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

April 2022

Next SDAA Business Meeting
April 8th at 7:00pm
10070 Willow Creek Rd
San Diego, CA 92131
Via Zoom

Next Program Meeting
April 16th at 7:00pm
Live Stream

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April 2022, Vol LX, Issue 4
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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 and special events. While our public outreach events have restarted in some San Diego County facilities, most events in city owned facilities are still undergoing review.

Public outreach events have restarted at The Lipp telescope. The Lipp hosts will limit the amount of people inside the observatory when the telescope is operational. Please observe masking and social distancing guidelines if you are unvaccinated.

As the pandemic remains a part of our lives, please continue to observe safe practice guidelines while at TDS.

Program Meeting April 16th

Speaker: Kalind Carpenter
Topic: Exobiology Extant Life Surveyor (EELS)

Kalind is a Robotics Engineer in the robotic Vehicles and Manipulators group (347B) at JPL. The lab he works in focuses on rapid technology development and end effectors specifically tailored to gripping and mobility. Current work includes Principal Investigator of the Exobiology Extant Life Surveyor (EELS), an adaptable mobility capability aimed to traverse through the plume vent crevasses on Enceladus to reach the ocean below the ice.

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. You may be required to log in with a Zoom login and password in order to attend 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
March 8, 2022- 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 Wood, President; Kin Searcy, Vice President; Melany Biendara, Treasurer; Gene Burch, Recording Secretary; Alicia Linder, Corresponding Secretary; Hiro Hakozaki, Director; Dave Decker, Director; Mike Chasin, Director, Steve Myers, Primary Grid Reconstruction Chairperson and Dan Kiser, JSF Committee.

2. **Approval of Last Meeting Minutes**
   The February meeting minutes were approved.

3. **Treasurers & Membership Report**
   Mel is still working on the issue with the counterfeit check that Chase bank wrongly cashed against our account. She is filing a police report and a claim with CFPB. Thanks to the support of our generous members, our annual banquet netted almost $9,000, which was about $3,000 more than we had estimated! Many thanks to all who helped make it a success. SDGE has begun billing for the new electrical drop to observatory row. Our monthly SDGE bills have skyrocketed and we're trying to figure out why. The JSF patent is up for renewal at a cost of $250 and we have a member who is an attorney who has volunteered his services to help with that.

4. **Standard Reports**
   a. <u>Site Maintenance Report:</u>
   Steven Myers, Mike Chasin and I went out to TDS on 2/20 to carry out some high priority work on the electrical system out at TDS. We worked in the bathrooms, out on the public pads, and addressed some safety issues on the private pads.

   I posted the previously reviewed notices reminding club members and the public to remove all personal items from the communal spaces at TDS. Mike installed the newly repaired warming room door lockset. Thanks to Ed for getting this repaired.

   People have been using the trash cans at TDS, particularly in the bathroom, as a place to dispose of food. Given the few dedicated people who remove the trash from TDS and the extended time trash may sit around before being removed, putting food in the trash cans is obviously problematic. New, smaller Trash cans will be placed in the bathrooms and the warming room along with new signage asking members and visitors to take home the trash they brought with them and not to place food scraps and containers in the smaller trash containers.

   I established contact with SDGE about their request to perform some fuel reduction efforts around their power poles. As of this report, I have not heard back from them.

b. Observatory/Loaner Scope Report:

Observatory:

Observatory has been running well. We have excellent host participation and attendance. Filling the 2022 host schedule now.

Loaner Scopes:

No report.

c. Private Pad Report:

The proposal for Pad 62 construction is almost ready for the BOD. I'm hoping it will make it in time for the meeting.

There are currently 7 available pads and 7 people on the waiting list. Note that 5 of the available pads are right by the water tank to the south and I've recently had two people relocate from two of those pads to other areas on the site. I'm trying to steer people thinking of putting up structures for remote imaging to those pads because I'm thinking it would be easier to mitigate the light trespass from that water tank with that kind of a setup.

d. Program Meetings Report:

We have speakers for March, April and May and we're currently working on June. Judging for the Science Fair is on March 15th.

e. AISIG Report:

There was no AISIG meeting in February and we still need someone to take over as the AISIG chairperson. Gene will send out another email looking for a volunteer.

f. Newsletter Report:

As always, the newsletter looks great – Thanks Andrea!

g. Website Report:

Contacts page and forwarding addresses were updated with the new Board.

h. Social Media:

No report

i. Outreach Report:

Below is a summary of outreach event participation with numbers for February and for YTD:

2022	February	YTD
Events Completed	8	13
Events Cancelled	2	6
Total Attendance	625	779

Highlights during February included a very clear, and cold, night at the Borrego Springs Library, featuring two live imaging systems, and four other scopes. We also had a special event for the Escondido Creek Conservancy with Channel 8 News in attendance, doing live interviews with our members. For this event we set up the club's StarMaster 14.5, which became the backdrop for much of the news video.

We also hosted our first "on campus" school event since March of 2020. This precedes several other school events now on calendar as well.

j. TARO Report:
TARO recently completed a successful EXO observation of WASP 36 b. Scott Dixon is submitting results to the AAVSO

TARO is operational and is accepting DSO/EXO target imaging requests, weather permitting – which still sucks (a lot!).

k. Cruzen Report:
Sadly, nothing to report.

l. Merchandise Report:
No sales this month.

m. Astronomical League Report:
Nothing new to report.

n. JSF Report:
Dan Kiser reported that JSF is on track for this August with setup on the 25th, the event on Friday/Saturday the 26th and 27th and tear down on Sunday the 28th. The committee is working on all the details and trying to get the word out that JSF is back!

o. Primary Grid Reconstruction Report
Discussing the approach to replacing the electric grid on the private pads, Steve reported a significant savings in doing all of the trenching and conduit work at the same time, rather than in stages. This would result in longer disruption to the pad users that could possibly be mitigated by installing temporary outlets and using extension cords. The board is preparing a survey of pad owners to assess their willingness for interruptions.

Old Business:

a. Again, discussed the significant increase in our SDGE bills, looked at power usage during the day, but nothing really stands out to explain the rise.

New Business:

a. New business - none

Adjournment: The meeting was adjourned at 8:32pm.

San Diego Astronomy Association

Electric Power at TDS

Over the last several months, we have noticed a marked increase in our electrical usage and cost at TDS. Check out the chart below. Some increase is expected, as SDGE rates have climbed. Also, we have record numbers of members and more folks using TDS. As we all know, the rise of electronics in astronomy will continue to increase. However, the recent growth of power usage has grown beyond our expectations, in the hundreds of dollars. Here's a few do's and don'ts to help us control costs.

DO:
Turn the power off at the main breaker if you're the last one leaving. Not sure if you're last? Drive a quick lap and check.
Only turn on the appliances you need in the warming room.
Use an electric blanket if you're cold.

DON'T:
Use space heaters.
Plug in your electric cars.
Run air conditioning.
Turn on the water heater breaker unless you plan to take a shower.
Leave your private pad electronics plugged in if you're not on site. Recent repairs showed that we were wasting energy by powering lights that were clearly not being used.

In addition to saving electricity, many of the "don'ts" put an immense strain on our electrical grid at TDS.

Your cooperation will help us keep our dues at the unbelievably low cost we all enjoy.

Lastly, some of you have asked about having solar panels installed at TDS. The Board of Directors has recently studied the feasibility and will begin to install panels over the public pads and private pads. This will begin on April 1. See the photos below to see what is being planned. Feel free to contact your Board of Directors if you have any questions. Thanks for your help and cooperation.

TDS SDGE monthly bill

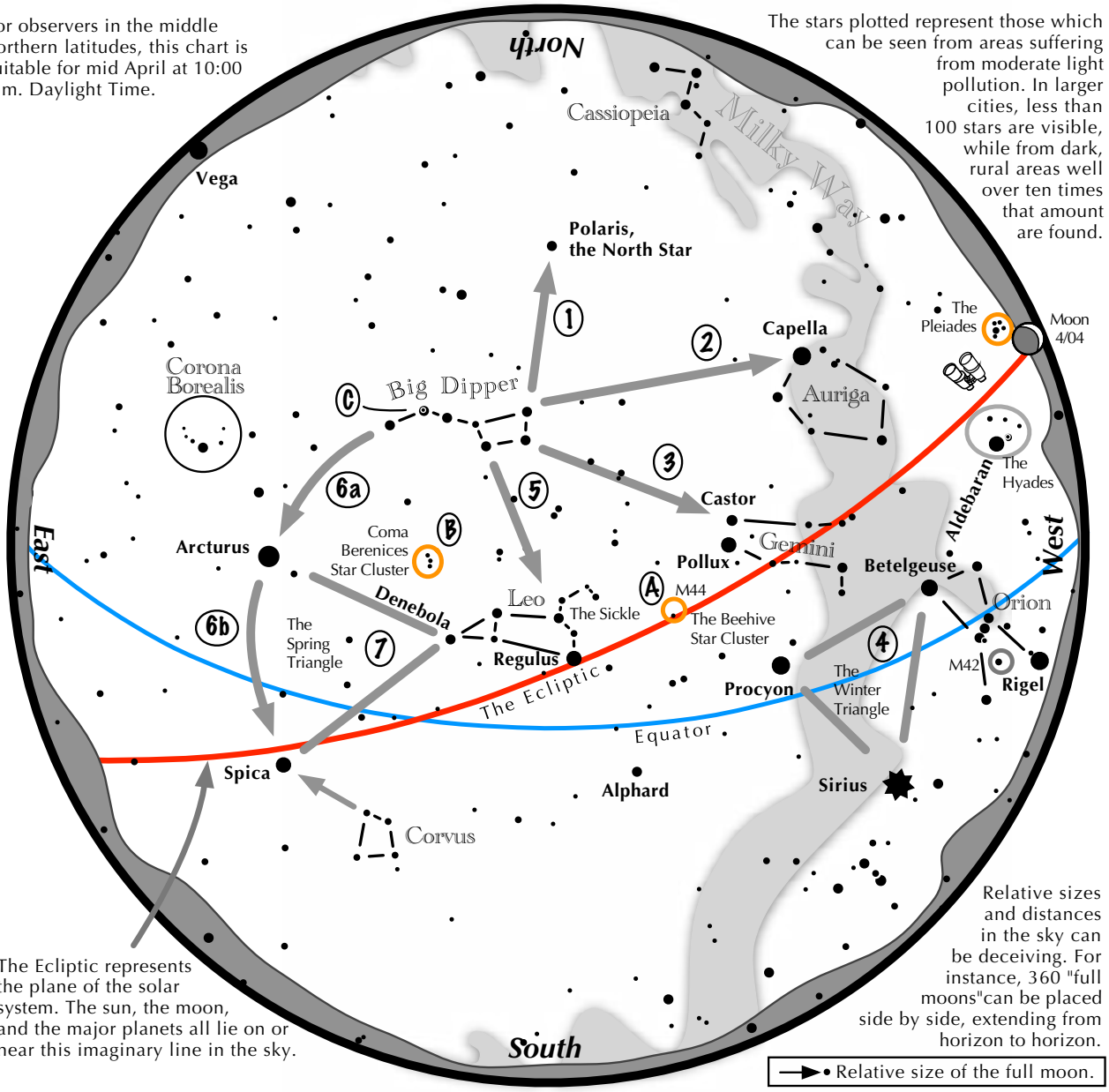
Month	2017	2018	2019	2020	2021	2022
1	$128	$163	$207	$197	$196	$215
2	$111	$128	$157	$205	$197	$427
3	$130	$134	$88	$171	$211	$500
4	$118	$134	$136	$113	$189	
5	$159	$126	$167	$205	$213	
6	$150	$184	$114	$182	$301	
7	$137	$193	$190	$209	$272	
8	$128	$177	$255	$215	$260	
9	$101	$213	$222	$180	$259	
10	$111	$108	$207	$180	$235	
11	$164	$117	$227	$164	$289	
12	$124	$117	$174	$115	$231	

San Diego Astronomy Association

Navigating the April Night Sky, Northern Hemisphere

For observers in the middle northern latitudes, this chart is suitable for mid April at 10:00 p.m. Daylight Time.

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 April night sky: Simply start with what you know or with what you can easily find.

1. Extend an imaginary line north from the two stars at the tip of the Big Dipper's bowl. It passes Polaris, the North Star.
2. Draw another imaginary line west across the top two stars of the Dipper's bowl. It strikes Capella low in the northwest.
3. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
4. Look in the west-southwest for the bright Winter Triangle stars of Sirius, Procyon, and Betelgeuse.
5. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
6. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
7. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.

Binocular Highlights

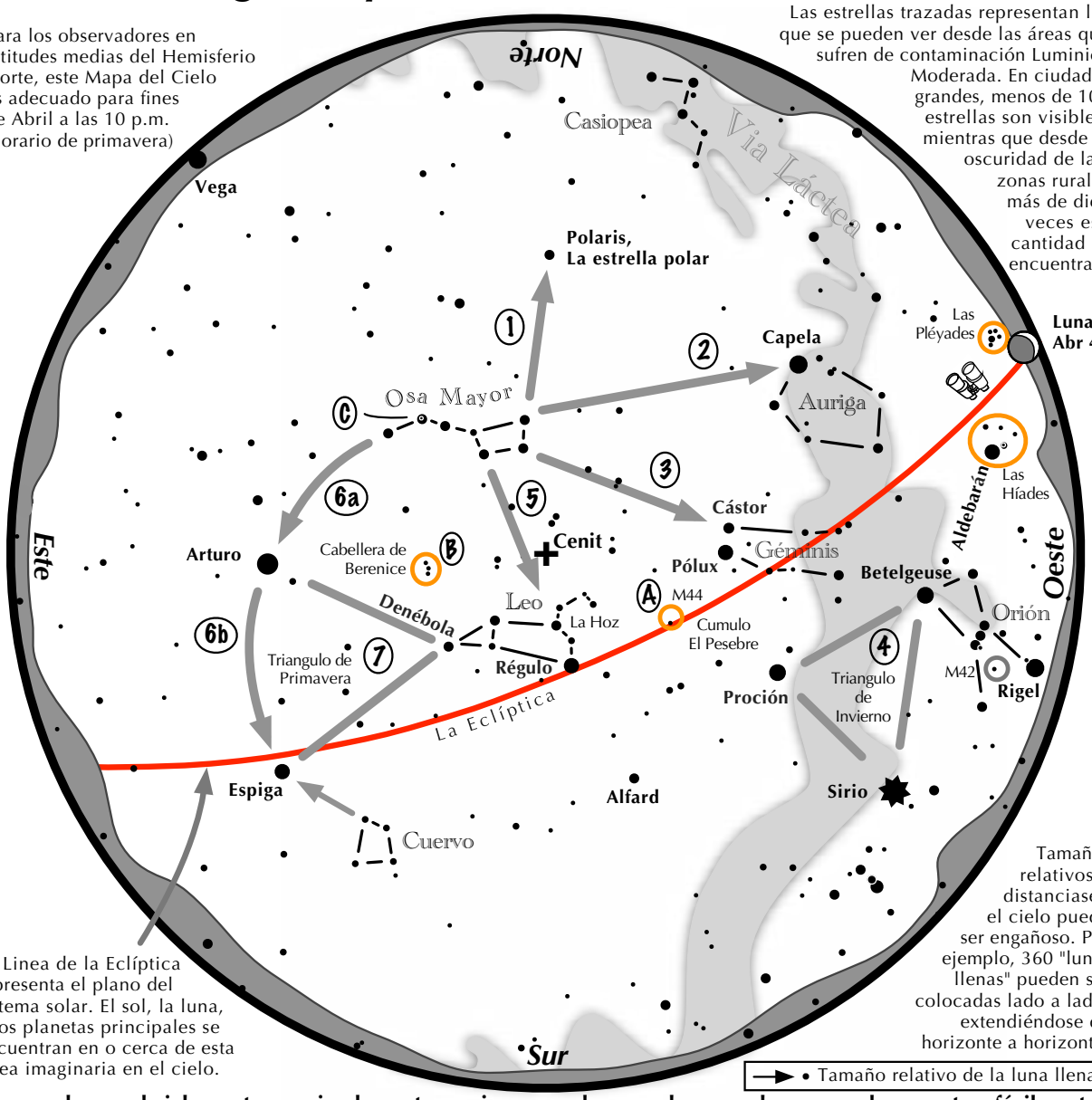
A: M44, a star cluster barely visible to the naked eye, lies to the southeast of.Pollux.
B: Look nearly overhead for the loose star cluster of Coma Berenices.
C: In the Big Dipper's handle shines Mizar next to a dimmer star, Alcor.

Astronomical League
www.astroleague.org /outreach

Navegando por el cielo nocturno de Abril

Para los observadores en latitudes medias del Hemisferio Norte, este Mapa del Cielo es adecuado para fines de Abril a las 10 p.m. (horario de primavera)

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 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.

Tamaños relativos y distanciasen 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. Haz una línea a través de las dos estrellas superiores de la punta del tazón de la Osa Mayor. Llegaras a Capela en el noroeste.
3. A través de las dos estrellas diagonales de la Osa Mayor, dibuja una línea que apunta a las estrellas gemelas de Cástor y Pólux en Géminis.
4. Busque en el oeste-suroeste las brillantes estrellas del Triángulo de Invierno de Sirio, Procíon y Betelgeuse.
5. Directamente debajo del tazón de la Osa Mayor se encuentra Leo con su estrella principal, Régulo.
6. Siga el arco del mango del tazón de la Osa Mayor. Primero cruza Arturo, luego continúa hacia Espiga, luego Cuervo.
7. Arturo, Espiga y Denébola forman el triángulo de primavera, un gran triángulo equilátero.

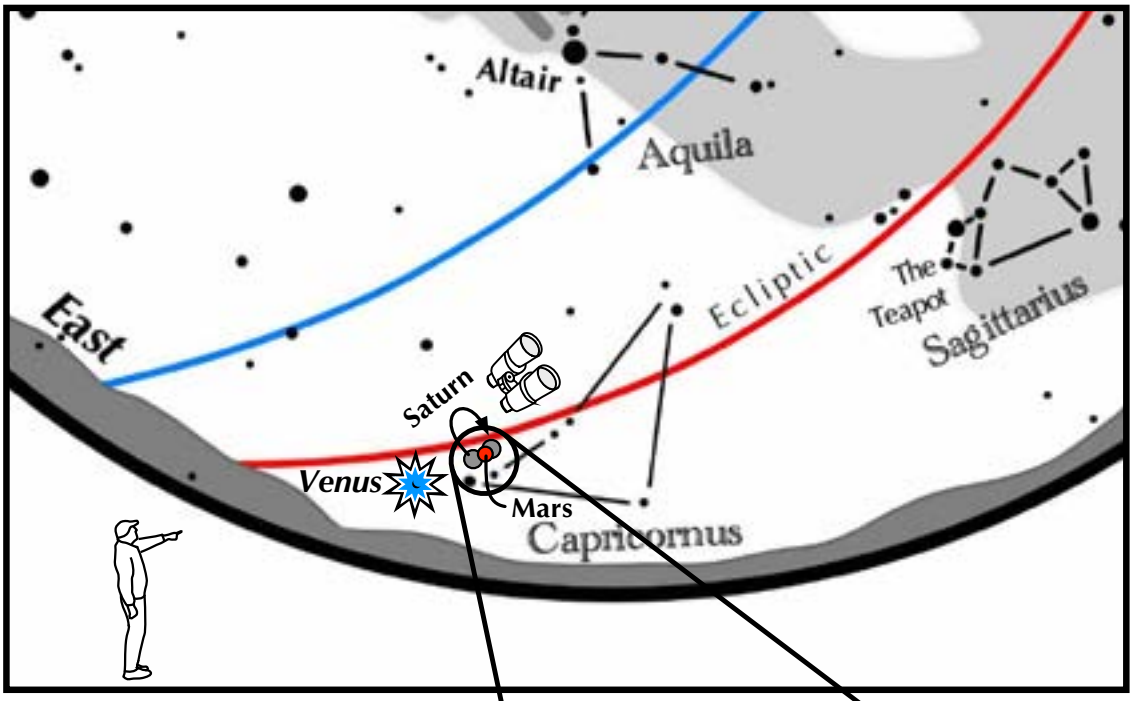
Puntos destacados con binoculares

A: M44 (Cumulo El Pesebre), un cúmulo de estrellas apenas perceptible a simple vista, se encuentra al sureste de Pólux. **B:** Mira alto en el este para ver el cúmulo de estrellas perdidas de Cabellera de Berenice. **C:** Mizar brilla junto a una estrella más tenue, Alcor.

Liga Astronómica
www.astroleague.org/outreach

Traducción al español por Dr. Salvador Aguirre

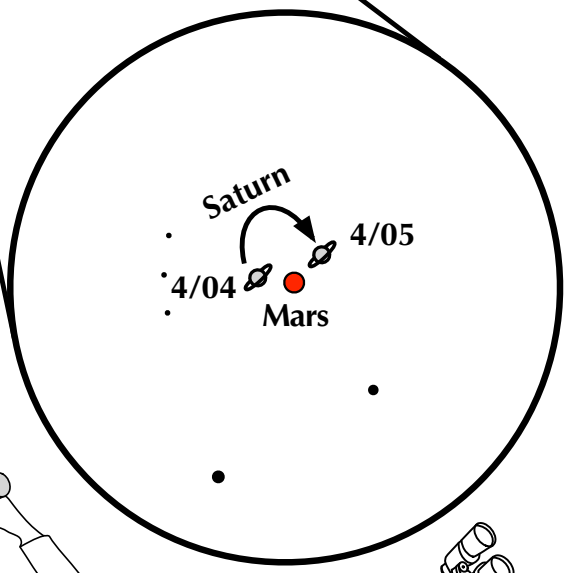
If you can see only one celestial event in the morning this April, see this one.

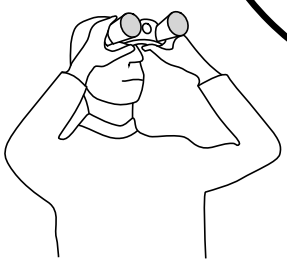


Saturn Jumps Mars

On the first few mornings of April, look to the east–southeast 60 minutes before sunrise.

- The dazzling object is Venus.
- To its immediate west, shine two starlike objects: Saturn and the slightly dimmer, but red Mars.
- On April 4, Saturn lies to the left of Mars (east).
- On April 5, Saturn has jumped Mars, and now lies on its right (west).

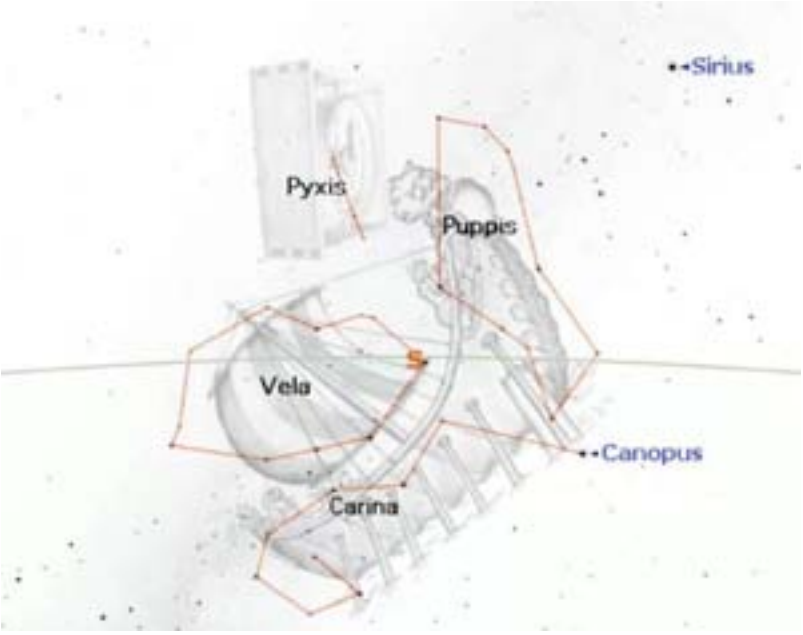




View through 10x50 binoculars

Another Look
April 2022

New Moon April 1 and April 30
Pink Moon
Full Moon April 16, Paschal Moon 1st full moon of Spring
Passover begins April 15 and ends April 23, Easter Sunday April 17



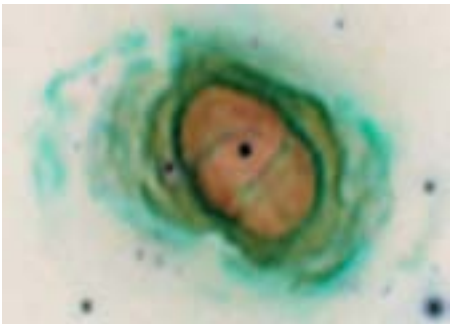
I have always been kind of fascinated by Argo Navis. The idea of a huge constellation in the south constructed from the mythology of Jason and the Argonauts is very compelling and a little hard to explain if not for the precession of the equinoxes. For some reason the modern astronomers felt it too large and by the mid 1700's began to cut it up into manageable sizes and in 1930 was firmed up by the IAU. Puppis, the poop deck or stern, has three Messiers, M46, M47 and M93 and close at hand to M47 is another open cluster NGC 2423. Superimposed on M46 is NGC 2438 a small planetary nebula of 11th magnitude.

Not much to see in Pyxis. When Argo Navis was broken up into Carina, Vela and Puppis, Pyxis was not included. Pyxis is a modern add on. The Greeks did not have compasses though some thought it should be included as part of the mast. That leaves Pyxis as an outlier. We can't see Carina from 32 degrees north, still it is fun to try to piece together the individual parts.

Vela is surprising. It has named stars, an awesome 9th magnitude planetary nebula, several meteor showers, and a huge supernova remnant. The Vela SNR is 12th magnitude and spread over several degrees. It includes a pulsar and a few designated GUM objects. Look for it between Gamma γ and

Psi ψ Velum. Vela has mostly fainter objects except for IC 2391 a loose, brighter open cluster of a few blue stars. A globular cluster I've never seen is NGC 3201. Burnham doesn't say much about it except that it is large, loose and 8th magnitude.

I never spent much time in Vela, shame on me. What I remember is NGC 3132 between Psi ψ and 3rd magnitude Rho ρ. NGC 3132 is called the Eight-Burst Nebula.



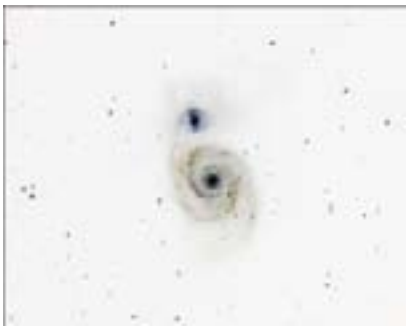
APOD 2015, June 7

One of the more interesting things about NGC 3132 is that it has two central stars, one a pulsar. Check out the image you see here in **APOD.** It's a beauty.

Maybe it's time for some of our local Astro photographers to step up to the plate. I used to be able to bug John Sanford or Msgr. Ron Royer to work on new stuff, of course they routinely ignored me also.

Years ago, a supernova searcher and Uniting Church minister from Australia who lived in the Blue Mountains visited Southern California and asked to spend a night at Ford Observatory on Mt. Peltier near Wrightwood. He wanted to come up because he had never searched Ursa Major for supernovas. At the time I was pretty familiar with the bowl of the dipper so I was asked to be his guide for the evening. I would point the 18 inch at a faint galaxy and he would take a few seconds to look then ask to go on to the next one. As you know, the vicinity of the bowl and the bowl itself is packed with galaxies, a few Messiers and even an Abell. Set up your setting circles, align your alt-azimuth, or just point your big Dob to Beta β Ursa Majoris, also known as Merak the hip of the bear and star hop from βeta to M108 and then to M97 the Owl. Then jump on over to Mizar and Alcor, the Horse and the Rider. stopping on the way to check out M109 right next to Gamma γ named Phecda or maybe Phad, the thigh. M109 is a nice one with a bar. I mention it because the bar is tough to see, a challenge for you if so inclined. The spectroscopes tell us that Mizar is a double and so is Alcor; and that Mizar is actually a double-double giving us a six-star system.

Thank you to Curtis Croulet of the Temecula Valley Astronomers for this slightly massaged image of M51 and NGC 5195.



Continuing down the arm of the dipper the last star is Eta η, is named Alkaid and is the finder star for M51, the Whirlpool. Big bright and beautiful, and with a recent supernova. Other stars that make up the Bear are Megrez, δ, the root of the tail, connecting the tail to the bowl. Phecda γ next to Merak β the hip of the bear and then to Dubhe, α the Back of the Great Bear. A bowl and a half further on is Muscada, the Snout. Alkaid, η Eta, the end of the handle is translated by Ben Mayer in "Starwatch" as the Leader of Mourning Daughters. Looking over some of the Chinese and Arabian lore about Ursa Major, it seems that more than one culture thought of the constellation as a group of mourners, or maybe a funeral procession.

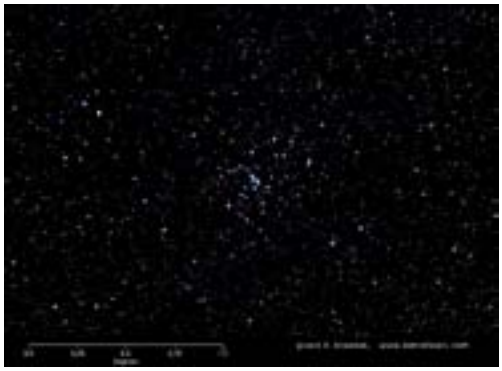
I had a pal whose prodigious memory and knowledge made him a great observing buddy. He was so locked in that he could point his telescope to M81 and M82 and have them right in the middle of his field. I thought I'd check **APOD** to see if they had chosen either of them recently and found five images in the last two years, a couple with comets attached. As great as those images are, I still remember trying to pick out detail in M82, trace the arms in M81 and search for the field for NGCs 3077 and 2976, other galaxies in the nearby. NGC 3077 is worth a second look. It's another disrupted galaxy and at 10th magnitude should be in the reach of your backyard telescope.

There are over 100 galaxies magnitude 12 and 13 or better around the constellation of Ursa Major; over 100 in or around the bowl and that many fainter but still findable. Abell 1377 is right there in the bowl, but its galaxies are less than 13th mag. It's a happy hunting ground for supernova searchers, however, maybe you'll find yours.

I sometimes marvel at all the time I spent on cold winter nights with a telescope and frozen cup of coffee as my companion. Whether Idyllwild, Ford, Mt. Pinos, Anza, Bell Mountain or Joshua Tree, I would zip up my bear suit, pull on gloves and balaclava and set up the old Dob or maybe the orange Cat. The stars cracked overhead, an occasional meteor would zip across, maybe even a bolide, and I would spend hours trying to learn everything about a particular constellation. It was especially wonderful when Mercury or Venus would rise before the morning sun.

I like Cancer, its my horoscope sign and I think M44 is one of my favorites and M67 is a nice open cluster. M44 called Praesepe or Beehive is visible to the eye and can be used as a gauge for visibility. It is beautiful in binoculars. Go ahead and give it a try. Cancer has some interesting star names that aren't anywhere near the Greek mythology of Cancer being the crab that attacked Hercules while he was fighting Hydra. My favorite is the one that calls the Praesepe the Manger and Gamma γ– Asellus Borealis and Delta δ– Asellus Australis, the Northern and Southern Donkeys eating hay from the Manger. Then Beta β-Al Tarf is the Edge and Acubens α– Alpha is the claw. I seem to remember reading that the donkeys and the manger originated as a Christian Christmas story.

While we are in the area if we go to the area around the head of Hydra we will pick up M48 a bright Open Cluster. **(Thank you astropixel.com)** We will leave the tail and body of Hydra for later, though, if you want to slip down the tail of Hydra to M83, the Southern Pinwheel, a 7th magnitude and face-on galaxy you will get a spectacular treat.



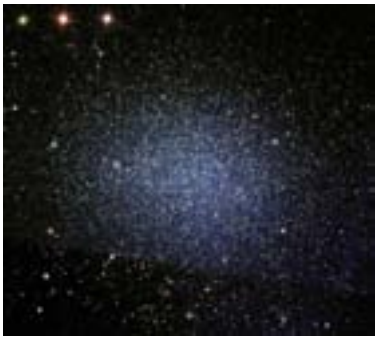
I used to spend a little time on Abell clusters. They are too faint to be of much interest visually, as a rule, though usually anchored by a larger brighter galaxy. The interest actually comes from the imagination. Once you've picked up that field you can imagine a giant cluster of galaxies gravitationally connected, all moving in one direction at one speed and all at the same general distance from us. The two in Lynx are good examples this month. The first is right off 21 Lyncis, the third star from the top of the constellation designated. It is named Abell 559 and is anchored by NGC 2329, a 13th magnitude lenticular galaxy that they now tell me is a "cluster dominant elliptical galaxy". It'll be tough to see and pretty bland to photograph, still it's worth a try. Abell 779 should be a lot easier. It is right off Alpha α Lyncis, the brightest star and the furthest southern star in Lynx. Abell 779 is anchored by NGC 2832 which is right next to NGC 2831 both close to 9th magnitude. I'm sorry but I don't remember anything about these clusters. Alas, my notes and my books on Abell objects didn't make it here from North Carolina.

One last note in Lynx is NGC 2419. You will find it closer to Castor than to any of Lynx's dim stars and while they tell me its 9th magnitude, I think you will find it closer to 11th mag. So if its 9 you should be able to see a fuzzy star with your 4" to 6". It will take a little more to resolve it into a globular. So, why the interest? NGC 2419 was once called the "Intergalactic Wanderer" because it was thought not to be in orbit around our own Milky Way. Now they tell us it is and has an orbit maybe as long as 3 billion years and is at least as far from the center of the galaxy as is the Magellanic Clouds. Another rarity for your life list.

Camelopardalis and Lynx as depicted in Urania's Mirror, a set of constellation cards published in London c.1825. Credit: Sidney Hall/Library of Congress. I cut Leo Minor from Pinterest.

There is no real mythology connected to Camelopardalis since it is considered a "modern" constellation. Due to the faintness of the stars associated with it, the early Greeks considered this area

of the sky to be empty – or a desert. But based on its Latin name, it could be considered to be a long-necked animal with the neck of a camel and the spots of a panther – connected to the twelve labors of Hercules. This is a rather bleak region of the sky, Ptolemy left the region bare when he named his 48 original constellations in his Almagest. It has a sprinkling of fainter stars and no discernible patterns. It wasn't until Hevelius plotted Camelopardalis and Leo Minor and Lynx in the 16th century in his atlas ***Firmamentum Sobiescianum and his Catalogus Stellarum Fixarum***. There has been some fiddling around in the area since by astronomers, cartographers and atlas and catalog makers but the names and locations were firmed up by the IAU in 1930.



One last little bit or wanderlust for this month. I will be looking at Leo in May when the Sickle will be directly overhead at 2100 hrs. May 1. Before then, though, move your telescope over to Regulus. Leo 1 or the Regulus Dwarf or even UGC 5470 is like all Dwarf Galaxies very diffuse and with low surface brightness. It's listed at 9.8 magnitude in one reference, but it is spread out which makes it difficult to see. Maybe a light pollution or high contrast filter will help. One Wikipedia reference said it was not seen visually until 1990 but I searched for it and found it in the late 70's or early 80's at least twice. Check your charts, it is only 12 minutes from Regulus. I have no doubt you will find it also. **Thank you to Anne's Astronomy News for this image**

Dark Skys, Dave Phelps

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?

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Springtime Catspotting: Lynx and Leo Minor

David Prosper

Many constellations are bright, big, and fairly easy to spot. Others can be surprisingly small and faint, but with practice even these challenging star patterns become easier to discern. A couple of fun fainter constellations can be found in between the brighter stars of Ursa Major, Leo, and Gemini: **Lynx** and **Leo Minor**, two wild cats hunting among the menagerie of animal-themed northern star patterns!

Lynx, named for the species of wild cat, is seen as a faint zigzag pattern found between Ursa Major, Gemini, and Auriga. Grab a telescope and try to spot the remote starry orb of globular cluster NGC 2419. As it is so distant compared to other globular clusters - 300,000 light years from both our solar system and the center of the Milky Way - it was thought that this cluster may be the remnants of a dwarf galaxy consumed by our own. Additional studies have muddied the waters concerning its possible origins, revealing two distinct populations of stars residing in NGC 2419, which is unusual for normally-homogenous globular clusters and marks it as a fascinating object for further research.

Leo Minor is a faint and diminutive set of stars. Its “triangle” is most noticeable, tucked in between Leo and Ursa Major. Leo Minor is the cub of Leo the Lion, similar to Ursa Minor being the cub to the Great Bear of Ursa Major. While home to some interesting galaxies that can be observed from large amateur scopes under dark skies, perhaps the most intriguing object found within Leo Minor’s borders is Hanny’s Voorwerp. This unusual deep-space object is thought to be a possible “light echo” of a quasar in neighboring galaxy IC 2497 that has recently “switched off.” It was found by Hanny van Arkel, a Dutch schoolteacher, via her participation in the Galaxy Zoo citizen science project. Since then a few more intriguing objects similar to Hanny’s discovery have been found, called “Voorwerpjes.”

Lynx and Leo Minor are relatively “new” constellations, as they were both created by the legendarily sharp-eyed European astronomer Johannes Hevelius in the late 1600s. A few other constellations originated by Hevelius are still in official use: Canes Venatici, Lacerta, Scutum, Sextans, and Vulpecula. What if your eyes aren’t quite as sharp as Johannes Hevelius – or if your weather and light pollution make searching for fainter stars more difficult than enjoyable? See if you can spot the next Voorwerp by participating in one of the many citizen science programs offered by NASA at science.nasa.gov/citizenscience! And of course, you can find the latest updates and observations of even more dim and distant objects at nasa.gov.

Map of the sky around Lynx and Leo Minor. Notice the prevalence of animal-themed constellations in this area, making it a sort of celestial menagerie. If you are having difficulty locating the fainter stars of Leo Minor and Lynx, don't fret; they are indeed a challenge. Hevelius even named the constellation as reference to the quality of eyesight one needs in order to discern these faint stars, since supposedly one would need eyes as sharp as a Lynx to see it! Darker skies will indeed make your search easier; light pollution, even a relatively bright Moon, will overwhelm the faint stars for both of these celestial wildcats. While you will be able to see NGC 2419 with a backyard telescope, Hanny's Voorwerp is far too faint, but its location is still marked. A few fainter constellation labels and diagrams in this region have been omitted for clarity. Image created with assistance from Stellarium

NASA Night Sky Notes April 2022

Hanny's Voorwerp and the neighboring galaxy IC 2497, as imaged by Hubble. Credits: NASA, ESA, W. Keel (University of Alabama), and the Galaxy Zoo Team Source: hubblesite.org/contents/news-releases/2011/news-2011-01.html

San Diego Astronomy Association

2022 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Illumination†	Notes
Apr-2	Public	7:09 PM	8:33 PM	(8:49 PM)	3%	
Apr-30	Member	7:29 PM	9:00 PM	6:32 AM	0%	Mercury Greatest Eastern Elongation - Apr 29 (PM)
May-21	Public	7:44 PM	9:21 PM	1:37 AM	64%	
May-28	Member	7:49 PM	9:28 PM	5:06 AM	3%	Memorial Day Weekend
Jun-18	Public	7:59 PM	9:40 PM	12:11 AM	78%	Mercury Greatest Western Elongation - Jun 16 (AM)
Jun-25	Member	8:00 PM	9:42 PM	3:43 AM	10%	
Jul-23	Public	7:53 PM	9:29 PM	2:22 AM	22%	
Jul-30	Member	7:48 PM	9:22 PM	(9:25 PM)	5%	S. delta Aquariids peak night of Jul 29-30 (ZHR†† 16)
Aug-20	Public	7:27 PM	8:55 PM	1:01 AM	37%	Saturn at Opposition on Aug 14
Aug-27	Member	7:19 PM	8:45 PM	7:30 AM	0%	Mercury Greatest Eastern Elongation - Aug 27 (PM)
Sep-17	Public	6:51 PM	8:14 PM	11:40 PM	54%	Neptune at Opposition on Sep 16
Sep-24	Member	6:42 PM	8:04 PM	6:20 AM	2%	Jupiter at Opposition on Sep 26
Oct-15	Public	6:15 PM	7:37 PM	10:21 PM	71%	Mercury at Greatest Western Elongation - Oct 8 (AM)
Oct-22	Member	6:07 PM	7:29 PM	5:06 AM	8%	Orionids peak night of Oct 20-21 (ZHR†† 20)
Nov-19	Public	4:45 PM	6:11 PM	2:50 AM	21%	Leonids peak night of Nov 17-18 (ZHR†† 15)
Nov-26	Member	4:43 PM	6:09 PM	(7:31 PM)	12%	Thanksgiving Weekend
Dec-17	Public	4:44 PM	6:13 PM	1:34 AM	38%	Geminids peak night of Dec 13-14 (ZHR†† 150)
Dec-24	Member	4:48 PM	6:16 PM	(6:21:PM)	3%	Ursids peak night of Dec 21-22 (ZHR†† 10)

† Illumination at meridian crossing.

†† Published *zenithal hourly rate(s)* ZHR vary widely between sources.

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