

Central Coast Astronomy Virtual Star Party

June 13th 7pm Pacific

Welcome to our Virtual Star Gazing session! SUMMER is the time for warm, late nights sparkling with stars, planets and meteor showers! We are going to focus on objects you can see with binoculars or small telescope, so after our session, you can simply walk outside, look up, and understand what you're looking at.

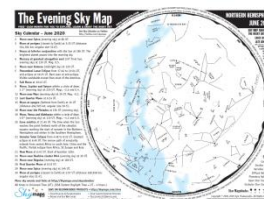
CCAS President Aurora Lipper and astronomer Kent Wallace will bring you a virtual "tour of the night sky" where you can discover, learn, and ask questions as we go along! All you need is an internet connection. You can use an iPad, laptop, computer or cell phone. When 7pm on Saturday night rolls around, click the link on our website to join our class. www.CentralCoastAstronomy.org/stargaze

Before our session starts:

Step 1: Download your free map of the night sky: www.SkyMaps.com

They have it available for Northern and Southern hemispheres.

Step 2: Print out this document and use it to take notes during our time together on Saturday. This document highlights the objects we will focus on during our session together.



Celestial Objects:

Moon:

The moon is at 3rd quarter, which means you'll get tired and pack up before the moon actually rises (after midnight), which makes it a really good night for star gazing!

Planets:

Mercury. Tonight, Mercury is 11 degrees below Pollux in Gemini. Mercury fades and sets earlier each evening. It dims to 2nd magnitude and just above the horizon on June 16th.

Constellations:

Big Dipper

Draco the Dragon

Little Dipper

Hercules

Serpens the Snake

Bootes (AKA: "Ice Cream Cone" or "Kite")

Ophiuchus The Doctor ("o-fee-you-cus")

Main Focus for the Session:

1. Draco has Thuban (circled star in image below), which was the pole star in 2800 BC, and it's easy to find. The precession of the equinox will make Vega the pole star in 14,000 AD.

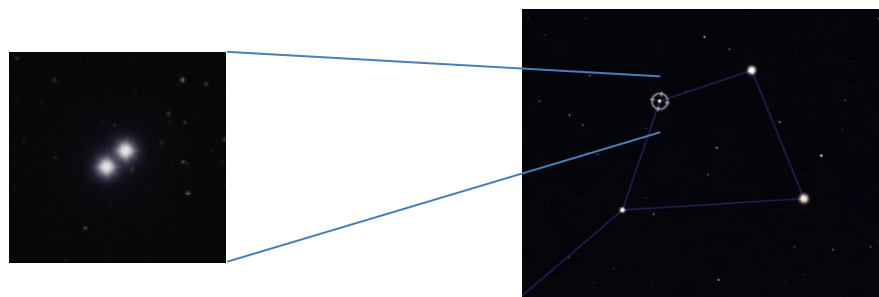


Nu Draco which is the faintest star in the head of Draco is a nice wide double which you can see separated in 7X50 binoculars.

The Cat's Eye Nebula (mag 9.8 – telescope object, not for binoculars) is right above the back of

Draco. You can see color in the Cat's Eye Nebula (NGC 6543) at low power in an 8" telescope when you stare at it (use averted vision).

There's also a very nice double star in the head of the dragon, defined by 4 stars in a distorted square. Nu Draconis (image below) is the faintest of the 4 stars. It contains 2 virtually equivalent 5th magnitude type-A stars separated by 62". The pair are 120 light years away and the actual separation between the two is about 2,280 light years.

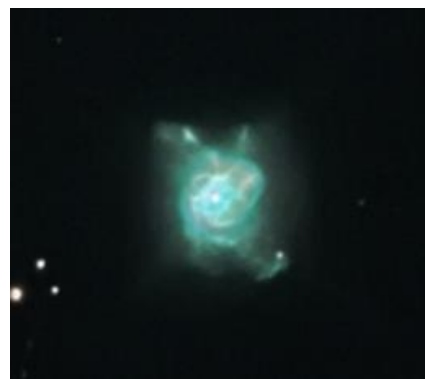


2. In the constellation Hercules, we have a couple of globular clusters, double stars, and a planetary nebulae. M13 (Hercules Globular Cluster, mag 5.8, circled in red in the image below) and the Keystone of Hercules.



M92 (mag 6.3) which is a nice globular cluster (in the blue box to the left of Hercules in the image above).

Ras Algethi (Alpha Herculi) which is a close colorful double (image below, left).



Finally, the Turtle Nebula (NGC 6210, mag 10.1) is one of the few planetary nebulae that you can actually see colors in an 8" telescope (image above, right).

3. Serpens is the only constellation which is broken into two pieces: Serpens Cauda (“tail of the snake”) is the other half (Serpens Caput means “head of the serpent”) and separated by the constellation Ophiuchus. I’ve drawn in a green line that goes right through Ophiuchus, showing where the constellation has been severed in half.



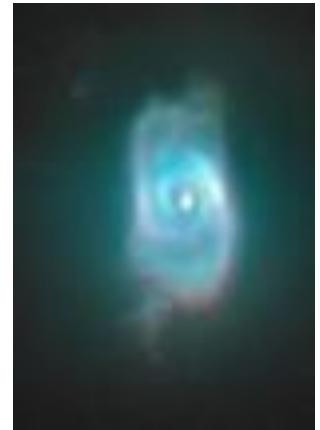
M5 (Globular Cluster in Serpens Caput, mag 5.6)

In Serpens (the tail section), M16 Eagle Nebula (AKA: Pillars of Creation”) is a big nebula of gas, and inside you have an open cluster that is being formed which is pushing out the nebula. The top picture is from an 8” telescope, and the lower is from the Hubble telescope.



4. Ophiuchus ("The Doctor") has a lot of objects, but many are too small to see! The ones you can see with binoculars or a small telescope include globular clusters, open clusters, and planetary nebulae:

NGC 6572 (Emerald Nebula, mag 10.8) another bright small planetary nebula which shows color in an 8" telescope.



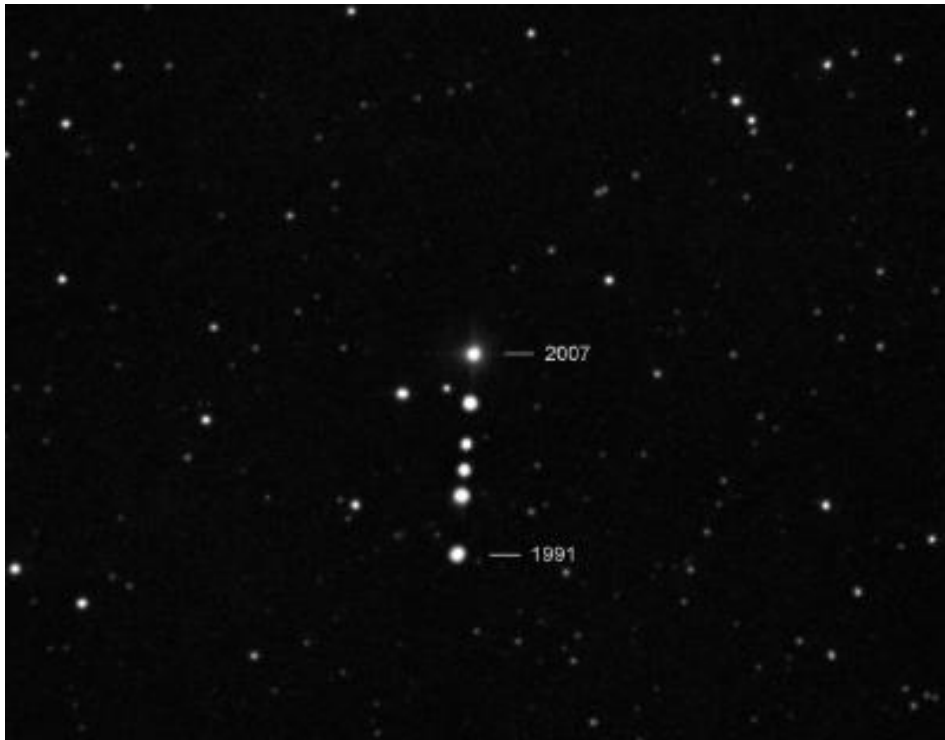
Also has M10 (mag 6.4) & M12 (mag 7.6) which are globular clusters which can be seen in binoculars (image below).



Open cluster IC 4665 in the eastern shoulder (shown in the blue box in the image right)

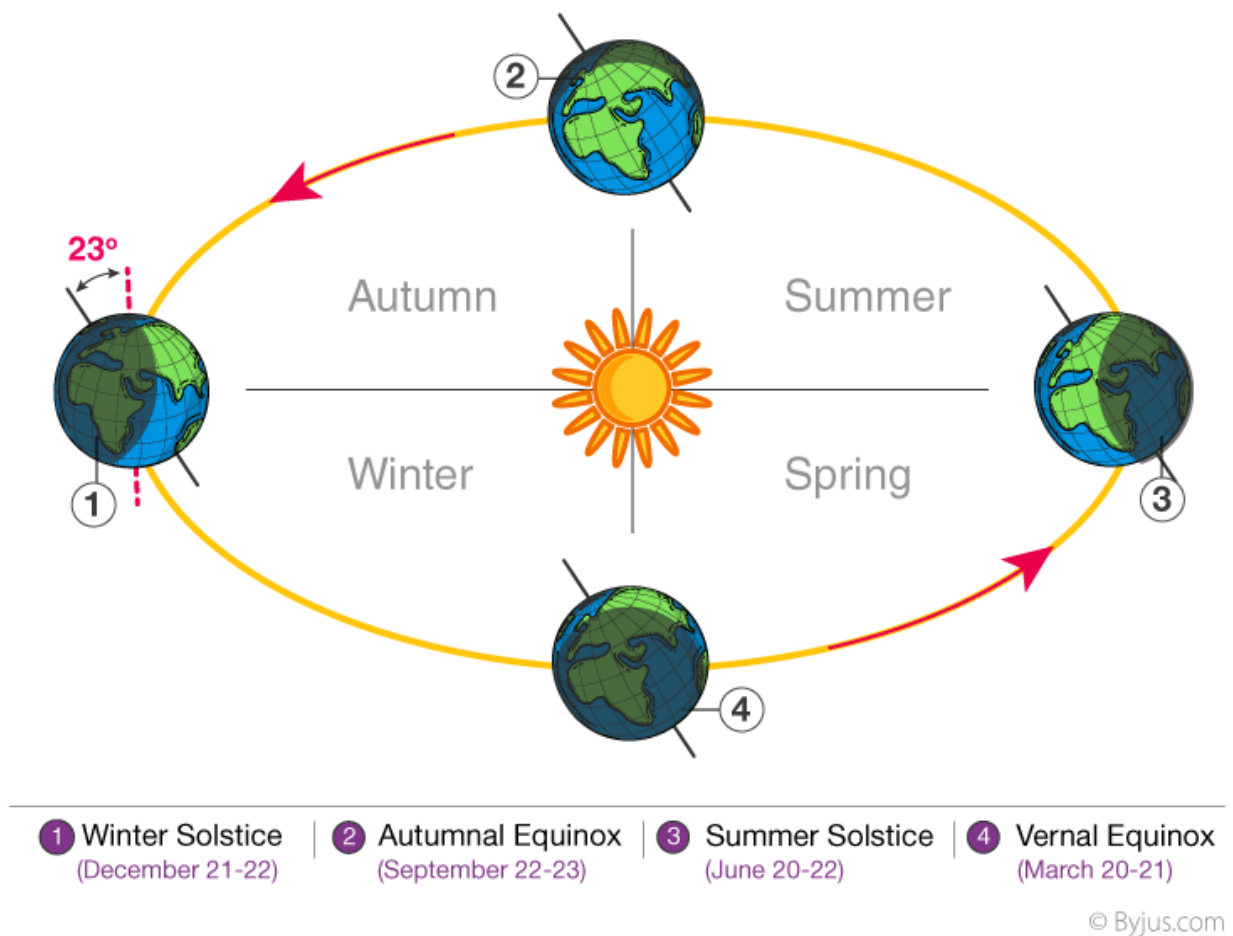


Barnard's Runaway Star is a red dwarf star that is moving so fast you can actually see it move relative to the background stars within your lifetime! It's actually one of the closest stars to the Earth (the closest star after Alpha Centauri, which is only visible from the Southern hemisphere).



Solstice/Equinox:

June 20th is the summer solstice. Many folks think that it is hotter in the summer since Earth's elliptical orbit is closer to the Sun, but it is actually further from the Sun than at the winter solstice.



Bonus: DSO (Deep Sky Objects): Globular Clusters, Open Clusters, Nebulae and Galaxies:

M81 (Bode's Nebula, Spiral Galaxy in Ursa Major, mag 6.8) & M82 (mag 8.4)

NGC 5907 is a spiral galaxy located approximately 50 million light years away

Equipment Recommendations:

Binoculars for Astronomy:

Celestron Cometron 7x50 Binoculars (\$35)

Orion's UltraViews 10x50 (\$140)

Cell phone mount:

These grab hold of the eyepiece and keep the lens of your camera steady for imaging on a spotting scope, binoculars, or small telescope. You can find these for about \$15 on Amazon: <https://amzn.to/3h3GjE6>



Beginner telescopes:

For kids: 8"

Dobsonian Telescope: <https://bit.ly/2XEFaeK> or build it yourself: <https://bit.ly/3h4UkS8>

For adults: (it's going to depend what you want to look at)

8" Newtonian Reflector <https://bit.ly/3f3C0qS> (easy to use, good all-around scope for deep sky objects, planets, moon)

8" Schmidt-Cassegrain <https://bit.ly/3dJkG59> (more compact, good all-around scope for planets, galaxies, nebulae, astrophotography)

90mm Refractor <https://bit.ly/37aG8lX> (harder to use, best for planets and moon observing)