is to put a different dome on the base (NexDome's fit on that base), but he'd like permission to try the covering solution first.

e. Program Meetings Report:

May program meeting will focus on Palomar Observatory history and science. Observatory will open for tours on 10 June. The June meeting will be in person at Mission Trails Regional Park (MTRP) and the speaker will be from the Mount Wilson Observatory. Barring technical difficulties, the meeting will also be shared via Zoom.

f. AISIG Report:

Dave Wood put out a message on the AISIG Groups I.O page about restarting the AISIG meetings. I got 4 responses, two from the same person. I'll send a Zoom meeting invite out to the AISIG group and see who shows up. The meeting will be scheduled for the 23rd of May and marketed as a "meet & greet" in order to figure out what folks want to share. Gene is going to send out an email blast letting everyone know that AISIG is starting up again.

g. Newsletter Report:

All looks great – Thanks, Andrea!



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- h. Website Report:
The JSF website has been updated for 2023 and is ready to take reservations.
- i. Social Media:
No report
- j. Outreach Report:
Here are the numbers:

2023	April	YTD
Events Completed	11	31
Events Cancelled	0	20
Total Attendance	684	2924

It appears that we finally made out in April with no event cancellations. Stars-in-the-Park was almost canceled because of weather but did the best we could on April 5th. The Descanso Town Hall stargazing event was a new venue for us and just wonderful, even though the weather and the oak trees were in the way, the small-town environment was great because the people told us they had a great time viewing their night sky. Over at Agua Caliente County Park, this was the third astronomy lab SDAA provided to Innovations Academy within the last four years, with the latest on April 18th. These unique students really enjoyed their astronomy lesson under the dark desert night sky. A couple days later, on the weekend of April 21st and 22nd, Ranger Cody Ambrose arranged for two SDAA Constellation Talks also at Agua Caliente County Park for his campers. There were 80 campers each night at the amphitheater ready to see the constellations and celestial objects via green laser pointers and telescopes. Rounding up last month was SDAA's visit to Girl Scout Troop 5099 at Whispering Oaks, south of Julian. There were 54 Girl Scouts waiting in their amphitheater for sunset, listening to Sonny Adams and Dennis Ammann teaching them about telescopes and what they were to see that night as the sunset before them. Unfortunately, the clouds overtook the sky about 45 minutes after sunset, but they still learned a lot and got to see the moon up close. A wonderful month of stargazing events, we can only hope for good luck next month in May, because May is notorious for the dreaded coastal marine layer.

- k. TARO Report:
The Rotator has been repaired and is back in my hands. Re-installation of the Rotator and replacement of the primary server will happen sometime during the week of May 7th assuming the weather cooperates.



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i. Cruzen Report:

"Guinea pig" training took place on April 21. We had six members participate in the training and got positive feedback about the facility's ease of use as well as the documentation. A few minor notes to improve the documentation. The expectation is for our guinea pigs to reserve and utilize Cruzen before the "grand opening" training in August, to provide additional feedback. As of May 2, no guinea pig reservations have been made. Bee has reserved a night at the observatory to do some additional testing and documentation validation.

We have a few minor updates to the facility to make in preparation for the August "grand opening":

- hang up the dry erase board
- mount some pool noodles on the counterweight shafts to reduce head bonking
- write up a Stellarium "cheat sheet" and tape it to the table next to the laptop

The Schaefer mount RA encoder is also still giving us trouble. I have a temporary fix in place but need to try again for a more permanent solution to the RA encoder slipping. I will be out again on May 13, weather permitting, to try something else. I've discussed it with Brian McFarland and he noted that he could machine some parts if needed.

m. Merchandise Report:

No sales, but the Wild Apricot store has been updated to handle the JSF registrations.

n. Astronomical League Report:

Mike has produced a report of current Astronomical League members from the Wild Apricot database. I have since received a report from AL regarding their data on SDAA membership and have updated their data to be consistent with ours. Mike has also identified our last payment to AL from last October, and we have asked AL for clarification on our account status. Each year on June 30, the Astronomical League establishes our membership count and mailing addresses for The Reflector magazine. Based on that count they invoice the SDAA \$10/ member to cover printing and mailing.

o. JSF Report:

County permit has been submitted.

Acquired insurance for event. I paid it so will forward to treasurer for reimbursement.

Met with Toni and Mike Menghini and toured the site to visualize layout of campers, tent, shower area, public parking.

Had Toni and Mike sign the Authorization to use winery for JSF 2023

Received signed agreement for ware wash facility by Toni and Mike.

Have three speakers lined up with a fourth potential contingent on family vacations.

Woody will do solar and evening viewing in the tent.

Dennis will do an evening constellation laser tour Saturday evening.

Jessica will do a lecture to be determined.

Dr. Douglas Leonard (tentative)



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Have secured Mt. Laguna tour for August 12, 2023. Will need all visitors signed up and submitted to Dr. Quimby at least 48 hours before arrival.

Have secured food from same deli as last year. Looking for others.

Contacted vendor for security waiting for response.

Webpage updated for JSF 2023. Thanks to all who helped.

Will be heading out to TDS with Dan to recover materials necessary for packets. Date still pending.

Not sure Web link to register has been updated to connect to me. Not sure how to do that or who can complete that task.

I will need volunteers for Wednesday set up. So far, I may have one and myself. That will not be sufficient.

Addendum (by Dan Kiser):

Great progress! Remember that we should do the grounds set up on Thursday, August 10, in advance of the start of the event on Friday, August 11. Also remember that me and 3 other regulars have already committed to join you for the grounds set up on Thursday and clean up on Sunday, August 13. Sandy and I can also run merchandise, registration tracking and are here if you need any additional help with JSF planning and preparations. See you on May 19 for the trip to TDS to review JSF materials.

- p. Primary Grid Reconstruction Report:
Grid Rebuild. Paul is moving forward with the grid design.

5. Old Business:

- | | | |
|----|---|--------|
| a. | Google Workspace Email Updates – Steve reported that the cutover will be on May 10 th and the board approved. This is the first step in the process and we will work on getting current data and documents transferred over and organized. | Myers |
| b. | By-Laws Clarification – need to schedule a meeting | Decker |
| c. | Site Clean-up May 20 th - Gene to send out email | Decker |
| d. | Adoption of updated TDS Site rules - approved | Decker |
| e. | Other Old Business - none | Decker |

6. New Business:

- | | | |
|----|--|---------------|
| a. | Site Maintenance Committee – see Site Maintenance Report | Bee/Decker |
| b. | Budget Meeting - Mike will schedule | Decker/Chasin |
| c. | Purchase of CD Investments – see Treasurers Report | Chasin |
| d. | Other New Business - none | Decker |

7. **Adjournment:** The meeting was adjourned at 8:50pm.

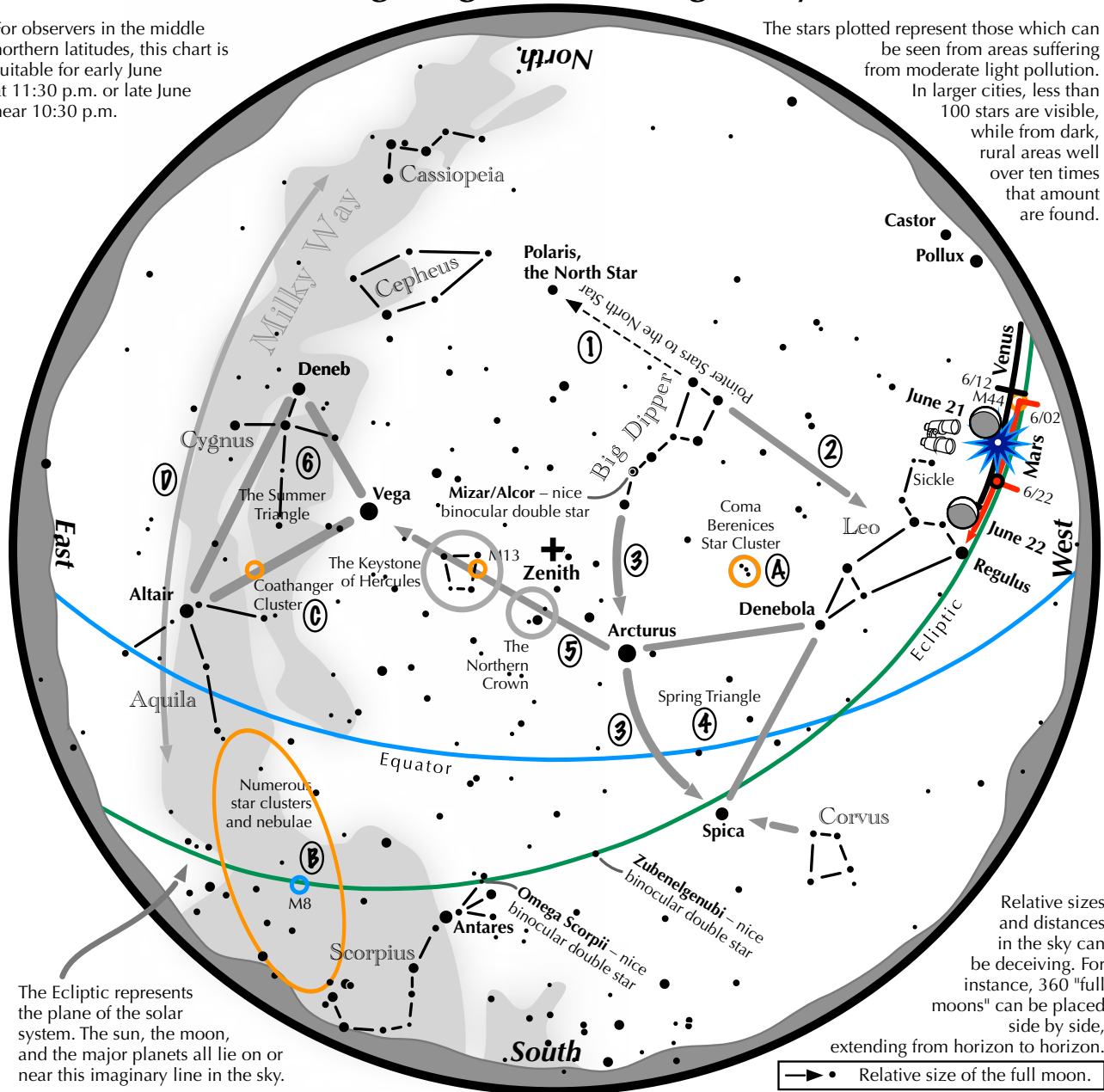


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Navigating the June Night Sky

For observers in the middle northern latitudes, this chart is suitable for early June at 11:30 p.m. or late June near 10:30 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 June 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 Draw another line in the opposite direction. It strikes the constellation Leo high in the west.
- 3 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the June evening sky, then Spica.
- 4 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 5 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.
- 6 High in the east are the three bright stars of the Summer Triangle: Vega, Altair, and Deneb.

Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars of 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.



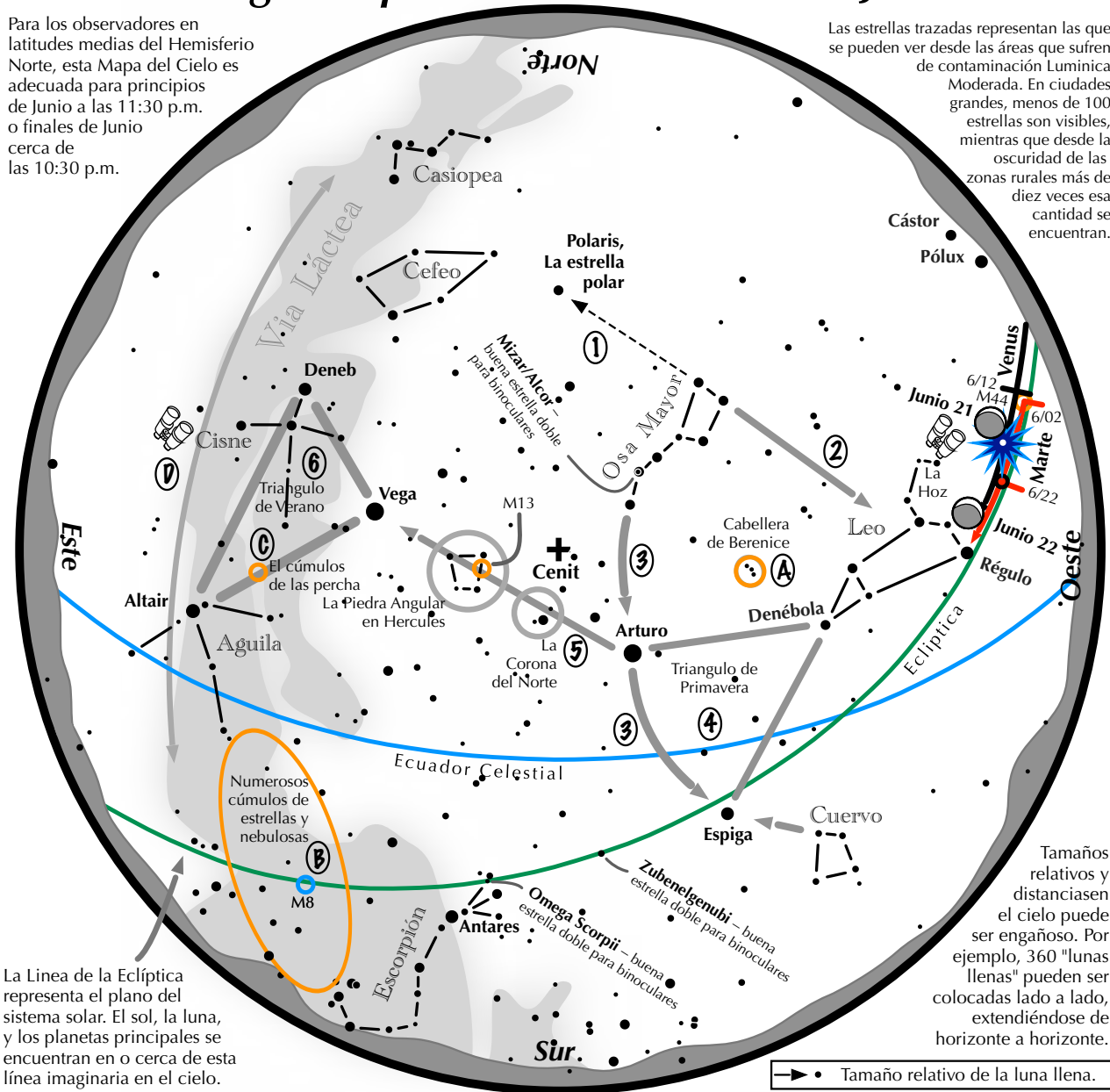


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Navegando por el cielo nocturno de Junio

Para los observadores en latitudes medias del Hemisferio Norte, esta Mapa del Cielo es adecuada para principios de Junio a las 11:30 p.m. o finales de Junio cerca de las 10:30 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 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 Directamente debajo del tazón de la Osa Mayor se encuentra Leo con su estrella principal, Régulo.
- 3 Siga el arco del mango del tazón de la Osa Mayor. Primero cruza Arturo, luego continúa hacia Espiga, luego Cuervo.
- 4 Arturo, Espiga y Denébola forman el triángulo de primavera, un gran triángulo equilátero.
- 5 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.
- 6 En lo alto del este se encuentran las tres estrellas brillantes del Triángulo de verano: Vega, Altair y Deneb.

Puntos destacados con binoculares

A: Mira alto en el este para ver el cúmulo de estrellas perdidas de Cabellera de Berenice. B: Entre las brillantes estrellas de Antares y Altair, se esconde un área que contiene muchos cúmulos de estrellas y nebulosas. C: El 40% del camino entre Altair y Vega, centellea el "Colgador", un grupo de estrellas que describe un perchero. D: Barrer a lo largo de la Vía Láctea para obtener una cantidad asombrosa de brillos tenues y bahías oscuras.

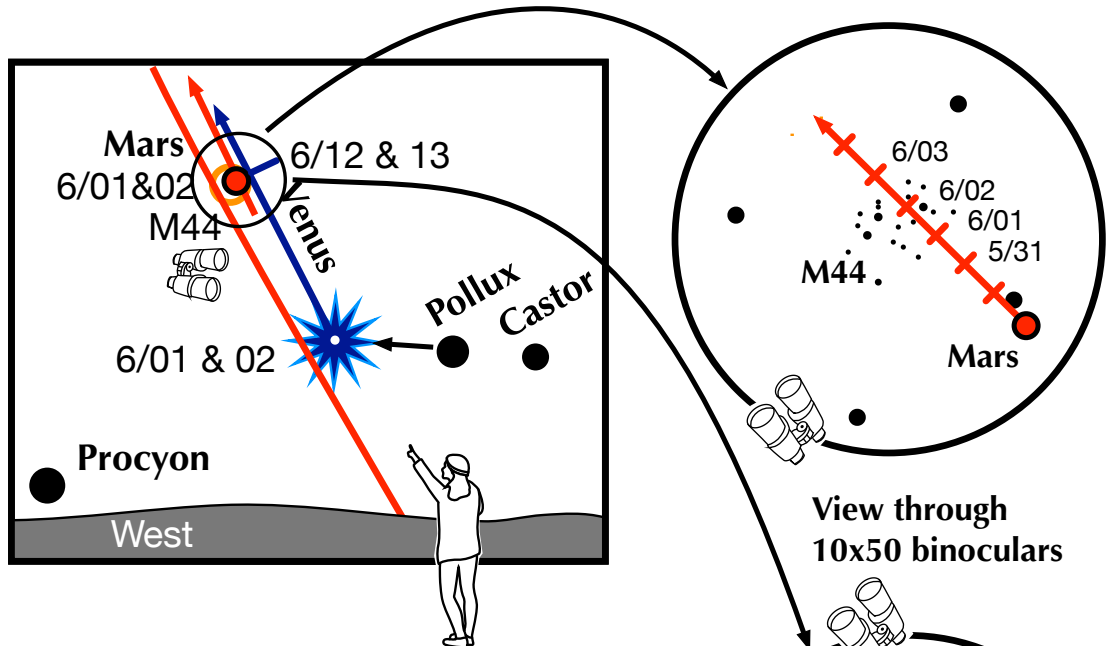




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A must see celestial planetary play: Two planets visit the Beehive

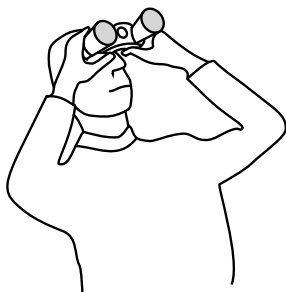


Beginning on June 1, look to the west-northwest 90 minutes after sunset.

- The twin stars of Gemini, Castor and Pollux, will be found forming a horizontal bar low above the horizon.
- Brilliant Venus shines to their left effectively forming the very bright third member of a set of triplets!
- On the same evening and the next, red Mars slides in front of M44, aka the Beehive Star cluster, positioned above Venus. Use

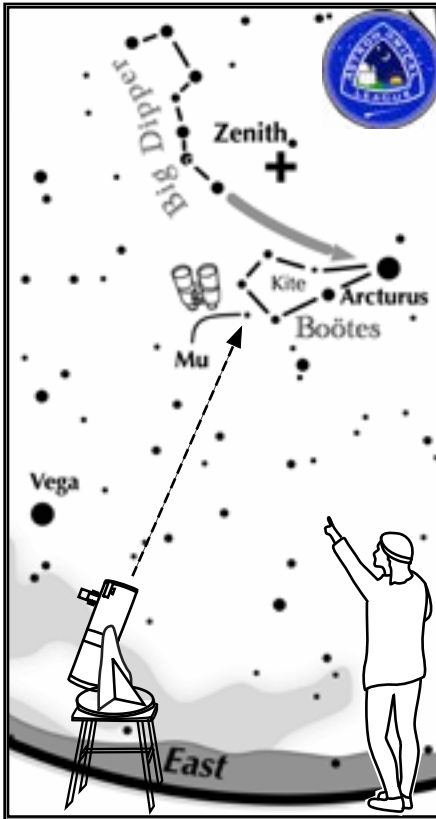
binoculars to find Mars sitting amid the many stellar bees.

- Ten nights later, it is Venus' turn to stay at the Beehive for two consecutive nights. The planet travels along the outskirts, farther from Beehive central than Mars moved. Again, bring out the binoculars. How does the glare of brilliant Venus affect the scene?





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Other Suns: Mu Boötis

How to find Mu Boötis on a June evening

Look at the Big Dipper. Follow the curve of the handle until it intersects the bright star Arcturus. Follow the "kite" figure stretching to the left. The two top left stars of the kite form a triangle with Mu.

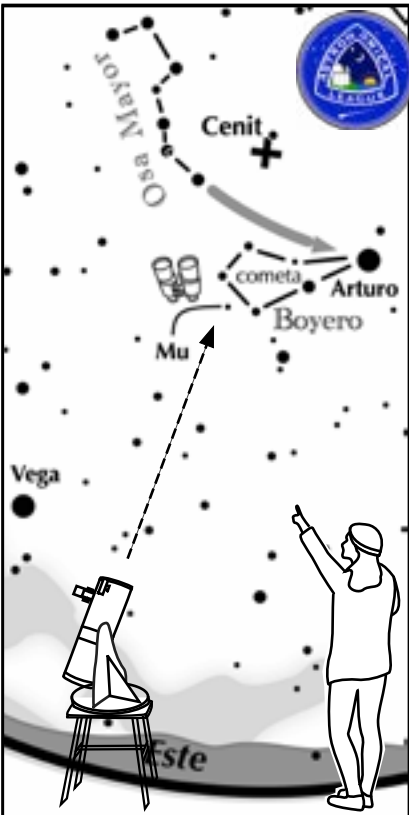
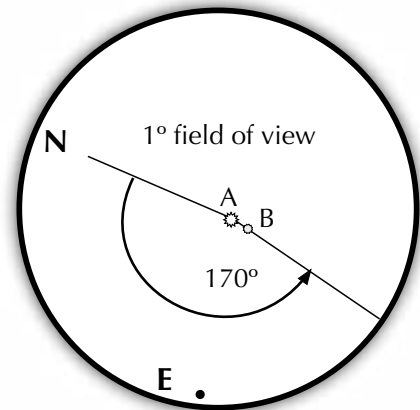
Mu Boötis

A-B separation: 110 sec
A magnitude: 4.3
B magnitude: 6.5
Position Angle: 170°
A & B colors: white

Suggested magnification: >30x
Suggested aperture: >2 inches



Use 10x50 binoculars to separate Mu Boötis.



Otros Soles: Mu Boyero

Cómo encontrar a Mu Boyero en una tarde de junio

Mira la Osa Mayor. Siga la curva del mango hasta que se cruce con la brillante estrella Arturo. Siga la figura de la "cometa" que se extiende hacia la izquierda. Las dos estrellas superiores izquierdas de la cometa forman un triángulo con Mu.

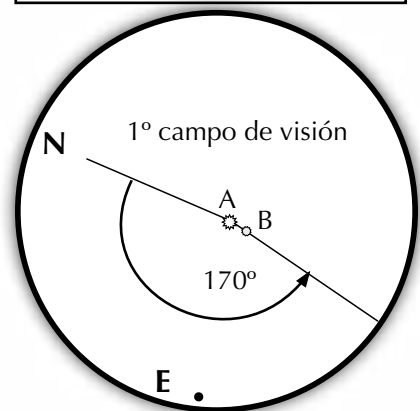
Mu Boyero

A-B separación: 110 sec
A magnitud: 4.3
B magnitud: 6.5
PA: 170°
A & B color: blanca

Ampliación sugerida: >30x,
Apertura sugerida: >50 mm



Usa 10x50 binoculares para separar Mu Boyero.





San Diego Astronomy Association

SDAA Contacts

Club Officers and Directors

President	Dave Decker	President@sdaa.org	(619) 972-1003
Vice President	Kin Searcy	VicePresident@sdaa.org	
Recording Secretary	Gene Burch	Recording@sdaa.org	(858) 926-9610
Treasurer	Mike Chasin	Treasurer@sdaa.org	((858) 210-1454
Corresponding Secretary	Alicia Linder	Corresponding@sdaa.org	
Director Alpha	Dave Wood	DirectorAlpha@sdaa.org	(858) 735-8808
Director Beta	Hiro Hakozaki	DirectorBeta@sdaa.org	(858) 869-9507
Director Delta	Gracie Schutze	DirectorDelta@sdaa.org	(619) 857-0088
Director Gamma	Bee Pagarigan	DirectorGamma@sdaa.org	(760) 703-6183

Committees

Site Maintenance	Ben Grunbaum	TDS@sdaa.org	
Observatory Director	Ed Rumsey	Observatory@sdaa.org	(858) 722-3846
Private Pads	Mark Smith	Pads@sdaa.org	(858) 484-0540
Outreach	Dennis Ammann	Outreach@sdaa.org	(619) 247-2457
N. County Star Parties	-Vacant-	NorthStarParty@sdaa.org	
S. County Star Parties	-Vacant-	SouthStarParty@sdaa.org	
E. County Star Parties	Dave Decker	EastStarParty@sdaa.org	(619) 972-1003
Central County Star Parties	Dennis Ammann	CentralStarParty@sdaa.org	(619) 247-2457
Camp with the Stars	-Vacant-	CampWiththeStars@sdaa.org	
K.Q. Ranch Coordinator	Dennis Ammann	KQ@sdaa.org	(619) 247-2457
Newsletter	Andrea Kuhl	Newsletter@sdaa.org	(858) 547-9887
New Member Mentor	Dan Kiser	Mentor@sdaa.org	(858) 922-0592
Webmaster	Jeff Stevens	Webmaster@sdaa.org	(858) 566-2261
AI SIG	Dave Wood	AI SIG@sdaa.org	
Site Acquisition	-Vacant-	SecondSite@sdaa.org	
Field Trips	-Vacant-	FieldTrips@sdaa.org	
Grants/Fund Raising	-Vacant-	Grants@sdaa.org	
Julian StarFest	Bill Cecil	info@julianstarfest.com	
Merchandising	Gene Burch	Merchandising@sdaa.org	(858) 926-9610
Publicity	Jeff Flynn	Publicity@sdaa.org	(619) 806-6505
Loaner Scopes	Paul Krizak	loanerscopes@sdaa.org	
Cruzen Observatory Director	Paul Krizak		
TARO Observatory Director	Dave Wood	TARO@sdaa.org	
Governing Documents	TBD		
TDS Network	Dave Wood	TDSNet@sdaa.org	(858) 735-8808
Amateur Telescope Making	-Vacant-		
ALCOR (Astronomical League Correspondent)	Dave Decker	ALCOR@sdaa.org	(619) 972-1003

SDAA Editorial Staff

Editor - Andrea Kuhl

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.



San Diego Astronomy Association

NASA Night Sky Notes

June 2023



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!

Look Up in the Sky - It's a Bird

Theresa Summer

Bird constellations abound in the night sky, including **Cygnus**, the majestic swan. Easy to find with its dazzling stars, it is one of the few constellations that look like its namesake and it is full of treasures. Visible in the Northern Hemisphere all summer long, there's so much to see and even some things that can't be seen. To locate Cygnus, start with the brightest star, **Deneb**, also the northeastern most and dimmest star of the Summer Triangle. The Summer Triangle is made up of three bright stars from three different constellations – read more about it in the September 2022 issue of Night Sky Notes. "Deneb" is an Arabic word meaning the tail. Then travel into the triangle until you see the star **Albireo**, sometimes called the "beak star" in the center of the summer triangle. Stretching out perpendicular from this line are two stars that mark the crossbar, or the wings, and there are also faint stars that extend the swan's wings.

From light-polluted skies, you may only see the brightest stars, sometimes called the Northern Cross. In a darker sky, the line of stars marking the neck of the swan travels along the band of the **Milky Way**. A pair of binoculars will resolve many stars along that path, including a sparkling open cluster of stars designated **Messier 29**, found just south of the swan's torso star. This grouping of young stars may appear to have a reddish hue due to nearby excited gas.

Let's go deeper. While the bright beak star Albireo is easy to pick out, a telescope will let its true beauty shine! Like a jewel box in the sky, magnification shows a beautiful visual double star, with a vivid gold star and a brilliant blue star in the same field of view. There's another marvel to be seen with a telescope or strong binoculars – the Cygnus Loop. Sometimes known as the **Veil Nebula**, you can find this supernova remnant (the gassy leftovers blown off of a large dying star) directly above the final two stars of the swan's eastern wing. It will look like a faint ring of illuminated gas about three degrees across (six times the diameter of the Moon).

Speaking of long-dead stars, astronomers have detected a high-energy X-ray source in Cygnus that we can't see with our eyes or backyard telescopes, but that is detectable by NASA's Chandra X-ray Observatory. Discovered in 1971 during a rocket flight, Cygnus x-1 is the first X-ray source to be widely accepted as a black hole. This black hole is the final stage of a giant star's life, with a mass of about 20 Suns. Cygnus x-1 is spinning at a phenomenal rate – more than 800 times a second – while devouring a nearby star. Astronomically speaking, this black hole is in our neighborhood, 6,070 light years away. But it poses no threat to us, just offers a new way to study the universe.

Check out the beautiful bird in your sky this evening, and you will be delighted to add Cygnus to your go-to summer viewing list. Find out NASA's latest methods for studying black holes at www.nasa.gov/black-holes.



San Diego Astronomy Association

NASA Night Sky Notes

June 2023



Look up after sunset during summer months to find Cygnus! Along the swan's neck find the band of our Milky Way Galaxy. Use a telescope to resolve the colorful stars of Albireo or search out the open cluster of stars in Messier 29. Image created with assistance from Stellarium: stellarium.org



While the black hole Cygnus x-1 is invisible with even the most powerful Optical telescope, in X-ray, it shines brightly. On the left is the optical view of that region with the location of Cygnus x-1 shown in the red box as taken by the Digitized Sky Survey. On the right is an artist's conception of the black hole pulling material from its massive blue companion star.
(Credit: NASA/CXC chandra.harvard.edu/photo/2011/cygx1/)



San Diego Astronomy Association

2023 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Closing	Illum. [†]	Hosts
6/10/2023	Public	7:56 PM	9:37 PM	1:36 AM	11:00 PM	52.8%	
6/17/2023	Member	7:58 PM	9:40 PM	(8:03 PM)	11:00 PM	0.3%	Bob Roth
7/8/2023	Public	7:59 PM	9:39 PM	12:07 AM	11:00 PM	67.3%	Per Martin
7/15/2023	Member	7:57 PM	9:35 PM	4:36 AM	11:00 PM	3.9%	Igor von Nyssen
8/12/2023	Public	7:36 pm	9:06 PM	3:26 AM	11:00 PM	12.2%	Ed Rumsey
8/19/2023	Member	7:29 PM	8:57 PM	(9:23 PM)	10:30 PM	10.9%	Bob Roth
9/9/2023	Public	7:02 PM	8:26 PM	2:17 AM	10:00 PM	24.5%	Joe Fox (need a trainer)
9/16/2023	Member	6:53 PM	8:16 PM	(7:52 PM)	10:00 PM	3.0%	
10/7/2023	Public	6:25 PM	7:47 PM	1:07 AM	9:30 PM	40.2%	Paul Krizak
10/14/2023	Member	6:16 PM	7:38 PM	(6:22 PM)	9:30 PM	0.0%	Igor von Nyssen
11/4/2023	Public	5:55 PM	7:18 PM	11:54 PM	9:00 PM	57.8%	Bob Roth
11/11/2023	Member	4:49 PM	6:14 PM	5:34 AM	8:00 PM	2.8%	
12/9/2023	Member	4:42 PM	6:10 PM	4:22 AM	8:00 PM	12.0%	Bob Roth
12/16/2023	Public	4:44 PM	6:12 PM	(8:54 PM)	8:00 PM	20.1%	

[†] Illumination at meridian crossing.

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!

MEMBERSHIP INFORMATION

Send dues and renewals to P.O. Box 23215, San Diego, CA 92193-3215 or renew on-line. The notice that your membership in SDAA will expire is sent by email. Dues are \$60 for Contributing Memberships; \$40 for Basic Membership; \$70 for Private Pads; \$5 for each Family membership.