

PrimeFocus

May 2024



WHEN:

May 17, 2024

Doors open at 7:00pm

Meeting at 7:30pm

Lecture at 8:00pm

WHERE:

Unitarian Church
1893 North Vasco Rd.
Livermore, CA 94551
and via Zoom

TVS QR CODE



REVIEW AND COMPARISON OF SMART TELESCOPES ROSS GAUNT

As we know, telescopes of every type continue to evolve in precision, resolution, and capabilities. The market for amateur telescopes is a billion dollar global market and is growing especially in the area of telescopes for the casual observer. The introduction of so-called Smart Telescopes now provides deep-sky astrophotography free of the learning curve most of us have gone through in past years. With setup in just a few minutes, automatic orientation, built-in plate solving, libraries of searchable objects, and automatic image stacking onto cell phones and tablets, the universe is now open to any consumer. This presentation will compare and contrast the current Smart Telescopes on today's market.



Smart telescopes: ZWO SeeStar50, Vespera, Unistellar Evscope, & Drawf.

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Ross Gaunt, like many of you, has been interested in astronomy since childhood. While growing up in Denver his parents took him to the natural history museum for the planetarium shows. In 1984 he met his wife at an observational astronomy class at Chabot College in Hayward. They met, literally, under the stars. It was soon after joining TVS that he purchased his first telescope, a Celestron SCT. He joined TVS in 2016, and is a past secretary of the club. Currently he is the caretaker of the Herb Quick dome and telescope at H2O and he coordinates H2O orientations.

NEWS AND NOTES

2024 Meeting Dates

Club Meeting	Board Meeting	PrimeFocus Deadline
May. 17	May. 20	May. 4
Jun. 22 Potluck	Jun. 24	Jun. 5
Jul. 19	Jul. 22	Jul. 4

Money Matters

As of the last Treasurer’s Report on 4/19/24, our club’s account balance is \$60,830.26. This includes \$26,147.47 in the H2O Rebuild fund.

TVS Welcomes New Members

TVS welcomes new members Adnaan Sheriff, Mahesh Hooli, Kaushik Raghunath, Jennifer Ortiz, Philippe Fossier, Prabath Gunawardane, & Sukneet Basuta. Please say hello and chat with him during our meetings.

2024 Club Star Party Schedule

Save the dates for the 2024 Club Star Parties.

Del Valle star parties are also public outreach events. They are jointly hosted with the EBRPD and held at the Arroyo Staging Area. The public is invited for the first 1.5-2 hours, while club members can stay the remainder of the night.

Tesla Vintners star parties are open to only club members and their guests. These star parties end at midnight, but participants can leave earlier, should they wish.

June 30: Tesla Vintner’s Star Party, 5143 Tesla Rd., Livermore. Set-up at 7:30pm, Observing 8:15-Midnight.

H2O Open House star parties are open to only club members and their guests. The open house ends at midnight, and all participants are encouraged to stay the duration. The drive to H2O takes about 1 hour, and the caravan leaves promptly from the corner of Mines and Tesla Rds. No gas stations are available on the route, so be prepared. Admission is \$3/car-bring exact change. H2O is a primitive site with two porta-potties. Bring water, food, and warm clothing, as needed. Red flashlights are to be used so observers can preserve their night vision.

May 25: H2O Open House, at 6pm the caravan to H2O PROMPTLY leaves the corner of Mines and Tesla Rds., Livermore. Observing until 11:30pm.

June 8: Public stargazing at Sunol Regional Wilderness, Sunol Regional Wilderness. 9:00pm – 11:00pm; Details to

be determined, check TVS group calendar for more info. <https://groups.io/g/trivalleystargazers/calendar#>.

CALENDAR OF EVENTS

May 22, 23, 29, 30, June 5, 6, 12, 13, 7:30-10:30 PM

What	Free Telescope Viewing
Who	Chabot Staff
Where	Chabot Space and Science Center, 10000 Skyline Blvd. Oakland, CA 94619
Cost	Free

Join Chabot astronomers on the Observatory Deck for a free telescope viewing! Weather permitting, this is a chance to explore stars, planets and more through Chabot’s historic telescopes. Chabot’s three large historic telescopes offer a unique way to experience the awe and wonder of the Universe. Three observatory domes house the Center’s 8-inch (Leah, 1883) and 20-inch (Rachel, 1916) refracting telescopes, along with a 36-inch reflecting telescope (Nellie, 2003).

Are the skies clear for viewing tonight? Viewing can be impacted by rain, clouds, humidity and other weather conditions. Conditions can be unique to Chabot because of its unique location in Joaquin Miller Park. Before your visit, check out the [Weather Station](#) to see the current conditions at Chabot.

For more information, see: <https://chabot.space.org/events/events-listing/>

May 27, 7:00 PM

What	Europa Clipper: Exploring Jupiter’s Ocean World
Who	Silicon Valley Astronomy Lecture Series
Where	Live stream via YouTube at: https://www.youtube.com/SVAstronomyLectures
Cost	Free

Jupiter’s moon Europa may be a habitable world, containing the “ingredients” necessary for life within its ocean. Data from NASA’s earlier Galileo mission suggest that a global salty ocean exists beneath the icy surface. Tides have broken that floating ice shell to create ridges, bands, and chaotic terrains that may be related to local melting. The Europa Clipper mission will explore Europa with a remarkably capable suite of instruments, through multiple close flybys from Jupiter orbit. The spacecraft will examine the moon’s ice shell, ocean, and geology, and search for current activity – including plumes that emerge from surface cracks. This talk will summarize our understanding of Europa and the and status and promise of the Europa Clipper mission.

PrimeFocus

Dr. Robert Pappalardo is the Project Scientist for NASA's Europa Clipper Mission at the Jet Propulsion Laboratory of the Caltech. He has also served as the Project Scientist for the Cassini Equinox (first extended) Mission at Saturn, for which he received NASA's Exceptional Service Medal. He received his B.A. in Geological Sciences from Cornell University in 1986, and his Ph.D. in Geology from Arizona State University in 1994. His research focuses on processes that have shaped the icy satellites of the outer solar system, especially Europa, and the role of its probable subsurface ocean.

For more information, see:

<https://www.seti.org/event/europa-clipper-exploring-jupiters-ocean-world>

June 3, 7:30 PM

What Clouds and Chemistry of Small Nearby Worlds
Who California Academy of Sciences
Where Morrison Planetarium; 55 Music Concourse Drive, San Francisco, CA 94118

Cost Public: \$15; Members and seniors: \$12

Featuring Dr. Eileen Gonzales, San Francisco State University. Astronomers are looking for exoplanets—planets beyond our Solar System—with a goal to one day find Earth 2.0. JWST has provided us with unprecedented amounts of information on the atmospheres of exoplanets and their analogs—brown dwarfs. Brown Dwarfs are unique objects, too massive to be a planet but just too small to be a star, and astronomers can characterize their atmospheres in incredible detail. They range widely in temperature, from as cold as a warm day at the south pole to twice as hot as molten lava! With such a diversity in temperature, these objects have atmospheres very different from our own. In this talk, Dr. Gonzales will discuss how we can learn about the atmospheres for a variety of brown dwarfs and what exciting things we have discovered about them.

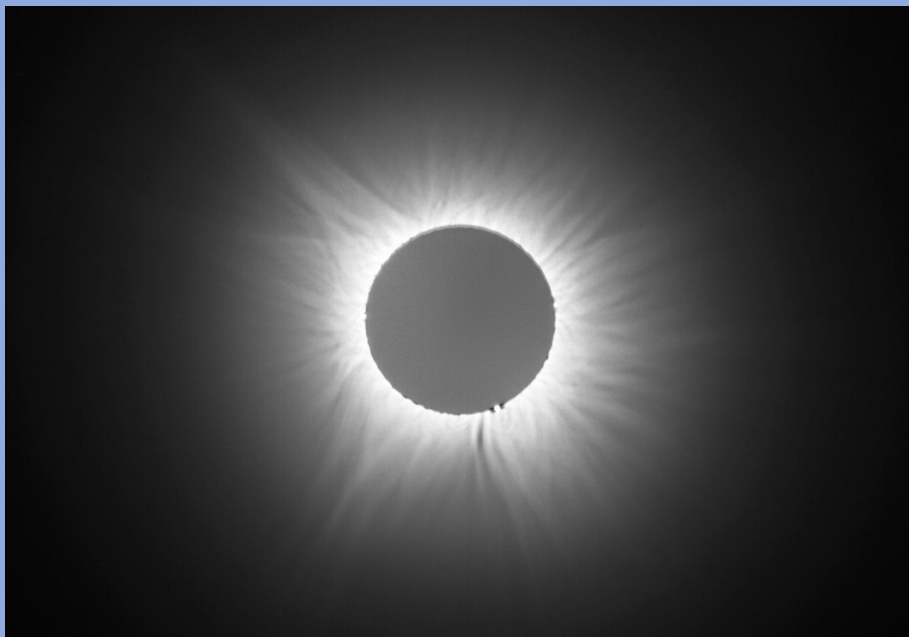
For more information, see:

<https://www.calacademy.org/events/benjamin-dean-astronomy-lectures/clouds-and-chemistry-of-small-nearby-worlds>

OFFICERS AND VOLUNTEER POSITIONS

Officers	Club Star Party Coordinator	Night Sky Network Rep.	Refreshment Coordinator
President Ron Kane president@trivalleystargazers.org	Eric Dueltgen coordinator@trivalleystargazers.org	Ross Gaunt nnsn@trivalleystargazers.org	OPEN
Vice-President Eric Dueltgen vice_president@trivalleystargazers.org	Del Valle Coordinator David Wright delvalle@trivalleystargazers.org	H2O Observatory Director / Rebuild Chairman Chuck Grant H2O@trivalleystargazers.org	Web and Email www.trivalleystargazers.org info@trivalleystargazers.org
Treasurer John Forrest treasurer@trivalleystargazers.org	Historian OPEN historian@trivalleystargazers.org	Observing Program Coordinator Ron Kane awards@trivalleystargazers.org	TVS E-Group To Join the TVS E-Group just send an email to TVS at info@trivalleystargazers.org asking to join the group. Make sure you specify the email address you want to use to read and post to the group.
Secretary David Lackey secretary@trivalleystargazers.org	Librarian Ron Kane librarian@trivalleystargazers.org	Outreach Coordinator Eric Dueltgen outreach@trivalleystargazers.org	
Past President Roland Albers past_president@trivalleystargazers.org	Loaner Scope Manager Ron Kane telescopes@trivalleystargazers.org	Potluck Coordinator OPEN potluck@trivalleystargazers.org	
Volunteer Positions	Newsletter Scott Schneider (Editor) Saanika Kulkarni (Contributing Editor) newsletter@trivalleystargazers.org	Program Coordinator Dan Helmer programs@trivalleystargazers.org	
Astronomical League Rep. Don Dossa alrep@trivalleystargazers.org	Webmaster Swaroop Shere webmaster@trivalleystargazers.org	Publicity and Fundraising OPEN publicity@trivalleystargazers.org	

TVS ASTROPHOTOGRAPHY



Solar Eclipse, by Ken Sperber

This month's Astro photos come from Ken Sperber, our former newsletter editor. Ken imaged the solar eclipse last month from Waco, TX. The sequence above was imaged with 5 minute intervals.



May 10 Aurora, by Ken Sperber

This was captured in Flagstaff, AZ. The orange glow is from a FedEx facility.

WHATS UP

Adapted from Sky & Telescope

All times are Pacific Standard Time

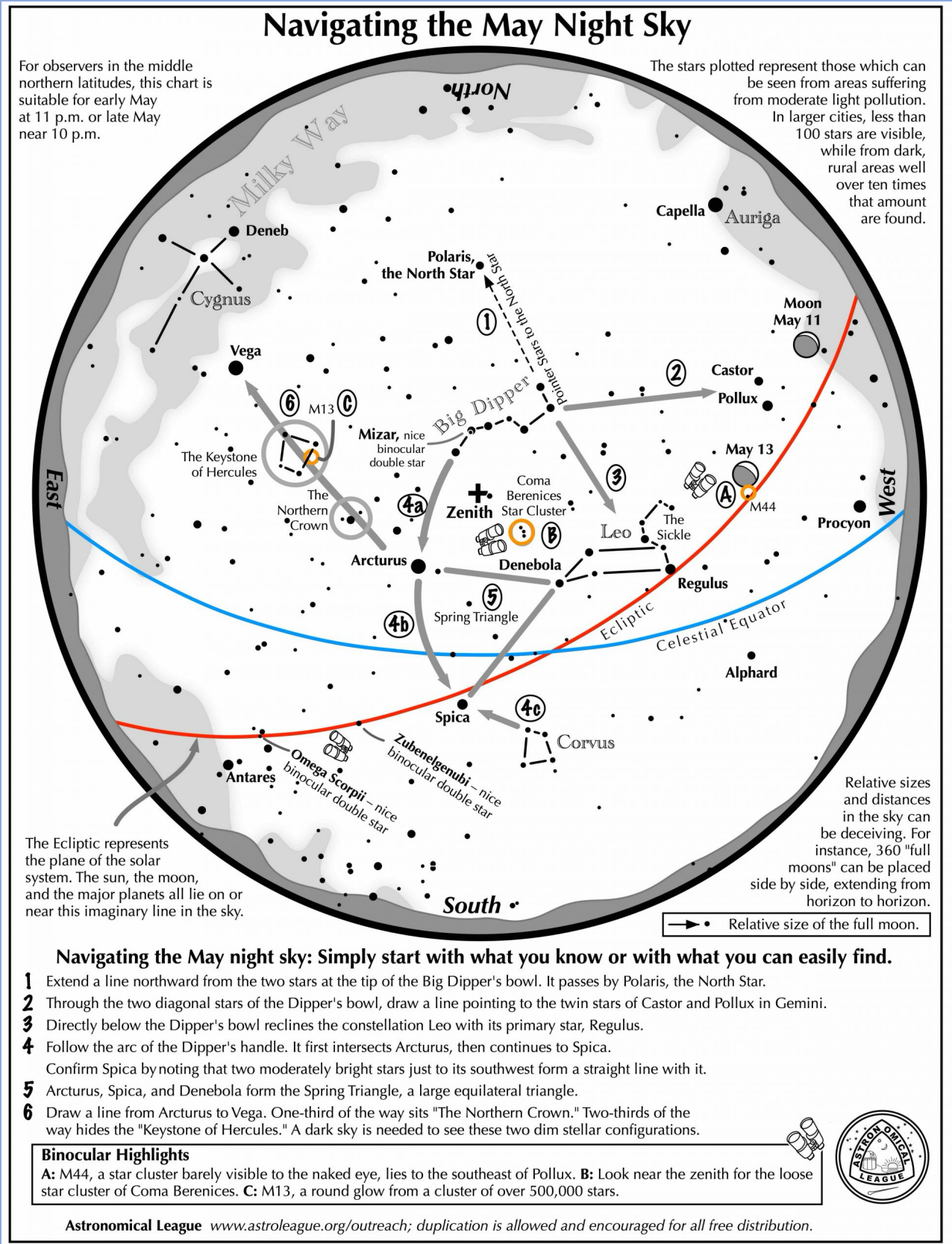
May 2024

- 19-20 Sun Waxing gibbous Moon is in Virgo. Watch as the gap between the moon and Spica shrinks
- 23 Mon Full Moon**
- 23 Tue The full moon is less than $\frac{1}{2}^\circ$ away from Antares in the heart of Scorpius.
- 30 Thu Moon at last quarter
- 31 Tue In the morning look for the Moon to be less than 1° from Saturn

June 2024

- 1 Tue At dawn see the Moon, Mars, & Saturn in a line stretching about 35°
- 2 Sat In the morning watch the moon lead Mars by about $6\frac{1}{2}^\circ$ rising in the east.
- 6 Mon New Moon**
- 8 Wed At dusk facing north-west watch as the Moon, Caster, & Pollux form an isosceles triangle.
- 11 Thu Moon is about 3° above right of Regulus, Leo's brightest star
- 14 Sun Moon at first quarter
- 16 Mon Waxing gibbous Moon is about $3\frac{1}{2}^\circ$ left of Spica

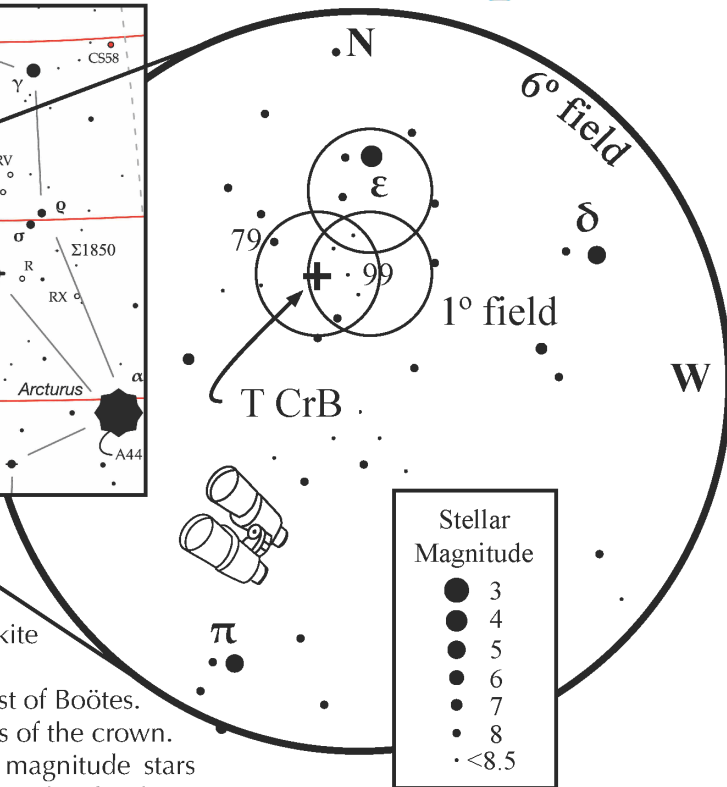
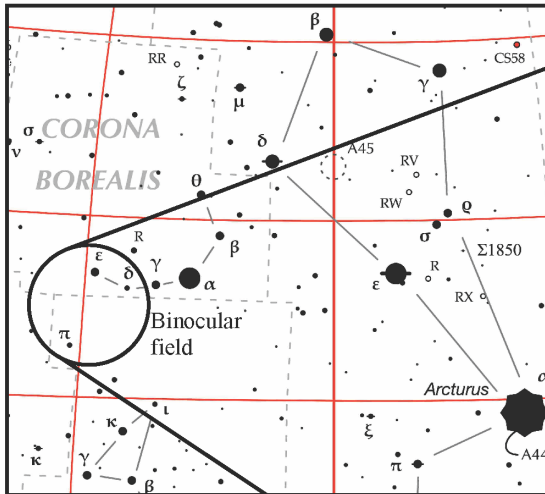
NAVIGATING THE NIGHT SKY FOR MARCH



T Coronae Borealis

A nova waiting to happen – soon!

also known as HIP 78322 and the "Blaze Star"



How to find T Coronae Borealis

- A. Locate bright Arcturus and the kite shaped constellation Boötes.
- B. Corona Borealis lies directly east of Boötes.
- C. Trace the semi-circle of the stars of the crown.
- D. Epsilon and Delta are fourth magnitude stars shining east of Alpha (Gemma), the brightest member of the crown.
- E. Place Epsilon in the northern half of the binocular (or finder) field. Fifth magnitude Pi Serpentis lies near the bottom of the field.
- F. T Coronae Borealis is about 1/4 the distance between Epsilon and Pi.
- G. Move two low power eyepiece fields south of Epsilon.
- H. Then move 1/2 low power eyepiece field east.
- I. This is the vicinity of 10th magnitude T CrB.

- The star normally is magnitude 10.3.
- Ten years before its outburst, it rises to magnitude 9.8. It did this 10 years ago.
- It then dims to about magnitude 12 one year before outburst. It did this in April 2023.

Stellar Magnitude	
●	3
●	4
●	5
●	6
●	7
●	8
●	<8.5

Between now and September, T CrB is predicted to nova, quickly reaching 2nd magnitude and rivaling the brightness of Alpha CrB (Gemma).

- Its brightness rise will take one day or less.
- It will likely remain near maximum brightness (2nd mag.) for only a few days.



NASA NIGHT SKY NOTES

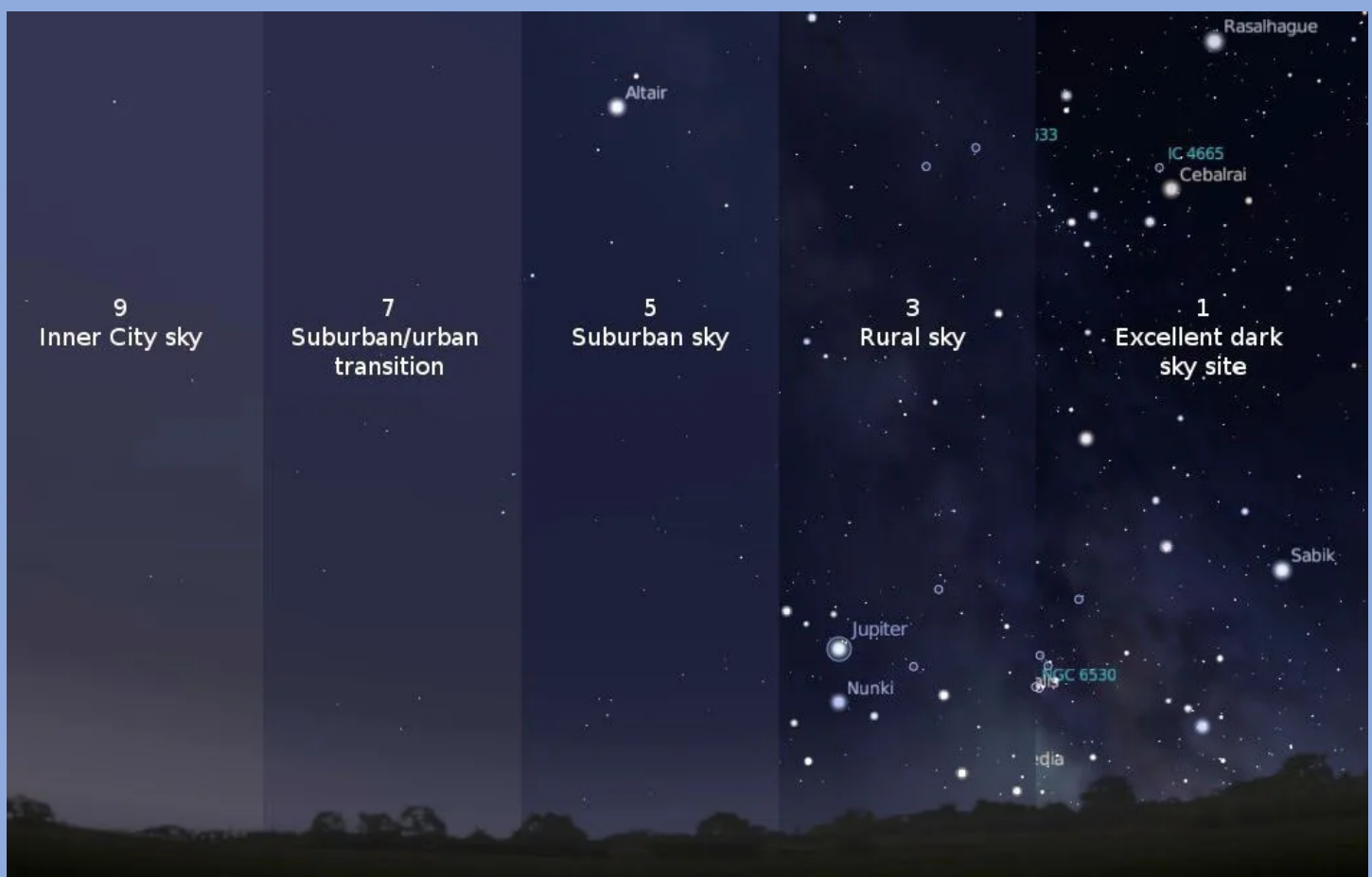
Stargazing for Beginners

By Kat Troche

Millions were able to experience the solar eclipse on April 8, 2024, inspiring folks to become amateur astronomers – hooray! Now that you've been 'bitten by the bug', and you've decided to **join your local astronomy club**, here are some stargazing tips!

The Bortle Scale

Before you can stargaze, you'll want to find a site with dark skies. It's helpful learn what your **Bortle scale** is. But *what is* the Bortle scale? The Bortle scale is a numeric scale from 1-9, with 1 being darkest and 9 being extremely light polluted; that rates your night sky's darkness. For example, New York City would be a Bortle 9, whereas Cherry Springs State Park in Pennsylvania is a Bortle 2.

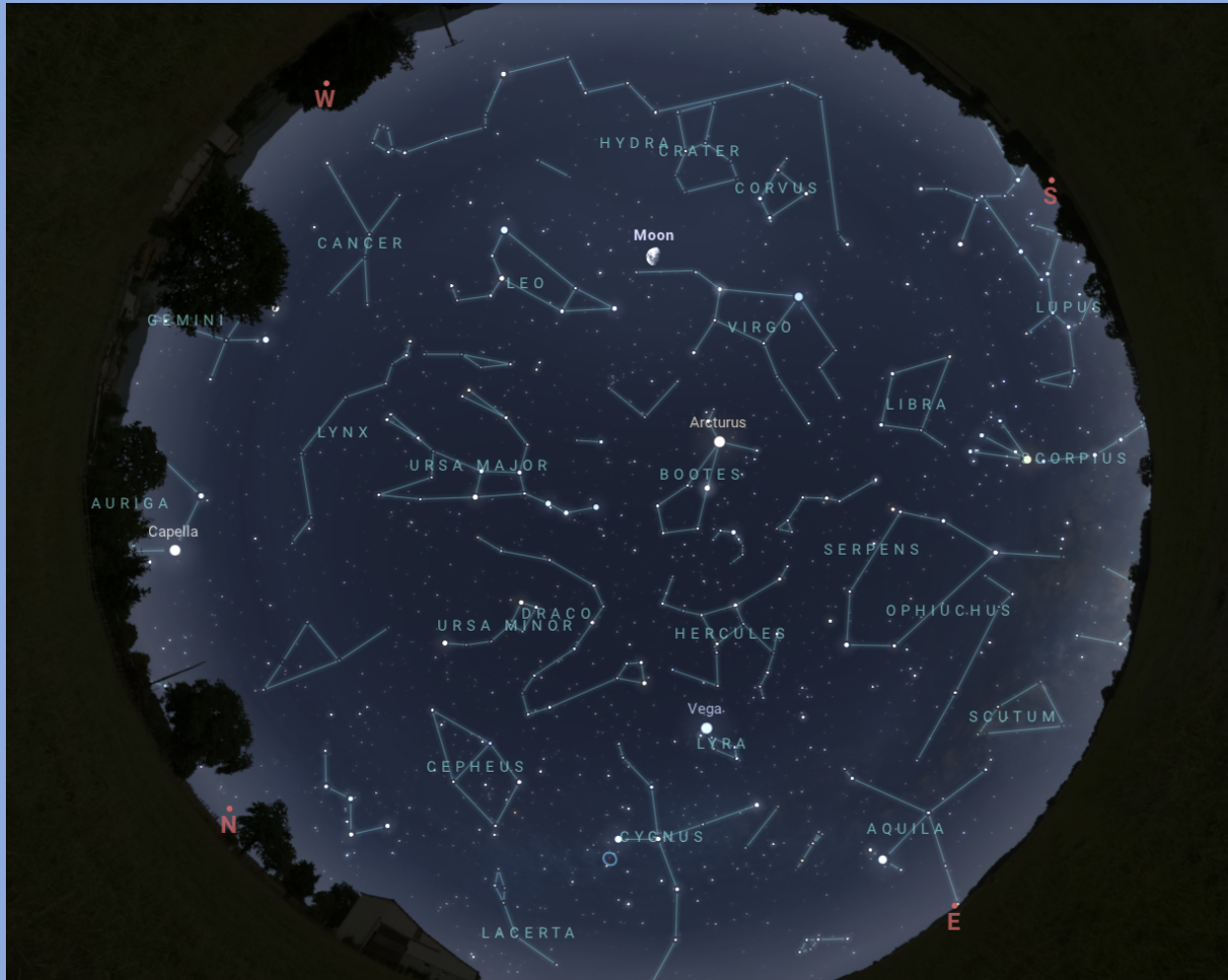


The Bortle scale helps amateur astronomers and stargazers to know how much light pollution is in the sky where they observe. Credit: International Dark Sky Association

Determining the Bortle scale of your night sky will help narrow down what you can expect to see after sunset. Of course, other factors such as weather (clouds namely) will impact seeing conditions, so plan ahead. Find Bortle ratings near you here: www.lightpollutionmap.info

No Equipment? No Problem!

There's plenty to see with your eyes alone. Get familiar with the night sky by studying star maps in books, or with a planisphere. These are great to begin identifying the overall shapes of constellations, and what is visible during various months.



A full view of the northern hemisphere night sky in mid-May. Credit: Stellarium Web.

Interactive sky maps, such as [Stellarium Web](#), work well with mobile and desktop browsers, and are also great for learning the constellations in your hemisphere. There are also several astronomy apps on the market today that work with the GPS of your smartphone to give an accurate map of the night sky.

Keep track of Moon phases. Both the interactive sky maps and apps will also let you know when planets and our Moon are out! This is especially important because if you are trying to look for bright deep sky objects, like the Andromeda Galaxy or the Perseus Double Cluster, you want to *avoid* the Moon as much as possible. Moonlight in a dark sky area will be as bright as a streetlight, so plan accordingly! And if the Moon is out, check out this Skywatcher's Guide to the Moon: bit.ly/MoonHandout

Put On That **Red** Light

If you're looking at your phone, you won't be able to see as much. Our eyes take approximately 30 minutes to get dark sky adapted, and a bright light can ruin our night vision temporarily. The easiest way to stay dark sky adapted is to avoid any bright lights from car headlights or your smartphone. To avoid this, simply use red lights, such as a red flashlight or headlamp. **The reason:** white light constricts the pupils of your eyes, making it hard to see in the dark, whereas red light allows your pupils to stay dilated for longer. Most smartphones come with adaptability shortcuts that allow you to make your screen red, but if you don't have that feature, use red cellophane on your screen and flashlight.

Up next: why binoculars can sometimes be the best starter telescope, with [Night Sky Network's](#) upcoming mid-month article through NASA's website!



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!



Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551
www.trivalleystargazers.org

Tri-Valley Stargazers Membership Application

Contact information:

Name: _____ Phone: _____

Street Address: _____

City, State, Zip: _____

Email Address: _____

Status (select one): New member Renewing or returning member

Membership category (select one): Membership term is for one calendar year, January through December.

Student member (\$10). Must be a full-time high-school or college student.

Regular member (\$30).

Hidden Hill Observatory Access (optional): Must be 18 or older.

One-time key deposit (\$20). This is a refundable deposit for a key to H2O. New key holders must first hear an orientation lecture and sign a usage agreement form before using the observing site.

Annual access fee (\$10). You must also be a key holder to access the site.

Donation (optional):

Tax-deductible contribution to Tri-Valley Stargazers

Total enclosed: \$ _____

Member agrees to hold Tri-Valley Stargazers, and any cooperating organizations or landowners, harmless from all claims of liability for any injury or loss sustained at a TVS function. TVS will not share information with anyone except as detailed in our Privacy Policy (<http://www.trivalleystargazers.org/privacy.shtml>).

Mail this completed form along with a check to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551.