

Central Coast Astronomy Virtual Star Party

May 15th 7pm Pacific

Welcome to our Virtual Star Gazing session! We'll be focusing on objects you can see with binoculars or a 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. CentralCoastAstronomy.org/stargaze

Before our session starts:

Step 1: Download your free map of the night sky:

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 on Saturday. This document highlights the objects we will focus on in our session together.

Celestial Objects:

Moon: The moon 4 days after new, which is excellent for star gazing!

Main Focus for the Session:

1. Canes Venatici (The Hunting Dogs)
2. Boötes (the Herdsman)
3. Coma Berenices (Hair of Berenice)
4. Virgo (the Virgin)

Canes Venatici (the Hunting Dogs)

Canes Venatici, The Hunting Dogs, a modern constellation created by Polish astronomer Johannes Hevelius in 1687. This constellation is often depicted as two dogs. The northern dog is called Asterion, meaning starry and the southern dog is called Chara, meaning joy. Chara contains the Alpha and Beta stars of this constellation. These are the two easy naked eye stars in Canes Venatici.

Cor Caroli (the Heart of Charles), Alpha Canum Venaticorum, a double star, named after King Charles I of England. This double consists of a visual magnitude 2.9 star with a visual magnitude 5.5 star separated by 19.2 ". It was discovered to be a double by Christian Mayer between 1776 and 1777 using a 2.5" refractor. The brighter star is 123 light years distant while the fainter star is 107 light years distant. It is a nice double star for the small telescope. In my 8" scope it appears as a pair of white stars

M51

M 51, face on spiral galaxy + smaller interacting galaxy. The larger and brighter face on spiral galaxy (NGC 5194) is nicknamed the Whirlpool Galaxy, most like due to the drawings of Lord Rosse in the mid 1800s. NGC 5194 has a visual magnitude of 8.4 and was discovered by Charles Messier on October 13, 1775. The smaller galaxy (NGC 5195) has a visual magnitude of 9.5 and was discovered by Pierre Mechain on March 21, 1781. In his third catalogue of 1784 Messier notes M 51 as a double nebula, thus combining his and Mechain's observations. This pair of galaxies is 27 million light years distant. M 51 can be seen in 7x50 binoculars just below the base of a faint triangle of stars.

M3

M3, globular cluster. This object has a visual magnitude of 5.9 is about 190 light years across, has 500,000 stars and is around 34,000 light years distant. Charles Messier discovered this beautiful globular cluster on May 3, 1764. M3 can be seen in 7x50 binoculars, forming a skinny triangle with two other faint stars.

Boötes (the Herdsman)

Bootes, the Herdsman, an ancient Greek constellation.

Arcturus (the Bear Watcher), Alpha Bootis. This is the fourth brightest star in the sky and the brightest star in the Northern Celestial Hemisphere with a visual magnitude of -0.04. Arcturus is an orange giant, 215 times brighter and 25 times the diameter of our sun. It has a distance of 37 light years.

NGC 5466

NGC 5466, globular cluster. This faint object has a visual magnitude of 9.0, a diameter of 9' and a distance of about 51,500 light years. It was discovered by William Herschel on May 17, 1784. NGC 5466 is about 5 degrees due east of M 3. On deep exposures NGC 5466 has a faint tail of stars trailing behind it. NGC 5466 may be the core of a dwarf galaxy which has been cannibalized by the tidal forces of the Milky Way.

Coma Berenices (Hair of Berenice)

Coma Berenices (Hair of Berenice), a modern constellation created by Caspar Vopel in 1536. It was originally shown as a tuft at the end of the tail of Leo.

Melotte 111

Melotte 111, open cluster. This large naked eye open cluster contains 50 stars at a distance of 280 light years. It was discovered by Ptolemy sometime between 127 and 151 AD. For some weird reason this cluster was not catalogued by Messier or is in the NGC. Melotte 111 is best seen in binoculars and is also known as the Coma Berenices cluster.

NGC 4565

NGC 4565, edge on galaxy. This galaxy is called the Needle Galaxy. It has a visual magnitude of 9.6 and a distance of 32 million light years. William Herschel discovered NGC 4565 on April 6, 1785. This is a beautiful object in moderate sized scopes.

M 64

M 64, spiral galaxy with a massive curve of dust near the core. This galaxy has the nickname Black Eye Galaxy due to the large dust cloud northeast of the core. M 64 has a visual magnitude of 8.5, a diameter of 56,000 light years and a distance of 18.3 million light years. It was discovered by Edward Pigott on March 23, 1779. The dust cloud can be seen in an 8" scope.

Virgo (the Virgin)

Virgo, the Virgin, an ancient Greek zodiacal constellation.

Spica, Alpha Virginis. With a visual Magnitude of 0.98, Spica is the 16th brightest star in the sky. Spica means ear of grain. It is 262 light years distant. Spica is a very close spectroscopic binary made up of two B type stars which orbit each other in 4 days. The brighter component is 13,000 times brighter, 9 times as massive and 8 times the diameter of our sun. The fainter component is 1,300 times brighter, 4.5 times as massive and 4 times the diameter of our sun. These components are only 11.3 million miles apart.

M 84

M 84, elliptical galaxy. This galaxy has a visual magnitude of 9.1 and a diameter of 110,000 light years across. It is 58 million light years away from us. M 84 was discovered by Charles Messier on March 18, 1781. It is the western most galaxy in Markarian's Chain of galaxies. M 84 is visible in 10x50 binoculars under dark skies.

M 86

M 86, elliptical galaxy. This galaxy has a visual magnitude of 8.9 and a diameter of 147,000 light years across. It is 57 million light years from us. M 86 was discovered by Charles Messier on March 18, 1781. It is 17' east of M 84 and is the brightest galaxy in Markarian's Chain of galaxies.

M87

M 87, massive elliptical galaxy. This galaxy has a visual magnitude of 8.6 and a diameter of 132,000 light years across. It is about 55 million light years from us. M 87 was discovered by Charles Messier on March 18, 1781. This galaxy is also called Virgo A because it has the strongest radio emissions in the constellation of Virgo.

M 87 is famous for a relativistic jet blasting out from a massive black hole at its center which was discovered by Heber Curtis in 1918. Recently an image was taken of this black hole using telescopes all around the world and in space. See the club's monthly newsletter which just came out for detailed information on this effort. M 87 is also estimated to have 16,000 globular clusters around it where our Milky Way galaxy is estimated to have a mere 400 globular clusters. M 87 has a mass of 2.7 trillion suns which makes it one of the most massive galaxies known.

M104

M 104, edge on spiral galaxy with a large halo. This galaxy has a visual magnitude of 8.0 and a diameter of 105,000 light years across. It is about 45 million light years from us. M 104 was discovered by Pierre Mechain on May 11, 1781. This galaxy is given the nickname Sombrero Galaxy probably due to its appearance to that Mexican hat on some of the early Palomar photos. M 104 is only 6 degrees off from being perfectly edge on. It is estimated that M 104 has approximately 2,000 globular clusters. I remember seeing a nice image of M 104 and there were all of these very faint stars scattered around its halo. Then I realized that those were not stars but globular clusters. I was amazed. M 104 can be seen in 10x50 binoculars under good conditions. The dust lane crossing M 104 can be seen in an 8" scope.

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)