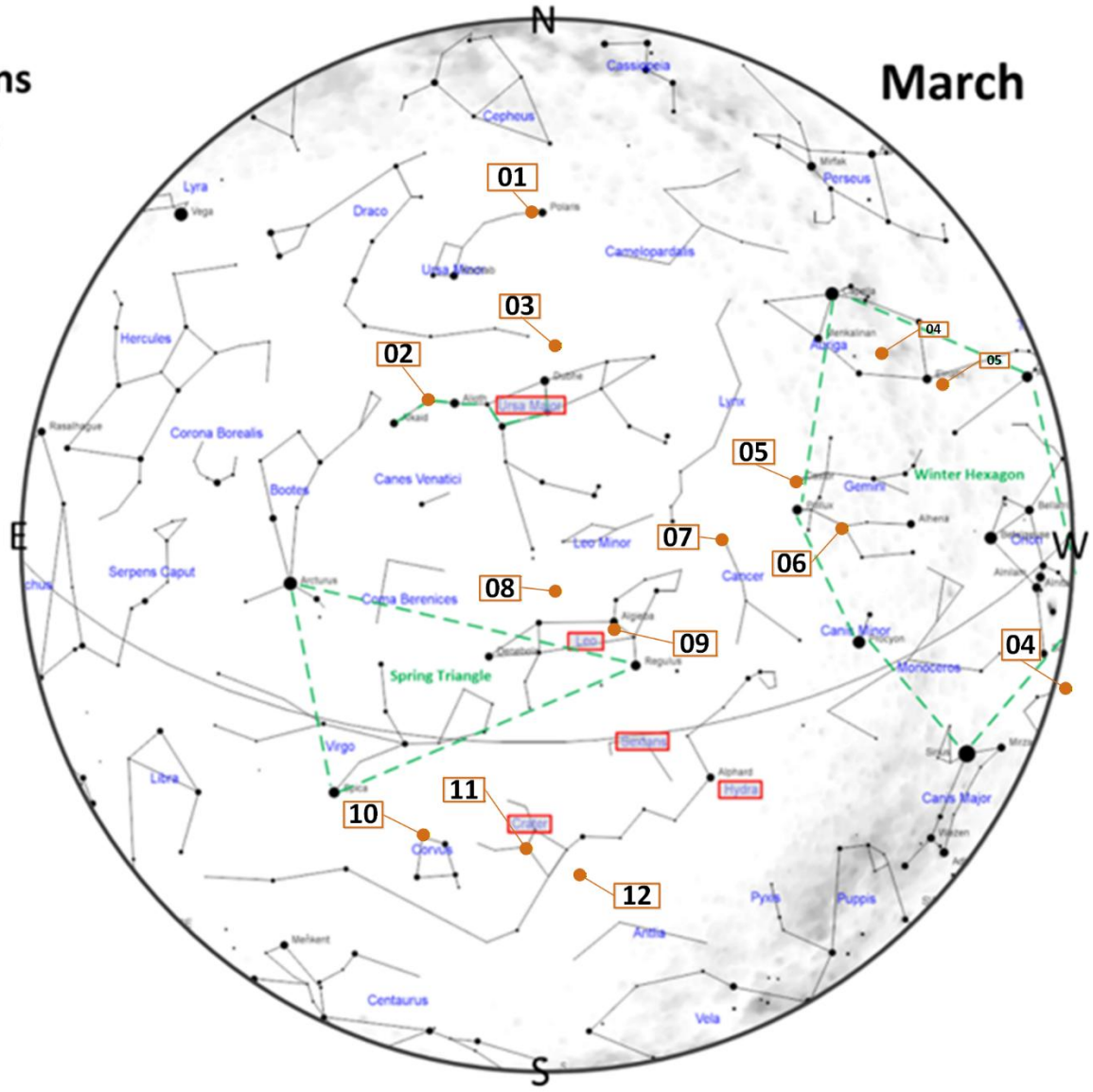
Beginners Astronomy Class
Lab 2- STARS

Constellations of Interest

Evening
Cancer (Cnc)
Pyxis (Pyx)
Vela (Vel)
Leo Minor (Lmi)
Antlia (Ant)

Prime Time
Sextans (Sex)
Leo (Leo)
Hydra (Hya)
Ursa Major (UMa)
Crater (Crt)

Morning
Crovus (Crv)
Coma Berenices (Com)
Canes Vebnatici (CVn)
Centaurus (Cen)
Virgo (Vir)



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Seq	Target	Const	Diff	Stats	Description
01	Polaris (DS)	Little Dipper (UMi)	01	**AB** | Mag=2.0, 9.1 | Sep=18.4”	Primary is 630x brighter than secondary, so close examination is needed
02	Mizar (MS-3)	Big Dipper (UMa)	01	**AB** | M=2.2, 3.9 | Sep=14.4” **AC** | M=2.2, 4.0 | Sep=715.5”	Mizar and Alcor easily split
03	VY UMa (CS)	Big Dipper (UMa)	03	Mag Range: 5.9 to 7.0	Orange-red carbon star
04	Gamma Lep (DS)	Lepus (Lep)	02	**AB** | M=3.6, 6.3 | Sep=95”	Yellow/Orange pair
05	Castor (MS-3)	Gemini (Gem)	01	**AB** | M=1.9, 3.0 | Sep=5.4” **AC** | M=1.9, 9.8 | Sep=70”	Blue/White/Orange
06	Wasat (DS)	Gamini (Gem)	01	**AB** | Mag 4.7, 7.8 | Sep = 7.3”	Yellow/Red
07	48 Cnc (DS)	Cancer (Cnc)	04	**AB** | M=4.1, 6.0 | Sep=31”	Gold/Blue components
08	54 Leo (DS)	Leo (Leo)	03	**AB** | M=4.5, 6.3 | Sep=6.6”	Blue/green pair
09	Algieba (DS)	Leo (Leo)	01	**AB** | M=2.4, 3.6 | Sep=4.8”	Orange/yellow or yellow/green?
10	Algorab (DS)	Corvus (Crv)	02	**AB** | 2.9, 8.5 | Sep=24.2”	Yellowish/pale lilac
11	15 Crt (DS)	Crater (Crt)	03	**AB** | M=4.1, 7.9 | Sep=4.35”	White/blue pair
12	V Hya (CS)	Hydra (Hya)	04	Mag Range: 6.0 – 12.3	*Blood Red star

Difficulty: | 1-Easy | 02-Tricky | 03-Challanging | 04-Difficult |

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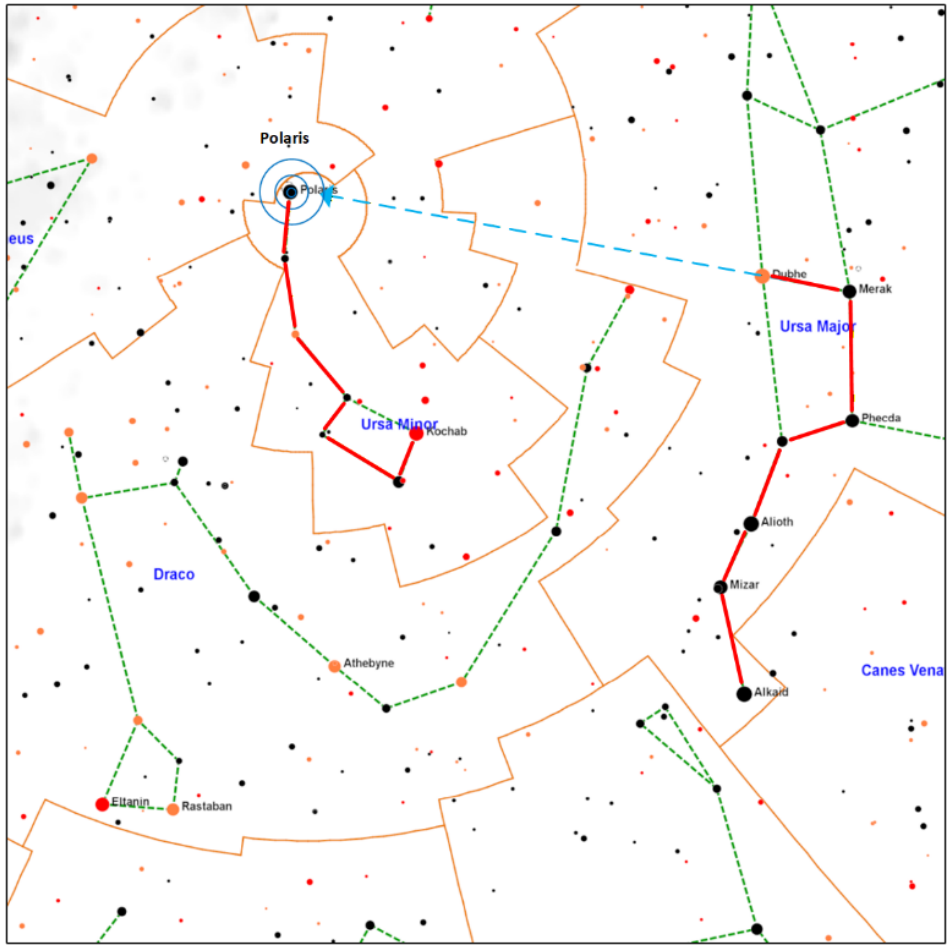
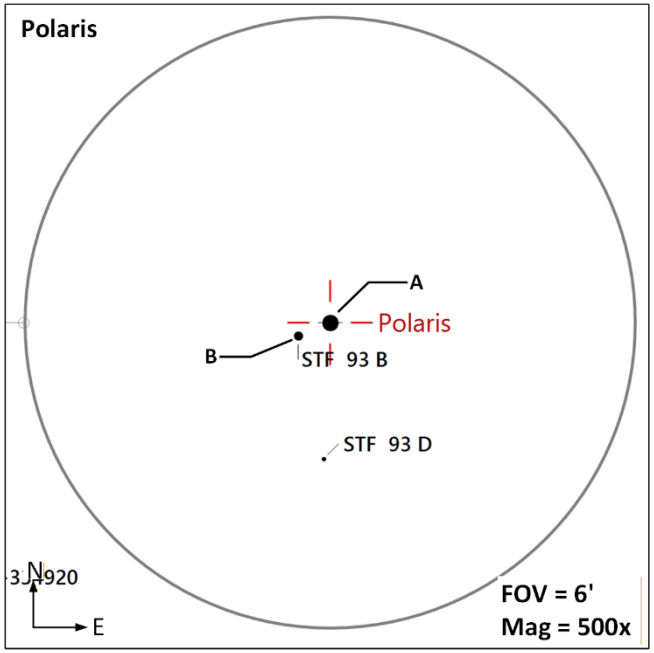
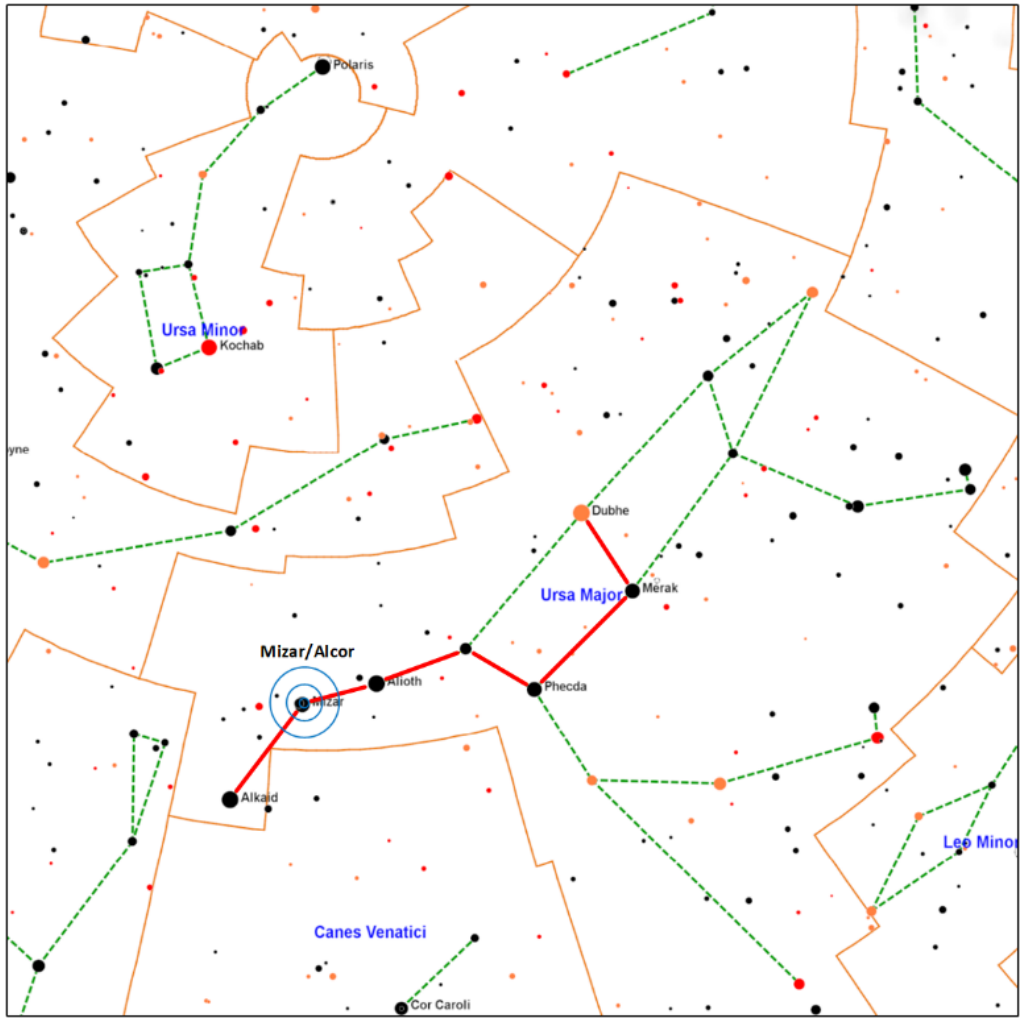
Polaris (DS | **AB** | Mag=2.0, 9.1 | Sep=18.4” | PA=236° |) –The North Star may be one of the most important stars for visual astronomers, since it is always above the horizon for observers in the northern hemisphere and can help orient the observer in the night sky. While this isn’t the brightest star in the sky it is the brightest star in this area of the sky, so is fairly easy to located. This is also a nice double star that exhibits how such a large difference in magnitude between stars can make seeing a dimer secondary star tricky to locate. Small telescopes (2.5” and larger) should be able to view the secondary, but even in larger telescopes one must examine the star system closely to see the secondary.

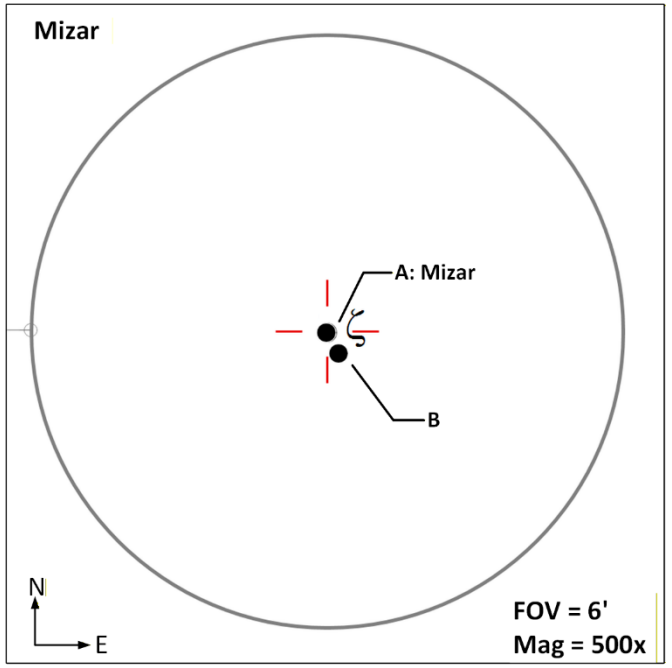




Notes:

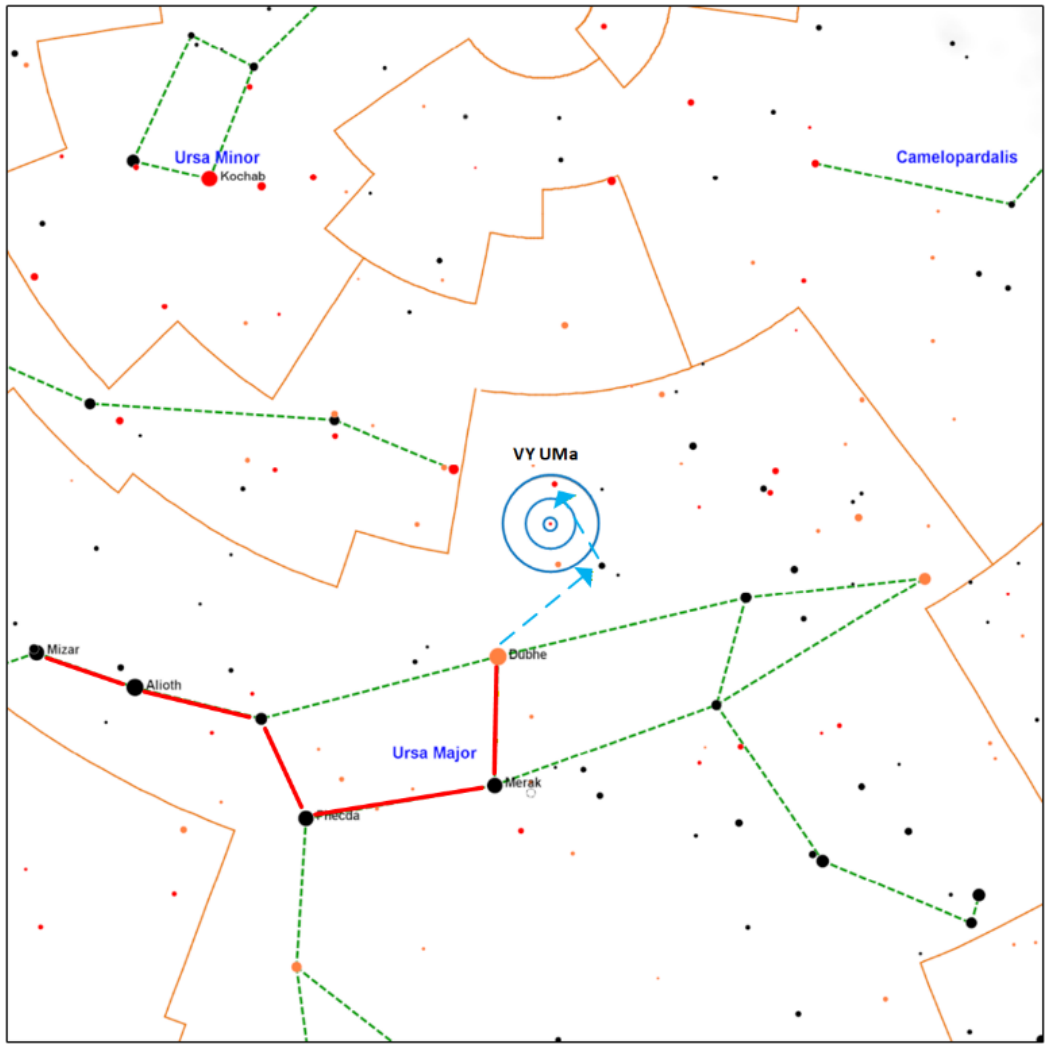
Mizar (MS-3 | **AB** | M=2.2, 3.9 | Sep=14.4” | PA=153° || **AC** | M=2.2, 4.0 | Sep=715.5” | PA=73° |) – Mizar (A component) and Alcor (C component) are a famous double star system. It is uncertain if these two stars are actually physically associated with each other. This is a much-celebrated binocular double and telescopes will reveal the B component associated with Mizar at a distance of 14”.

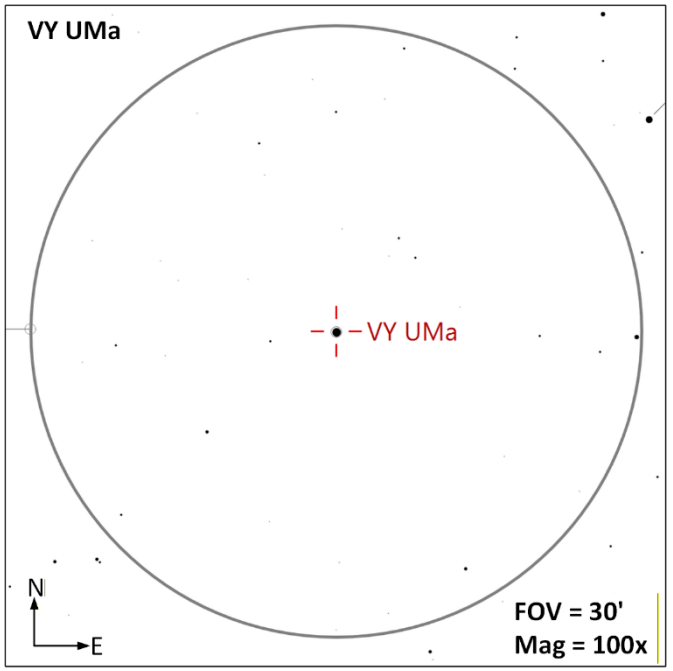




Notes:

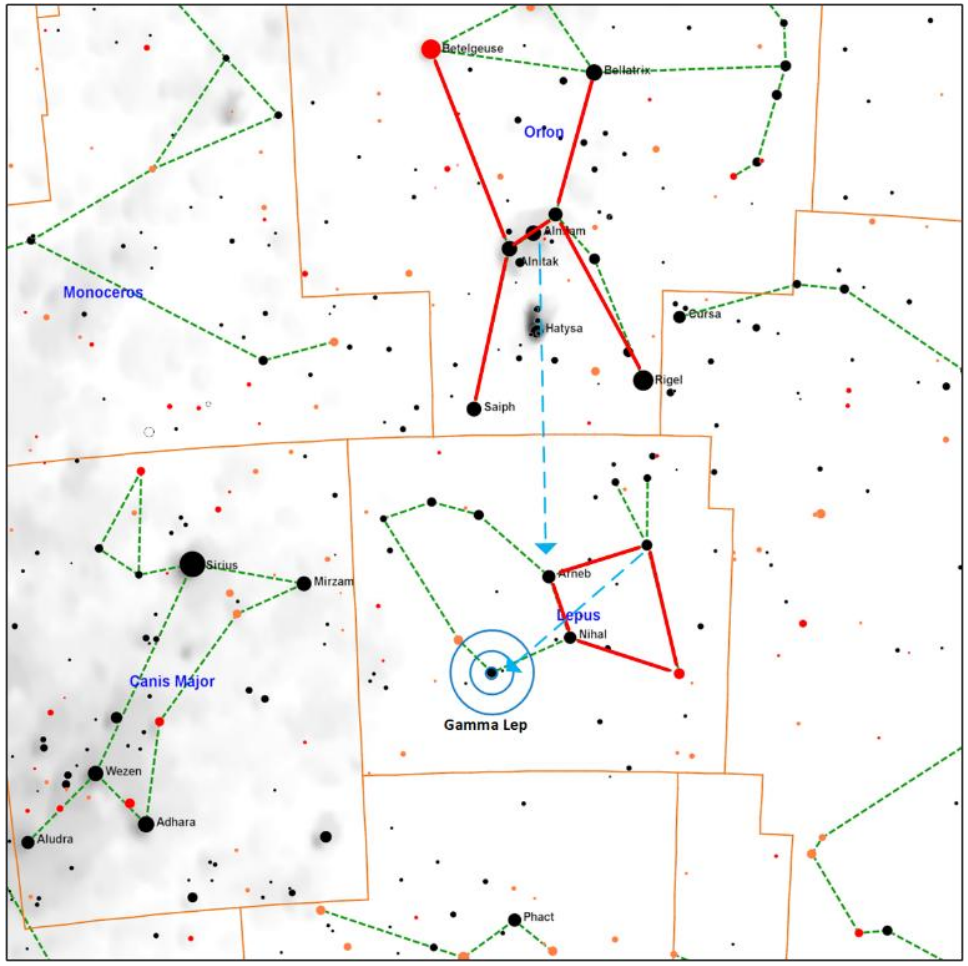
VY UMa (CS | Mag Range: 5.9 to 7.0 | Unknown Period |) – A carbon star located 1240 ly from Earth appearing orange to orange-red when viewed (Birren) and has been described as Betelgeuse on steroids. One of the first radio masers discovered.

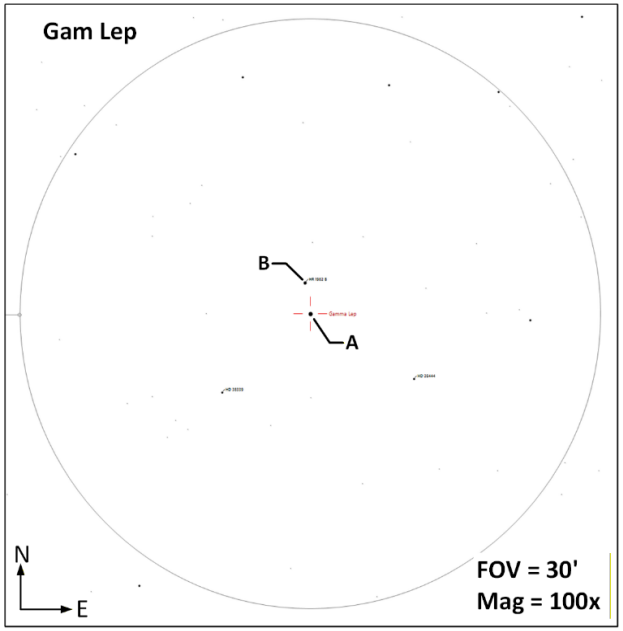




Notes:

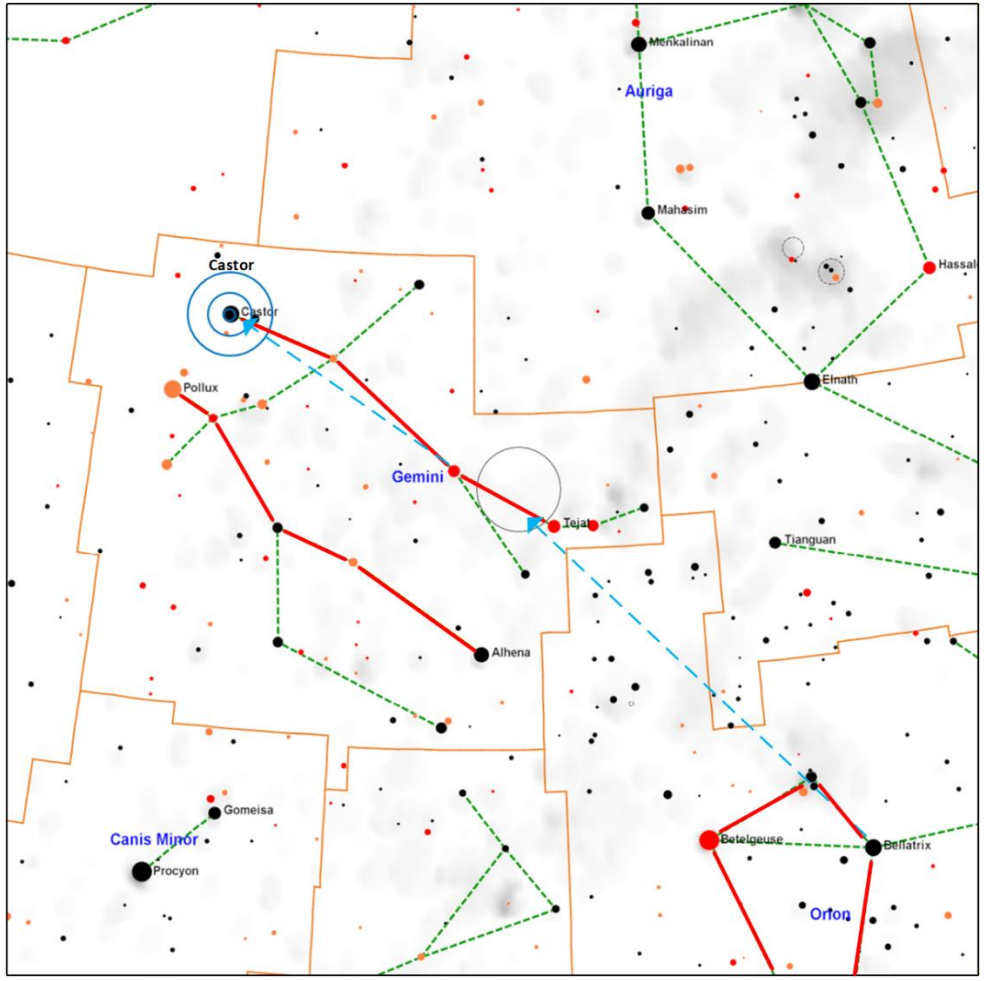
Gamma Leporis (DS **AB** | M=3.6, 6.3 | Sep=95” | PA=349º |) – At 29 ly from earth this star system is quite close to us and should be easily separated even in small telescopes. The primary component is estimated to be 1.3 billion years old and has a mass of about 1.2 times that of our sun. The B component is a orange dwarf with about 63% of the suns mass. The orbital period of this system is at about 18,000 years. The pair appear yellow and orange and is listed as one of the top 22 most colorful multiple star systems.

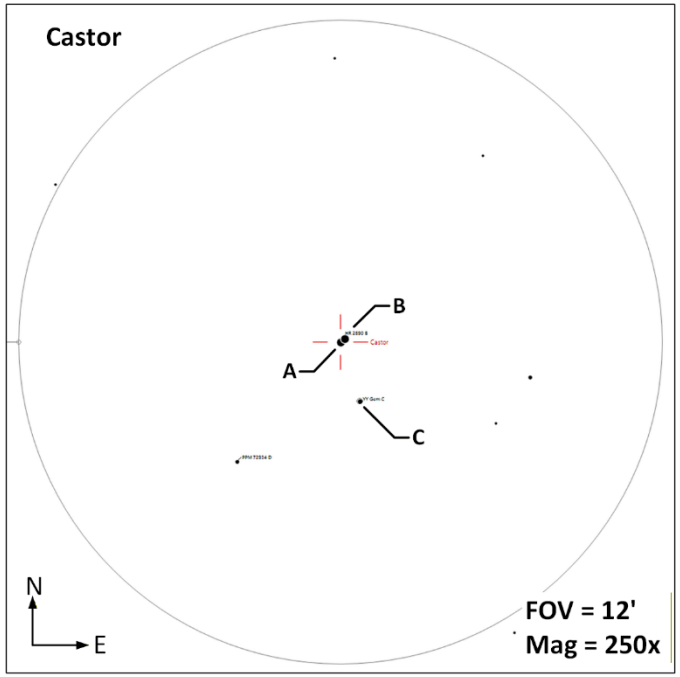




Notes:

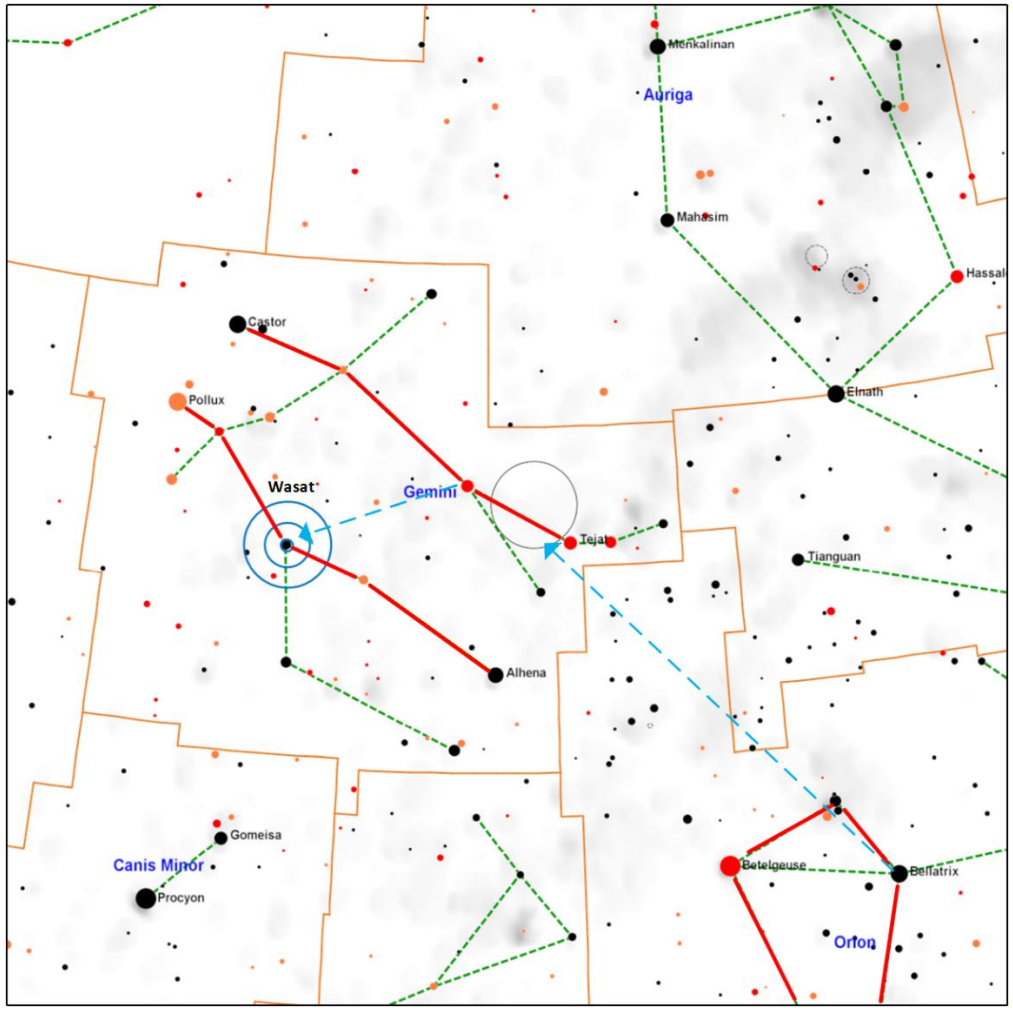
Castor (MS-3 | M=1.9, 3.0, 9.8 | Sep AB=5.4”, AC=70” | PA AB=51°, AC=164° |) – This is actually a sextuple (6) star system, where each of the three components that can be resolved by earth-based telescopes are actually each a binary system. The AB components should be able to be resolved in telescopes with 60mm or more aperture and have an orbital period of about 420 years. The much dimmer C component should be visible in most telescopes. AB form a blue-white pair while the C component appears slightly orange.

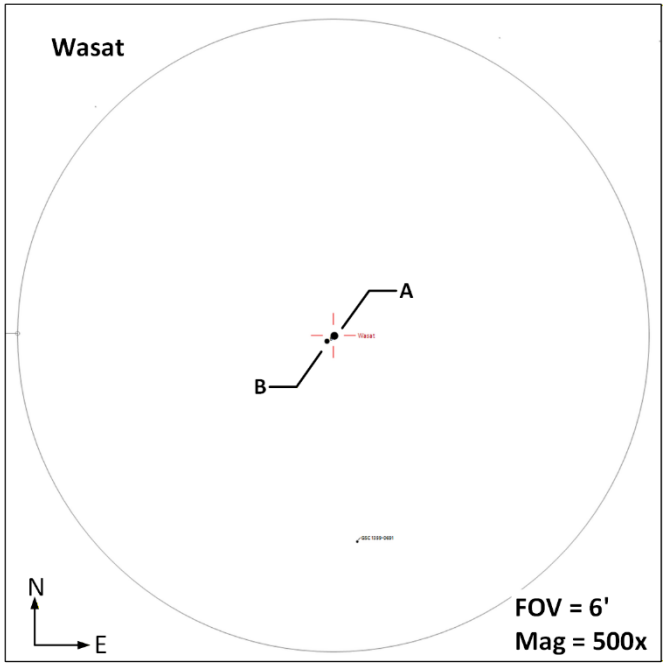




Notes:

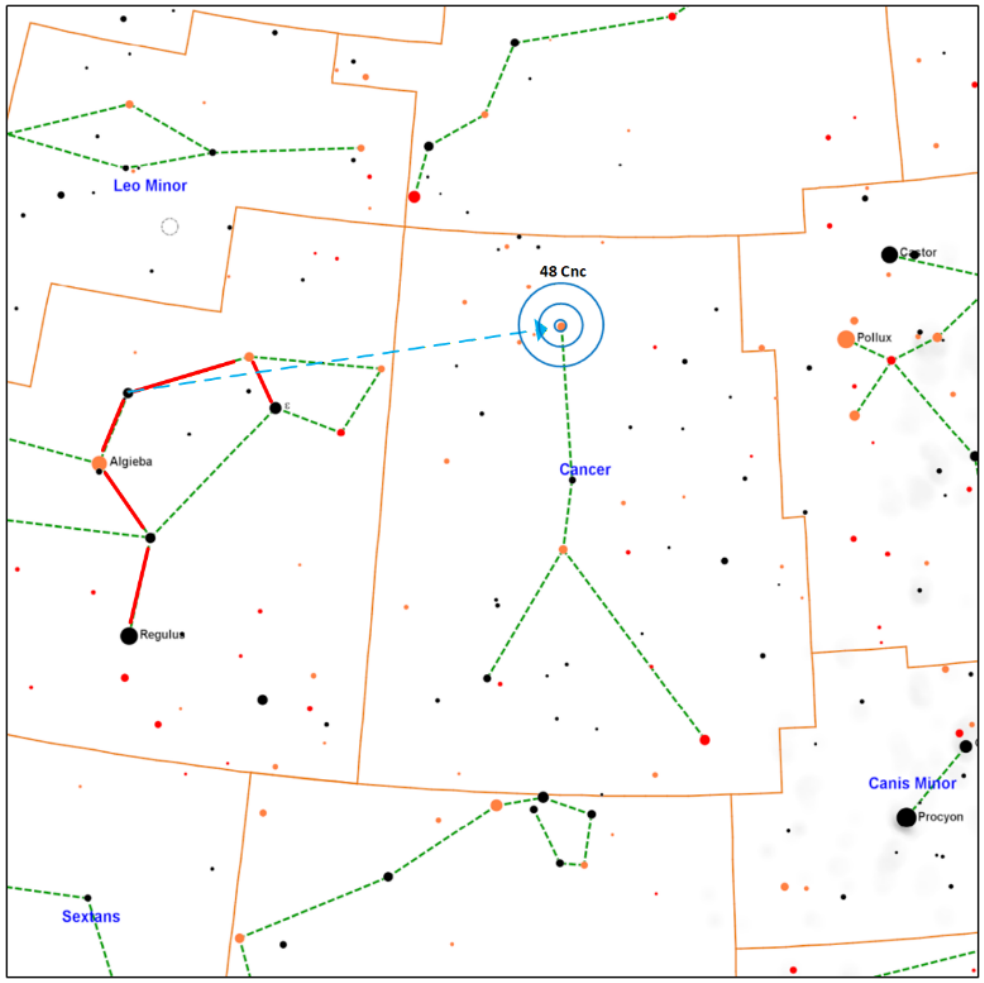
Wasat (DS | Mag 4.7, 7.8 | Sep = 7.3” | PA=145° |) – This double star system is 60.5 ly from earth and consist of a yellow and reddish-purple companion. The companion orbits the primary component every 1,200 years. The smaller companion should be visible even in smaller telescopes.

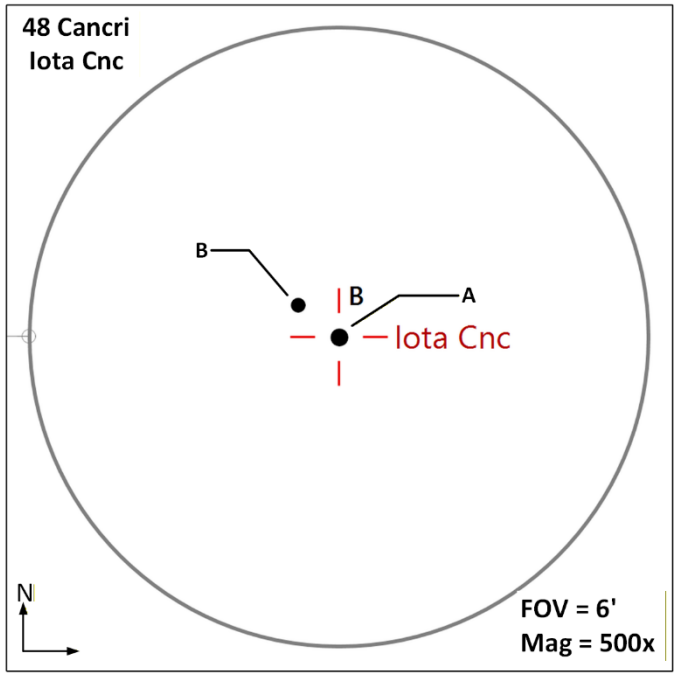




Notes:

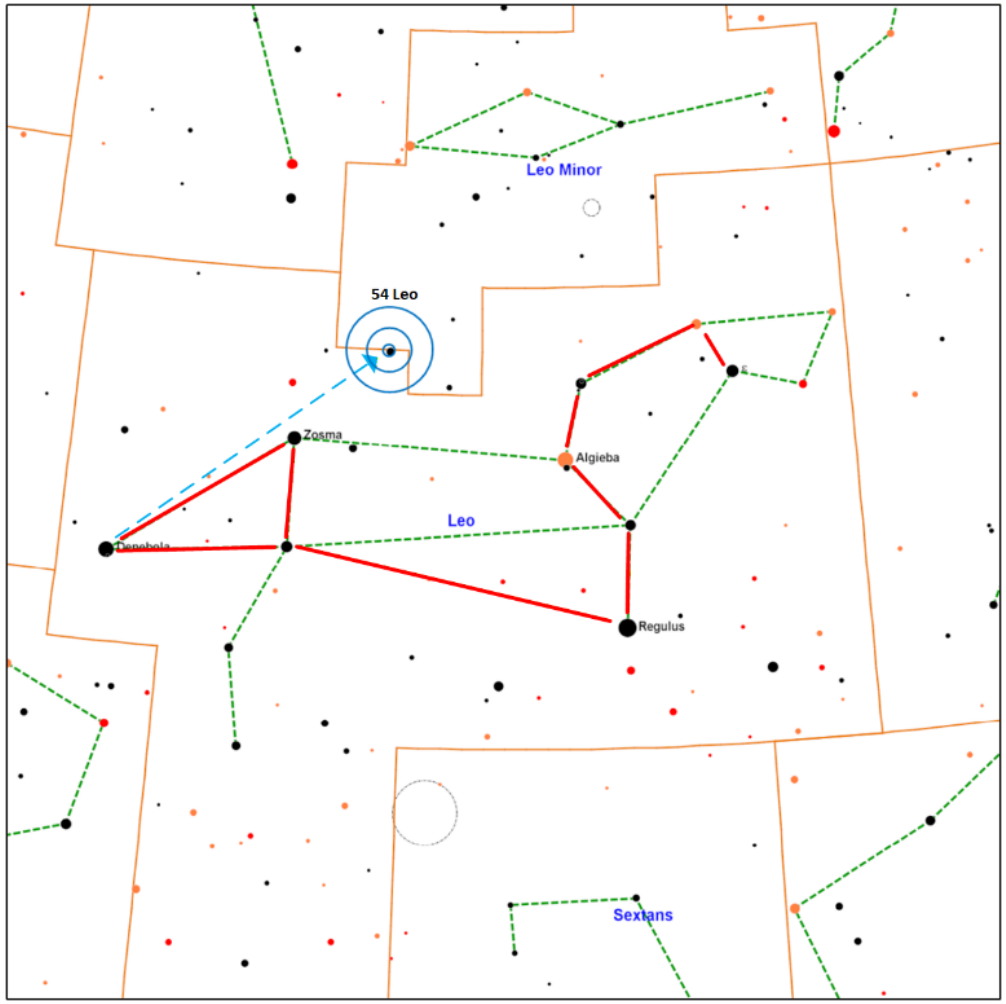
48 Cancri (DS **AB** | M=4.1, 6.0 | Sep=31" | PA=308° |) – A contrasting gold/blue double star system that should be a delight in telescopes and binoculars. It is estimated that these stars orbit each other at an average distance of 3,236 AU. The A component has a mass of 2.4 times that of the sun and has expanded to 21 times the sun's radius. The B component has a mass of 2.1 time that of our sun with a radius of 1.9 time that of our suns.

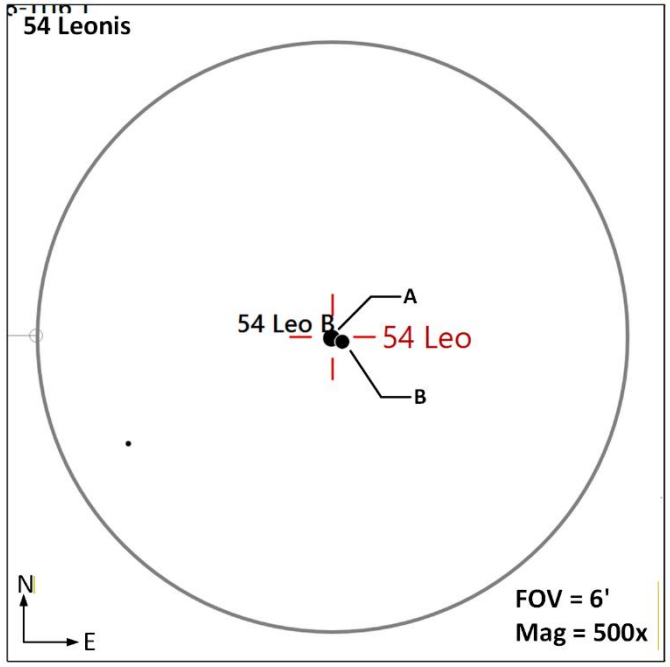




Notes:

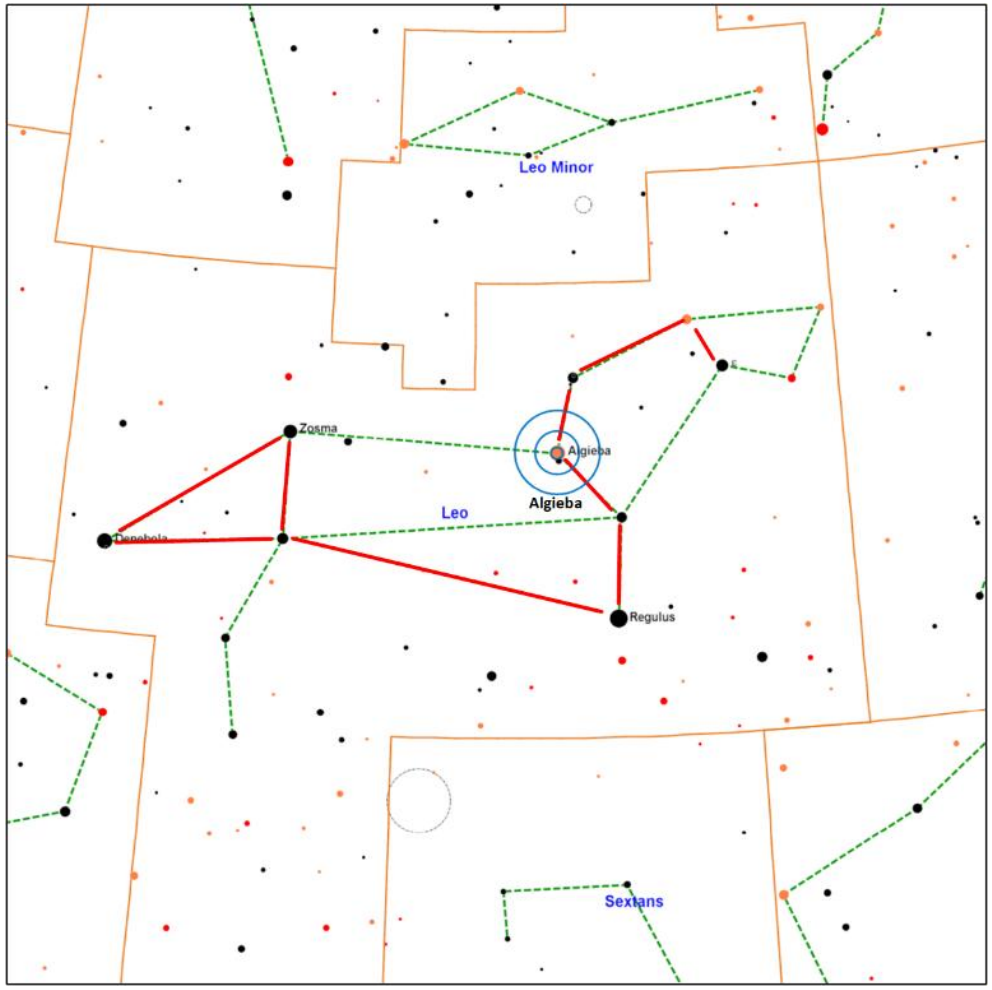
54 Leonis (DS **AB** | M=4.5, 6.3 | Sep=6.6” | PA=113° |) – A beautiful but little-known double star system consisting of a bluish and greenish white pair at 320 ly from earth.

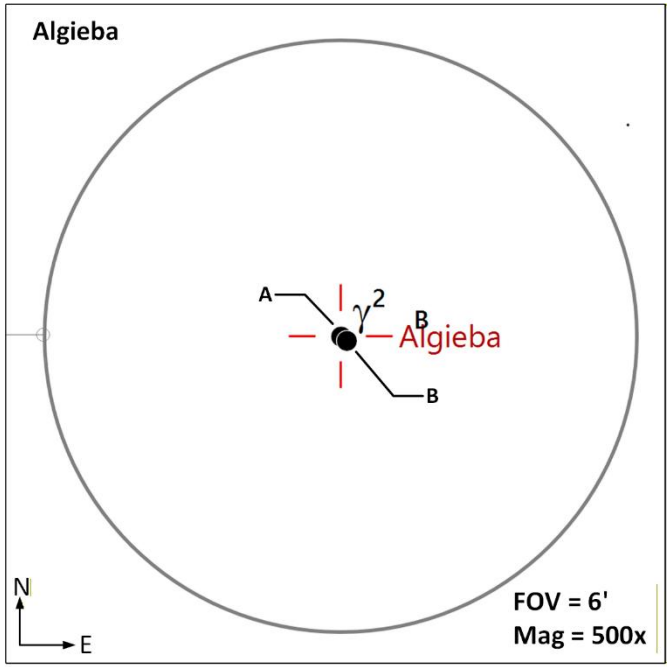




Notes:

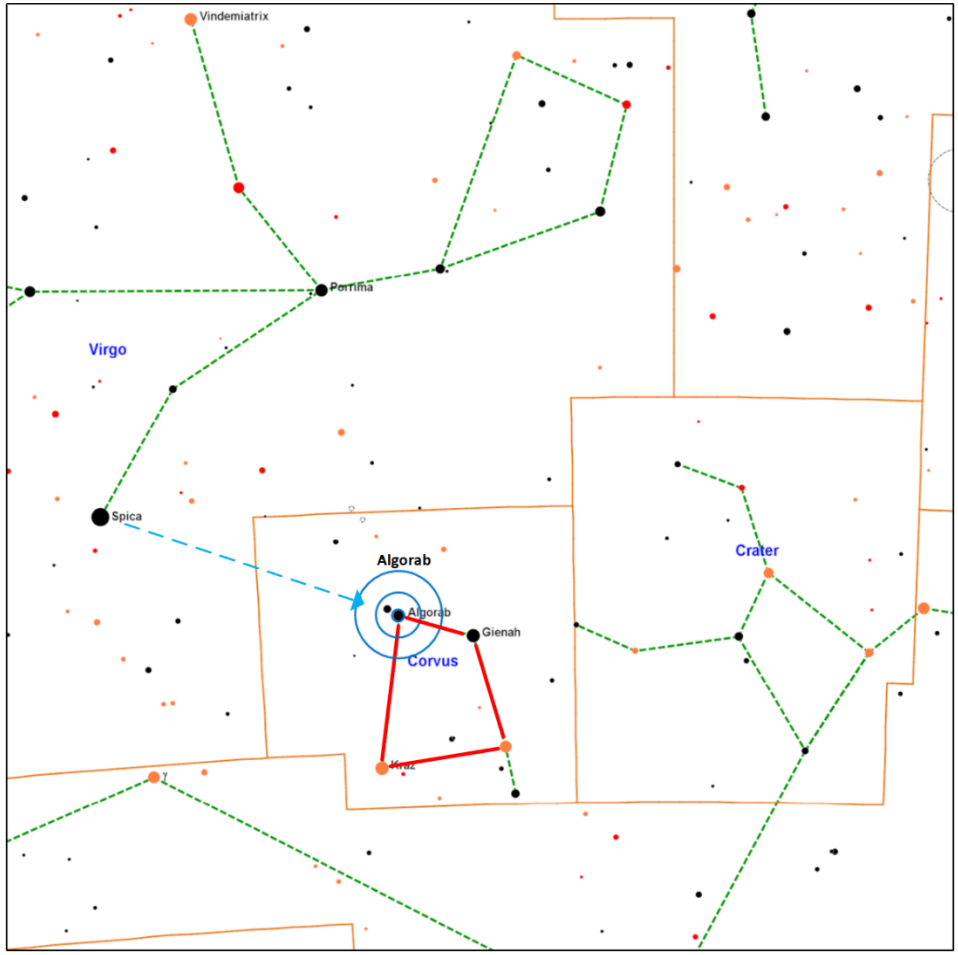
Algieba (DS | **AB** | M=2.4, 3.6 | Sep=4.8” | PA=127° |) – A colorful double, some report seeing an orange/yellow pair while others report yellow/greenish pair. This star marks the radiant of the annual Leonid meteor shower and is located 130 ly from Earth.

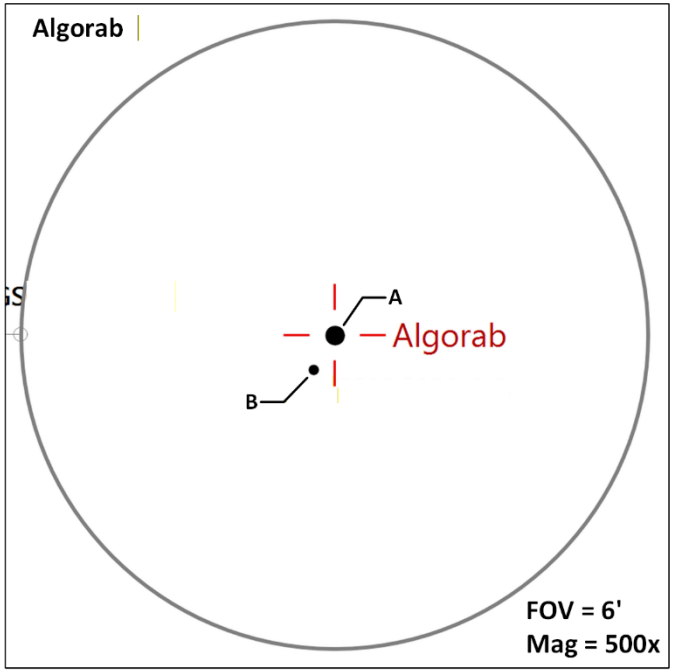




Notes:

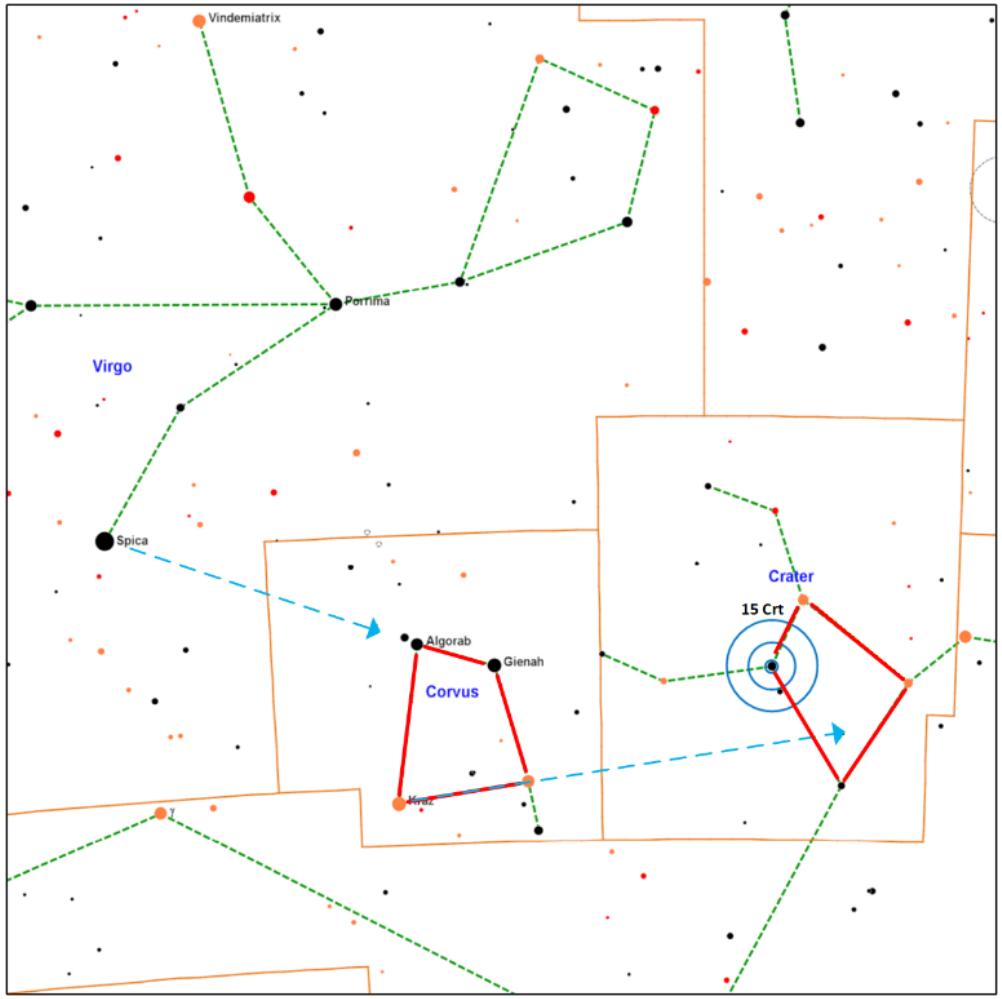
Algorab (DS AB | 2.9, 8.5 | Sep=24.2" | PA=216° | MC=B9.5V, K1 |) – Located 87 ly away, both components have the same common proper motion but due to their great difference in age there has been some doubt as to if these two components are physically associated with each other. Color descriptions of this pair are as "yellowish and pale lilac".

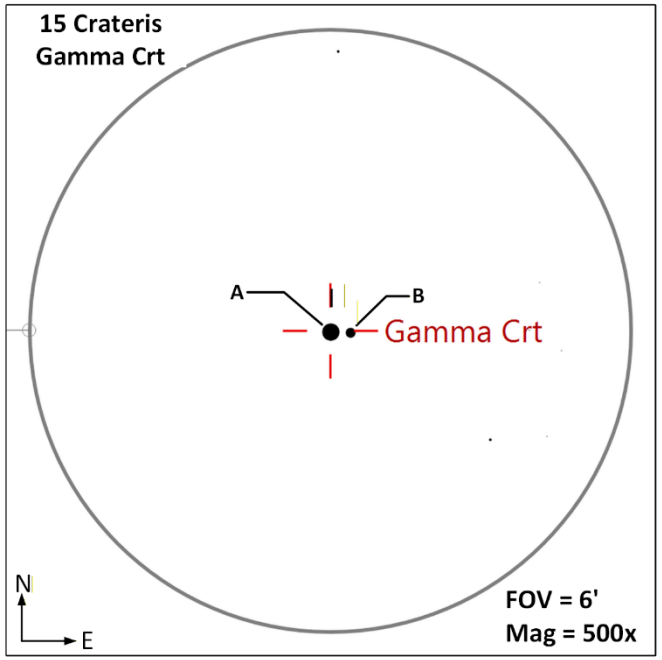




Notes:

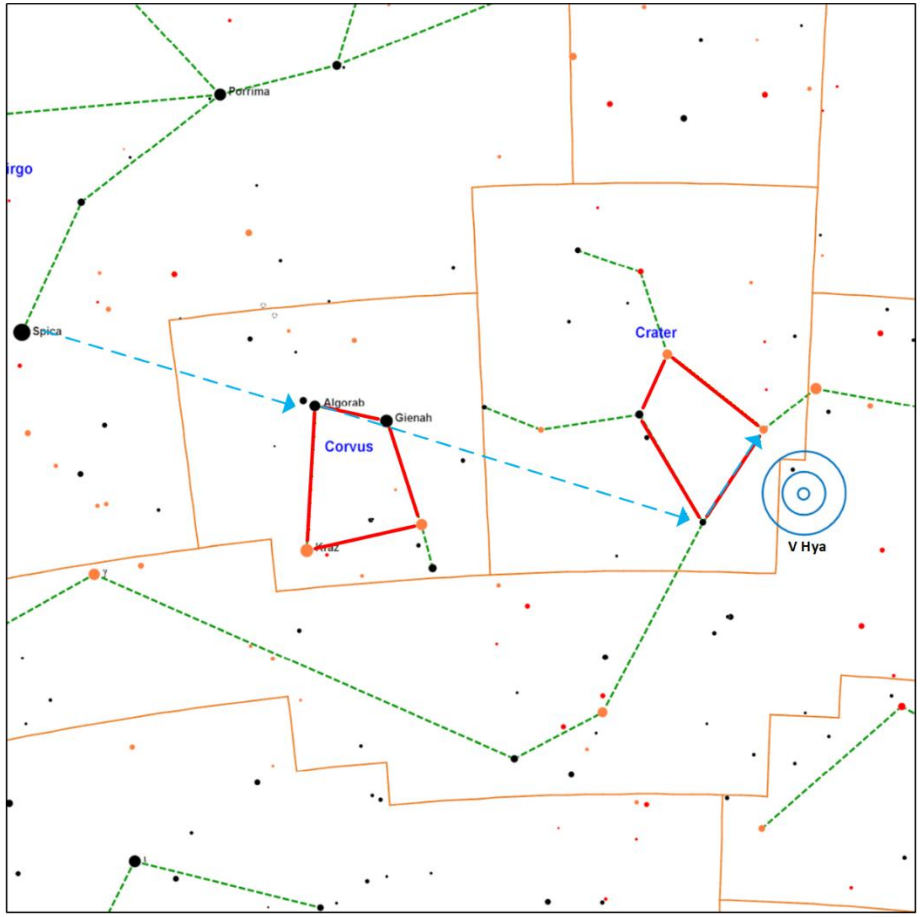
15 Crateris (DS | M=4.1, 7.9 | Sep=4.35” |PA=924.4° | MC=A7V |) – This double star system is located 82 light years from earth. One description of this pair describes it at a white and blue pair.

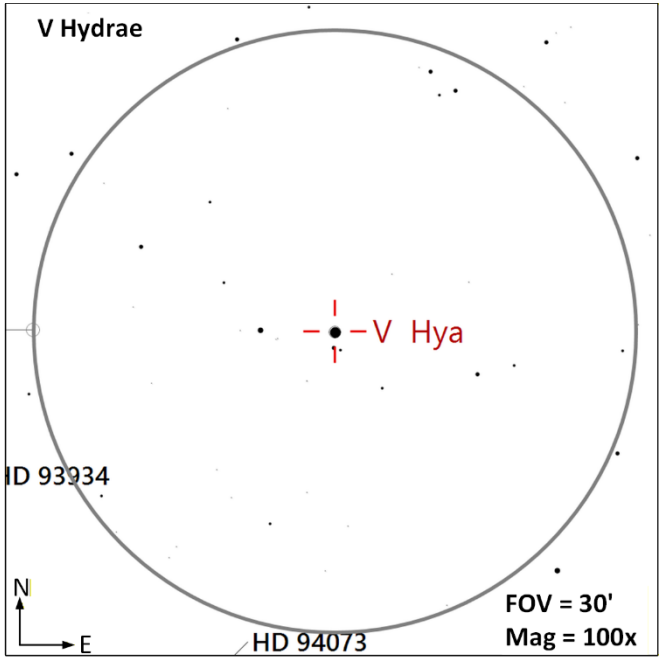




Notes:

V Hydrae (CS | Mag Range: 6.0 – 12.3 | Period=530d, 17.5yrs | MC=SRa |)– A late carbon star that is nearing the phase in its life cycle to become a planetary nebula. This variable star has both a short period (530 days) and long period (17.5 years) cycle. The short period has a magnitude range of 1 to 2 magnitudes.





Notes: