



Temecula Valley Astronomer

The monthly newsletter of the Temecula Valley Astronomers Apr 2019

Events:

General Meeting :

Monday, April 1, 2019 at the Ronald H. Roberts Temecula Library, Room B, 30600 Pauba Rd, at 7:00 PM. On the agenda this month is “What’s Up” by Skip Southwick, followed by Dr. Steve Murray, NASA/JPL Solar System Ambassador giving a talk titled “Halfway to Space: Ground-based Telescopes for the 21st Century.” Leo will supply the refreshments.

Please consider helping out at one of the many Star Parties coming up over the next few months. For the latest schedule, check the Calendar on the [web page](#).



NASA APOD 26 Mar 19: AE Aurigae and the Flaming Star Nebula Image Credit & Copyright: [Amir Abolfath \(TVA\)](#)

General information:

Subscription to the TVA is included in the annual \$25 membership (regular members) donation (\$9 student; \$35 family).

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Secretary: Deborah Cheong [<geedeb@gmail.com>](mailto:geedeb@gmail.com)

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WHAT'S INSIDE THIS MONTH:

Cosmic Comments

by President Mark Baker

A Note from the Editor

Mark DiVecchio

Looking Up Redux

compiled by Clark Williams

Mars the Wanderer

by David Prosper

Send newsletter submissions to Mark DiVecchio [<markd@silogic.com>](mailto:markd@silogic.com) by the 20th of the month for the next month's issue.

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Cosmic Comments by President Mark Baker

CalTech Palomar Observatory... a place of legends and legendary science!!!

It is now the season where we recruit new Docents to keep the story of its history and accomplishments alive, and promote the cutting edge science the "Big Eye" and its companions still provide. What do you say?? Looking for a way to contribute, even more than you already do, to opening up the cosmos?? Hoping to inspire even one youth or adult to look up?? Well, here's your chance...

If you would like to look into being a Docent up at the 200" dome, you can visit the website at <http://www.astro.caltech.edu/palomar/community/docents.html> or talk to Curtis Croulet, Mark DiVecchio, Sam Pitts, Deborah, or even me. The recruiting meeting is coming up and we'd love to have your company...

But, if nothing else, I'd hope that all of you take the opportunity to visit this local wonder in the near future...who knows, maybe you'll even get stuck with me as your Docent!!! And we could even work out another private tour for just TVA members...it is worth the trip!!!

And if you then realize that you can complement and supplement the work being done there with your own telescope and equipment, think how fulfilling that would be...as well as the contribution to the Sciences you can make in your own small way. This is how we add up to being greater than the sum of our parts!!!

Clear, Dark Skies my Friends...



A Note from the Editor

Chuck Dyson has told me that he will not be able to write his monthly article for the next several months. His Rambles have become a main stay in the Temecula Valley Astronomer.

We need someone to step up and write one or more articles for all of us to enjoy. Please contact me at markd@silogic.com.

Mark DiVecchio





Looking Up Redux compiled by Clark Williams

from these sources:

SeaSky.org

Wikipedia.com

in-the-sky.org

The American Meteor Society, Ltd.

cometwatch.co.uk

NASA.gov

TVA App (2.0.1296)

FullAndNewMoon App (2.0)

Starry Night Pro Plus 7 (7.6.3.1373)

SkySafari 6 Pro (6.1.1)

Stellarium (0.18.2)



ALL TIMES ARE LOCAL PST WILDOMAR/MURRIETA/TEMECULA

Times are given in 24-hour time as: (hh hours, mm minutes, ss seconds)

hh:mm:ss or hhmmss

hhmm+ (time of the next day)

hhmm- (time of the previous day)

hhmm (seconds not shown)

Moon Phases for the month by date:

Monday the 05th @ 0150 NEW in Cetus

Tuesday the 12th @ 1205 FIRST QTR in Gemini

Tuesday the 19th @ 0412 FULL in Virgo

Tuesday the 26th @ 1518 THIRD QTR in Capricornus

Apogee comes on 2019-04-28 @ **1121** – 404, 576 km (251, 392 mi)

Perigee comes on 2019-04-18 @ **1503** – 364, 208 km (226, 308 mi)

2019 has: (13) new moons, (12) 1st Qtr moons, (12) Full moons, (12) 3rd Qtr moons

(0) Blue moons and (1) Black moon

Daylight Savings: Pacific time is Timezone Uniform -8 GMT (-7 GMT PDT)

Luna: Luna will be peeking above the horizon about four minutes before five in the morning on the first. Luna is heading toward New on the 5th of the month so you should have some dark nights until mid-month, when Luna has gotten around to rising about **1522** local time and won't be setting until **0451+**. Luna will be heading into Full by the 19th. The end of the month we're deep into the third-quarter and dark night viewing will be back. In fact on the 30th Luna has hit the pillow by **1543** and you will have a full dark night for viewing.

Highlights: (distilled from SeaSky.org and Clark's planetary Orrey program[s])

05 April: Evening – New Moon. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere. (<http://SeaSky.org/>)

11 April: Morning – Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 27.7 degrees from the Sun at **0837** PDT. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise. (<http://SeaSky.org/>)



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19 April: Evening – Full Moon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated. This full moon was known by early Native American tribes as the Full Pink Moon because it marked the appearance of the moss pink, or wild ground phlox, which is one of the first spring flowers. This moon has also been known as the Sprouting Grass Moon, the Growing Moon, and the Egg Moon. Many coastal tribes called it the Full Fish Moon because this was the time that the shad swam upstream to spawn. (<http://SeaSky.org/>)

22, 23 April: Evening – Lyrids Meteor Shower. The Lyrids is an average shower, usually producing about 20 meteors per hour at its peak. It is produced by dust particles left behind by comet C/1861 G1 Thatcher, which was discovered in 1861. The shower runs annually from April 16-25. It peaks this year on the night of the 22nd and morning of the 23rd. These meteors can sometimes produce bright dust trails that last for several seconds. The waning gibbous moon will block out many of the fainter meteors this year, but if you are patient you should still be able to catch a few of the brightest ones. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Lyra, but can appear anywhere in the sky. (<http://SeaSky.org/>)

Algol minima: (All times PDT)

04/02/19	0621
04/05/19	0310
04/08/19	0000
04/10/19	2049
04/13/19	1738
04/16/19	1427
04/19/19	1116
04/22/19	0805
04/25/19	0454
04/28/19	0949

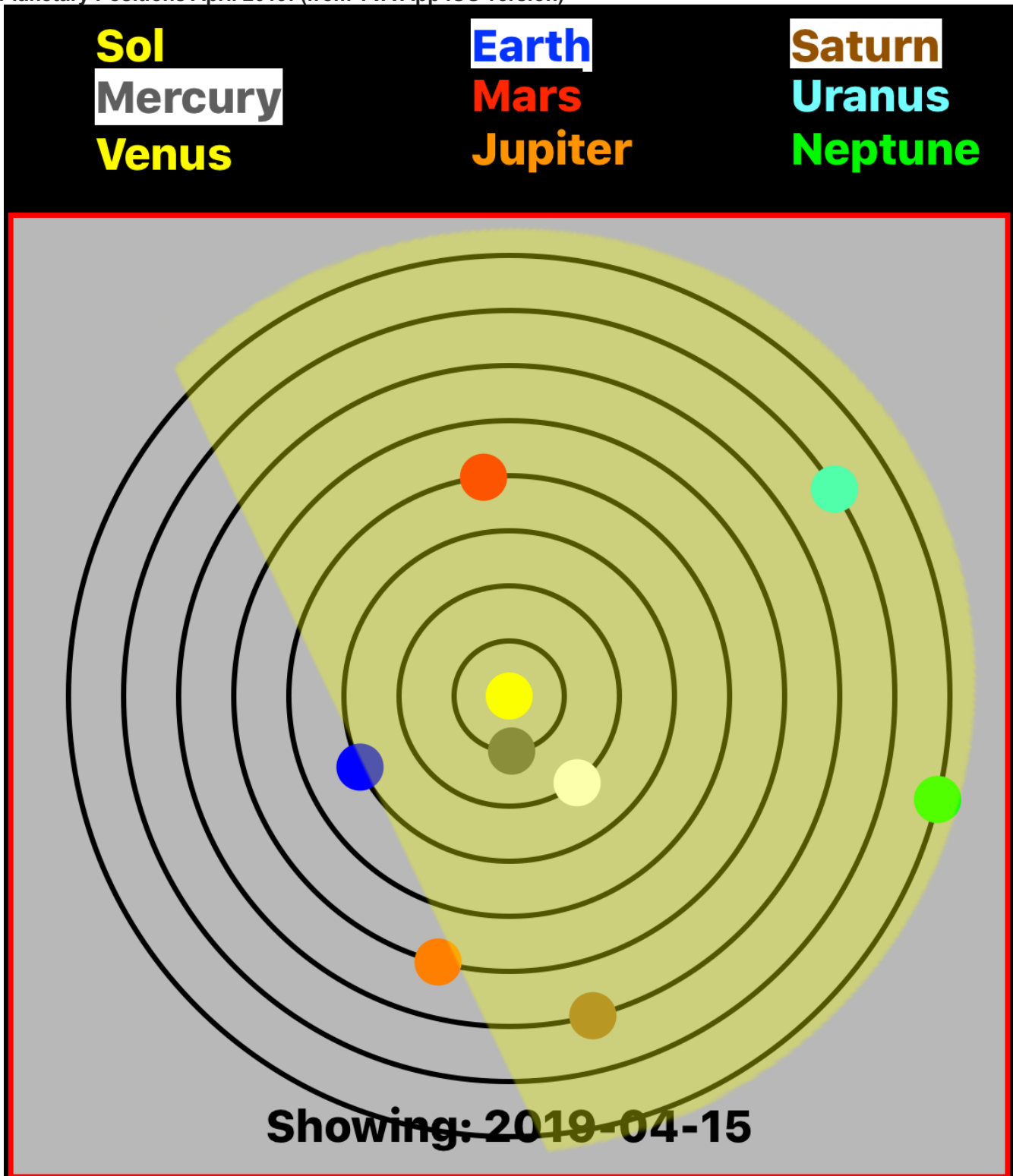


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Planets:

Planetary Positions April 2019: (from TVA App iOS version)





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- **Mercury:** Mercury is an morning star on the first of the month visible from about **0533** until it sets at **1710**. Mercury will be at greatest western elongation on the 11th at **0837**. Stay tuned for the Transit of Mercury 2019 November 11. This hasn't happened since 2016. **DON'T LOOK DIRECTLY AT THE SUN!**
- **Venus:** Is the Morning Star. Venus is also looping toward the sun and is visible from when she rises at **0510** on the first. By mid-month Venus is rising at **0502** and rising at **0451** by the end off the month.
- **Mars:** Mars is still visible this month rising on the first in the midmorning at about **0859**. Transiting by **1604** and not setting until **2308**. This gives you about 3 hours of viewing before the Warrior lumbers of to slumber. Mid-month finds Mars visible about the same time and setting around **2258**. You will have a Waxing Gibbous Moon to contend with however at about 85% illuminated. But Luna is to the East-Southeast while Mars is in the West. By the end of April Mars will be rising during daylight and transiting before Astronomical Dusk but doesn't set until **2245**. The moon will be back where it belongs setting by **1543**.
- **Jupiter:** Jupiter is back in the evening sky but doesn't rise until **0046** on the first of the month and transiting at **0546+**. By mid-month Jove is up at **2351** and transits by **0450+**. The end of the month sees a rise time of **2250** and a transit at **0349+**. All early morning times but at least Jove is headed in the right direction.
- **Saturn:** Saturn is trailing Jove rising at **0233** on the first and transiting about sunrise. Saturn is rising in the early morning about **0140** by mid-month. By the end of the month you'll get a little longer view of Saturn as it rises at **0041** and won't get washed out until sunrise.
- **Uranus:** On the first Uranus will become visible after sunset about **1911**. Uranus will set around **2041**. Uranus is leading Mars. But heading toward Sol. By the ides they are separated by only about 6.25° leaving you about 28-minutes of viewing. Sunset is at **1921** and Uranus sets at **1949**. By the 30th Uranus sets before the Sun having passed Sol on the 21st about **0240**.
- **Neptune:** Neptune is rising before the Sun in the beginning of the month by about an hour. Not enough to find the 7.95 magnitude planet in early dawn light. By the 15th Neptune has moved slightly ahead of Sol beating it by an hour and fifteen minutes but still a tough find. By the end of the month Neptune is rising by **0344**. This should give you an hour or two find the blue planet.
- **Pluto:** Pluto is back as a morning object, rising at **0247** and sunrise is not until **0635**. Mid-month finds Pluto rising at **0153** and the nasty old moon is on the other side of the sky. Sunrise is not until **0617**. Month end finds Pluto rises about **0054** and the sun follows at **0600**.

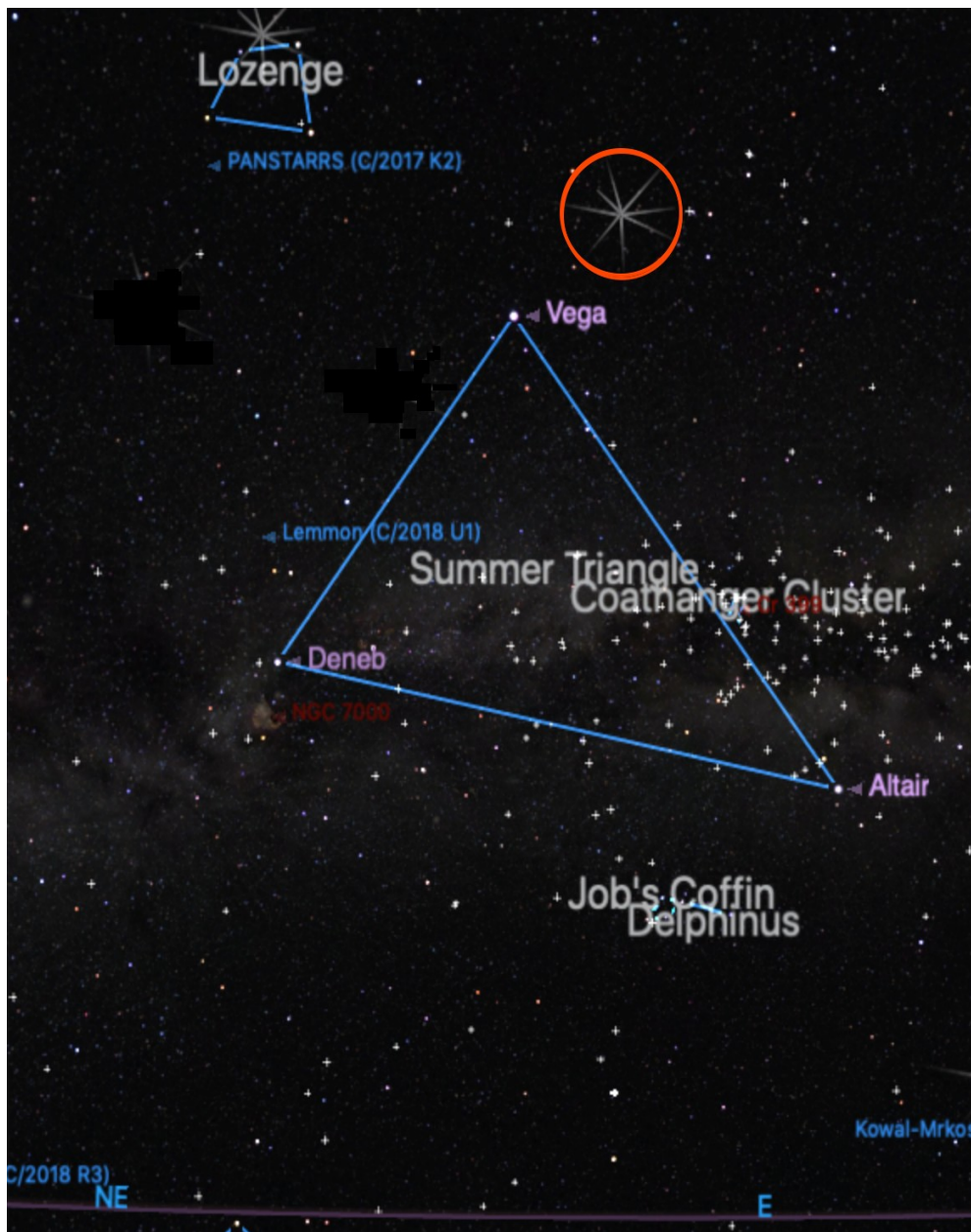
Asteroids:

- Okay. I searched for asteroids in 2019 with a reasonable magnitude; say less than or equal to +10 in April there is nothing except the regulars: Juno, Vesta. Hebe, Eros and Herculina. So consult your local planetarium software or try <https://www.asteroidsnear.com/year?year=2019>.

Meteors:

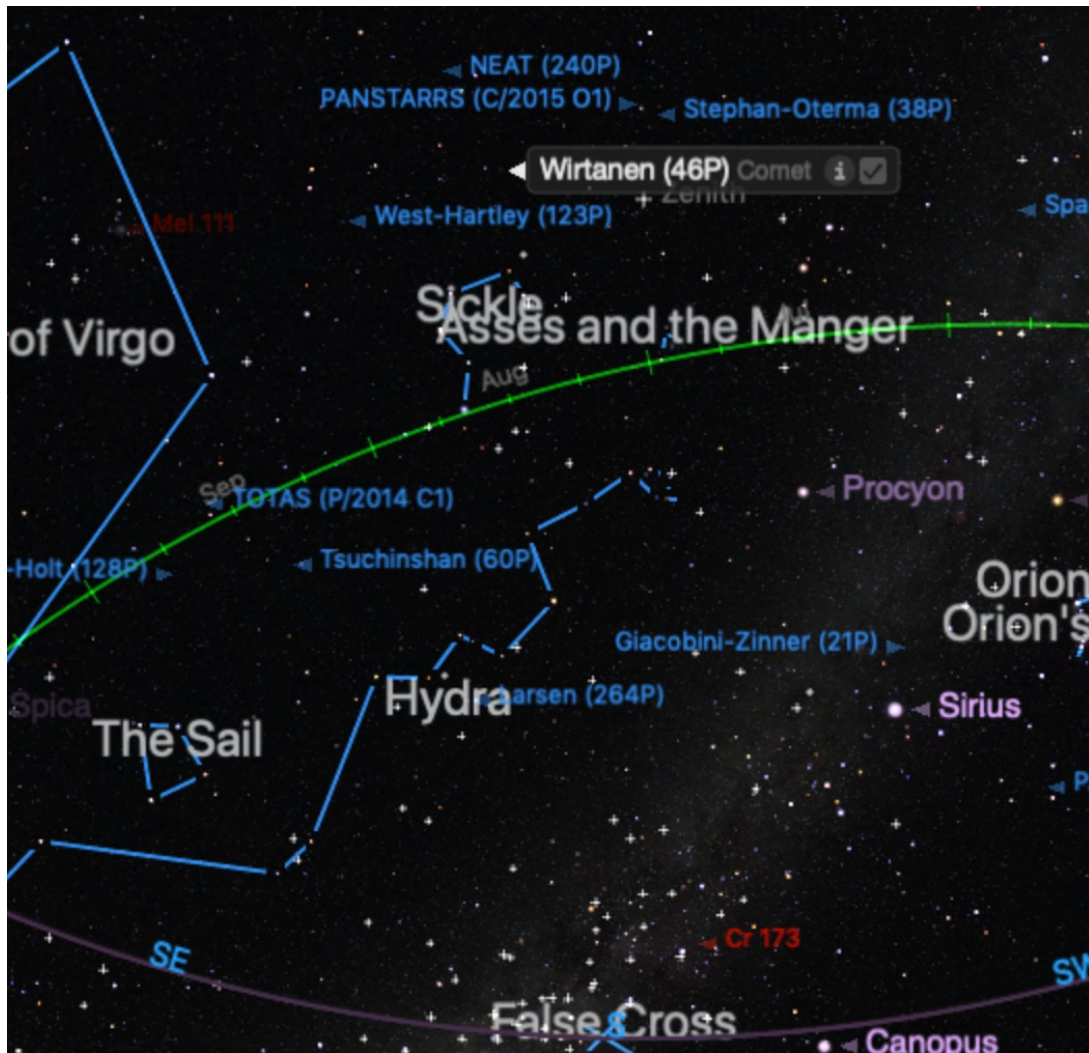
- The Lyrids have returned. Find Vega and you'll be looking in generally the right direction on the 22-23 of April 2019. The red oval in the image below marks the spot. Keep in mind that a streak can come from any direction. Find some place dark.

The Lyrids are active between April 16 and 25 every year. It tends to peak around April 22 or 23. Oldest Recorded Meteor Shower Named after constellation Lyra, the Lyrids are one of the oldest recorded meteor showers—according to some historical Chinese texts, the shower was seen over 2,500 years ago. The fireballs in the meteor shower are created by debris from comet Thatcher, which takes about 415 years to orbit around the Sun. The comet is expected to be visible from Earth again in 2276. (<https://www.timeanddate.com/astronomy/meteor-shower/lyrids.html>)



Comets:

- Comets come in various classifications:
 - 1) Short Period comets – further broken down into:
 - Halley Type: The Halley Types are believe to come from the Kuiper Belt and have periods in excess of 20-years.
 - Jupiter Type: The Jupiter types have a period less than or equal to 20-years.
 - Short period comets may have a near circular orbit or an elliptical orbit. The latter being far more common.
 - 2) Long Period comets – thought to originate from the Oort cloud these comets have periods of over 200 years and have random inclinations around the celestial sphere.
- 46/P Wirtanen is still visible with a scope through all of April.



46/P 2019 04 01 @ 21:00:00

- Unless some bright long period comets are discovered it promises to be a disappointing year for comet enthusiasts. (<https://www.ast.cam.ac.uk>)



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Deep Sky:

Notes:

L/Z abbreviation for ALT/AZ

R/D abbreviation for Right Ascension/Declination

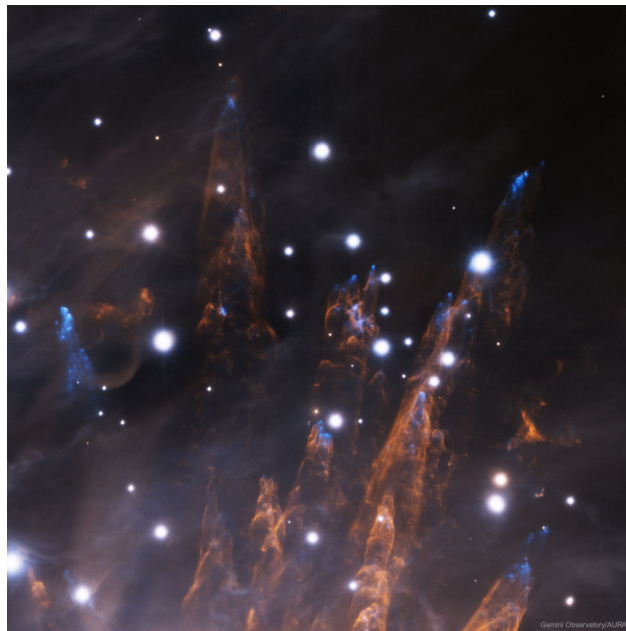
α is right ascension

δ is declination

In each case, unless otherwise noted, you should look for the following on or about the 15th Day of April 2019 at 2100 PDT and you will have about 20 minutes of viewing time total.

Lets look for some objects recently in the astronomical news:

- **M42 and Irc2 – M42 AKA NGC 1976** is a diffuse nebula situated in the Milky Way, being south of Orion's Belt in the constellation of Orion. It is one of the brightest nebulae and is visible to the naked eye in the night sky. M42 is located at a distance of $1,344 \pm 20$ light years and is the closest region of massive star formation to Earth. The M42 nebula is estimated to be 24 light years across. It has a mass of about 2,000 times that of the Sun. M42 is a stellar womb. It is producing stars as you read this. The Orion Bullets shown in the image below are exposed in the IR. So you'll need the IR capability to see these. (Wikipedia) They are also small and you really need some specialized equipent to see them. The recent near-infrared spectroscopy of scattered light from Orion Irc2 suggests that the illuminating source at the K' band is either a protostar with a radius $> \sim 300 R_{\text{solar}}$ or a disk with an accretion rate $\sim 10\text{-}2 \text{ Msolar yr}^{-1}$. To test the former interpretation, we present a simplified stellar model accreting mass at a very high rate, $\sim 10\text{-}2 \text{ Msolar yr}^{-1}$. We find that the protostar is fully convective at almost all stages of the stellar mass $M < \sim 15 \text{ Msolar}$, and thus a polytrope of index 1.5 is a good approximation of the stellar structure. (The Astrophysical Journal, Volume 534, Issue 2, pp. 976-983. [ApJ Homepage])

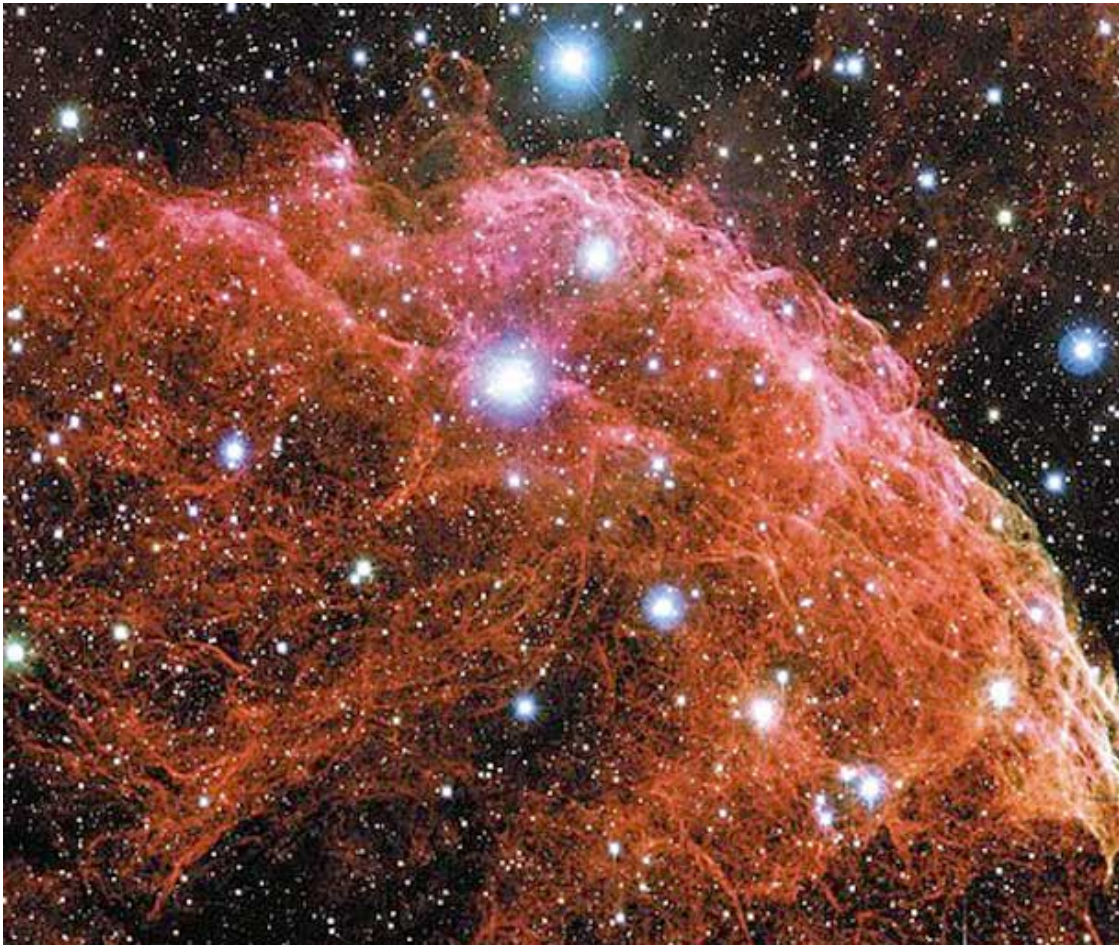


The Orion Bullets

Image Credit: GeMS/GSAOI Team, Gemini Observatory, AURA, NSF;

Processing: Rodrigo Carrasco (Gemini Obs.), Travis Rector (Univ. Alaska Anchorage)

- **Jellyfish Nebula – IC 443 AKA the Jellyfish Nebula and Sharpless 248 (Sh2-248)** is a galactic supernova remnant (SNR) in the constellation Gemini. On the plane of the sky, it is located near the star Eta Geminorum. Its distance is roughly 5,000 light years from Earth. IC 443 may be the remains of a supernova that occurred 3,000 - 30,000 years ago. The same supernova event likely created the neutron star CXOU J061705.3+222127, the collapsed remnant of the stellar core. IC 443 is one of the best-studied cases of supernova remnants interacting with surrounding molecular clouds. You'll need an O-III filter to see this object; it is worth it. ([Wikipedia](#))



NASA [Public domain] (<https://commons.wikimedia.org/wiki/File:IC443.jpeg>)

April is great for both viewing and imaging. Spend some time outside with your scope. Spring is here.

For now – Keep looking up.



Mars the Wanderer

By David Prosper

April's skies find Mars traveling between star clusters after sunset, and a great gathering of planets just before sunrise.

Mars shows stargazers exactly what the term "planet" originally meant with its rapid movement across the evening sky this month. The ancient Greeks used the term *planete*, meaning *wanderer*, to label the bright star-like objects that travelled between the constellations of the zodiac year after year.

You can watch Mars as it wanders through the sky throughout April, visible in the west for several hours after sunset. Mars travels past two of the most famous star clusters in our night sky: the **Pleiades** and **Hyades**. Look for the red planet next to the tiny but bright Pleiades on April 1st. By the second week in April, it has moved eastward in Taurus towards the larger V-shaped Hyades. Red Mars appears to the right of the slightly brighter red-orange star **Aldebaran** on April 11th. We see only the brightest stars in these clusters with our unaided eyes; how many additional stars can you observe through binoculars?

Open clusters are made up of young stars born from the same "star nursery" of gas and dust. These two open clusters are roughly similar in size. The Pleiades appears much smaller as they are 444 light years away, roughly 3 times the distance of the Hyades, at 151 light years distant. Aldebaran is in the same line of sight as the Hyades, but is actually not a member of the cluster; it actually shines just 65 light years away! By comparison, Mars is practically next door to us, this month just a mere 18 light minutes from Earth - that's about almost 200 million miles. Think of the difference between how long it takes the light to travel from these bodies: 18 minutes vs. 65 years!

The rest of the bright planets rise before dawn, in a loose lineup starting from just above the eastern horizon to high above the south: **Mercury**, **Venus**, **Saturn**, and **Jupiter**. Watch this month as the apparent gap widens considerably between the gas giants and terrestrial planets. Mercury hugs the horizon all month, with Venus racing down morning after morning to join its dimmer inner solar system companion right before sunrise. In contrast, the giants Jupiter and Saturn move away from the horizon and rise earlier all month long, with Jupiter rising before midnight by the end of April.

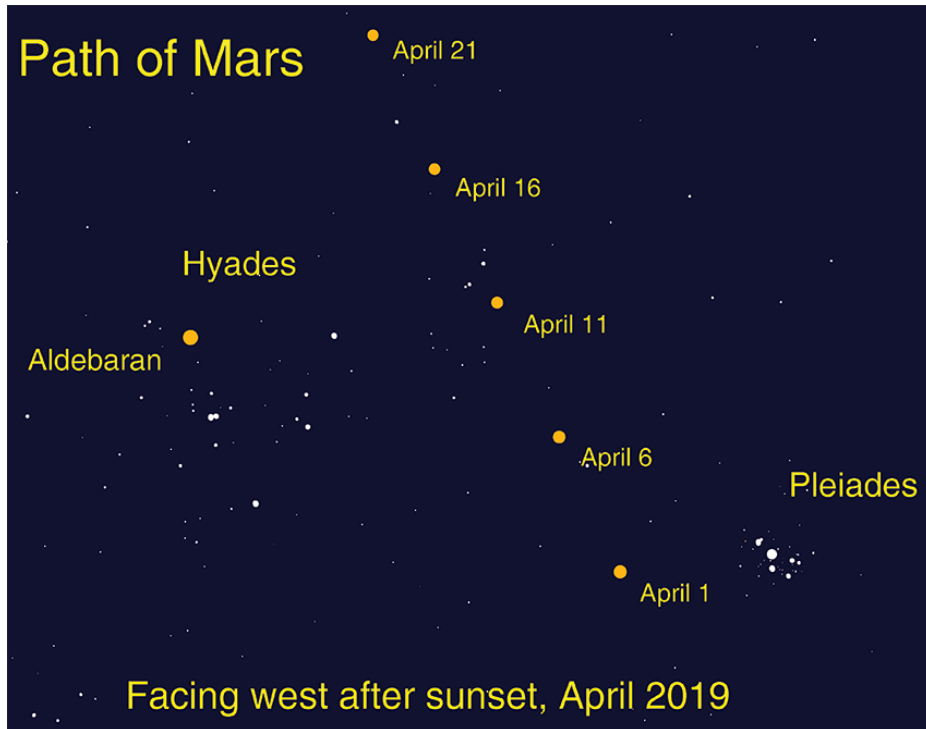
The **Lyrids** meteor shower peaks on April 22nd, but sadly all but the brightest meteors will be washed out by the light of a bright gibbous Moon.

You can catch up on all of NASA's current and future missions at nasa.gov



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*The path of Mars between the Pleiades and Hyades in April.
Image created with assistance from Stellarium.*

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 <https://nightsky.jpl.nasa.org> to find local clubs, events, and more!





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The TVA is a member club of [The Astronomical League](#).

