

Constellation Guide

Constellation: Cepheus (Cep)

Evening Visibility: **August – October**

Opposition: September

Latitude Visibility: **+90° to -10°**

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

Constellation Targets

[NGC-7822](#), Berkeley 59, [B-150](#), [NGC-40](#), [NGC-188](#), STF-320, [Palomar-1](#), HR-1230, [Kappa Cep](#), [NGC-6939](#), [NGC-6946](#), B-148, B-149, B-357, [NGC-7023](#), B-359, B-360, STF-2780, HD-203339, B-153, B-154, [Alfirk](#), IC-1396, IC-1396A, [Mu Cep](#), TR-37, HR-8281, B-161, B-367, B-163, B-365, B-160, [S Cep](#), [NGC-7129](#), STAR 11, B-165, B-368, B-166, B-167, [NGC-7160](#), B-171, [Xi Cep](#), CR-471, B-174, B-173, NGC-7235, HR-8493, DO Cep, [Delta Cep](#), Tobacco Pipe, DG Cep, [SH2-155](#), Reiland-1, [NGC-7510](#), [Omicron Cep](#), The Yacht, NGC-7762, 7 Sisters

Mythology/Back Story

Cepheus is named after the mythical King Cepheus of Aethiopia, husband of Cassiopeia and father of Andromeda. One of the oldest recognized constellations, it was described by Eudoxus in the 4th century BC and later included among the 48 constellations of Ptolemy's *Almagest* in the 2nd century AD. Lying far north beside Ursa Minor, its northern boundary reaches nearly to the celestial pole, while its southern portion dips into the Milky Way. The pattern of the constellation looks like a simple house with a steep roof, or a church steeple, with its peak pointing toward Polaris. Because of precession, Gamma Cephei (Errai) will be the pole star around 3000–4000 AD.

Constellation Highlights

What Cepheus lacks in galaxies and globular clusters it makes up in spades with Dark Nebulae. There are 29 Barnard dark nebulae located in this constellation; 20 with opacity values of 4 or more are included in this guide.

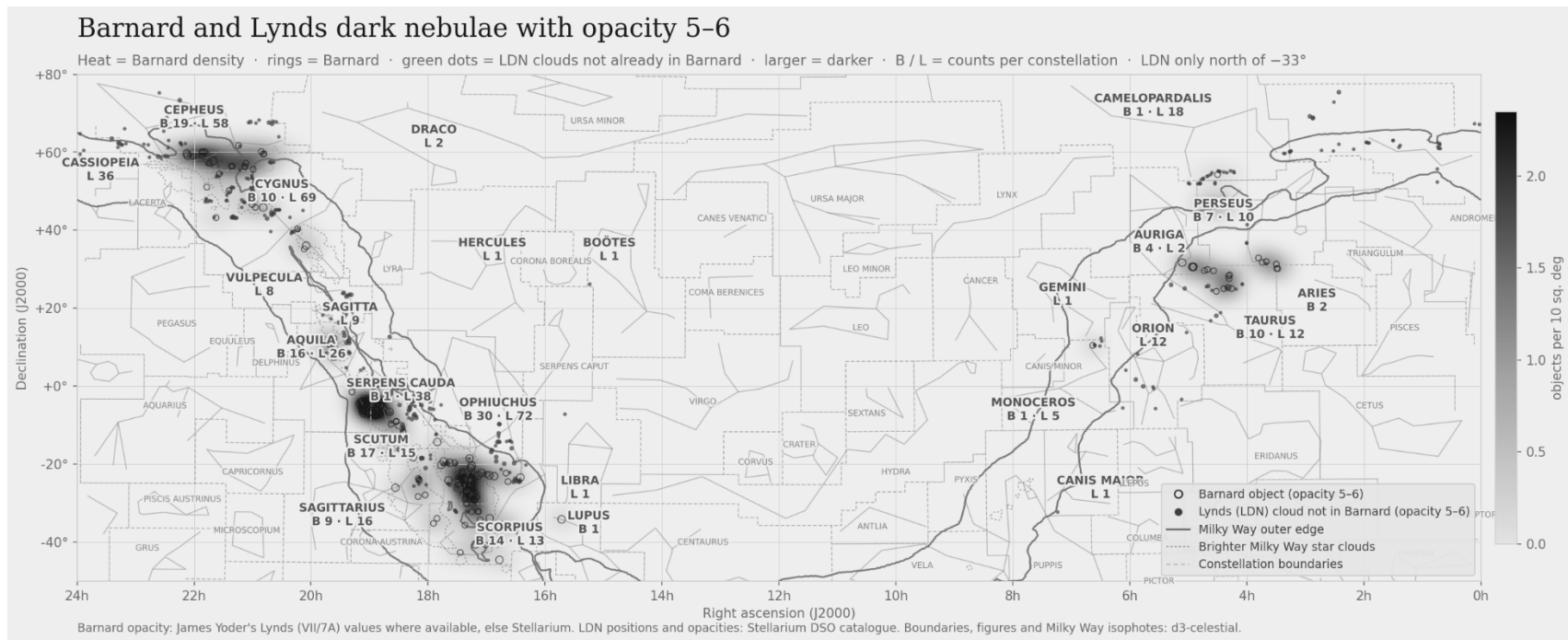
- **Berkeley 59** (OC) – Cluster in emission nebula
- **NGC 188** (OC) – Ancient open cluster
- **NGC 6946** (G) – The Fireworks Galaxy
- **NGC 7023** (RN) – The Iris Nebula

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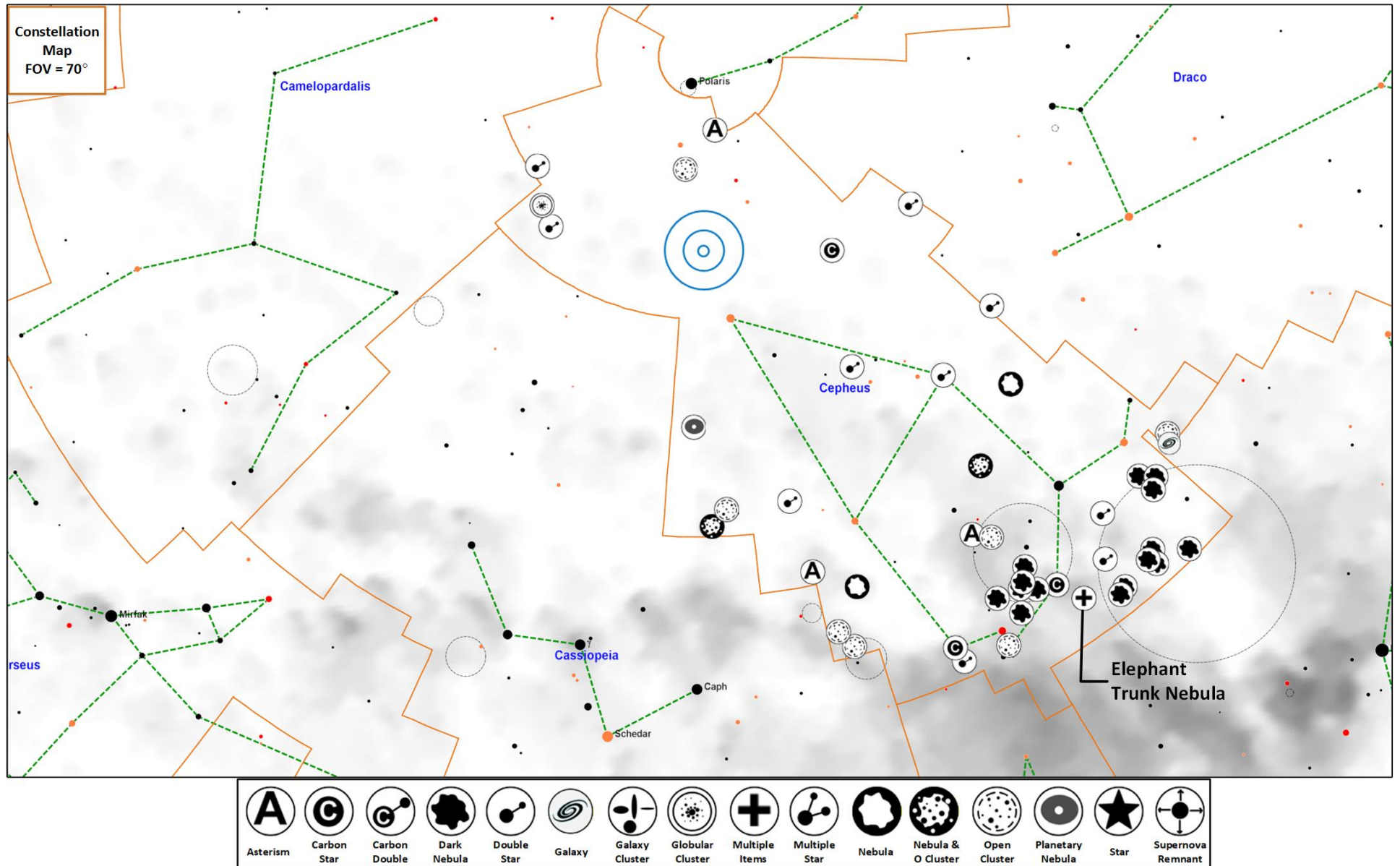
- **Alfirk** (DS) – Showpiece double
- **HR 8281** (MS-4) – Multiple star system
- **Xi Cephei** (MS-3) – Multiple star system
- **Delta Cephei** (MS-3) – Multiple system noted for colors
- **7 Sisters** (AS) – Binocular wide view asterism also called false Pleiades.
- **Mu Cephei** (CS, DS) – The Garnet Star
- **S Cephei** (CS) – Carbon star
- **DO Cephei** (DS) – Nearby binary star system
- **NGC-7510** (OC) – Interesting shaped cluster

Dark Nebulae: Galactic playground for cosmic dust bunnies

Cepheus is one of the "hot spots" for dark nebulae: there are 29 Barnard dark nebulae in this constellation, and 20 have been included in this guide. Observing dark nebula is a practice in seeing what isn't there. This takes a different mindset from most deep-sky observing, so here are a few pointers when viewing dark nebulae: 1. The darker the sky, the better your chance of identifying a dark nebula (Bortle 4 or less is recommended for dark nebulae of opacity 5 and 6 within rich star fields). 2. Try to use an eyepiece that will provide you a field of view of 2 to 3 times the size of the dark nebula. 3. Use averted vision and make sure your eyes are fully dark adapted.



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Object (Type)	Links	Gear	Aliases	Stats
NGC 7822 (EN)	1	B, T	Question Mark Nebula [Ced 214; LBN 581; Cederblad 214]; [LBN 589; Ced 215; Sh 2-171]	Including Berk59 Mag=8 Size=60'x30' SB=24.8 mApt=300mm
Berkeley 59 (OC)		T	C 0000+671; OCISM 61; OCL 286; Berk59; Lund 3	Size=10' MC=I3m n
Barnard 150 (DN)	1	B, T	Seahorse Nebula; Dark Seahorse Nebula; LDN 1082; B150	Size=60'x30' mBortle=4 mApt=50mm Opacity=5
NGC 40 (PN)	1	T	Caldwell 2; ARO 1; PK 120+09.1; PN G120.0+09.8; VV 1; Bow-Tie Nebula	Mag=11 Size=0.6' SB=18.5 mBortle=9 mApt=60mm MC=Elliptical
NGC 188 (OC)	1	B, T	Caldwell 1; Cr 6; Mel 2; Lund 28; OCL 309; Raab 1; OCL 309.0; C0039+850;	Mag=8.1 Size=14' SB=22.5 mBortle=7 mApt=114mm MC=I2r
STF 320 (DS)	1	T	SAO-4810; HIP 14417; HD 18438; HR 881; ADS 2294; BD+78 103; FK5 105; Σ320; WDS03061+7925	AB Mag=5.7,9.2 Sep=4.6" PA=232° mBortle=9 mApt=50mm Spec=M2.5III, ? Color=orange-red, ?
Palomar 1 (GC)	1	T	VII Zw 7; EQ 0325_794; C0325+794; LEDA 13165	Mag=13.6 Size=1.8' SB=23.5 MC=XII
HR 1230 (DS)	1	T	SAO-000650; HIP 19461; HD 25007; HR 1230; ADS 2963; BD+80 125; Σ460; WDS04100+8042; STF460	AB Mag=5.6,6.3 Sep=0.66" PA=166° mApt=250mm Period=372y Spec=G8III, A4V Color=yellow-orange, white
Kappa Cephei (DS)	1 , 2	T	SAO-9665; HIP 99255; 1 Cep; HD 192907; HR 7750; ADS 13524; BD+77 764; FK5 759; STF2675; Σ2675; WDS20089+7743, STF2675; κ Cep	AB Mag=4.4,8.3 Sep=7.3" PA=120° mBortle=9 mApt=50mm Spec=B9III, ? Color=blue-white, ?
NGC 6939 (OC)	1	T	Collinder 423; Cr 423; Raab 144; OCL 217; Lund 960; Mel 231; C2030+604	Mag=7.8 Size=8' SB=20.9 mBortle=9 mApt=102mm MC=IIIr
NGC 6946 (G)	1	B, T	Caldwell 12; C 12; UGC 11597; MCG +10-29-006; PGC 65001; Arp 29; MCG 10-29-6	Mag=8.8 Size=13' SB=23.0 mBortle=4 mApt=114mm MC=SAB(rs)cd
Barnard 148 (DN)		T	B148; CB 226; LDN 1076	Size=3' mBortle=4 mApt=70mm Opacity=5
Barnard 149 (DN)		T	B149; CB 227	Size=2' mBortle=4 mApt=114mm Opacity=5
Barnard 357 (DN)		B, T	B 357	Size=30' mBortle=4 mApt=50mm Opacity=5
NGC 7023 (RN)	1	T	Levy 112; Caldwell 4; Iris Nebula; Ced 187, Cr 429, Be 39; C 4;	Mag=7 Size=10'x8' SB=20.4
Barnard 359 (DN)		B, T	B 359; LDN 1068;	Size=20' mBortle=4 mApt=50mm Opacity=5

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Object (Type)	Links	Gear	Aliases	Stats
Barnard 360 (DN)		B	B 360; LDN 1063; B 151	Size=54' mBortle=4 mApt=50mm Opacity=5
STF 2780 (DS)	1	T	SAO-33210; HIP 104642; HD 202214; HR 8119; ADS 14749; BD+59 2334; Σ2780; WDS21118+5959; WDS 21118+5959	AB Mag=6.1,6.8 Sep=1" PA=213° mBortle=9 mApt=150mm Spec=B0II, ? Color=blue-white, ?
HD 203339 (DS)		T	HIP 105259; STF2790, WDS21193+5837; STF 2790; ADS 14864;	AB Mag=5.8,9.3 Sep=4.6" PA=45° mBortle=9 mApt=50mm Spec=M1I, B2 Color=orange-red, blue-white
Barnard 153 (DN)		B	B 153	Size=60' mBortle=4 mApt=50mm Opacity=5
Barnard 154 (DN)		T	B 154; LDN 1080	Size=8' mBortle=4 mApt=50mm Opacity=5
Alfirk (DS)	1 , 2	T	SAO-010057, HIP 106032, 8 Cep, Beta Cep, HD 205021, STF 2806, ADS 15032, WDS21287+7034; Alphirk	AB Mag=3.2,8.6 Sep=13.5" PA=248° mBortle=9 mApt=50mm Spec=B2III, A2V Color=blue-white, white
Elephant Trunk Nebula (IC-1396)				Mag=3.5 Size=180'x138' SB=23.1 mBortle=9 mApt=50mm MC=IV3m n
IC 1396 (EN, OC)	1	B	IC 1396, Cr 439, Lund 995, OCL 222, Tr 37; Elephant Trunk Nebula	Mag=3.5 Size=180'x138' SB=23.1 mBortle=9 mApt=50mm MC=IV3m n
IC 1396A (EN)		T	LBN452; Elephant Trunk	Size=14'x2'
Mu Cephei (CS)	1 , 2	B, T	SAO-033693, HIP 107259, Garnet Star, Erakis, HR 8315, HD 206936, ADS 15271; Herschel's Garnet Star; μ Cep; Mu Cep	Magnitude Range= 3.4 to 5.1 Spec=M2Ia BV=+2.24 Color=orange-red AB Mag=4.3,12.3 Sep=20.75" PA=261° mBortle=6 mApt=130mm Spec=M2Ia Color=orange-red
Trumpler 37 (OC)		B, T	IC 1396; Collinder 439; OCL 222; Lund 995; C 2137+572; TR 37	Mag=5.1 Size=60' SB=22.6 mBortle=9 mApt=50mm MC=IV3m n
HR 8281 (MS-4)	1	T	SAO-33626; HIP 106886; HD 206267; HR 8281; ADS 15184; BD+56 2617; FK5 813; Σ2816; STF 2816; WDS21390+5729	AC Mag=5.7,7.5 Sep=11.8" PA=120° mBortle=9 mApt=50mm Spec=O6.5V, ? Color=blue-white, ? AD Mag=5.7,7.5 Sep=19.8" PA=338° mBortle=9 mApt=50mm Spec=O6.5V, ? Color=blue-white, ?
Barnard 161 (DN)		T	CB 233; B 161;	Size=3' mBortle=4 mApt=70mm Opacity=6
Barnard 367 (DN)		T	B 367; LDN 1113	Size=5' mBortle=4 mApt=50mm Opacity=5
Barnard 163 (DN)		T	LDN 1103; LDN 1104; B 163; LM 381	Size=4' mBortle=4 mApt=60mm Opacity=4
Barnard 365 (DN)		B, T	B 365; LDN 1090	Size=22'x3' mBortle=4 mApt=50mm Opacity=4
Barnard 160 (DN)		B	LDN 1103; LDN 1104; B 163; LM 381	Size=31' mBortle=4 mApt=50mm Opacity=4
S Cephei (CS)	1	B, T	SAO-010100, HIP 106583, HD 206362, BD+77 827; TYC 4603-0770-1; S Cep	Magnitude Range= 7.4 to 12.9 Period=1.33y Spec=C7,4e BV=+4.45 Color=deep red

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Object (Type)	Links	Gear	Aliases	Stats
NGC 7129 (OC, RN)	1	T	NGC7129; LBN 497; Collinder 441; Cr 441; OCL 240; C2140+658	Mag=12 Size=8' SB=25.1 MC=IV2p n
STAR 11 (AS)		B	Cepheus OB2 Association	Size=600'x300'
Barnard 165 (DN)		B, T	B 165	Size=18' mBortle=4 mApt=50mm Opacity=5
Barnard 368 (DN)		T	B368; LDN 1137	Size=14' mBortle=4 mApt=50mm Opacity=5
Barnard 166 (DN)		T	B 166	Size=5' mBortle=4 mApt=50mm Opacity=5
Barnard 167 (DN)		T		Size=5' mBortle=4 mApt=50mm Opacity=5
NGC 7160 (OC)	1	T	Collinder 443; Cr 443; Lund 1002; OCL 236; C2152+623	Mag=6.1 Size=7' SB=19.0 mBortle=9 mApt=50mm MC=I3p
Barnard 171 (DN)		B	B 171	Size=91' mBortle=4 mApt=50mm Opacity=5
Xi Cephei (MS-3)	1 , 2	B, T	SAO-019826, HIP 108917, Xi Cep, 17 Cep, HD 209791, STF 2863, ADS 15600, Kurhah; ξ Cep; Alkurhah; Al Kurhah; Alkirdah; Al Kirduh	AB Mag=4.4,6.4 Sep=8.1" PA=274° mBortle=9 mApt=50mm Period=2501y Spec=A3m, F7V Color=white, yellow-white AC Mag=4.5,12.6 Sep=112.7" PA=208° mBortle=4 mApt=150mm Spec=A3m, ? Color=white, ?
Collinder 471 (OC)		B, T	Lund1005, OCL255; Cr471; C2206+717	Size=130' MC=III2p
Barnard 174 (DN)		B, T	B174; P 109; LM 389; LDN 1165	Size=19' mBortle=4 mApt=50mm Opacity=6
Barnard 173 (DN)		T	CB 237; B 173; LDN 1169	Size=4' mBortle=4 mApt=60mm Opacity=6
NGC 7235 (OC)		T	Collinder 447; Cr 447; Lund 1008; OCL229; C2210+570	Mag=7.7 Size=4' SB=19.3 mBortle=9 mApt=102mm MC=II3m
HR 8493 (DS)	1	B, T	SAO-10284; HIP 109659; HD 211300; ADS 15764; BD+72 1022; Σ2893; WDS22129+7318; STF 2893	AB Mag=6.2,7.9 Sep=28.8" PA=346° mBortle=9 mApt=50mm Spec=G8III, ? Color=yellow-orange, ?
DO Cephei (DS)	1	T	HIP 110893; HD 239960; LHS 3814; KR 60; ADS 15972; WDS 22280+5741; Kruger 60	AB Mag=9.9,11.4 Sep=2.8" PA=169° mBortle=9 mApt=102mm Period=44.6y Spec=M3.5V, M4.5V Color=red, red
Delta Cephei (MS-3)	1 , 2	B, T	SAO-34508; HIP 110991; 27 Cep; HD 213306; HR 8571; ADS 15987; BD+57 2548; FK5 847; STFA58; Σ158; WDS22292+5825; δ Cep	AB Mag=4.2,13 Sep=21.5" PA=282° mApt=180mm Spec=F5Iab-G1Ib, ? Color=yellow-white, ? AC Mag=4.2,6.11 Sep=41" PA=191° mBortle=9 mApt=50mm Spec=F5Iab-G1Ib, B7III Color=yellow-white, blue-white
Tobacco Pipe (AS)		B		Size=90'
DG Cephei (CS)		B, T	HIP 112254; HD 215484;	Magnitude Range= 8.7 to 9.7 Spec=C7,4 BV=+3.17 Color=deep red
Sh2-155 (EN)	1	B, T	Caldwell 9; C 9; LBN 529; Cave Nebula	Size=50'x10'

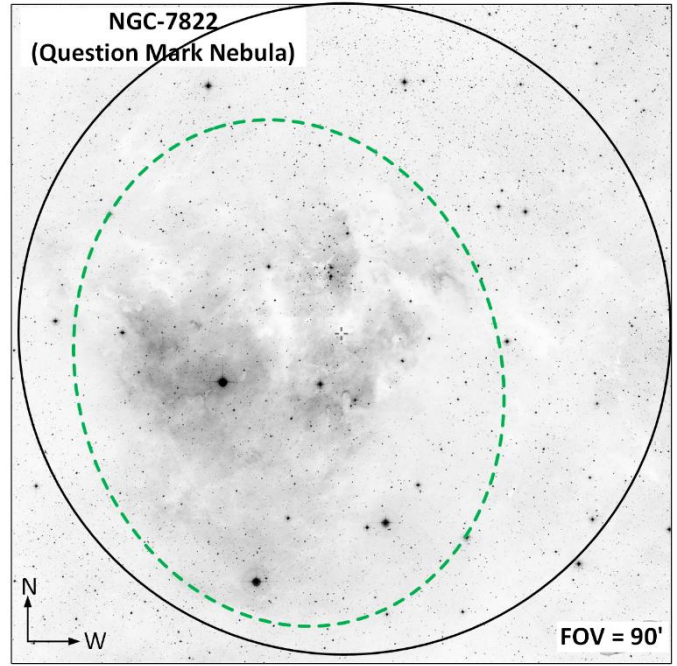
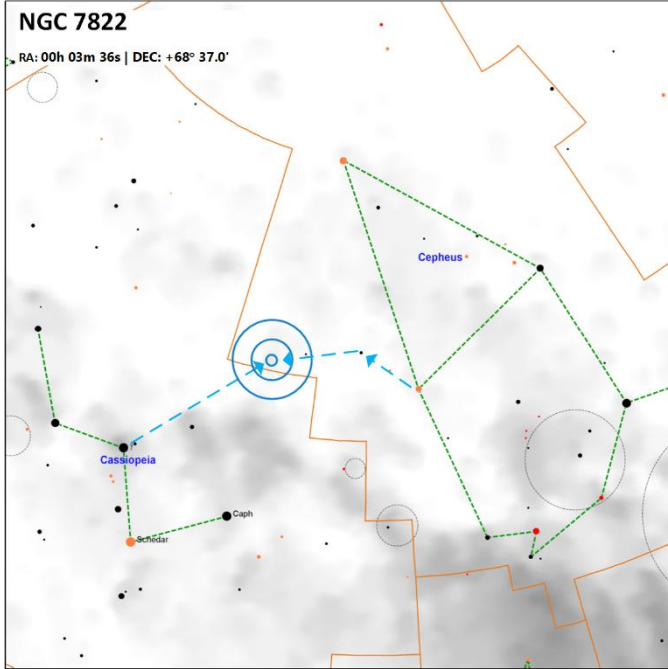
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Object (Type)	Links	Gear	Aliases	Stats
Reiland 1 (OC)		T	BDSB 38, APOC3361, KKC 47, Bergeron 1, MWSC3694; Reiland's Nebulous Cluster;	Size=1.8'
NGC 7510 (OC)	1	T	Collinder 454; CR 454; Lund 1030; OCL 256;	Mag=7.9 Size=6' SB=20.4 mBortle=9 mApt=114mm MC=II3r n
Omicron Cep (DS)	1 , 2	T	SAO-020554; HIP 115088; HD 219916; Omi Cep; o Cep; STF 3001; 34 Cep	AB Mag=5.0,7.3 Sep=3.35" PA=223° mBortle=9 mApt=50mm Period=2199y Spec=G8III, ? Color=yellow-orange, ?
The Yacht (AS)		B		Size=120' Stars = 22
NGC 7762 (OC)		B		Mag=10 Size=4' SB=21.6 mApt=300mm MC=II2m
7 Sisters (AS)		B	Seven Sisters of Cepheus, Seven Sisters of the Pole, False Pleiades	Size=240'x120' Stars = 7

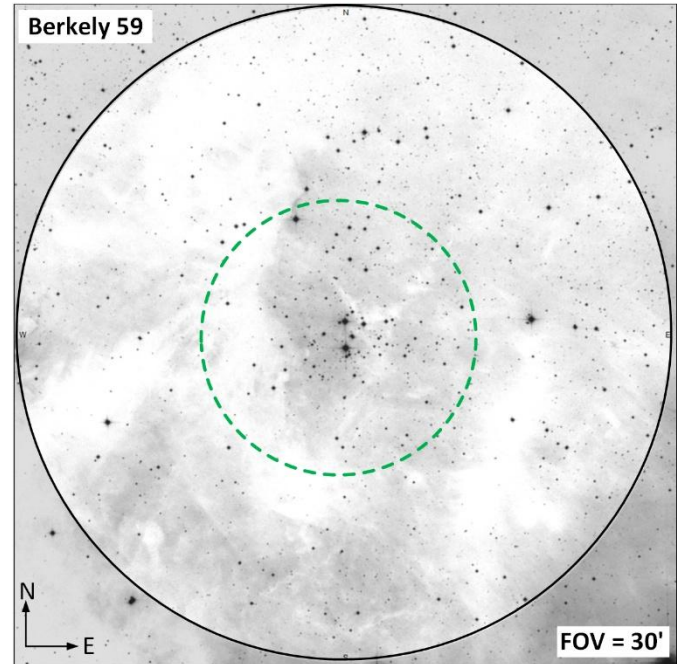
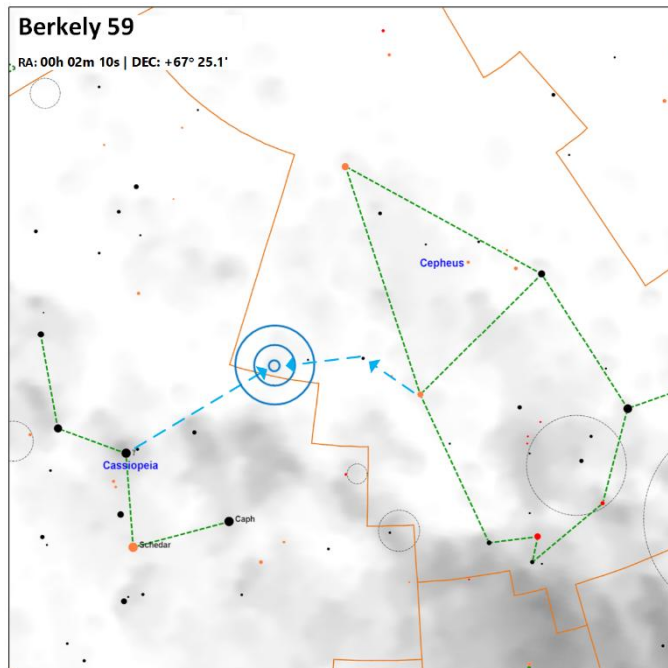
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NGC 7822 (EN || Mag=8 | Size=60'x30' | SB=24.8 | mApt=300mm |) A young star forming complex encompassing the emission region Sharpless 171 and containing the young open cluster Berkeley 59 (see below). Also contained in the nebula is one of the hottest stars discovered within 1 kpc of the Sun designated BD+66 1673 with a surface temperature of 45,000 K and a luminosity of 100,000 times that of our sun.

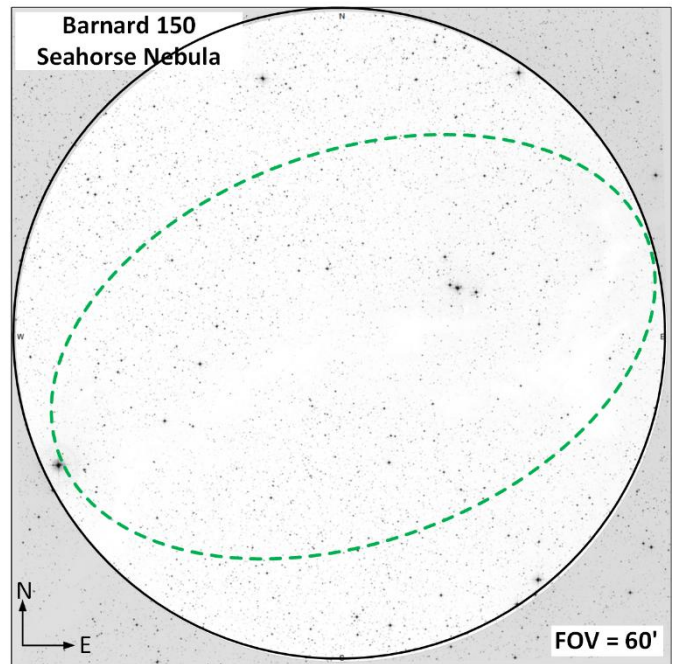
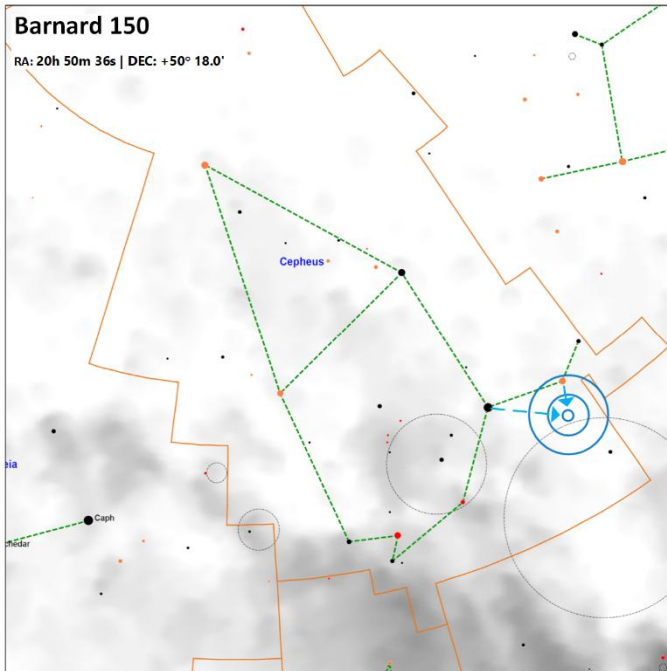


Berkeley 59 (OC || Size=10' | MC=I3m n |) This open cluster is embedded in NGC 7822 and has a Trumpler classification of +I - Detached cluster with strong central concentration, 3 - Medium range of brightness between stars in the cluster, m - Medium rich cluster with 50-100 stars, n - Nebulosity associated with cluster.

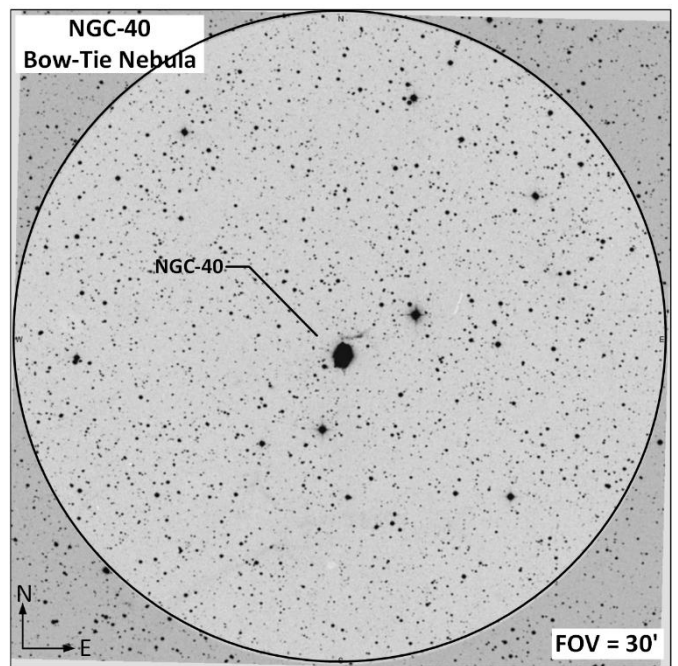
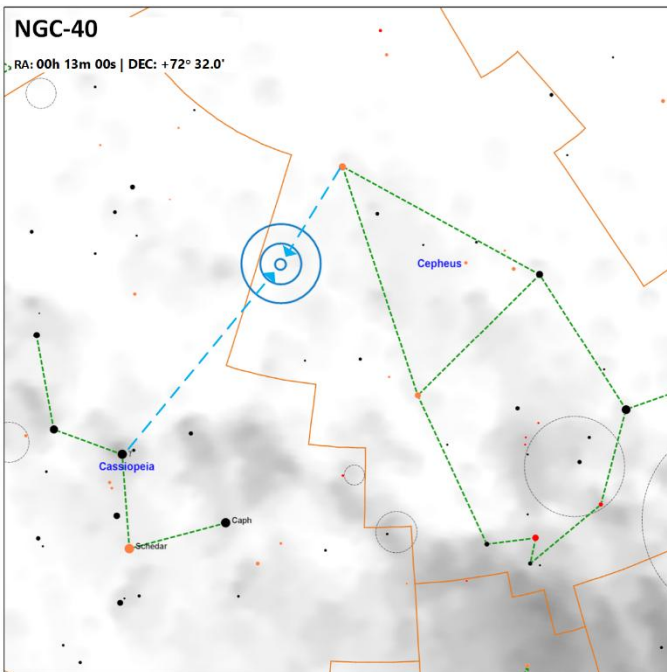


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Barnard 150 (DN || Size=60'x30' | mBortle=4 | mApt=50mm | Opacity=5 |) The Seahorse Nebula derives its name from the familiar shape it has in long exposure photographs of this object. It is a long thin dark nebula with an opacity rating of 5 (6 being the darkest).

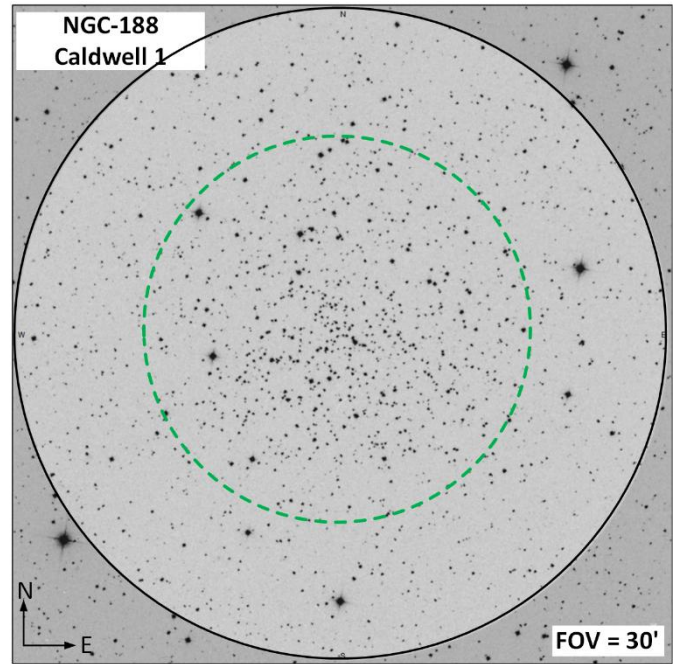
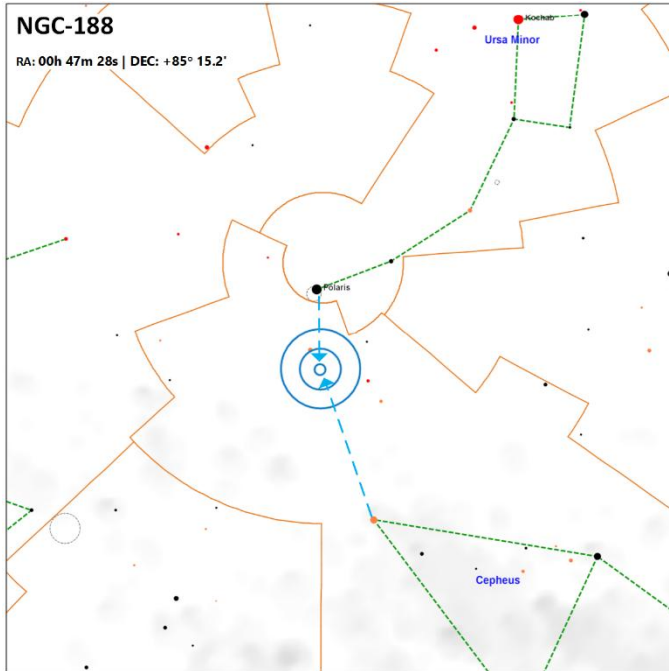


NGC 40 (PN || Mag=11 | Size=0.6' | SB=18.5 | mBortle=9 | mApt=60mm | MC=Elliptical |) Caldwell 2, also known as the Bow-Tie Nebula, is 5,280 light years away and measures about one light year across. It is estimated that in 30,000 years from now NGC 40 will fade away leaving only the white dwarf star that is approximately the size of earth.

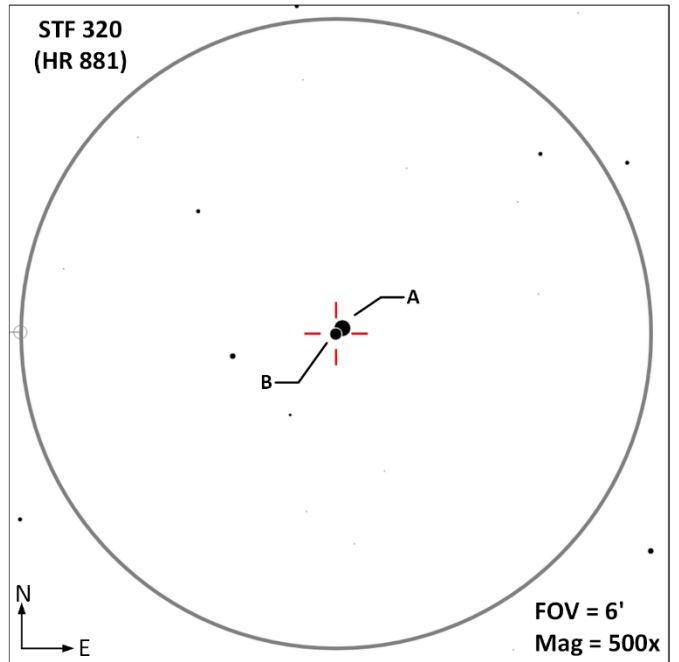
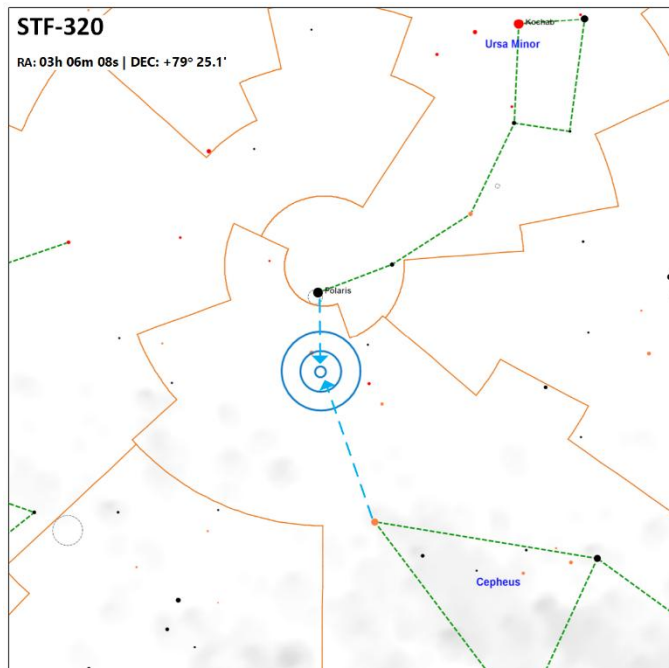


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NGC 188 (OC || Mag=8.1 | Size=14' | SB=22.5 | mBortle=7 | mApt=114mm | MC=I2r ||) The Polarissima Cluster is also designated Caldwell 1. This open cluster is one of the most ancient open clusters known and is estimated to be 6.8 billion years old. The cluster is under five degrees away from the Celestial Pole and estimated to be 6,000 light years away.

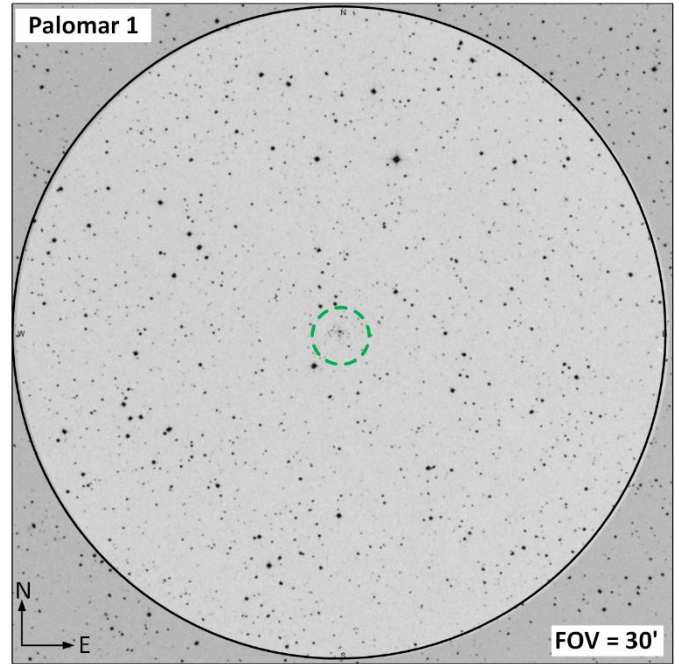
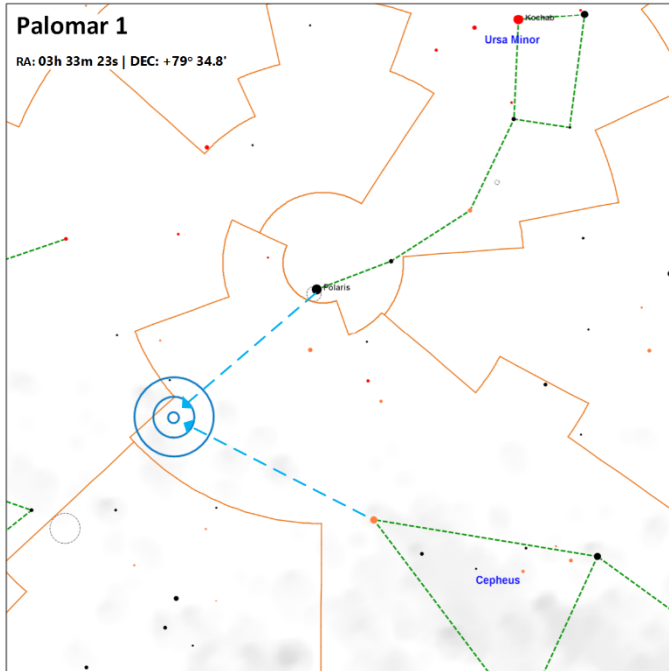


STF 320 (DS || **AB** | Mag=5.7,9.2 | Sep=4.6" | PA=232° | mBortle=9 | mApt=50mm | Spec=M2.5III, ? | Color=orange-red, ? ||) This system resides on a number of favorite doubles lists and is located 691 light years away. The primary is a red giant and described as orange-red in appearance. The secondary is about 996 AU from the primary giving it a separation of 4.6".

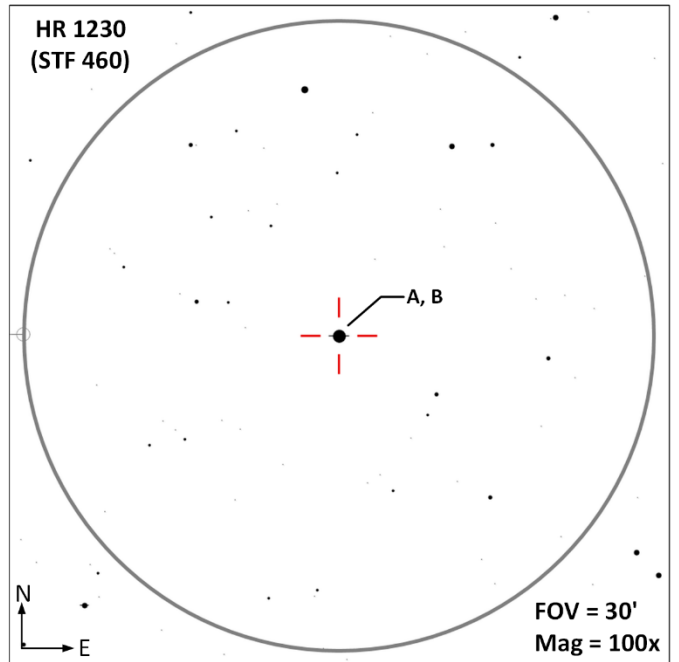
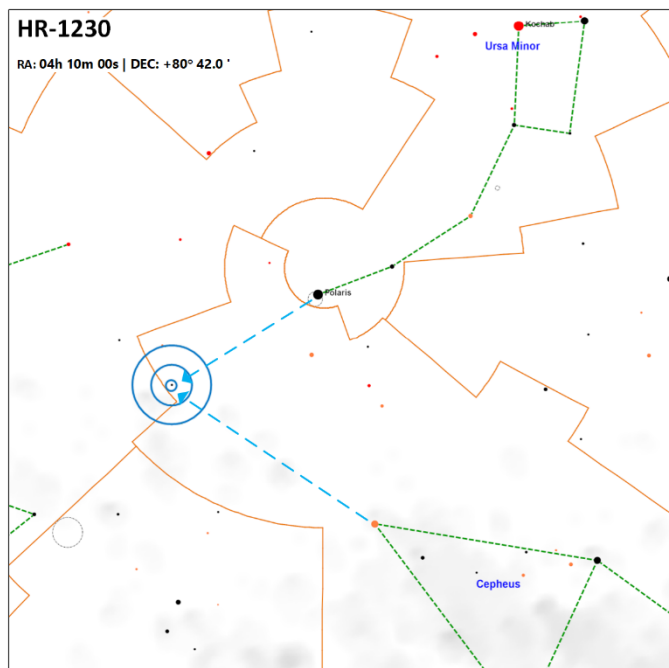


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Palomar 1 (GC || Mag=13.6 | Size=1.8' | SB=23.5 | MC=XII |) This globular cluster is part of the [Palomar Group](#), some of the faintest of all globular clusters in the Milky Way. This is considered a very young globular cluster estimated to be 6.3 to 8 billion years old. It may have once been associated with a dwarf spheroidal galaxy that was later destroyed by tidal forces. Averted vision may be required to identify this small dim object. This object resides in the "Kemble's Fifty-to-the-Pole" list.

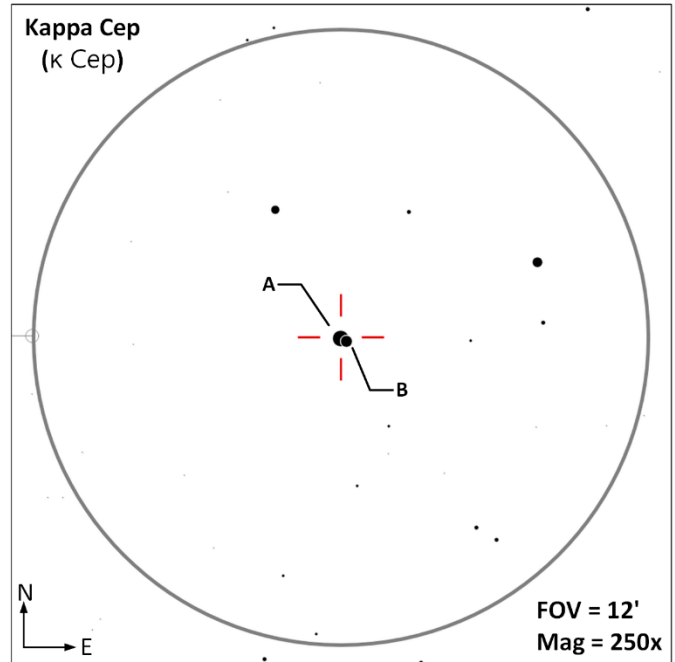
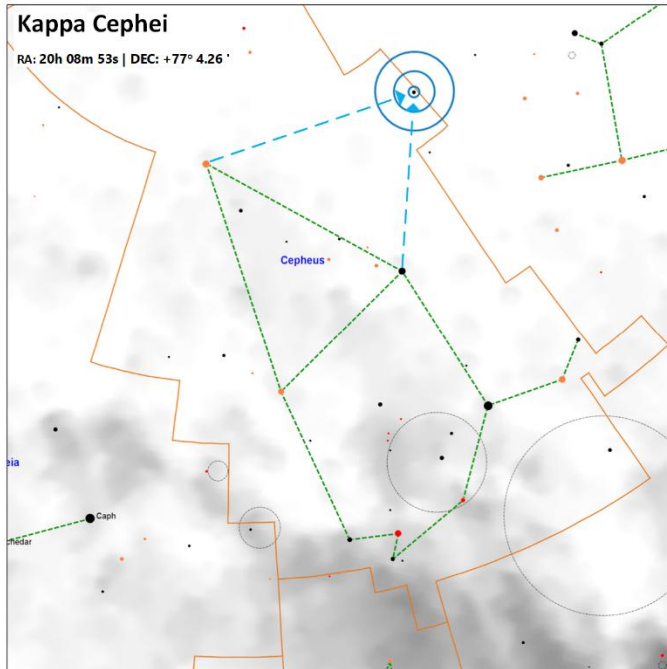


HR 1230 (DS || AB | Mag=5.6,6.3 | Sep=0.66" | PA=166° | mApt=250mm | Period=372y | Spec=G8III, A4V | Color=yellow-orange, white |) A tight double star system with an orbital period of 372 years.

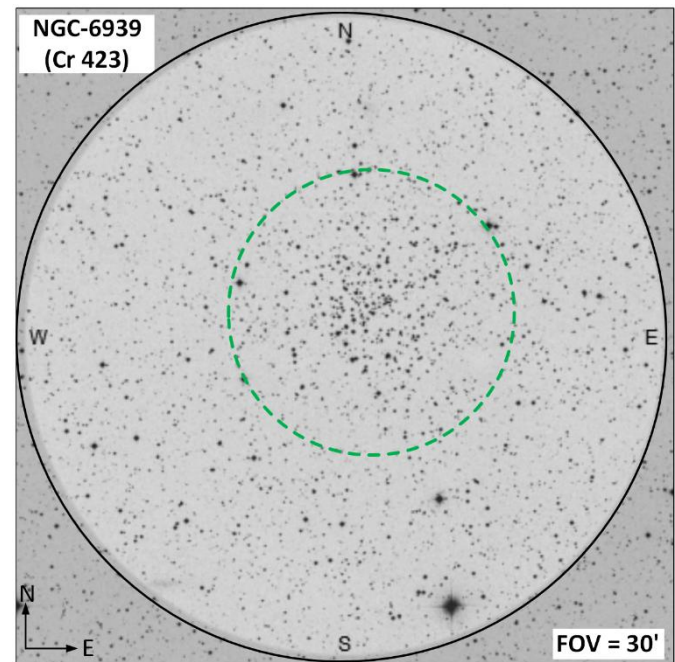
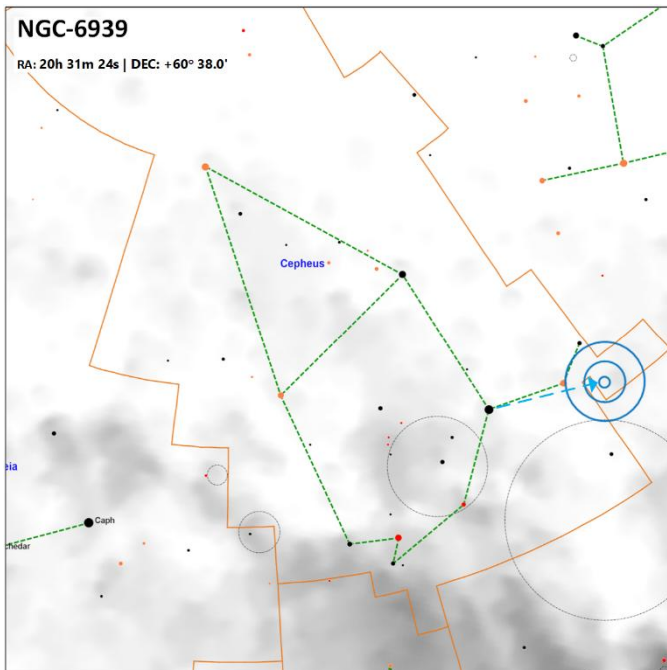


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Kappa Cephei (DS || AB | Mag=4.4,8.3 | Sep=7.3" | PA=120° | mBortle=9 | mApt=50mm | Spec=B9III, ? | Color=blue-white, ? |) Located 323 light years away. The primary is a blue giant and the secondary is a main-sequence star class A7V. The secondary is currently about 695 AU from the primary corresponding to a separation just over 7".

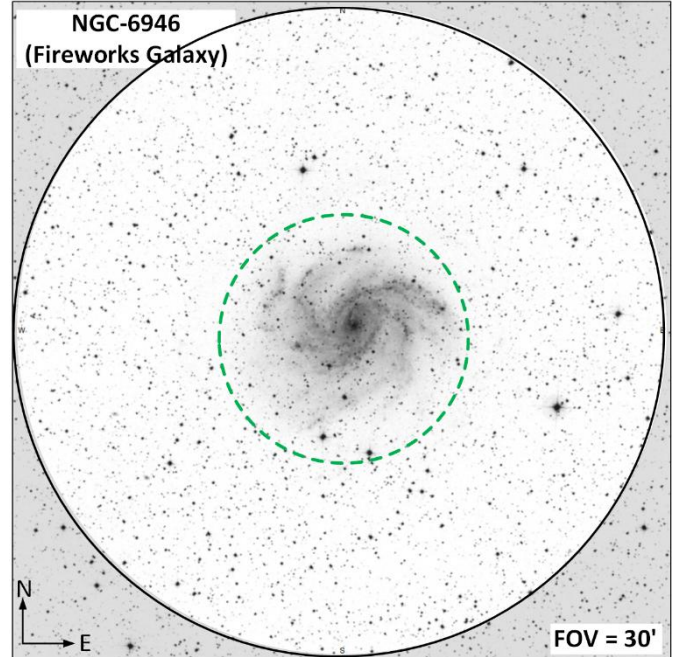
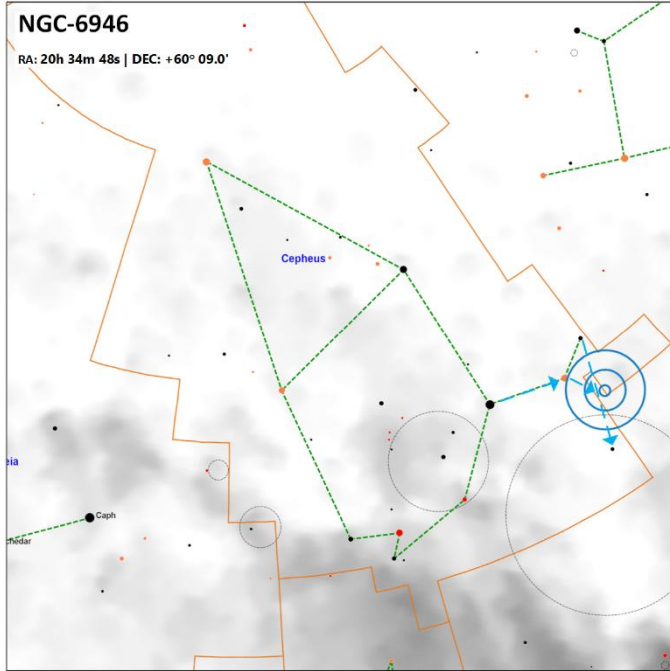


NGC 6939 (OC || Mag=7.8 | Size=8' | SB=20.9 | mBortle=9 | mApt=102mm | MC=II1r |) This open cluster is about 4,000 light years away and is over one billion years old. This cluster has an irregular shape with chains of stars embedded in it. Trumpler classification is II – Detached with little central concentration, 1 – Most of the cluster stars are nearly the same apparent brightness, r – Rich cluster with over 100 stars.

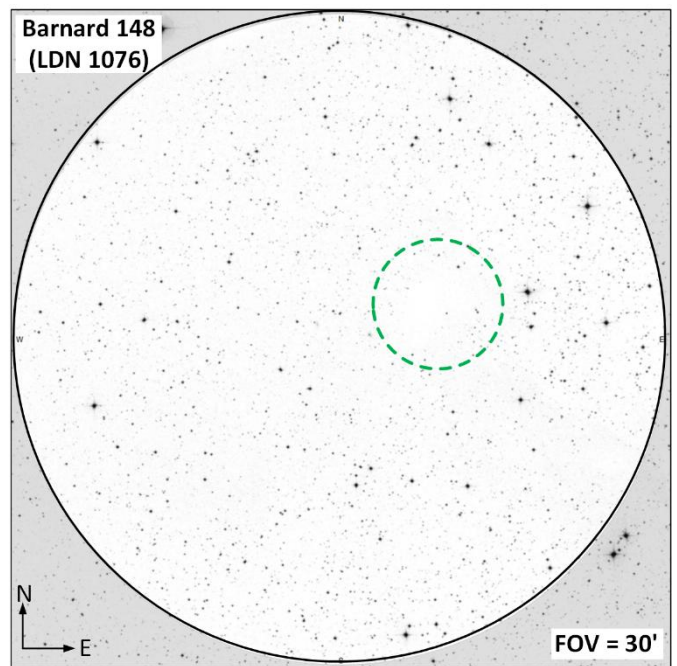
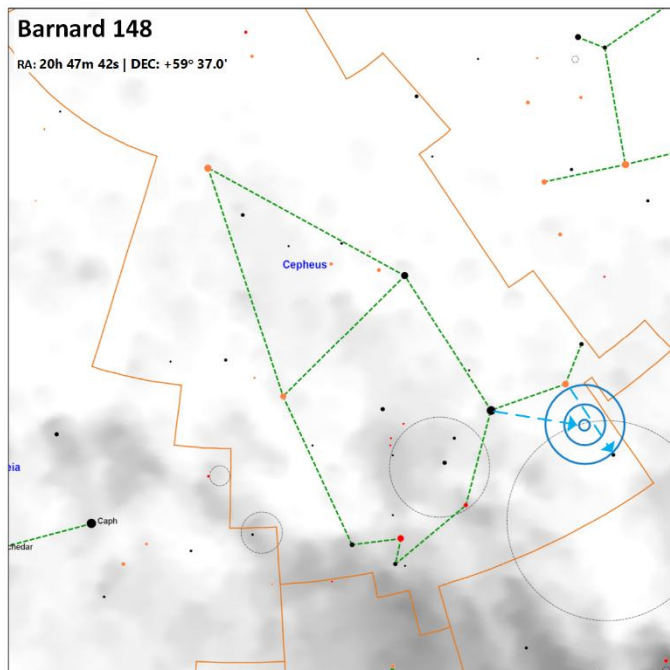


Constellation Guide

NGC 6946 (G || Mag=8.8 | Size=13' | SB=23.0 | mBortle=4 | mApt=114mm | MC=SAB(rs)cd |) The Fireworks Galaxy (Caldwell 12) is a [grand design](#), face-on spiral galaxy with a small bright nucleus located 25 million light years away and is a member of the [Virgo Supercluster](#). NGC 6946 is classified as a double-barred spiral galaxy and [starburst galaxy](#) that is heavily obscured by interstellar matter due to its close proximity to the Milky Way galactic plane.

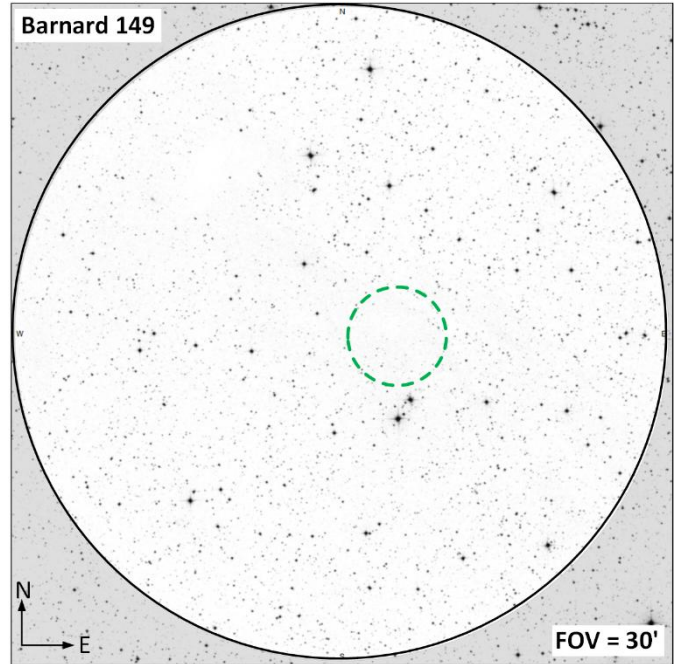
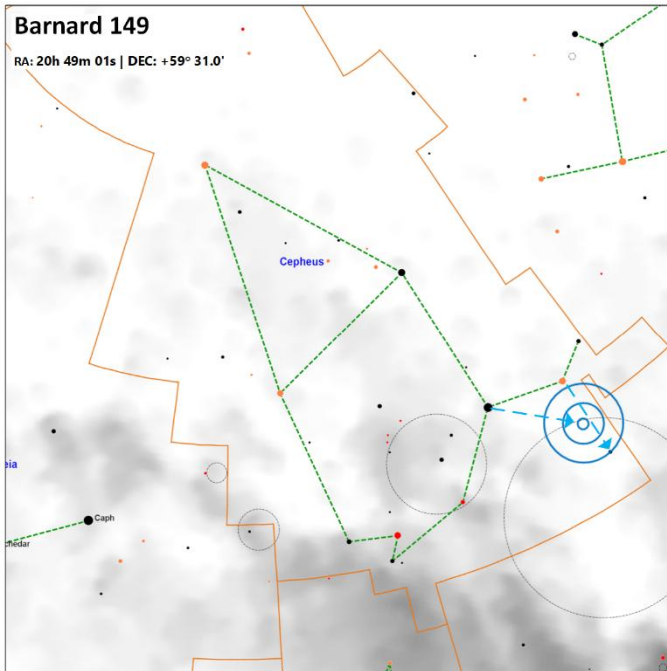


Barnard 148 (DN || Size=3' | mBortle=4 | mApt=70mm | Opacity=5 |) This small dark nebula is located close to the Seahorse nebula (B-150) and is often seen as a small dark patch at the edge of wide-field images of the Seahorse.

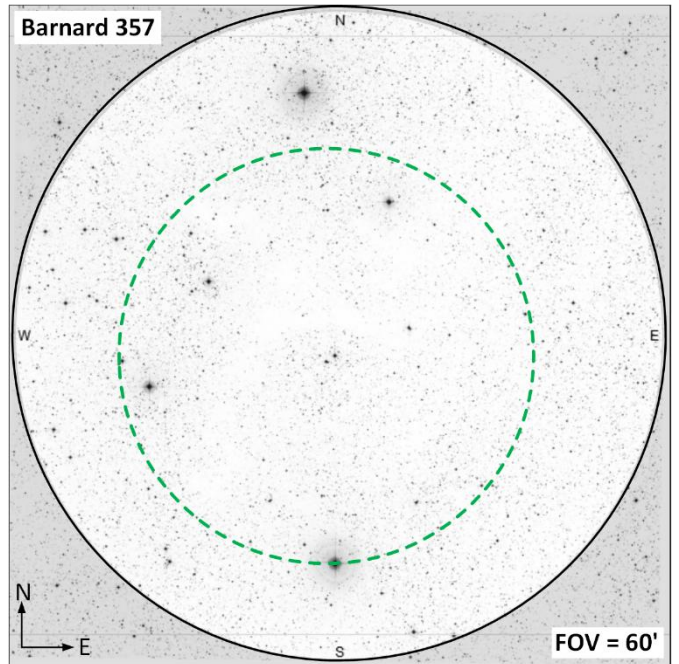
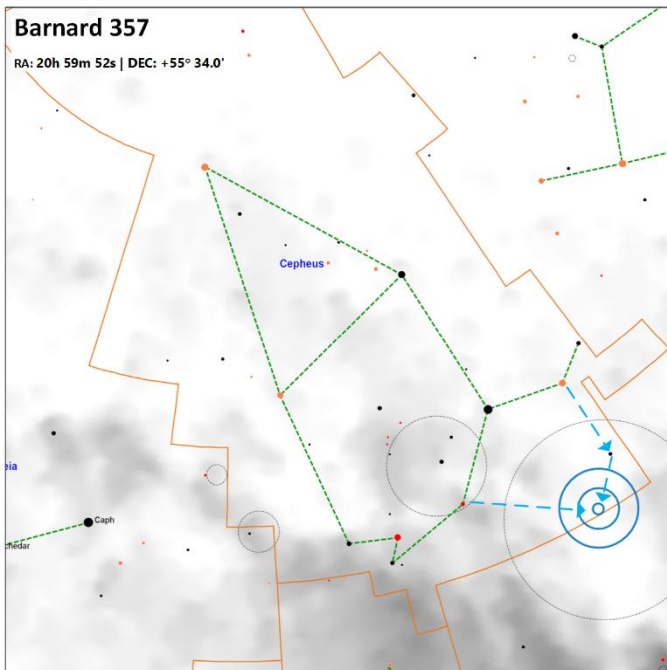


Constellation Guide

Barnard 149 (DN || Size=2' | mBortle=4 | mApt=114mm | Opacity=5 |) This small dark nebula is about 9' southeast of Barnard 148 and roughly three-quarters of a degree southwest of the Seahorse Nebula (Barnard 150) and probably belongs to the same dust complex as the Seahorse, about 1,200 light-years away. B148 and B149 are close enough to capture together in a single small-refractor frame.

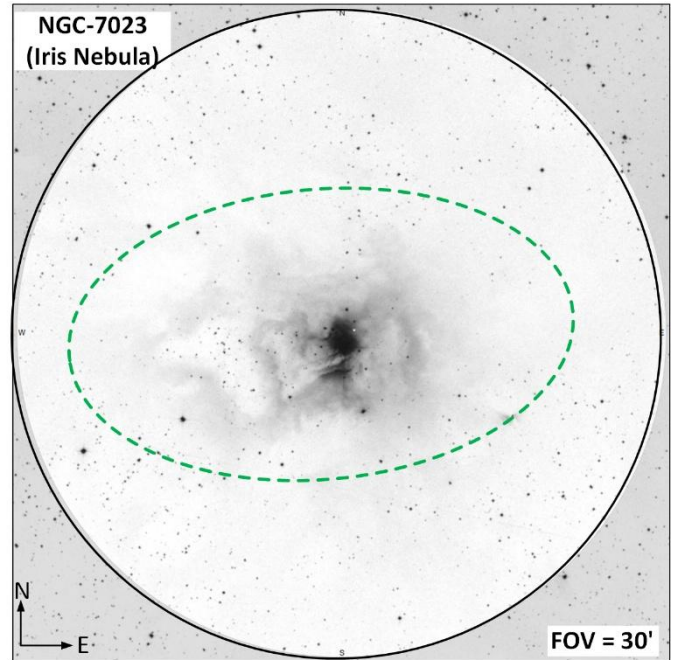
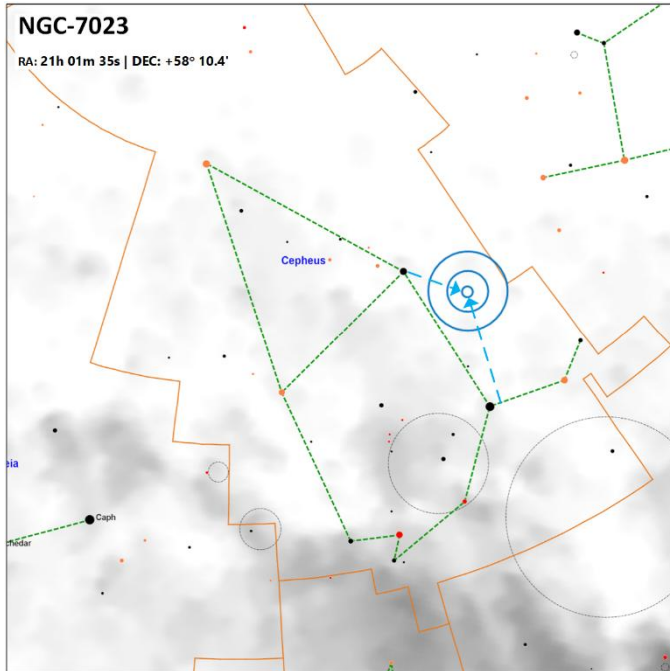


Barnard 357 (DN || Size=30' | mBortle=4 | mApt=50mm | Opacity=5 |) A moderate-sized dark nebula with opacity rating of 5 (out of a possible 6).

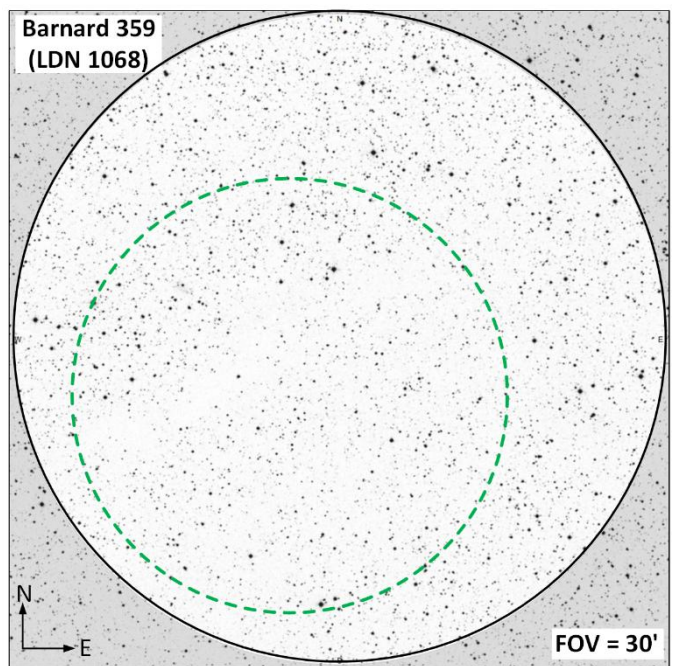
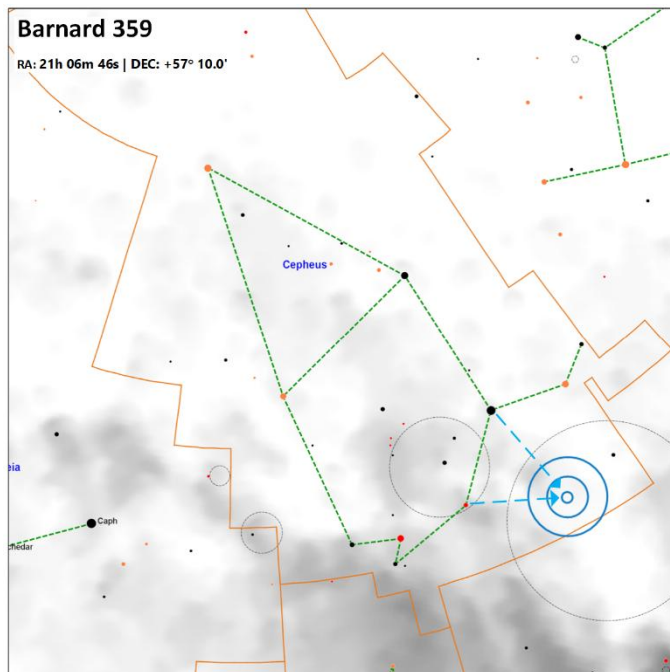


Constellation Guide

NGC 7023 (RN || Mag=7 | Size=10'x8' | SB=20.4 |) The Iris Nebula (Caldwell 4) is a bright [reflection nebula](#) located 1,300 light years away and is illuminated by the 7.4 magnitude star HD 200775. The nebula is six light-years across and is a member of the [Cepheus Flare](#), an Orion-like complex of giant molecular clouds.

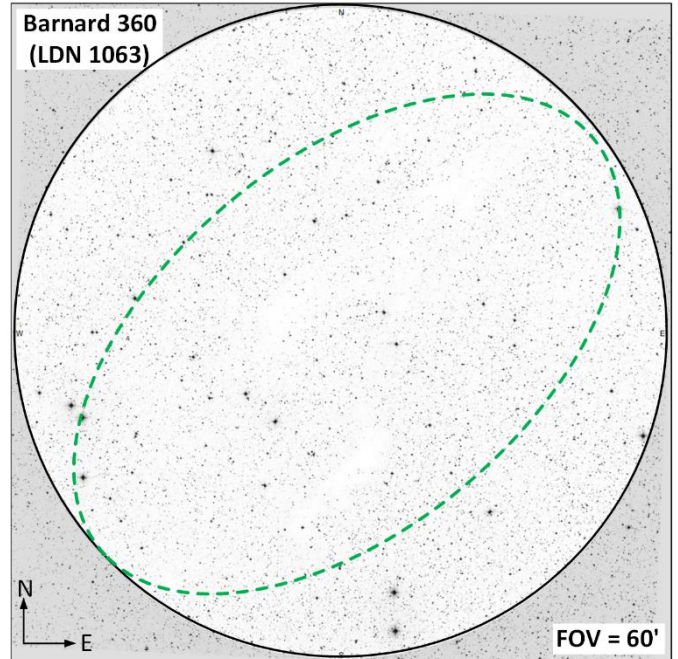
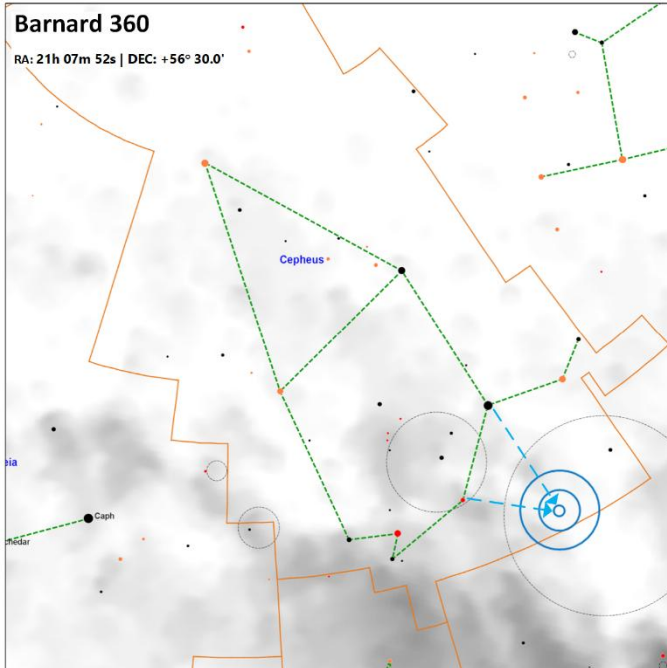


Barnard 359 (DN || Size=20' | mBortle=4 | mApt=50mm | Opacity=5 |) Barnard 359 is a small, little-studied dark nebula in Cepheus, one of the objects added to Barnard's catalog in the extended list published in 1927 after his death. It lies in the dust-rich northern Milky Way where Cepheus meets Cygnus, a region crowded with other Barnard and Lynds dark clouds.

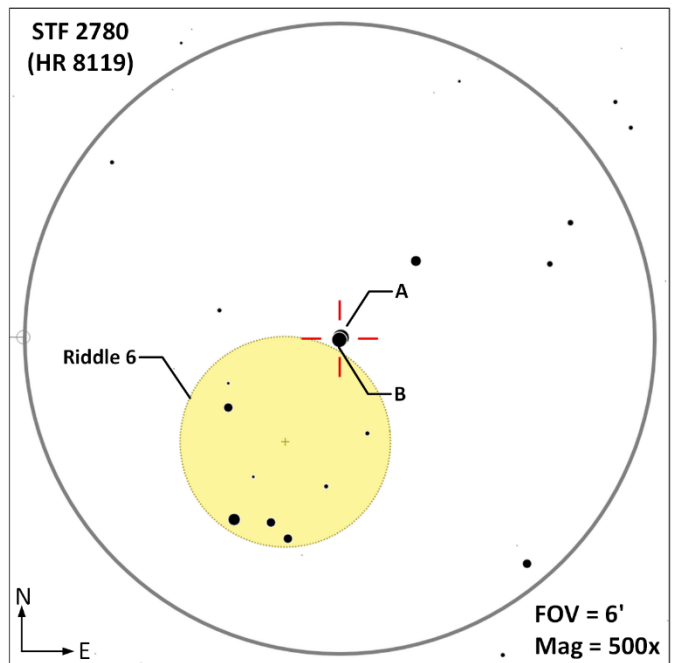
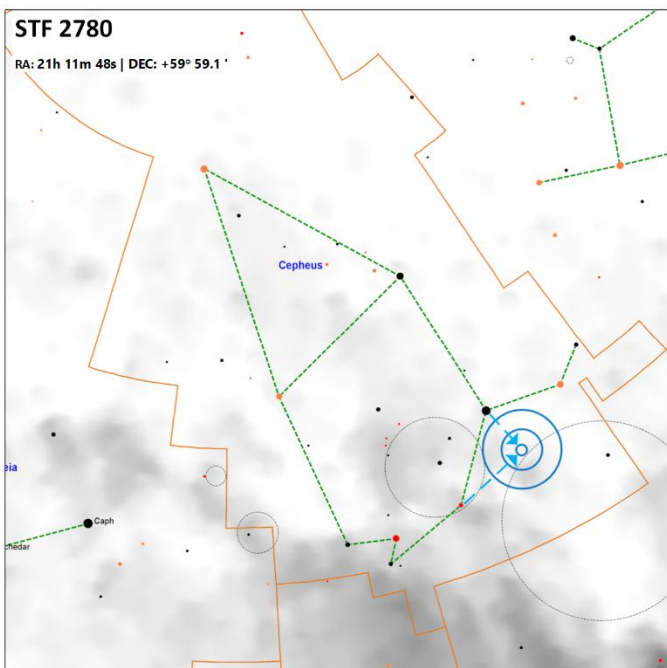


Constellation Guide

Barnard 360 (DN || Size=54' | mBortle=4 | mApt=50mm | Opacity=5 |) Also known as LDN 1063 the same Lynds cloud is cross-listed as both Barnard 151 from the original 1919 catalog and Barnard 360 from the 1927 extended list, so Barnard effectively cataloged it twice. It's one of a small cluster of dust clouds with no known young stars, and its position and velocity place it with the cloud group around IC 1396, roughly 2,000 light-years away.

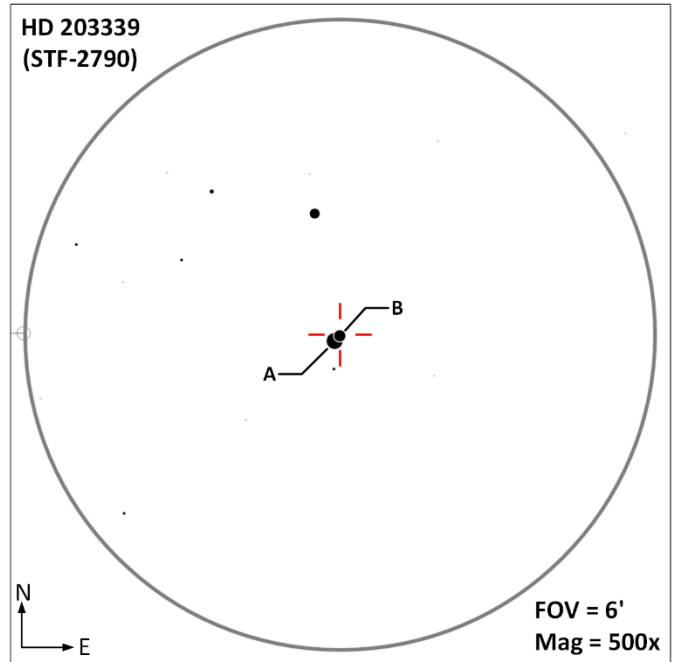
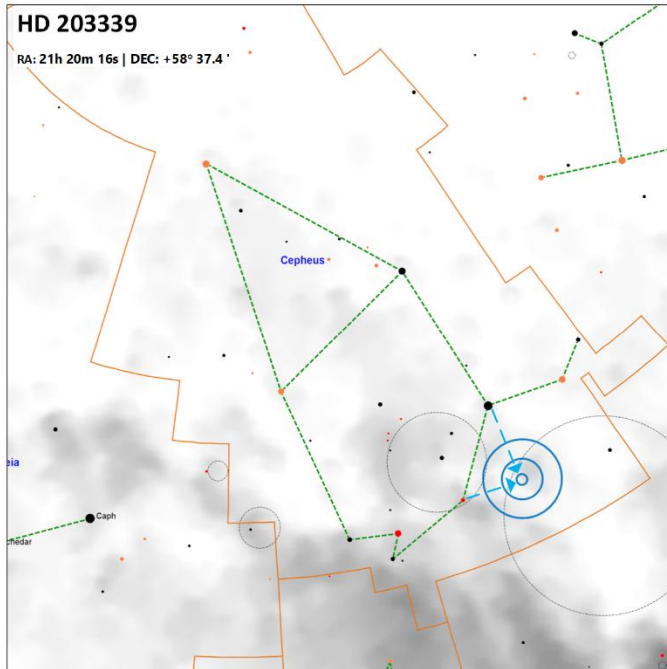


STF 2780 (DS || AB | Mag=6.1,6.8 | Sep=1" | PA=213° | mBortle=9 | mApt=150mm | Spec=B0II, ? | Color=blue-white, ? |) HR 8119 is located 2,894 light years away and on the edge of the sparse and little documented open cluster Riddle 6. This system is listed in the 120 colorful stars list.

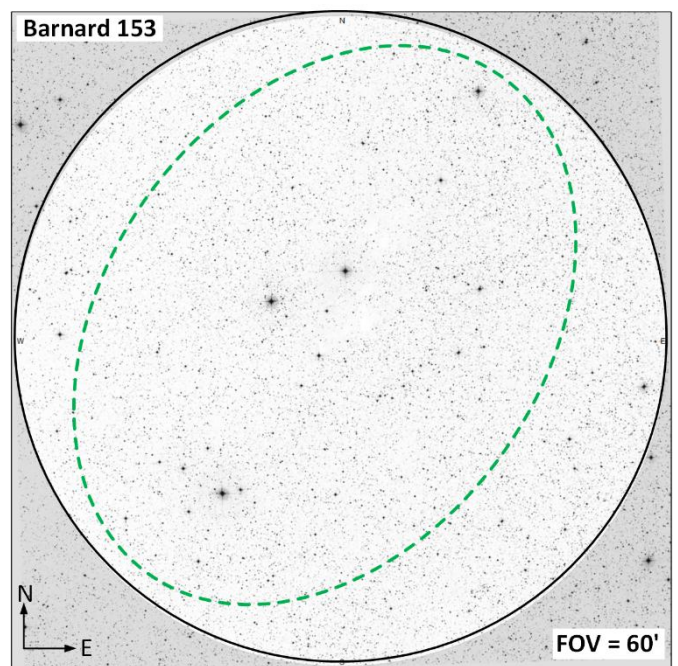
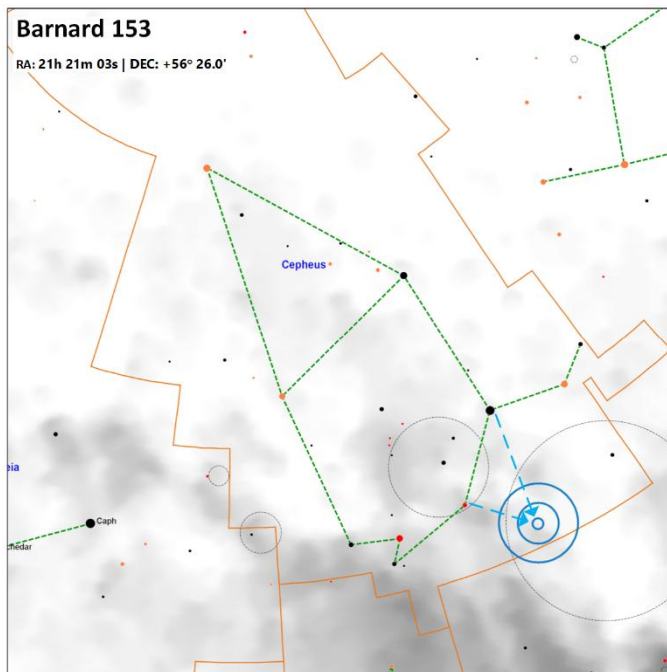


Constellation Guide

HD 203339 (DS || **AB** | Mag=5.8,9.3 | Sep=4.6" | PA=45° | mBortle=9 | mApt=50mm | Spec=M1I, B2 | Color=orange-red, blue-white |) Located 1,930 light years away. The system has been described as having orange/red and blue/white components.

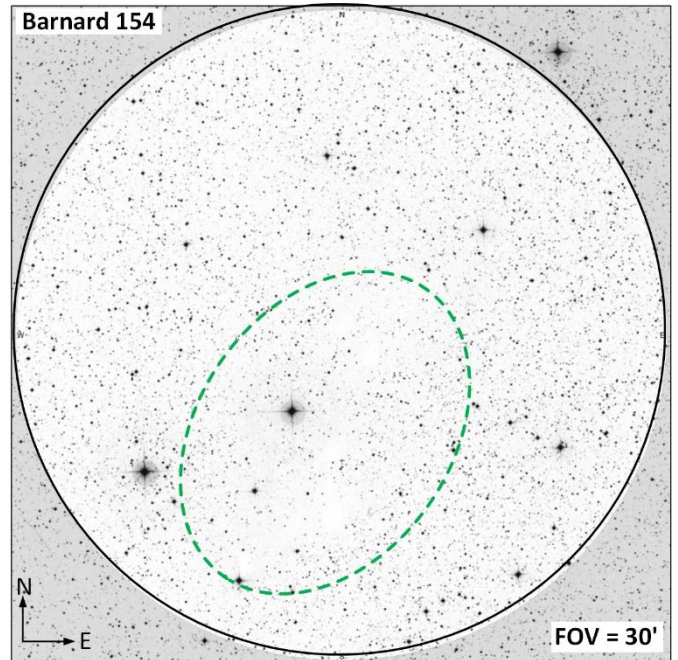
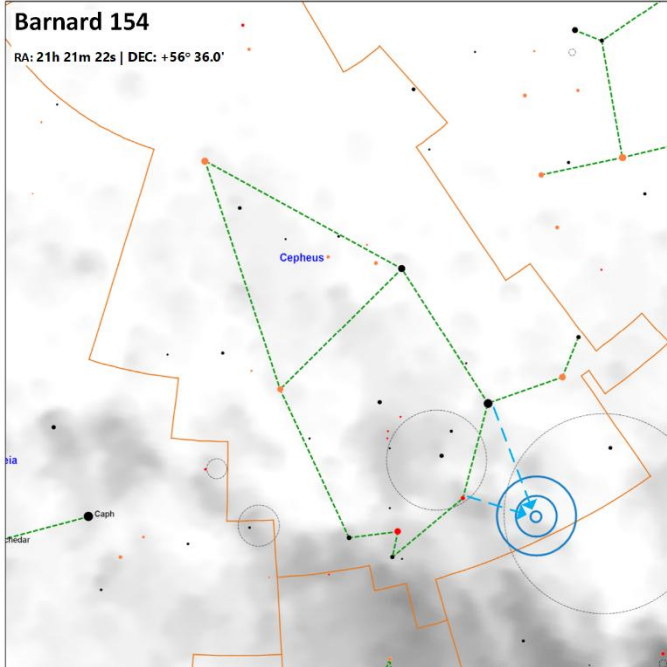


Barnard 153 (DN || | Size=60' | mBortle=4 | mApt=50mm | Opacity=5 |) B-153 is one of the 182 objects in Barnard's original 1919 catalog, and it has been detected as a molecular cloud in carbon monoxide surveys. No young stars are known to be associated with it, and its position and velocity place it roughly 2,000 light-years away.

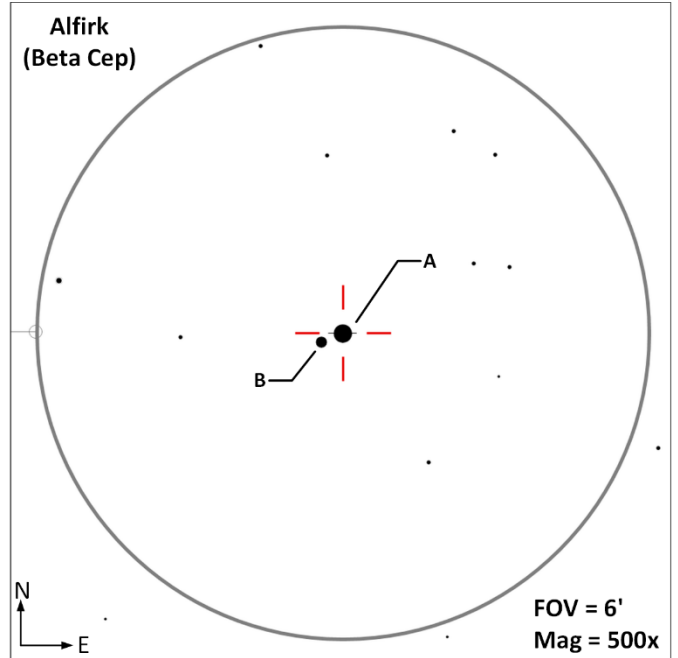
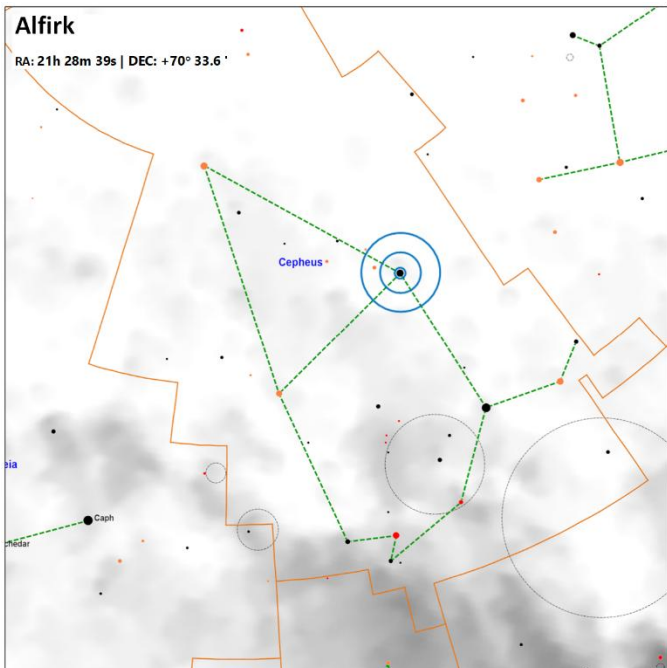


Constellation Guide

Barnard 154 (DN || | Size=8' | mBortle=4 | mApt=50mm | Opacity=5 |) B 154 is roughly three-quarters of a degree northeast of the much larger Barnard 153. It is one of the 182 objects in Barnard's original 1919 catalog.

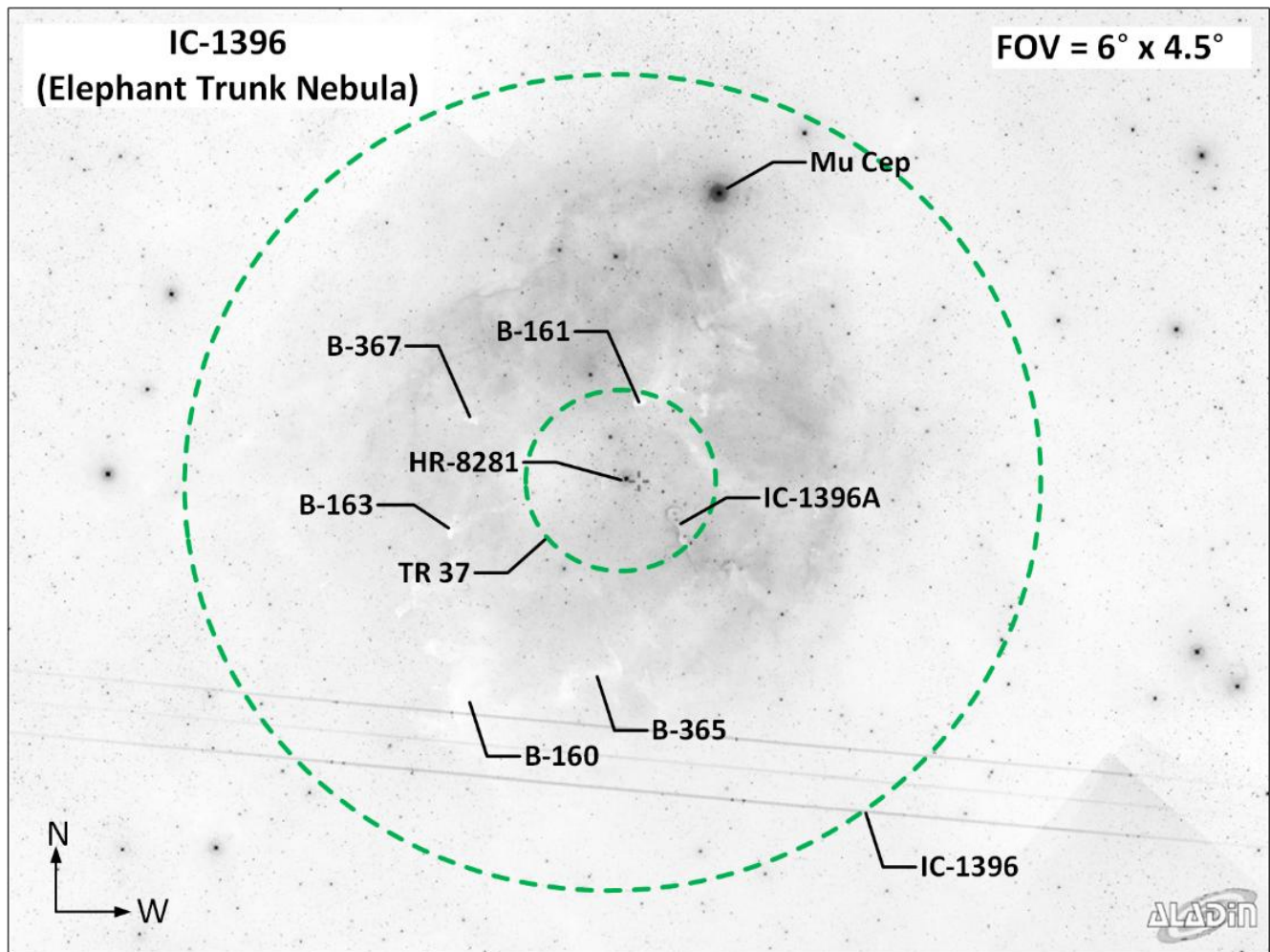


Alfirk (DS || AB | Mag=3.2,8.6 | Sep=13.5" | PA=248° | mBortle=9 | mApt=50mm | Spec=B2III, A2V | Color=blue-white, white |) Considered a showpiece double, consisting of a blue-white primary star and a white companion star. The pair orbit each other with a period of at least 30,000 years. The system is located about 690 light years away.



Constellation Guide

Elephant Trunk Nebula Region (IC-1396)



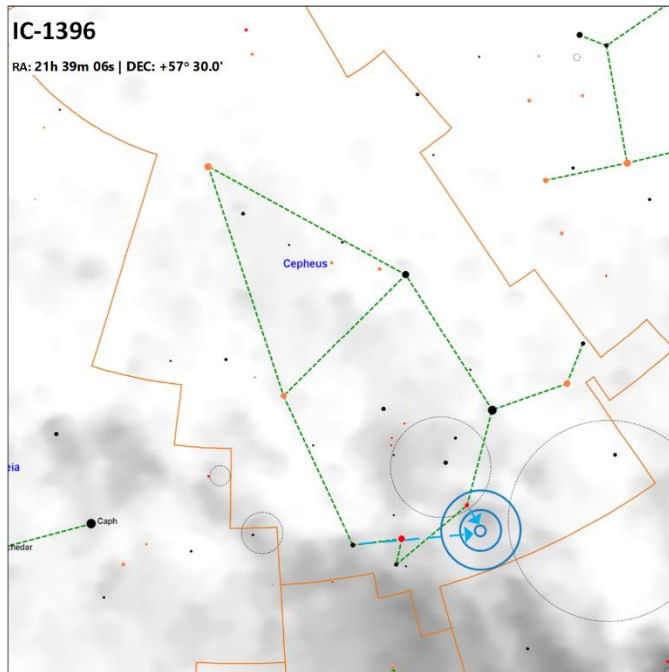
The Elephant's Trunk Nebula region (IC 1396) is one of the largest H II regions in the northern sky; a bubble about 3° across and roughly 155 to 160 light-years in diameter, ionized mainly by the hot multiple star HR 8281 (HD 206267). The nebula IC 1396 and the objects associated with it lie roughly 2,900–3,000 light-years away.

The signature features of the Elephant Trunk Nebula are the bright-rimmed globules being eroded by HR 8281's ultraviolet radiation. The most prominent is the Elephant's Trunk (IC 1396A, with vdB 142 as its illuminated tip) on the western side, about $20'$ long.

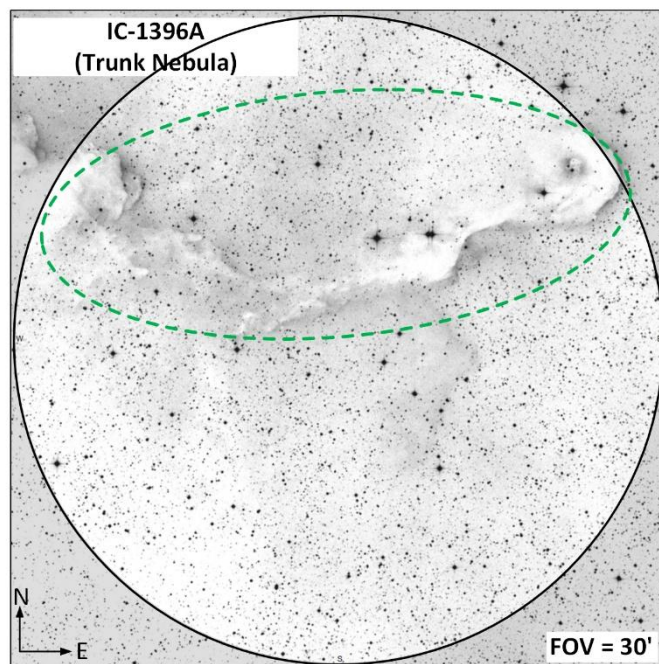
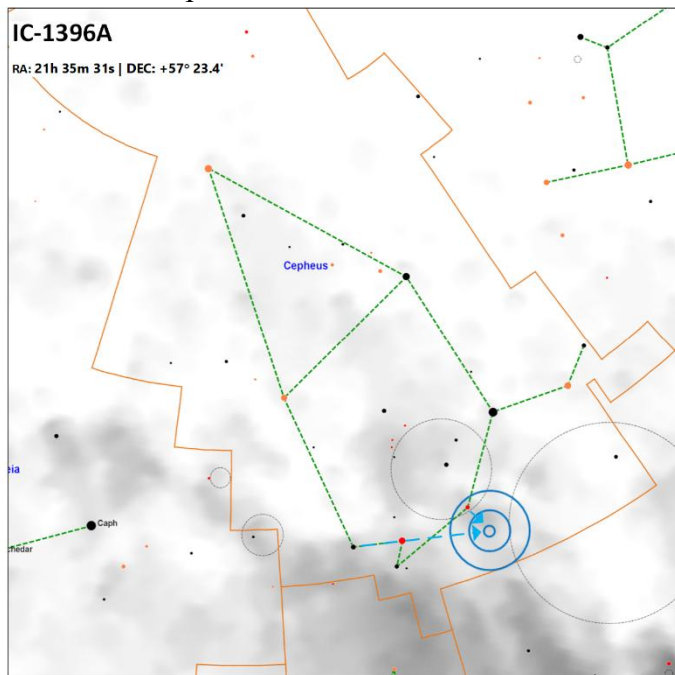
From a dark site with a $3\text{--}4^\circ$ field (binoculars or a wide-field refractor) and an H-beta or UHC filter, the nebula is a faint, mottled brightening around the cluster: real, but subtle. Tr 37 itself is a loose, $50'$ scattering of mostly 7th–10th magnitude stars around the 5.7-magnitude HR 8281, not a rich cluster. The rewarding visual targets are the dark nebulae threaded through it (B161, B163, B365, B367), the HR 8281 triple at the cluster's heart, and the color contrast with Mu Cephei on the northern rim. The Elephant's Trunk is essentially an imaging object; visually it shows only as a slightly darker notch at the western edge under very good conditions.

Constellation Guide

IC 1396 (EN || Mag=3.5 | Size=180'x138' | SB=23.1 | mBortle=9 | mApt=50mm | MC=IV3m n |) Large emission nebula. See map and description above.

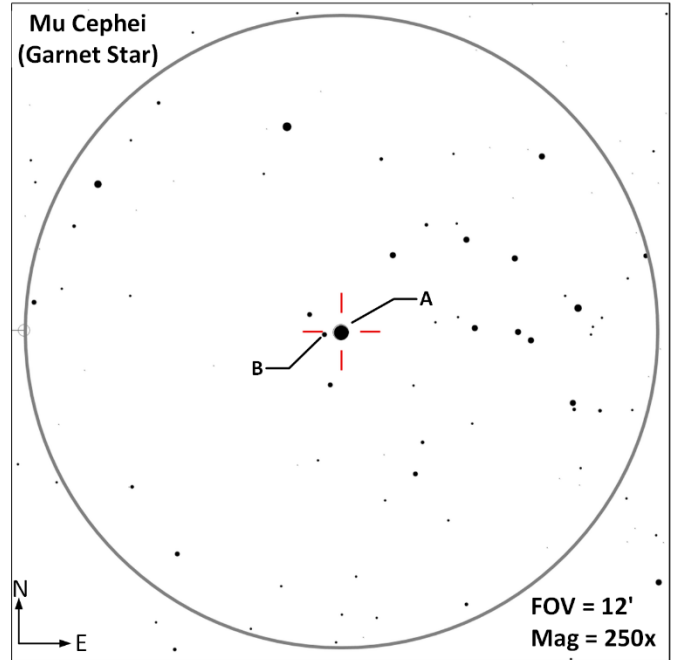
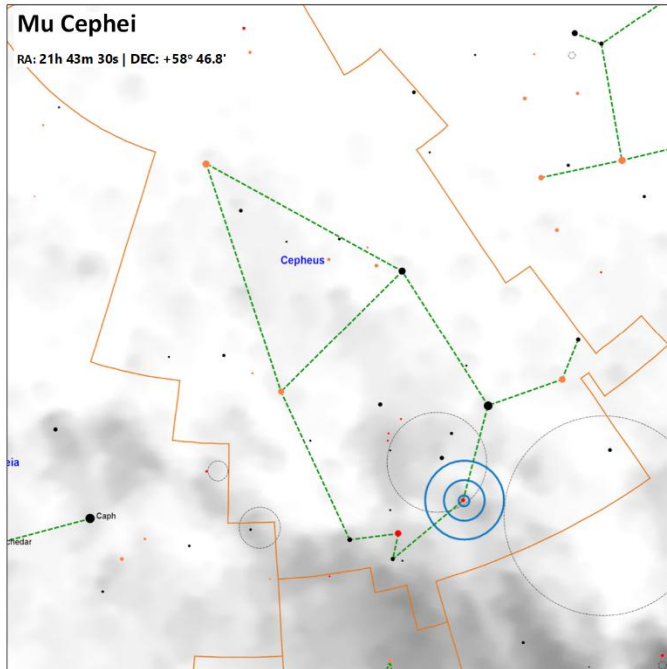


IC 1396A (EN || Size=14'x2' ||) The bright-rimmed globule being eroded by HD 206267's ultraviolet radiation; one of the most prominent features of IC 1396.

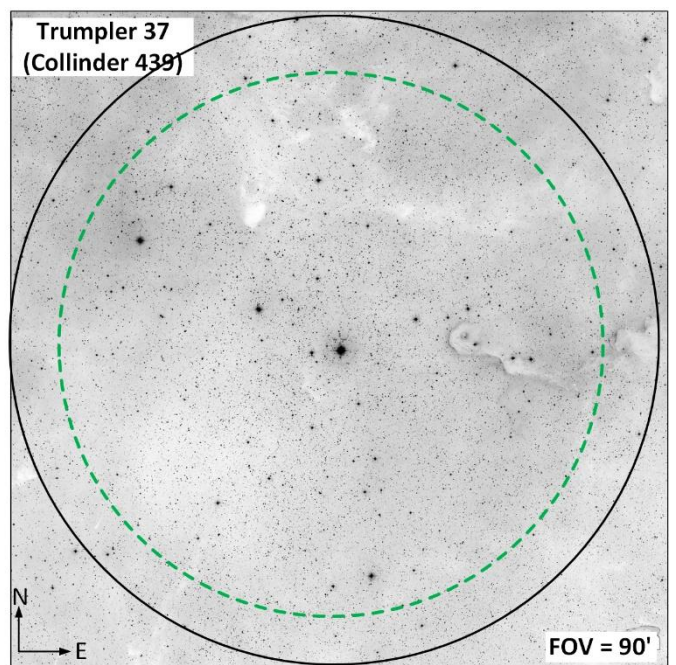
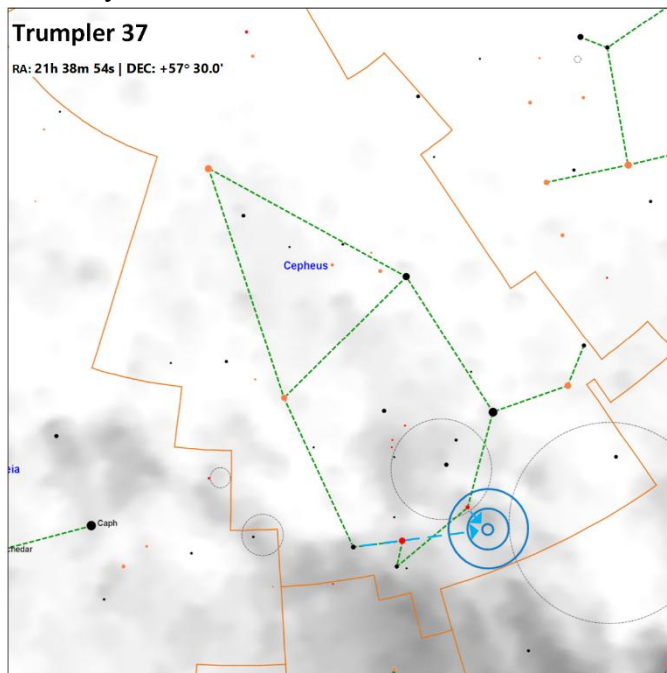


Constellation Guide

Mu Cephei (CS, DS || Magnitude Range= 3.4 to 5.1 | Spec=M2Ia | BV=+2.24 | Color=orange-red |
AB | Mag=4.3,12.3 | Sep=20.75" | PA=261° | mBortle=6 | mApt=130mm | Spec=M2Ia | Color=orange-red |)
 Known as the Garnet Star μ Cephei is a red supergiant and multiple star system, best known for its deep red color.

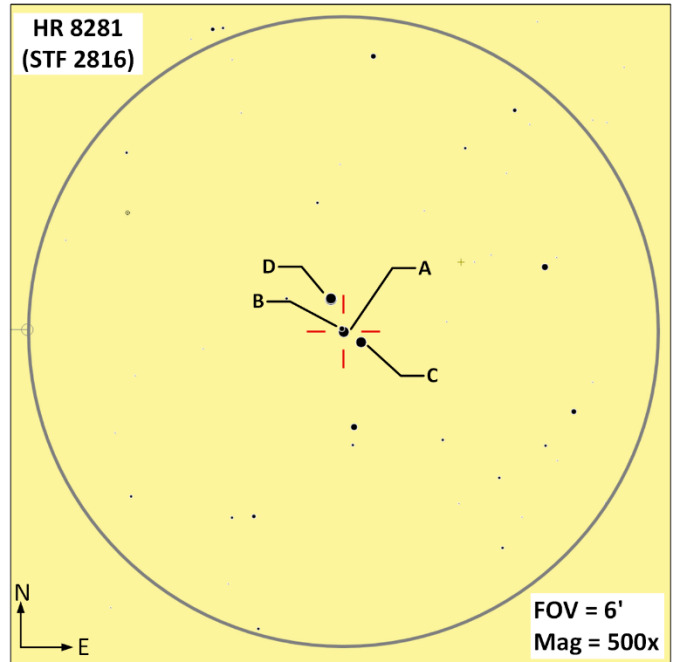
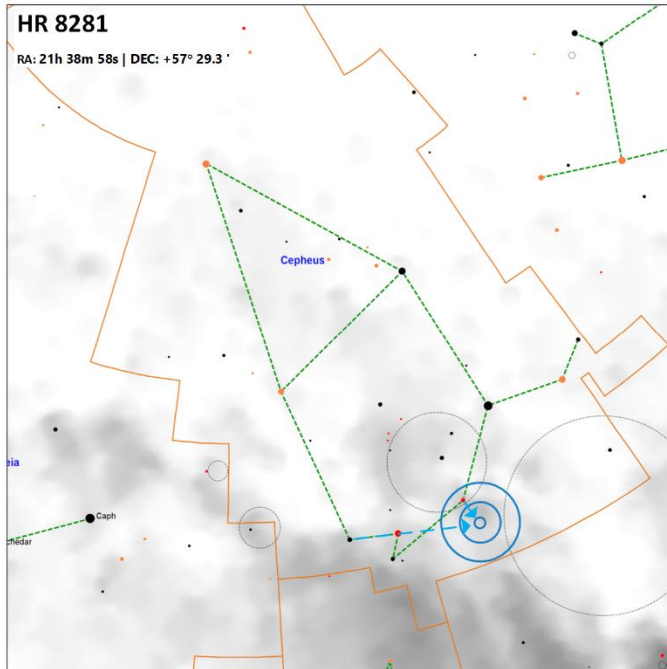


Trumpler 37 (OC || Mag=5.1 | Size=60' | SB=22.6 | mBortle=9 | mApt=50mm | MC=IV3m n |) Located in the center of IC-1396, this open cluster has a Trumpler classification of IV – Not well detached, but strong field concentration, 3 – Composed of bright and faint stars, m – Medium rich cluster with 50 to 100 stars, n – Nebulosity associated with cluster.

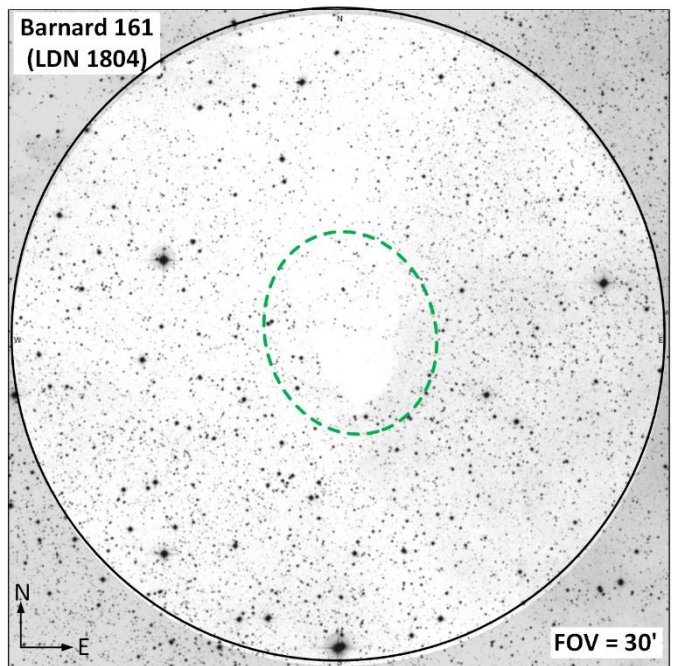
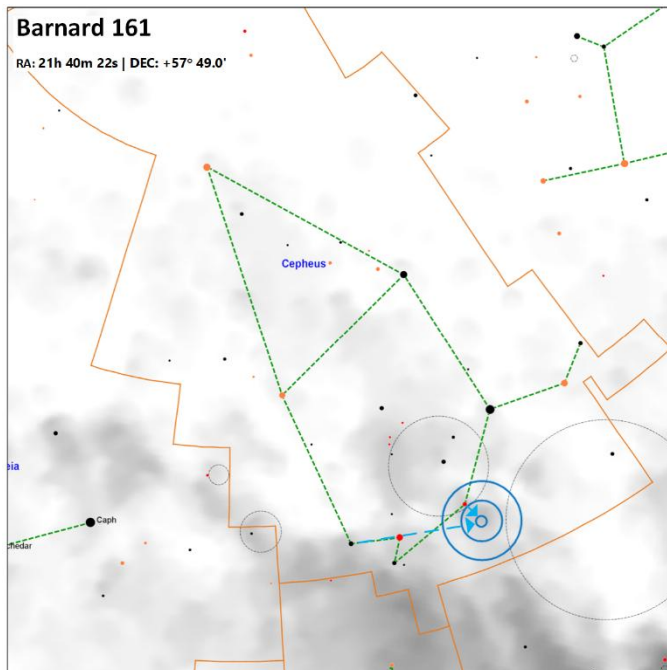


Constellation Guide

HR 8281 (MS-4 || AC | Mag=5.7,7.5 | Sep=11.8" | PA=120° | mBortle=9 | mApt=50mm | Spec=O6.5V, ? | Color=blue-white, ? || AD | Mag=5.7,7.5 | Sep=19.8" | PA=338° | mBortle=9 | mApt=50mm | Spec=O6.5V, ? | Color=blue-white, ?) This star system is the main engine energizing the Elephant Trunk Nebula region. Three components of this system should be visible in moderate size telescopes.

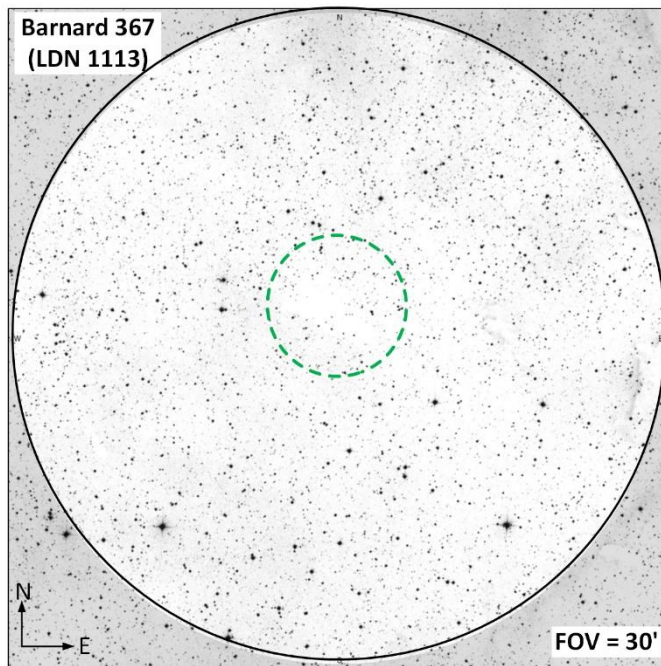
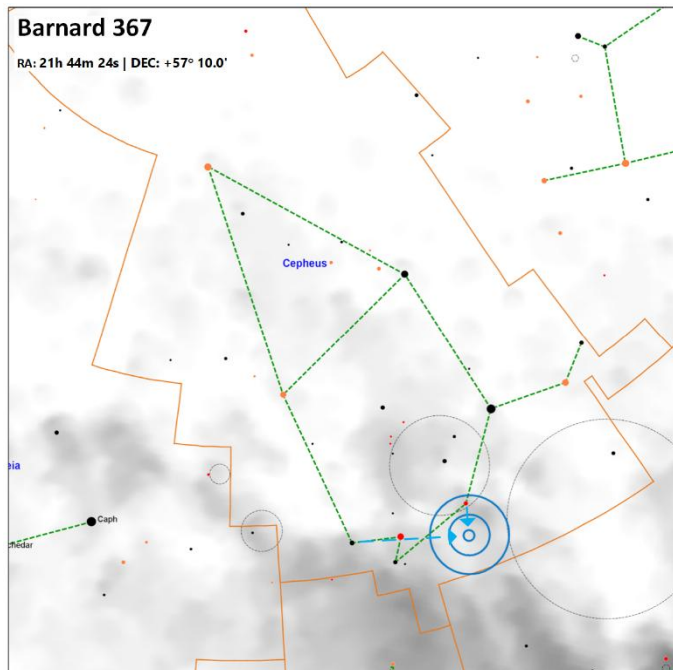


Barnard 161 (DN || Size=3' | mBortle=4 | mApt=70mm | Opacity=6) Small dark nebula residing in IC-1396.

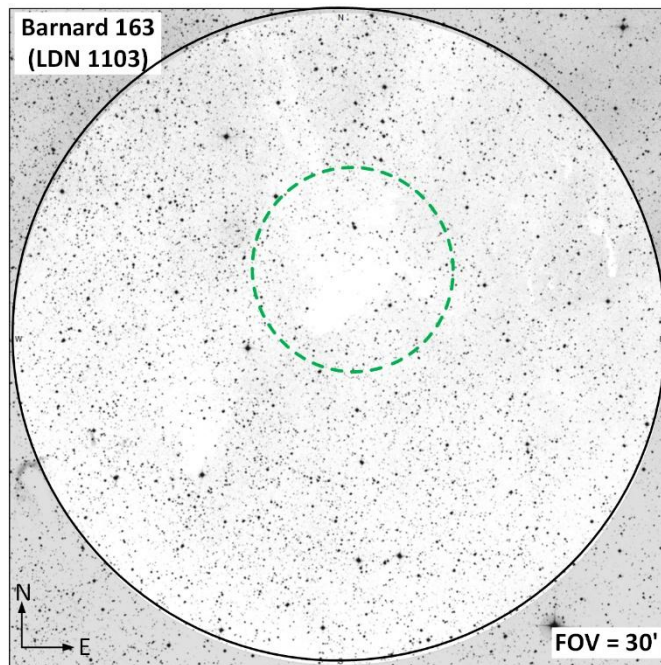
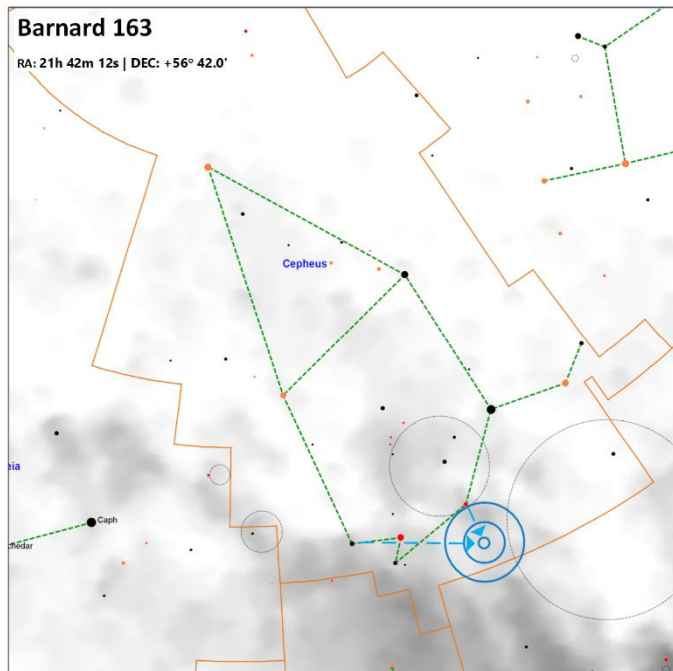


Constellation Guide

Barnard 367 (DN || Size=5' | mBortle=4 | mApt=50mm | Opacity=5 |) Small dark nebula residing in IC-1396.

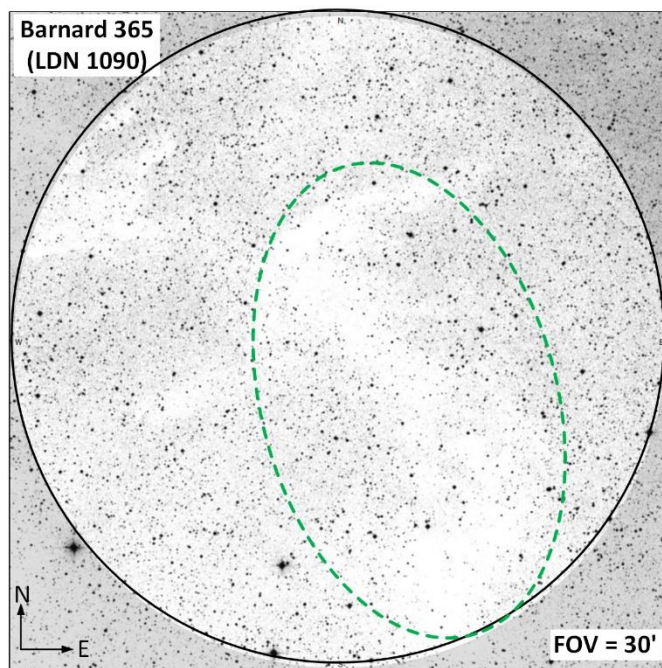
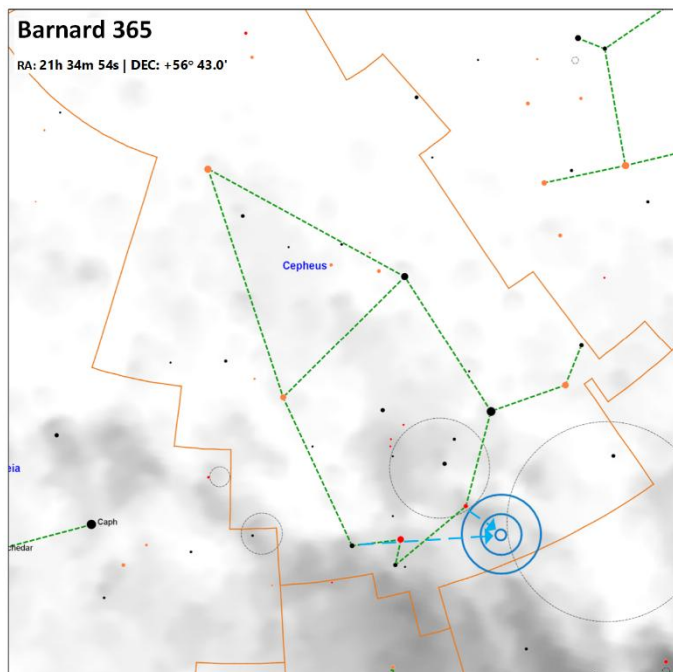


Barnard 163 (DN || Size=4' | mBortle=4 | mApt=60mm | Opacity=4 |) Small dark nebula residing in IC-1396.

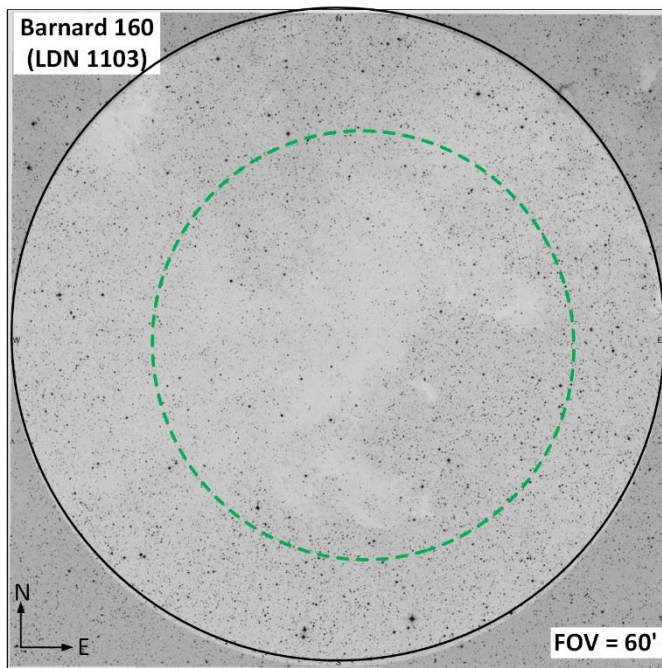
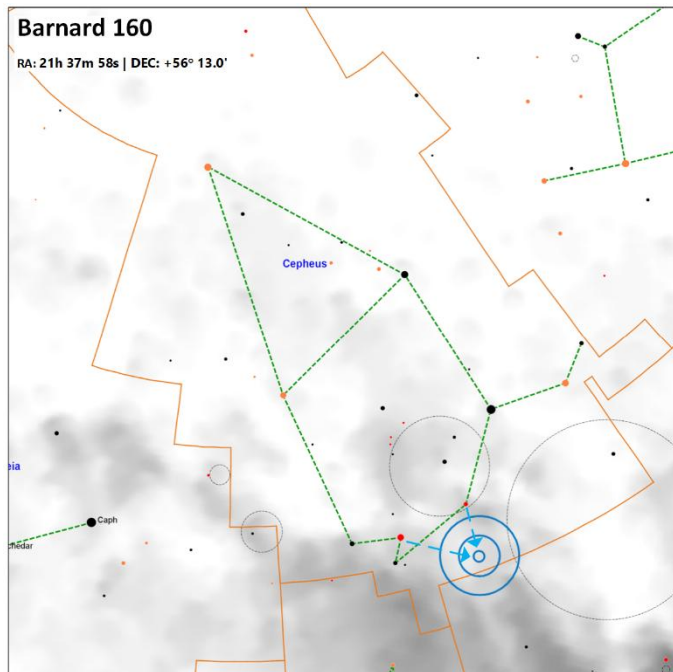


Constellation Guide

Barnard 365 (DN || Size=22'x3' | mBortle=4 | mApt=50mm | Opacity=4 |) Elongated dark nebula residing in IC-1396.

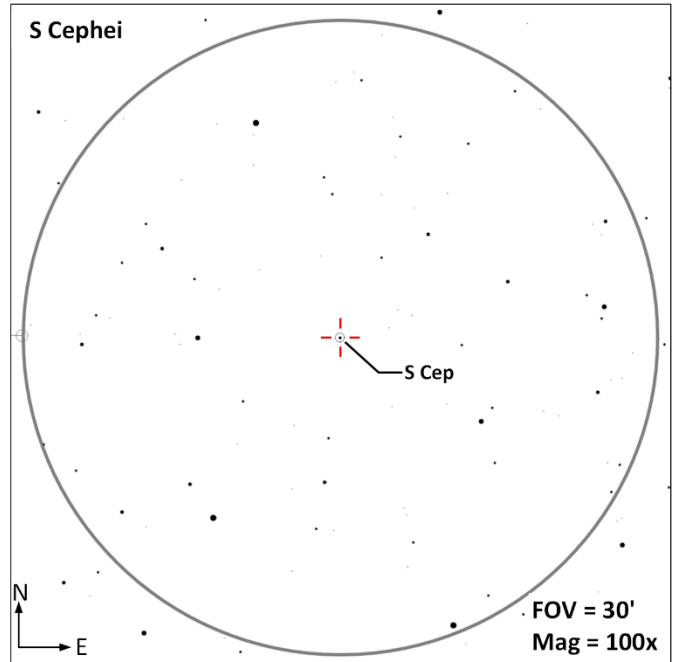
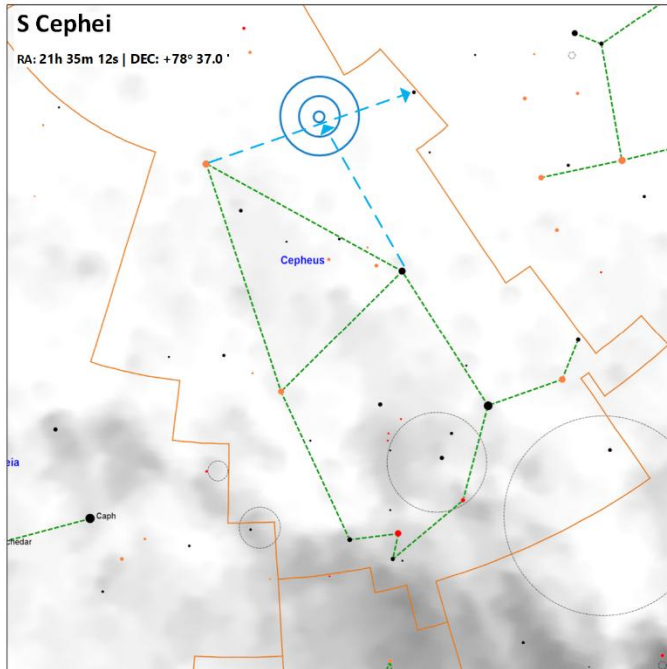


Barnard 160 (DN || Size=31' | mBortle=4 | mApt=50mm | Opacity=4 |) Dark nebula residing in IC-1396.

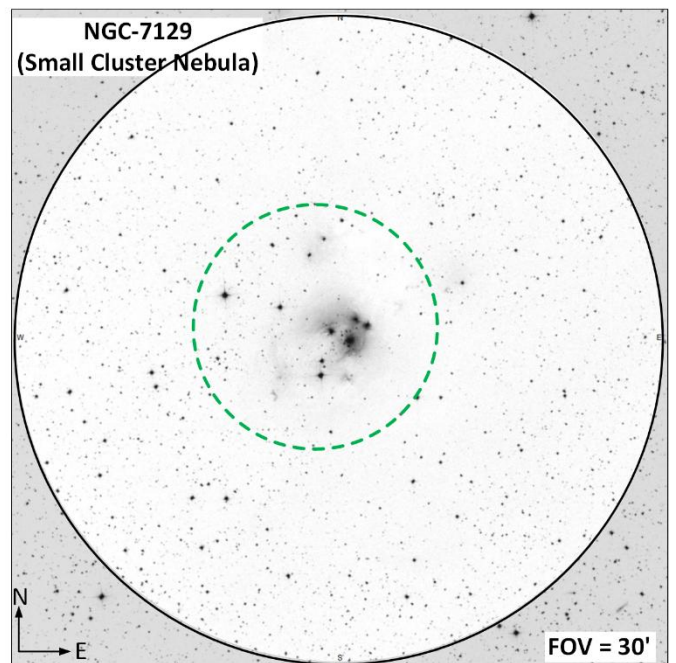
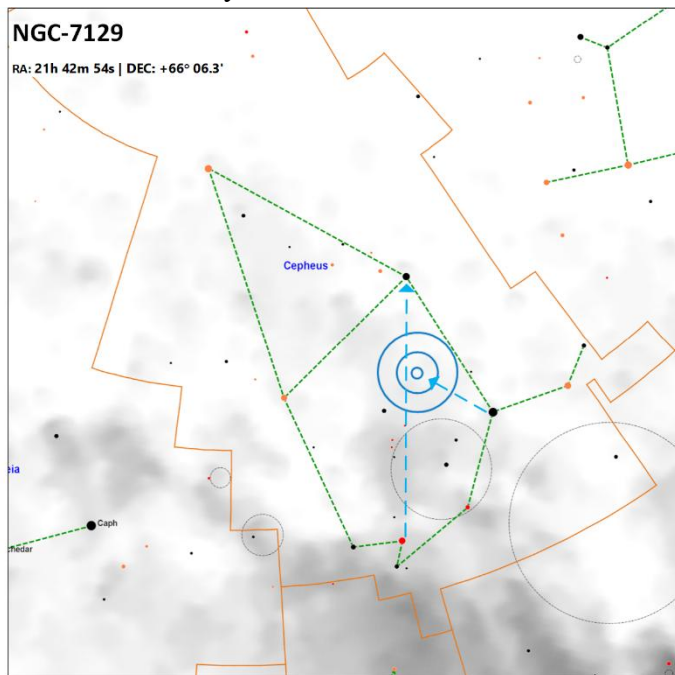


Constellation Guide

S Cephei (CS || Magnitude Range= 7.4 to 12.9 | Period=1.33y | Spec=C7,4e | BV=+4.45 | Color=deep red |)
 This carbon star is a Mira-type variable located about 1,590 light years away and varies greatly in magnitude over a period of 484 days. With a BV index of +4.45 this should appear to be a very red star, however color may not be as apparent when the star is in the dimmer part of its cycle.

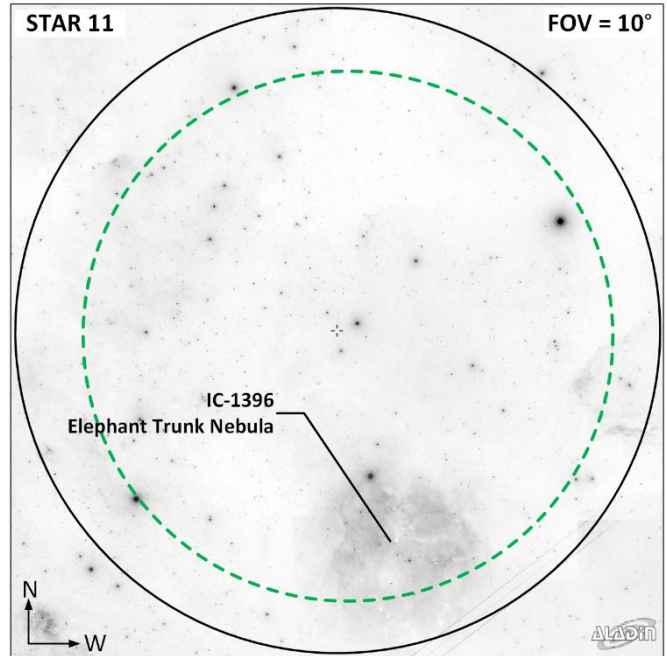
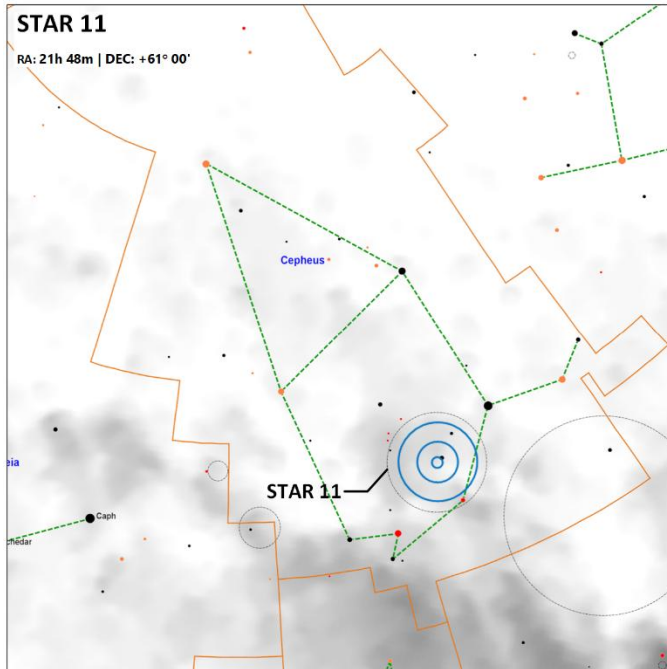


NGC 7129 (OC, RN || Mag=12 | Size=8' | SB=25.1 | MC=IV2p n |) Also known as the Flower Bud Nebula this reflection nebula and open cluster is located 3,300 light years away. The cluster contains more than 130 stars less than 1 million years old.

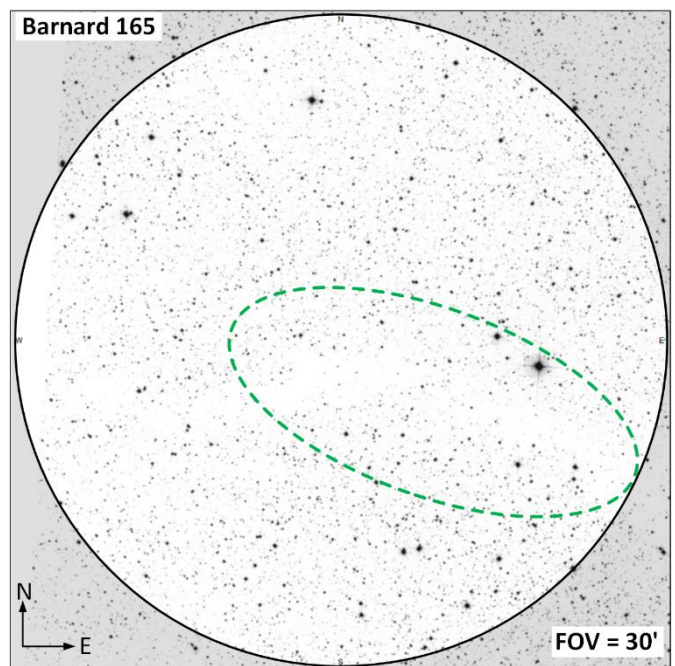
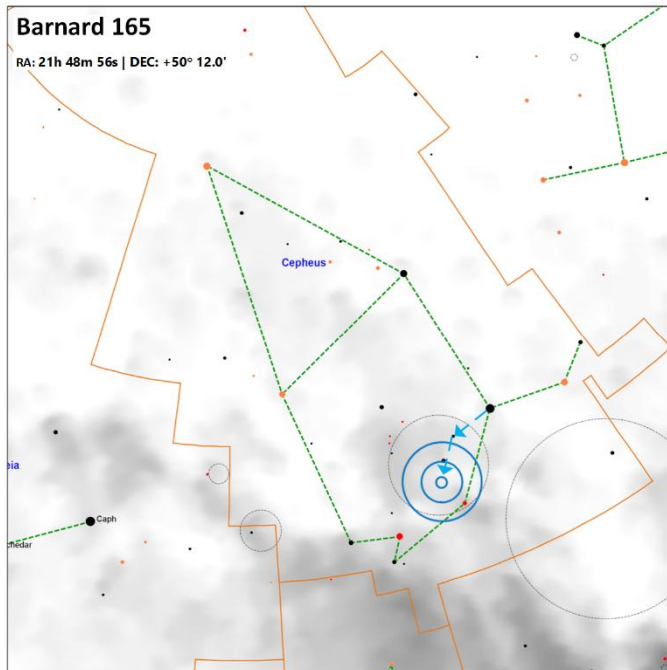


Constellation Guide

STAR 11 (AS || Size=600'x300' |) "A conspicuous bright band of starlight that breaks off from the mainstream of the Cygnus Milky Way and veers northward into the southwestern portion of Cepheus" (Harrington). This grouping of stars including 19, 20, 25 Xi and v Cephei and has no discernible pattern. Due to its large size, binoculars are required to view this asterism.

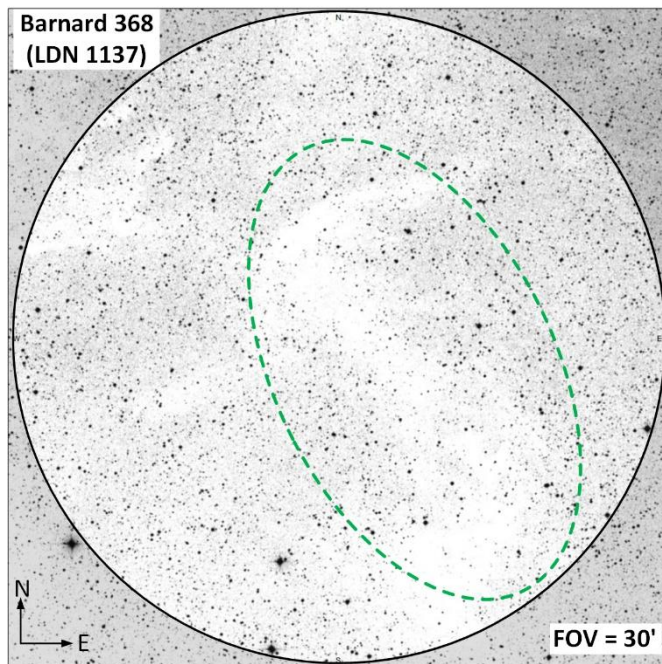
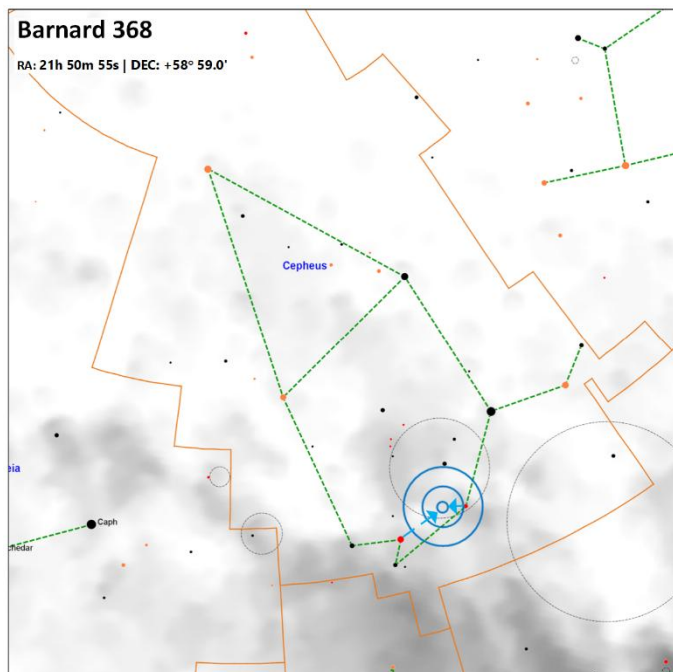


Barnard 165 (DN || Size=18' | mBortle=4 | mApt=50mm | Opacity=5 |) Elongated dark nebula located just North of the Elephant Trunk Nebula region.

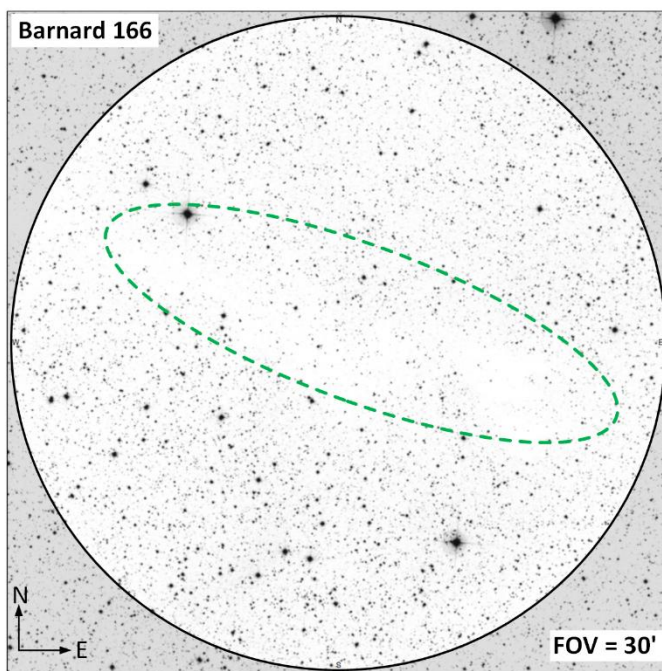
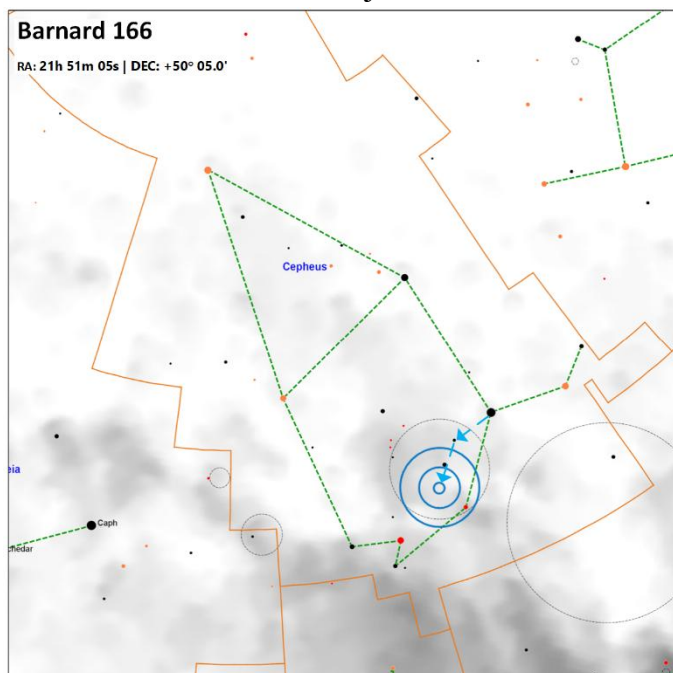


Constellation Guide

Barnard 368 (DN || | Size=14' | mBortle=4 | mApt=50mm | Opacity=5 |) Dark Nebula with Opacity of 5.
Information limited on this object.

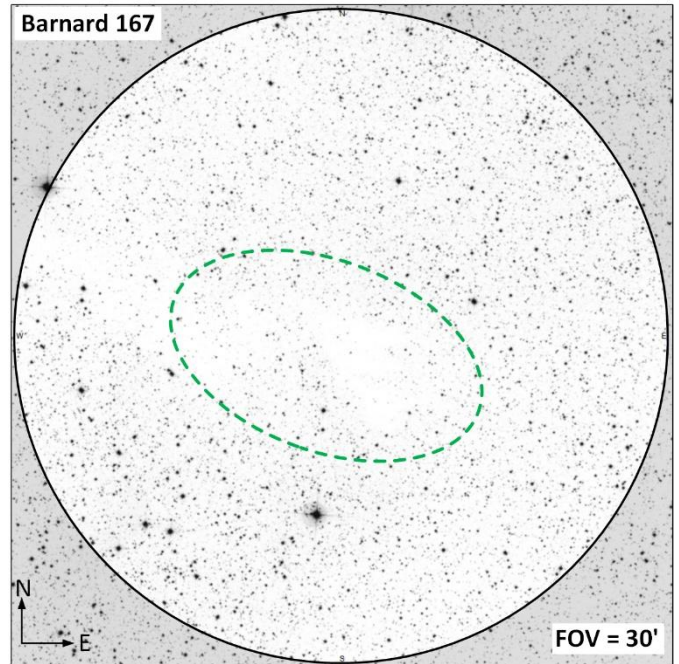
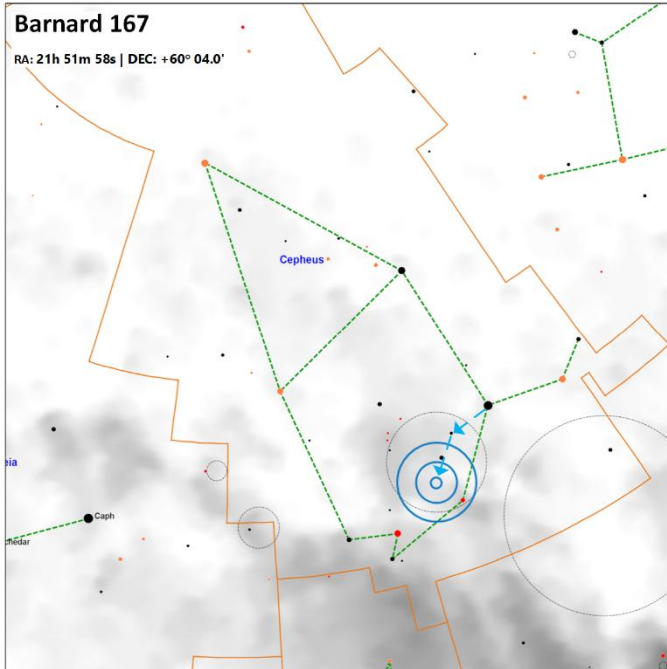


Barnard 166 (DN || Size=5' | mBortle=4 | mApt=50mm | Opacity=5 |) Dark Nebula with Opacity of 5.
Information limited on this object.

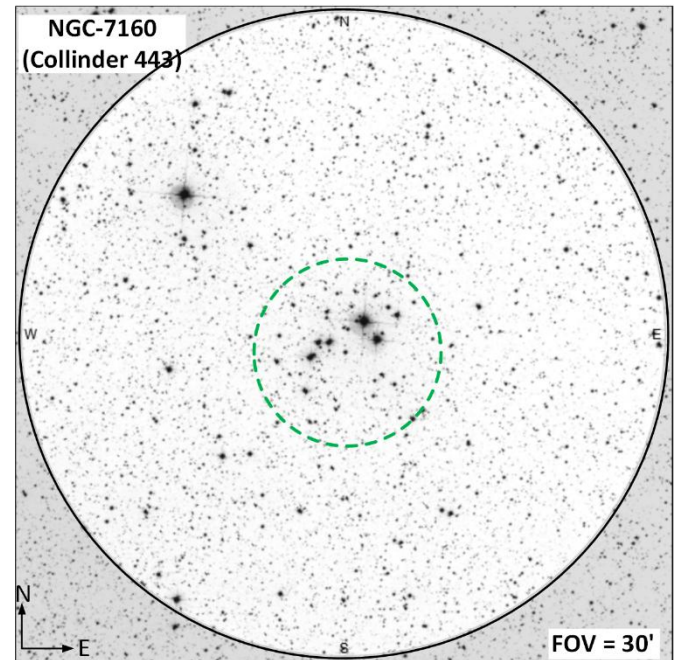
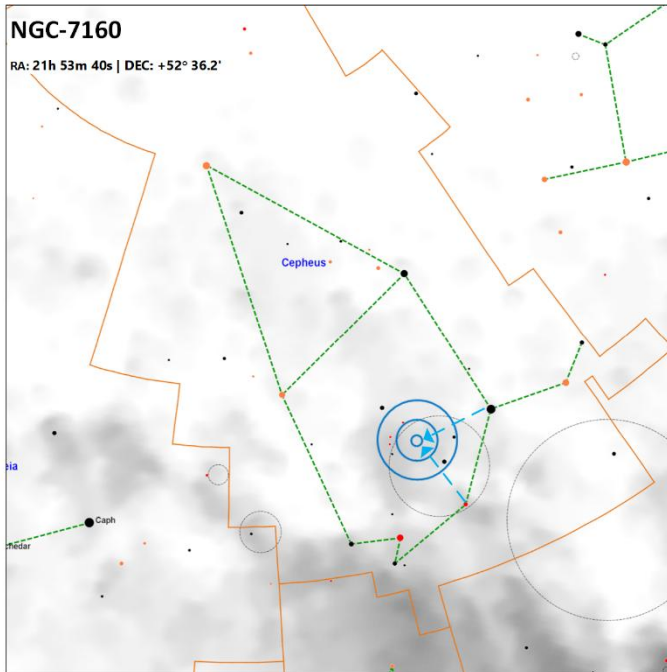


Constellation Guide

Barnard 167 (DN || Size=5' | mBortle=4 | mApt=50mm | Opacity=5 |) Dark Nebula with Opacity of 5.
Information limited on this object.

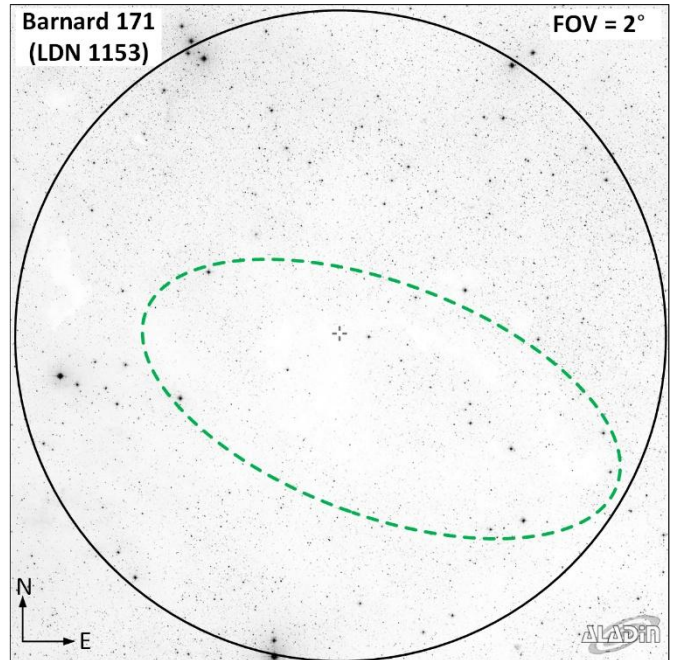
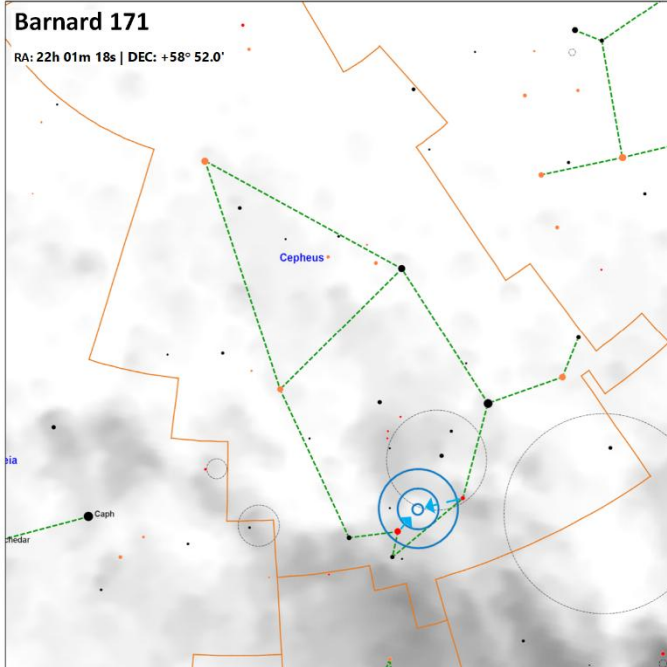


NGC 7160 (OC || Mag=6.1 | Size=7' | SB=19.0 | mBortle=9 | mApt=50mm | MC=I3p |) Both Tr 37 and NGC 7160 lie within the Cepheus Bubble, an expanding dusty shell with a diameter of 390 light years. It is suspected the bubble was formed by the stellar wind from OB stars that exploded as supernovae; NGC 7160's stars may have been companions to those stars.

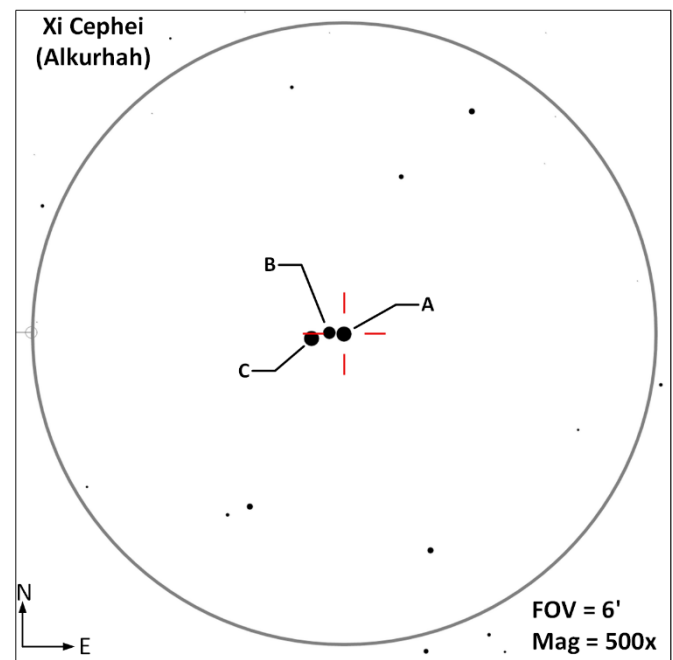
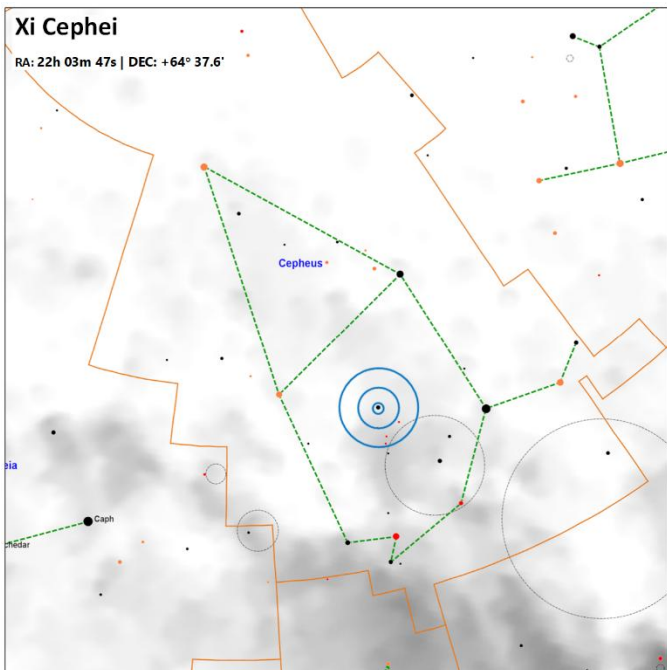


Constellation Guide

Barnard 171 (DN || Size=91' | mBortle=4 | mApt=50mm | Opacity=5) A large elongated dark nebula. Information limited on this object.

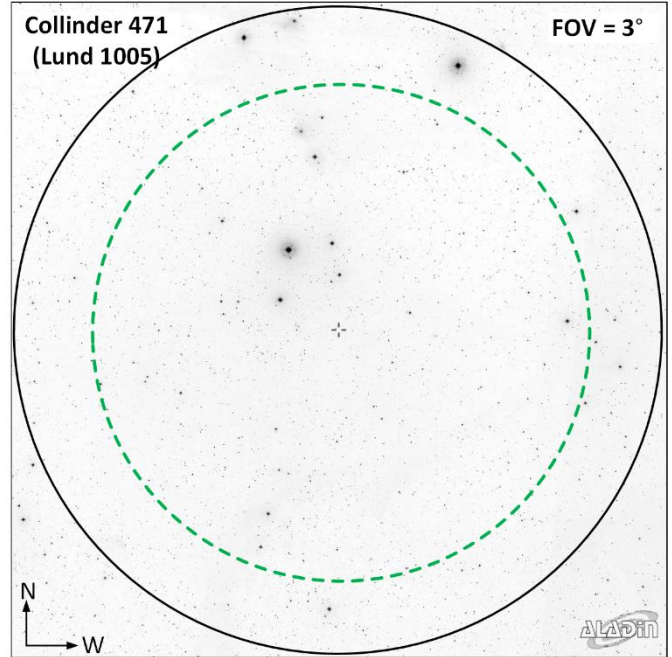
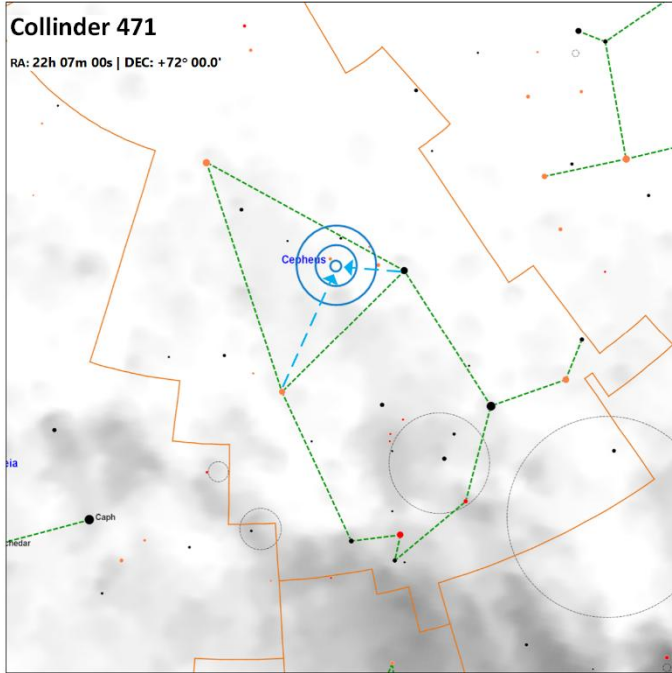


Xi Cephei (MS-3 || **AB** | Mag=4.4,6.4 | Sep=8.1" | PA=274° | mBortle=9 | mApt=50mm | Period=2501y | Spec=A3m, F7V | Color=white, yellow-white || **AC** | Mag=4.5,12.6 | Sep=112.7" | PA=208° | mBortle=4 | mApt=150mm | Spec=A3m, ? | Color=white, ?) The AB components have an orbital period of 2,501 years. The AC components are not physically associated with each other.

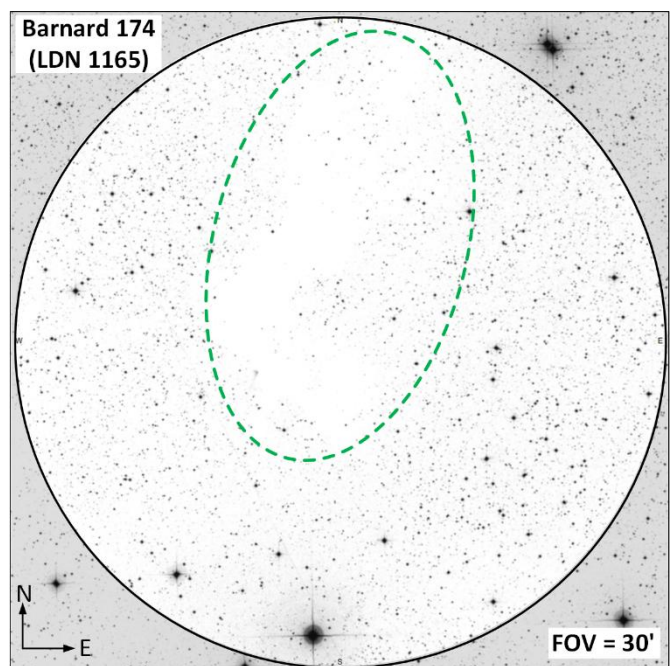
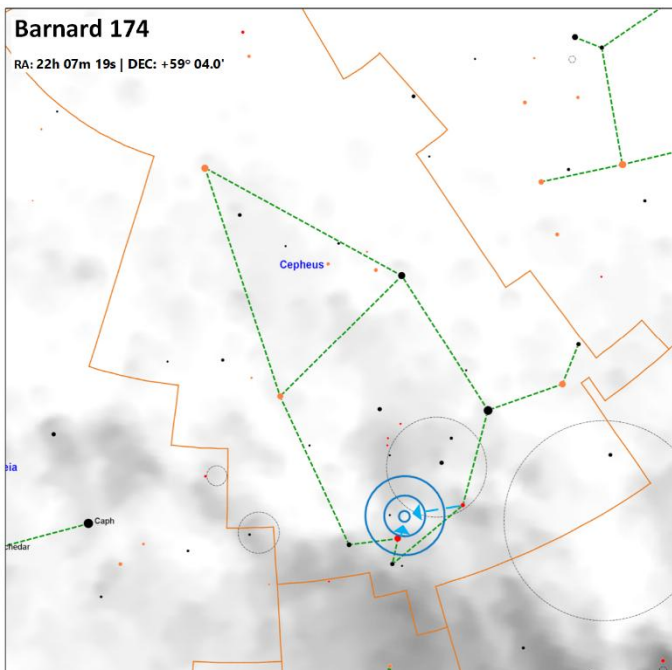


Constellation Guide

Collinder 471 (OC || Size=130' | MC=III2p |) While this object is classified as an open cluster some sources indicate that it may be a "moving group" indicating they are a loose kinematic grouping of stars rather than a bound cluster. Trumpler classification III – Detached with no noticeable concentration, 2 – Medium range of brightness between stars in the cluster, p – Poor cluster with less than 50 stars. Spanning an area of over 2°, this cluster may be challenging to distinguish from background stars.

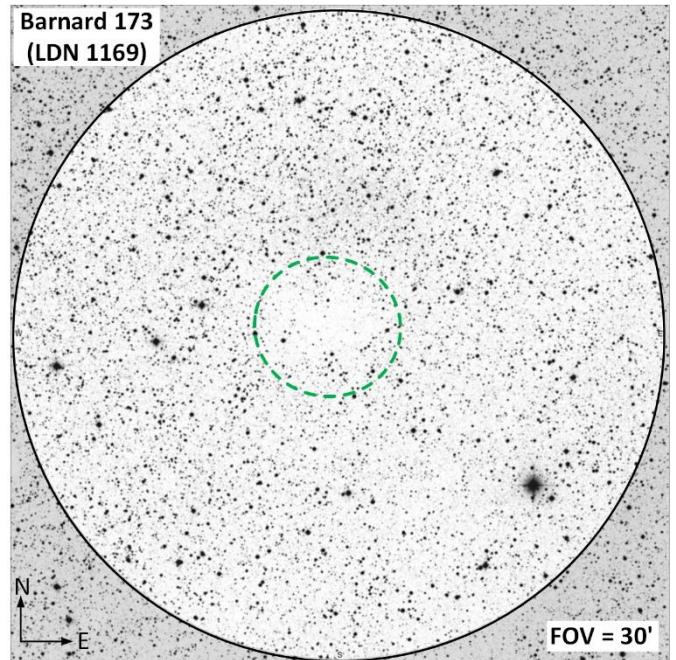
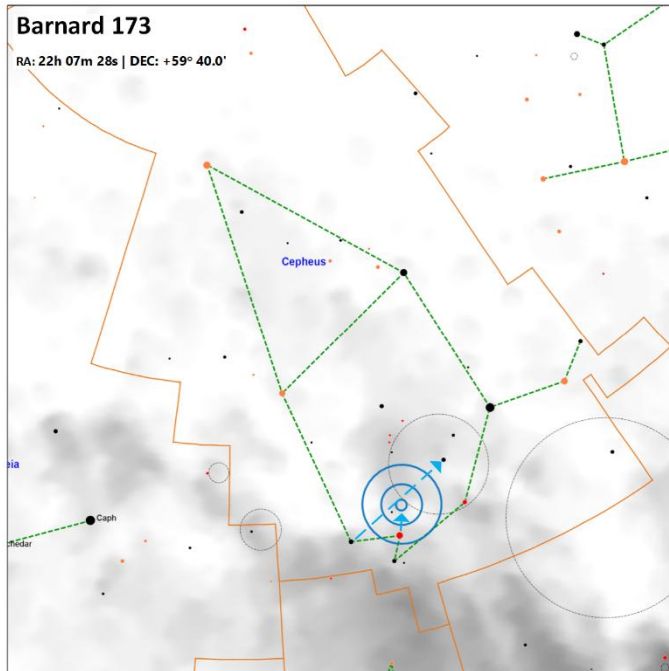


Barnard 174 (DN || Size=19' | mBortle=4 | mApt=50mm | Opacity=6 |) As with many of the dark nebulae in this guide there is little information. What is interesting is the opacity of 6 indicating it may be easier to make out from the background.

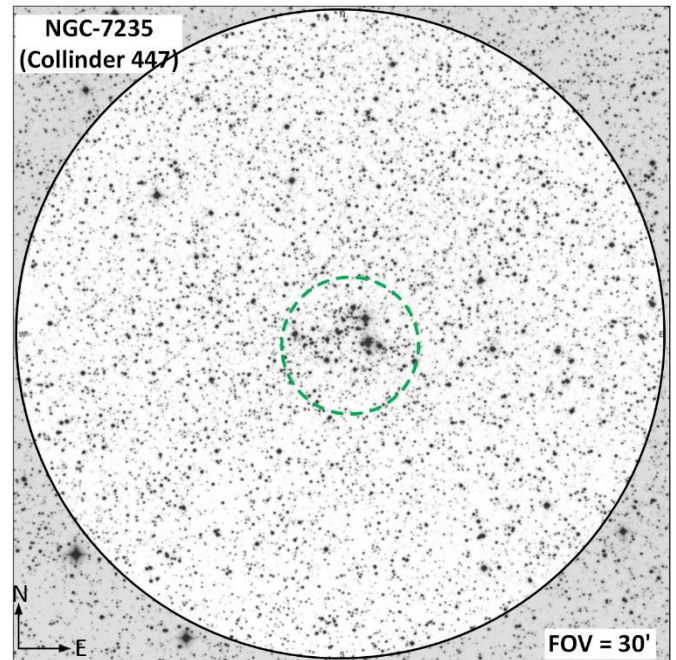
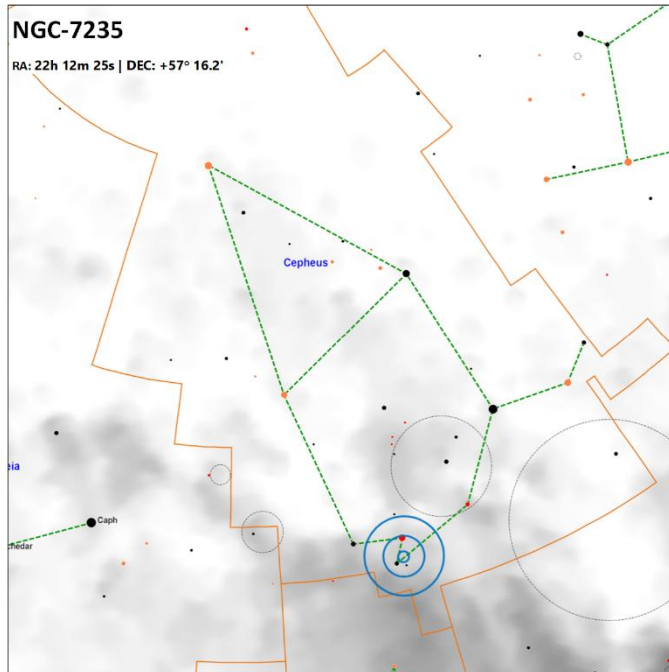


Constellation Guide

Barnard 173 (DN || Size=4' | mBortle=4 | mApt=60mm | Opacity=6 |) A small very dark patch in a field of stars.

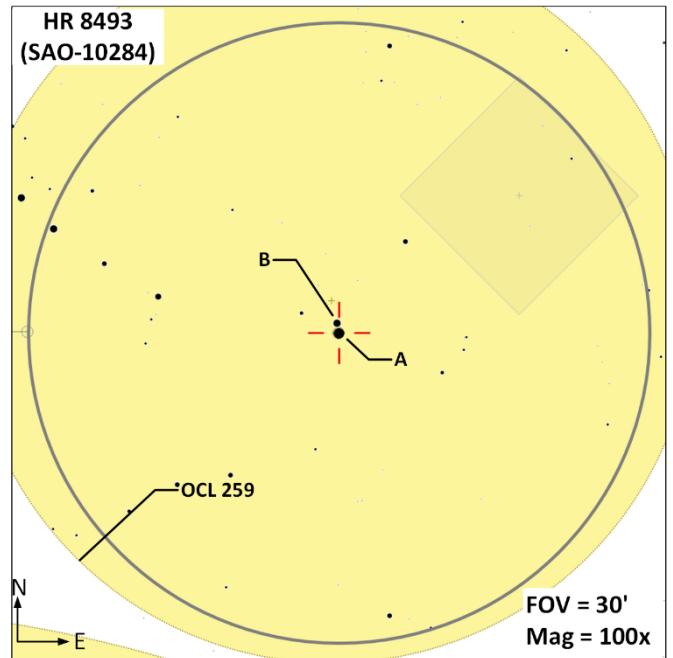
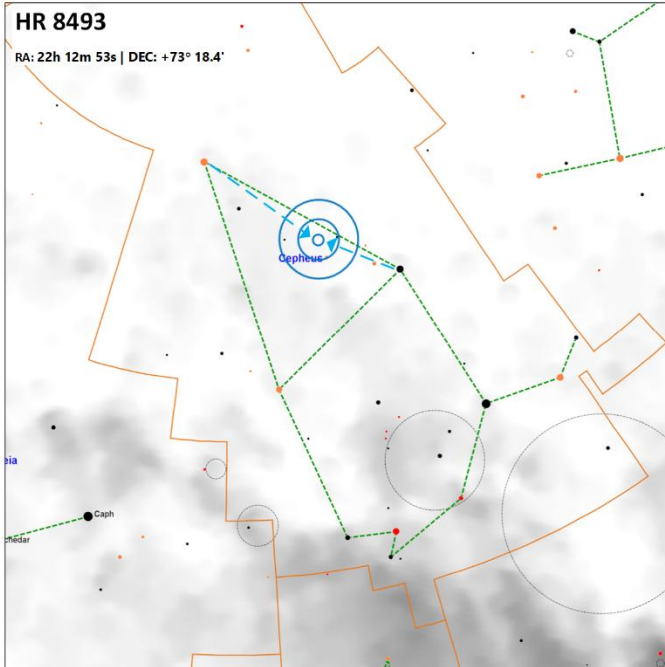


NGC 7235 (OC || Mag=7.7 | Size=4' | SB=19.3 | mBortle=9 | mApt=102mm | MC=II3m |) Located 11,000 light years away with a physical diameter of 16 light years. Although this object is in the same region of Cep OB2 (in the Orion arm of the Milky Way) it is not associated with this group of stars but actually associated with the Cep OB1 association located in the Perseus arm of the Milky Way.

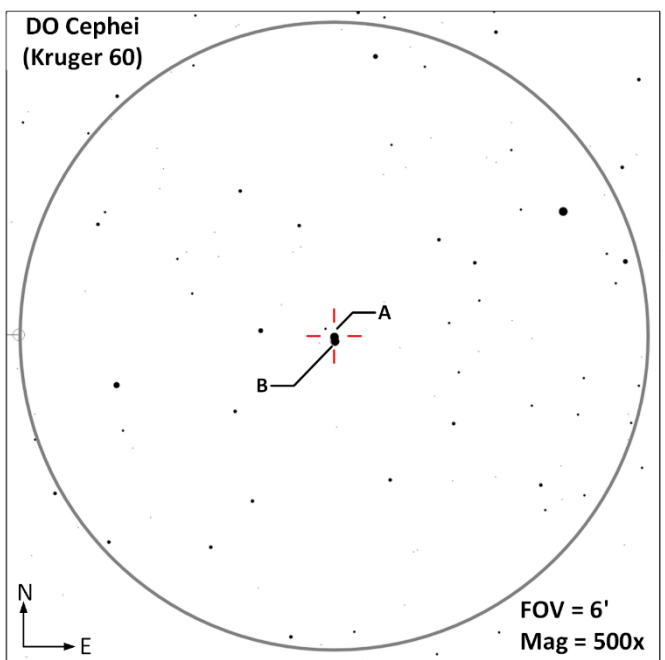
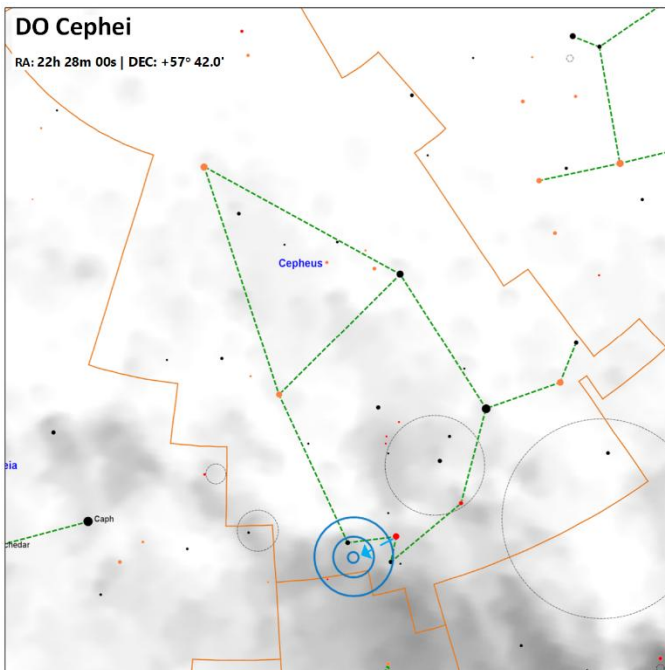


Constellation Guide

HR 8493 (DS || **AB** | Mag=6.2,7.9 | Sep=28.8" | PA=346° | mBortle=9 | mApt=50mm | Spec=G8III, ? | Color=yellow-orange, ?) Located 688 light years away. The primary is 22 times the Sun's diameter.

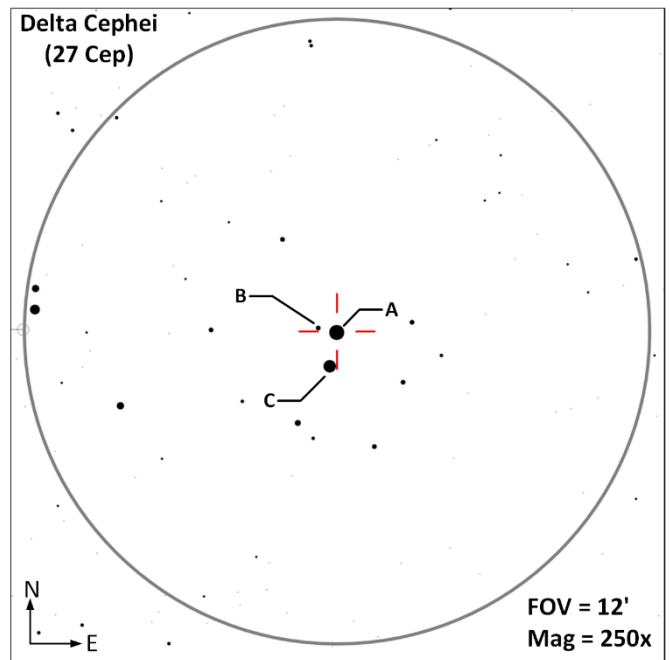
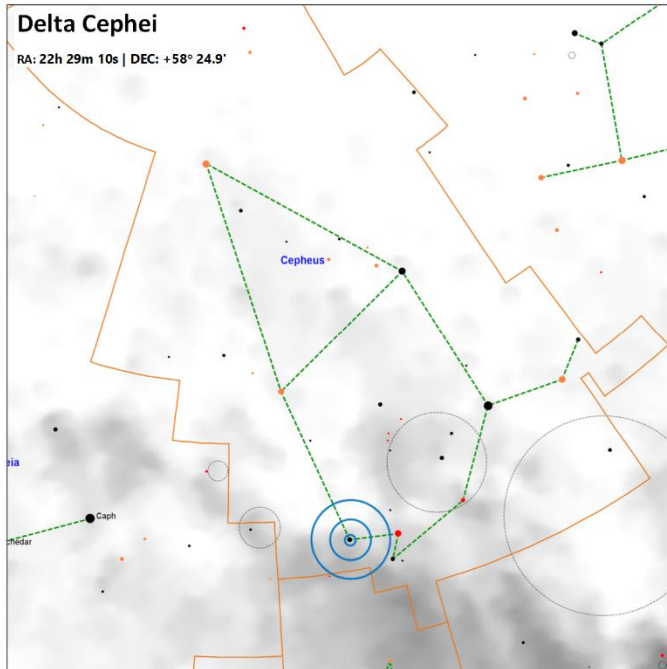


DO Cephei (DS || **AB** | Mag=9.9,11.4 | Sep=2.8" | PA=169° | mBortle=9 | mApt=102mm | Period=44.6y | Spec=M3.5V, M4.5V | Color=red, red) One of the nearest binary star systems to earth at 13 light years away. This system is composed of two red dwarf stars separated by only 9.5 AU, about the distance between the Sun and Saturn.

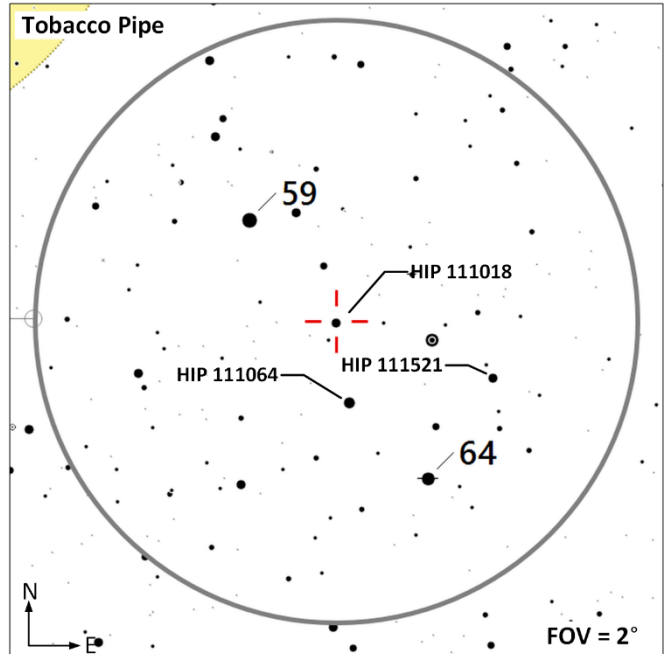
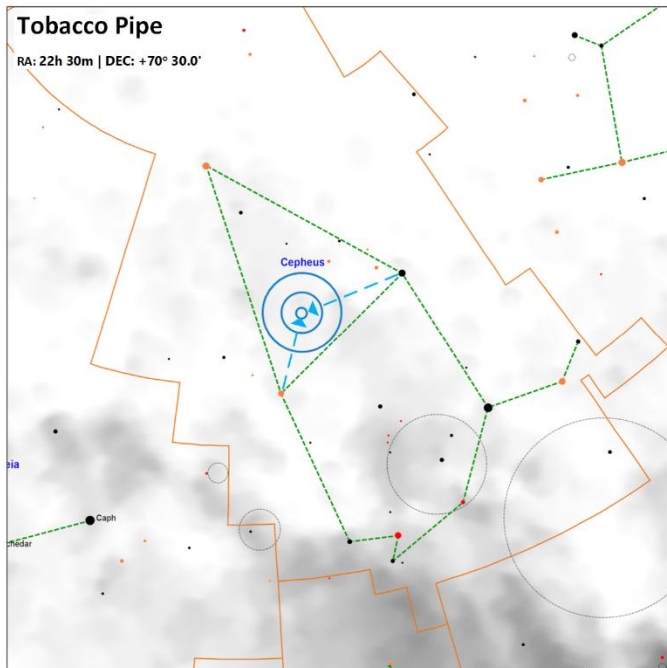


Constellation Guide

Delta Cephei (MS-3 || AB | Mag=4.2,13 | Sep=21.5" | PA=282° | mApt=180mm | Spec=F5Iab-G1Ib, ? | Color=yellow-white, ? || AC | Mag=4.2,6.11 | Sep=41" | PA=191° | mBortle=9 | mApt=50mm | Spec=F5Iab-G1Ib, B7III | Color=yellow-white, blue-white) Located 891 light years away, this system appears on a number of colored and multiple star lists.

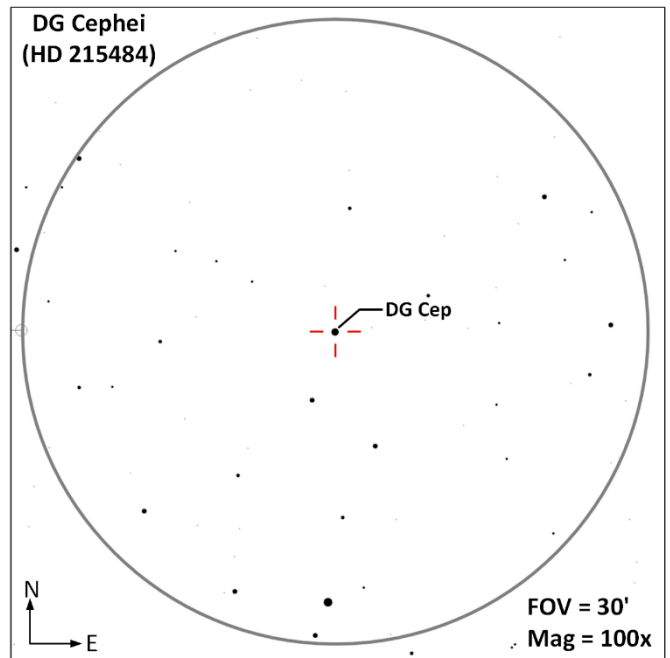
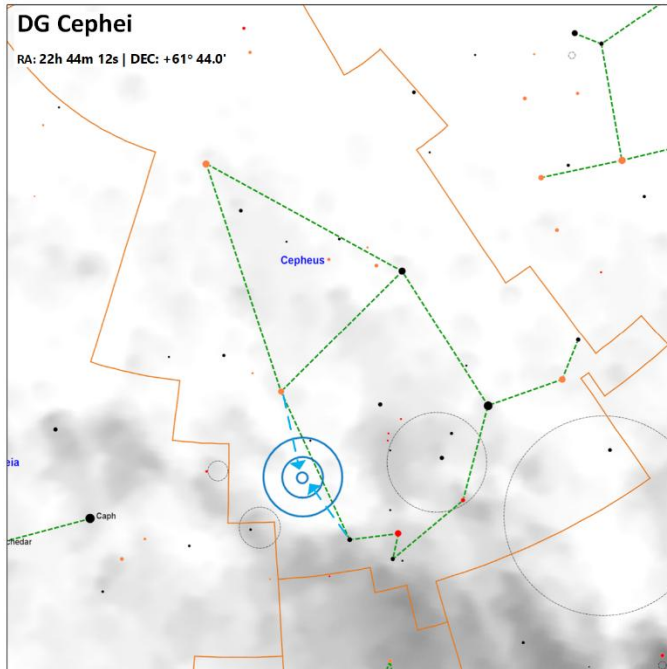


Tobacco Pipe (AS || Size=90') Stem of 8 stars, bowl of 5 (HIP111314A, 111064, 111018, 111325A, & 111521).

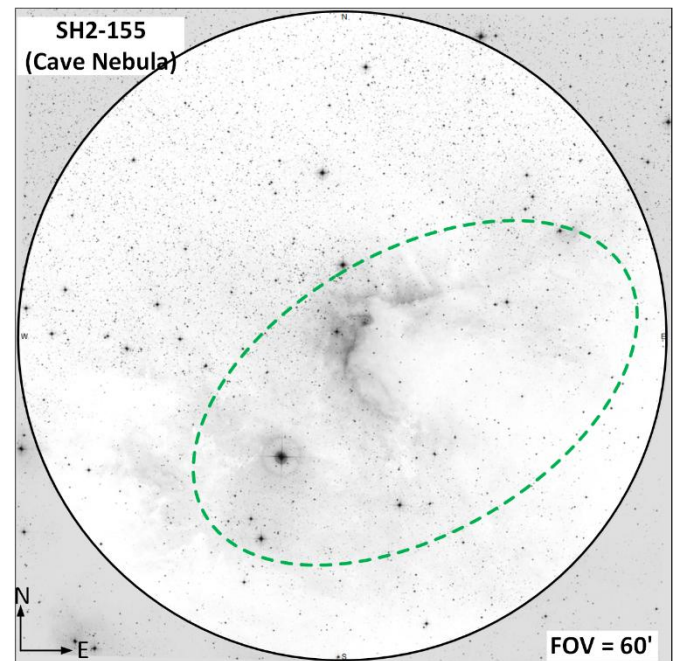
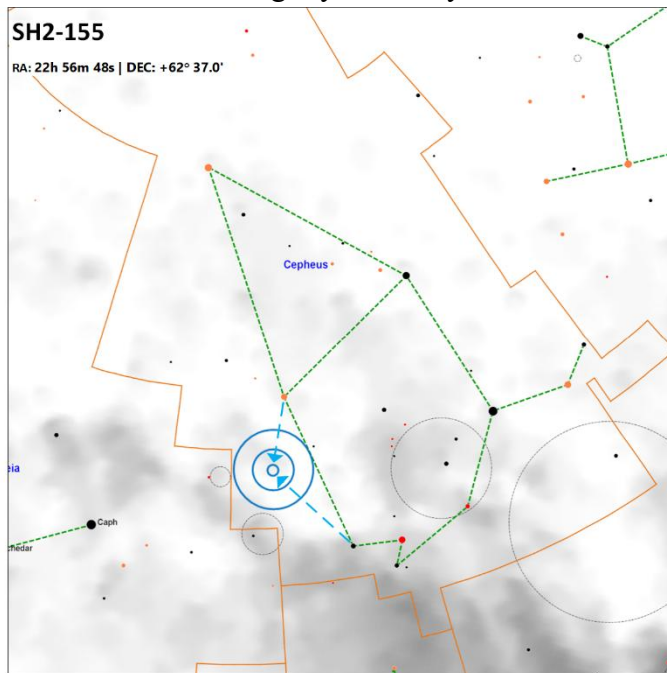


Constellation Guide

DG Cephei (CS || | Magnitude Range= 8.7 to 9.7 | Spec=C7,4 | BV=+3.17 | Color=deep red |) A variable star located 3,048 light years away with an unknown period. With a BV index of +3.17 this should appear quite red star.

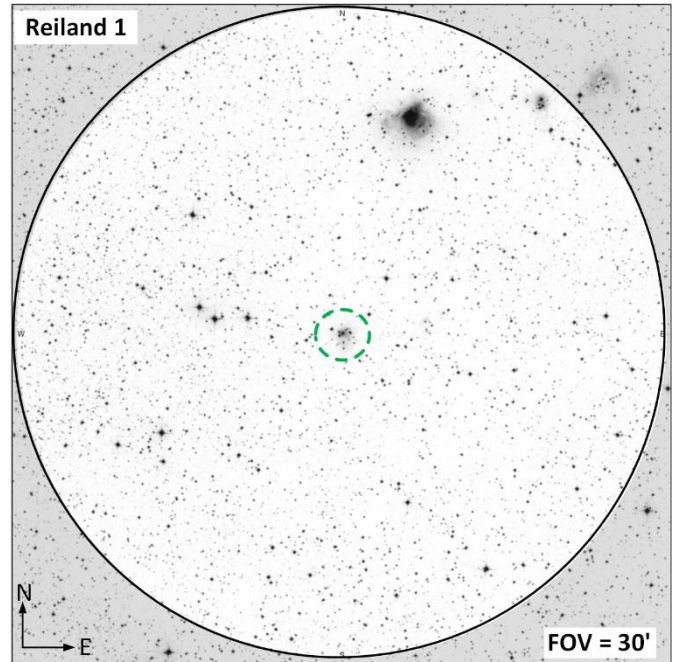
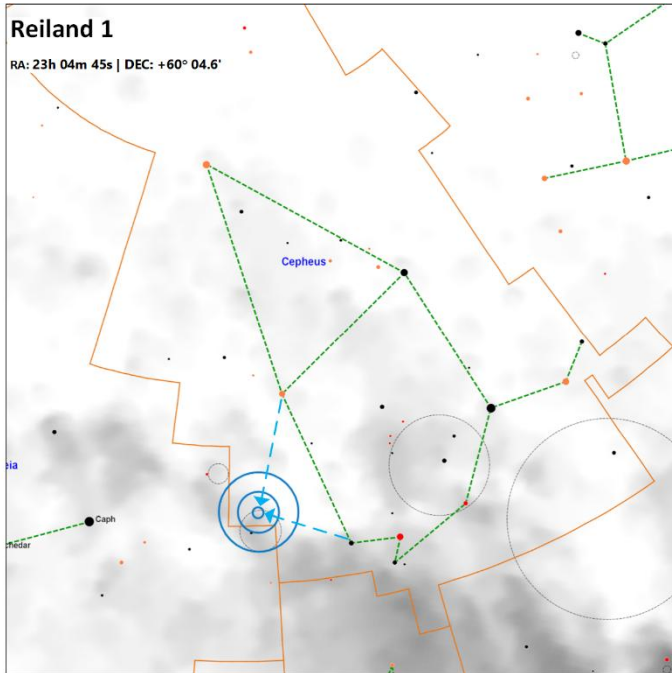


SH2-155 (EN || Size=50'x10' |) The Cave Nebula (aka Caldwell 9) is a faint Hydrogen- α emission and dust nebula located 2,700 light years away.

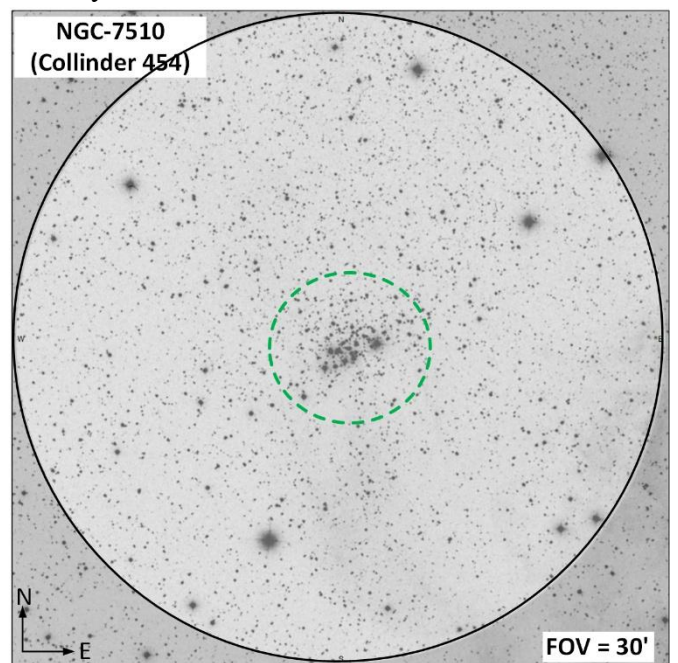
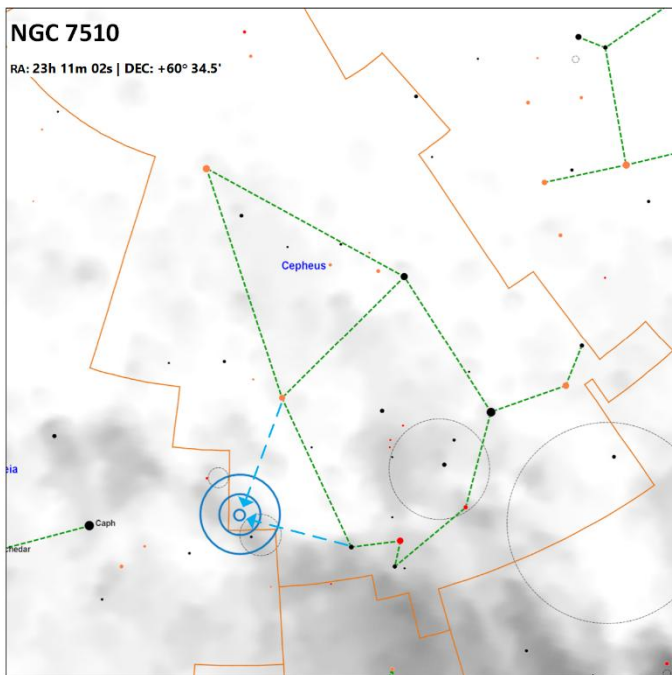


Constellation Guide

Reiland 1 (OC || Size=1.8' ||) Identified on the Kemble's Fifty-to-the-Pole list. While this object is identified as an open cluster, Kharchenko and colleagues analyzed it in 2013 and concluded it is not an open cluster but a compact asterism, a chance alignment rather than a physical grouping of stars.

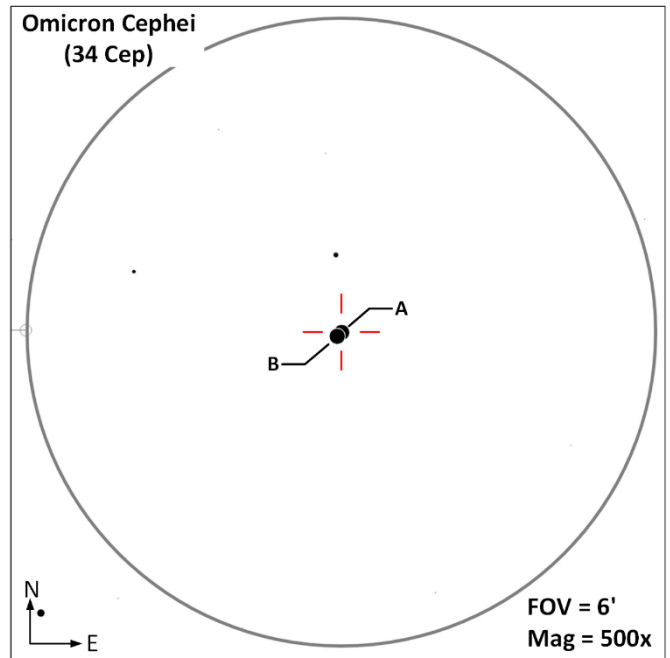
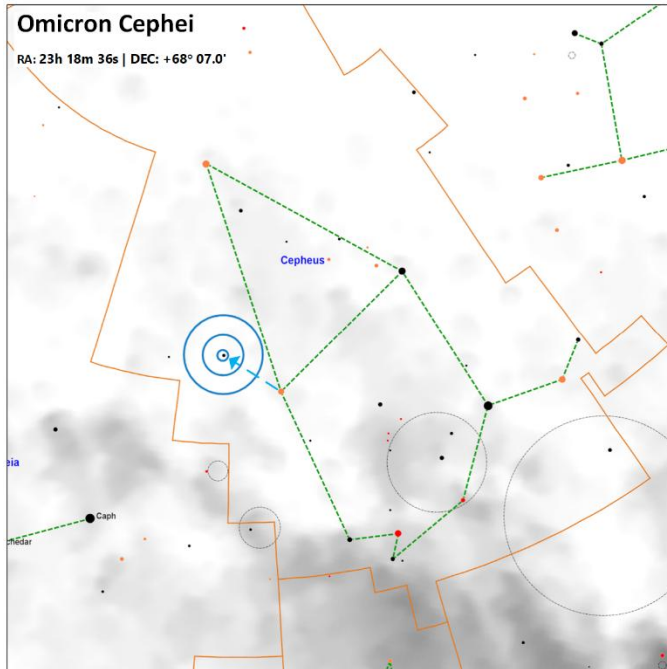


NGC 7510 (OC || Mag=7.9 | Size=6' | SB=20.4 | mBortle=9 | mApt=114mm | MC=II3r n ||) Located 11,000 light years away with an estimated physical diameter of 20 light years, and it resides in the Perseus Spiral Arm of the Milky Way. Trumpler classification is II – Detached with little central concentration, 3 – Composed of bright and faint stars, r – Rich cluster with over 100 stars, n – Nebulosity is associated with the cluster.

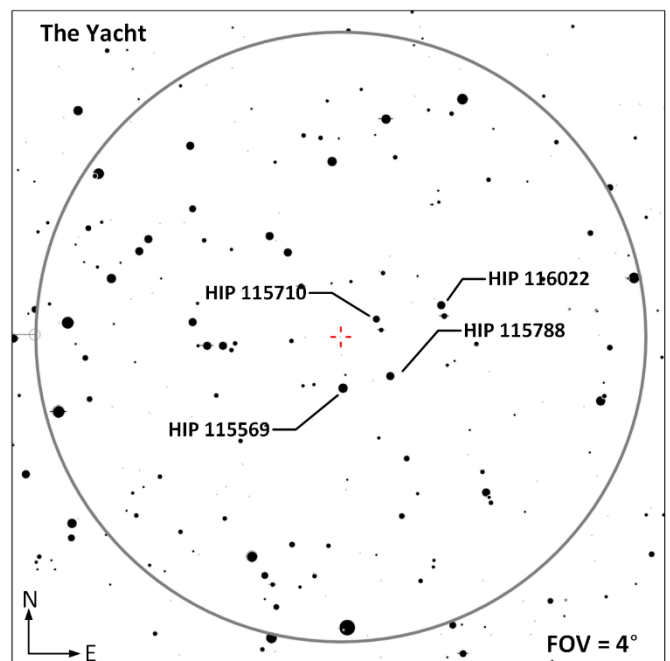
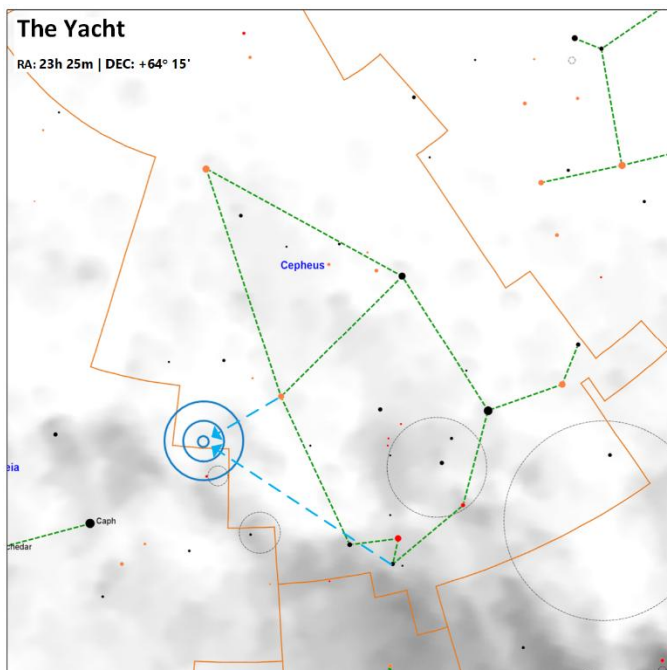


Constellation Guide

Omicron Cep (DS || AB | Mag=5.0,7.3 | Sep=3.35" | PA=223° | mBortle=9 | mApt=50mm | Period=2,199y | Spec=G8III, ? | Color=yellow-orange, ? |) Located 200 light years from earth, this binary system consists of an F-type main sequence star orbiting a massive G-type giant star. The orbital period of this system is determined to be 2,199 years.

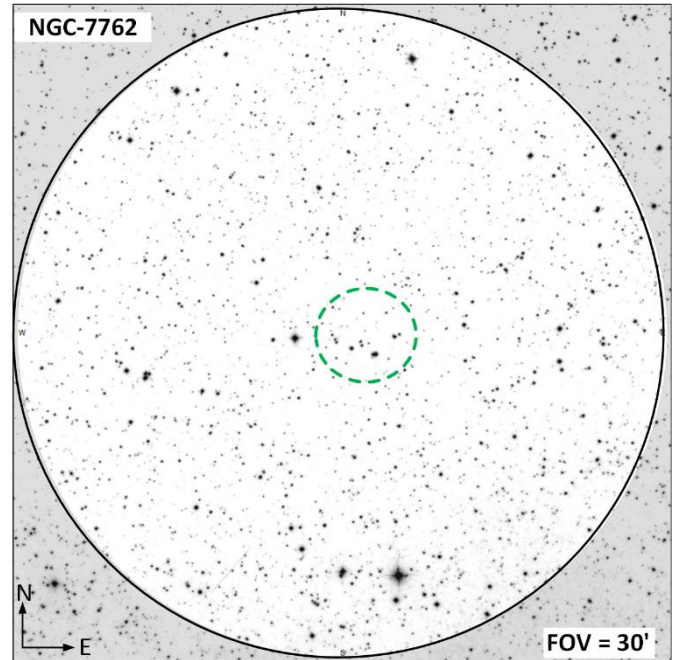
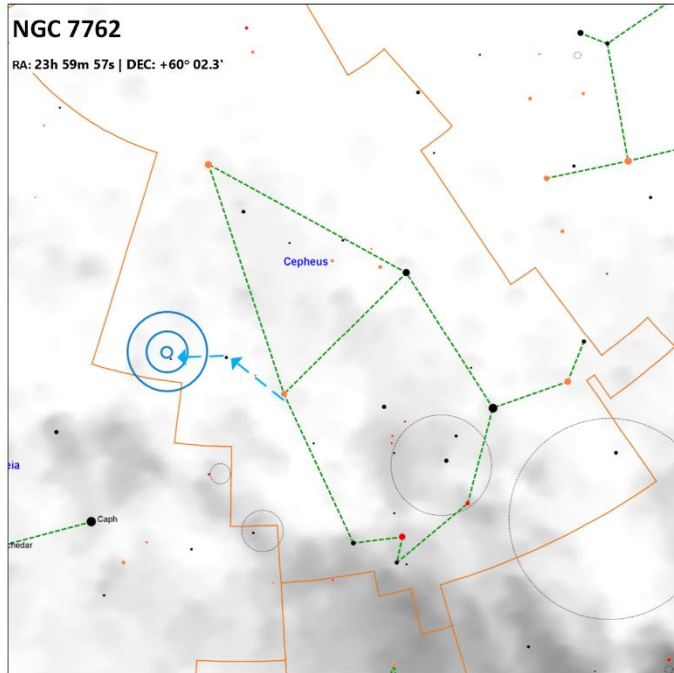


The Yacht (AS || Size=120' | Stars = 22 |) The pattern breaks down as 14 stars forming the hull, 2 stars above the hull making the cabin, and 6 stars in a triangle forming the sail. A large pair of binoculars with a wide field of view will be required to see this asterism that is composed of mostly 9th and 10th magnitude stars spanning an area of 2°.

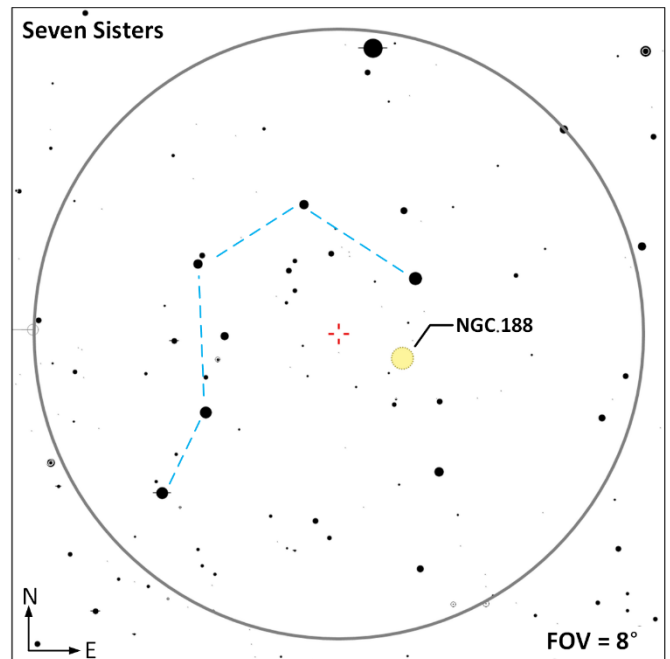
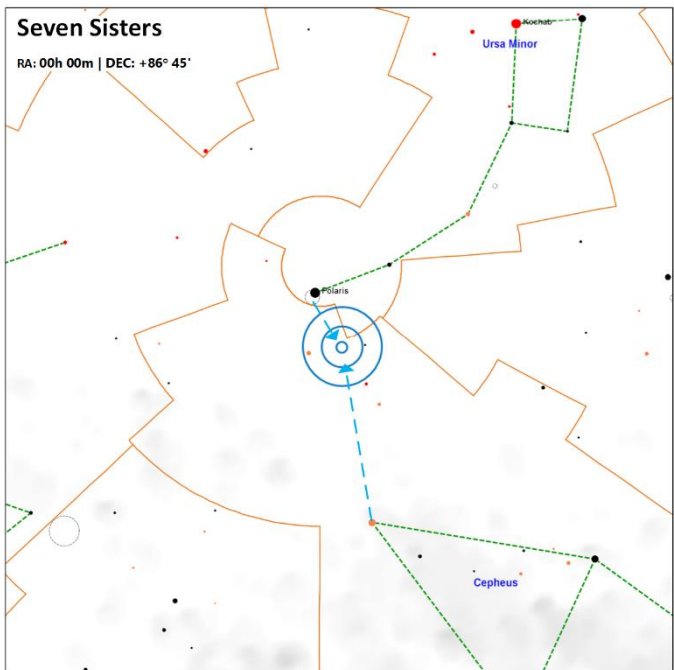


Constellation Guide

NGC 7762 (OC || Mag=10 | Size=4' | SB=21.6 | mApt=300mm | MC=II2m |) This open cluster is estimated to be 2,500 light years away. It is rare in that it is estimated to be 2.5 billion years old while most open clusters dissolve within a few hundred million years. Visually this is a faint, loose scattering of stars.



7 Sisters (AS || Size=240'x120' | Stars = 7 |) Described as large in size, loose in concentration, sparse in star count, with a fairly wide magnitude range, a few bright members and a haze of fainter ones, moderately faint overall, near the pole.



Constellation Guide
Observation Log: Cepheus (Cep)

Equipment Config A: _____ Config B: _____

Notes: _____

Date	Time	Config	Target	Notes

Date	Time	Config	Target	Notes

Constellation Guide
Observation Log: Cepheus (Cep)

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

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
 - [Aladin Lite](#) – Source for a number of deep-sky images

Applications

- [SkyTools](#) 4.1 Visual Professional
- [AstroPlanner](#) Version 2.4
- [Cartes du Ciel](#) Version 4.3
- [SkySafari](#) Pro 7
- Microsoft Office Home and Business 2021 - Word
- Microsoft Visio Professional 2021
- [IrfanView](#) Version 4.72