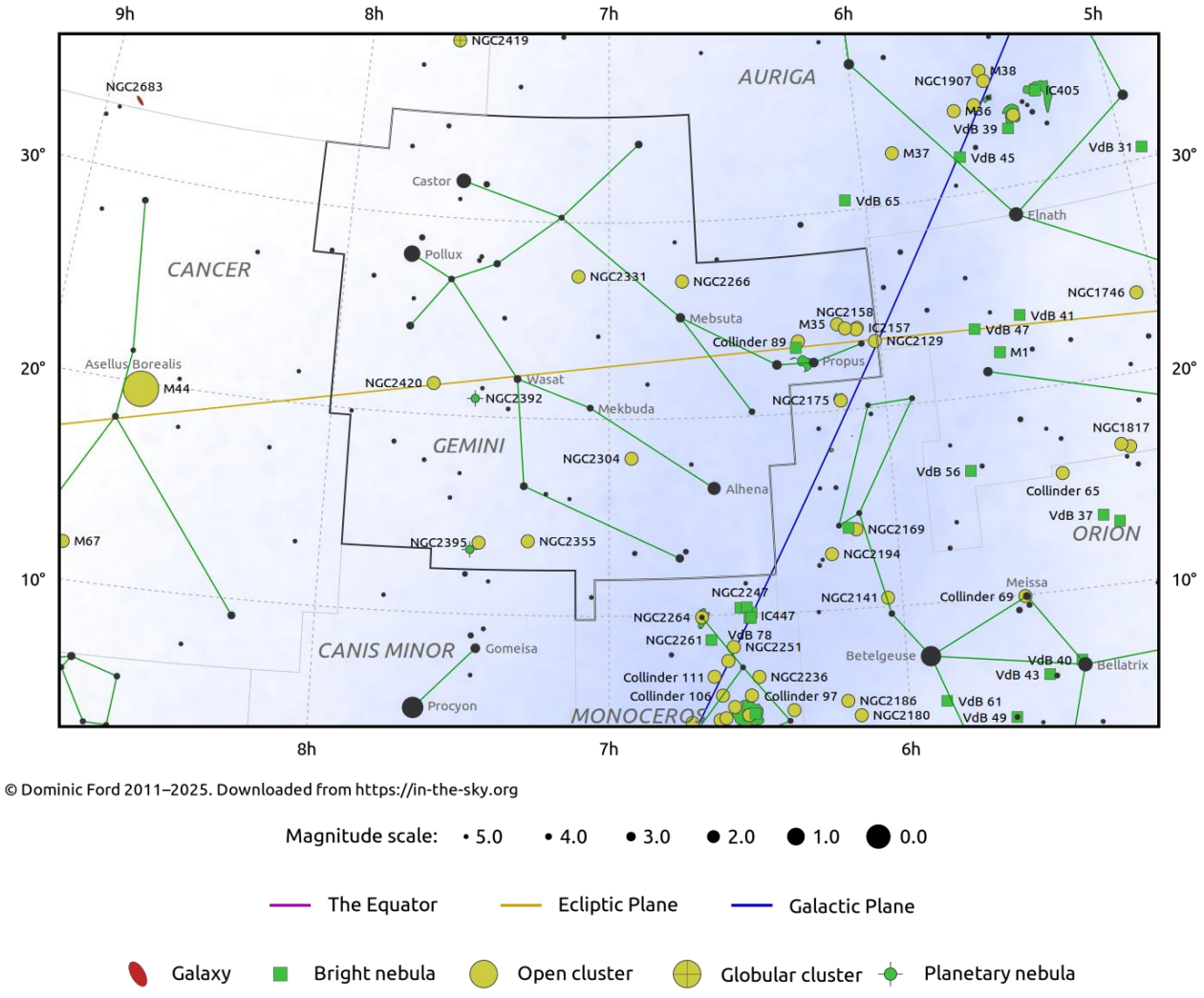
Gemini (Gem)

Evening Visibility: **December - February**
Online Information: **Gemini**
More Online Information: Caster, Mebsuta, NGC-2266, Nu Gem, Propus, Collinder 89, NGC-2129, NGC-2158, TU Gem, 38 Gem, Wasat, NGC-2392, NGC-2420, Struve 1108

In-The-Sky.org Constellation Map



Magnitude scale: • 5.0 • 4.0 • 3.0 • 2.0 • 1.0 • 0.0

The Equator — Ecliptic Plane — Galactic Plane

Galaxy — Bright nebula — Open cluster — Globular cluster — Planetary nebula

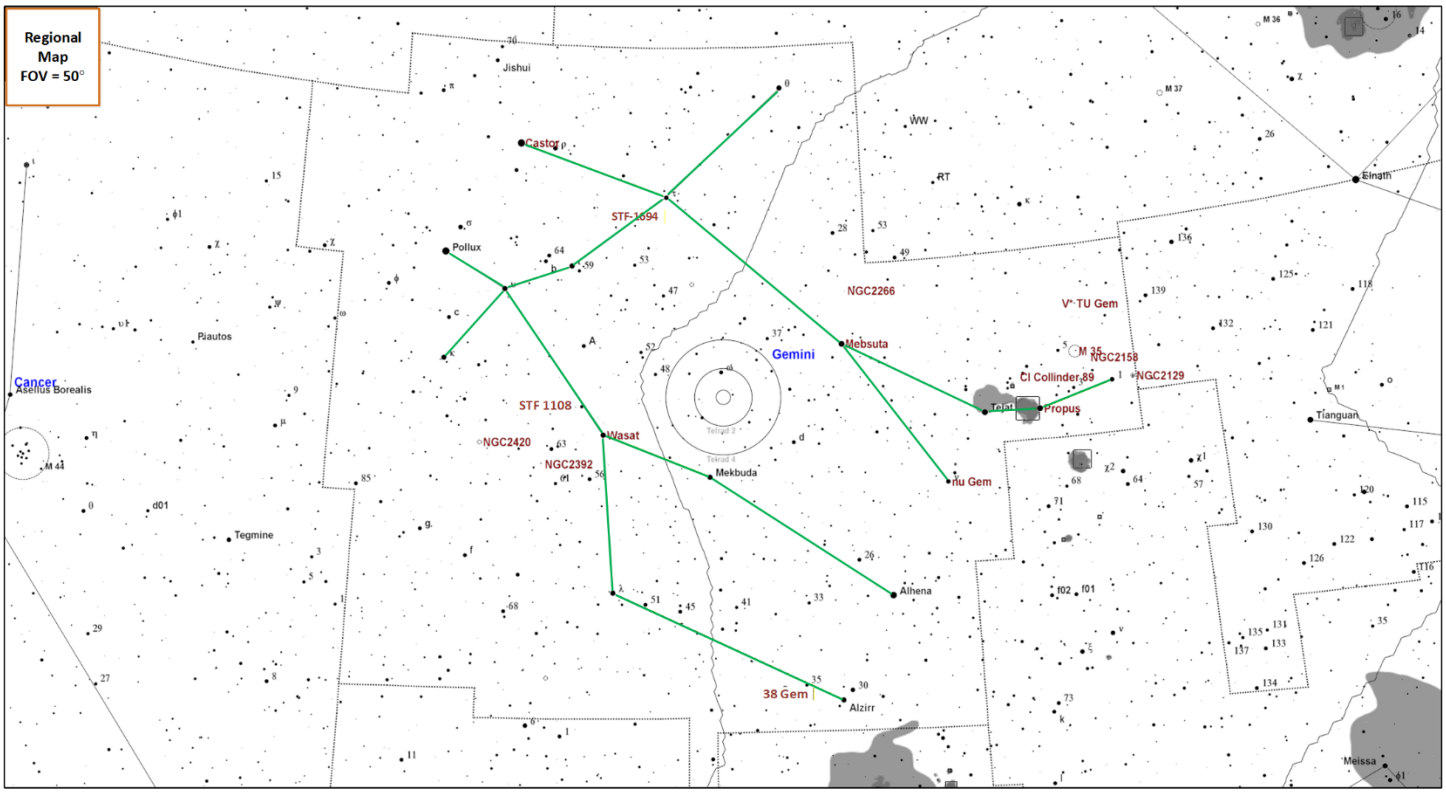
From Greek mythology, this constellation represents the twins Castor and Pollux holding hands. This constellation is easily identified in the night sky since it is composed of a number of bright stars. The twins were the patron saints of mariners. Each year the Geminid meteors radiate from a point near Castor. The Geminids are one of the year's best and brightest meteor showers reaching a maximum around December 14.

Constellation Guide

Constellation Highlights

- **Caster** (MS-3): Easily located triple star system.
- **NGC-2158** (OC): Once thought to be a globular cluster, an interesting target when compared to M-35.
- **Messier 35** (OC): Considered one of the better open clusters in the northern sky.
- **38 Gem** (DS): An easily resolved orange/pale blue multiple star system.

Constellation Targets Map



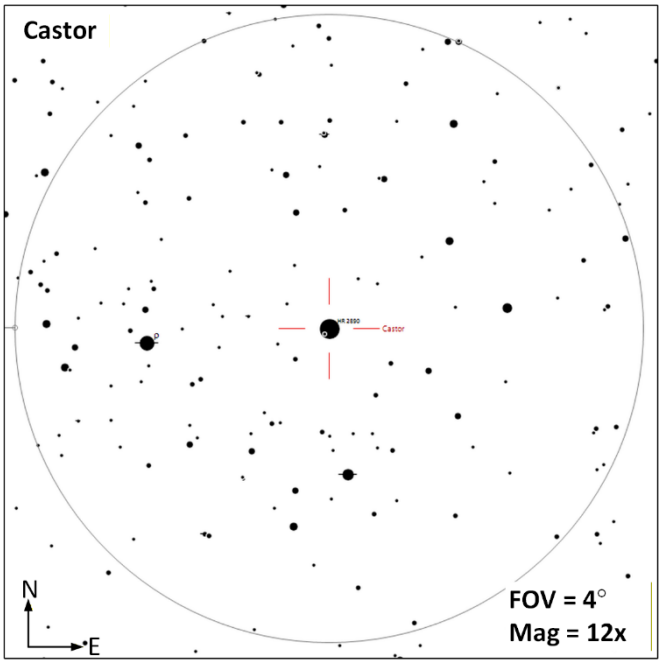
Region Objects Summary

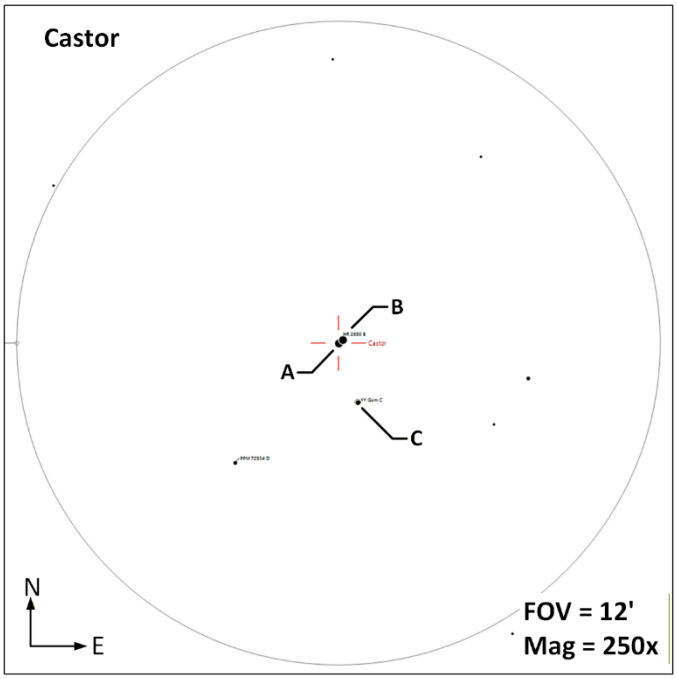
Object (Type)	Ref	Aliases	Stats
Castor (MS-3)	1, 2	SAO-060198, HIP 36850, 66 Gem, HR 2891, HD 60179, STF 1110, ADS 6175, Alpha Geminorum, α Gem	| M=1.9, 3.0, 9.8 | Sep AB=5.4", AC=70" | PA AB=51°, AC=164° |
Mebsuta (DS)	1, 2	SAO-078682, HIP 32246, 27 Gem, HR 2473, HD 48329, ADS 5381, Epsilon Geminorum, ε Gem	| M=3.1, 9.6 | Sep=110" | PA=95° |
NGC-2266 (OC)	1	Cr 113, Mel 60, Lund 250	| M=9.5 | Size=5.0' | SB=21.6 | Stars=35 |
Nu Gem (MS-4)	1, 2	SAO-078423, HIP 30883, 18 Gem, HR 2343, HD 45542, STTA 77, ADS 5103, ν Gem	| M A=4.1, B=8.0, Ba=8.6, Bb=8.9, D=12.9 | Sep AB=113" Ba/Bb=0.22" AD=53" | PA AB=330° Ba/Bb=298°, AD=56° |
Propus (CS, DS)	1	SAO-078135, HIP 29655, 7 Gem, HR 2216, HD 42995, ADS 4841, Tejat Prior, Eta Geminorum, η Gem	| M 3.1 to 3.9 | Period = 234 days | | M=3.5, 6.2 | Sep=1.8" | PA=258° |
Cr 89 (OC)		Lund214, OCL473,9-12 Geminorum Cluster, Collinder 89	| M=5.7 | Size=60' | SB=23.2 | Stars=15 |

Constellation Guide

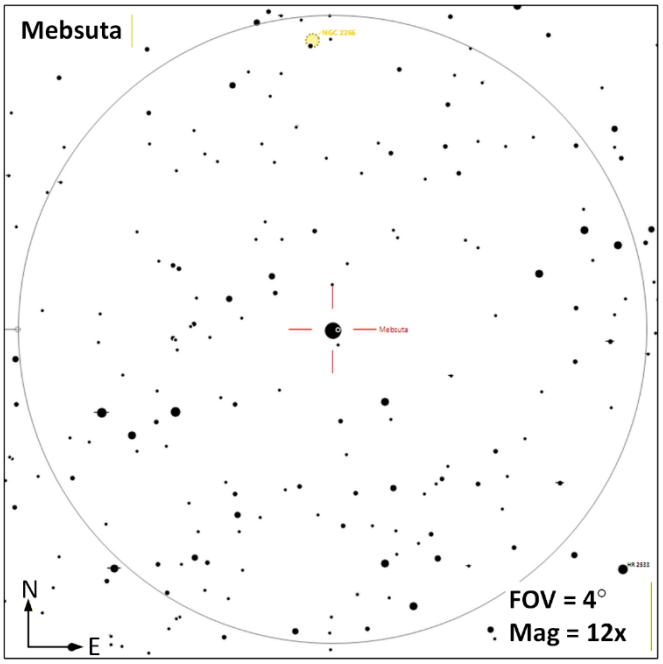
Object (Type)	Ref	Aliases	Stats
NGC-2129 (OC)	1	OCl 467	| M=6.7 | Size=7' | SB=19.6 | Stars=40 |
NGC-2158 (OC)	1		| M=8.6 | Size=5' | SB=20.7 | Stars=150 |
Messier 35 (OC)	1	Shoe-Buckle Cluster, NGC-2168, Cr 82	| M=5.3 | Size=28' | SB= 21.2| Stars=120 |
TU Gem (CS, DS)	1	SAO-078066, HD 42272, TDS 3609	| Mag Range 9.4 to 12.5 | Period = 230 d | | M=7.9, 9.5 | Sep=0.38" | PA=100° |
38 Gem (DS)	1, 2	SAO-096265, HIP 33202, 38 Gem, HR 2564, HD 50635, STF 982, ADS 5559, e Geminorum	| Mag 4.7, 7.8 | Sep = 7.3" | PA=145° |
Wasat (DS)	1, 2	SAO-079294, HIP 35550, 55 Gem, HR 2777, HD 56986, STF 1066, ADS 5983, Delta Geminorum, δ Gem	| M=3.6, 8.2 | Sep=5.5" | PA=229° |
NGC-2392 (PN)	1	Eskimo Nebula, Caldwell 39, ARO 24, VV 38, Clown Face Nebula, Lion Nebula	| M=10.1 | Size=0.8' | SB=18.2 |
NGC-2420 (OC)	1		| M=8.3 | Size=6.4' | SB=21.0 | Stars=100 |
Struve 1108 (DS)	1	HIP 36691, STF 1108, ADS 6160, HD 59878, HR 2879	| M=6.6, 8.2 | Sep=11.7" | PA=178° |

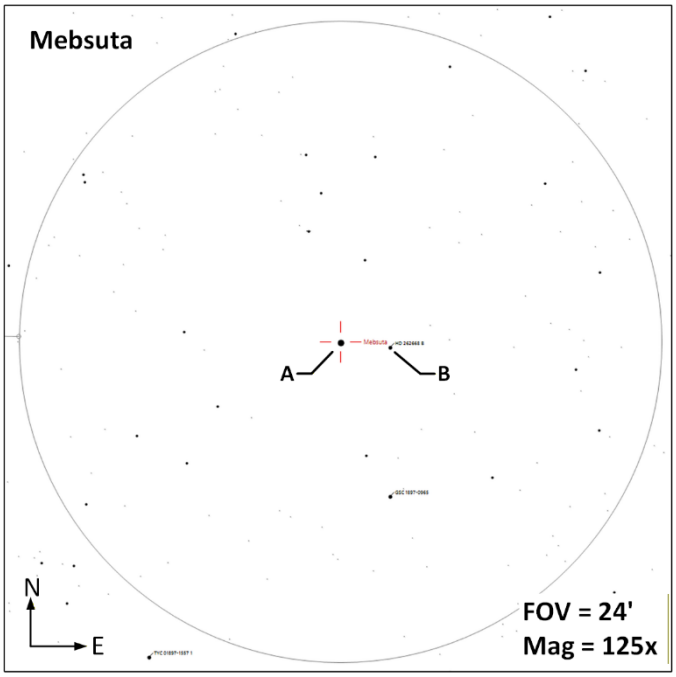
Castor (MS-3 | M=1.9, 3.0, 9.8 | Sep AB=5.4", AC=70" | PA AB=51°, AC=164° |) – This is actually a sextuple (6) star system, where each of the three components that can be resolved by earth-based telescopes are actually each a binary system. The AB components should be able to be resolved in telescopes 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.



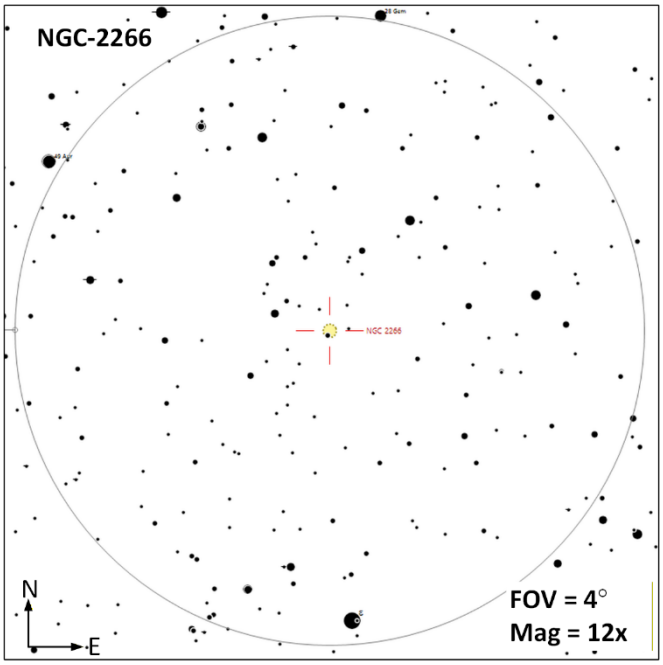


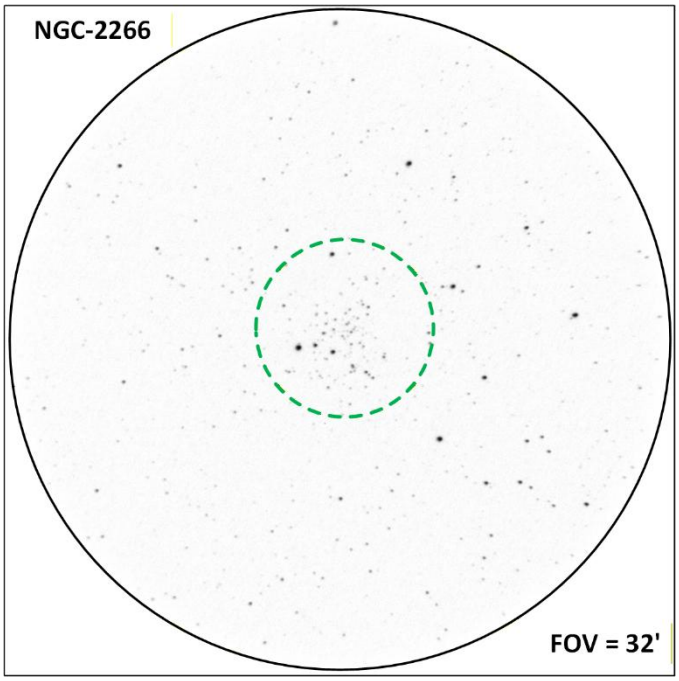
Mebsuta (DS | M=3.1, 9.6 | Sep=110” | PA=95° |) – Epsilon Gem is a yellow supergiant that has 5.3 times the mass of our sun and a radius of 130 times that of our sun and is estimated to be 100 million years old. This system is estimated to be 860 ly from earth. The secondary star in this system is easy resolved in most telescopes and even in some higher power binoculars.



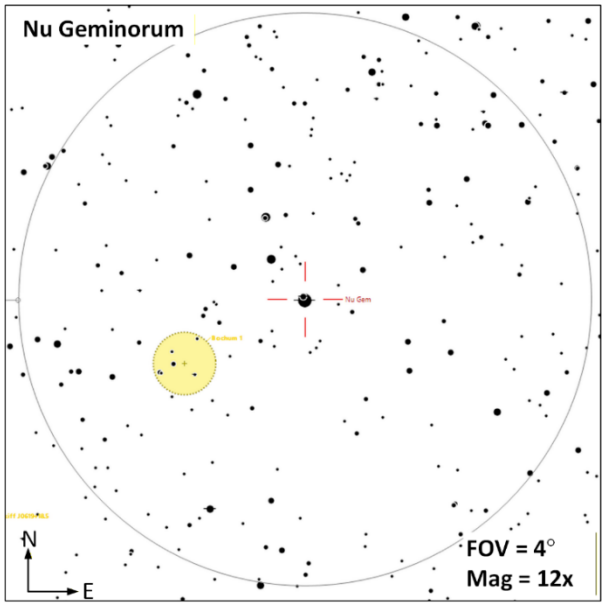


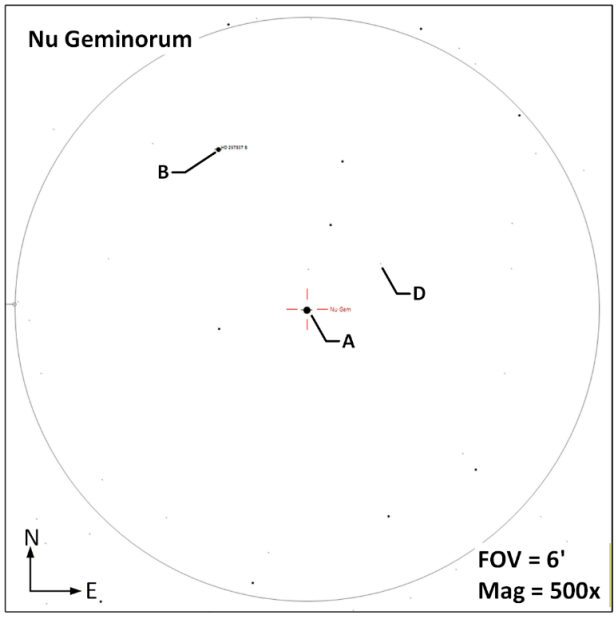
NGC-2266 (OC | M=9.5 | Size=5.0’ | SB=21.6 | Stars=35 |) – This small dense open cluster contains about 35 stars form a tight triangle. There are a number of red stars in this cluster. The cluster is located 10,600 ly from earth and is expected to be a middle age cluster



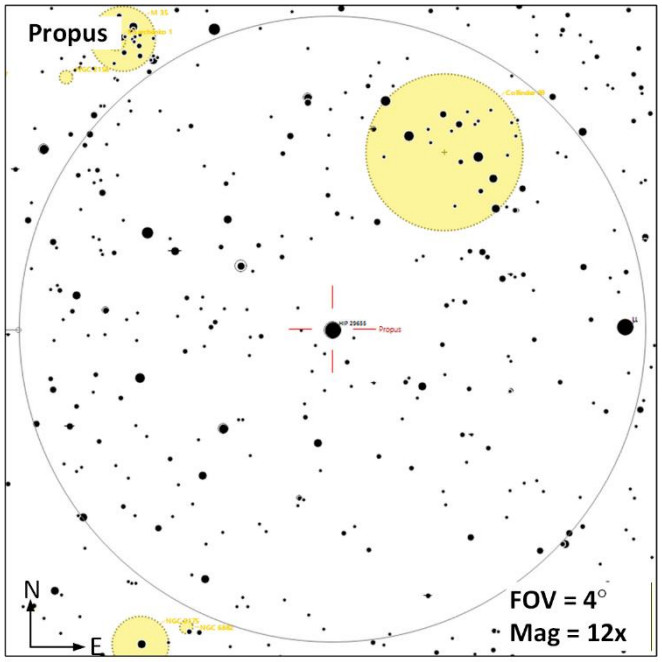


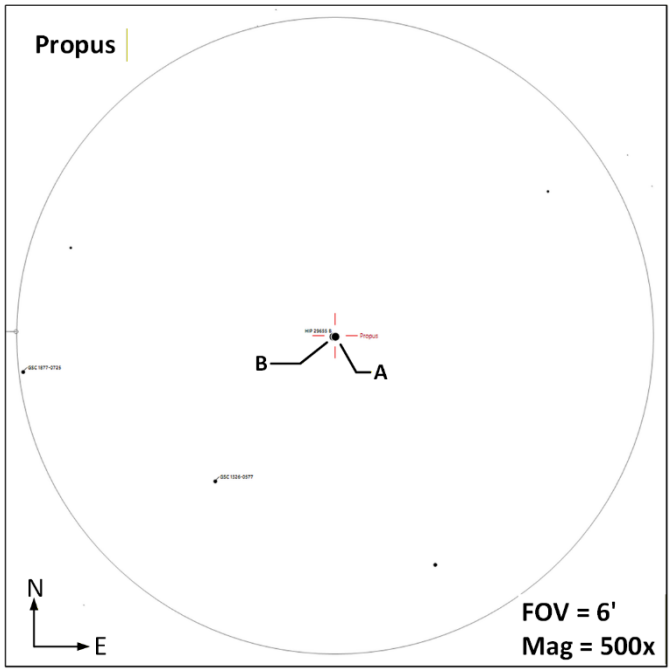
Nu Gem (MS-4 | M A=4.1, B=8.0, Ba=8.6, Bb=8.9, D=12.9 | Sep AB=113” Ba/Bb=0.22” AD=53” | PA AB=330° Ba/Bb=298°, AD=56° |) – Most telescopes will show this as a triple star system, however the B component is actually composed of two close (0.22”) stars similar in brightness. This system is located 540 ly from earth. The orbital period of the AB components is 19 years. The C component is not listed here since it is suspected as not actually physically associated with this system.



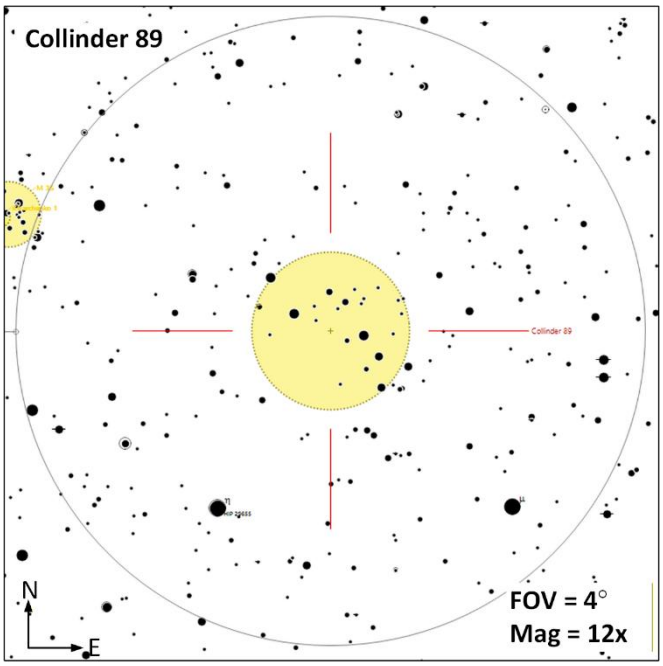


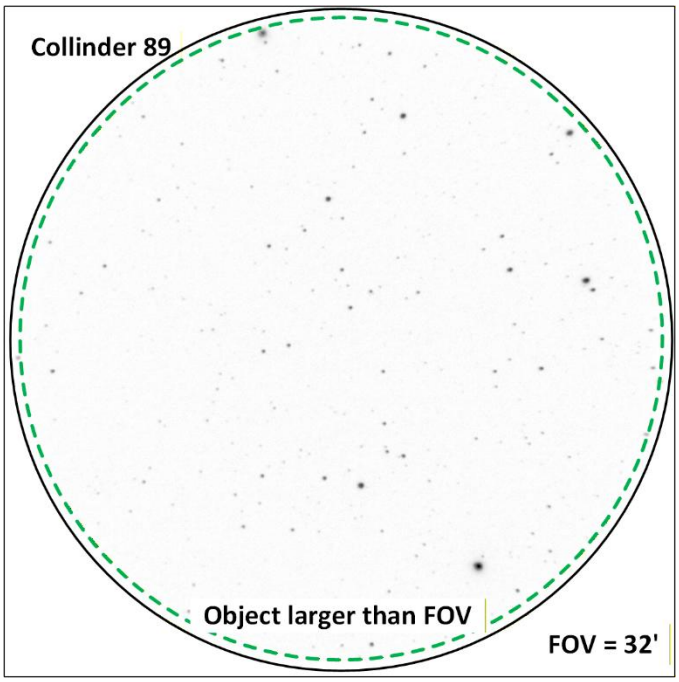
Propus (CS, DS | M 3.1 to 3.9 | Period = 234 days | | M=3.5, 6.2 | Sep=1.8” | PA=258° |) – This system is 380 ly from earth. The primary component in this system is a red giant. There is a close dim secondary component that is easily lost in the glare of the primary component. The orbital period of this system is about 700 years.



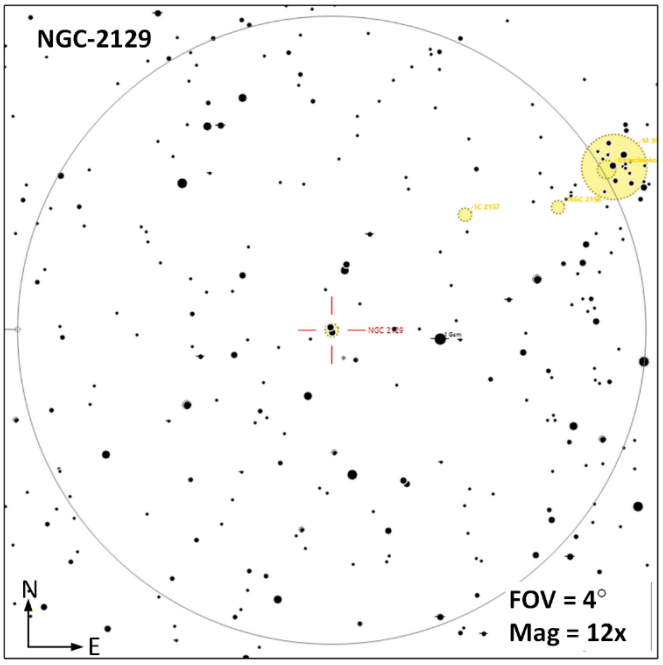


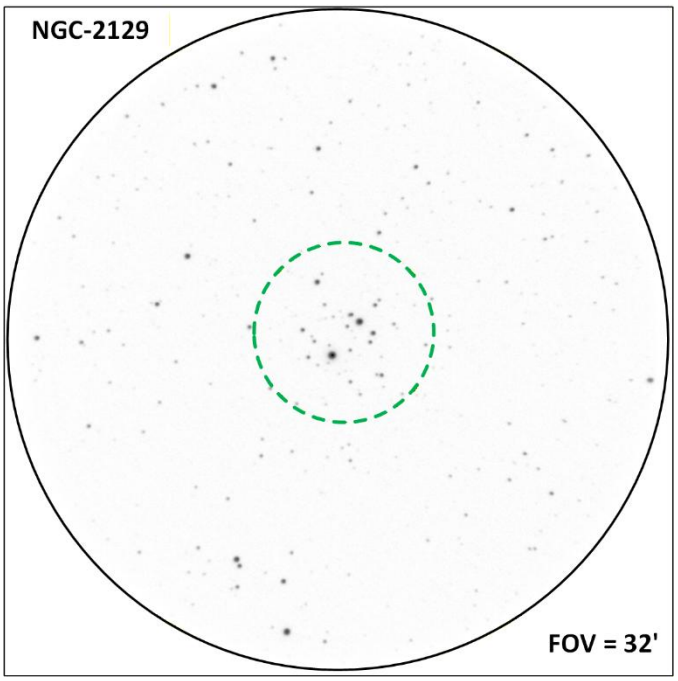
Collinder 89 (OC | M=5.7 | Size=60’ | SB=23.2 | Stars=15 |) – This is a loose cluster with about 12 visible stars in most binoculars. Due to the low number of stars and the large area they cover this cluster can be difficult to distinguish from background stars.



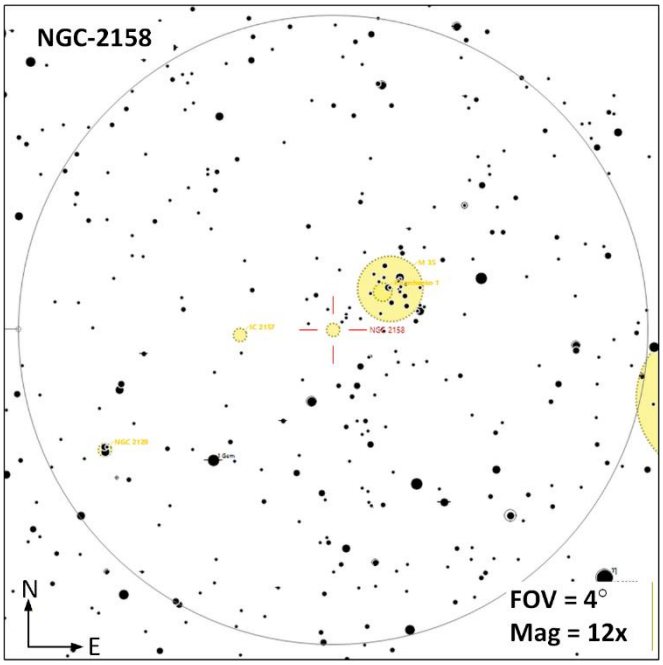


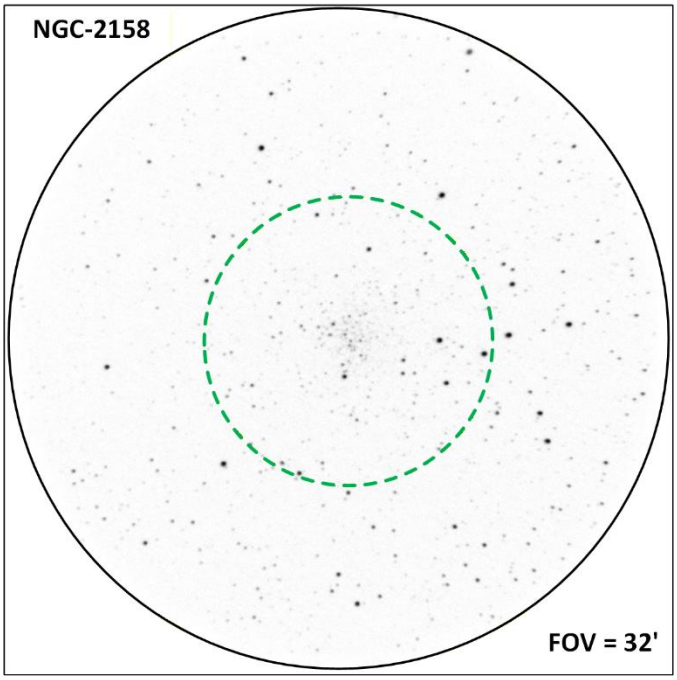
NGC-2129 (OC | M=8.6 | Size=5’ | SB=20.7 | Stars=150 | - A open cluster 7,200 ly from earth. The cluster has a diameter of 10.4 ly and is estimated to be 10 million years old, making it a pretty young cluster.



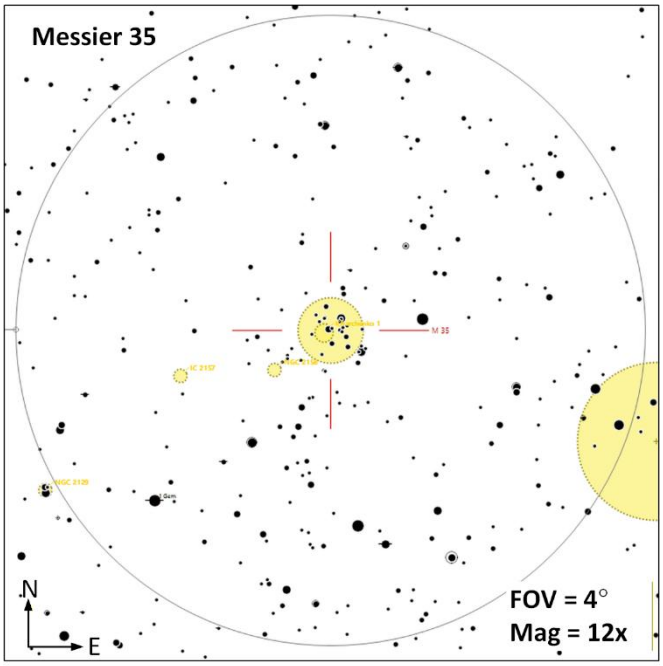


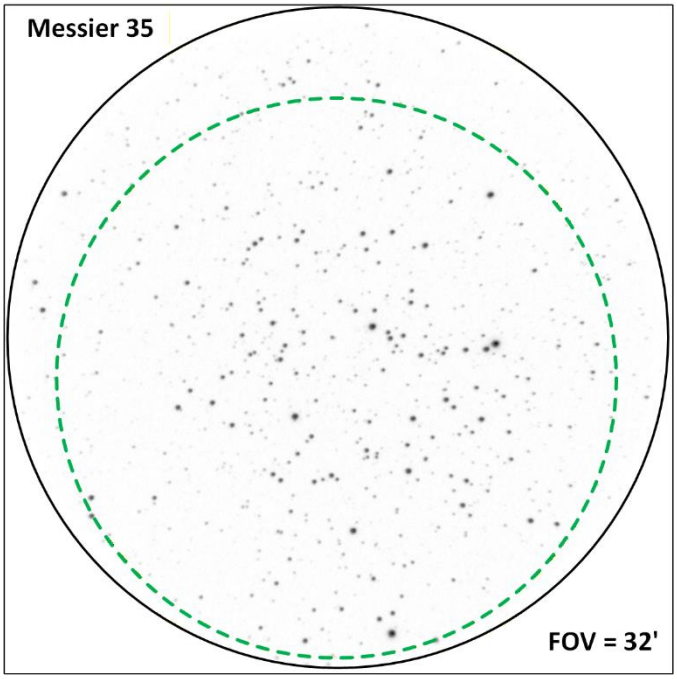
NGC-2158 (OC | M=8.6 | Size=5’ | SB=20.7 | Stars=150 |) – A very rich compressed open cluster that was once thought to be a globular cluster. NGC-2158 is 17,000 ly from earth and is expected to be 2 billion years old making it a medium age open cluster. NGC 2158 is just southwest of Messier 35 another open cluster that has quite different properties than NGC-2158, M-35 is much larger and looser than this open cluster.





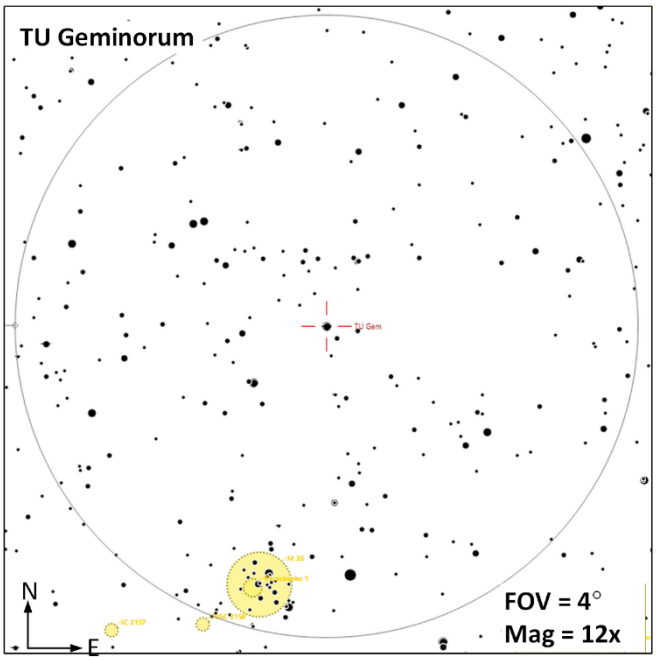
Messier 35 (OC | M=5.3 | Size=28’ | SB= 21.2| Stars=120 |) – Many consider M-35 one of the premier open cluster in the northern winter sky. A great binocular target that may even be visible to the naked eye under ideal viewing conditions. Very close to M-35 is the small densely packed open cluster NGC-3158.

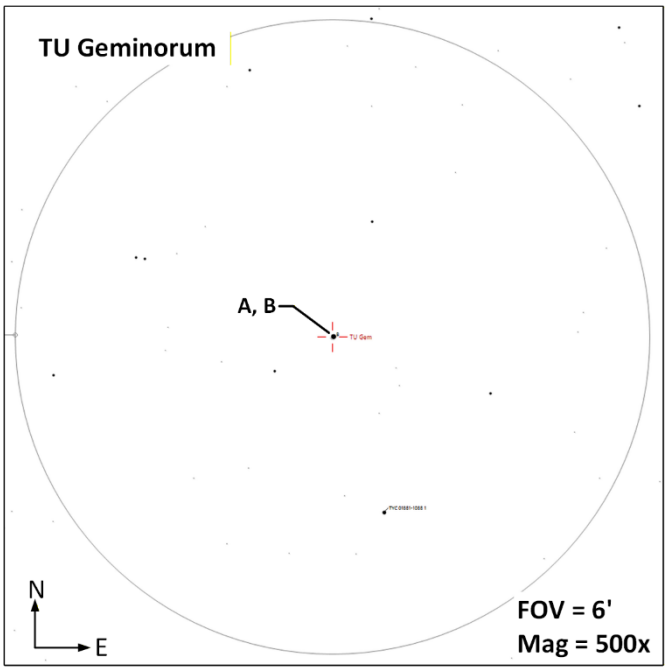




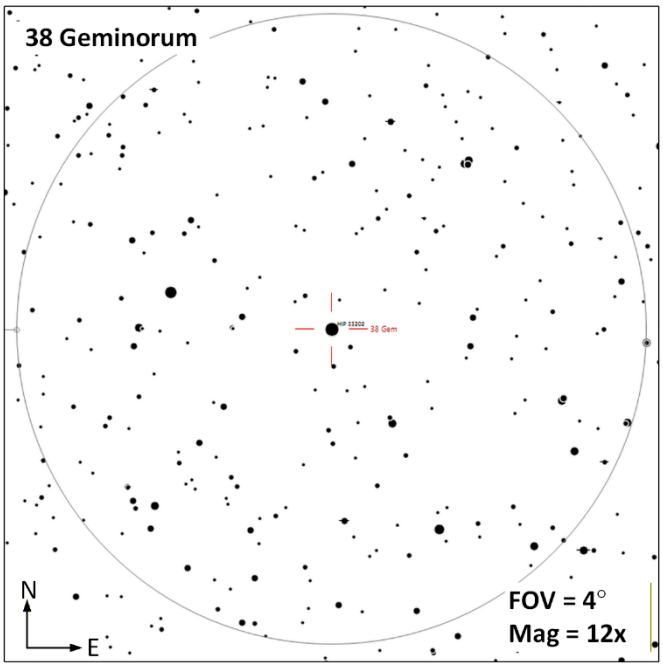
Constellation Guide

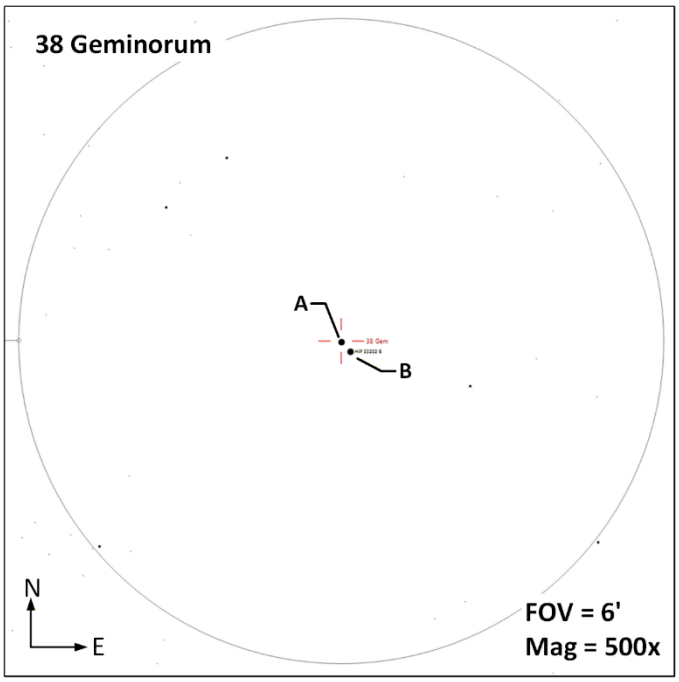
TU Gem (CS, DS | Mag Range 9.4 to 12.5 | Period = 230 d | | M=7.9, 9.5 | Sep=0.38” | PA=100° | – This is a pulsating semi-regular variable star that varies in magnitude 9.4 to 12.5 over a period of 230 days. It has a close companion star.



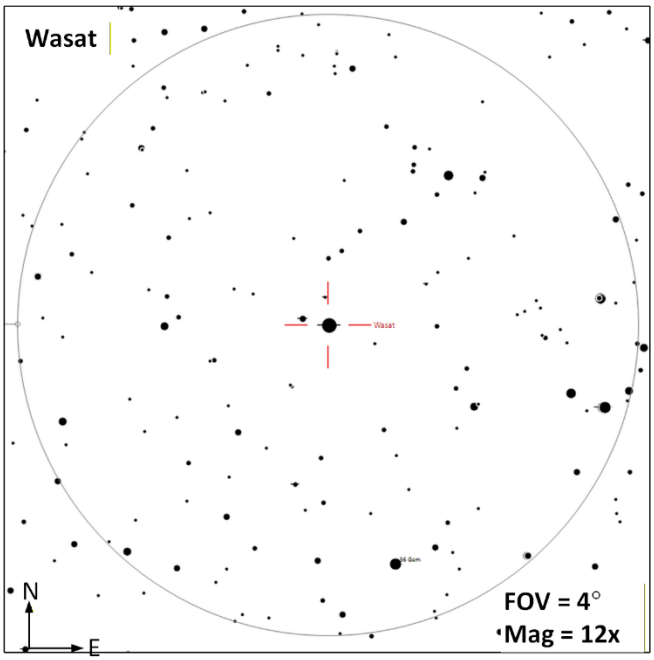


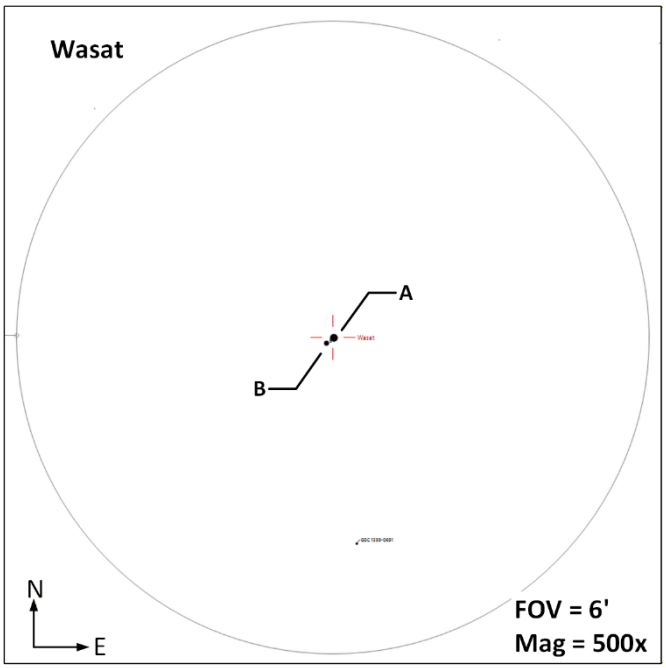
38 Gem (DS | Mag 4.7, 7.8 | Sep = 7.3” | PA=145° |) – A double star system consisting of an Orange and a pale blue star. This pair should be able to be easily resolved in small telescopes. This double star system is 83.6 ly from earth.



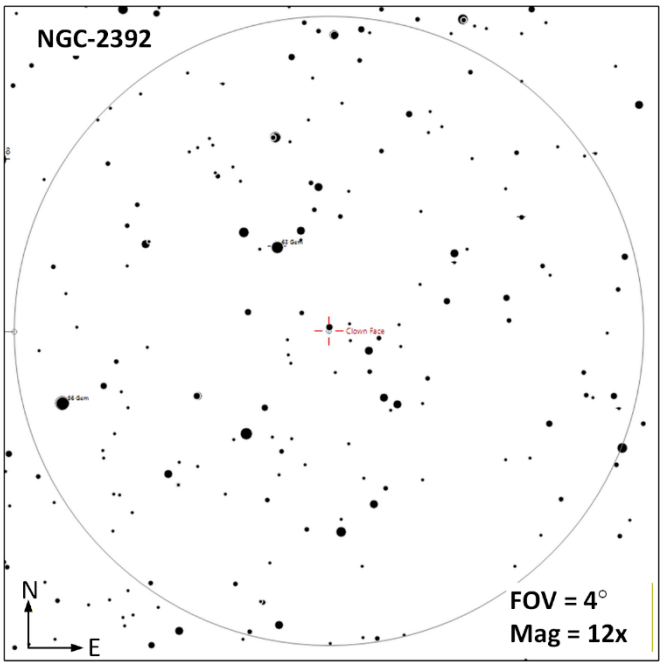


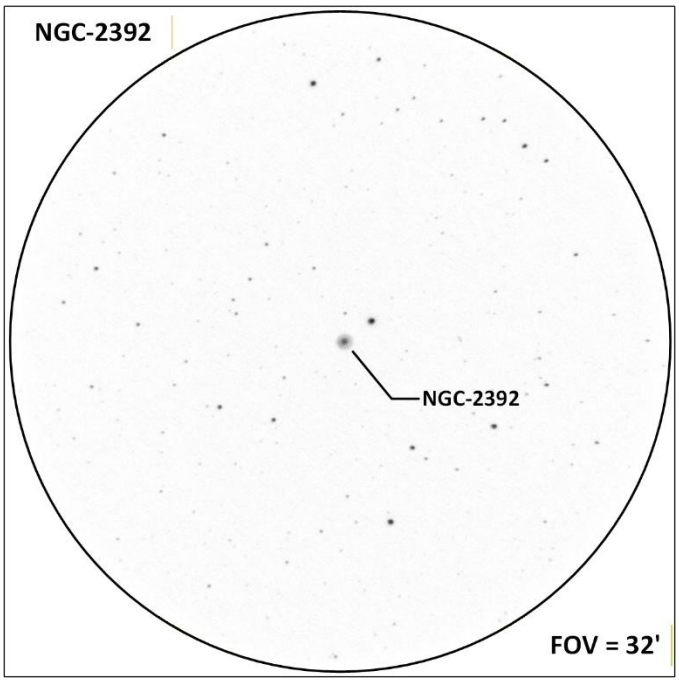
Wasat (DS | Mag 4.7, 7.8 | Sep = 7.3” | PA=145° |) – This double star system is 60.5 ly from earth and consist of a yellow and reddish-purple companion. The companion orbits the primary component every 1,200 years. The smaller companion should be visible even in smaller telescopes.



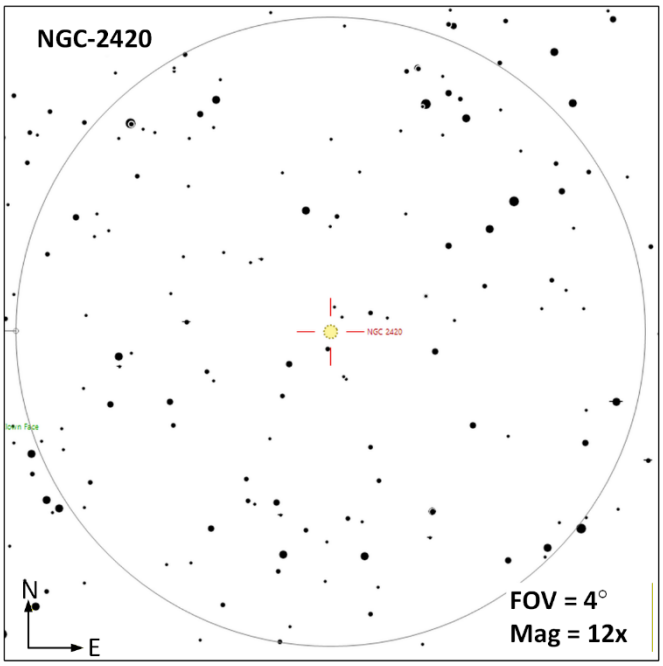


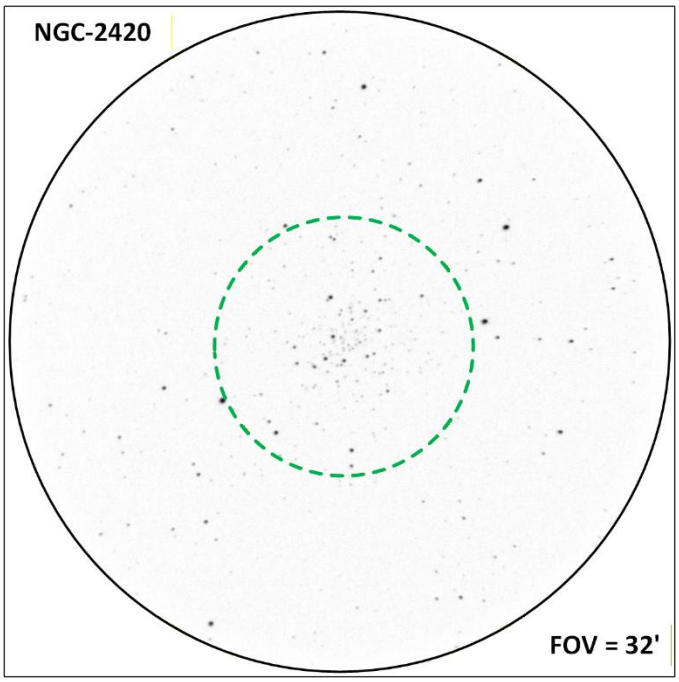
NGC-2392 (PN | M=8.3 | Size=6.4’ | SB=21.0 | Stars=100 |– The Eskimo Nebula is a planetary nebula smaller telescopes may show a small greenish ball and central star. The estimated distance to this nebula is 30,000 ly.



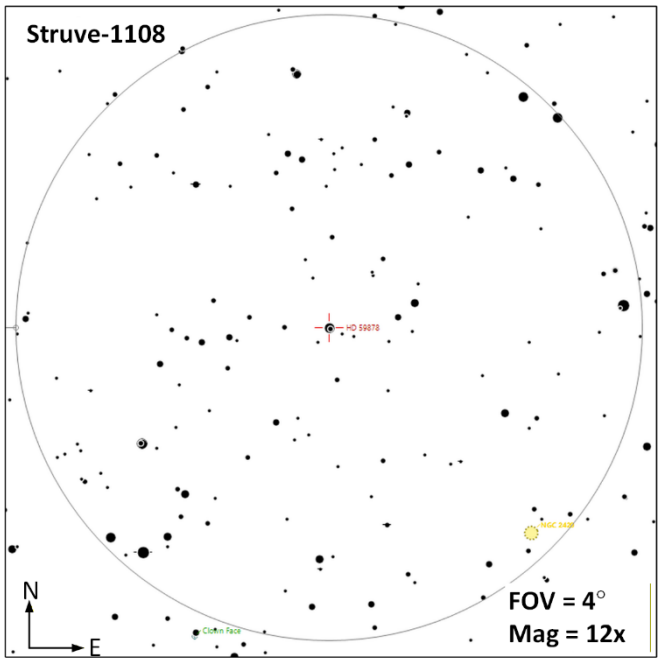


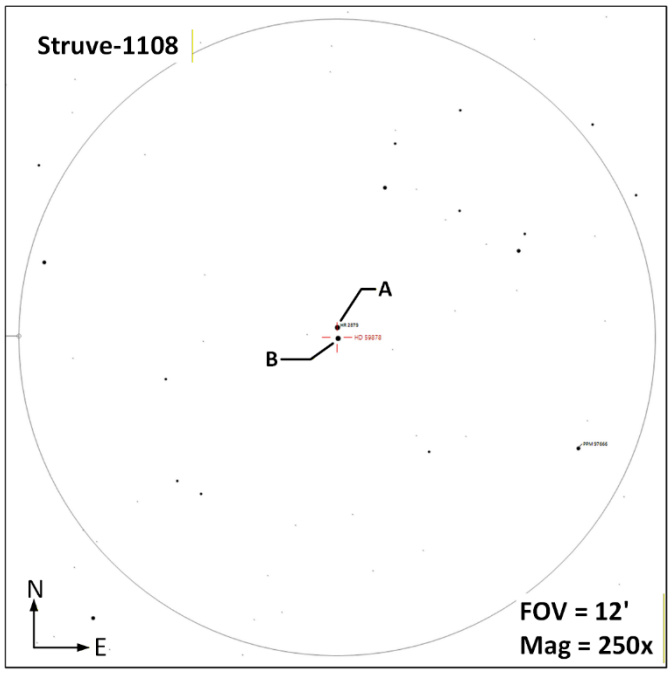
NGC 2420 (OC | M=8.3 | Size=6.4’ | SB=21.0 | Stars=100 |– Consisting of about 100 stars over an area of 6.4’, NGC-2420 is a compressed open cluster. In smaller telescopes this may appear as a uniform ghostly light that gets brighter in the center.





Struve 1108 (DS | M=6.6, 8.2 | Sep=11.7” | PA=178° |– This double star system is 450 ly from earth. A yellow/Blue pair that should make a nice target for observation.





Constellation Guide

Observation Log: Gemini (Gem)

Equipment Config A: _____ Config B: _____

Notes: _____

Date	Time	Config	Target	Notes

Date	Time	Config	Target	Notes

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Observation Log: Gemini (Gem)

Equipment Config A: _____ Config B: _____

Notes: _____

Date	Time	Config	Target	Notes

Date	Time	Config	Target	Notes

Constellation Guide

References, Resources and Tools used to create this document

The resources listed below were utilize to generate this document.

References

- Books
  - Objects in the Heavens: Peter Birren
  - Touring the Universe through Binoculars: Philip Harrington
  - The Deep Sky: Philip Harrington
  - Double and Multiple Stars and How to Observe Them: James Mullaney
  - Celestial Portraits: Tom Polakis
  - Sky Spot Books
    - Bright Telescopic Objects: Brent Watson
    - Select Double Stars: Brent Watson
    - Overlooked Objects: Bret Watson
- Asterisms
  - Astronomical League: Asterisms observing program List
  - Asterisms: Demeiza Ramakers
  - Pattern Asterisms: John Chiravalle
  - Milwaukee Astronomical Society: Binocular Asterisms
  - Deep-Sky.co.uk: Observing Asterisms (David Ratlege)
- Saguaro Astronomy Club
  - Asterisms List
  - 110 Best of the NGC
  - Red Stars List
- Online
  - Wikipedia
  - The Garden Astronomer: Double, Multiple, and Special Star Observations List
  - Sky & Telescope: Colored Double Stars, Real and Imagined
  - In-The-Sky.org
  - Constellation-guide.com

Applications

- SkyTools 4.1 Visual Professional
- AstroPlanner Version 2.4
- Cartes du Ciel Version 4.3
- Sky Safari Pro 7
- Microsoft Office Home and business 2021 - Word
- Microsoft Visio Professional 2021
- IrfanView Version 4.72