

Constellation Guide

Constellation: Sagittarius (Sgr)

Evening Visibility: **June – August**

Opposition: July

Latitude Visibility: **+55° to -90°**

Online Information: | In-The-Sky.org | Constellation Guide.com |

Constellation Targets

- **Region 1:** SZ Sgr, [NGC-6440](#), [Box Nebula](#), NGC-6469, [M-23](#), B-84A, NGC-6507, **Trifid Nebula Region** (HD 164492, [M-20](#), [B-85](#)), **Lagoon Nebula Region** ([M-8](#), [NGC-6530](#), B-88, Dark Comet), [M-21](#), [NGC-6553](#), **Simeis 188 Region** (CR-367, IC-4685, [NGC-6559](#), B-303, IC-1274), [NGC-6544](#), NGC-6568, HSL Chain, [Polis](#), Jenn's Confluence, [B-92](#), B-93, NGC-6583, **Twiddlebug Nebula Region** ([SH2-37](#), [IC-1284](#), [NGC-6589](#), [NGC-6590](#)), [M-24](#), [M-18](#), [M-17](#), [M-28](#), TR-33, [21 Sgr](#), [NGC-6638](#)
- **Region 2:** V0781 Sgr, HR-6693, TR-31, [B-86](#), [NGC-6520](#), **Baade's Window** ([NGC-6522](#), [NGC-6528](#)), B-87, [NGC 6540](#), NGC-6780, [NGC-6558](#), [NGC-6563](#), [NGC-6569](#), [NGC-6624](#), [M-69](#)
- **Region 3:** SS Sgr, [M-25](#), [NGC-6642](#), NGC-6645, [M-22](#), Pal-8, CR-394, NGC-6716, HR 7203, Teaspoon, V1942 Sgr, AQ Sgr, 54 Sgr, [NGC-6818](#), [NGC-6822](#), UW Sgr, [M-75](#)
- **Region 4:** [NGC-6652](#), [M-70](#), [M-54](#), [NGC-6723](#), Arkab, [M-55](#), HD-193256,

Mythology/Back Story

Sagittarius is an ancient constellation usually depicted as a centaur holding and bow and arrow, but is more commonly seen as a teapot in modern days. This is a large constellation that the Milky Way runs through and the center of the galaxy is in the line of sight of this constellation. The constellation is prolific in deep sky objects. Here we have documented about 70 targets, most within reach of small to medium telescopes.

Constellation Guide

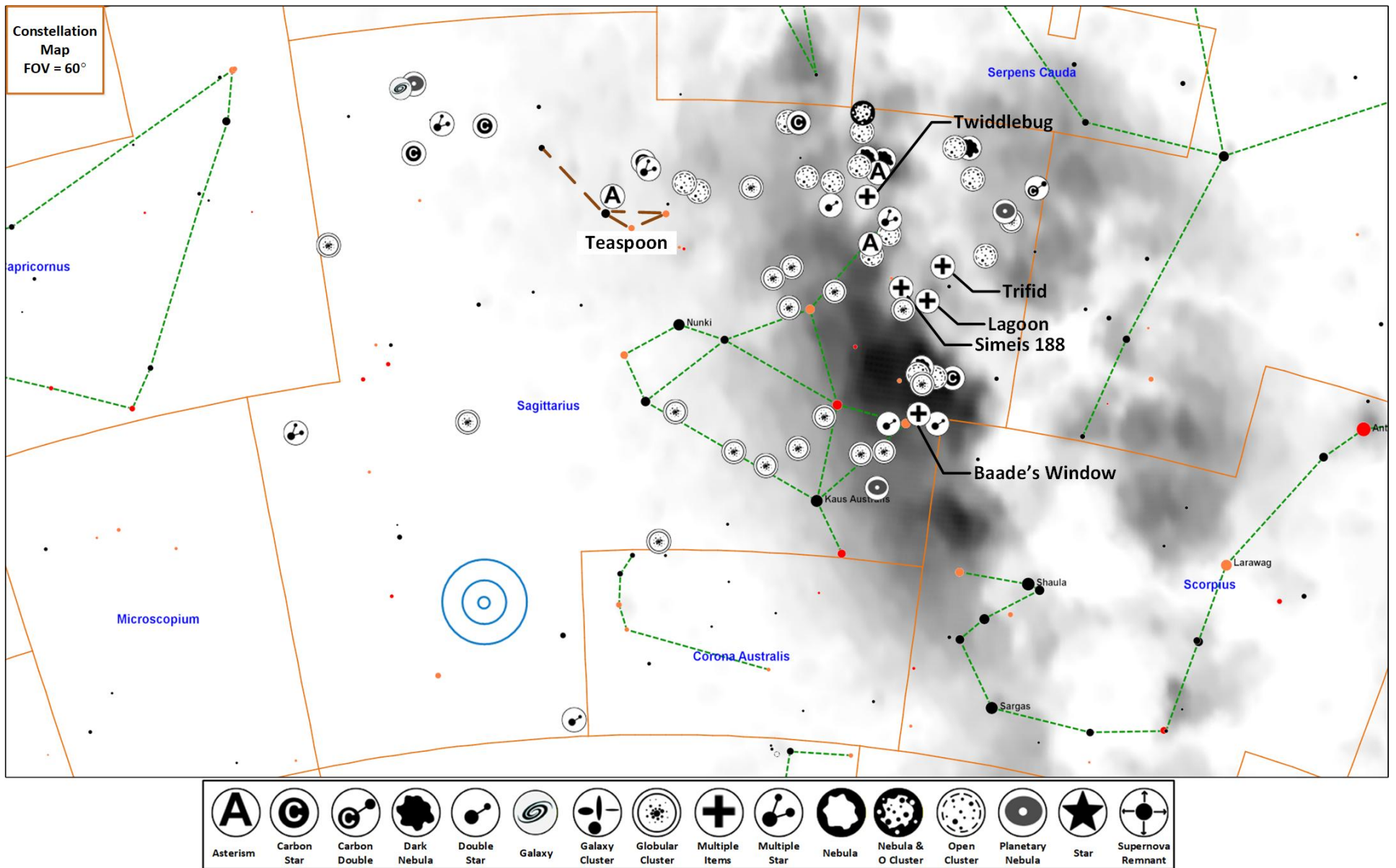
Constellation Highlights

This is considered the richest of the constellations for deep sky objects and includes an inventory of 15 Messier objects within its boundaries. There are so many objects in this constellation we have broken them down into four regions.

There are some gaps between the dust and star clouds that make up much of the Milky Way where you can actually see stars residing in another arm of the milky way, [Baade's Window](#) and Messier 24 are two such openings.

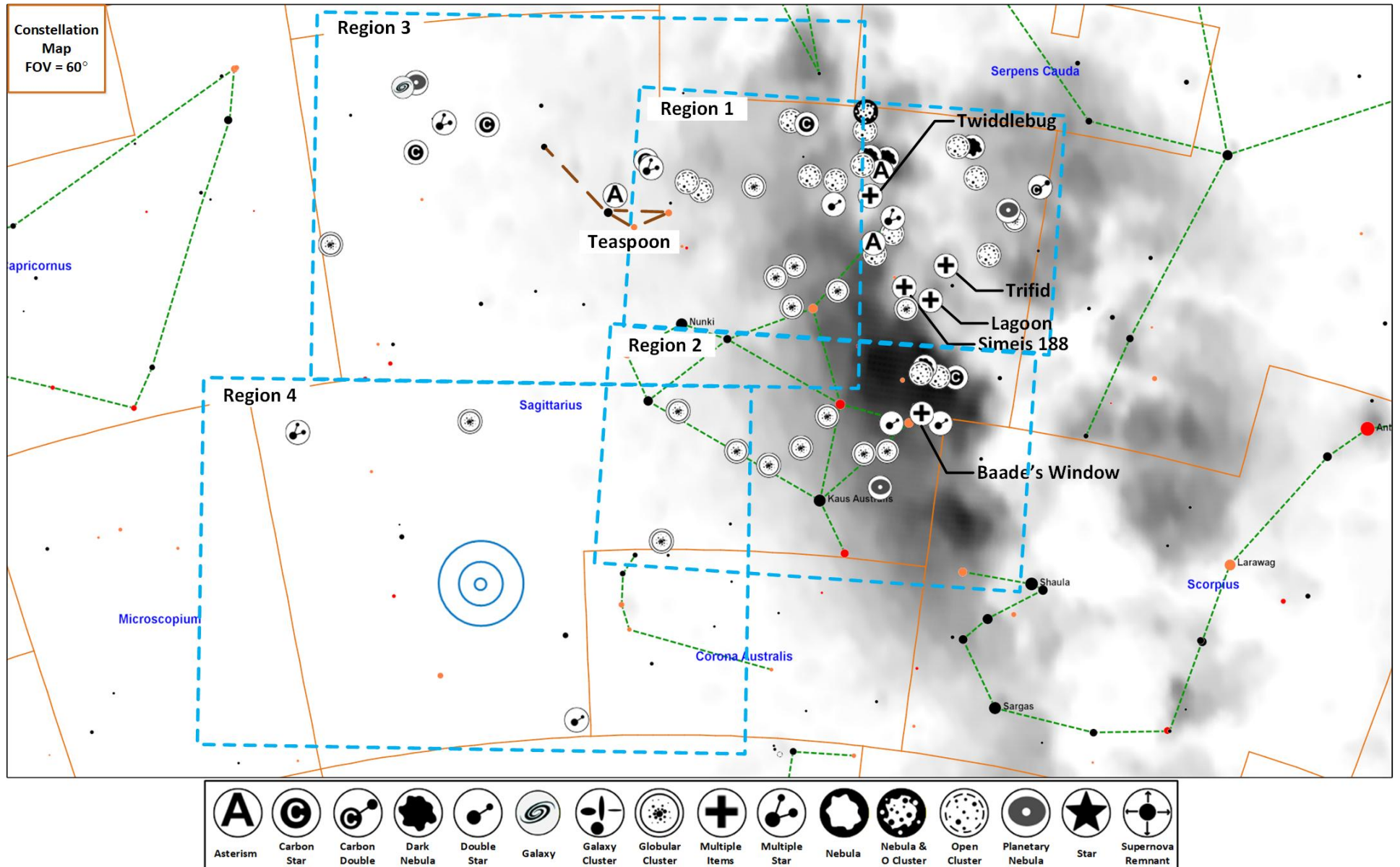
- **Trifid Nebula Region** – Stellar nursery
- **Lagoon Nebula Region** – Stellar Nursery
- **Messier 17** (OC, EM) – One of the brightest star forming regions in our galaxy.
- **Teaspoon** (AS) – Useful to recognize this for star-hopping.
- **NGC-6822** (G) – Challenging, but our nearest non-satellite galaxy, worth checking out.
- **Messier-55** (GC) – A challenge for northern viewers.
- **NGC-6520 & B-86** (OC, DN) – See if you can see the dark nebula
- **Messier 24** (OC) – Actually a gap in the Great Rift.
- **Messier 22** (GC) – One of the closer GC to earth and one of the brightest in the northern sky.
- **AQ Sgr** (CS) – BV Color Index=+3.5. Should be a red star.
- **Messier 75** (GC) – Dense core globular, remains of a dwarf galaxy?

Constellation Guide



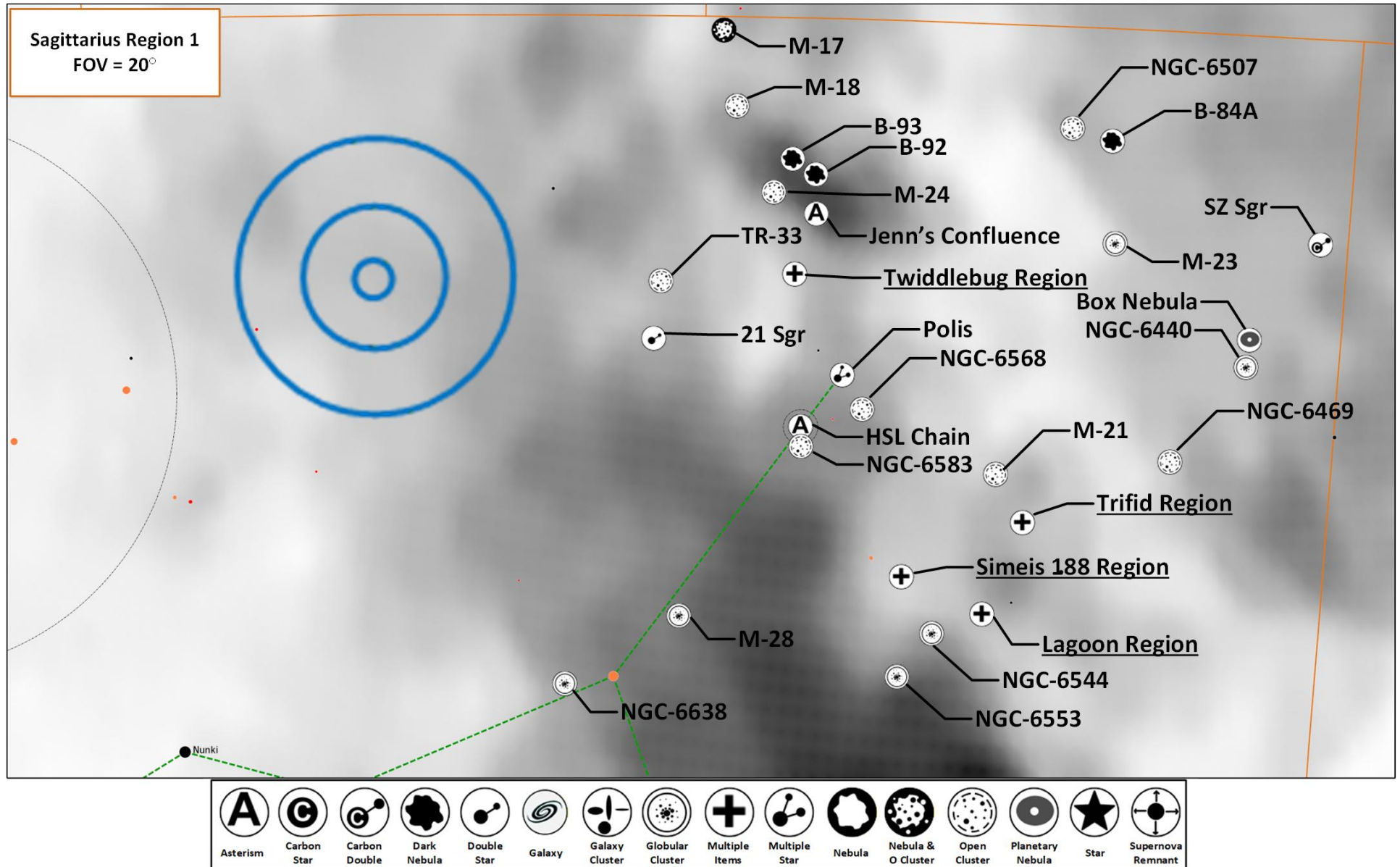
Constellation Guide

Sagittarius Regional Maps



Constellation Guide

Region 1: Constellation Targets



Constellation Guide

Object (Type)	Links	Gear	Aliases	Stats
SZ Sagittarii (CS, DS)	1	B, T	SAO-160795; HIP 86873; SZ Sagittarii; SZ Sgr; WDS 17449-1839; ADS 10751	Magnitude Range= 8.2 to 9.2 Period=0.2y Spec=C7 (Nb) BV=+2.30 Color=orange-red AB Mag=8.9,12.2 Sep=2.1" PA=220° mBortle=6 mApt=130mm Spec=C7 (Nb), ? Color=deep red, ?
NGC-6440 (GC)	1	T	GCL 77; ESO 589-SC8	Mag=9.2 Size=4.4' SB=21.0 mBortle=9 mApt=50mm MC=V
Box Nebula (PN)	1	T	NGC-6445; H II 586; PK 008+03.1; PK 8+3.1; PN G008.0+03.9; Little Gem Nebula	Mag=11.2 Size=0.6' SB=20.5 mBortle=3 mApt=180mm MC=Butterfly
NGC-6469 (OC)		T	Collinder 353; CR 353; Lund 788; Mel 182; OCL 21; Raab 124; C1749-223;	Mag=8.2 Size=7' SB=21.1 mBortle=6 mApt=130mm MC=IV2m
Messier 23 (OC)	1	B, T	NGC-6494; Cr 356; Mel 184; GC 4346; h 1990; Collinder 356	Mag=6 Size=27' SB=21.8 mBortle=9 mApt=50mm MC=I2r
Barnard 84A (DN)		B, T	B-84a; LDN 302	Size=16' mBortle=4 mApt=150mm Opacity=5
NGC-6507 (OC)		T	Collinder 358; CR 358; OCL 32; Lund 797; C1756-174	Mag=9.6 Size=13' SB=23.8 mBortle=? mApt=250mm MC=IV3m
Trifid Nebula Region				
• HD 164492 (MS-4)		T	SAO-186145; HIP 88333; HD 164492; ADS 10991; HN40; WDS18024-2302; ADS 10991; GC 24581; CD-231308; V3791 Sgr	AB Mag=7.6,10.4 Sep=6.2" PA=20° mBortle=9 mApt=60mm Spec=O7.5 V(z), ? Color=blue-white, ? AC Mag=7.6,8.7 Sep=10.7" PA=211° mBortle=9 mApt=50mm Spec=O7.5 V(z), B1-B1.5 CD Mag=8.7,10.7 Sep=2.4" PA=280° mBortle=9 mApt=70mm
• Messier 20 (OC, EN)	1	B, T	The Clover; NGC-6514; Cr 360; Sh2-30; C1759-230; GC 4355; RCW 147; Gum 76; Lund 803; Mrk 34; OCL 23; Trifid Nebula; h 1991; LBN 27	Mag=5 Size=29' SB=20.9 mBortle=9 mApt=50mm
• Barnard 85 (DN)	1	T	B 85	Size=5' mBortle=? mApt=100mm
Lagoon Nebula Region				
• Messier 8 (EN, OC)	1	B, T	NGC-6523; Sh2-25; RCW 146; Gum 72; Dragon Nebula; Lagoon Nebula	Mag=5.8 Size=90'x40' SB=23.3
• NGC-6530 (OC)	1	T	OCL 19; Collinder 362; Cr 362;	Mag=4.6 Size=10' SB=18.2 mBortle=9 mApt=50mm MC=II2m
• Barnard 88 (DN)		T	B 88	Size=2' mBortle=? mApt=200mm
• Dark Comet (DN)		T	Barnards Dark Comet	Size=2'x1' mBortle=? mApt=200mm

Constellation Guide

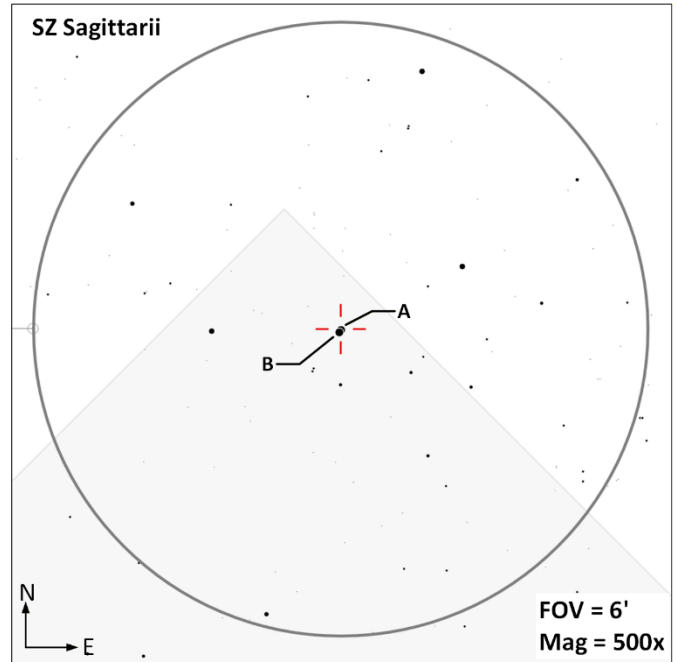
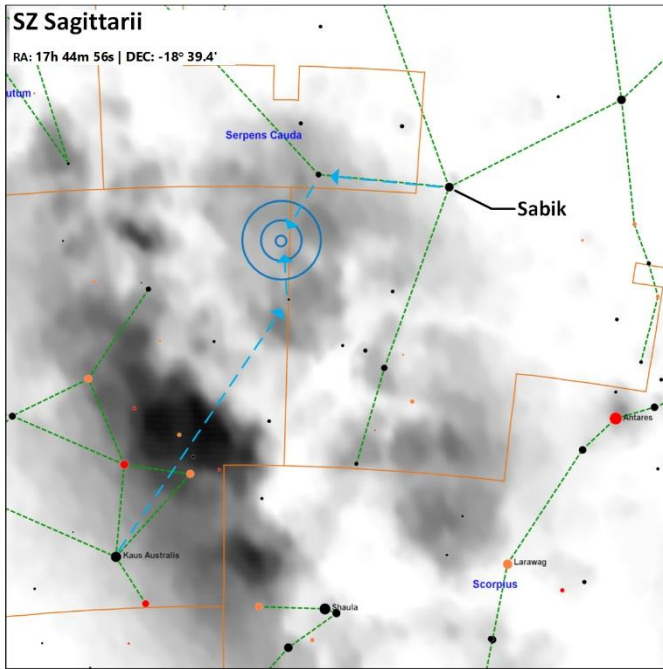
Object (Type)	Links	Gear	Aliases	Stats
Messier 21 (OC)	1	T	NGC-6531; Cr 363; OCl 26; Lund 806; Mel 188; C1801-225	Mag=6 Size=13' SB=20.2 mBortle=9 mApt=50mm MC=I3r
NGC-6553 (GC)	1	T	Mel 193; EQ 1806-259; C1806-259; GCL 88	Mag=8.1 Size=9.2' SB=21.5 mBortle=7 mApt=50mm MC=XI
Simeis 188 Region				
• Collinder 367 (OC, EN)		B, T	C1806-240; Lund 813; OCl 22	Mag=6.4 Size=40' SB=23.0 mBortle=9 mApt=60mm MC=III3m n
• IC-4685 (EN)		B, T		Mag=10 Size=20' SB=25.1
• NGC-6559 (EN)	1	T	ESO 521-40; LBN 28; Gum 75; Chinese Dragon Nebula	Size=8'
• Barnard 303 (DN)		T	Barnard303; LDN 210	Size=1' mBortle=? mApt=250mm Opacity=5
• IC-1274 (EN)		T	Sh2-31; LBN 33; Ced 154b; Gum 75; h 1996	Size=9'
NGC-6544 (GC)	1	T	Collinder 366; Cr 366; Mel 192; OCl 17; GCL 87; EQ 1804-250; C1804-250	Mag=7.8 Size=9.2' SB=21.2 mBortle=9 mApt=50mm MC=IX
NGC-6568 (OC)		T	Collinder 369; Cr 369; Lund 815; OCl 28.0; C1809-216;	Mag=8.6 Size=12' SB=22.6 mBortle=4 mApt=150mm MC=IV1m
HSL Chain (AS)		B, T	Centering Star: 14 Sgr; SAO-186509; HIP 89369	Size=30' Stars = 8
Polis (MS-5)	1 , 2	B, T	SAO-186497; HIP 89341; Mu Sgr; μ Sgr; 13 Sagittarii; HD 166937; HR 6812; ADS 11169; GC 24856; FK5 682	AB Mag=3.9,10.5 Sep=16.9" PA=257° mBortle=9 mApt=60mm Spec=B8Iap, B9III Color=blue-white, blue-white AC Mag=3.9,12.8 Sep=25.5" PA=119° mBortle=3 mApt=180mm Spec=B8Iap, A3V Color=blue-white, blue-white AD Mag=3.9,10 Sep=48.2" PA=312° mBortle=9 mApt=50mm Spec=B8Iap, B2IV Color=blue-white, blue-white AE Mag=3.9,9.2 Sep=50.2" PA=114° mBortle=9 mApt=50mm Spec=B8Iap, B2.5V Color=blue-white, blue-white BD Mag=10.5,10 Sep=40.8" PA=330° mBortle=9 mApt=60mm Spec=B9III, B2IV Color=blue-white, blue-white BE Mag=10.5,9.2 Sep=64.4" PA=105° mBortle=9 mApt=60mm Spec=B9III, B2.5V Color=blue-white, blue-white

Constellation Guide

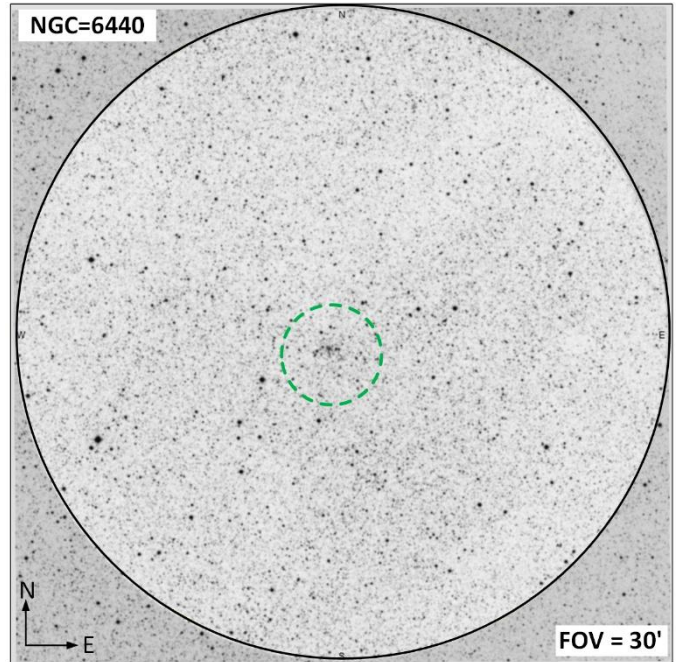
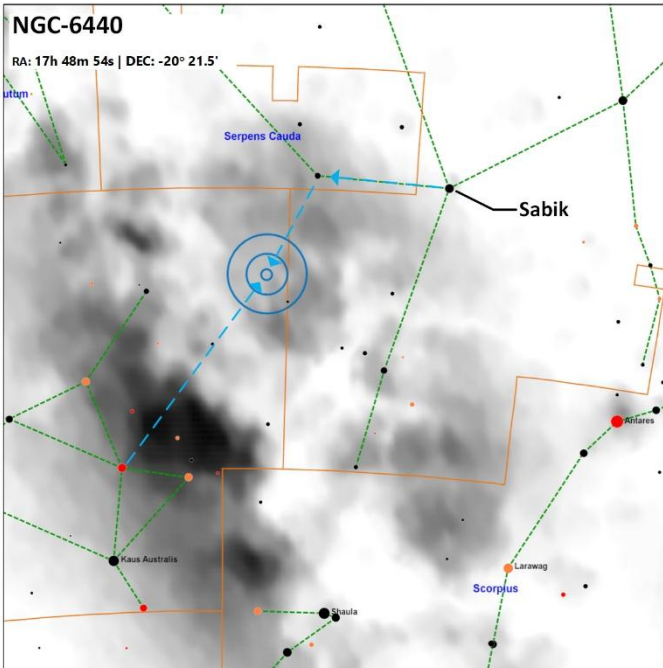
Object (Type)	Links	Gear	Aliases	Stats
Jenn's Confluence (AS)		B, T	Centering Star: HD 166982	Size=15'
Barnard 92 (DN)	1	T	LDN 323; B92; Black Hole	Size=12' mBortle=4 mApt=50mm Opacity=6
Barnard 93 (DN)		B, T	LDN 327; B93	Size=2' mBortle=4 mApt=114mm Opacity=4
NGC-6583 (OC)		B, T	Collinder 370; Cr 370; Lund 817; C1812-221; Lund 817; OCl 27	Mag=10 Size=5' SB=22.1 mBortle=? mApt=300mm MC=I2m
Twiddlebug Nebula Region				
• SH2-37	1	B, T	IC 1284; Sh2-37; LBN 47; RCW 153; Gum 78; Twiddlebug Nebula	Mag=7.7 Size=17'x10' SB=21.9
• IC-1284 (EN)	1	T	RCW 153; Gum 78; Ced 157d; ESO 590-N-16; LBN 47;	Size=10'
• NGC-6589 (RN)	1	T	IC 4690; DG 149; Ced 157a; LBN 46;	Size=5'
• NGC-6590 (RN, OC)	1	T	Collinder 371; CR 371; OCl 31; Lund 819; IC-1283; C1814-199	Mag=7 Size=4'x2' SB=17.9 mBortle=9 mApt=70mm MC=III3m n
Messier 24 (OC)	1	B, T	NGC-6603; IC4715; Cr 374; Mel 197; Raab 129; Collinder 374; Cr 374; C1815-184; Delle Caustiche; Lund 824; OCl 36; Raab 129; Small Sagittarius Star Cloud	Mag=4.5 Size=80'x35' SB=21.7 mBortle=9 mApt=50mm MC=IIr
Messier 18 (OC)	1	T	NGC-6613; Cr 376; C1817-171; Lund 826; OCl 40; C1817-171; Collinder 376; Black Swan Cluster	Mag=6.9 Size=9' SB=20.3 mBortle=9 mApt=70mm MC=II3p n
Messier 17 (OC, EN)	1	T	NGC-6618; IC 4706; IC 4707; Cr 377; Sh2-45; C1817-162; RCW 160; Gum 81; Lund 827; Mrk 41; OCl 44; Omega Nebula; Swan Nebula; Checkmark Nebula; Lobster Nebula; Horseshoe Nebula;	Mag=6 Size=11' SB=19.8 mBortle=9 mApt=50mm MC=III3m n
Messier 28 (GC)	1	T	NGC-6626; Mel 200; C1821-249	Mag=6.8 Size=12' SB=20.8 mBortle=9 mApt=50mm MC=IV
Trumpler 33 (OC)		T	Collinder 378; Cr 378; C1821-197; Lund 830; OCl 34; C-1821-197; Tr 33	Mag=7.8 Size=5.5' SB=20.1 mBortle=9 mApt=102mm MC=II2p
21 Sagittarii (DS)	1 , 2	T	SAO-186794; HIP 90289; HD 169420; HR 6896; ADS 11325; BD-20 5134; JC6; WDS18254-2033; 21 Sgr; GC 25132	AB Mag=5,7.4 Sep=1.6" PA=279° mBortle=9 mApt=102mm Spec=K2 II, A5: Color=orange, white
NGC 6638 (GC)	1	T	EQ 1827-255; C1827-255; GCL 95	Mag=9 Size=7.3' SB=21.9 mBortle=6 mApt=50mm MC=VI

Constellation Guide

SZ Sagittarii (CS, DS || Magnitude Range= 8.2 to 9.2 | Period=0.2y | Spec=C7 (Nb) | BV=+2.30 | Color=orange-red || **AB** | Mag=8.9,12.2 | Sep=2.1" | PA=220° | mBortle=6 | mApt=130mm | Spec=C7 (Nb), ? |)
A variable star that is part of a double star system.

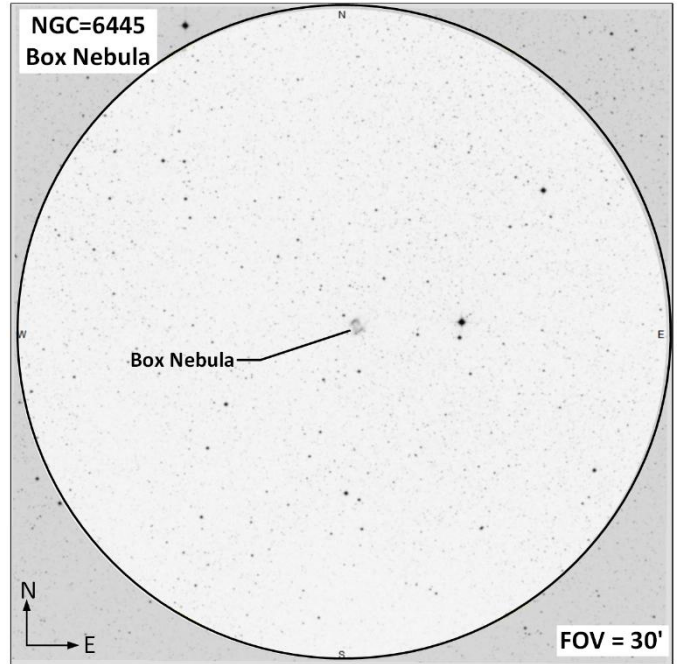
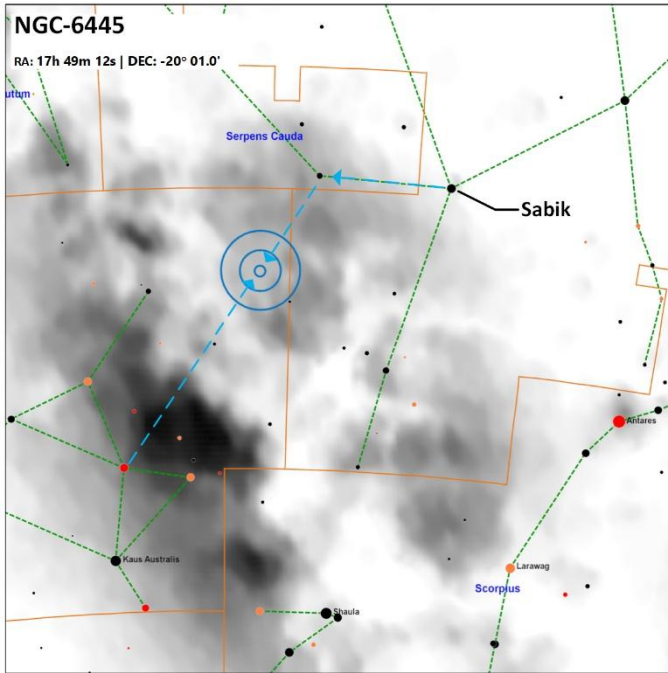


NGC-6440 (GC || Mag=9.2 | Size=4.4' | SB=21.0 | mBortle=9 | mApt=50mm | MC=V |) This globular cluster is located 27,000 light years away with an estimated age of 11 billion years. This is one of the most metal-rich clusters in our galaxy. Classification of this globular is V- Intermediate concentration

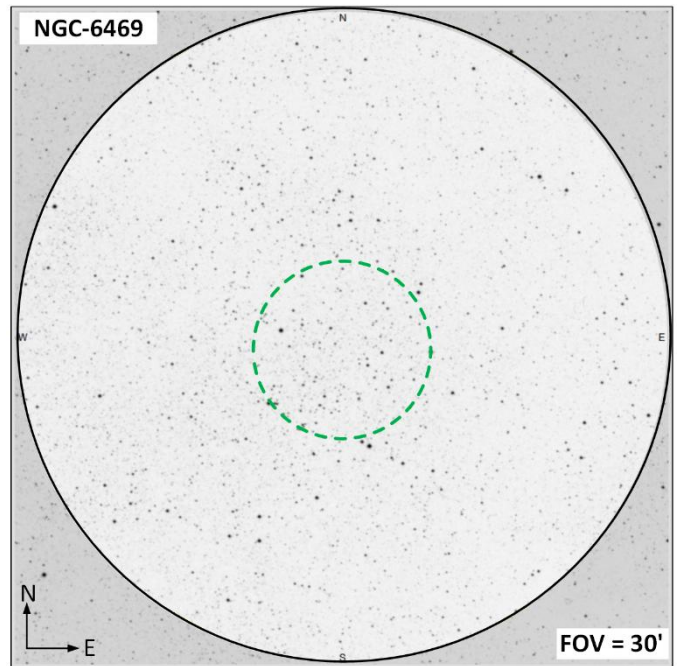
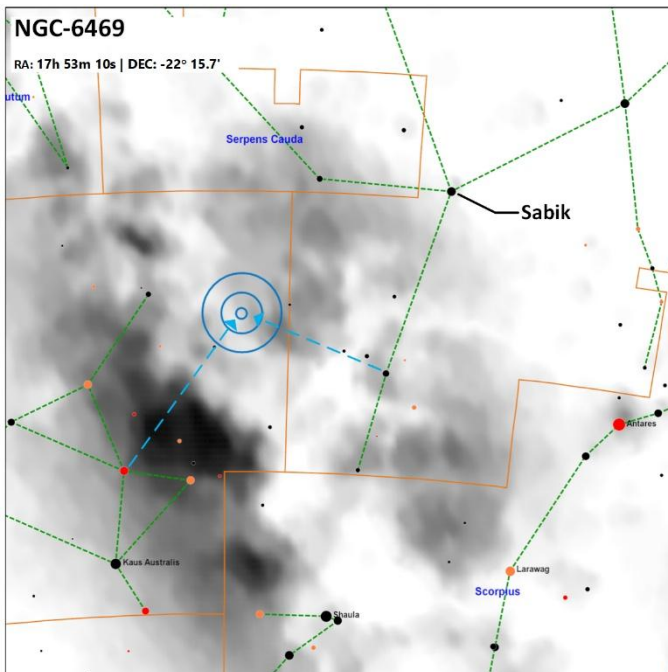


Constellation Guide

Box Nebula (PN || | Mag=11.2 | Size=0.6' | SB=20.5 | mBortle=3 | mApt=180mm | MC=Butterfly |) Object Located 4,500 light years away, this planetary nebula is classified as a bipolar planetary nebula and measures 4 light years across and is among the largest known.

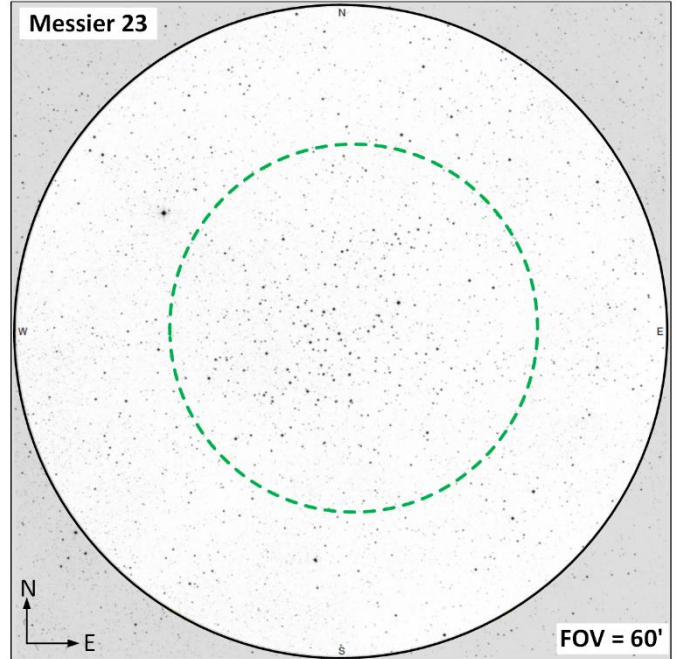
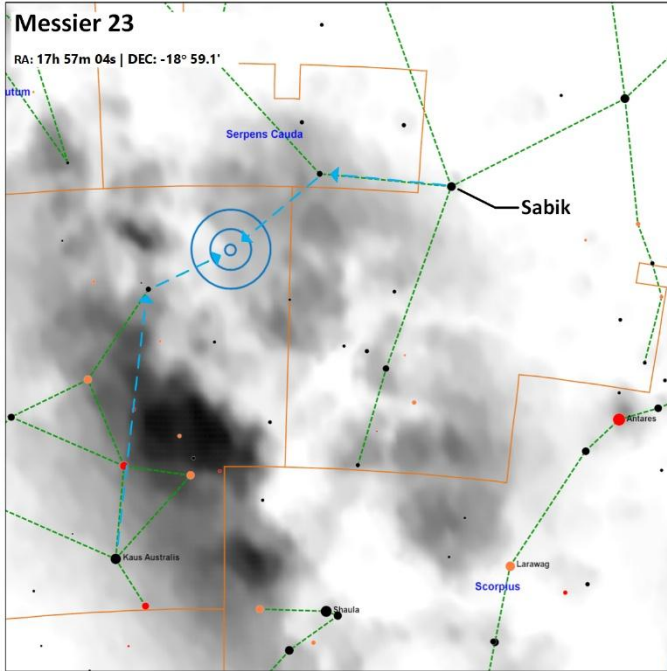


NGC-6469 (OC || Mag=8.2 | Size=7' | SB=21.1 | mBortle=6 | mApt=130mm | MC=IV2m |) Located 3,600 light years away with a physical diameter of 7 light years. This open cluster is classified as IV-Not well detached, but strong field concentration, 2-Medium range of brightness between stars, m-Medium rich cluster with 50-100 stars.

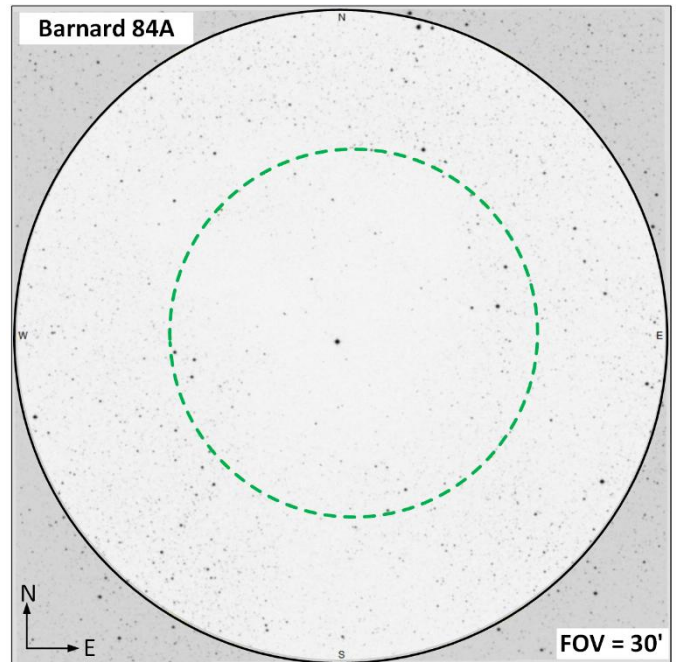
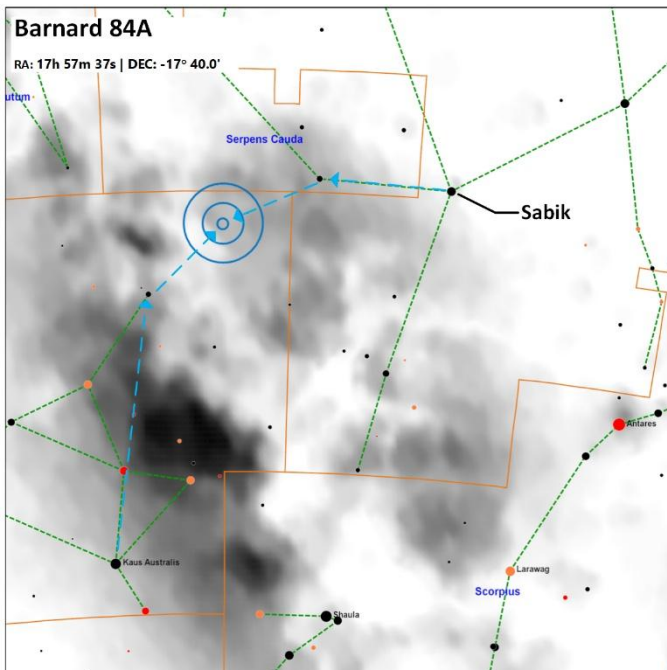


Constellation Guide

Messier 23 (OC || Mag=6 | Size=27' | SB=21.8 | mBortle=9 | mApt=50mm | MC=I2r |) This cluster is located in front of an extensive gas and dust network and is located about 2,050 light years away and is suspected of having between 169 to 414 members. The cluster is estimated to be 330 million years old and is classified as I-Detached cluster with strong central concentration, 2-Medium range of brightness between stars in the cluster, r-Rich clusters with over 100 stars.

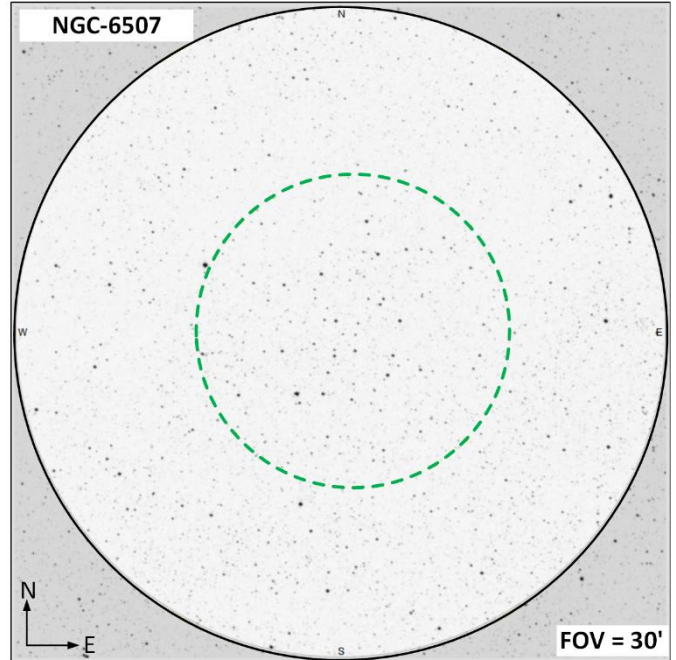
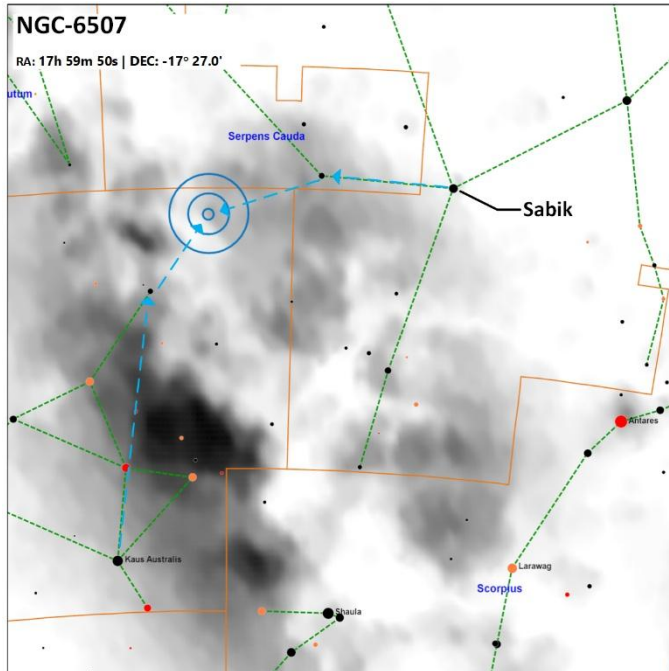


Barnard 84A (DN || Size=16' | mBortle=4 | mApt=150mm | Opacity=5 |) Dark nebula with Opacity of 5. A telescope with 150 to 200mm is estimated required to identify this. There appears to be a single star centered in this dark nebula that may help identify it.

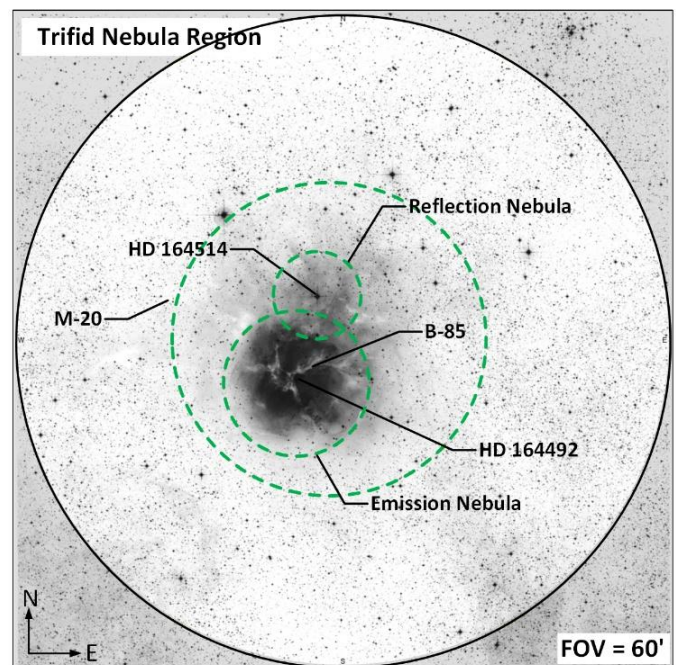
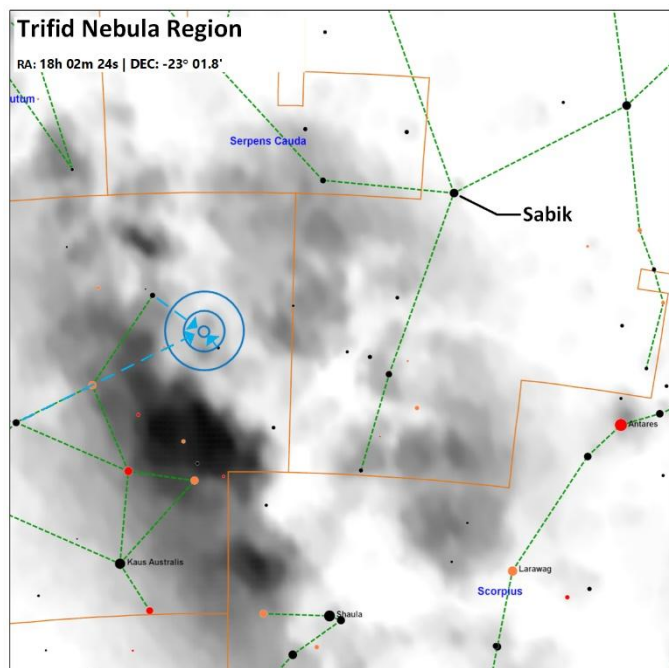


Constellation Guide

NGC-6507 (OC || Mag=9.6 | Size=13' | SB=23.8 | mBortle=? | mApt=250mm | MC=IV3m |) Located 4,012 light years away with a physical diameter of 15 light years. Estimated 15 stars visible, Trumpler class IV-Not detached, 3-Bright and faint stars in cluster, m-Medium richness with 50-100 stars.

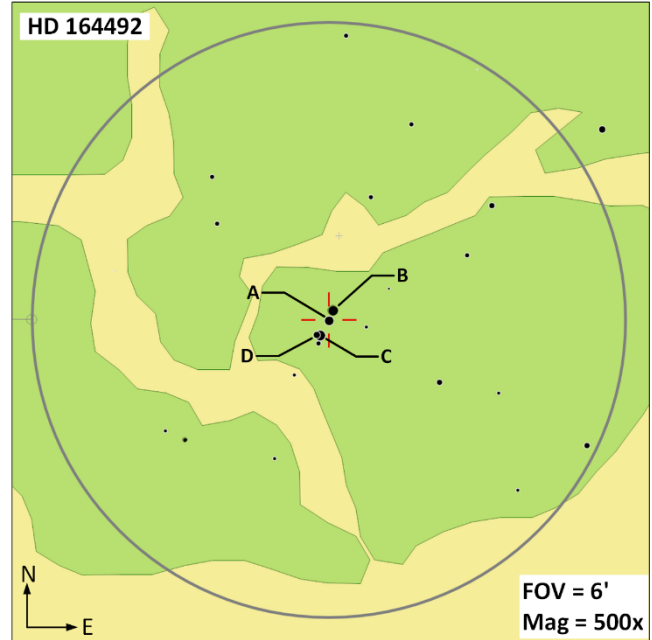
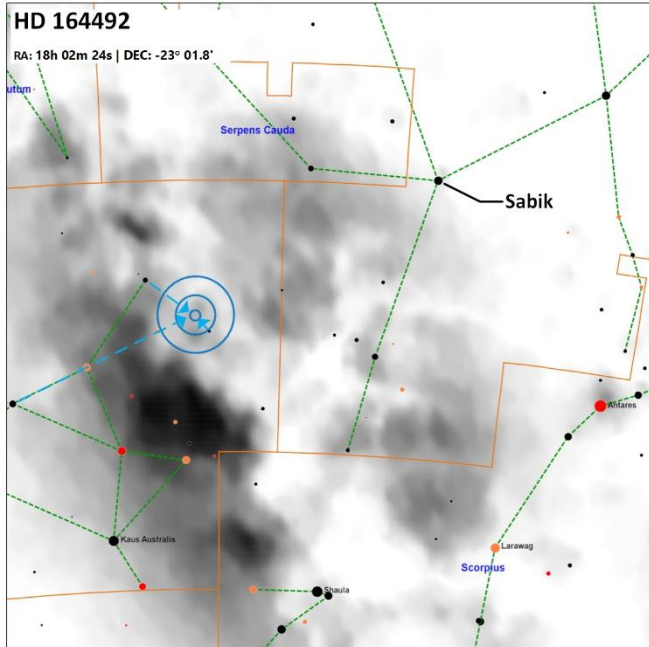


Trifid Nebula Region. The Trifid nebula region contains a number of interesting objects including an emission nebula, reflection nebula (centered around HD-164514), loose open cluster and dark nebulae all wrapped up into what is collectively called the Trifid Nebula (M-20). The “multiple star system” HD-164492 is also embedded in the Trifid nebula.

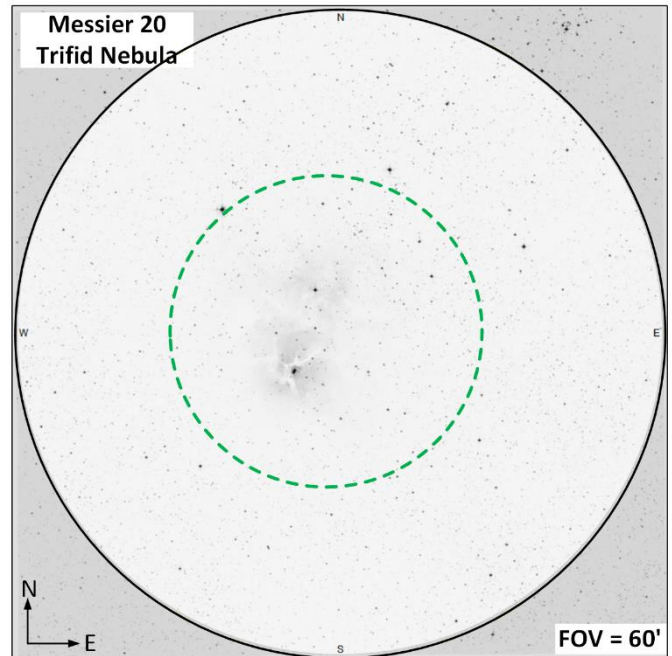
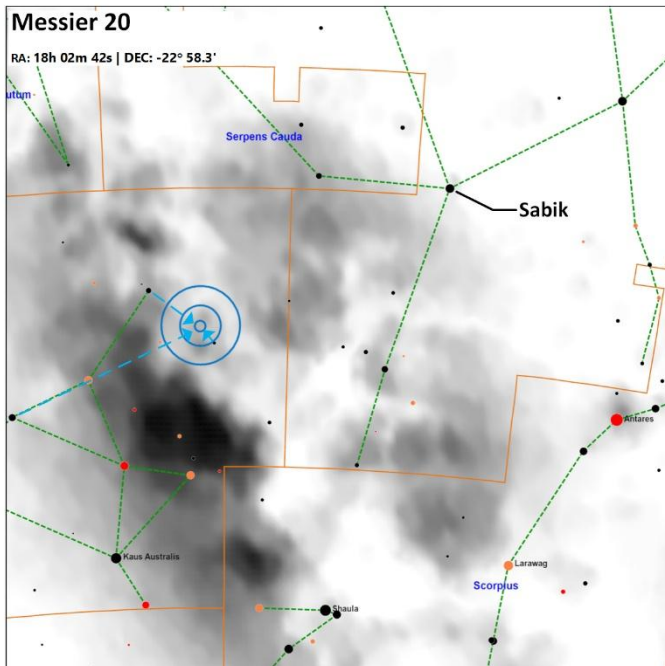


Constellation Guide

HD 164492 (MS-4 || **AB** | Mag=7.6,10.4 | Sep=6.2" | PA=20° | mBortle=9 | mApt=60mm | Spec=O7.5 V(z), ? | Color=blue-white,? || **AC** | Mag=7.6,8.7 | Sep=10.7" | PA=211° | mBortle=9 | mApt=50mm | Spec=O7.5 V(z), B1-B1.5 || **CD** | Mag=8.7,10.7 | Sep=2.4" | PA=280° | mBortle=9 | mApt=70mm) None of these stars are confirmed physical, and may be more of an association of stars. 164492A is the largest star in the region and is about 20 solar masses.

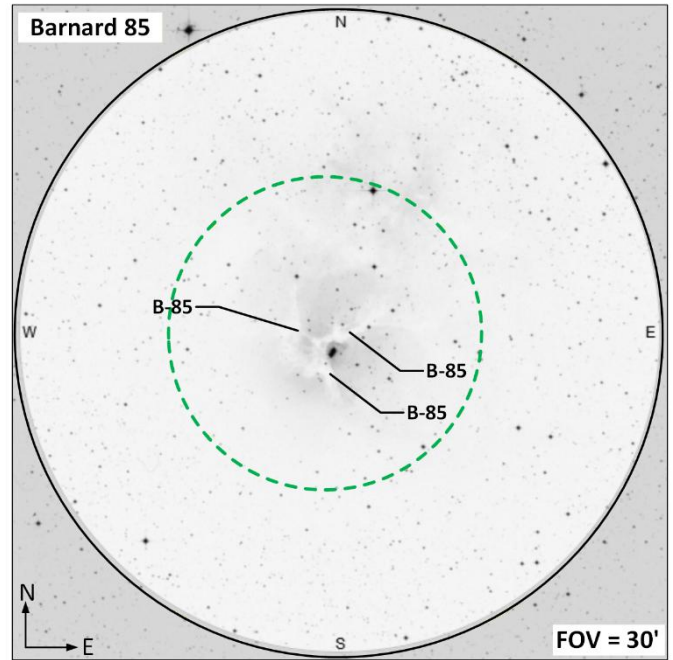
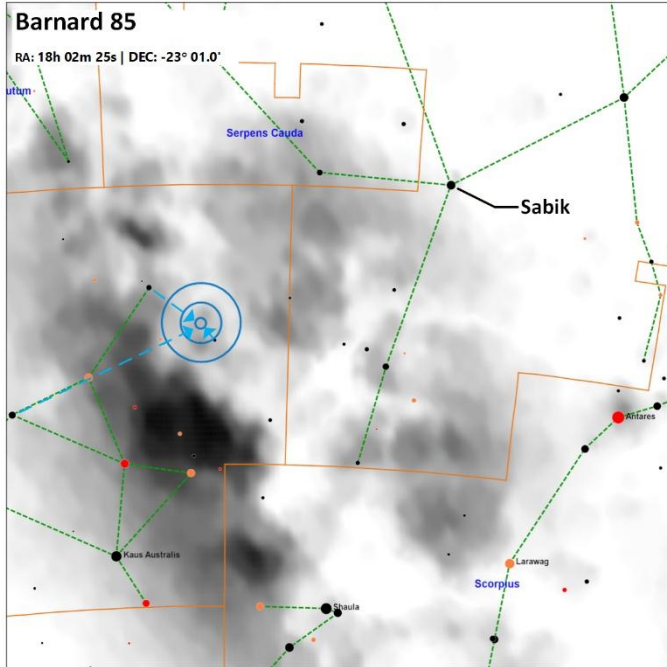


Messier 20 (OC, EN || Mag=5 | Size=29' | SB=20.9 | mBortle=9 | mApt=50mm) Located in the [Scutum-Centaurus Arm](#) of the Milky Way. This is a classical interstellar nursery.

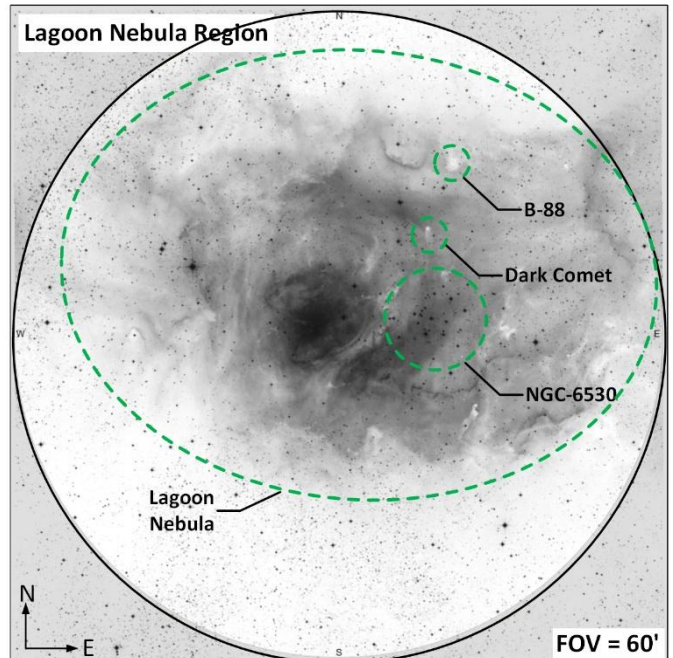
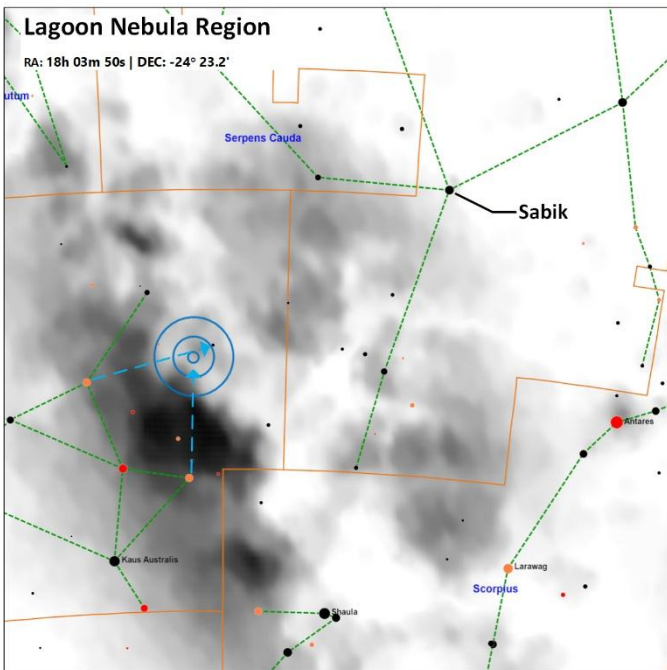


Constellation Guide

Barnard 85 (DN || Size=5' | mBortle=? | mApt=100mm |) This dark nebula is the apparent gaps defining the three lobes in the Trifid Nebula.

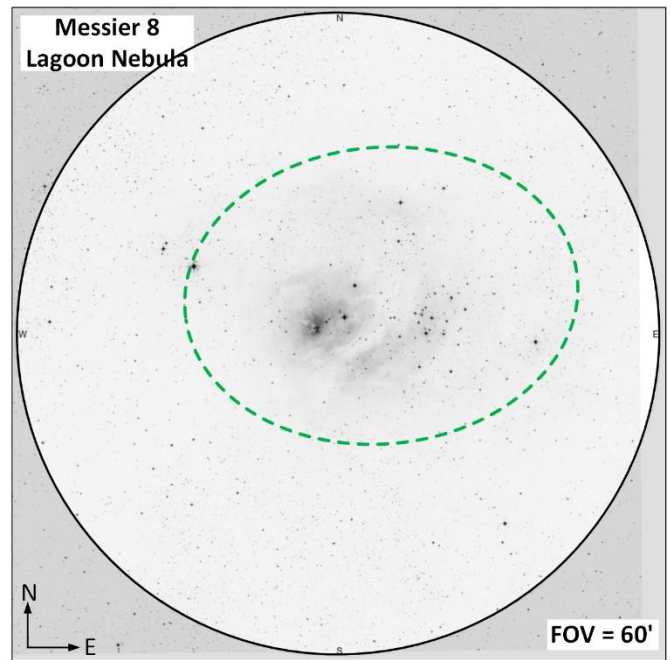
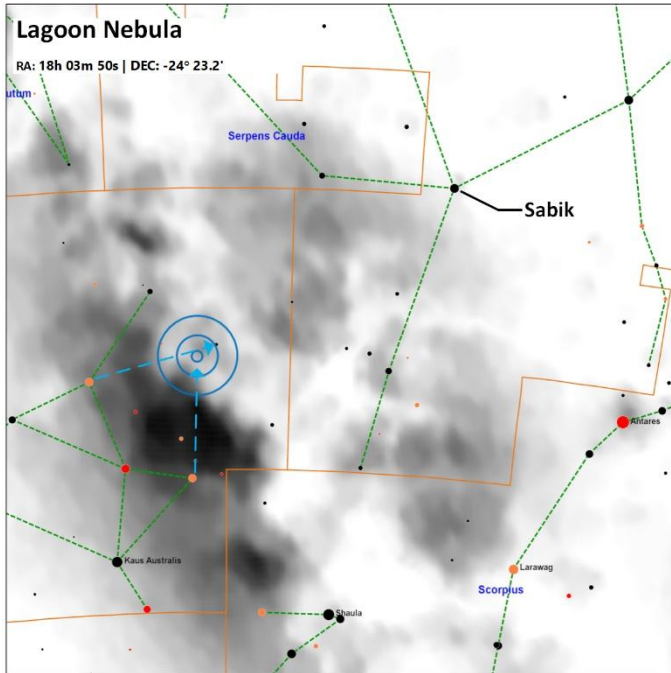


Lagoon Nebula Region – Another interstellar nursery containing a number of interesting targets including the open cluster NGC-6530, various dark nebulae (Barnard 88, Dark Comet) and the emission nebula itself. The lagoon nebula is located about 5,000 light years away spanning 110 by 50 light years and is one of only two star-forming nebulae visible to the naked eye from mid-northern latitudes (Orion Nebula being the other).

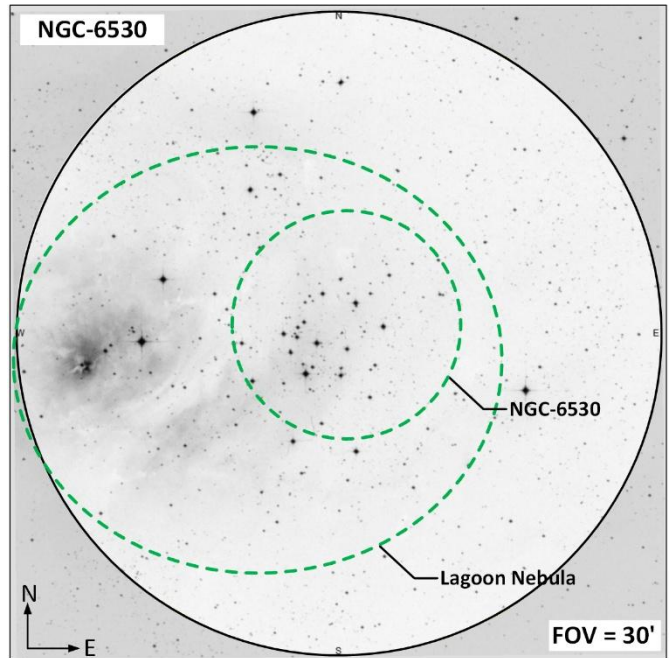
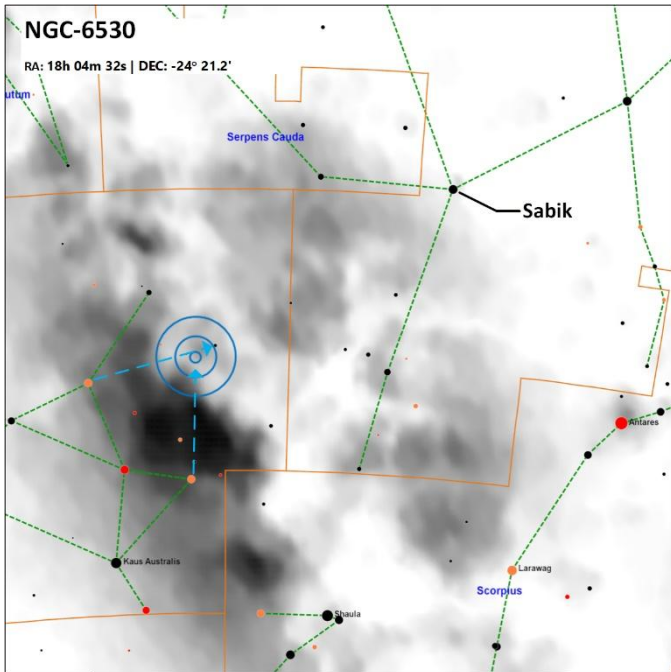


Constellation Guide

Messier 8 (EN, OC || Mag=5.8 | Size=90'x40' | SB=23.3 |) The Lagoon Nebula is a stellar nursery and wonderful target for binoculars and telescopes. Embedded in the nebula is the open cluster NGC-6530.

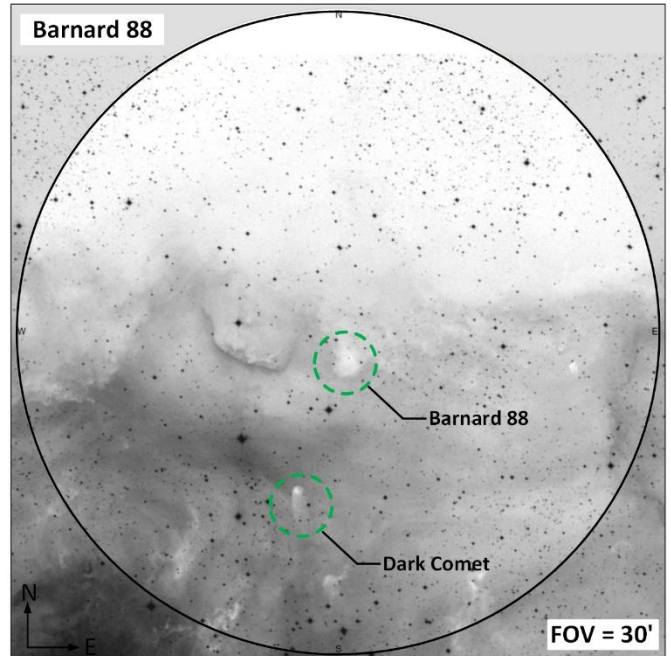
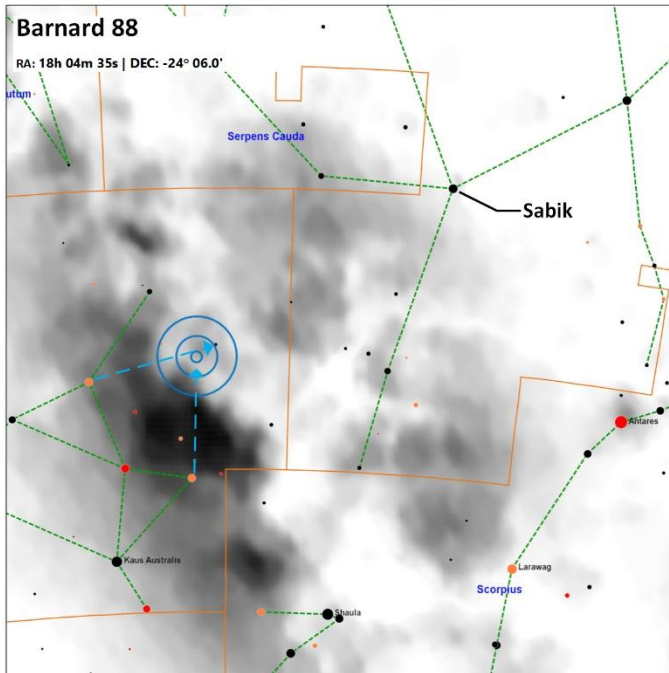


NGC-6530 (OC || | Mag=4.6 | Size=10' | SB=18.2 | mBortle=9 | mApt=50mm | MC=II2m |) Embedded in the Lagoon nebula and originating from it there have been over 3,600 stars catalogued in the field of this cluster and over 600 have been confirmed as members. It is suspected this cluster initially started formation 15 million years ago, but the bulk of star formation is estimated to have started 1 to 2 million years ago.

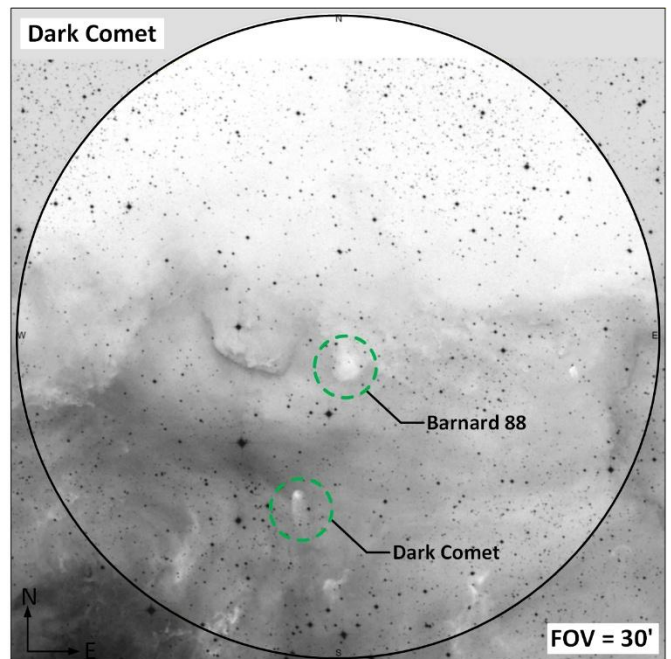
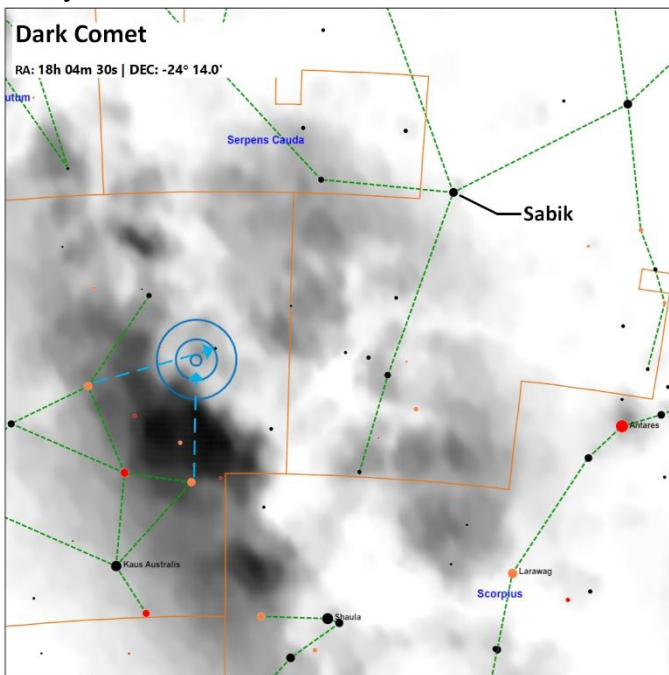


Constellation Guide

Barnard 88 (DN || | Size=2' | mBortle=? | mApt=200mm |) Dark nebula located at the edge of the lagoon nebula. Note: the image below is over-exposed, this dark nebula will be challenging to identify.

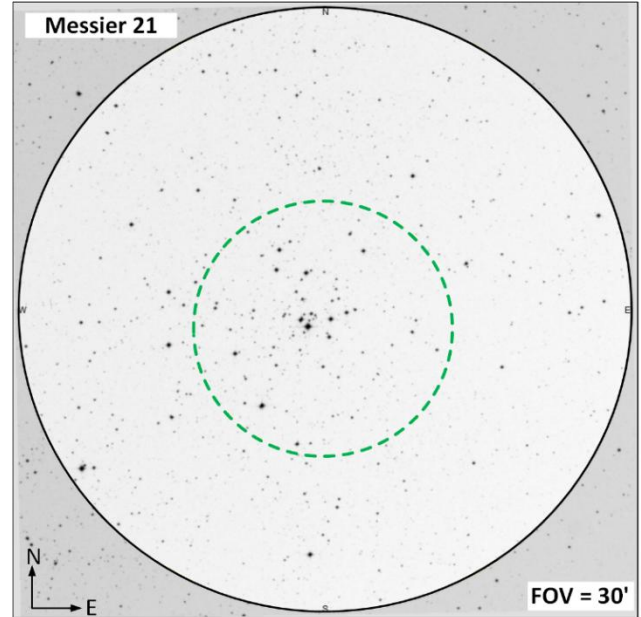
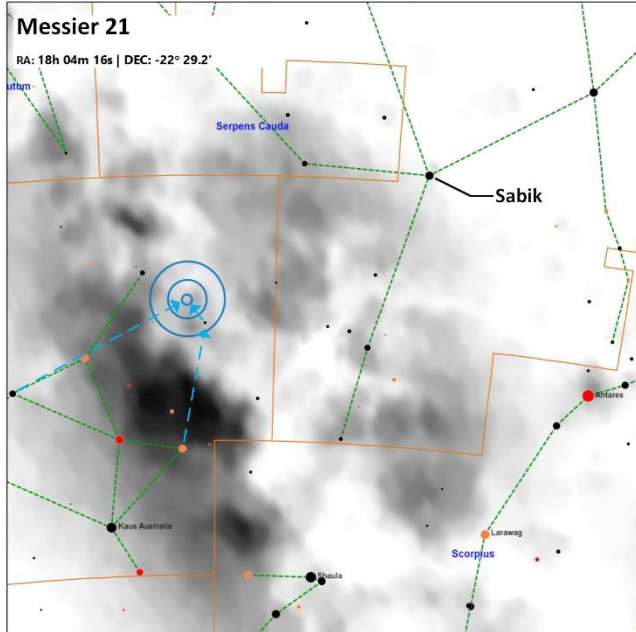


Dark Comet (DN || | Size=2'x1' | mBortle=? | mApt=200mm |) Small dark nebula located next to Barnard 88 on the edge of the lagoon nebula. Note: the image below is over-exposed, this dark nebula will be challenging to identify.

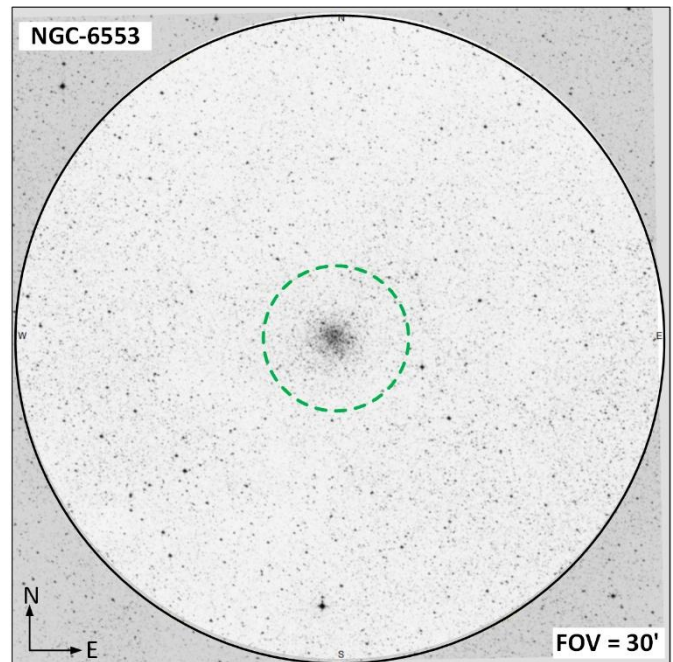
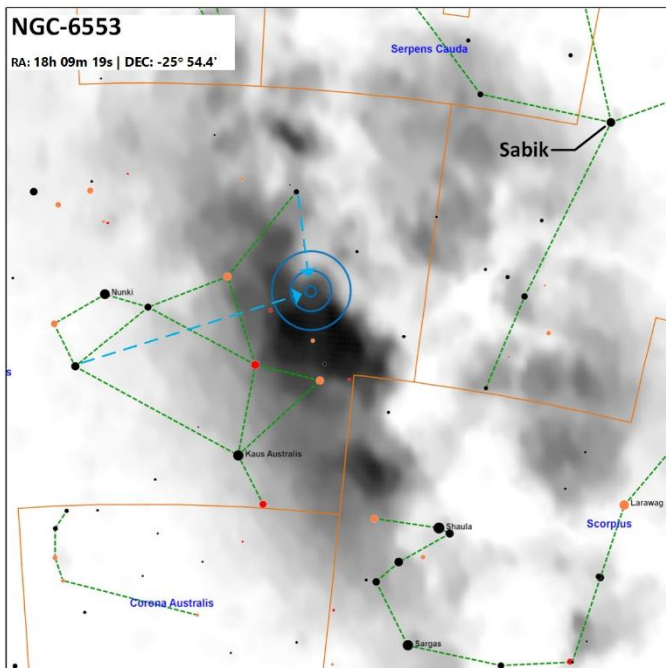


Constellation Guide

Messier 21 (OC || Mag=6 | Size=13' | SB=20.2 | mBortle=9 | mApt=50mm | MC=I3r |) Located 3,900 light years away with an estimated age of 6.6 million years old. This is a young fairly tightly packed cluster. Trumpler class is I-Detached with strong central concentration, 3-Composed of bright and faint stars, r-Rich cluster with over 100 stars.



NGC-6553 (GC || Mag=8.1 | Size=9.2' | SB=21.5 | mBortle=7 | mApt=50mm | MC=XI |) Located 9,800 light years away with a physical diameter of 26 light years. This is a metal-rich cluster showing signs of at least two periods of star formation and has a very similar metal concentration to NGC-6528, indicating they may have common origins.



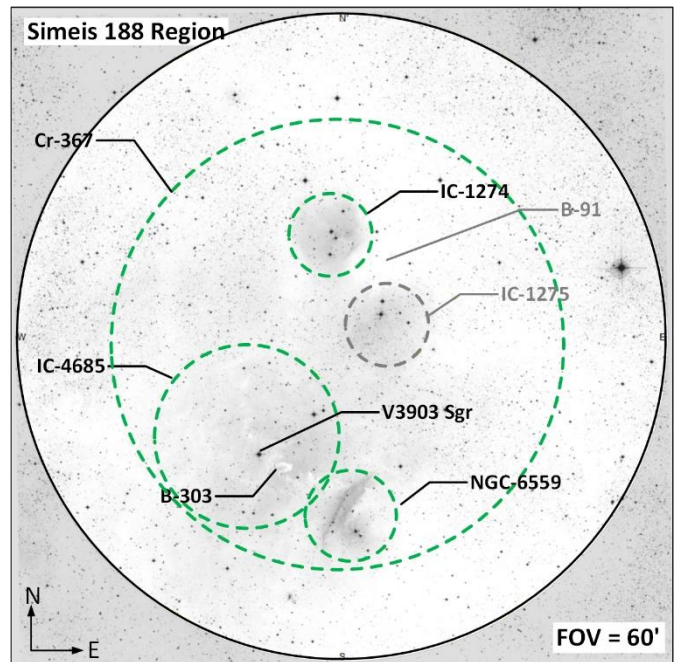
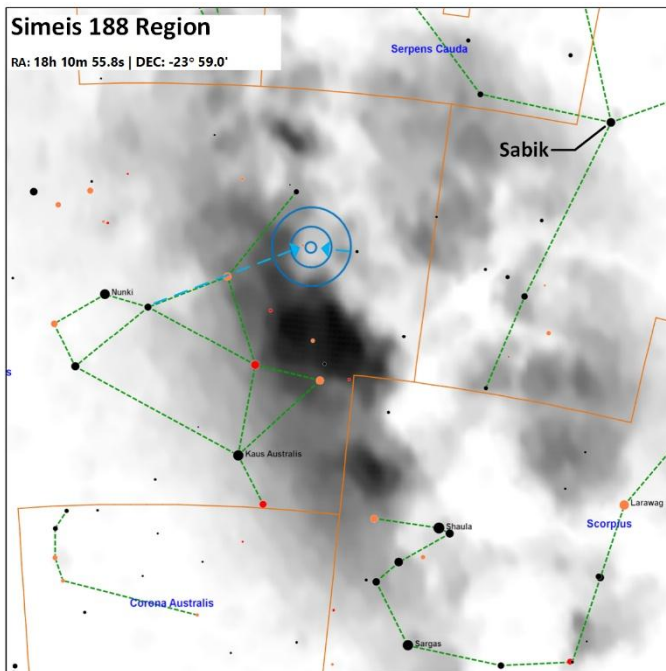
Constellation Guide

Simeis 188 Region (Stellar Nursery) Simeis 188 is a stellar nursery located about 1° east of M8 and centered around the star V3903 Sgr. The name comes from Gaze and Shajn's catalog of galactic emission nebulae, compiled at the Simeiz Observatory in Crimea in the 1950s.

There is some speculation this region along with the Trifid and Lagoon region form one giant molecular cloud in the Sagittarius-Carina arm of the Milky Way. Simeis 188 is estimated to be about 4,800 light years from earth taking up an angular diameter of about 35' x 50' translating to a physical size of about 40 x 60 light years.

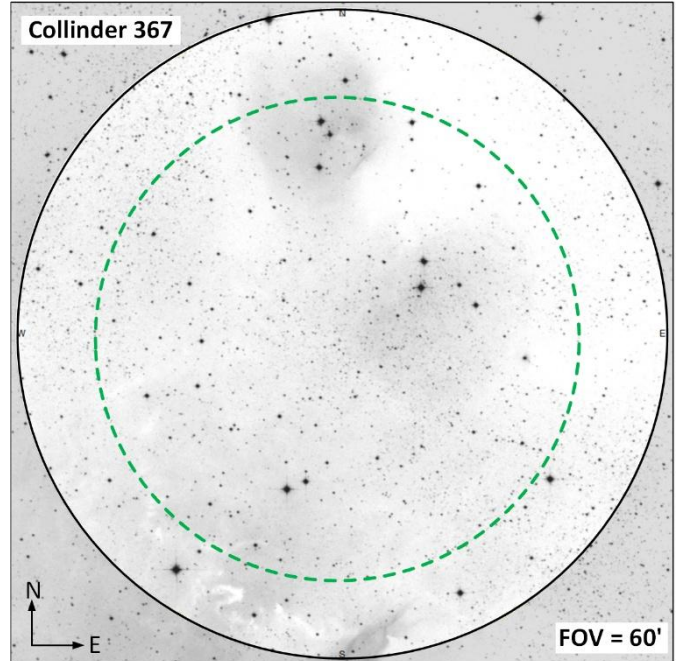
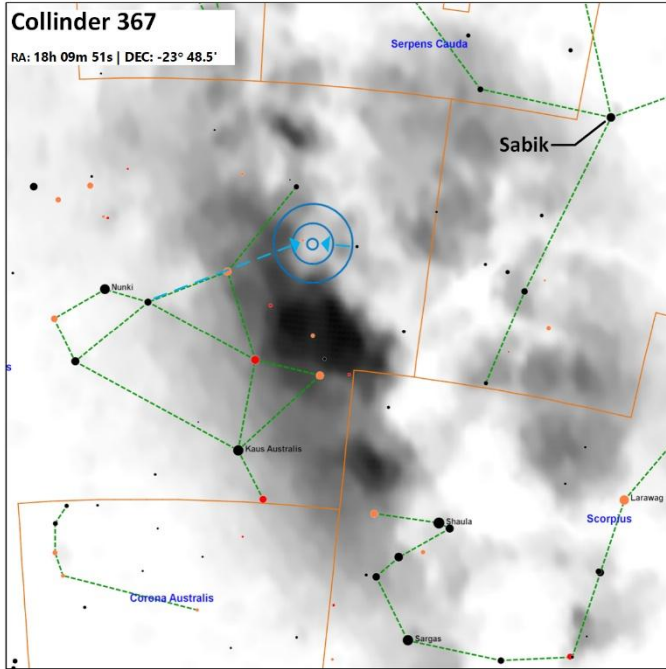
This region contains various objects including Emission Nebulae (IC-4685, NGC-6559, IC-1274, IC-1275), Open Cluster Cr-367 and Dark Nebulae (B-303, B-91).

This region appears rather dimmer than either the Lagoon or the Trifid nebula regions, so will likely require a larger aperture telescope to identify most of the components identified here. As with most emission nebula objects, dark skies, large aperture and filter will maximize your chances of seeing many of these targets.

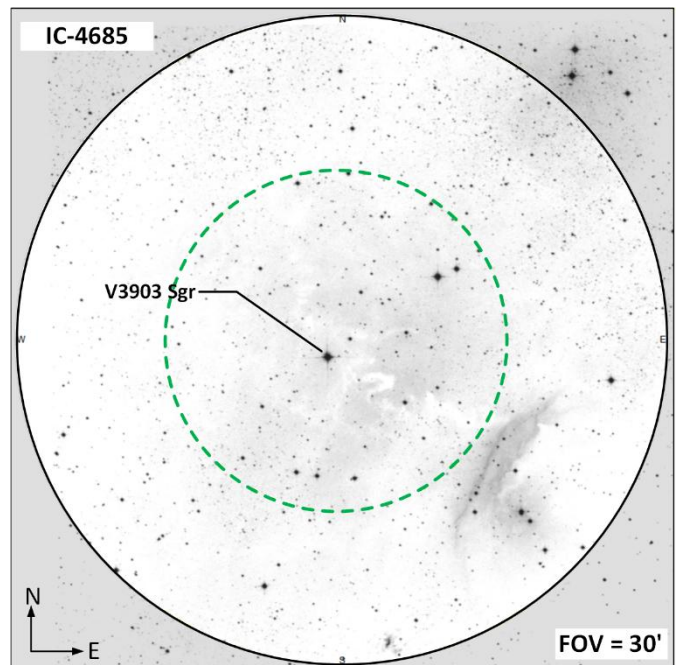
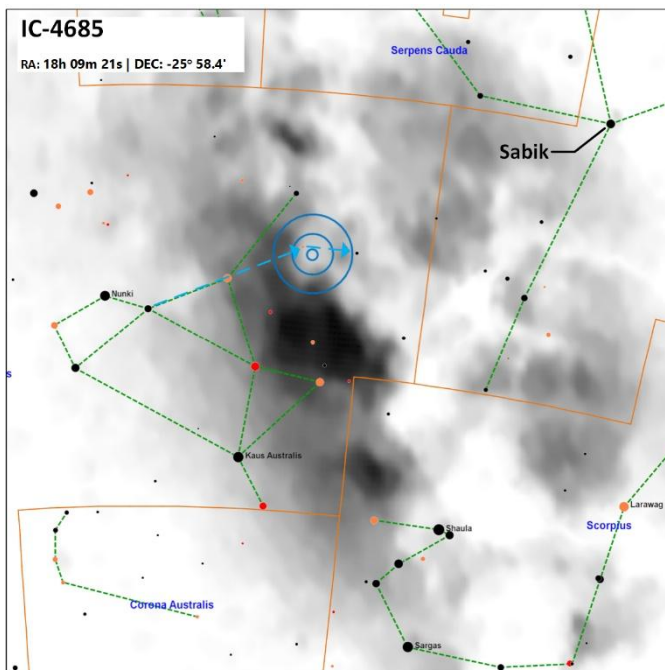


Constellation Guide

Collinder 367 (Type || Mag=6.4 | Size=40' | SB=23.0 | mBortle=9 | mApt=60mm | MC=III3m n |) a loose open cluster located within IC 4685. It's the young stellar population that formed out of the cloud with an estimated age of less than 2 million years old. The Trumpler class is III-Detached cluster with no noticeable concentration, 3-Composed of bright and faint stars, m-Medium rich cluster with 50-100 stars, n-Nebulosity associated with the cluster.

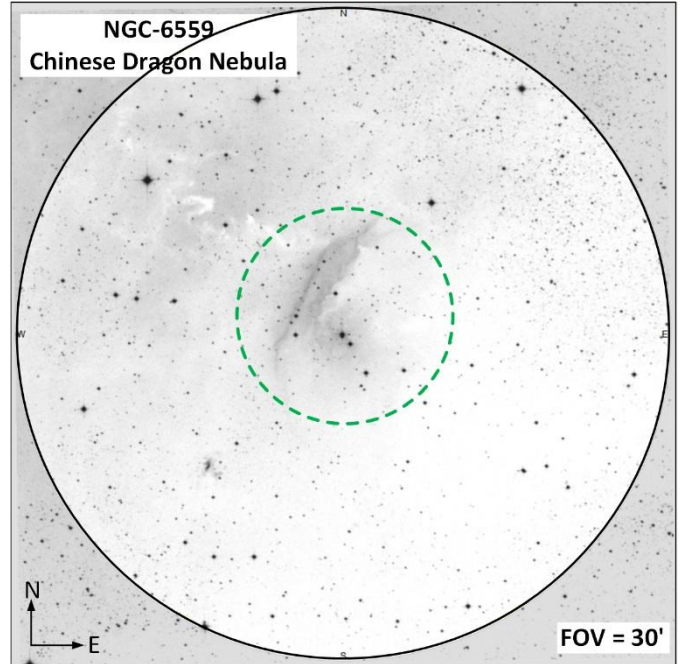
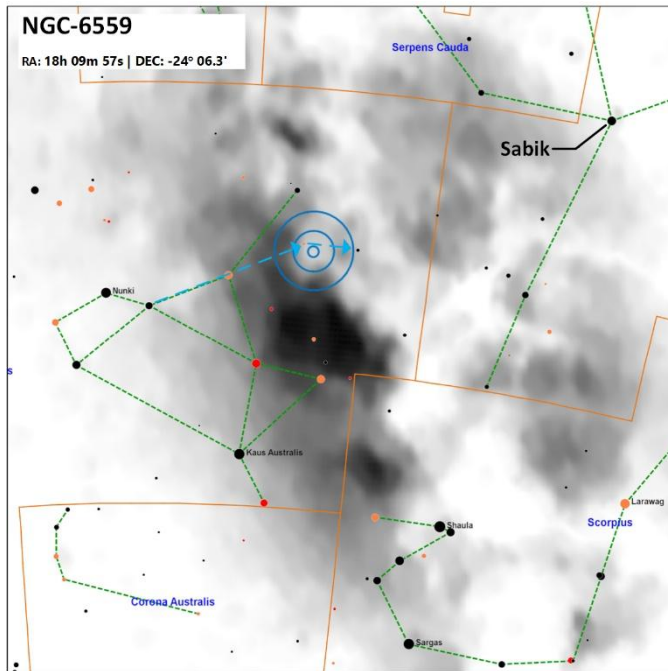


IC-4685 (EN || | Mag=10 | Size=20' | SB=25.1 |) the large diffuse H II region, centered on V 3903 Sgr (HD 165921 / 11 Sgr), an eclipsing binary of two main-sequence O stars that are responsible for energizing this nebula.

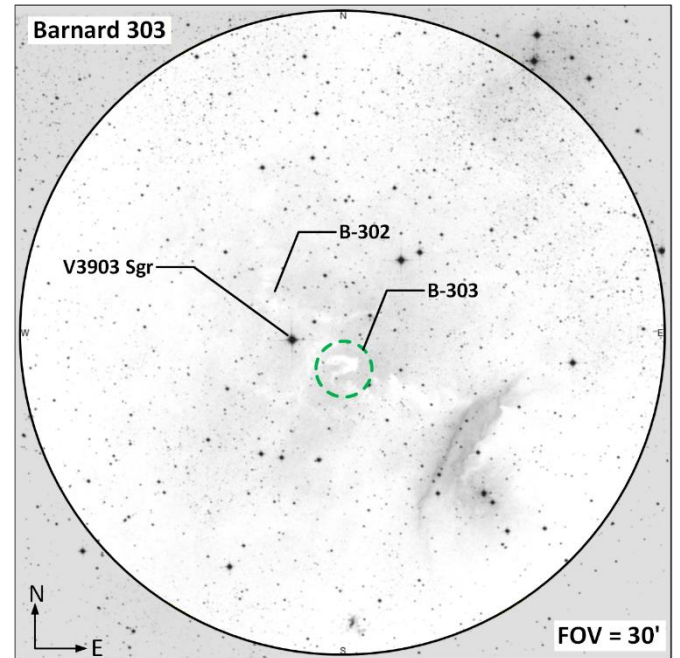
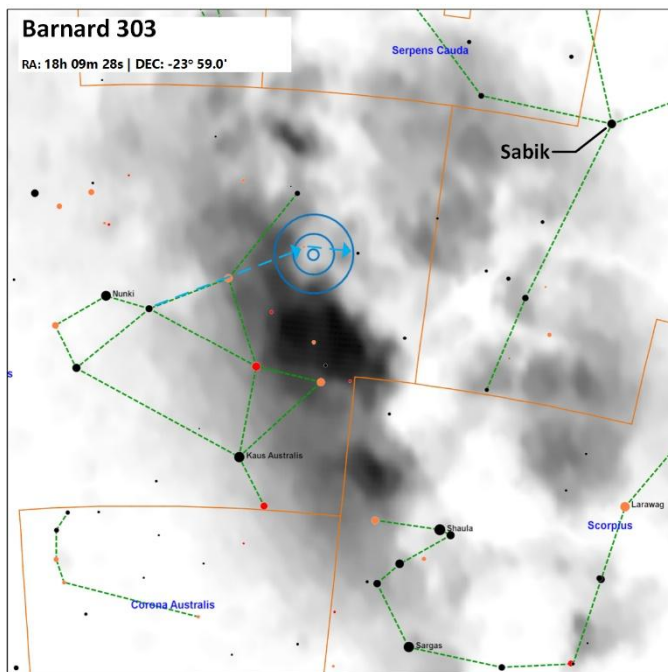


Constellation Guide

NGC-6559 (EN || | Size=8' |) A bright-rimmed cloud on the southeastern edge of IC 4685, with the rim running NE–SW. This is an ionization front eating into a dense clump of gas and dust; the classic signature of triggered star formation. Some recent sources call it the "Chinese Dragon Nebula".

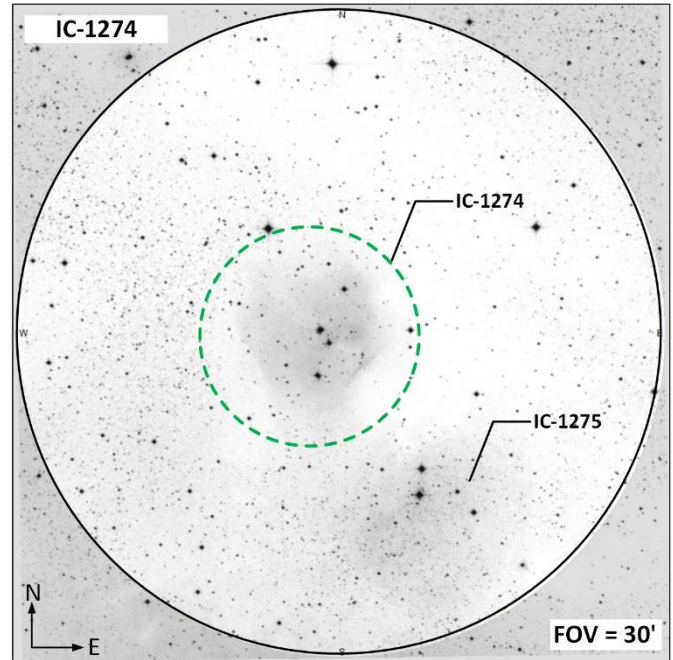
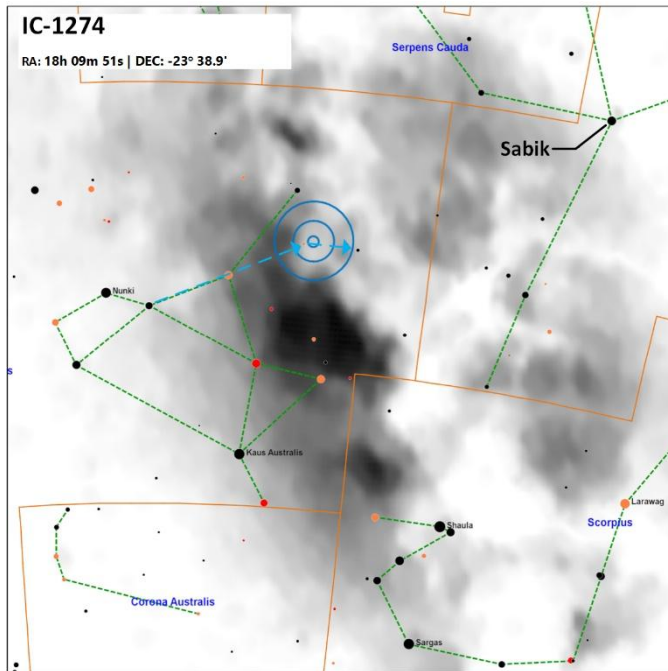


Barnard 303 (DN || | Size=1' | mBortle=? | mApt=250mm | Opacity=5 |) One of two dark nebulae lying in front of IC 4685, just southeast of the star V3903 Sgr (Barnard 302 being the other dark nebula); they appear to be components of a long thin dust lane lying across and in front of the emission nebula. B 303 is described as a serpent-shaped structure.

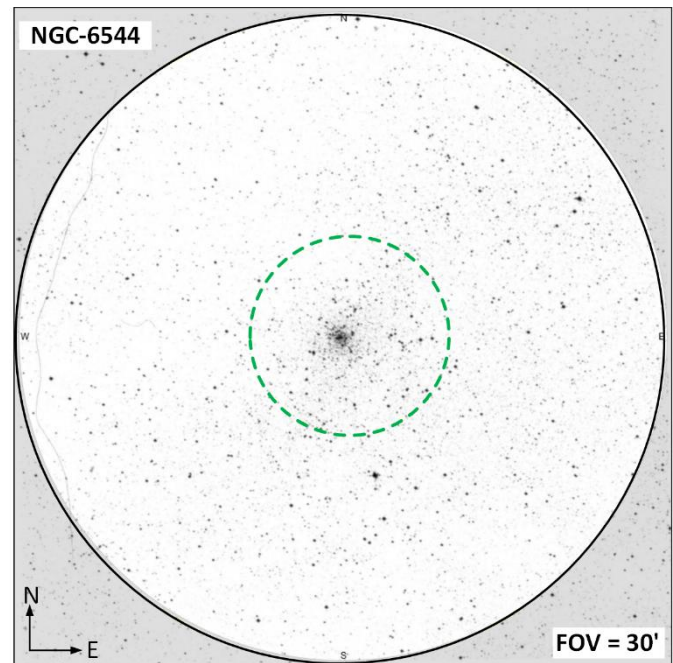
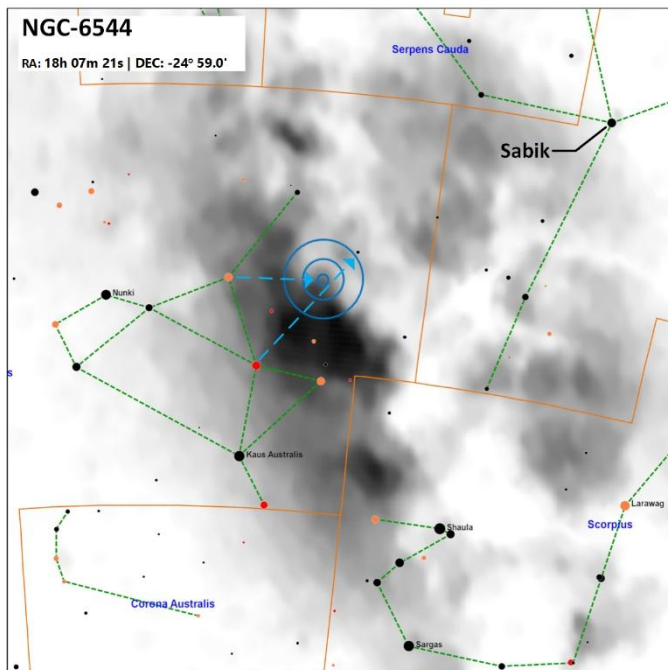


Constellation Guide

IC-1274 (EN || Size=9') A low contrast nebula that may be quite challenging. One report from a dark site is discouraging: at 85× with 400mm aperture the observer saw only a large, featureless, slightly brighter background, with no structure recognizable even with an O III filter.

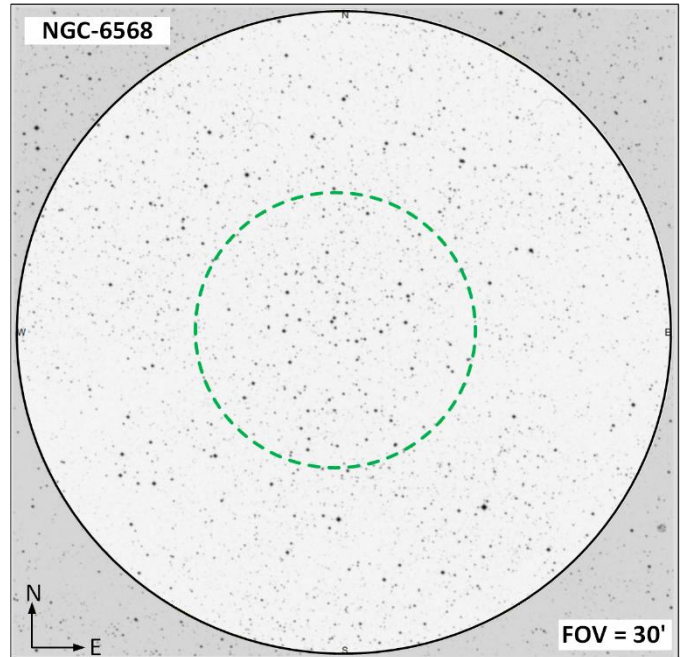
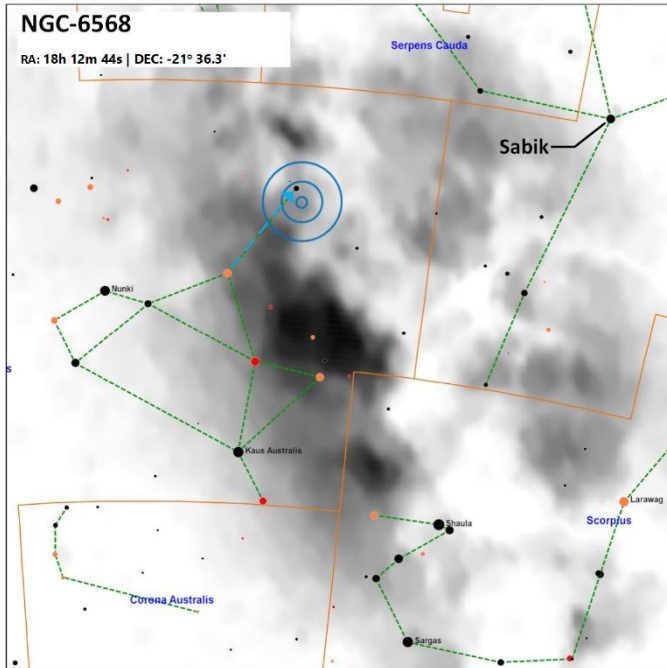


NGC-6544 (GC || Mag=7.8 | Size=9.2' | SB=21.2 | mBortle=9 | mApt=50mm | MC=IX) Located 9,800 light years away with a physical diameter of 26 light years. Classified as IX- Loose towards center.

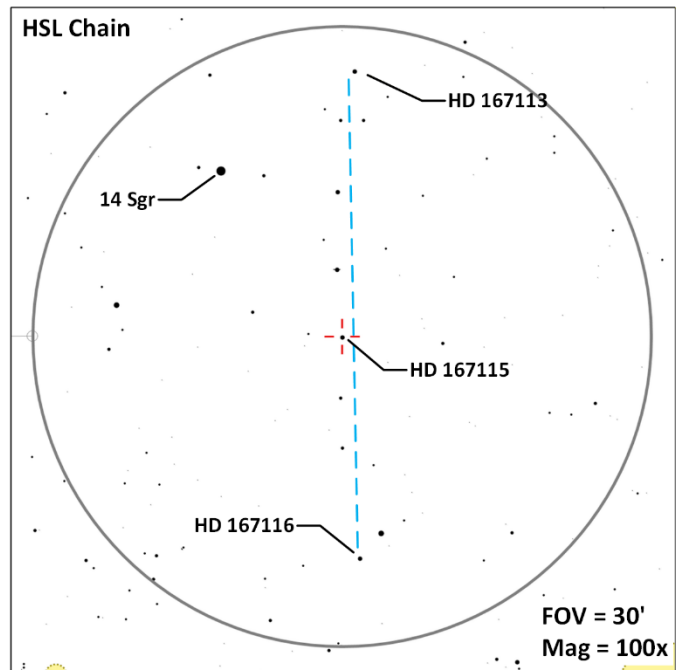
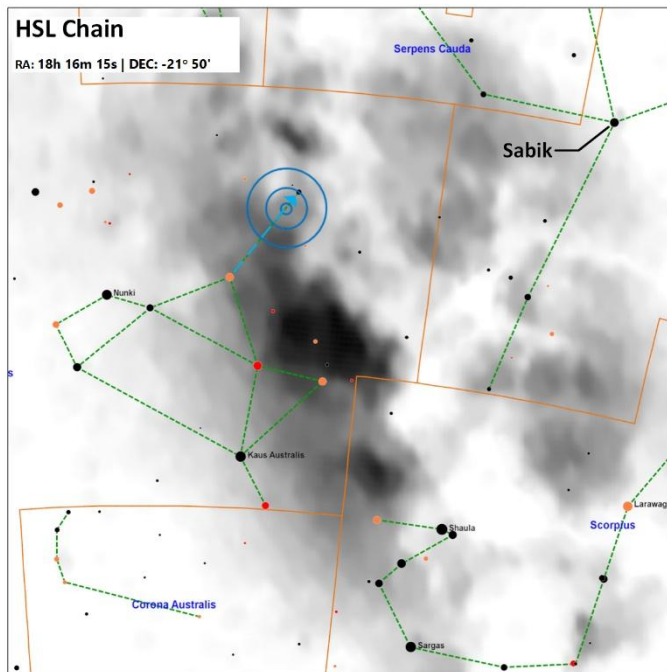


Constellation Guide

NGC-6568 (OC || | Mag=8.6 | Size=12' | SB=22.6 | mBortle=4 | mApt=150mm | MC=IV1m) Located 3,260 light years away with a physical diameter of 11 light years. Trumpler class is IV-Cluster not well detached, but has a strong field concentration, 1-Most of the stars are nearly the same apparent brightness, m-Medium rich cluster with 50 – 100 stars.

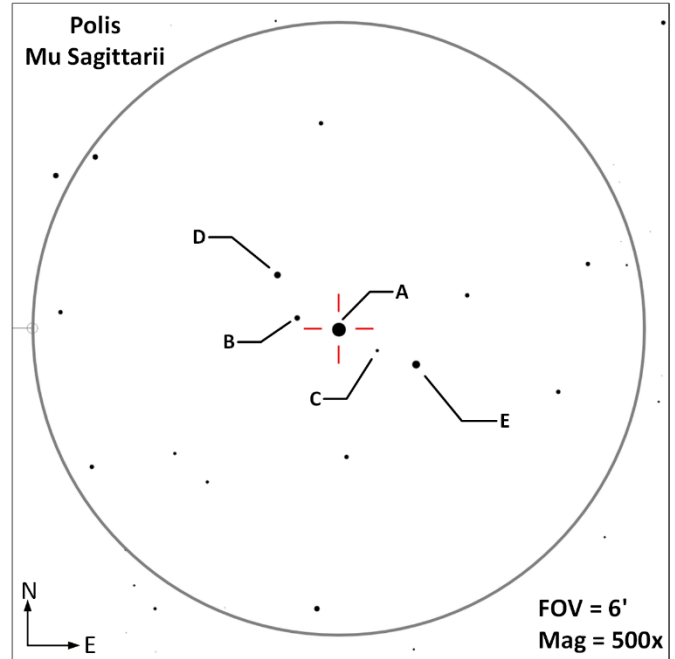
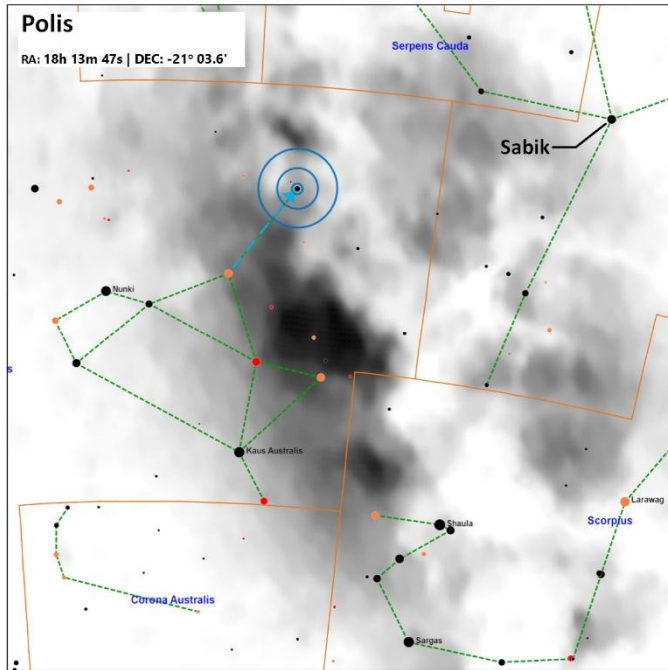


HSL Chain (AS || | Size=30' | Stars = 8 | Centering Star: 14 Sgr; SAO-186509; HIP 89369) A line of 8 nearly equal brightness stars next to 14 Sgr.



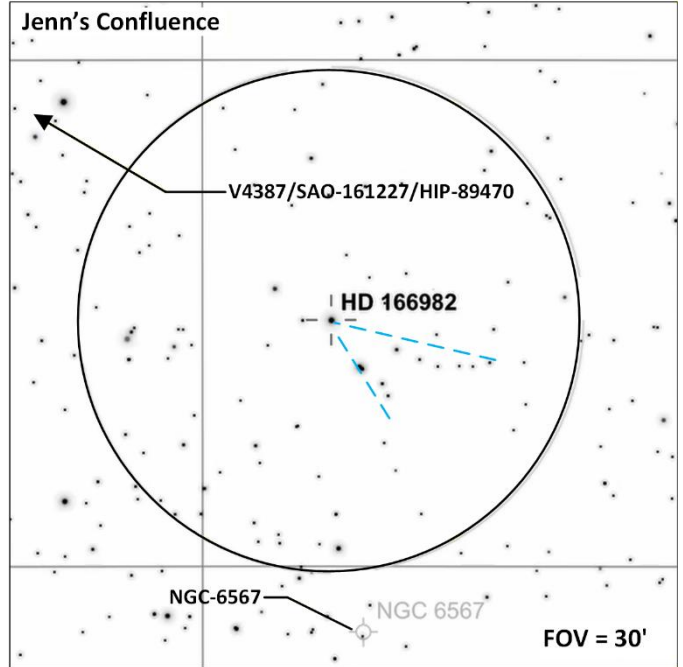
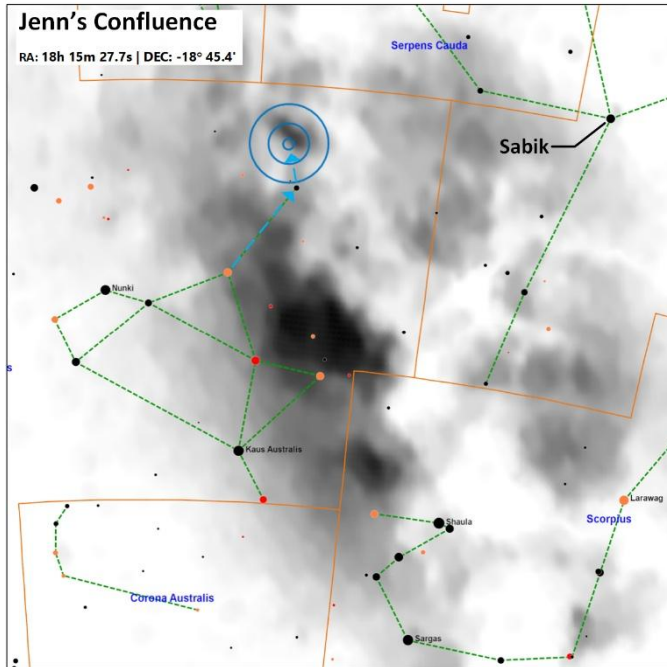
Constellation Guide

Polis (MS-5 || **AB** | Mag=3.9,10.5 | Sep=16.9" | PA=257° | mBortle=9 | mApt=60mm | Spec=B8Iap, B9III | Color=blue-white, blue-white || **AC** | Mag=3.9,12.8 | Sep=25.5" | PA=119° | mBortle=3 | mApt=180mm | Spec=B8Iap, A3V | Color=blue-white, blue-white || **AD** | Mag=3.9,10 | Sep=48.2" | PA=312° | mBortle=9 | mApt=50mm | Spec=B8Iap, B2IV | Color=blue-white, blue-white || **AE** | Mag=3.9,9.2 | Sep=50.2" | PA=114° | mBortle=9 | mApt=50mm | Spec=B8Iap, B2.5V | Color=blue-white, blue-white || **BD** | Mag=10.5,10 | Sep=40.8" | PA=330° | mBortle=9 | mApt=60mm | Spec=B9III, B2IV | Color=blue-white, blue-white || **BE** | Mag=10.5,9.2 | Sep=64.4" | PA=105° | mBortle=9 | mApt=60mm | Spec=B9III, B2.5V | Color=blue-white, blue-white |) This multiple star system seems to be composed of stars that are not physically associated with each other, but may have common origins.

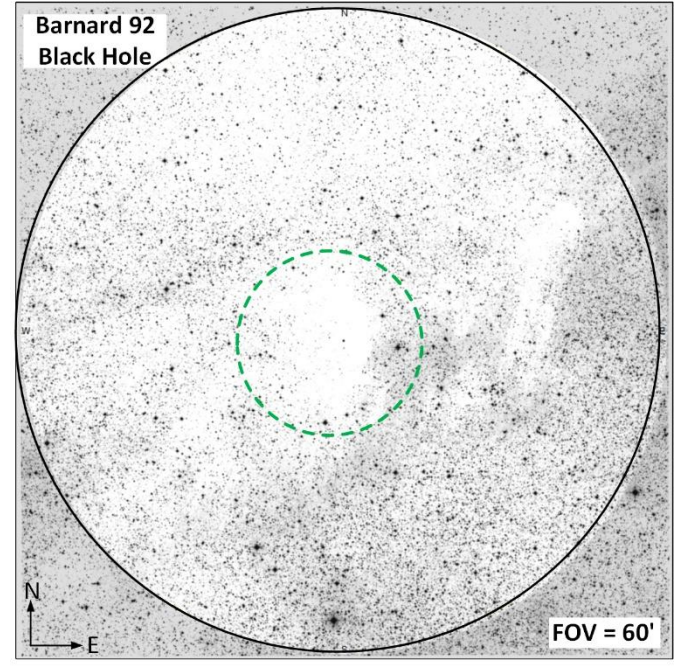
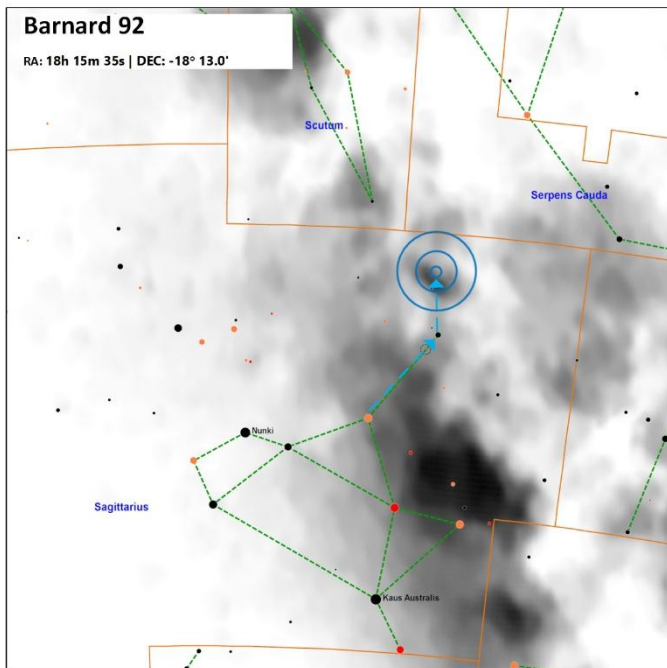


Constellation Guide

Jenn's Confluence (AS || | Size=15' | Centering Star: HD 166982 |) A merging of two rows of arching stars. Closest star with SAO/HIP number: V4387 Sgr; SAO-161227; HIP-89470. Just about 30' from the asterism.

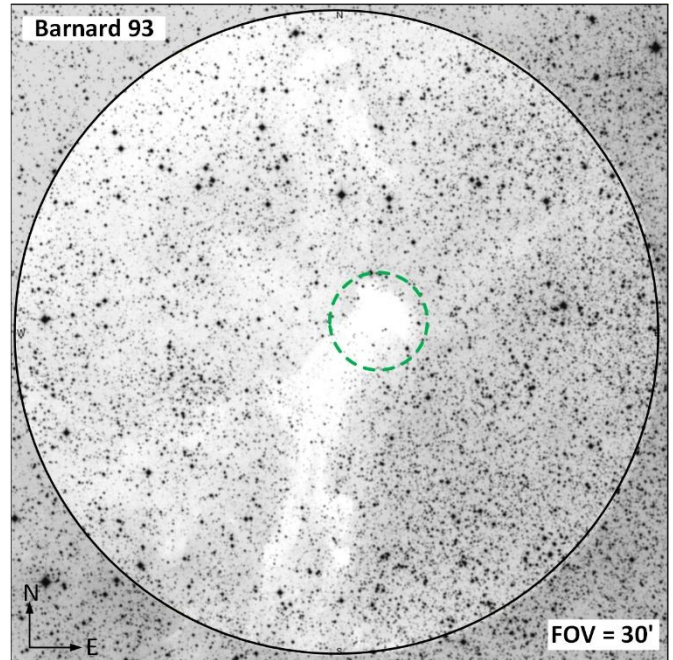
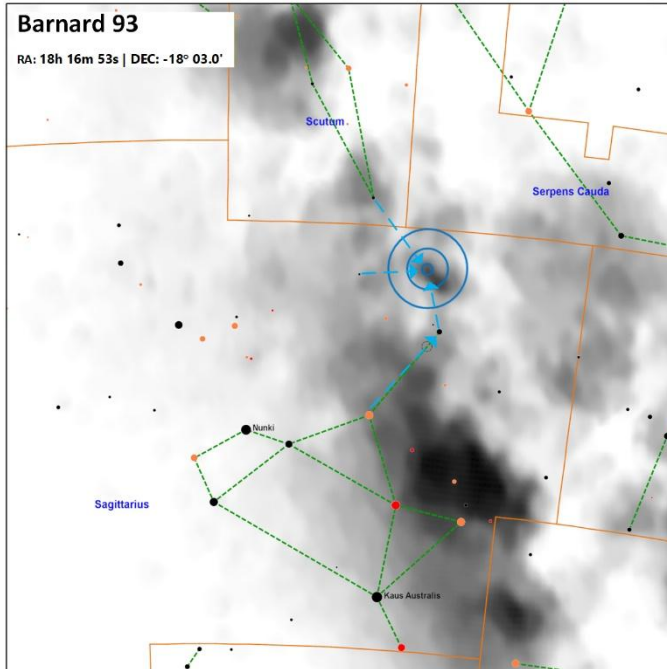


Barnard 92 (DN || | Size=12' | mBortle=4 | mApt=50mm | Opacity=6 |) Catalogued in 1913 and given the name Black Hole, this name is a bit misleading with today's definition of what a black hole is. B-92 and B93 may be a good pair to view with 7x50 binoculars.

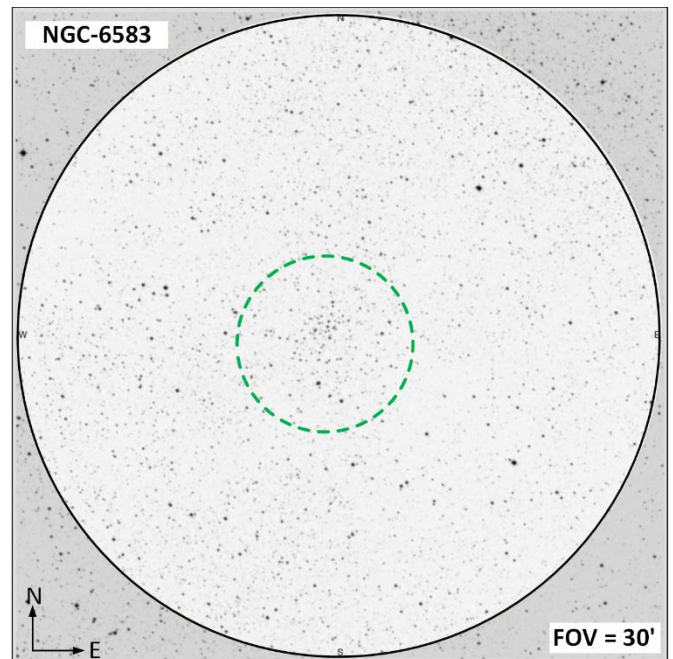
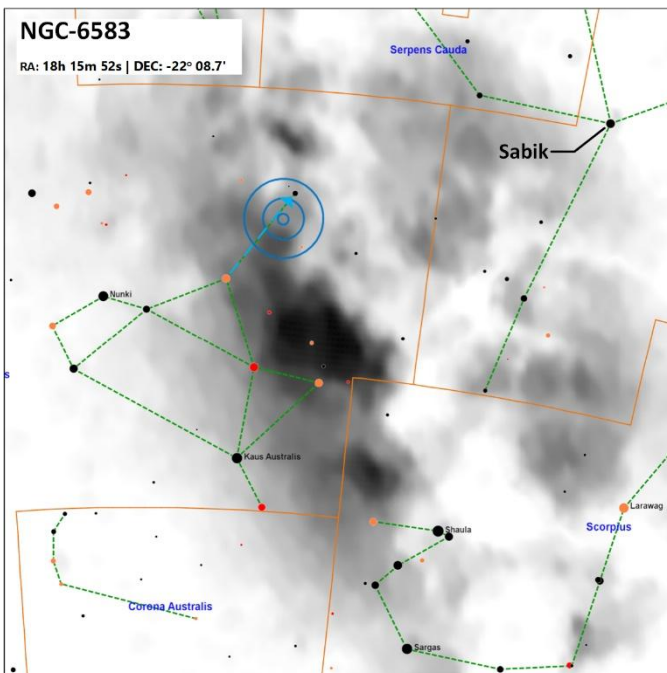


Constellation Guide

Barnard 93 (DN || | Size=2' | mBortle=4 | mApt=114mm | Opacity=4 |) Another dark Nebula. B-92 and B93 may be a good pair to view with 7x50 binoculars.



NGC-6583 (OC || Mag=10 | Size=5' | SB=22.1 | mBortle=? | mApt=300mm | MC=I2m |) Located 6,650 light years away with a physical diameter of 10 light years. Trumpler Class = I-Detached with strong central concentration, 2-Medium range of brightness between stars in the cluster m-Medium rich cluster with 50-100 stars.

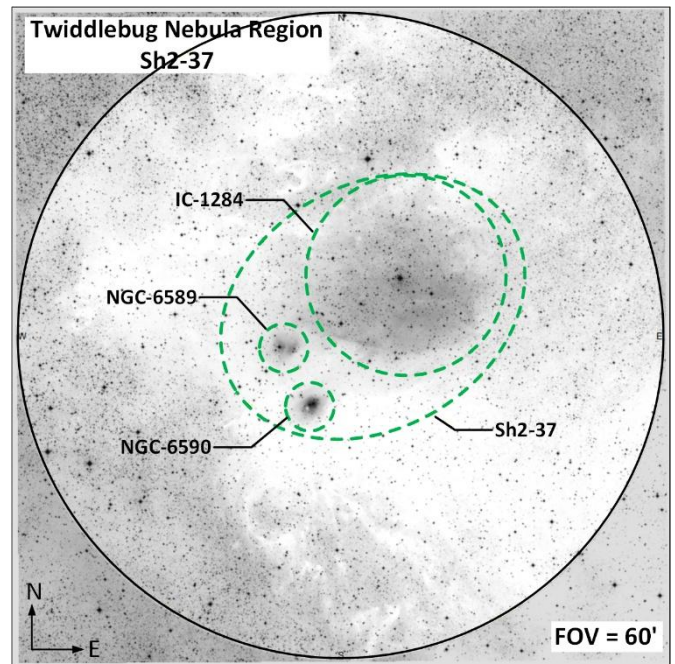
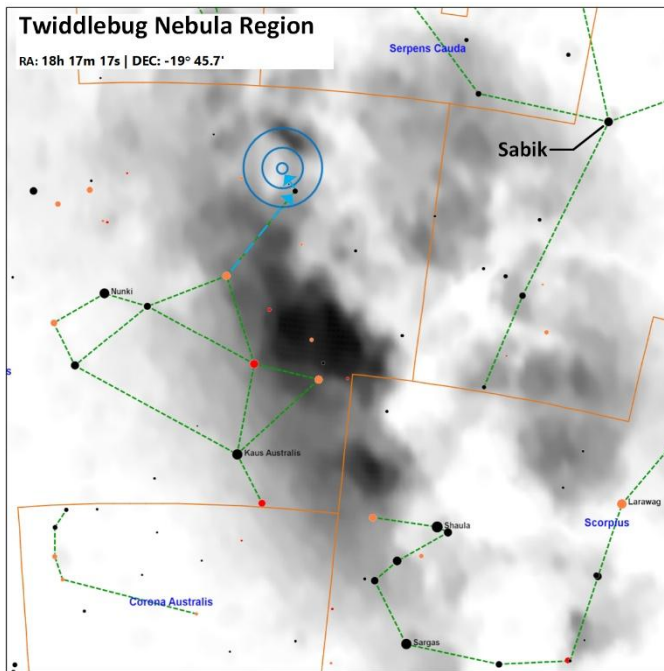


Constellation Guide

SH2-37 Twiddlebug Nebula is a star-forming complex, roughly 5,800 to 5,900 light years away and contains two reflection nebulae, a larger emission nebula and an open cluster.

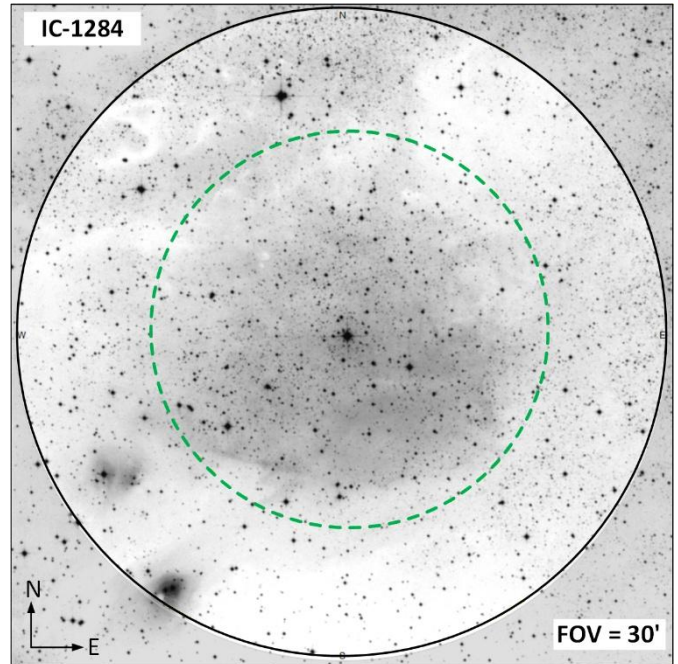
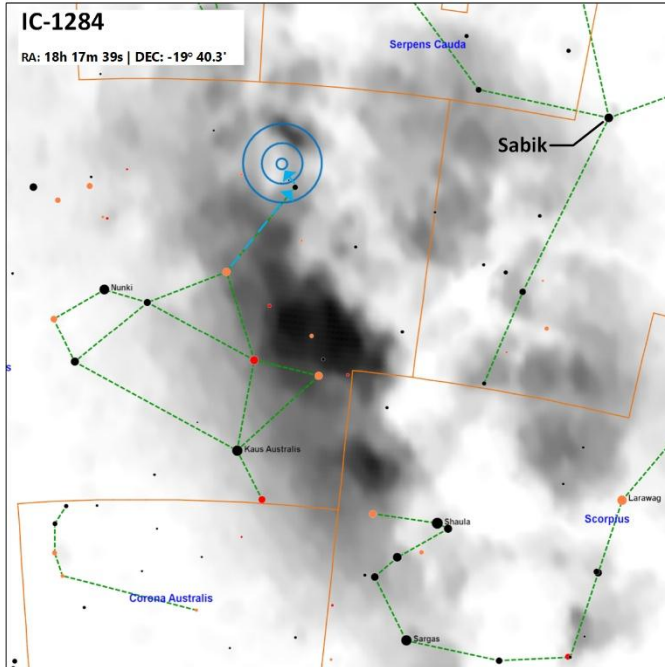
There does seem to be some confusion as to identification of some to the objects in the Twiddlebug Nebula, apparently John Herschel first observed NGC-6595, then the same object was listed later by Dreyer as NGC-6590 and the same object received yet another designation later as IC-4700. Various references interlace these numbers, and the exact coordinates of each of these designations vary slightly adding to the confusion.

This complex may be an interesting target for large aperture binoculars.

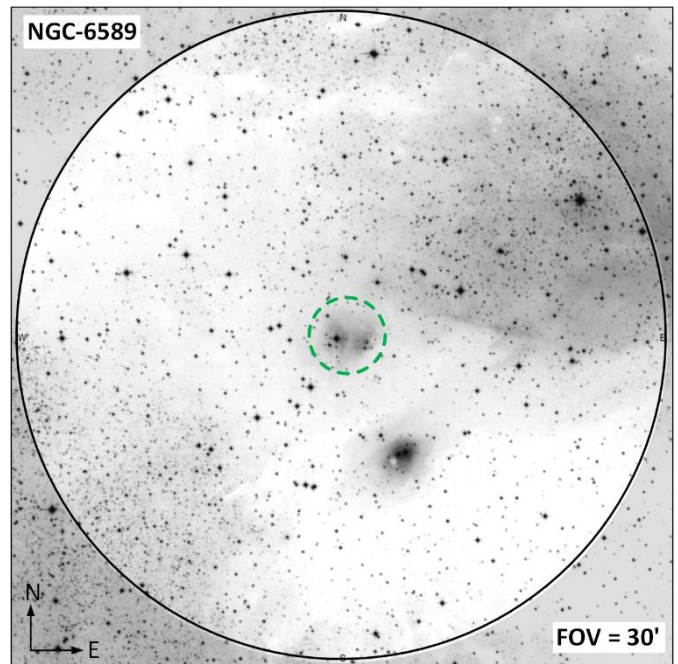
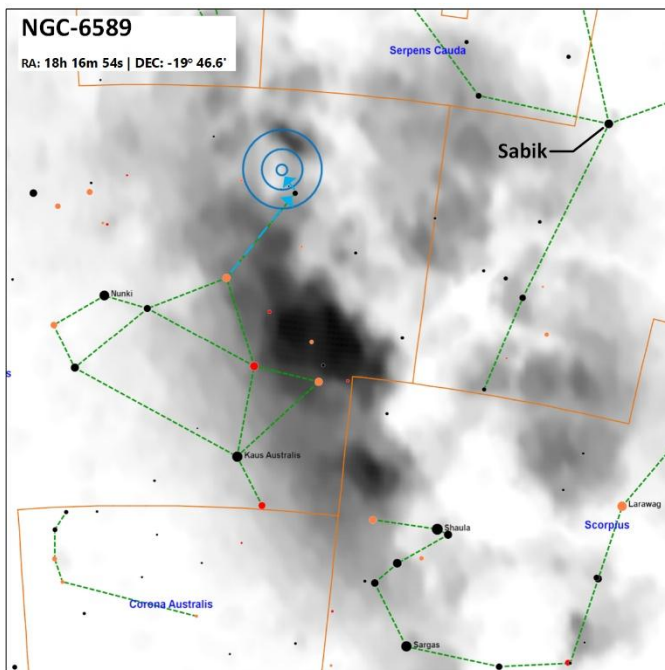


Constellation Guide

IC-1284 (EN || Size=10') Located 5,545 light years away with a physical diameter of 27 light years and part of the star forming complex known as the Twiddlebug Nebula.

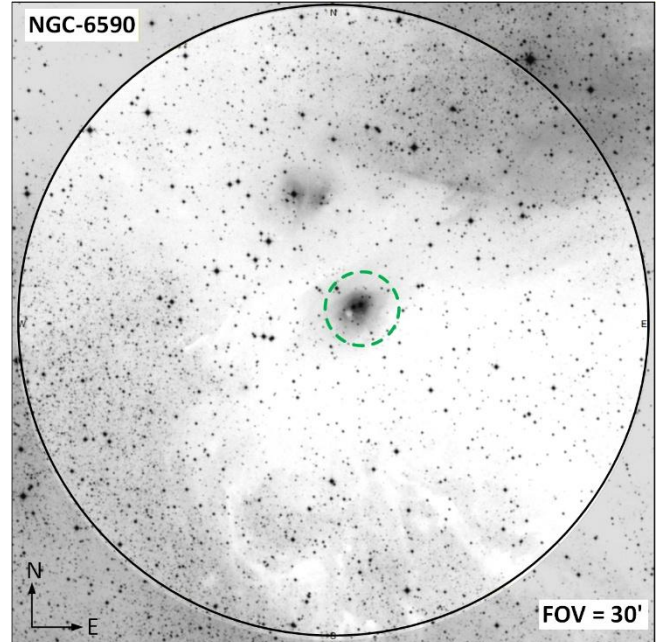
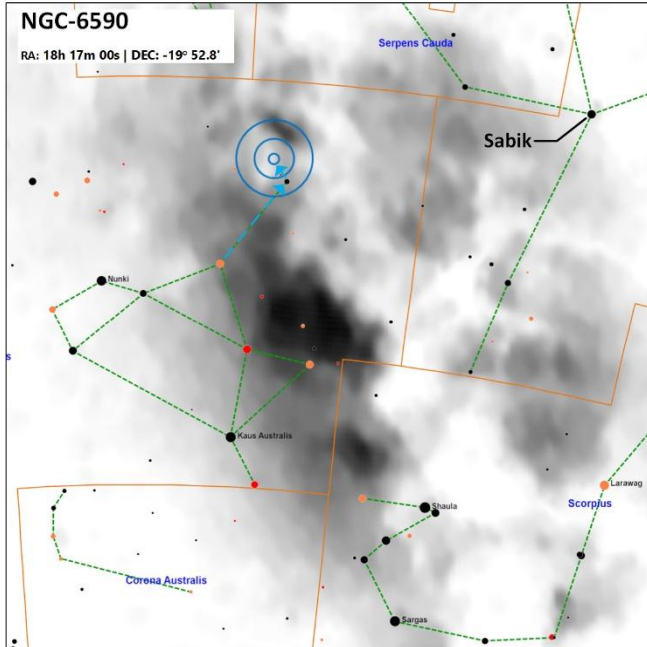


NGC-6589 (EN || Size=5') Located 5,900 light years away and part of the star forming complex known as the Twiddlebug Nebula.

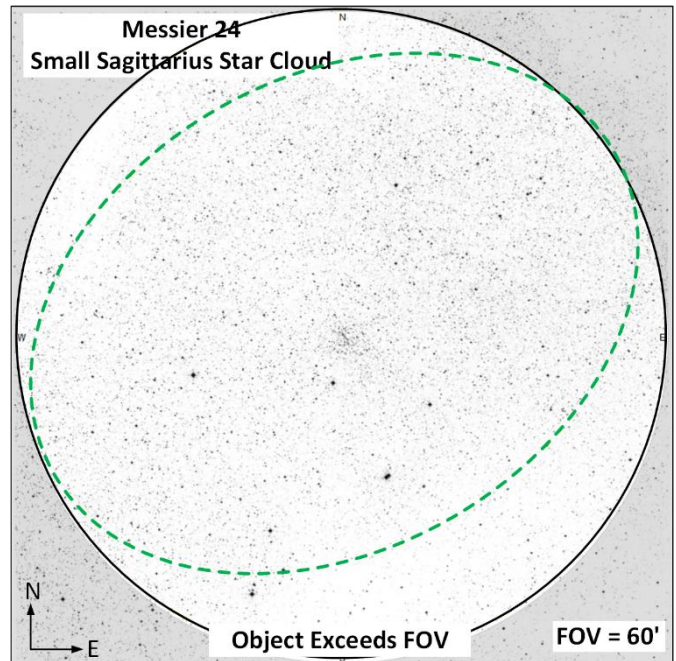
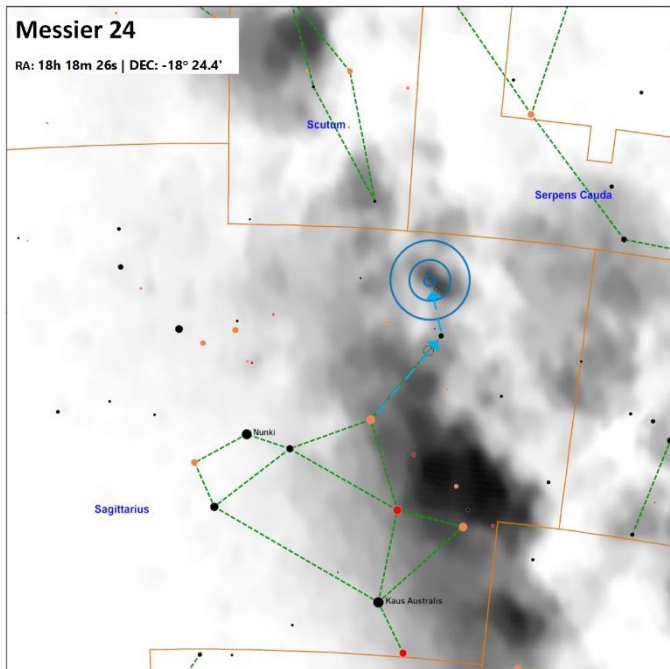


Constellation Guide

NGC-6590 (RN, OC || Mag=7 | Size=4'x2' | SB=17.9 | mBortle=9 | mApt=70mm | MC=III3m n |) This reflection nebula seems to also include the Open cluster associated with the Twiddlebug Nebula. Trumpler class of the open cluster is III-Detached cluster with no noticeable concentration, 3-Composed of bright and faint stars, m-Medium rich with 50-100 stars, n-Nebulosity associated with cluster. This object is a duplicate entry of NGC-6595.

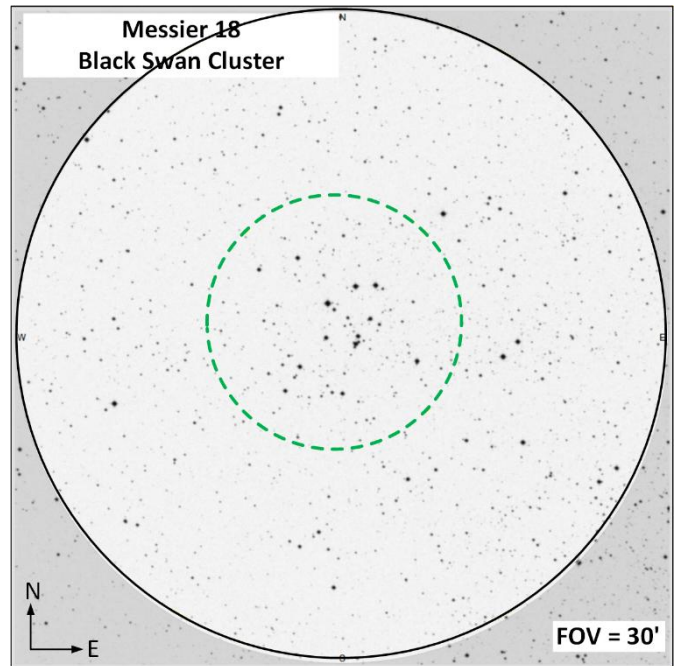
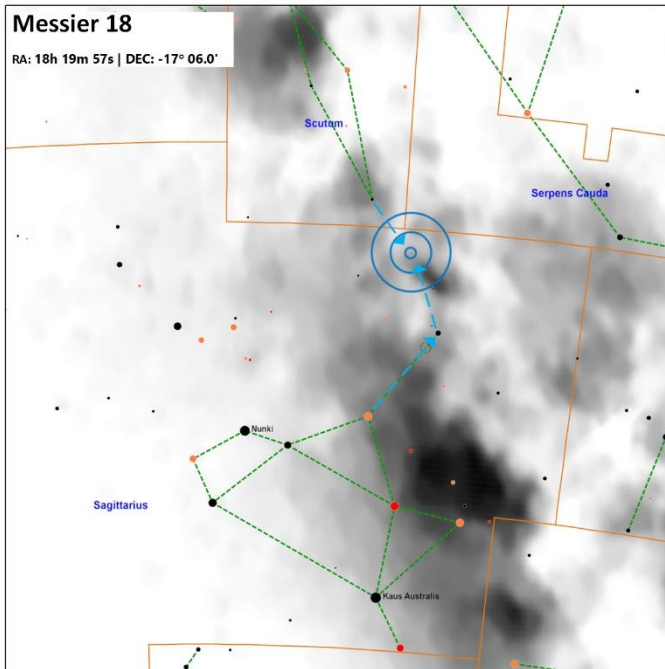


Messier 24 (OC || Mag=4.5 | Size=80'x35' | SB=21.7 | mBortle=9 | mApt=50mm | MC=I1r |) The Small Sagittarius Star Cloud is a star cloud about 600 light years wide. M-24 is not a distinct open cluster, but a gap in the [Great Rift](#) where one can see into deeper regions of the Milky Way galaxy and is a dense concentration of individual stars best seen in low magnifications with binoculars.

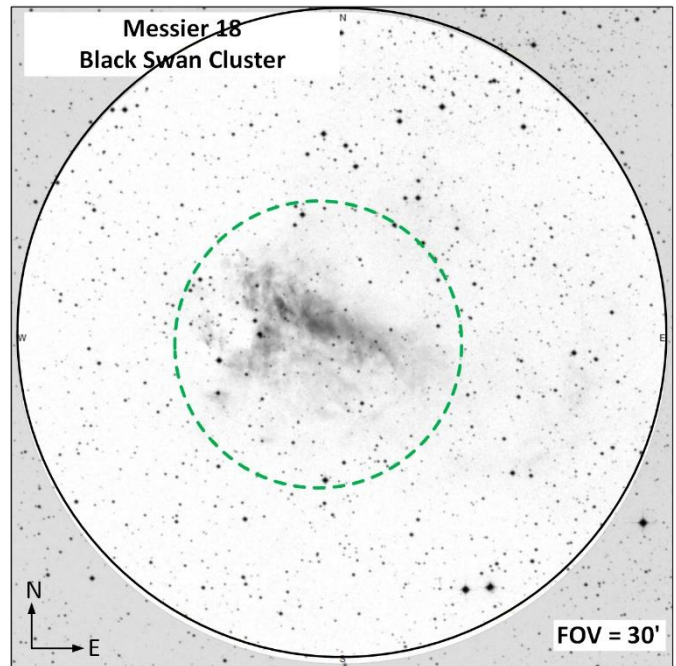
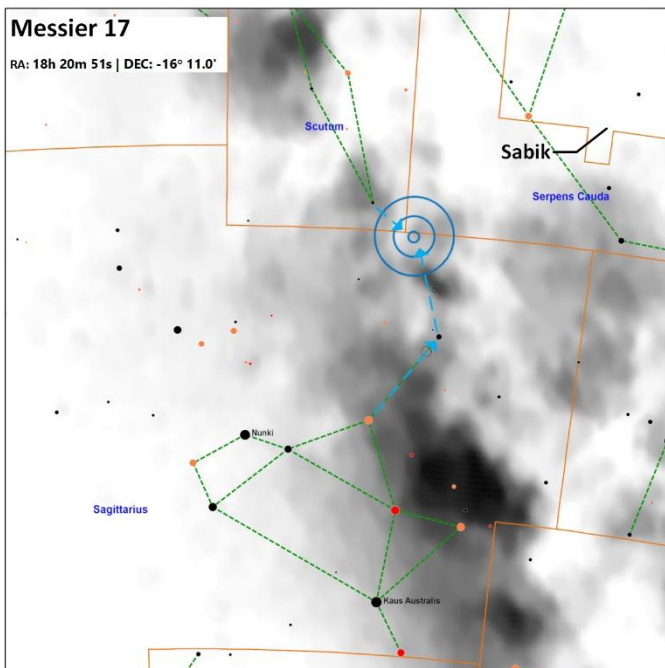


Constellation Guide

Messier 18 (OC || Mag=6.9 | Size=9' | SB=20.3 | mBortle=9 | mApt=70mm | MC=II3p n |) The Black Swan Cluster is a sparse cluster located 4,230 light years from earth with an estimated age of 33 million years. Trumpler classification is II-Detached with little central concentration, 3-Composed of bright and faint stars, p-Poor cluster with less than 50 stars, n-Nebulosity associated with cluster

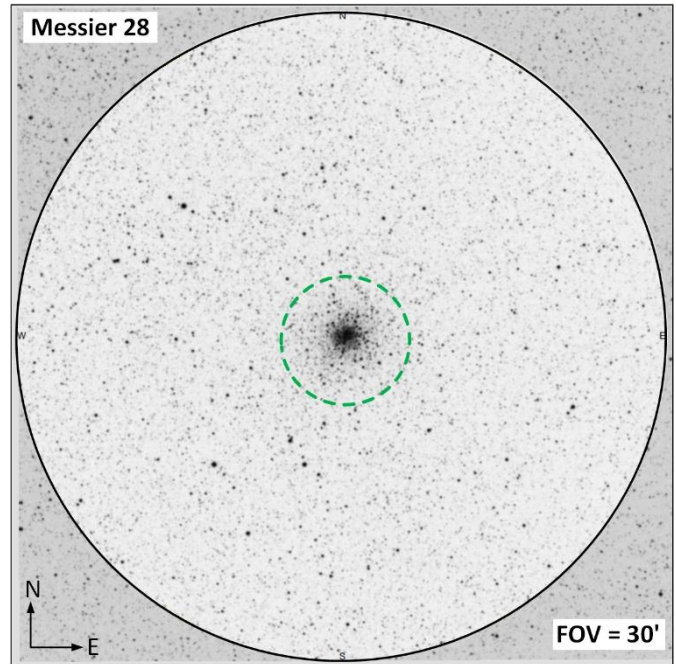
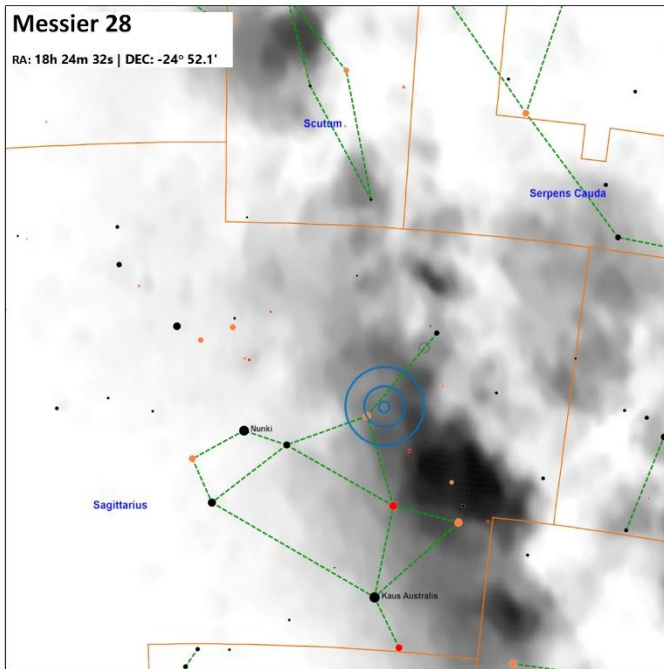


Messier 17 (OC, EN || Mag=6 | Size=11' | SB=19.8 | mBortle=9 | mApt=50mm | MC=III3m n |) The Omega Nebula is a H II region located 5,500 light years away with a diameter of 40 light years and an estimated mass of 30,000 solar masses. This is considered one of the brightest and most massive star-forming regions of our galaxy and has a similar geometry to the Orion Nebula except that it is viewed edge-on rather than face-on.

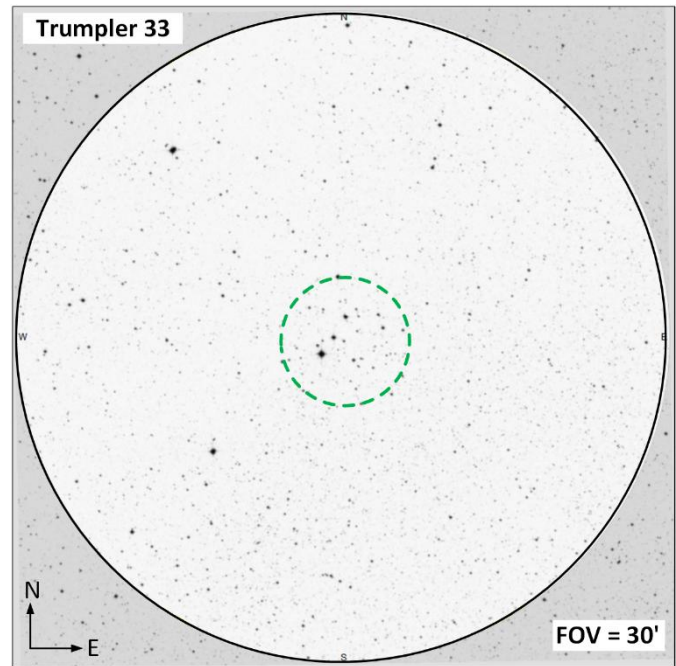
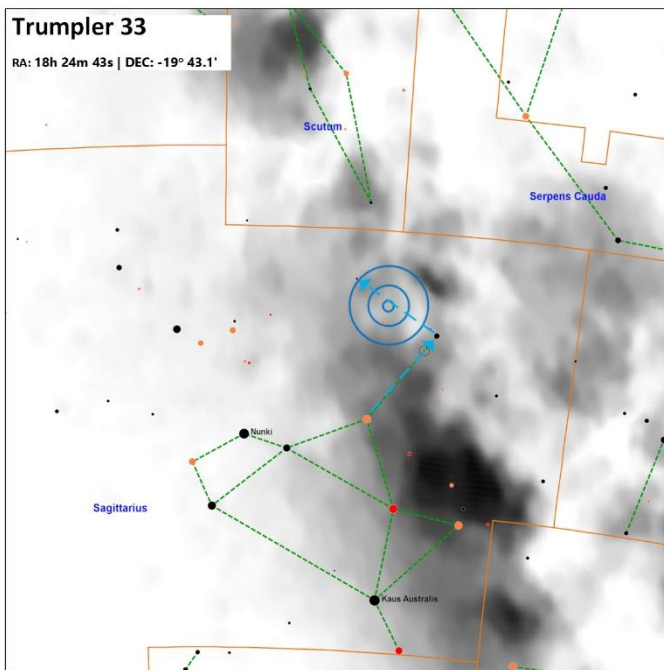


Constellation Guide

Messier 28 (GC || Mag=6.8 | Size=12' | SB=20.8 | mBortle=9 | mApt=50mm | MC=IV |) Located 18,300 light years from earth with an estimated age of 12 billion years. Shapley-Sawyer Concentration Class IV-Intermediate rich concentration.

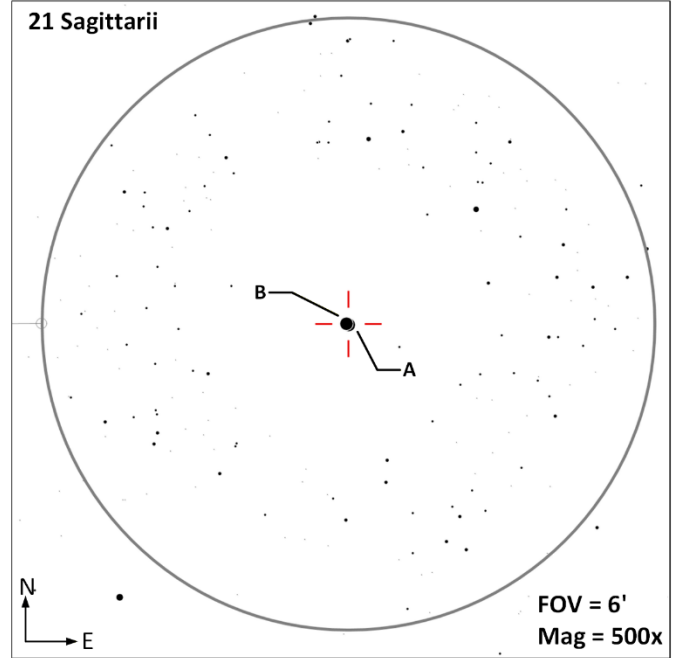
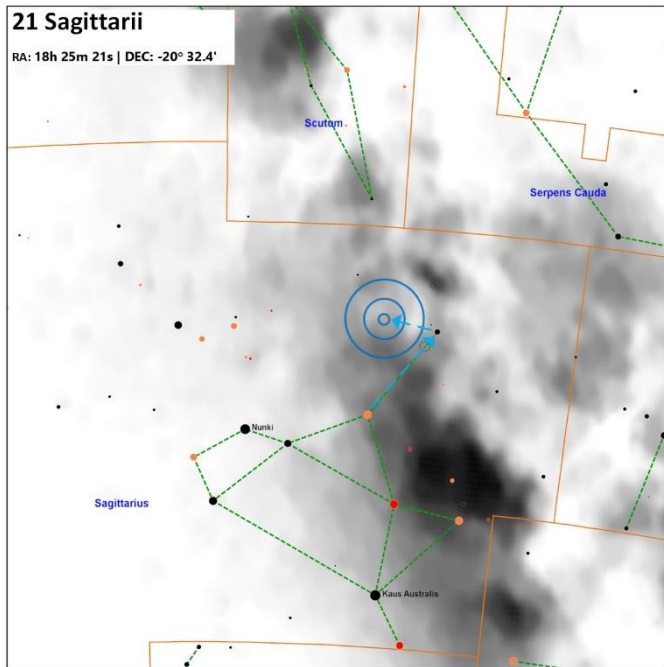


Trumpler 33 (OC || Mag=7.8 | Size=5.5' | SB=20.1 | mBortle=9 | mApt=102mm | MC=II2p |) Located 5,700 light years away with a physical diameter of 8 light years. Trumpler classification is II-Detached with little central concentration, 2-Medium range of brightness between stars in cluster, p-Poor cluster with less than 50 stars.

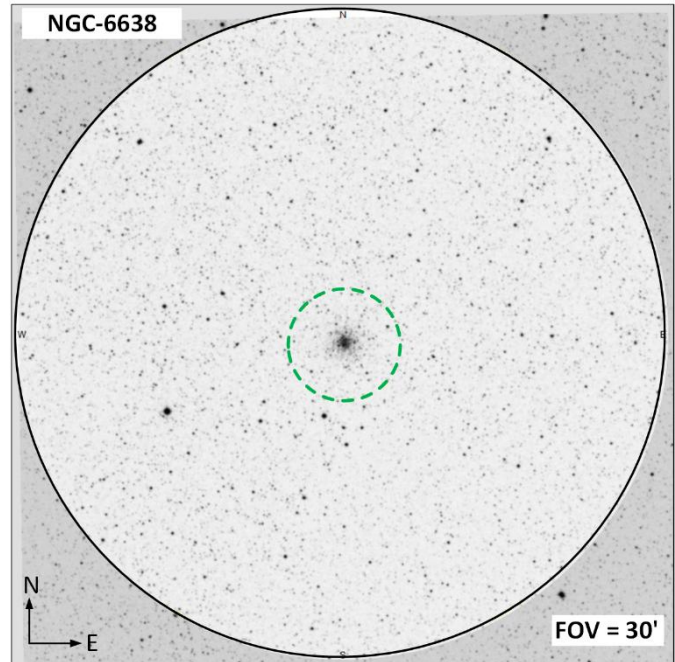
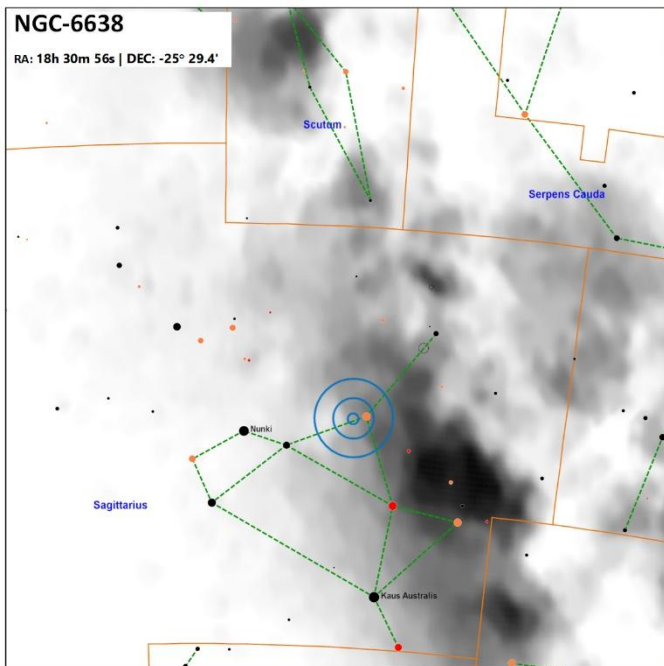


Constellation Guide

21 Sagittarii (DS || AB | Mag=5,7,4 | Sep=1.6" | PA=279° | mBortle=9 | mApt=102mm | Spec=K2 II, A5: | Color=orange, white |) Located 410 light years away this double can be a challenge for medium size telescopes. When it can be resolved colors of an Orange primary component and a bluish or green secondary are reported.



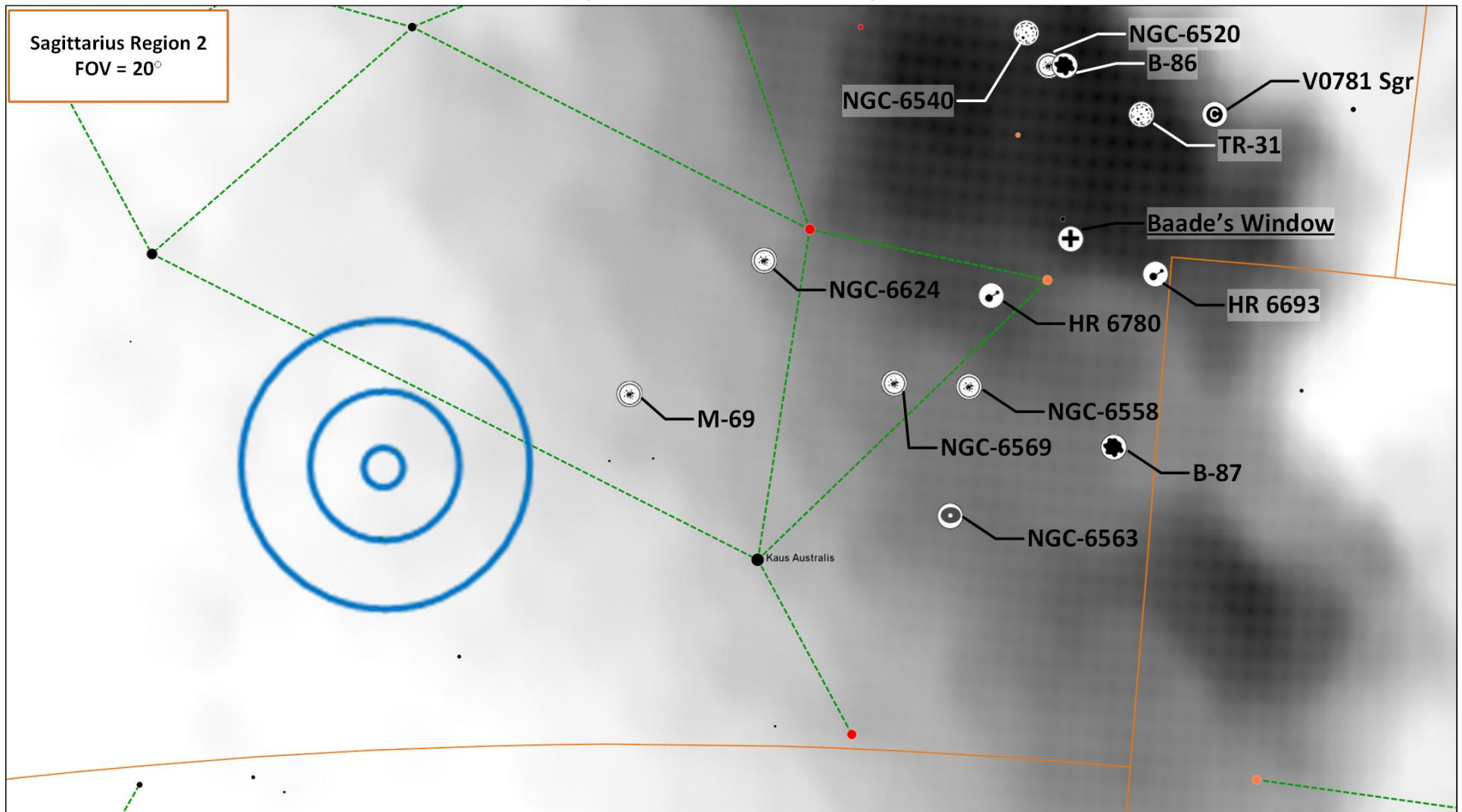
NGC-6638 (GC || | Mag=9 | Size=7.3' | SB=21.9 | mBortle=6 | mApt=50mm | MC=VI |) Located 31,000 light years away with a physical diameter of 65 light years. Shapley-Sawyer Concentration Class VI-Intermediate mild concentration.



Blank

Constellation Guide

Region 2: Constellation Targets

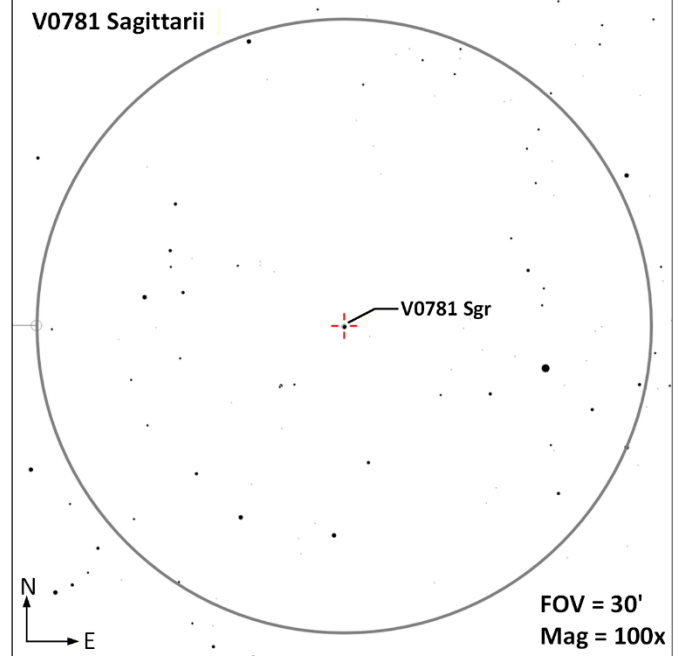
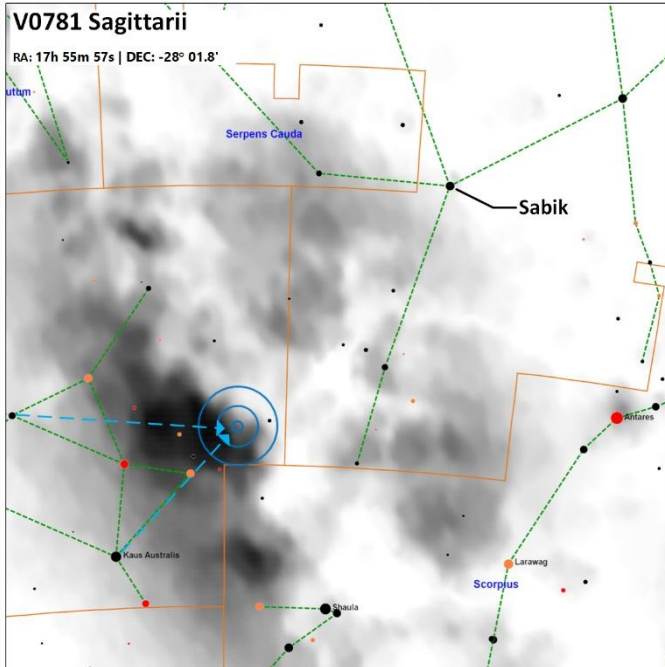


Constellation Guide

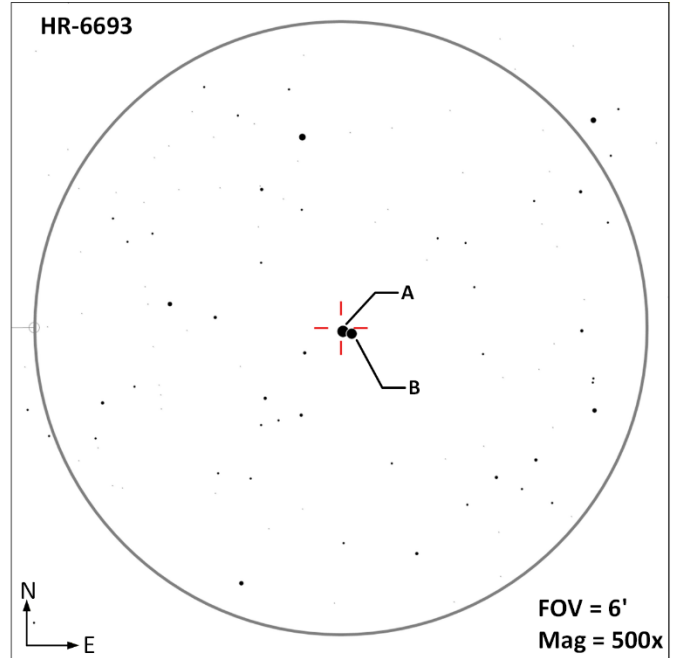
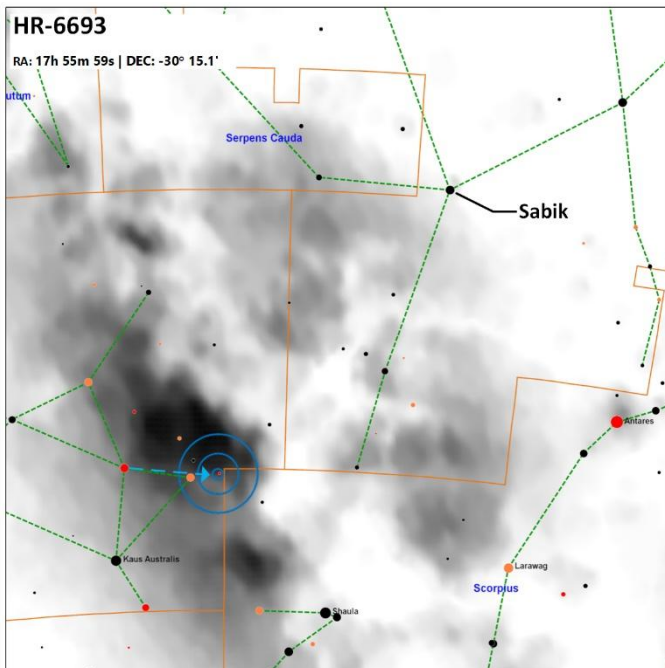
Object (Type)	Links	Gear	Aliases	Stats
V0781 Sgr (CS)		B, T	HD 316667; TYC 6849-115-1; V781 Sagittarii; GCVS720781	Magnitude Range= 12.5 to 14 Color=red
HR-6693 (DS)	1	T	SAO-209553; HIP 88060; HD 163755; HR 6693; CD-3015035; WDS17591-3015; Piazzzi 6; PZ6; NSV9929	AB Mag=5.4,7 Sep=5.9" PA=104° mBortle=9 mApt=50mm Spec=M1Ib, G8II Color=orange-red, yellow
Trumpler 31 (OC)		T	Cr 357; Collinder 357; C1756-281; Lund 798; OCl 9; OCl 9.0	Mag=9.8 Size=8' SB=22.9 mBortle=? mApt=250mm MC=III1p
Barnard 86 (DN)	1	T	B 86; LDN 93; CB 107; Ink Spot	Size=4' mBortle=4 mApt=200mm Opacity=5
NGC-6520 (OC)	1	T	Cr 361; Mel 187; C1800-279; OC! 10; OCL 10; Lund 805; Mrk 35; Raab 127; vdB-Ha 255; Collinder 361;	Mag=7.6 Size=3' SB=18.6 mBortle=9 mApt=102mm MC=I2m
Baade's Window				
• NGC-6522 (GC)	1	T	GCL 82; vdB-Ha 256; C1800-300; ESO 456-SC43	Mag=8.3 Size=9.4' SB=21.8 mBortle=7 mApt=50mm MC=VI
• NGC-6528 (GC)	1	T	GCL 84;vdB-Ha 257; EQ 1801-300; C1801-300; ESO 456-SC48	Mag=9.6 Size=5' SB=21.7 mBortle=6 mApt=50mm MC=V
Barnard 87 (DN)		T	B 87; LDN 1771; Parrot's Head Nebula	Size=12' mBortle=4 mApt=200mm Opacity=4
NGC-6540 (GC)	1	T	Collinder 364; Cr 364; Lund 808; OCl 11; C1803-278; Djorg 3; Djorgovski 3;	Mag=9.3 Size=1.5' SB=18.8 mBortle=9 mApt=50mm MC=XI
HR-6780 (DS)	1	T	SAO-209803; HIP 89020; HD 166023; BU 245; CD-3015316; WDS18101-3044; β245	Mag=5.8,8 Sep=4.1" PA=345° mBortle=9 mApt=50mm
NGC-6558 (GC)	1	T	Collinder 368; Cr 368; Mel 194; OCl 3; vdB-Ha 259; EQ 1807-317; C1806-317	Mag=9.3 Size=4.3' SB=21.1 mBortle=8 mApt=50mm MC= V
NGC-6563 (PN)	1	T	PK 358-7.1; StWr 2-22; ARO 503; He 2-361; Sa 2-308;PN G385.5-07.3	Mag=11 Size=0.8' SB=22.1 mBortle=? mApt=400mm
NGC-6569 (GC)	1	T	vdB-Ha 260; Mel 195; EQ 1810-318; C1810-318; GCL 91	Mag=8.5 Size=6.4' SB=21.2 mBortle=8 mApt=50mm MC=VIII
NGC-6624 (GC)	1	T	Mel 199; vdB-Ha 262; C1820-303; GCL 93	Mag=7.9 Size=8.8' SB=21.3 mBortle=8 mApt=50mm MC=VI
Messier 69 (GC)	1	T	NGC-6637; Mel 202; EQ 1828-323; C1828-323	Mag=7.6 Size=8.3' SB=20.8 mBortle=9 mApt=50mm MC=V

Constellation Guide

V0781 Sgr (CS || Magnitude Range= 12.5 to 14 | Color=red |) Located 64 light years away with an energy output 1/30th of our sun's luminosity. This is a long-period variable star with an unknown period.

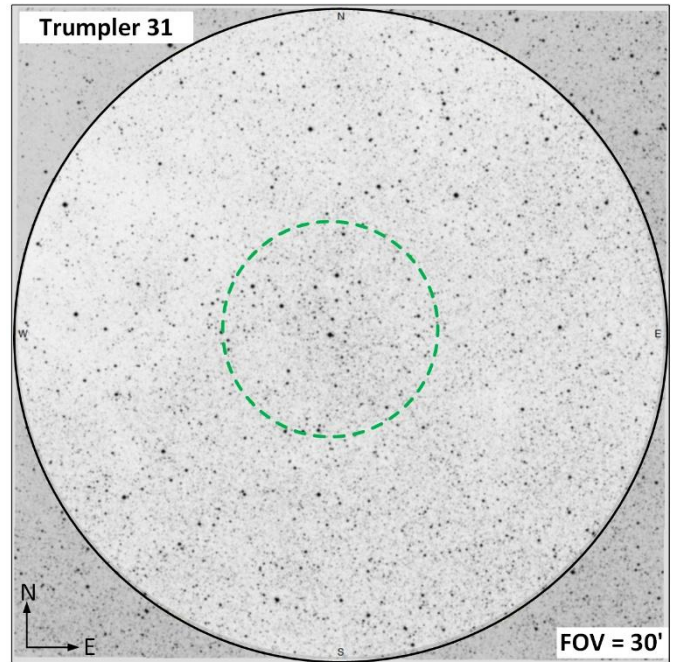
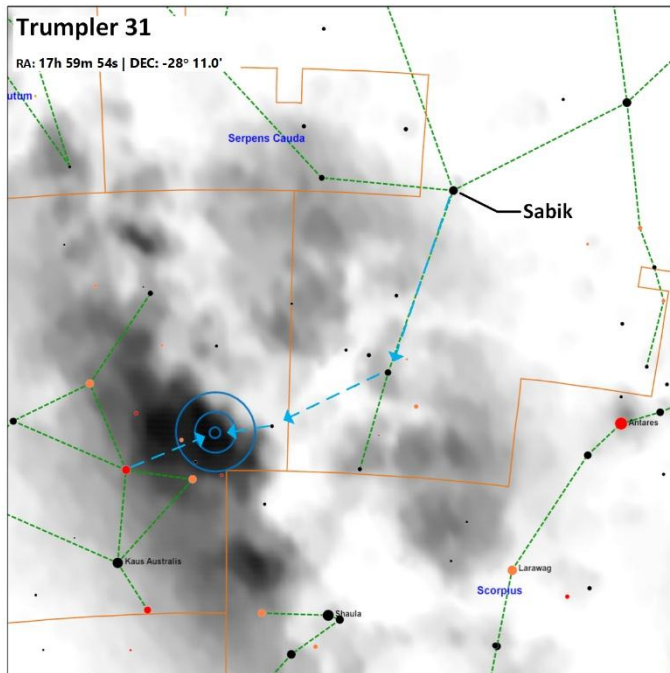


HR-6693 (DS || AB | Mag=5.4,7 | Sep=5.9" | PA=104° | mBortle=9 | mApt=50mm | Spec=M1Ib, G8II | Color=orange-red, yellow |) The system is located 1,013 light years away. The A component is an eruptive variable star with an unknown period. The B component orbits at a least 1,800 AU from the primary star. Haas indicates this is a showcase pair.

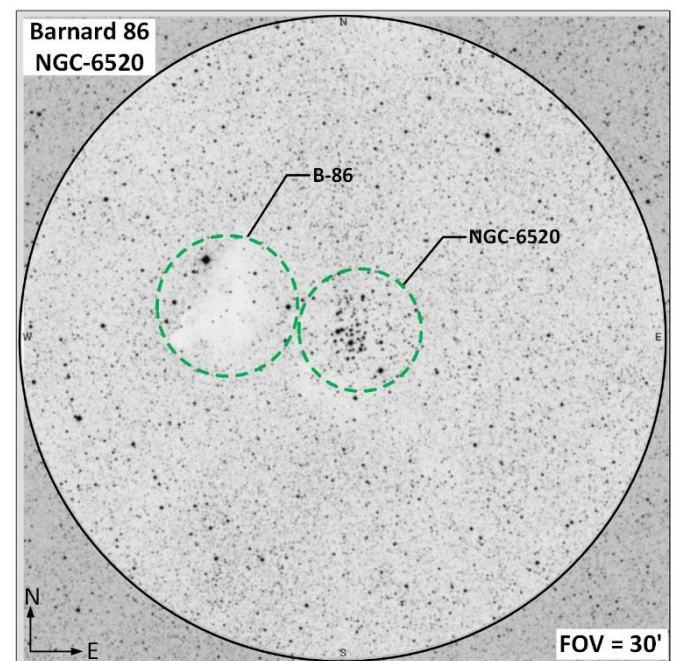
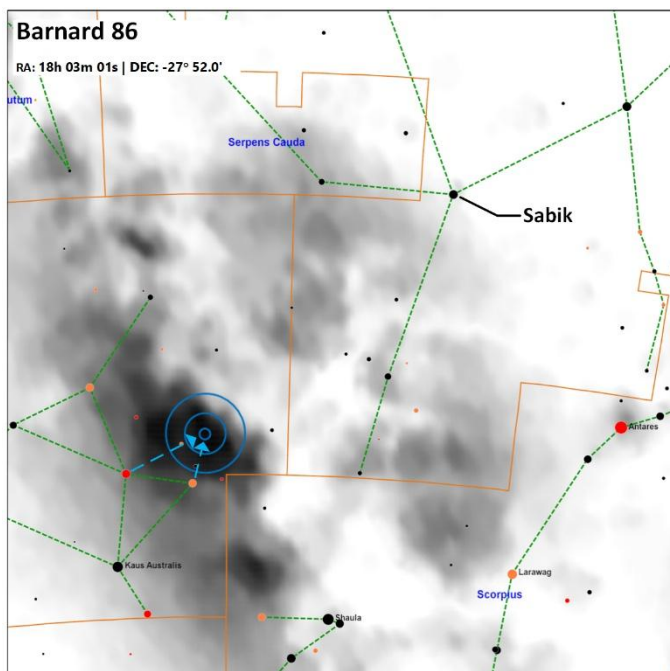


Constellation Guide

Trumpler 31 (OC || Mag=9.8 | Size=8' | SB=22.9 | mBortle=? | mApt=250mm | MC=III1p) Located 3,200 light years away with a physical diameter of 5 light years. Trumpler classification III-Detached with no noticeable concentration, 1-Most of the cluster stars are nearly the same brightness, p-Poor cluster with less than 50 stars.

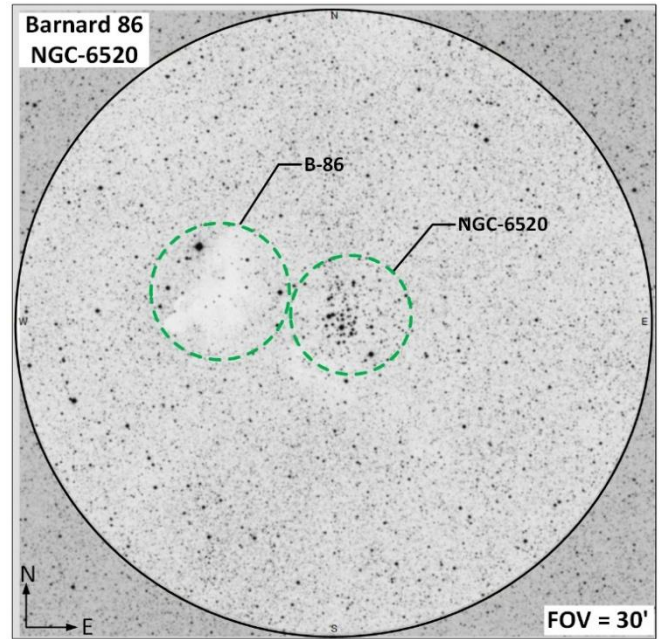
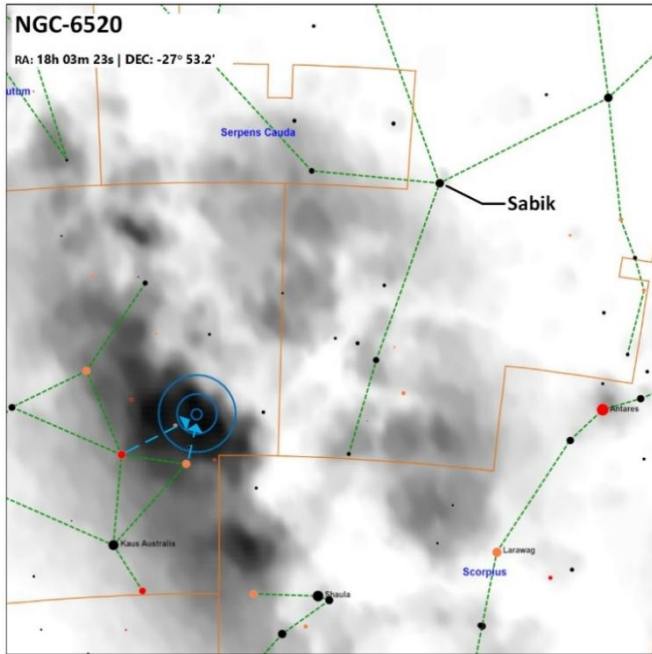


Barnard 86 (DN || Size=4' | mBortle=4 | mApt=200mm | Opacity=5) The Ink Spot is located about in the same region as the open cluster NGC-6520, there is speculation that the cluster may have originated from this dust cloud, but measured radial velocities between the cluster and the cloud indicate they are not associated with each other.

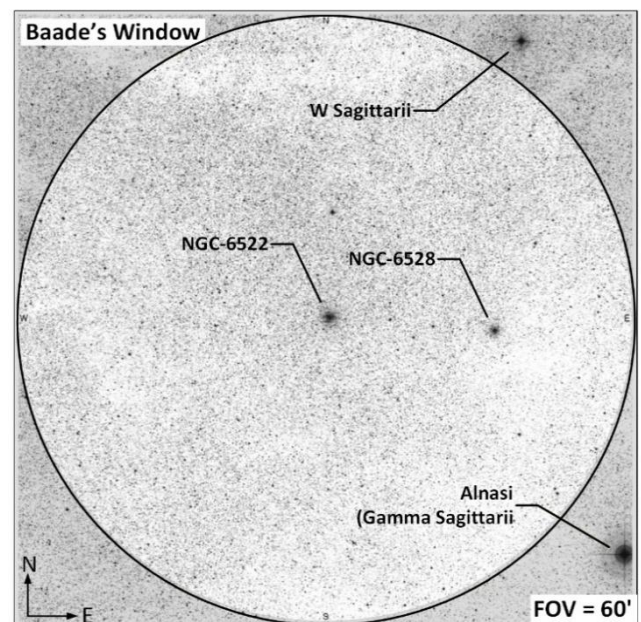
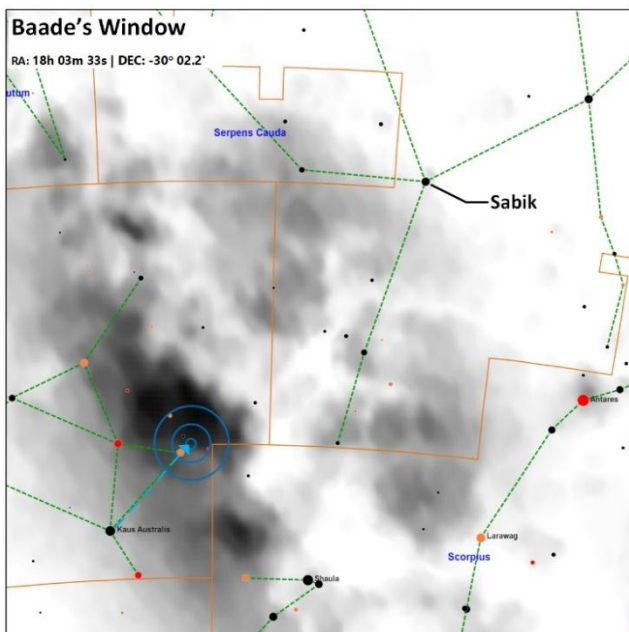


Constellation Guide

NGC-6520 (OC || | Mag=7.6 | Size=3' | SB=18.6 | mBortle=9 | mApt=102mm | MC=12m |) Located 5,235 light years away. Estimated ages of this open cluster range from 60 to 190 million years old. Trumpler classification is I-Detached cluster with strong central concentration, 2-Medium range of brightness between stars in the cluster, m-Medium rich cluster with 50-100 stars.

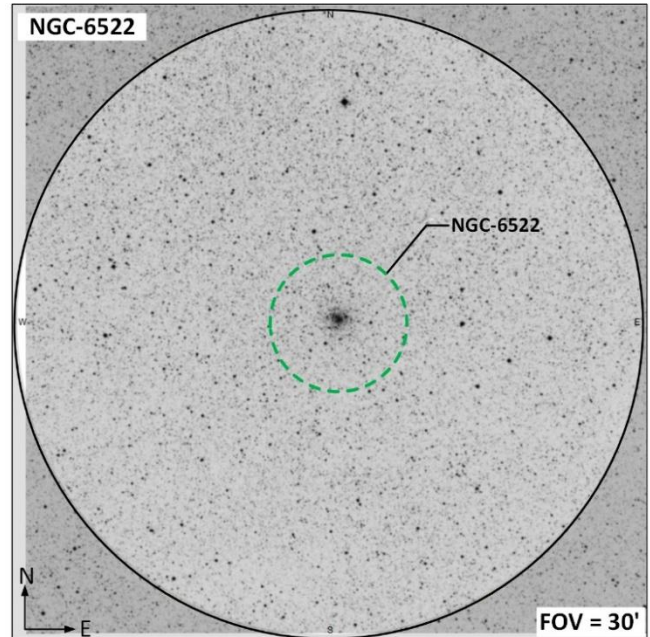
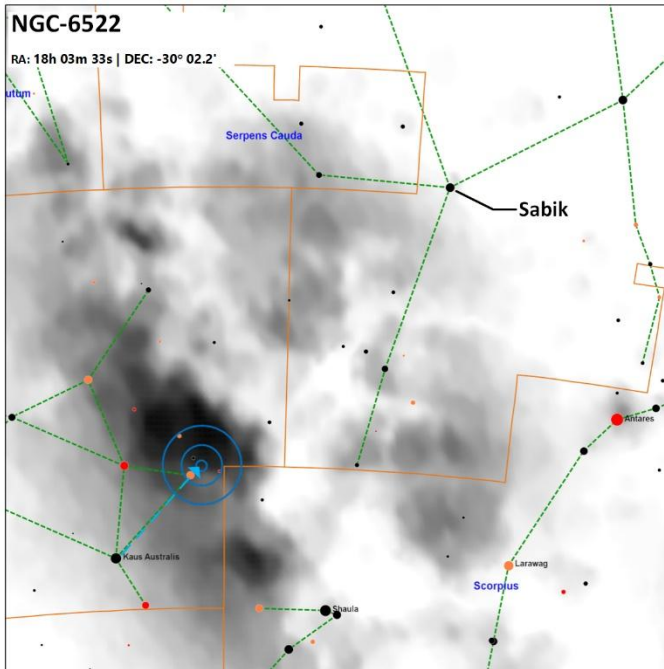


Baade's Window is an area of sky with relatively low amounts of interstellar dust providing an observational window to the [Galactic Center](#) of the Milky Way. It is roughly centered on NGC-6522 with an apparent size of roughly 1 degree and corresponds to one of the brightest visible patches of the Milky Way. Baade's Window is the largest of six areas through which central bulge stars are visible and important internal geometry of the Milky Way is being obtained from studies of these areas. Globular clusters NGC-6522 and NGC-6528 are located in this area.

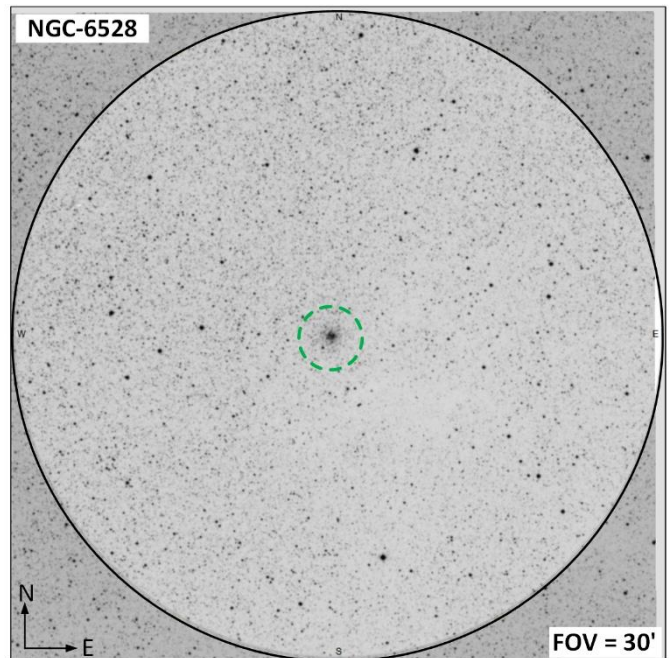
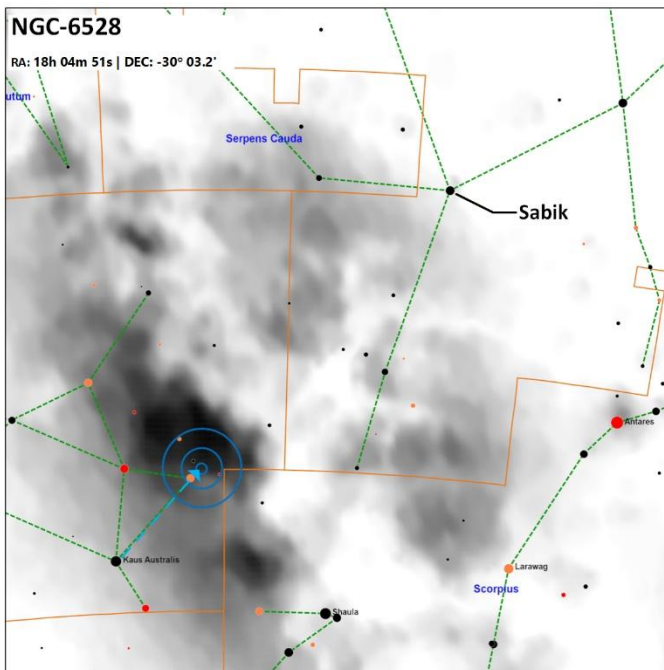


Constellation Guide

NGC-6522 (GC || Mag=8.3 | Size=9.4' | SB=21.8 | mBortle=7 | mApt=50mm | MC=VI |) Located 25,100 light years away, with a physical diameter of 69 light years. This is possibly the oldest star cluster in the Milky Way with an estimated age of 12 billion years. This is classified as class VI-Intermediate mild concentration.

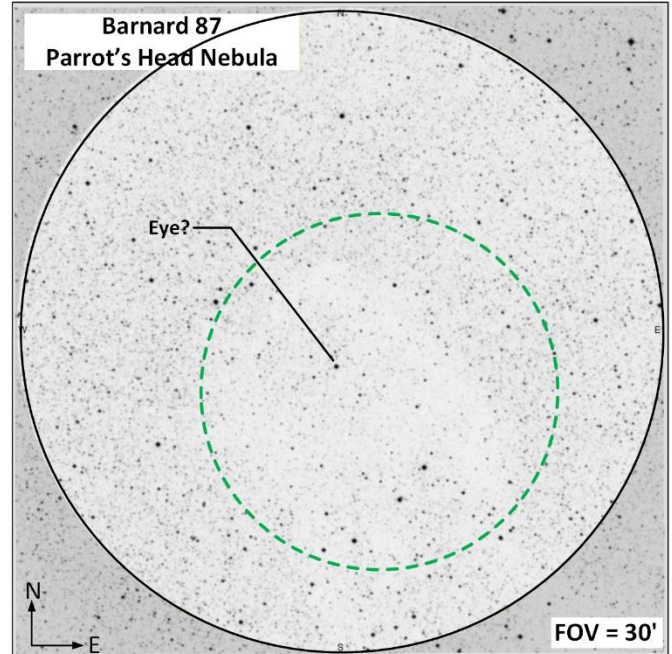
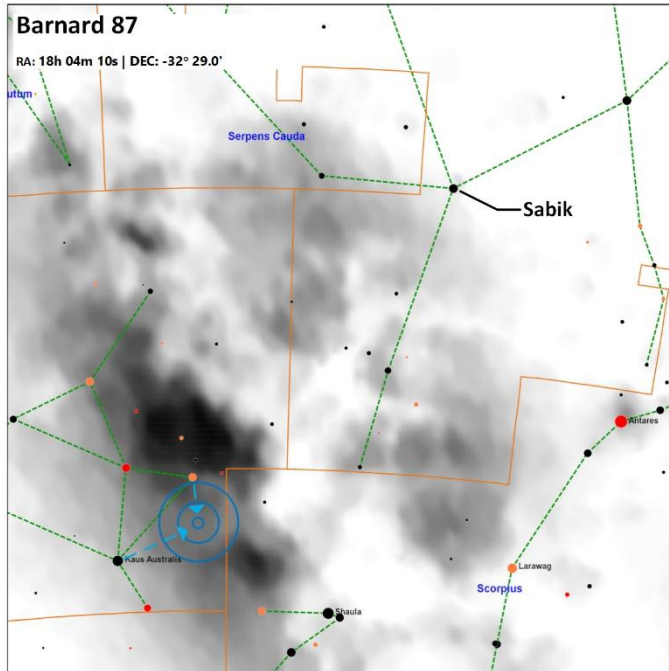


NGC-6528 (GC || Mag=9.6 | Size=5' | SB=21.7 | mBortle=6 | mApt=50mm | MC=V |) Located 20,000 light years away with a physical diameter of 37 light years. The [Shapley-Sawyer Concentration Class](#) is V-Intermediate concentration. Located within 30' of NGC-6522 in [Baade's Window](#), it is suspected both Globulars have a common origin.

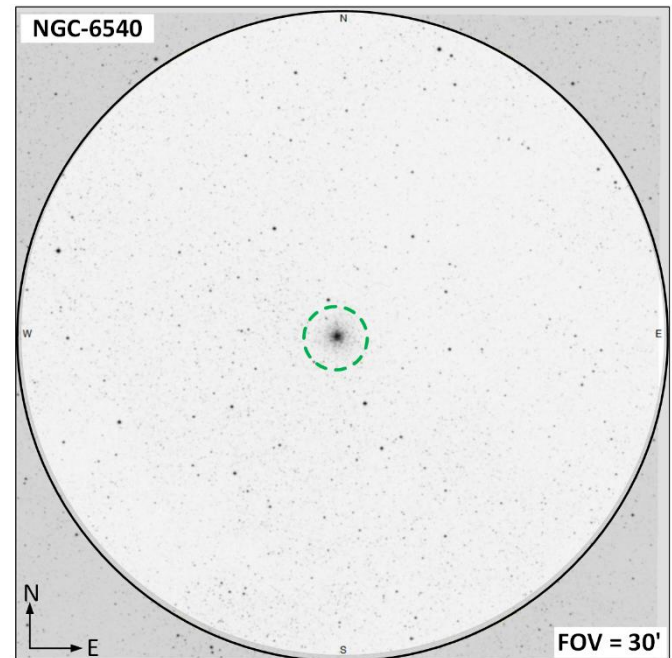
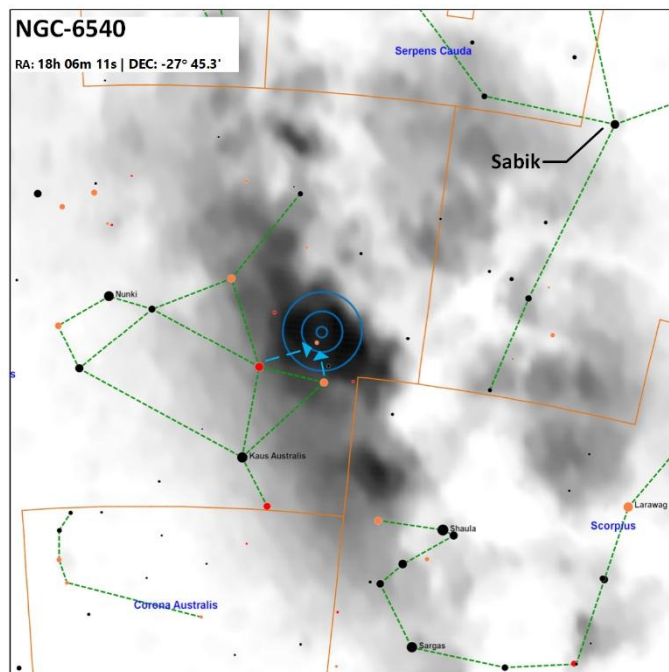


Constellation Guide

Barnard 87 (DN || Size=12' | mBortle=4 | mApt=200mm | Opacity=4 |) The Parrot's Head Nebula is located in a rich Milky Way field this irregular shaped dark nebula surrounds a 9.3 magnitude star representing the bird's eye. Due to lower opacity, it is not as distinct as many other dark nebulae.

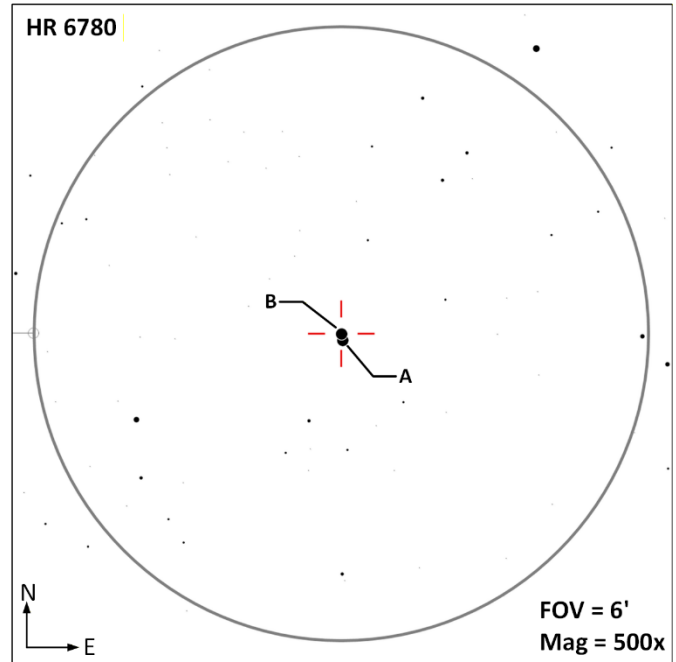
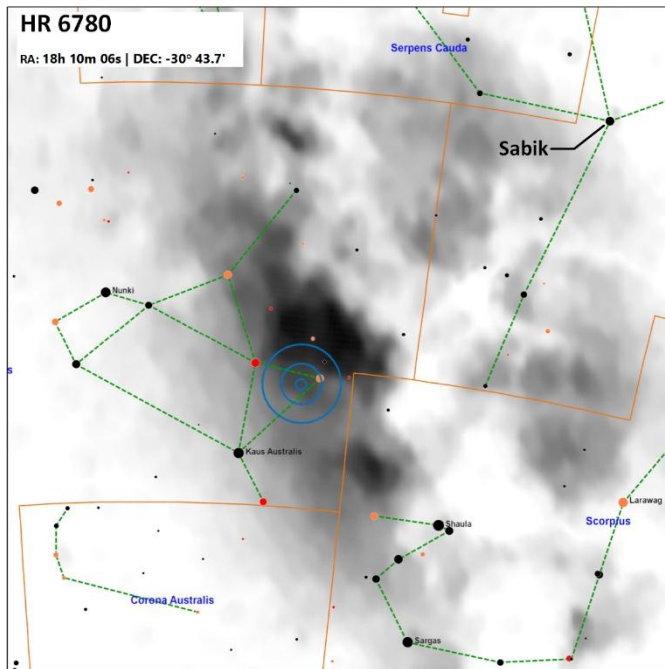


NGC-6540 (GC || Mag=9.3 | Size=1.5' | SB=18.8 | mBortle=9 | mApt=50mm | MC=XI |) Located 12,000 light years away and is classified as XI- Very loose towards the center and was initially thought to be an open cluster before being designated a globular.

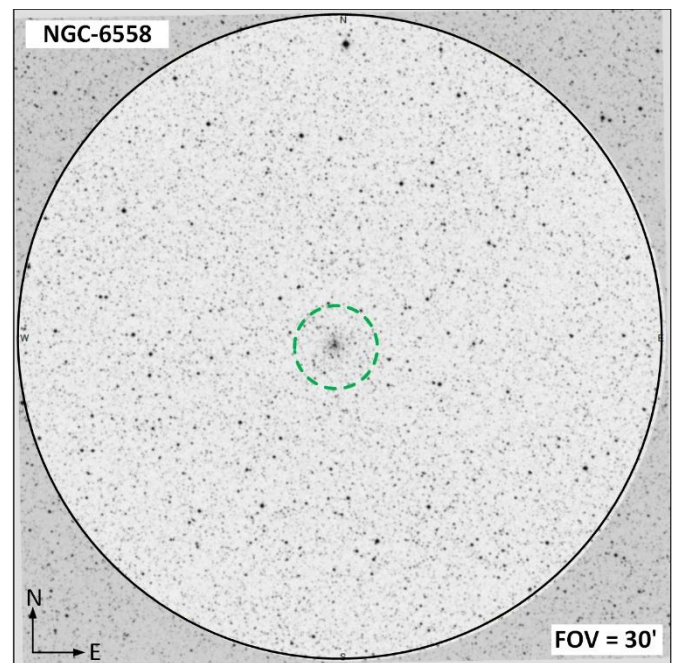
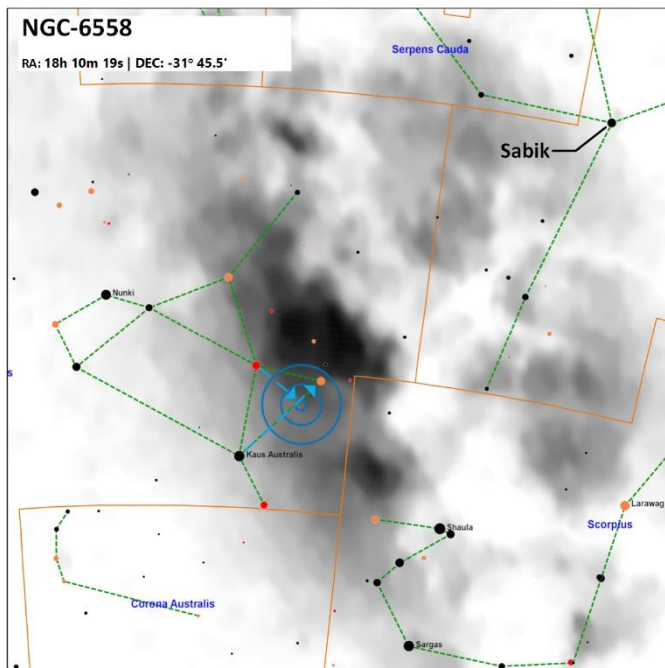


Constellation Guide

HR 6780 (DS || | Mag=5.8,8 | Sep=4.1" | PA=345° | mBortle=9 | mApt=50mm |) Located 449 light years away, the nature of this double is undetermined; however, Haas reports this as a “Showcase pair” with reports from a 175mm telescope at 100x of a bright orange star with a close, less bright companion.

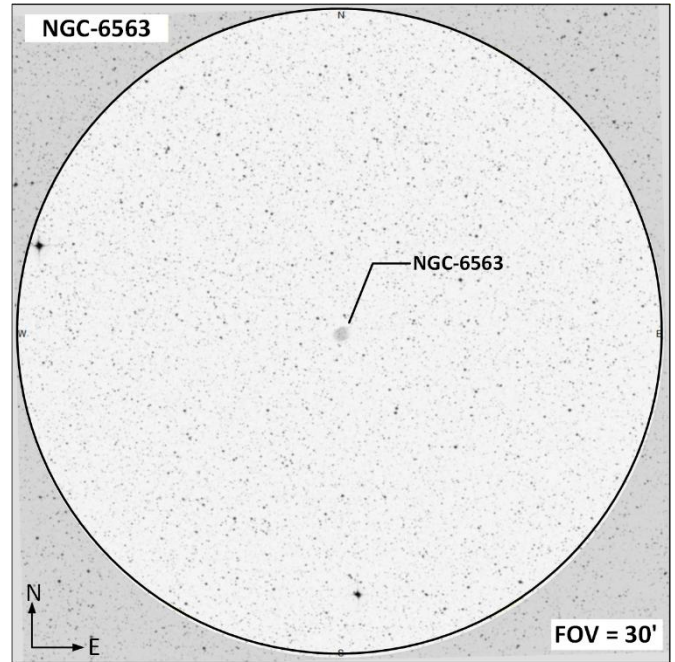
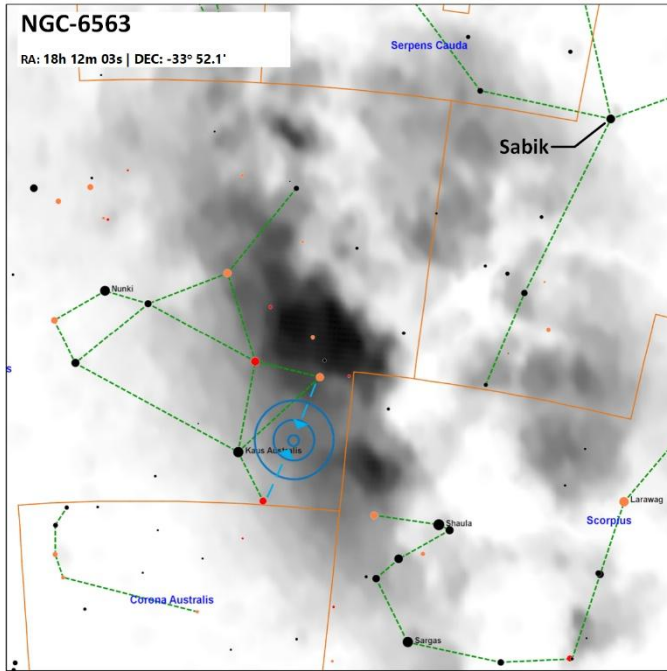


NGC-6558 (GC || | Mag=9.3 | Size=4.3' | SB=21.1 | mBortle=8 | mApt=50mm | MC= V |) Located 24,000 light years away with a physical diameter of 29 light years. The Shapley-Sawyer class for this globular is V-Intermediate concentration.

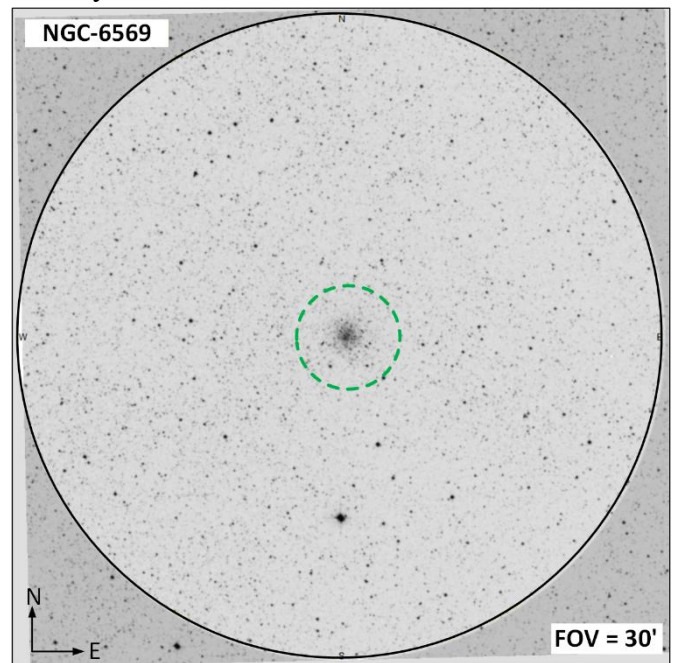
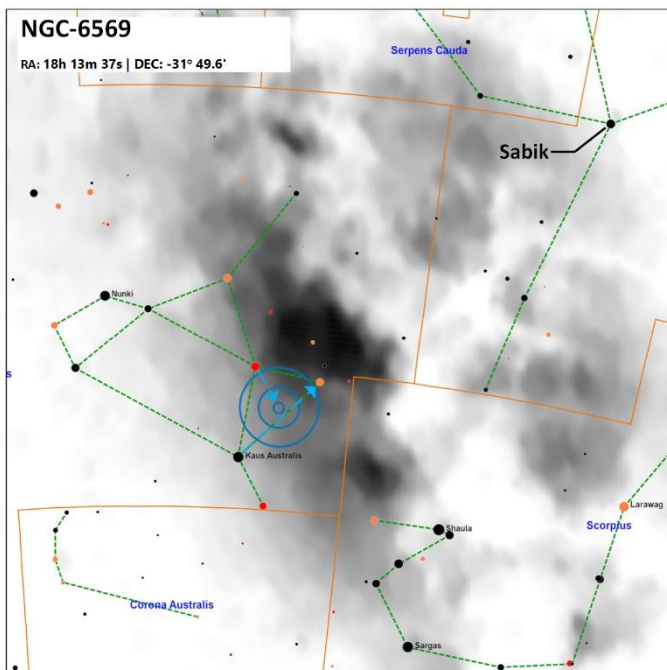


Constellation Guide

NGC-6563 (PN || | Mag=11 | Size=0.8' | SB=22.1 | mApt=400mm |) Located 5,430 light years away with a physical radius of 0.4 light years. In larger telescopes this may have an egg like appearance and is suspected of having a companion star causing this distortion.

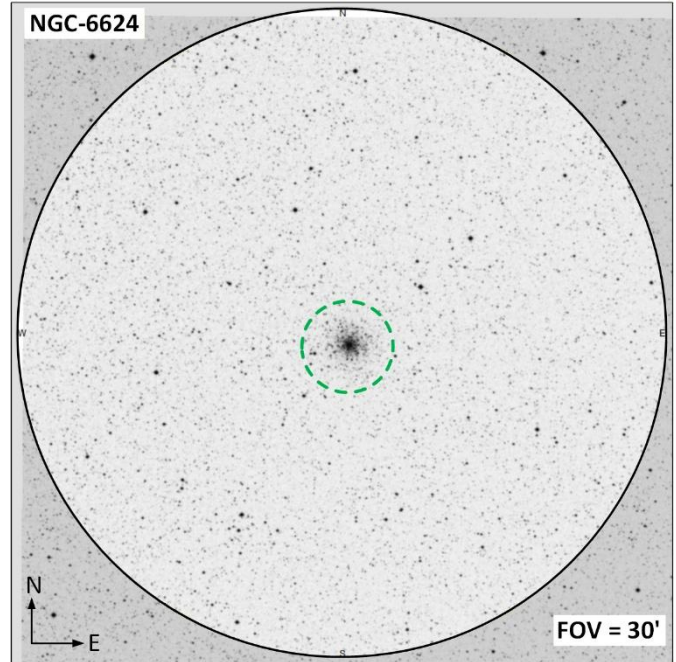
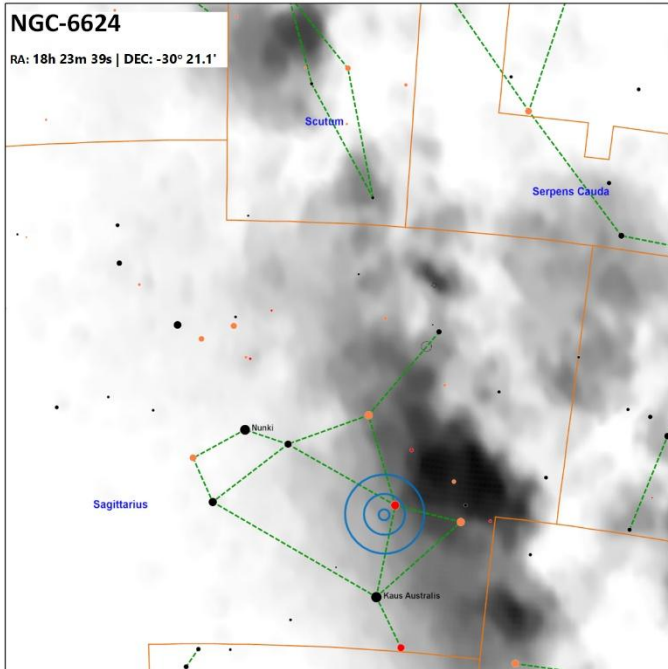


NGC-6569 (GC || | Mag=8.5 | Size=6.4' | SB=21.2 | mBortle=8 | mApt=50mm | MC=VIII |) Located 36,000 light years away with a physical diameter of 66 light years. Estimated age is 12.8 to 13 billion years old. A recent study has found the cluster is actively losing stars through tidal stripping due to it passing through the Milky Way. Shapley-Sawyer classification is VIII-Rather loosely concentrated towards the center.

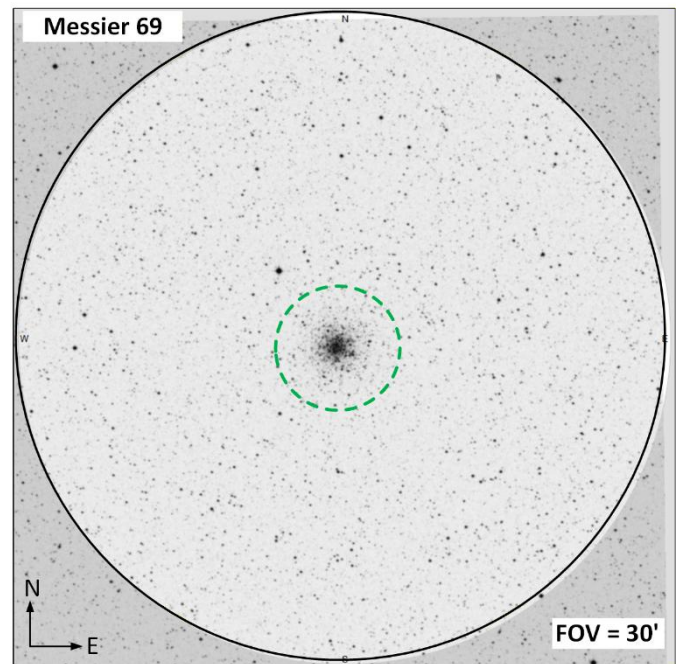
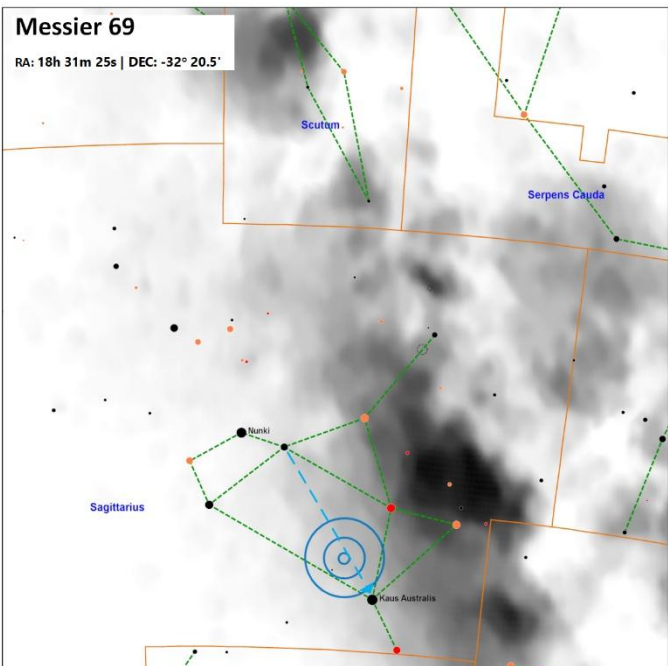


Constellation Guide

NGC-6624 (GC || Mag=7.9 | Size=8.8' | SB=21.3 | mBortle=8 | mApt=50mm | MC=VI) Located 26,000 light years away with physical diameter of 66 light years. Six pulsars are known to exist in the cluster along with one neutron star that rotates 42,920 revolutions per minute, one of the fastest known rates to date. Class is VI-Intermediate mild concentration.

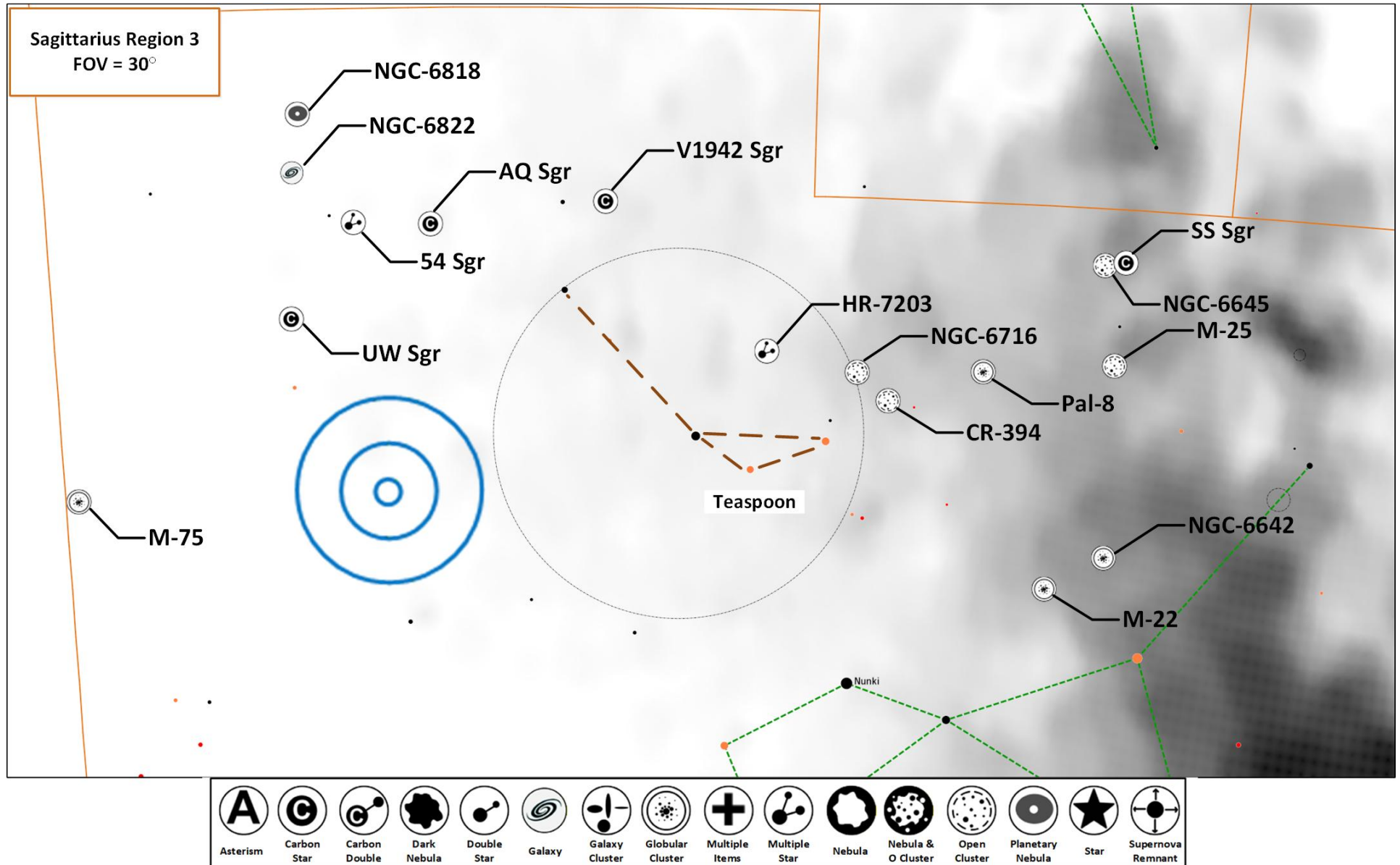


Messier 69 (GC || | Mag=7.6 | Size=8.3' | SB=20.8 | mBortle=9 | mApt=50mm | MC=V) Located 28,700 light years away with a radius of 45 light years. Located 5,200 light years from the [Galactic Center](#) it is likely a member for the [galactic bulge](#) population, a group of tightly packed stars found near the center of most spiral galaxies.



Constellation Guide

Region 3: Constellation Targets



Constellation Guide

Object (Type)	Links	Gear	Aliases	Stats
SS Sagittarii (CS)		T	HIP 90709; HD 170495; BD -16 4904; CCCS 2595; TYC 6270-1521-1	Magnitude Range= 9 to 10 BV=+3.82 Color=deep red
Messier 25 (OC)	1	B, T	IC4725; Collinder 382; Cr 382; Lund 839; Mel 204; OCl 38; Raab 131; C1828-192	Mag=4.7 Size=29' SB=20.6 mBortle=9 mApt=50mm MC=I2p
NGC-6642 (GC)	1	T	Collinder 381; Cr 381; Mel 203; OCl 29; EQ 1828-235; C1828-235; GCL 97	Mag=9 Size=5.8' SB=21.4 mBortle=7 mApt=50mm MC=IV
NGC-6645 (OC)		B, T	Collinder 383; Cr 383; Lund 844; Mel 205; OCL 48; Raab 132; C1829-169	Mag=8.5 Size=14' SB=22.9 mBortle=4 mApt=150mm MC=IV1m
Messier 22 (GC)	1	B, T	NGC-6656; Mel 208; EQ 1833-239; 1E 1833.3-2357; C1833-239; Crackerjack Cluster; Great Sagittarius Cluster	Mag=5.1 Size=32' SB=21.3 mBortle=9 mApt=50mm MC=VII
Palomar 8 (GC)		T	Pal 8; EQ 1838-198; C1838-198	Mag=11.2 Size=4.7' SB=23.2 mBortle=? mApt=?mm MC=X
Collinder 394 (OC)		B, T	Cr 394; Lund 869; OCl 42; C1850-204	Mag=6.3 Size=22' SB=21.6 mBortle=9 mApt=50mm MC=IV2m
NGC-6716 (OC)		B, T	Cr 393; C1851-199; Lund 872; OCl 46; Collinder 393; C1851-199	Mag=7.5 Size=10' SB=21.1 mBortle=9 mApt=102mm MC=IV1p
HR 7203 (MS-4)	1	T	SAO-162130; HIP 93537; HD 176884; HR 7203; ADS 11972; BD-19 5273; WDS19031-1915	AB Mag=6.2,9 Sep=7.7" PA=89° mBortle=9 mApt=50mm AC Mag=6.2,10.8 Sep=20.2" PA=112° mBortle=9 mApt=70mm AD Mag=6.2,13.7 Sep=25.9" PA=261° mBortle=? mApt=250mm BC Mag=9,10.8 Sep=13.5" PA=136° mBortle=9 mApt=70mm
Teaspoon (AS)		B	Centering Star: Pi Sgr; SAO-187756; HIP 94141	Size=8°x2° Stars=4
V1942 Sgr (CS)		B, T	SAO-162465; HIP 94940; HD 180953; CCCS 2721; V1942 Sgr; TYC 6298-0819-1	Magnitude Range= 6.7 to 7.1 Spec=C6 (N2/R8) BV=+2.17 Color=orange-red
AQ Sagittarii (CS)		B, T	SAO-162777; HIP 96255; HD 184283; BD -16 5360; TYC 6298-02791-1; CCCS 2744	Magnitude Range= 6.6 to 8.5 Period=0.55y Spec=C7 (N3) BV=+3.50 Color=deep red
54 Sagittarii (MS-3)		T	SAO-162883; HIP 96808; 54 Sagittarii; HD 185644; HR 7476; ADS 12767; HJ 599	AB Mag=5.4,12.7 Sep=45.2" PA=279° mBortle=4 mApt=150mm Spec=K2 III, ? AC Mag=5.4,7.7 Sep=45.5" PA=41° mBortle=9 mApt=50mm

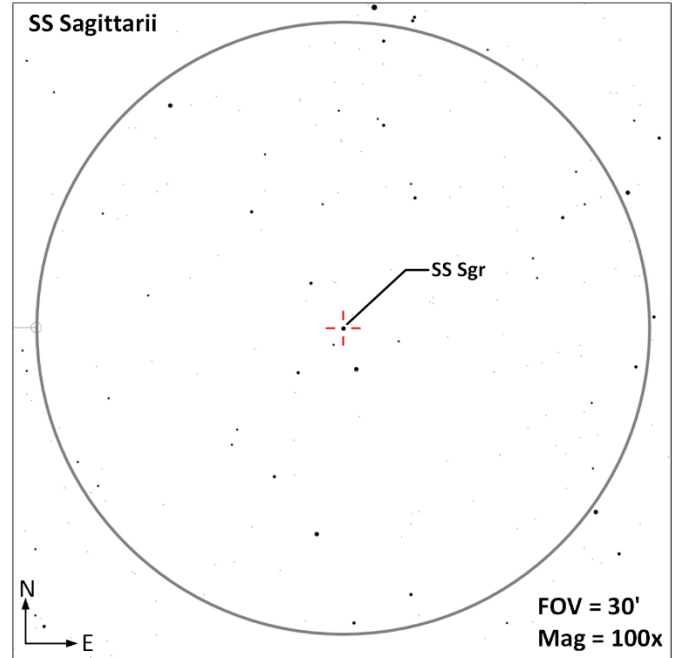
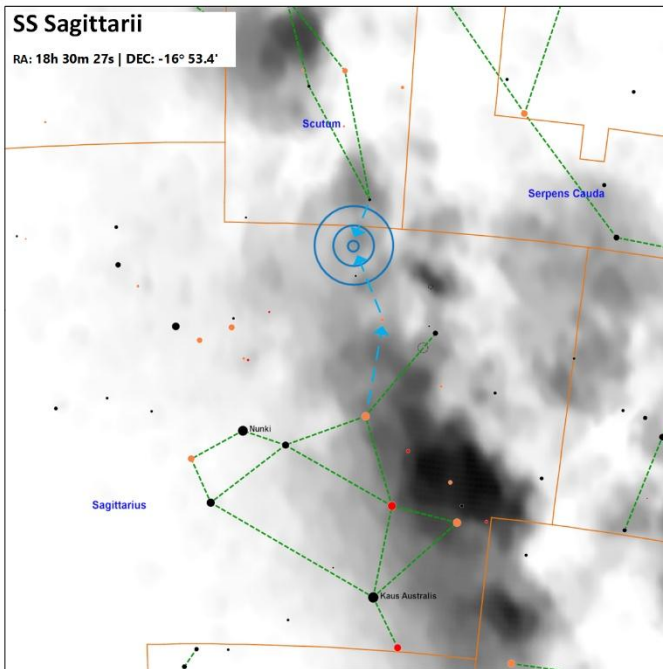
Constellation Guide

Object (Type)	Links	Gear	Aliases	Stats
NGC-6818 (PN)	1	T	HD 186282; BD-14 5523; GCRV 12096; PK 025-17.1; PK 25-17.1; PN G025.8-17.9; Little Gem Nebula	Mag=10 Size=0.4' SB=16.4 mBortle=9 mApt=50mm MC=Elliptical
NGC-6822 (G)	1	B, T	IC 4895; Barnard's Galaxy; DDO 209; IRAS 19420-1450; MCG -02-50-006; PGC 63616; C57; Caldwell 57	Mag=9.3 Size=15.5'x13.5' SB=23.7 mBortle=? mApt=?mm MC=IB(s)m
UW Sagittarii (CS)		B, T	SAO-162965; HIP 97296; HD186665; CCCS 2785; J194626.07-180906; PPM236460; Sky19460267; TYC 6316-2569-1	Magnitude Range= 9.3 to ? BV=+2.60 Color=red
Messier 75 (GC)	1	T	NGC-6864; GCl 116; Mel 228; EQ 2003-220; C2003-220	Mag=8.5 Size=6' SB=21.0 mBortle=9 mApt=50mm MC=I

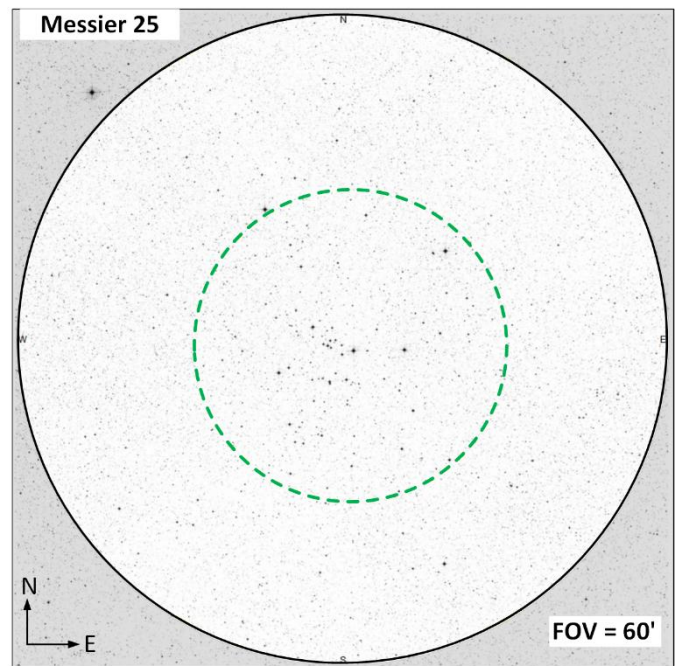
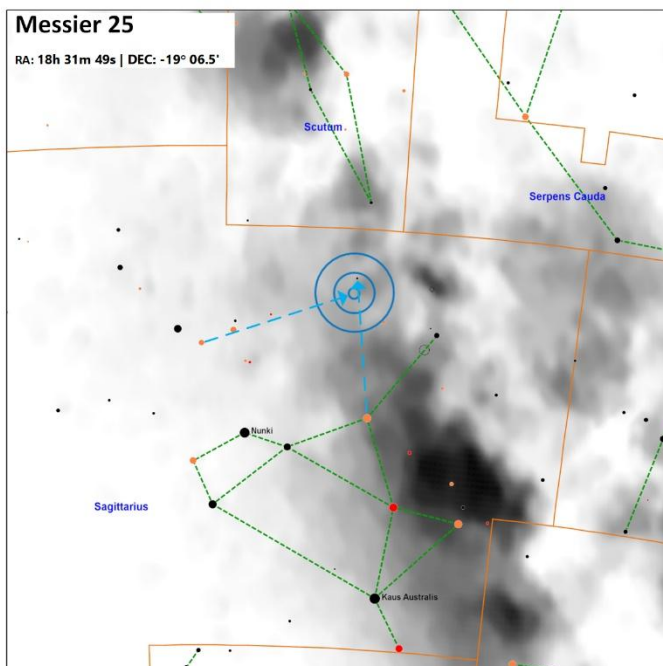
Blank

Constellation Guide

SS Sagittarii (CS || Magnitude Range= 9 to 10 | BV=+3.82 | Color=deep red |) Located 1,100 light years away with an energy output 19 times the Sun's luminosity. SS Sgr is a variable star with an irregular or unknown period.

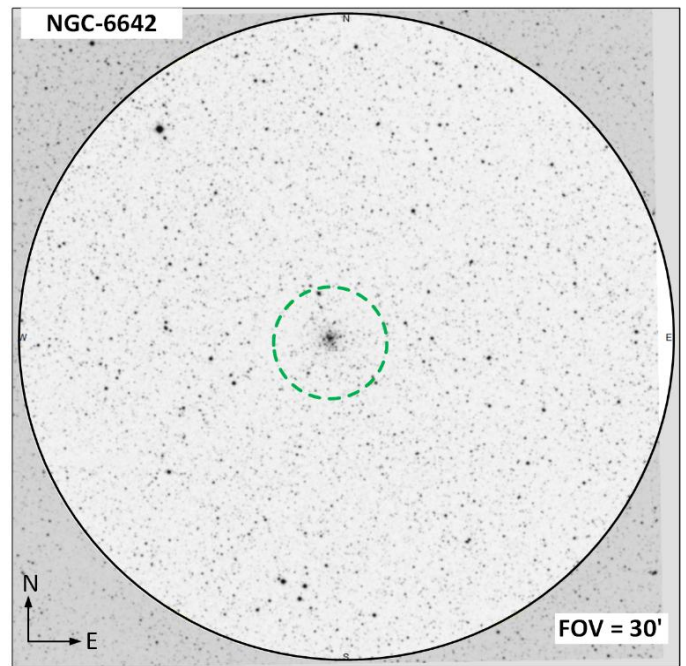
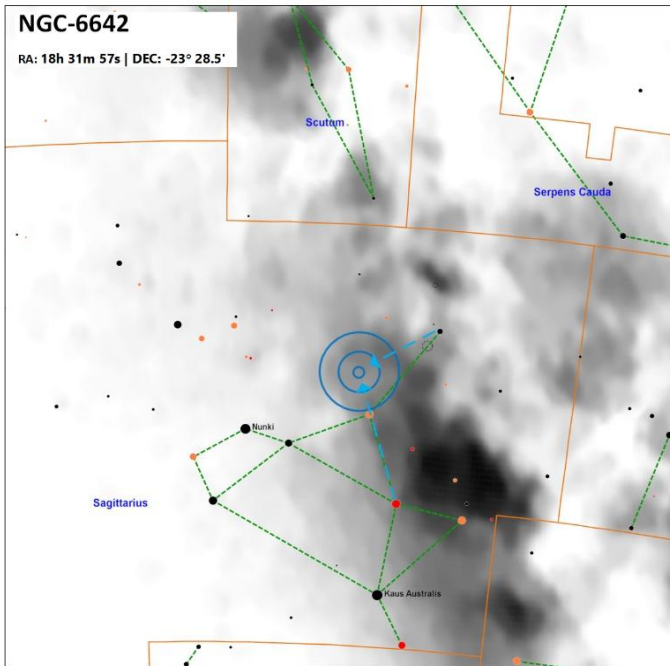


Messier 25 (OC || Mag=4.7 | Size=29' | SB=20.6 | mBortle=9 | mApt=50mm | MC=I2p |) Located 2,000 light years away with a physical diameter of 13 light years and has an estimated mass of 1,937 solar mass with 24% estimated mass being interstellar matter some obscuring features with a dark lane passing near the center (probably not visible in a telescope). Trumpler class I-Detached with strong central concentration, 2-Medium range of brightness between stars, p-Poorly populated with less than 50 stars.

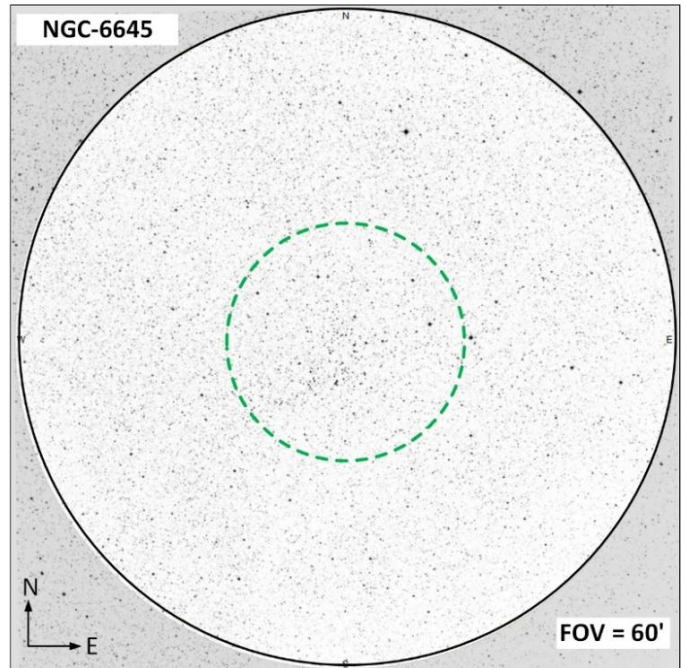
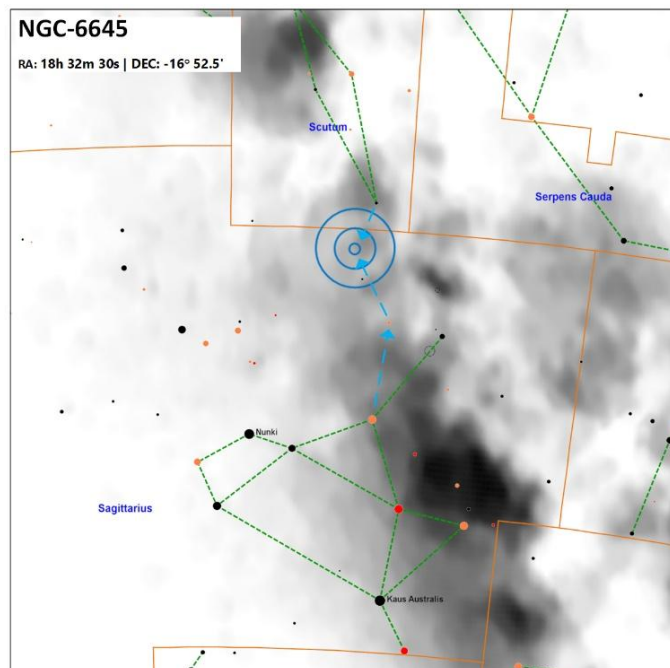


Constellation Guide

NGC-6642 (GC || Mag=9 | Size=5.8' | SB=21.4 | mBortle=7 | mApt=50mm | MC=IV |) Located 26,700 light years away with physical diameter of 45 light years. This globular is known to have many “[blue stragglers](#)”; stars which seem to be lagging behind in their rate of aging and is known to be lacking in low-mass stars.

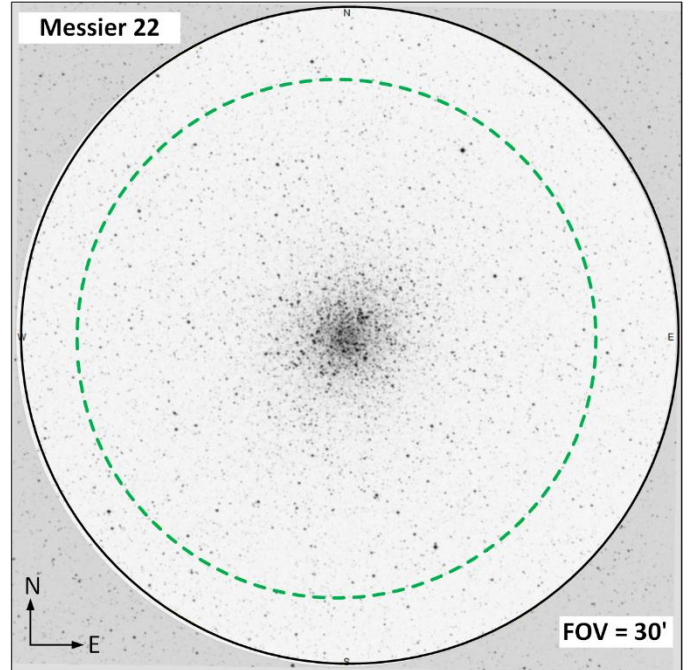
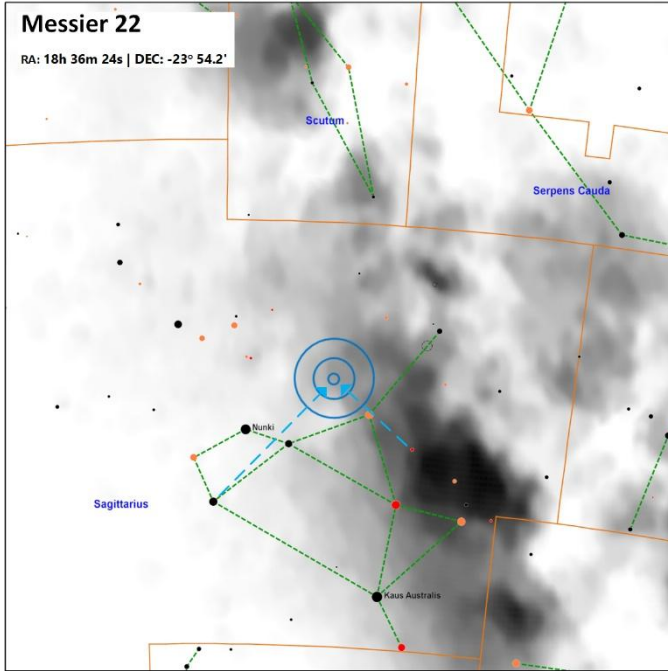


NGC-6645 (OC || Mag=8.5 | Size=14' | SB=22.9 | mBortle=4 | mApt=150mm | MC=IV1m |) Located 4,100 light years away with a physical diameter of 17 light years. Trumpler classification is IV-Not well detached, but strong field concentration, 1-Most of the stars in the cluster are nearly the same apparent brightness, m-Medium richness with 50-100 stars.

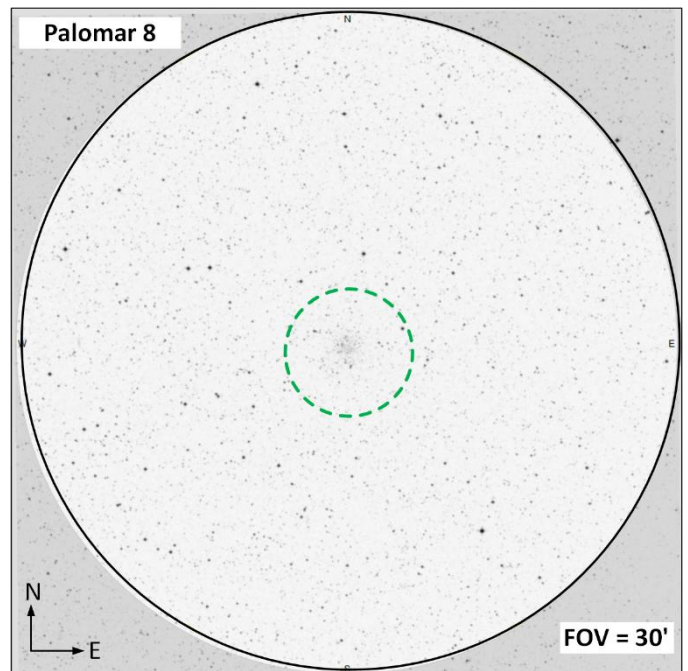
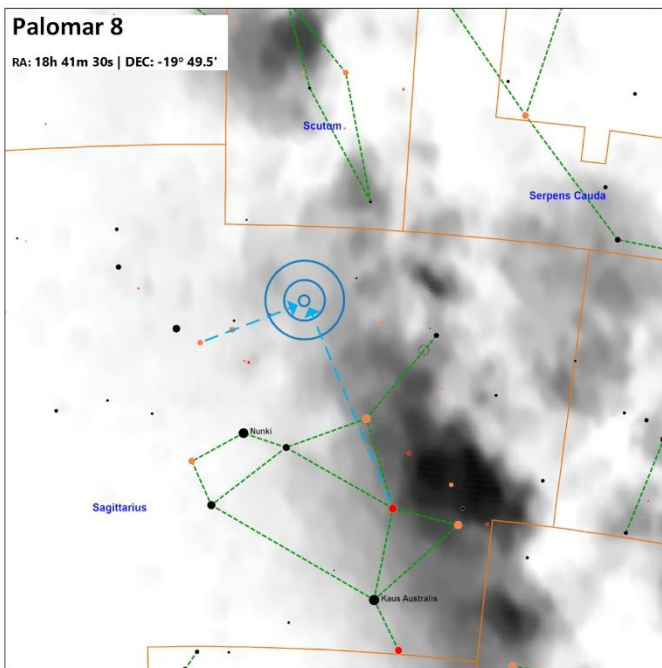


Constellation Guide

Messier 22 (GC || Mag=5.1 | Size=32' | SB=21.3 | mBortle=9 | mApt=50mm | MC=VII) The Great Sagittarius Cluster is an elliptical globular cluster near the [Galactic Bulge](#) region and is one of the brightest globulars visible in the night sky. M-22 is one of the nearer globular clusters to earth at 10,600 light years away and is one of only four globulars of our galaxy known to contain a planetary nebula. An 8" telescope should resolve hundreds of stars in the globular.

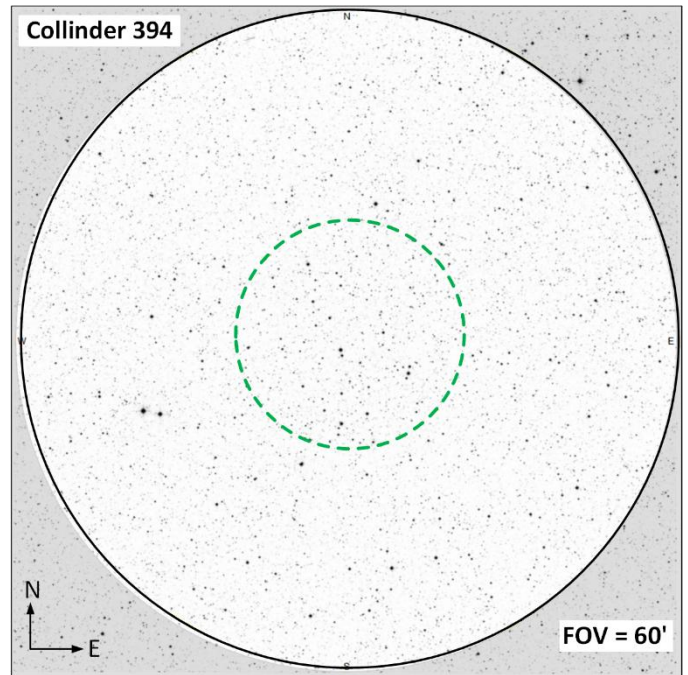
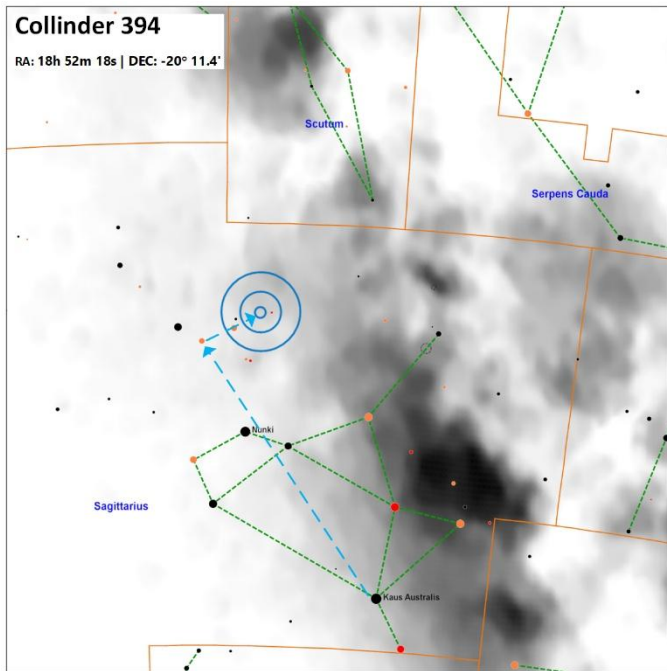


Palomar 8 (GC || Mag=11.2 | Size=4.7' | SB=23.2 | MC=X) Located 40,000 light years away with a physical diameter 13 light years. Shapley-Sawyer class is X-Loose.

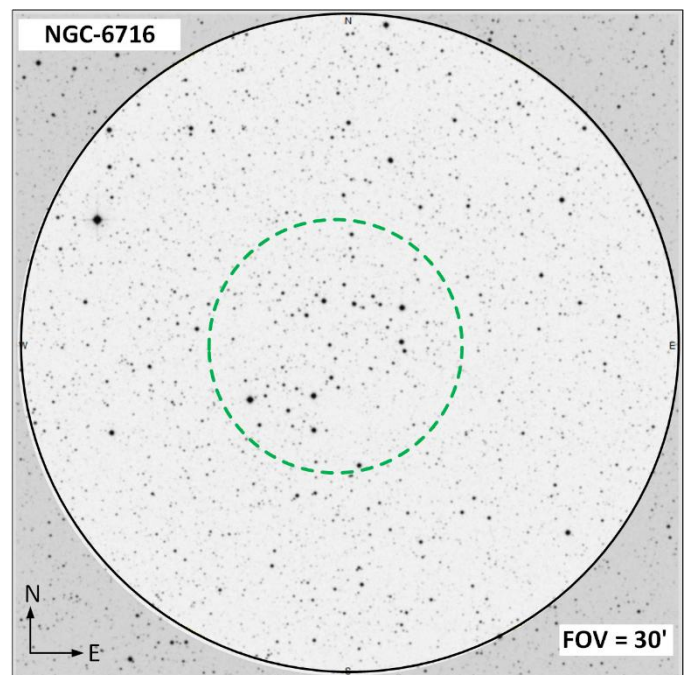
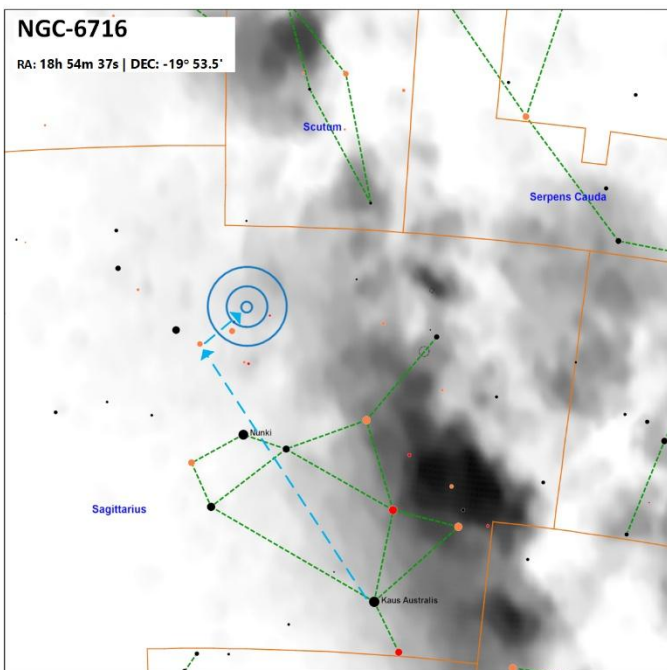


Constellation Guide

Collinder 394 (OC || Mag=6.3 | Size=22' | SB=21.6 | mBortle=9 | mApt=50mm | MC=IV2m |) Located 2,250 light years away with a physical diameter of 14 light years. Trumpler classification is IV-Not well detached, but with a strong field concentration, 2-Medium range of brightness between stars in the cluster, m-Medium rich cluster with 50 – 100 stars.

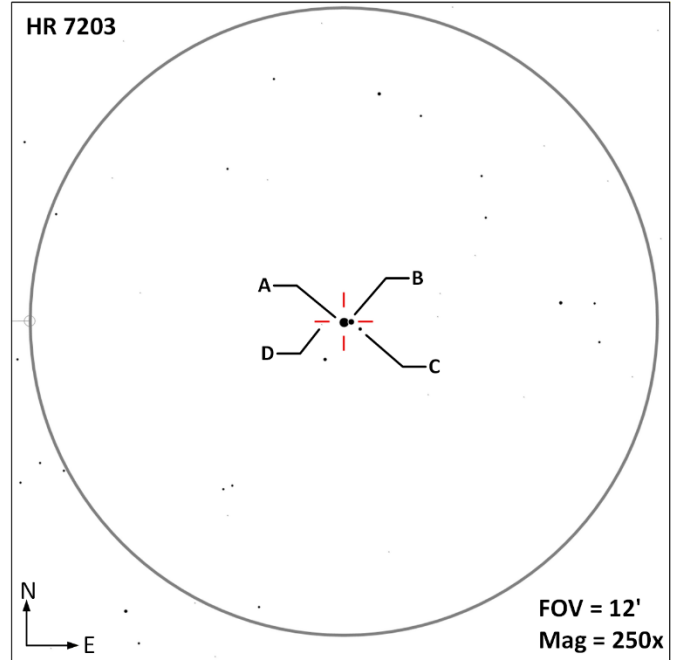
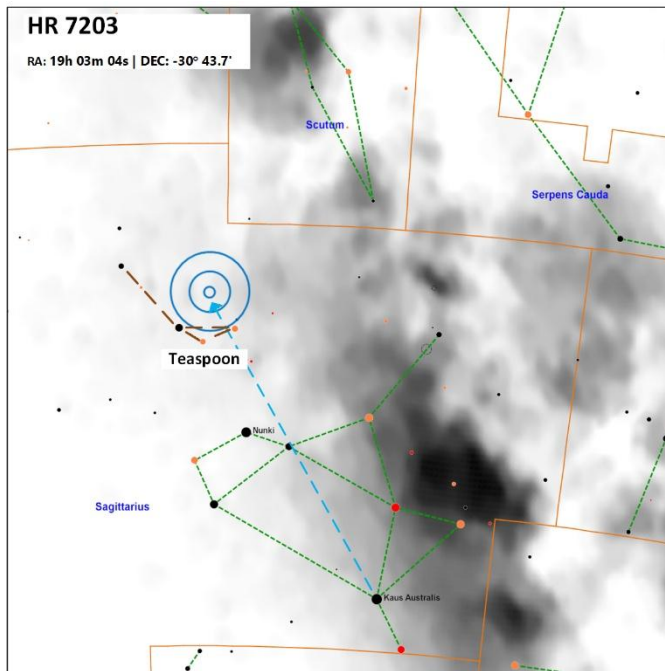


NGC-6716 (OC || Mag=7.5 | Size=10' | SB=21.1 | mBortle=9 | mApt=102mm | MC=IV1p |) Located 2,600 light years from earth with a physical diameter of 7 light years. Trumpler classification is IV-Not well detached, but strong field concentration, 1-Most of the stars are the same apparent brightness in the cluster, p-Poor cluster with less than 50 stars.

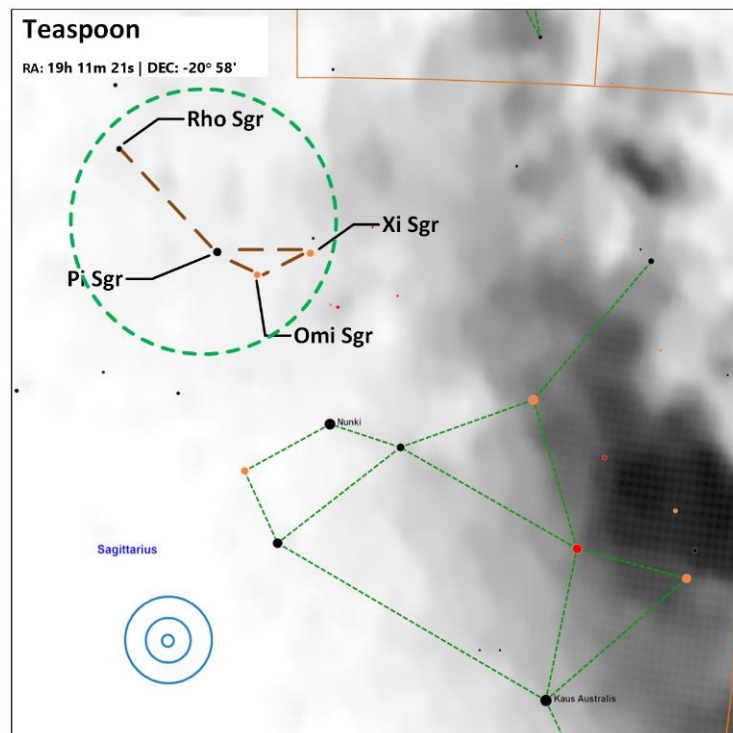


Constellation Guide

HR 7203 (MS-4 || **AB** | Mag=6.2,9 | Sep=7.7" | PA=89° | mBortle=9 | mApt=50mm || **AC** | Mag=6.2,10.8 | Sep=20.2" | PA=112° | mBortle=9 | mApt=70mm || **AD** | Mag=6.2,13.7 | Sep=25.9" | PA=261° | mBortle=? | mApt=250mm || **BC** | Mag=9,10.8 | Sep=13.5" | PA=136° | mBortle=9 | mApt=70mm) The AC and BC pair are known to be physically associated, other members are uncertain.

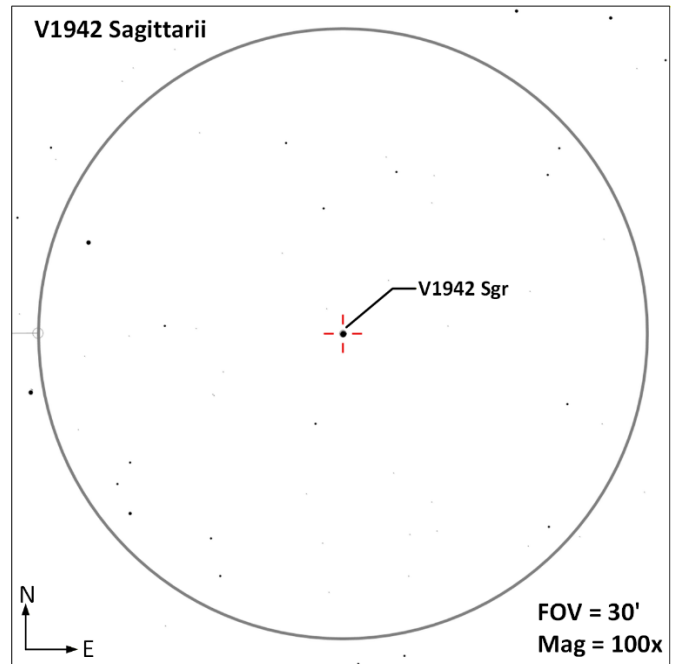
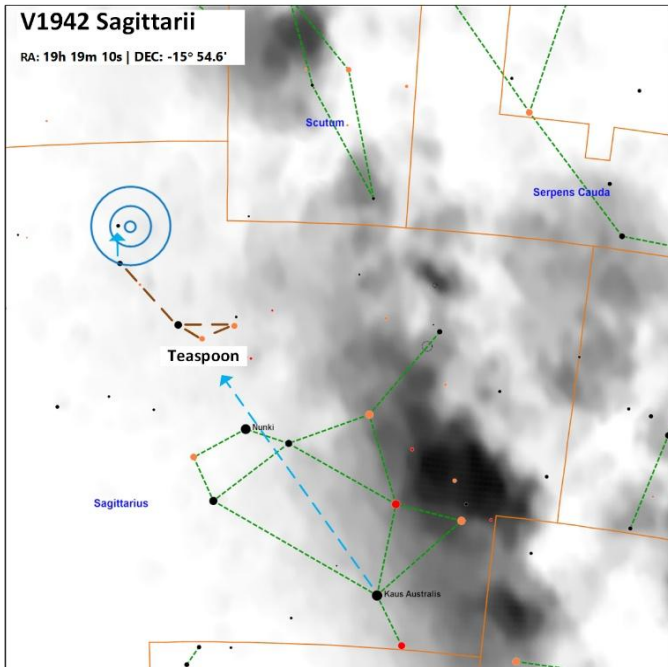


Teaspoon (AS || | Size=8°x2° | Stars=4 | Centering Star: Pi Sgr; SAO-187756; HIP 94141) This is more a naked eye Asterism or some binoculars with super wide views. A shape of a teaspoon behind the teapot asterism in Sagittarius.

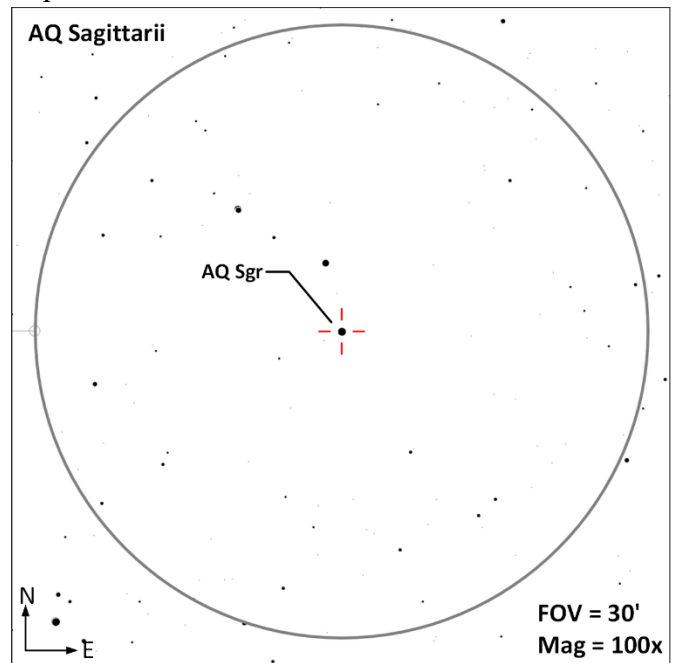
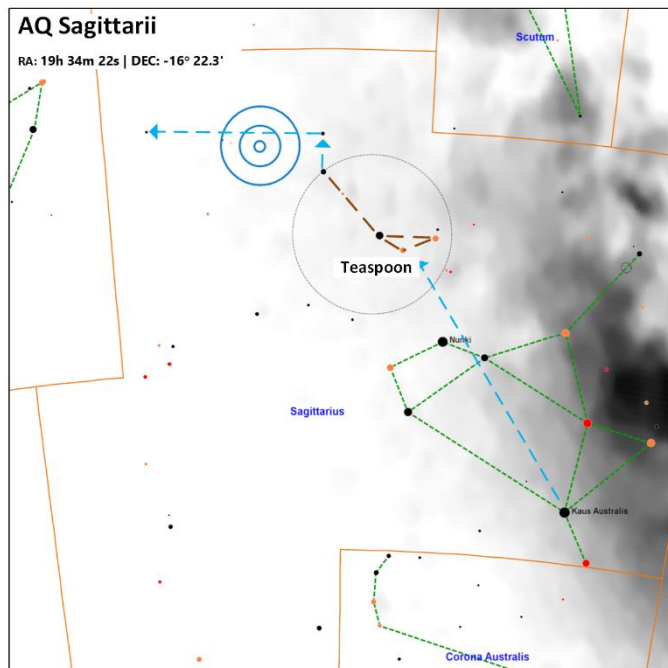


Constellation Guide

V1942 Sagittarii (CS || | Magnitude Range= 6.7 to 7.1 | Spec=C6 (N2/R8) | BV=+2.17 | Color=orange-red |)
 Located 1,740 light years away with a magnitude range of 6.7 to 7.1 over an undetermined period of time.

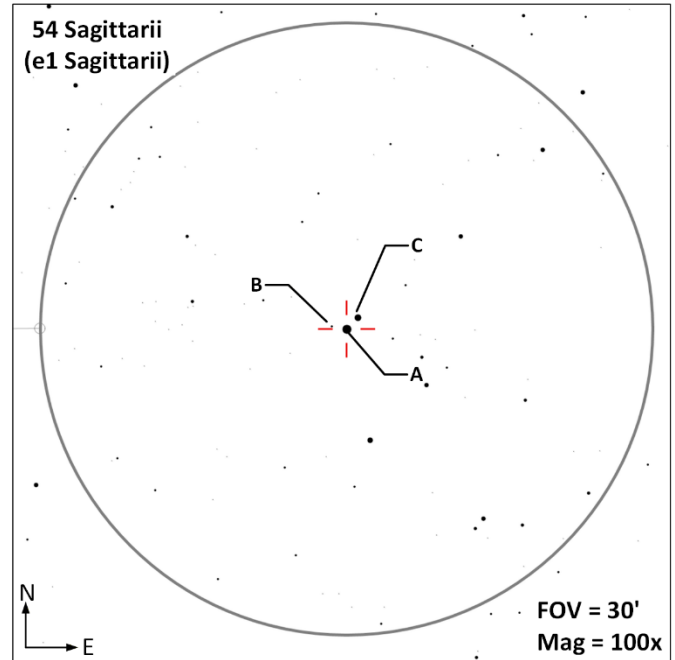
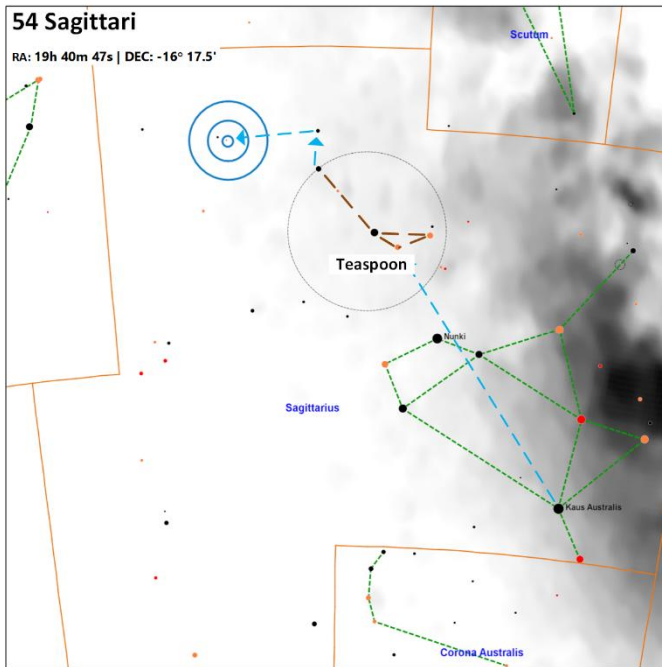


AQ Sagittarii (CS || | Magnitude Range= 6.6 to 8.5 | Period=0.55y | Spec=C7 (N3) | BV=+3.50 | Color=deep red |)
 Located 1,087 light years away this variable star has a magnitude range of 6.6 to 8.5 over a period of 200 days. A B-V Color index of +3.5 indicates it should appear quite red when viewed.

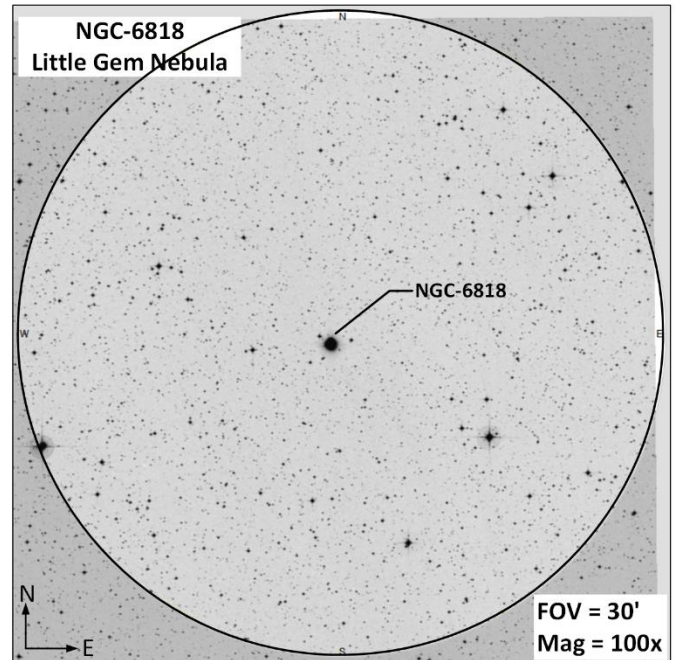
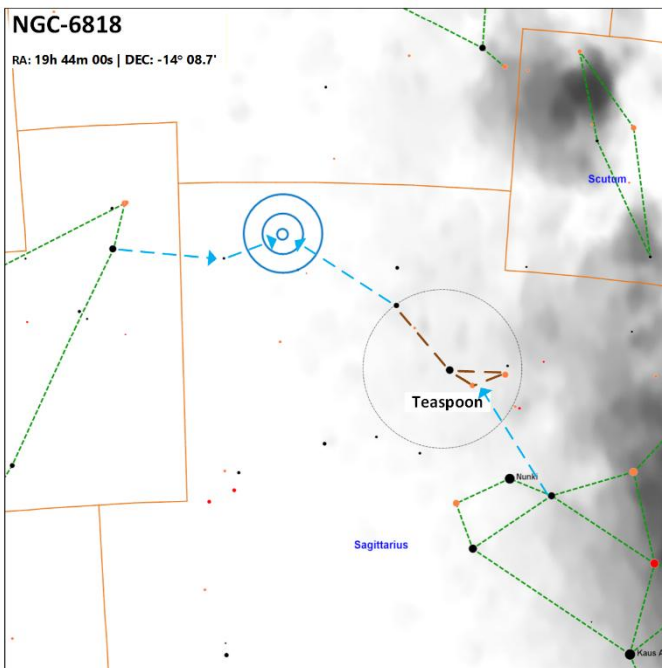


Constellation Guide

54 Sagittarii (MS-3 || AB| Mag=5.4,12.7 | Sep=45.2" | PA=279° | mBortle=4 | mApt=150mm | Spec=K2 III, ? || AC| Mag=5.4,7.7 | Sep=45.5" | PA=41° | mBortle=9 | mApt=50mm |) A triple star easily resolved in a small telescope composed components A (deep yellow), B(pale blue), C (pale yellow). The AB components are not physically associated with each other, but the AC pair are physically associated with each other.

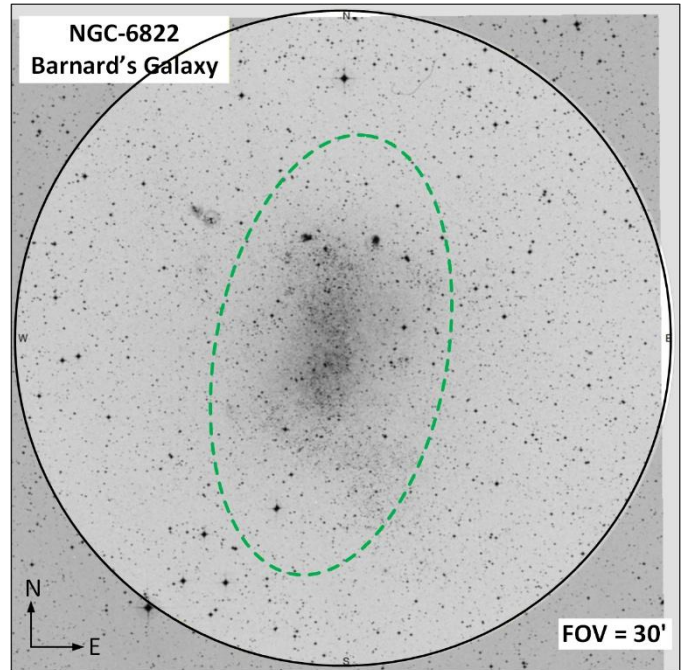
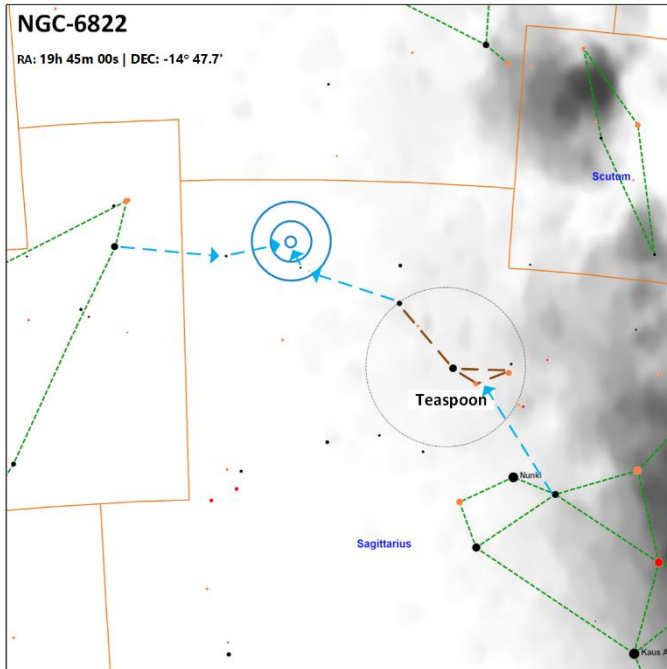


NGC-6818 (PN || Mag=10 | Size=0.4' | SB=16.4 | mBortle=9 | mApt=50mm | MC=Elliptical |) The Little Gem Nebula is a planetary nebula located 6,000 light years away with a physical diameter of ½ light year across. Utilization of an OIII filter may help identify this object.

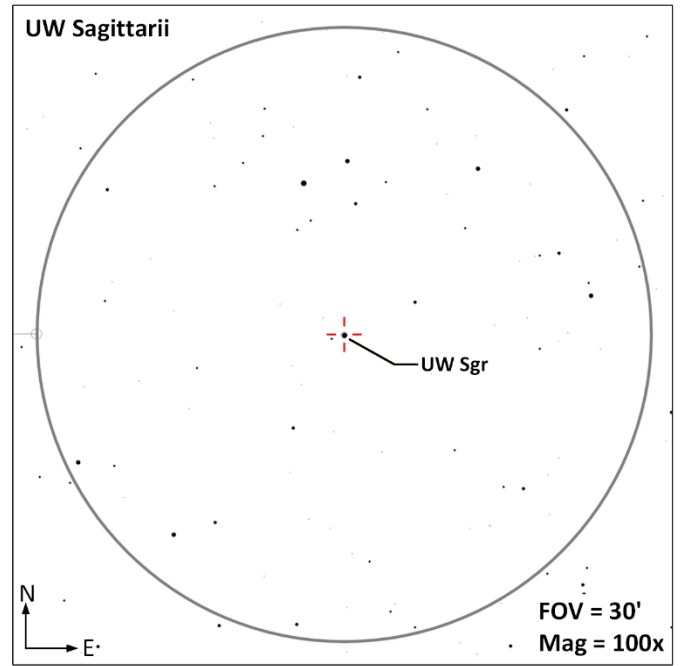
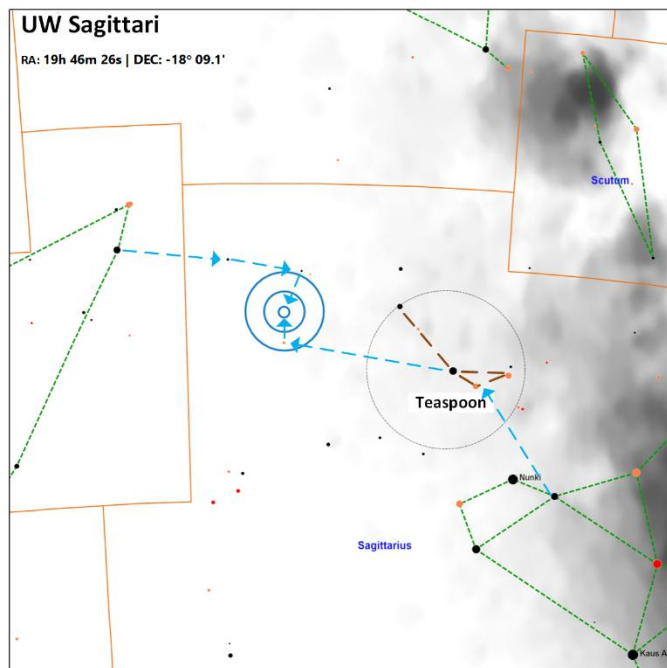


Constellation Guide

NGC-6822 (G || Mag=9.3 | Size=15.5'x13.5' | SB=23.7 | mBortle=? | mApt=?mm | MC=IB(s)m |) Barnard's Galaxy is a barred irregular galaxy discovered by Barnard with a six-inch refractor telescope in 1884. The galaxy lies approximately 1.5 million light years away with a diameter of 7,000 light years and is the closest non-satellite galaxy to the Milky Way.

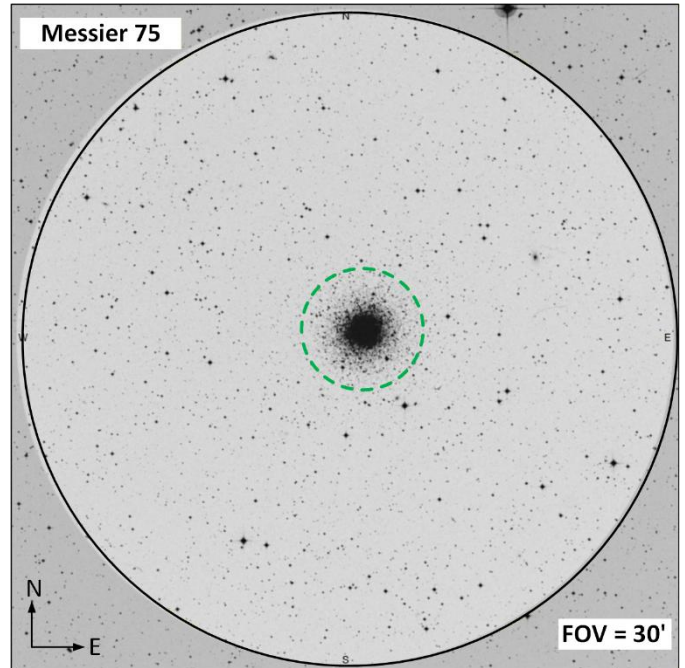
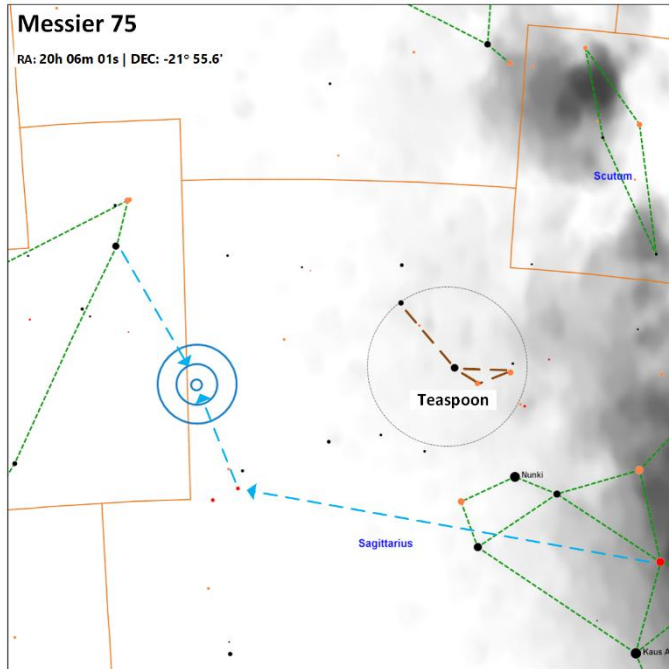


UW Sagittarii (CS || | Magnitude Range= 9.3 to 12.5 | BV=+2.60 | Color=red |) A pulsating semi-regular variable star of type SRB.



Constellation Guide

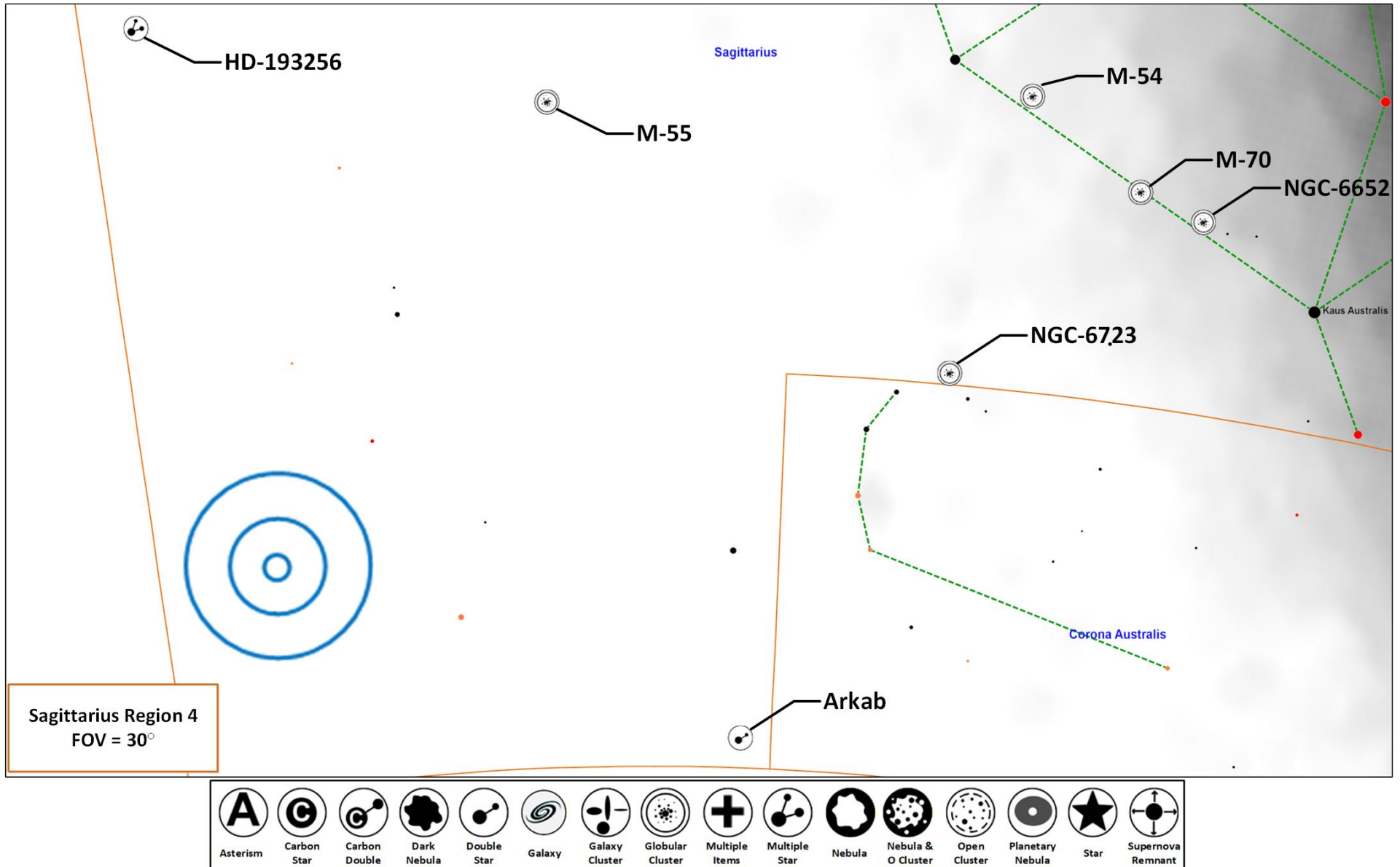
Messier 75 (GC || Mag=8.5 | Size=6' | SB=21.0 | mBortle=9 | mApt=50mm | MC=I |) Located 67,500 light years away with a physical diameter of 67 light years. With a Shapley-Sawyer Concentration Class of I- High concentration toward the center, it is one of the more densely concentrated globular clusters known. This cluster is part of the [Gaia Sausage](#), the hypothesized remains of a dwarf galaxy the merged with the Milky Way.



Blank

Constellation Guide

Region 4: Constellation Targets

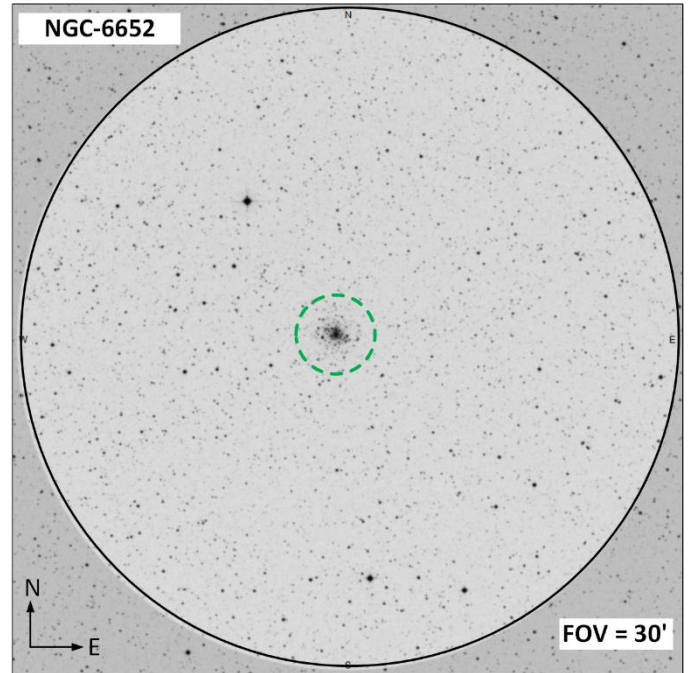
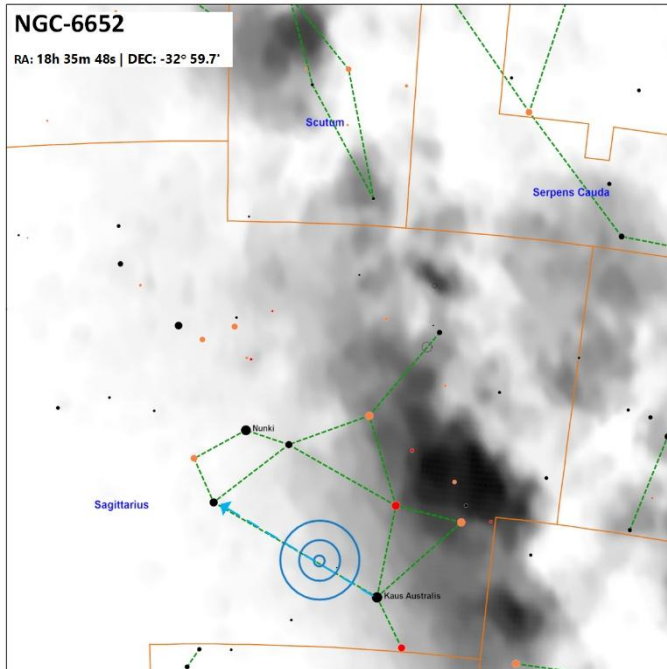


Constellation Guide

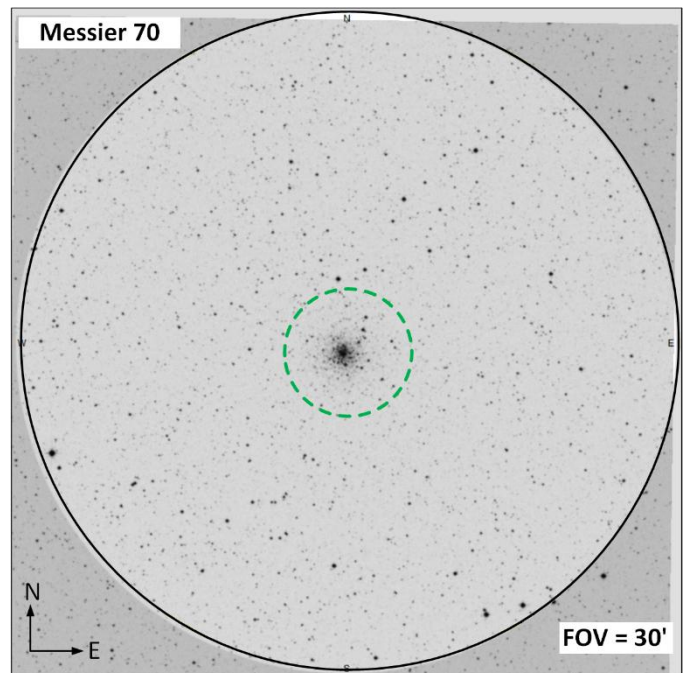
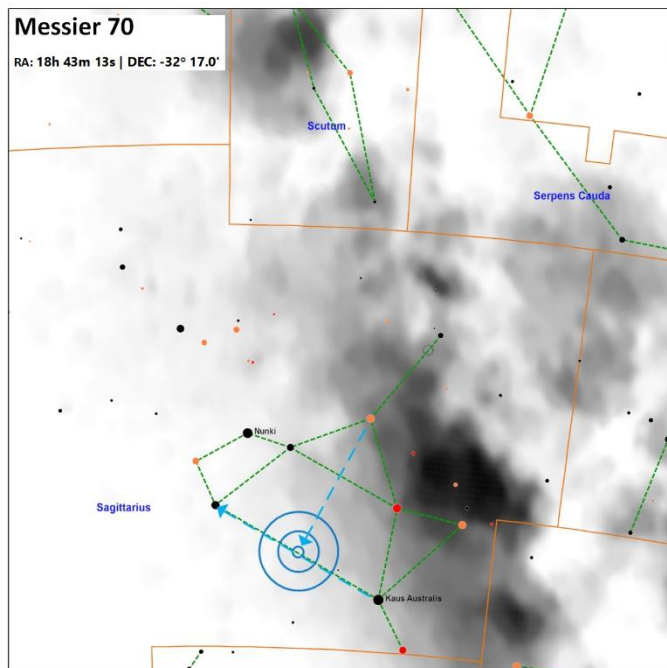
Object (Type)	Links	Gear	Aliases	Stats
NGC-6652 (GC)	1	T	Mel 207; EQ 1832-330; C1832-330; GCL 98	Mag=8.6 Size=6' SB=21.1 mBortle=9 mApt=50mm MC=VI:
Messier 70 (GC)	1	T	NGC-6681; Mel 211; EQ 1840-323; C1840-323	Mag=7.9 Size=7.9' SB=21.0 mBortle=9 mApt=50mm MC=V
Messier 54 (GC)	1	T	NGC-6715; Mel 216; EQ 1851-305; C1851-305	Mag=7.8 Size=7.5' SB=20.8 mBortle=9 mApt=50mm MC=III
NGC-6723 (GC)	1	T	Mel 217; EQ 1856-367; C1856-367; Dunlop 573; Chandelier Cluster;	Mag=7 Size=13' SB=21.2 mBortle=9 mApt=50mm MC=VII
Arkab (DS)		B, T	SAO-229646; HIP 95241; Bet1 Sgr; HD 181454; HR 7337; CD-4413277; DUN226; FK5 1502; WDS19226-4428; Δ226; β ¹ Sgr; WDS 19226-4428;	AB Mag=4,7.2 Sep=28.3" PA=76° mBortle=9 mApt=50mm Spec=B9 V, A5 V Color=blue-white, white
Messier 55 (GC)	1	B, T	NGC-6809; Mel 221; EQ 1936-310; C1936-310	Mag=6.3 Size=17' SB=21.1 mBortle=9 mApt=50mm MC=XI
HD 193256 (MS-6)	1	T	SAO-189164; HIP 100288; 8 Cap; HD 193281; HR 7764; ADS 13702; CD-2916981; WDS20205-2912; Herschel 5188; HJ5188;	AB Mag=6.7,10.1 Sep=3.7" PA=38° mBortle=9 mApt=60mm Spec=A2 IV-V, ? Color=white, ? AC Mag=6.7,7.5 Sep=27.3" PA=320° mBortle=9 mApt=50mm Spec=A2 IV-V, A8/A9 Vn AD Mag=6.7,10.1 Sep=120.6" PA=38° mBortle=9 mApt=50mm BF Mag=10.1,9.8 Sep=437" PA=262° mBortle=9 mApt=50mm DE Mag=10.1,10 Sep=4.7" PA=185° mBortle=9 mApt=50mm

Constellation Guide

NGC-6652 (GC || Mag=8.6 | Size=6' | SB=21.1 | mBortle=9 | mApt=50mm | MC=VI: |) Located 33,000 light years away with a physical diameter of 57 light years. The Shapley-Sawyer Concentration Class VI-Intermediate mild concentration.

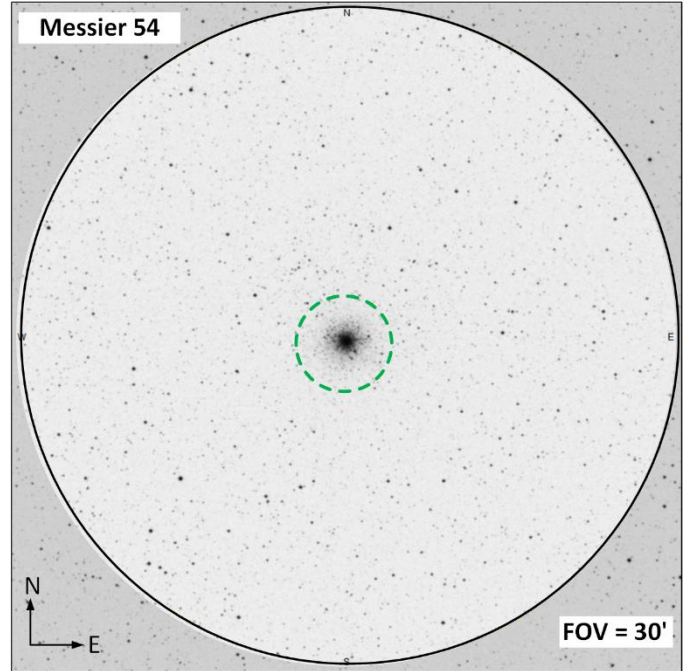
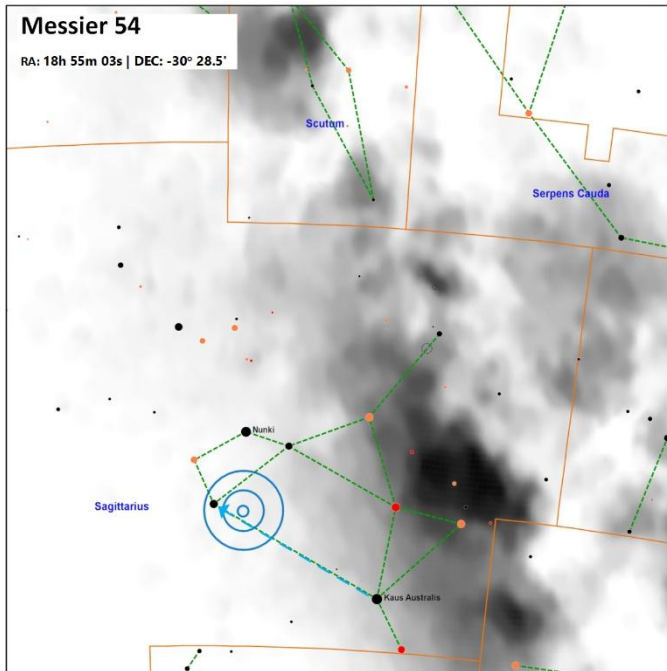


Messier 70 (GC || Mag=7.9 | Size=7.9' | SB=21.0 | mBortle=9 | mApt=50mm | MC=V |) Located 29,400 light years away. Due to its southern declination this can be a difficult target to view for observers in the northern hemisphere.

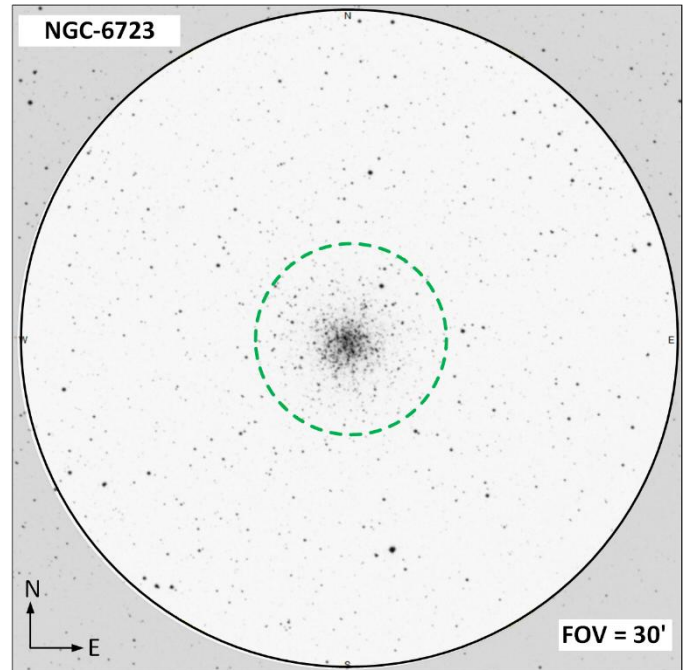
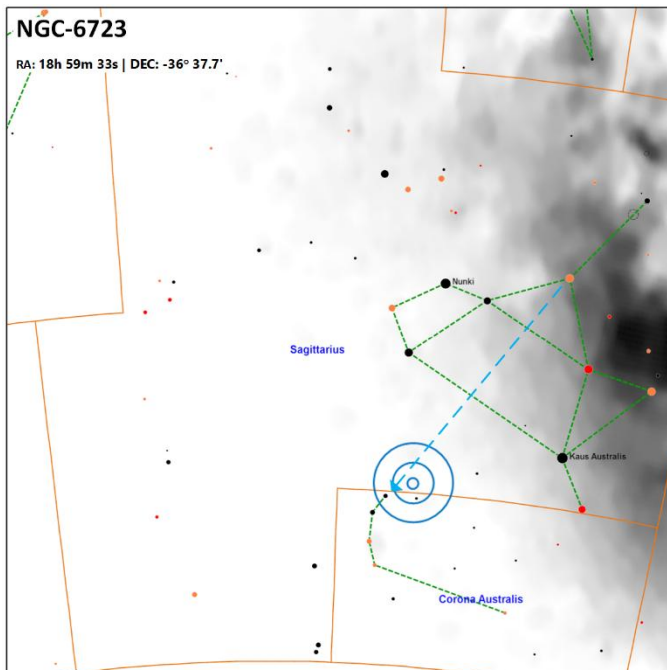


Constellation Guide

Messier 54 (GC || Mag=7.8 | Size=7.5' | SB=20.8 | mBortle=9 | mApt=50mm | MC=III ||) Located 79,750 light years away this is the first globular cluster recognized of having extragalactic origins. It is believed that it most likely belongs to the [Sagittarius Dwarf Elliptical Galaxy](#) (SagDEG) a satellite galaxy to the Milky Way. It is one of the denser of the globulars with a Shapley-Sawyer classification of III-Strong inner core of stars.

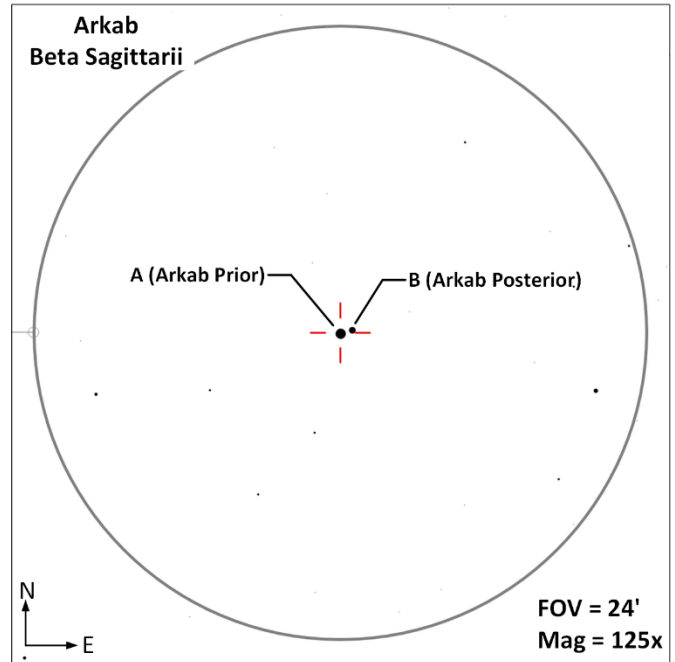
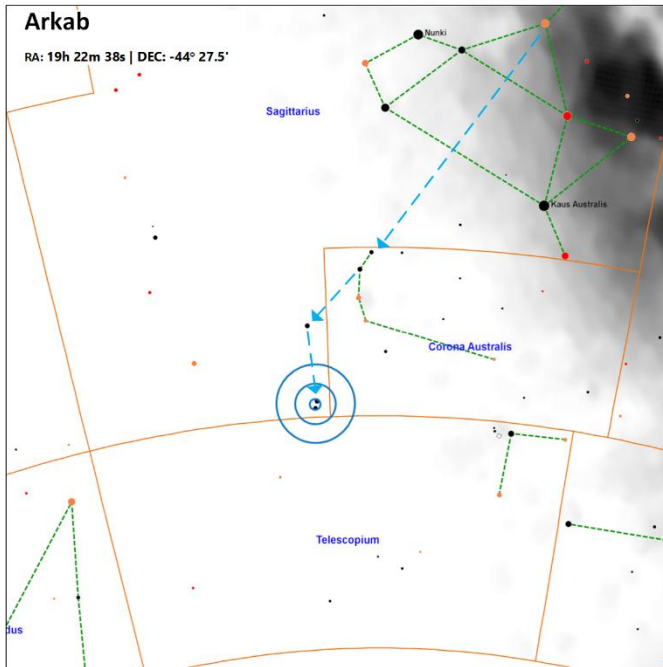


NGC-6723 (GC || Mag=7 | Size=13' | SB=21.2 | mBortle=9 | mApt=50mm | MC=VII ||) The Chandelier Cluster is located 28,000 light years away with a physical diameter of 107 light years. Unlike many globular clusters this cluster has an enhanced metallicity and a large fraction of younger stars.

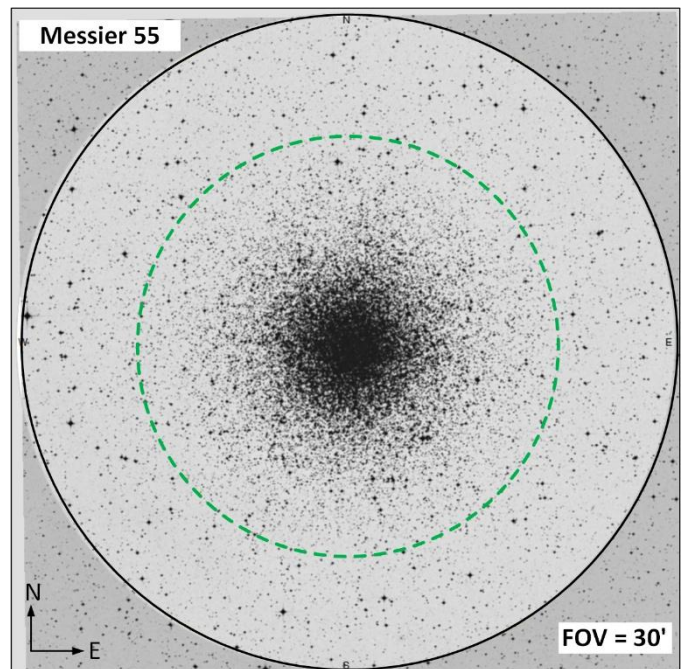
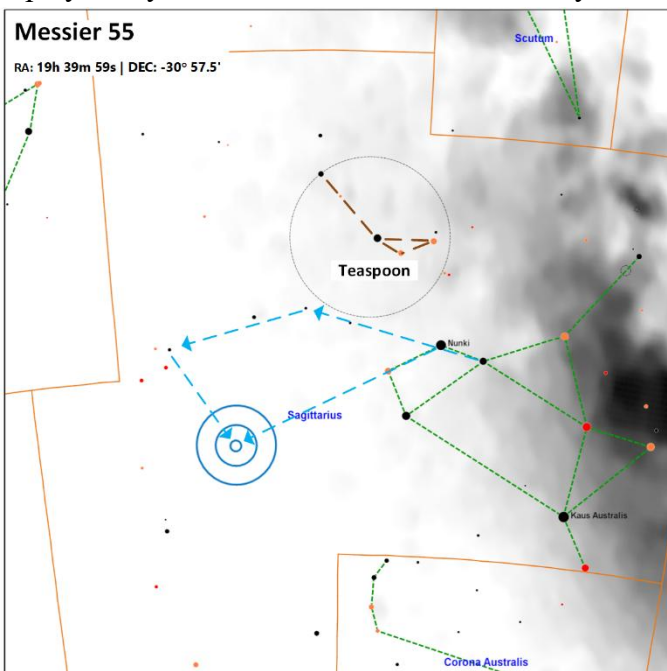


Constellation Guide

Arkab (DS || AB | Mag=4,7.2 | Sep=28.3" | PA=76° | mBortle=9 | mApt=50mm | Spec=B9 V, A5 V | Color=blue-white, white |) Hartung: “Bright pale yellow and ashy white, this is a fine object for small telescopes”. Considered a showcase pair. This is an optical double and are composed of Arka Prior(β^1) and Arka Posterior (β^2).

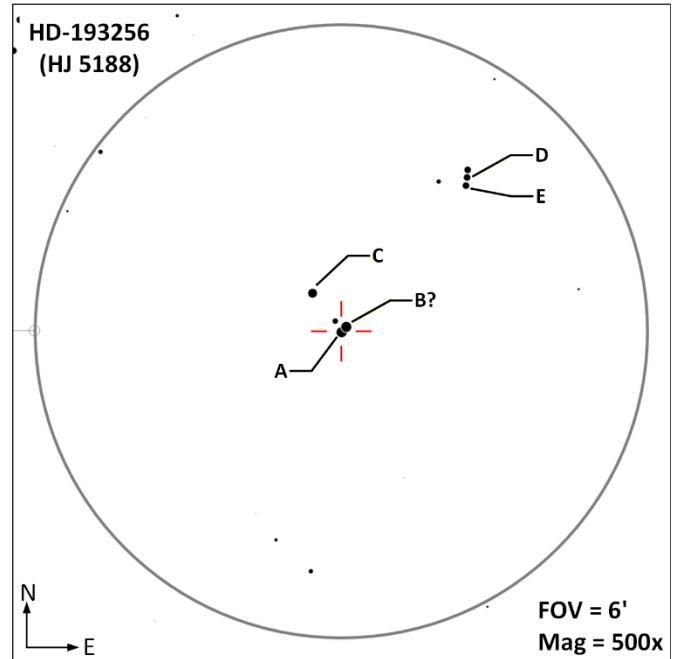
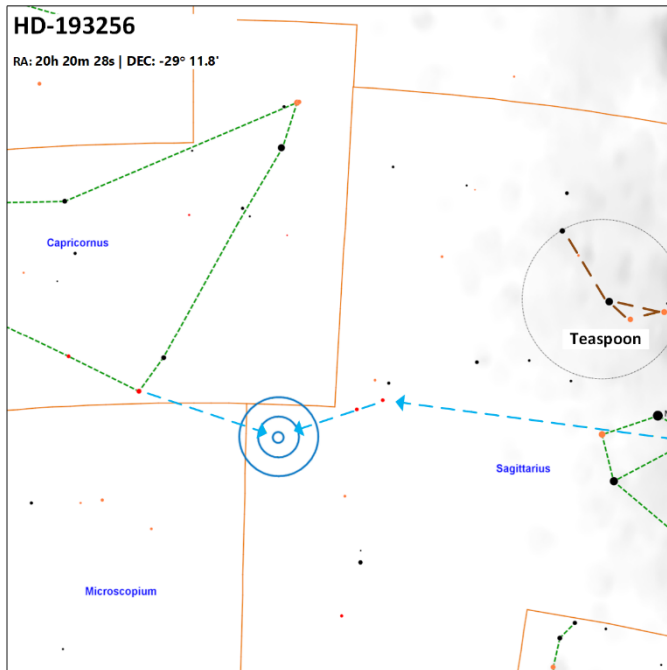


Messier 55 (GC || Mag=6.3 | Size=17' | SB=21.1 | mBortle=9 | mApt=50mm | MC=XI |) Located 17,600 light years away with a physical diameter of 100 light years. This is one of the nearest globular clusters to our solar system, but difficult to observe due to its low declination. This globular has a loose grainy appearance with a Shapley-Sawyer concentration class of XI-Very loose towards the center.



Constellation Guide

HD 193256 (MS-6 || **AB** | Mag=6.7,10.1 | Sep=3.7" | PA=38° | mBortle=9 | mApt=60mm | Spec=A2 IV-V, ? | Color=white, ? || **AC** | Mag=6.7,7.5 | Sep=27.3" | PA=320° | mBortle=9 | mApt=50mm | Spec=A2 IV-V, A8/A9 Vn || **AD** | Mag=6.7,10.1 | Sep=120.6" | PA=38° | mBortle=9 | mApt=50mm || **BF** | Mag=10.1,9.8 | Sep=437" | PA=262° | mBortle=9 | mApt=50mm || **DE** | Mag=10.1,10 | Sep=4.7" | PA=185° | mBortle=9 | mApt=50mm || Description indicates all members should be visible at 100x. Documentation states that none of the members are confirmed physically associated with each other. There also seems to be conflict between the recorded magnitude and depicted magnitude in the atlas. Observations may help resolve some of these issues.



Constellation Guide

Observation Log: Sagittarius (Sgr)

Equipment Config A: _____ Config B: _____

Notes: _____

Date	Time	Config	Target	Notes

Date	Time	Config	Target	Notes

Constellation Guide
Observation Log: Sagittarius (Sgr)

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 utilized 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](#)
 - Star Clusters: Brent Archinal, Steve Hynes
 - Double stars for small telescopes: Sissy Haas
 - [Sky Spot](#) Books
 - Bright Telescopic Objects: Brent Watson
 - Select Double Stars: Brent Watson
 - Overlooked Objects: Brent Watson
- Asterisms
 - Astronomical League: [Asterisms observing program](#) List
 - Asterisms: Demelza Ramakers
 - [Pattern Asterisms](#): John Chiravalle
 - Milwaukee Astronomical Society: [Binocular Asterisms](#)
 - Deep-Sky.co.uk: [Observing Asterisms](#) (David Ratledge)
- [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](#)
 - [Claude AI](#) – Some Stats for targets

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