

Const. Tables Rev 3

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M31	M31	NGC 224		GX, Spiral	00h 42m 44.4s	+41°16'08"	00 43 +41.3	4	Size:188.8' x61.5'	
M32	M32	NGC 211		GX, Companion to M31	00h 42m 41.8s	+40°51'55"	00 43 +40.9	9.1	Size: 8.8' x 6.5'	
M110	M110	NGC 205		GX, Companion to M31	00h 40m 24.0s	+41°41'00"	00 40 +41.7	8	Size:15.0' x 8.0'	
NGC 752	NGC 752			OC	01h 57m 48.0s	+37°41'00"	01 58 +37.7	5.7	Size:50.0'	1.1x10^9 yrs
NGC 891	NGC 891			GX, edge-on	02h 22m 36.0s	+42°21'00"	02 23 +42.4	10	Size:14.0' x 2.0'	
NGC 7662	Blue Snowball	HIP 43811	HD 220733	Neb, P	23h 25m 54.0s	+42°33'00"	23 26 +42.6	9	Size: 2.2'	
ST007	21 Alpha	Alpherats	HIP 677	Star	00h 08m 23.3s	+29°05'26"	00 08 +29.1	2.1		B91V
ST017	Groombridge 34		26 And	DB	00h 18m 40.3s	+43°47'20"	00 19 +43.8	6.0,9.7	6.2"	B9
ST018	Struve 24			DB	00h 18m 29.9s	+26°08'20"	00 19 +26.1	7.6,8.4	5"	A2
ST020	VX	HIP 1593		Multiple 5 Star ?	00h 19m 54.0s	+44°42'34"	00 20 +44.7	8		C8 +
ST021	R And	SAO 53860		Var, Mira-type	00h 24m 02.0s	+38°34'37"	00 24 +38.6	5.8-14.9	Orbit 409 Days	S3,5e-S8,8e(M7e)
ST023	AQ	HIP 2180	GSC 2270	Var, Red	00h 27m 31.7s	+35°35'14"	00 28 +35.6	7.67		
ST027	31 Delta	HIP 3092		Star	00h 39m 19.7s	+30°51'40"	00 39 +30.9	3.3		K3III
ST040	Struve 79	HIP 4675		DB	01h 00m 03.8s	+44°42'23"	01 00 +44.7	6.0,6.8	7.8"	B9B9
ST047	43 Bata	Mirach	HIP 5447	Star	01h 09m 43.9s	+35°37'14"	01 10 +35.6	2		M0IIIvar
ST056	51 And	HIP 7607		Star	01h 37m 59.6s	+48°37'42"	01 38 +48.6	3.6		K3III
ST071	56 And	HIP 9001		DB	01h 56m 07.2s	+37°15'25"	01 56 +37.3	6.0,11.1,9.3	18.4",203.8"	K0 K2
ST075	57 Gamma 1	Almach	HIP 9640	DB Multiple	02h 03m 54.0s	+42°19'47"	02 04 +42.3	a=2.3,bc=5.5,6.3	a-bc=9.8",bc=0.4"	a=K0,bc=B8V A0V
ST077	59 And			DB	02h 10m 52.3s	+39°02'21"	02 11 +39.0	6.0,6.8	16.5"	A0 A2
ST827	Z And	GCVS Z And		Var	23h 33m 39.6s	+48°49'05"	23 34 +48.8	8-12.4		M2111+B1eq
ST837	Struve 3050			DB Challenge	23h 59m 30.2s	+33°43'25"	23 60 +33.7	6.6,6.6,12.9	1.7", 81.2"	G0V

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
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δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

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M2	NGC 7089			GC	21h 33m 30.0s	-00°49'00"	21 34 -00.8	6.5	Size: 12.9'	
M72	NGC 6981			GC	20h 53m 30.0s	-12°32'00"	20 54 -12.5	9.35	Size: 5.9'	
M73	NGC 6994			OC	20h 59m 00.0s	-12°38'00"	20 59 -12.6	8.9	Size: 2.8'	
NGC 7009	Saturn Neb	NGC 7009		Planetary Neb.	21h 04m 12.0s	-11°22'00"	21 04 -11.4	11.5	Size: 12"/100"	
NGC 7293	Helix Nebula	NGC 7293		Planetary Neb.	22h 29m 36.0s	-20°48'00"	22 30 -20.8	13.47	Size: >769"	
ST749	3 Aqr	HIP 102624	EN-Aqr	Var	20h 47m 44.2s	-05°01'40"	20 48 -05.0	4.41-4.45		M3IIIvar
ST758	12 Aqr	HIP 103981		DB	21h 04m 05.3s	-05°49'14"	21 04 -05.8	5.9,7.3	2.8"	F5 A3
ST767	GCVS RY Aqr			Var	21h 20m 15.1s	-10°48'09"	21 20 -10.8	8.8-10.1	Period: 1.966594	A3
ST784	29 Aqr		GCVS DX Aqr	DB, Var	22h 02m 28.1s	-16°58'05"	22 03 -17.0	7.2,7.4,11.7,6.37-6.78	3.7,143",Period: 0.9450132	A2,Var=A2V
ST792	41 Aqr	HIP 109786		DB	22h 14m 19.2s	-21°04'16"	22 14 -21.1	5.6,7.1	5.0"	K2
ST798	53 Aqr	HIP 110778		DB	22h 26m 30.1s	-16°44'29"	22 27 -16.8	6.4,6.6	3.1"	G0 G0
ST801	55 Zeta 1	HIP 110960	Struve 2909	DB	22h 28m 50.0s	-00°01'12"	22 29 -00.0	4.31,4.51	2.1"	F2IV
ST810	69 Tau 1	HIP 112542		DB	22h 47m 42.4s	-14°03'22"	22 48 -14.1	5.8,9.0	23.7"	B9
ST812	71 Tau 2	HIP 112716	NSV 14329	DB	22h 49m 35.5s	-13°35'33"	22 50 -13.6	4.0,8.5	133.4"	K5III
ST815	73 Lamda	HIP 112961	GCVS lam Aqr	Var	22h 52m 36.9s	-07°34'47"	22 53 -07.6	3.7-3.8		M2IIIvar
ST822	90 Phi	HIP 114724		Star	23h 14m 19.4s	-06°02'56"	23 14 -06.1	4.22		M2III
ST823	95 Psi 3	HIP 115115	NSV 14491	DB,Var?	23h 18m 56.3s	-09°36'39"	23 19 -09.6	5.0,11.0	1.5"	A0V
ST824	94 Aqr	HIP 115126		DB	23h 19m 06.7s	-13°27'31"	23 19 -13.5	5.3,7.3	12.7"	G6/G8IV
ST826	99 Aqr	HIP 115669	NSV 14554	Star	23h 26m 02.8s	-20°38'44"	23 26 -20.7	4.39		K5III
ST830	GCVS R Aqr			Var	23h 43m 49.1s	-15°17'03"	23 44 -15.3	5.8-12.4	Period: 386.96	M5e-M8.5e+Pec
ST831	107 Aqr	HIP 117218		DB	23h 45m 58.7s	-18°40'41"	23 46 -18.7	5.6,6.7	6.6"	A5

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NGC 772	NGC 772			GX	01h 59m 18.0s	+19°01'00"	01 59 +19.0	10.3	Size: 7.1' x 4.5'	
ST063	1 Ari		Struve 174	DB	01h 50m 07.8s	+22°16'49"	01 50 +22.3	6.2,7.4	2.8"	F5+A2
ST066		Struve 178		DB	01h 52m 00.9s	+10°48'41"	01 52 +10.8	3.1,3.1	3.1"	F0 (Lucid White)
ST067	5-Gamma 1		Mesarthim	DB	01h 53m 31.8	+19°17'45"	01 54 +19.3	4.8,4.8,9.6	7.8",221"	A0,A1p Si
ST072	9 Lambda	HIP 9153		DB	01h 57m 59.2s	+23°35'17"	01 58 +23.6	4.9,7.7	37.4"	A0 to A5
ST076	13 Alpha	Hamal	HIP 9884	Star, Var ?	02h 07m 10.4s	+23°27'45"	02 07 +23.5	1.9-2.0		K2111
ST089	30 Ari		HIP 12189	DB	02h 36m 57.2s	+24°39'08"	02 37 +24.7	6.6,7.4	38.6"	F5F5 (Yel-Pale Lilac)
ST092		Struve 305		DB	02h 47m 26.0s	+19°22'09"	02 47 +19.4	7.4,8.32	3.7"	G0
ST094	42 Pi		NSV 00944	Tri ?	02h 49m 17.0s	+17°27'59"	02 49 +17.5	5.2-8.7	3.2"	B5
ST100	48 Epsilon	HIP 13914		DB	02h 59m 13.3	+21°20'00"	02 59 +21.3	5.2,5.5	1.5"	A2
ST114	Toms Topaz	HIP 15549		Star	03h 20m 20.4s	+29°02'54"	03 20 +29.0	4.47		K211-111 (Topaz)
ST117	Struve 394			DB	03h 27m 58.0s	+20°27'54"	03 28 +20.5	7.1,8.1	6.8"	A3

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ε epsilon	λ lambda	ρ rho	ψ psi

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IC 405	31 Caldwell	Flaming Star		Neb, Bright	05h 16m 12.0s	+34°16'00"	05 16 +34.3	Star=6.7	Size: 30' x 19'	
M36	NGC 1960			OC	05h 36m 06.0s	+34°08'00"	05 36 +34.1	6.0	Size:12.0'	
M37	NGC 2099			OC	05h 52m 24.0s	+32°33'00"	05 52 +32.6	5.6	Size:24.0'	
M38	NGC 1912			OC	05h 28m 42.0s	+35°50'00"	05 29 +35.8	6.4	Size:21.0'	
NGC 1907	NGC 1907			OC	05h 28m 00.0s	+35°19'00"	05 28 +35.3	8.2	Size: 7.0	
ST 165	3-Iota Aur	HIP 23015	NSV 01778	Star, Var?	04h 57m 59.6s	+33°09'58"	04 58 +33.2	2.6-2.78		K3IIvar
ST 167	4-Omega Aur	Struve 616		DB	04h 59m 17.1s	+37°53'13"	04 59 +37.9	5.1,8.1	5.4"	A0
ST 172	7-Epsilon Aur	HIP 23461	GCVS eps	Var	05h 01m 58.6s	+43°49'25"	05 02 +43.8	2.92-3.83	Period: 9892	F0Ia
ST 176	Eta Aur	HIP 23767	NSV 01822	Star, Var?	05h 06m 30.5s	+41°13'59"	05 07 +41.2	3.1,3.19		B3V
ST 178	TX Aur	GCVS TX		Var	05h 09m 05.4s	+39°00'06"	05 09 +39.0	8.5-9.2		C5,4(N3)
ST 180	Struve 664			DB	05h 10m 22.3s	+37°17'40"	05 10 +37.3	6.7,7.0,9.3	1.6",73"	B2
ST 185	13-Capella	HIP 24608	NSV 01897	Var	05h 16m 41.4s	+45°59'53"	05 17 +46.0	0.06-(1.5)	Period: 104.023	G0III + G5III
ST 188	UV Aur	GCVS UV		Var	05h 21m 48.6s	+32°30'41"	05 22 +32.5	7.4-10.6	Period: 394.42	C6,2-C8,2Jep(Ne)
ST 193	21-Sigma Aur	HIP 25292		DB	05h 24m 39.1s	+37°23'07"	05 25 +37.4	5.0,11.0,13.2	8.7",27.3"	K4III
ST 196	Struve 698			DB	05h 25m 15.1s	+34°51'32"	05 25 +34.9	6.6,8.7	31"	K0 K
ST 202	Struve 718			DB	05h 32m 17.6s	+49°23'35"	05 32 +49.4	7.5,7.5	8"	F5
ST 222	32-Nu Aur	HIP 27673		DB	05h 51m 29.4s	+39°08'55"	05 51 +39.1	4.8,9.3	54.6"	K0III
ST 226	37-Theta Aur	HIP 28380		DB	05h 59m 42.9s	+37°12'32"	05 60 +37.2	2.6,7.1,10.6	3.6",50"	A0
ST 227	35-Pi Aur	HIP 28404	GCVS pi	Var	05h 59m 55.8s	+45°56'14"	05 60 +45.9	4.24-4.34		M3.5II
ST 231	41 Aur		Struve 845	DB	06h 11m 39.6s	+48°42'52"	06 12 +48.7	6.3,7.9	7.7"	A0 A0
ST 248	ADS 5188		oStruve 147	DB	06h 34m 21.3s	+38°04'30"	06 34 +38.1	6.6,10.0	43"	K0
ST 250	Struve 928			DB	06h 34m 41.0s	+38°32'28"	06 35 +38.5	7.6,8.2	3.5"	F5
ST 252	Struve 929			DB	06h 35m 19.9s	+37°43'22"	06 35 +37.7	7.2,8.3	6"	G5
ST 254	ADS 5221			DB	06h 36m 14.9s	+38°00'14"	06 36 +38.0	8.6,9.1	1.3"	G5
ST 256	UU Aur	GCVS UU		Var	06h 36m 33.2s	+38°26'46"	06 37 +38.4	7.83-10.0	Period: 234	C5,3-C7,4(N3)
ST 257	ADS 5240			DB	06h 36m 57.7s	+38°13'08"	06 37 +38.2	9.6,9.9	2.2"	

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NGC 5248	Cadwell 45			GX, Sp.	13h 37m 31.9s	+08°53'08.0"	13 38 +08.9	10.8	Size: 6.5' x 4.9'	
NGC 5466				GC	14h 05m 30.0s	+28°32'00.0"	14 06 +28.5	9.1	Size:11.0'	
ST479	1-Boo	HIP 66727		DB	13h 40m 40.5s	+19°57'20.6"	13 41 +20.0	5.8,8.7	4.6"	A2
ST483	Struve 1785			DB	13h 49m 06.5s	+26°59'09.0"	13 49 +27.0	7.6,8.0	3.2"	N2
ST485	5-Upsilon	HIP 67459	NSV06458	Star,Var?	13h 49m 28.6s	+15°47'52.5"	13 50 +15.8	4.0-4.7		K5IIIvar
ST491	17-Kappa2	HIP 69483	GCVS kap	DB,Var	14h 13m 29.0s	+51°47'23.9"	14 14 +51.8	4.6,6.6 Var(4.5-4.58)	13.4" v=(0.076242)	A8IV
ST493	Arcturus	16-Alpha	HIP 69673	Star	14h 15m 39.7s	+19°10'56.7"	14 16 +19.2	-0.05		K2IIIp
ST494	21-Iota	HIP 69713	NSV06610	DB,Var	14h 16m 09.9s	+51°22'02.0"	14 16 +51.4	4.9,7.5,Var=4.7-4.78	38.5"	A9V
ST496	Struve 1834			DB	14h 20m 16.9s	+48°30'30.0"	14 20 +48.5	8.0,8.3	1.4"	F9V
ST499	Struve 1835	HIP 70327		DB	14h 23m 22.7s	+08°26'47.8"	14 23 +08.5	5.1,7.6,7.7	6.2",0.2"	A0V A9V
ST503	25-Rho	HIP 71053	NSV 06697	Star,Var?	14h 31m 49.8s	+30°22'17.2"	14 32 +30.4	3.6,11.3	42.2"	K3III
ST506	29-Pi	SAO 101139		DB	14h 40m 43.6s	+16°25'06.0"	14 41 +16.4	4.9,5.8	5.6"	B9p MnHg
ST508	30-Zeta	HIP 71795		Star, DB?	14h 41m 09.0s	+13°43'41.9"	14 41 +13.7	4.52,4.55	0.8"	A3IVn
ST513	36-Epsilon	Izar	HIP 72105	DB	14h 44m 59.2s	+27°04'27.2"	14 45 +27.1	2.5,4.9	2.8"	K0 A0
ST519	39-Boo	HIP 72524		DB	14h 49m 41.3s	+48°43'14.9"	14 50 +48.7	5.68,6.8	3"	F6V+...
ST523	37-Xi	HIP 72659		DB	14h 51m 23.4s	+19°06'01.7"	14 51 +19.1	4.72,6.97	6.6"	G8V K4V
ST528	44-Boo	HIP 73695		DB	15h 03m 47.3s	+47°39'14.6"	15 04 +47.7	5.3,6.2	2.2"	G0V G2V
ST539	51-Mu 1 & 2	Alkalurops	HIP 75411	Trip	15h 24m 29.4s	+37°22'37.8"	15 25 +37.4	4.3,6.98,7.63	108.3",2.3"	F0 G1V

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IC 342	IC 342	UGC 2847		GX	03h 46m 49.7s	+68° 05m 45s	03 47 +68.1	9.12	Size: 21.2'x20.7'	
NGC1502	NGC1502	Kemble's Cascade		OC	04h 07m 42.0s	+62° 20m 00s	04 08 +62.3	5.7	Size:8.1'	80 Million Yr
NGC2403	NGC2403	UGC 3918		GX	07h 36m 54.0s	+65° 36m 00s	07 37 +65.6	8.89	Size:17.8'x11.0'	
ST109	Struve 362			DB	03h 16m 17.0s	+60° 02m 20s	03 16 +60.0	8.5,8.8	7.1"	A0
ST118	Struve 385	HIP 16228		DB	03h 29m 06.0s	+59° 55m 54s	03 29 +59.9	4.4,8.7	2.4"	B9
ST119	Struve 389			DB	03h 30m 09.8s	+59° 21m 47s	03 30 +59.4	6.5,7.5	2.8"	A0
ST123	Struve 400			DB	03h 34m 59.6s	+60° 02m 14s	03 35 +60.0	6.8,7.6	1.6"	F4V
ST124	oStruve 36			DB	03h 39m 59.0s	+63° 52m 41s	03 40 +63.9	6.8,8.6	46.1"	F5
ST131	BE-Cam	HIP 17884		Var	03h 49m 31.1s	+65° 31m 33s	03 50 +65.5	4.35-4.48		M2II
ST149	1-Cam	HIP 121148		DB Colored ?	04h 32m 01.6s	+53° 55m 03s	04 32 +53.9	5.7,6.8	10.3	B1
ST160	ST-Cam			Var	04h 51m 13.1s	+68° 10m 07s	04 51 +68.2	9.2-12.0	Period: 300	C5,4(N5)
ST308	Struve 1127			Trip	07h 46m 58.5s	+64° 03m 34s	07 47 +64.1	7.0,8.8,9.9	7.0,11.3	A2
ST313	S-h 86			DB	08h 02m 33.9s	+63° 05m 32s	08 03 +63.1	6.0,8.4	48.6"	F8 F8
ST457	32-Cam?(Σ1694)	HIP 62572		DB	12h 49m 13.5s	+83° 24m 21s	12 49 +83.4	5.3,5.8	21.6"	A2 A0

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M44	M44	NGC 2632	Beehive	OC	08h 40m 06.0s	+19°59'00"	08 40 +20.0	3.1	Size:95.0'	A0
M67	M67	NGC 2682		OC	08h 50m 24.0s	+11°49'00"	08 50 +11.8	6.9	Size:30.0'	B8
NGC 2775	Caldwell 48			GX, Elong	09h 10m 18.0s	+07°02'00"	09 10 +07.0	10.33	Size: 4.5' x 3.5'	
ST319	16-Zeta 2	HIP 40167		Trip	08h 12m 12.7s	+17°38'52"	08 12 +17.6	ab5.63,6.2,c6.2	ab0.8,a/b c6.0"	F8V G0V
ST321	17-Beta	HIP 40526	SAO 116569	Star	08h 16m 30.9s	+09°11'08"	08 17 +09.2	3.52		K4III
ST322	GCVS R Cnc	HD 69243	HIP 40534	Var	08h 16m 34.3s	+11°43'36"	08 17 +11.7	6.07-11.8	Period: 361.60	M6e-M9e
ST328	24-Cnc		Struve 1224	DB	08h 26m 39.2s	+24°32'24"	08 27 +24.5	a7.0, b7.8, c8.6	ab0.2,a-bc5.8,bc0.2	aA3 bG cF7V
ST329	23-Phi 2		NVS 04078	DB,Var	08h 26m 44.8s	+26°56'24"	08 27 +26.9	6.6,6.3, (V=0.02-5.6)	5.1"	A2 A2
ST333	Struve 1245	HIP 42172		DB	08h 35m 49.9s	+06°37'09"	08 36 +06.6	6.0,7.2....	10.3"	G0 F6 G5
ST336	Struve 1254	41 Epsilon		Quad	08h 40m 20.7s	+19°39'48"	08 40 +19.7	a6.4,b8.9,c8.6,d8.9	ab20",ac63",ad82"	G5A0,A2A0
ST340	48-Iota	HIP 43103		DB	08h 46m 39.3s	+28°46'07"	08 47 +28.8	4.2,6.6	30.4"	G5 A5
ST343	GCVS X Cnc	HD 76221		Var	08h 55m 22.8s	+17°13'54"	08 55 +17.2	5.6-7.5	Period: 195	C5,4(N3)
ST344	66-Sigma 4	HIP 44307		DB	09h 01m 25.9s	+32°15'33"	09 01 +32.3	5.9,8.0,10.8	4.6",187.4"	A2
ST346	Struve 1311			DB	09h 07m 29.1s	+22°58'54"	09 07 +23.0	6.9,7.3,12.6	7.5",27.8"	F2 F5

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M30	M30	NGC 7099		GC	21h 40m 24.0s	-23°11'00"	21 40.4 -23.2	7.5	Dia 11'	Dist 24.8 kly
ST 732	6 Alpha Cap	Algedi	HIP 100064	Trip	20h 18m 03.3s	-12°32'41"	20 18.1 -12.5	a=3.6, b=11.4	ab=6.6"	G5
ST 735	5 Alpha Cap			Quad	20h 17m 38.4s	-12°30'27"	20 17.6 -12.5	a=4.2, c=9.2"	ac=45.4	G0
	Combo 6-Alpha and 5-Alpha							5A6A=3.6, 4.2	5A6A=377.7"	G5
ST 738	9 Beta Cap	Dabih	HIP 100345	DB	20h 21m 00.7s	-14°46'53"	20 21.0 -14.8	3.4,6.2	205"	G0 B9
ST 741	10 Pi Cap	HIP 100881		DB	20h 27m 19.2s	-18°12'42"	20 27.3 -18.2	ab=5.2, 8.9	3"	B4V
ST 742	12 Omicron Cap	HIP 101123		DB	20h 29m 53.9s	-18°34'59"	20 29.9 -18.6	6.1, 6.6	21.9"	A2, A3
ST 750	S 763			DB	20h 48m 22.7s	-18°11'55"	20 48.4 -18.2	6.7, 8.6	15.8"	G5
ST 752	18 Omega Cap	HIP 102978		Star, var?	20h 51m 49.3s	-26°55'09"	20 51.8 -26.9	4.11	Dist 628.43 ly	K4III
ST 761	24 Cap	HIP 104234		Star	21h 07m 07.7s	-25°00'21"	21 07.1 -25.0	4.5	Dist 522.69 ly	K5/M0III
NL 1 (see note)	49 Delta Cap	Deneb Algedi	SAO 164644	Var, Eclip	21h 47m 02.4s	-16°07'38"	21 47.0 -16.1	2.81-3.05	Period 24h 32' 47.2"	A7IIIm

Note: NL 1 = False reference, use 21h 47m 02.4s -16°07'38"

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC 1805				OC & Neb	02h 32m 42.0s	+61°27'00"	02 33 +61.5	6.0	OC=22', Size:60.0'	O5
IC 1848				OC & Neb	02h 51m 12.0s	+60°26'00"	02 51 +60.4	6.0	OC=12', Size:60.0'	O7
M52	NGC 7654			OC	23h 24m 12.0s	+61°35'00"	23 24 +61.6	6.9	Size:13.0'	B6
M103	NGC 581			OC	01h 33m 12.0s	+60°42'00"	01 33 +60.7	7.4	Size:6.0'	B2
NGC 147	Caldwell 17	UGC326		GX	00h 33m 11.6s	+48°30'28"	00 33 +48.5	10.4	Size:13.2' x 7.8'	
NGC 185	Caldwell 18	UGC396		GX, Around M31	00h 38m 58.0s	+48°20'18"	00 39 +48.3	10.1	Size:11.8' x10.0'	
NGC 281				OC & Neb	00h 52m 48.0s	+56°37'00"	00 53 +56.6	7.0	OC=4' ,Size:35.0'	0B
NGC 457	Caldwell 13	ET Cluster	Phi-Cas Cluster	OC	01h 19m 06.0s	+58°20'00"	01 19 +58.3	6.4	Size:13.0'	B2
NGC 559	Caldwell 8			OC	01h 29m 30.0s	+63°18'00"	01 30 +63.3	9.5	Size: 4.0'	B7
NGC 663	Caldwell 10			OC	01h 46m 00.0s	+61°15'00"	01 46 +61.3	7.1	Size:16.0'	B1
NGC 1027				OC	02h 42m 42.0s	+61°33'00"	02 43 +61.6	6.7	Size:20.0'	B3
NGC 7635	Caldwell 11	Bubble Nebula		Neb, Bright	23h 20m 42.0s	+61°12'00"	23 21 +61.2	6.93	Size:15.0' x 8'	B2IV
NGC 7789				OC	23h 57m 00.0s	+56°44'00"	23 57 +56.7	6.7	Size:16.0'	B9
ST 003	Struve 3053			DB	00h 02m 37.5s	+66°05'25"	00 03 +66.1	5.9,7.3,10.8	15.2",98.5"	G0 A2
ST 022	Struve 30			DB	00h 27m 12.2s	+49°59'13"	00 27 +50.0	6.9,8.8,12.6,10.0	15.2",64",148"	B9
ST 026	17-Zeta-Cas	HIP 2920	NSV 00225	Star, Var?	00h 36m 58.3s	+53°53'49"	00 37 +53.9	3.5-3.68		B2IV
ST 029	Schedar	18-Alpha	HIP 3179	Star, Var, Chal-db	00h 40m 30.4s	+56°32'14"	00 41 +56.5	2.20-2.27	Dbl at 54", Mag 9	K0II-IIIvar
ST 031	HN-Cas	(GCVS YZ)		Read as DB	00h 45m 38.8s	+74°59'18"	00 46 +75.0	5.7,9.4	36"	A2
ST 033	24-Eta-Cas	HIP 3821		Star, (faint DB)	00h 49m 06.3s	+57°48'55"	00 49 +57.8	3.44,7.51	19.42 ly, 12.9"	G0V M0V
ST 038	Navi	27-Gamma	GCVS gam Cas	Var	00h 56m 42.5s	+60°43'00"	00 57 +60.7	1.6-3.0	613.08 ly	B0IV:evvar
ST 052	36-Psi-Cas			DB	01h 25m 57.0s	+68°07'16"	01 26 +68.1	4.7,9.6	25"	K0
ST 060	44-Cas			DB	01h 43m 22.4s	+60°33'17"	01 43 +60.6	5.8,12.1,9.2,9.2	1.6",66,140	B9
ST 064	Struve 163			DB	01h 51m 14.9s	+64°51'48"	01 51 +64.9	6.8,8.8,10.1	34.8",114.8"	K5
ST 069	45-Epsilon-Cas	HIP 8886	NSV 00652	Star, Var?	01h 54m 23.7s	+63°40'12"	01 54 +63.7	3.3-3.38	441.95 ly	B2pvar
ST 084	Iota-Cas	GCVS iot Cas		Trip(Var & db)	02h 29m 04.3s	+67°24'11"	02 29 +67.4	4.45-4.53,4.62,6.87	Period 1.74, 2.5"	B9p(Cr-Sr)
ST 093	RZ-Cas	GCVS RZ Cas		Var	02h 48m 55.7s	+69°37'59"	02 49 +69.6	6.18-7.72	Period: 1.195247	A2.8V
ST 835	R-Cas	GCVS R Cas		Var	23h 58m 24.7s	+51°23'18"	23 58 +51.4	4.7-13.5	Period: 430.46	M6e-M10e
ST 836	8-Sigma-Cas			DB	23h 58m 58.4s	+55°45'24"	23 59 +55.8	5.0,7.1	3"	B2

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
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γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC1396			See:ST771	Neb	21h 39m 06s	+57° 30' 00"	21 39 +57.5	3,(5.8,7.8)	Size:170' x 140'	
NGC 40	PLN 120+9.1	Caldwell 2		Neb,planetary	00h 13m 00s	+72° 32' 00"	00 13 +72.5	11.61	Size: >37"	WC8
NGC 188	NGC 188	Caldwell 1		OC & Neb	00h 44m 00s	+85° 20' 00"	00 44 +85.3	8.1	Size:14.0'	F2
NGC 6939	NGC 6939			OC	20h 31m 24s	+60° 38' 00"	20 31 +60.6	7.8	Size: 8.0'	
NGC 6946	NGC 6946	Caldwell 12	UGC 11597	GX, Spiral	20h 34m 48.0s	+60° 09'00"	20 35 +60.2	9.68	Size: 11' x 9.8'	
NGC 7023	NGC 7023	Caldwell 4		Cluster & Neb	21h 00m 30s	+68° 10' 00"	21 01 +68.2	7.1	Size: 5.0'	
NGC 7129	NGC 7129			Cluster & Neb	21h 41m 18.0s	+66° 06'00"	21 41 +66.1	11.5	Size: 2.7'	
NGC 7380	NGC 7380			Cluster & Neb	22h 47m 00s	+58° 06' 00"	22 47 +58.1	7.2	Size: 12.0'	O6
NGC 7510	NGC 7510			OC	23h 11m 30s	+60° 34' 00"	23 12 +60.6	7.9	Size: 4.0'	O9
NGC7822	NGC7822		Not: ST005		00h 03m 36s	+68° 37' 00"	00 04 +68.2	5.67	Size:60.0' x 30'	gK1
ST005	Ced214	HIP 379	Not: NGC7822	Star with Neb	00h 04m 42s	+67° 09' 59"	00 05 +67.2	5.68		Emitter=K1III
ST015	Struve 13	WDS 207		DB	00h 16m 17s	+76° 57' 21"	00 16 +77.0	7.0,7.3	0.9"	B8Vnn
ST041	U-Cep			Var	01h 02m 18s	+81° 51' 00"	01 02 +81.9	6.75-9.24	Period:2.4930475	B7Ve+G8III-IV
ST046	Lux Lydiae	HIP 5372	SAO 181	Star	01h 08m 45s	+86° 15' 26"	01 09 +86.3	4.25		K2II-III
ST104	Struve 320	HIP 14417	WDS 2294	DB	03h 06m 10s	+78° 24' 41"	03 06 +78.4	5.6,8.8	4.6"	M
ST723	1-Kappa	HIP 99255	WDS 13524	DB	20h 08m 55s	+77° 43' 11"	20 09 +77.7	4.4,8.4,8.4	7.4",169.8	B9III
ST754	Struve 2751	HIP 103810	WDS 14575	DB	21h 02m 09s	+56° 39' 42"	21 02 +56.7	6.1,7.1	1.5"	B9
ST762	T-Cep			Var	21h 09m 32s	+68° 29' 29"	21 10 +68.5	5.2-11.3	Period:388.14	M5.5e-M8.8e
ST764	Struve 2780	HIP104642	WDS 14749	DB	21h 11m 51s	+59° 59' 41"	21 12 +60.0	6.0,7.0,8.7	1",120.6"	B2IIIve(PaleRuby)
ST769	8-Beta	Er Rai	Alfirk	DB	21h 28m 41s	+70° 33' 20"	21 29 +70.6	8	13"	B1
	"	"	"	Var	"	"	"	3.16-3.27	Period: 0.190..	B2IIIve
ST770	S-Cep			R Var	21h 35m 13s	+78° 37' 30"	21 35 +78.6	7.4-12.9	Period: 486.84	C7,4e(N8e)
ST771	Struve 2816	HIP 106886	See: IC1396	Trip	21h 38m 54s	+57° 29' 09"	21 39 +57.5	5.6,13.3,7.7,7	1.6",11.7",20",30"	O5
ST775	Mu	The Garnet Star	HIP 107259	Var	21h 43m 30s	+58° 46' 48"	21 44 +58.8	3.43-5.1	Period: 730	M21ae
ST779	Struve 2840	HIP 107930		DB	21h 51m 58s	+55° 47' 12"	21 52 +55.8	5.5,7.3,13.2	18",55.2"	B3A (Splendid)
ST782	Struve 2873			DB	21h 58m 26s	+82° 51' 57"	21 58 +82.9	7.0,7.3	13.7"	F5
ST785	17-Xi	Kurhah	WDS 15600	DB	22h 03m 43s	+64° 37' 18"	22 04 +64.6	4.4,6.5	8.2"	A3m dF7
ST786	oStruve 461			DB	22h 03m 52s	+59° 49' 06"	22 04 +59.8	6.7,11.4	11.1" (A to B of 5 *)	B5 A0 (nice field)
ST789	Struve 2883	HIP 109474		DB	22h 10m 42s	+70° 07' 36"	22 11 +70.1	5.6,7.6	14.6"	F2
ST790	21-Zeta	HIP 109492	NSV 14066	Var?	22h 10m 51s	+58° 11' 49"	22 11 +58.2	3.1-3.38		K1Ibv SB
ST802	27-Delta	HIP 110991		A=Var	22h 29m 11s	+58° 24' 53"	22 29 +58.4	A=3.48-4.37	Period: 5.366341	F5Ib-G1Ib
	"	"		DB	"	"	"	B=13,C=5.7	20.4",41.0"	G0 A0
ST811	Struve 2947			DB	22h 48m 59s	+68° 33' 45"	22 49 +68.6	AB=7.2,7.2	4.3"	F5 F5
ST813	Struve 2950	HIP 112864		DB	22h 51m 17s	+61° 40' 50"	22 51 +61.7	6.1,7.4,10.7	1.7", 39.3"	G0
ST821	33-Pi	HIP 114222	oStruve 489	DB	23h 07m 53s	+75° 23' 30"	23 08 +75.4	4.6,6.6	1.2"	G2III
ST828	35-Gamma	Errai	HIP 116727	Star	23h 39m 18s	+77° 37' 56"	23 39 +77.6	3.21		K1IV

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
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γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC 1613	IC 1613			Irg. Gx.	01h 04m 54.2s	+02°08'00"	01 05 +02.1	9.93	Size:12.0' x11.2	Local Group
M77	M77	NGC 1068		Sp. Gx.	02h 42m 40.2s	-00°00'48"	02 43 -00.0	9.51	Size: 6.9' x 5.9'	
NGC 246	NGC 246			P Neb.	00h 47m 00.0s	-11°53'00"	00 47 -11.9	8,(Companion=14.6)	Size: 225"	4" Companion
NGC 247	NGC 247	Caldwell 62		Sp. Gx.	00h 47m 08.7s	-20°45'38"	00 47 -20.8	9.51	Size:21.5' x 6.9'	
NGC 936	NGC 936			eleg. Gx	02h 27m 36.0s	-01°09'00"	02 28 -01.0	10.1	Size: 5.2' x 4.4'	
ST011	GCVS AD Cet	HIP 1158		Var	00h 14m 27.2s	-07°46'49"	00 14 -07.8	4.9-5.16		M3III
ST012	7-AE Cet	HIP 1170	GCVS AE Cet	Var	00h 14m 38.4s	-18°55'55"	00 15 -18.9	4.26-4.46		M1III-M3III
ST019	8-Iota	HIP 1562	NSV 00123	Star, Var?	00h 19m 25.7s	-08°49'26"	00 19 -08.8	3.5-3.56		K2III
ST039	Struve 80			DB	00h 59m 25.7s	+00°47'23"	00 59 +00.8	8.3,8.7,10.5	26.4,178"	K0
ST045	31-Eta	HIP 5364		Star	01h 08m 35.4s	-10°10'56"	01 09 -10.2	3.46		K2III
ST051	42-Cet	HIP 6226		Star&DB	01h 19m 48.3s	-00°30'33"	01 20 -00.5	Star=5.87, DB=8.6,8.8,6	1.0"	G5III....,DB=F0,F5
ST057	GCVS UV			Var	01h 38m 50.7s	-17°57'29"	01 39 -18.0	6.8-12.95		M5.5Ve
ST065	55-Zeta	Baten Kaitos	HIP 8645	DB, Var?	01h 51m 27.6s	-10°20'06"	01 51 -10.3	3.7,9.9, 3.6-3.74 var?	187.0"	K0 K0, K2IIIvar
ST070	Struve 186	NSV 00667		DB? Var?	01h 55m 52.7s	+01°50'40"	01 56 +01.8	6.8,6.8	1"?	G0 White Pair
ST073	59-Upsilon	HIP 9347		Star	02h 00m 00.3s	-21°04'40"	02 00 -21.1	3.99		M0III
ST079	Struve 231		66-Cet	DB	02h 12m 46.1s	-02°23'50"	02 13 -02.4	5.7,7.5,11.4	16.5",172"	G0
ST083	Mira	GCVS (68-)omi		Var	02h 19m 20.7s	-02°58'26"	02 19 -03.0	2.0-10.1	Period: 331.96	M5e-M9e
ST086	Struve 274			DB	02h 31m 32.6s	+01°05'36"	02 32 +01.1	7.3;7.8	13.5"	A2
ST091	86-Gamma	Kaffaljidhma		DB	02h 43m 18.0s	+03°14'01"	02 43 +03.2	3.5,7.3	2.8"	A2
ST097	Struve 330			DB	02h 57m 12.1s	-00°34'50"	02 57 -00.6	7.3,9.3	8.8	G5,Very Yel&Blu
ST102	Menkar	92-Alpha	HIP 14135	Var	03h 02m 16.8s	+04°05'23"	03 02 +04.1	2.45-2.54		M2III

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
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δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M53	NGC 5024			Globular Cluster	13h 12m 54.0s	+18°10'00"	13 12.9 +18 10	7.7	Size:12.6'	F4
M64	NGC 4826	Black Eye GX	UGC8062	Spiral GX	12h 56m 44.3s	+21°41'05"	12 56.7 +21 41	9.35	Size:9.3'x5.4'	
M85	NGC 4382	UGC7508		Lenticular (S0) GX	12h 25m 24.6s	+18°11'27"	12 25.4 +18 11	10.1	Size:7.1'x5.2'	
M88	NGC 4501	UGC7675		Spiral GX	12h 31m 59.6s	+14°25'17"	12 32.0 +14 25	10.27	Size:6.9' x 3.9'	
M91	NGC 4548	UGC7753		Spiral GX	12h 35m 26.3s	+14°29'49"	12 35.4 +14 30	10.98	Size:5.4'x4.4'	
M98	NGC 4192	UGC7231		Spiral GX	12h 13m 48.2s	+14°53'43"	12 13.8 +14 54	10.13	Size:9.5' x 2.2'	
M99	NGC 4254	Pinwheel Nebula	UGC7345	Spiral GX	12h 18m 49.3s	+14°25'07"	12 18.8 +14 25	10.42	Size:5.4'x4.8'	
M100	NGC 4321	UGC7450		Spiral GX	12h 22m 55.2s	+15°49'23"	12 22.9 +15 49	10.1	Size:6.9' x 6.2'	
NGC 4559	Caldwell 36	UGC7766		Elongated GX	12h 35m 57.3s	+27°57'53"	12 36.0 +27 58	10.3	Size:10.5' x 4.9'	
NGC 4565	Caldwell 38	UGC7772		Edge on GX	12h 36m 18.0s	+25°59'00"	12 36.3 +25 59	10.39	Size:16.2' x 2.8'	
NGC 4889	Caldwell 35			GX, Largest in group	13h 00m 06.0s	+27°58'00"	13 00.1 +27 58	12.45	Size:3.0' x 2.1'	
ST 425	2 Com		Struve 1596	DB	12h 04m 19.0s	+21°27'35"	12 04.3 +21 28	5.9,7.4	3.7"	F0
ST 435	Struve 1633			DB	12h 20m 37.9s	+27°03'42"	12 20.6 +27 04	7.0,7.1	9"	F2
ST 439	Struve 1639			DB	12h 24m 25.2s	+25°34'44"	12 24.4 +25 35	6.6,7.8	1.7"	F0V
ST 458	35-Com (Σ1687)	HIP 62886		DB	12h 53m 19.8s	+21°14'24"	12 53.3 +21 14	5.6,7.2,9.1	ab=1.3",ac=29"	B2V K0
ST 463	Struve 1699			DB	12h 58m 44.3s	+27°28'36"	12 58.7 +27 29	8.8,8.8	1.5"	G5
ST 467	42 Alpha (Σ1728)	GSC 1454:1134	GSC 1454:1130	Var, Var,(DB)	13h 09m 59.3s	+17°31'46"	13 10.0 +17 32	5.05,5.08,10	ab=0.5",ac=110"	F6V

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC 5146	Caldwell 19	Cocoon Nebula		OC & Neb	21h 53m 24.0s	+47°16'00"	21 53 +47.3	7.2	Size:9.0'	B1
M29	NGC 6913			OC	20h 23m 54.0s	+38°32'00"	20 24 +38.5	6.6	Size: 7.0'	B0
M39	NGC 7092			OC	21h 32m 12.0s	+48°26'00"	21 32 +48.4	4.6	Size:32.0'	A0
NGC 6826	Caldwell 15	Blinking Planetary		PN	19h 44m 48.0s	+50°31'00"	19 45 +50.5	9.8	Size: 30" x 140"	O6fp
ST683	Struve 2486			DB	19h 12m 07.0s	+49°50'10"	19 12 +50.0	6.6,6.8	7.9"	G5 G5
ST694	Albireo	6-Beta1 Cyg		DB	19h 30m 44.0s	+27°57'37"	19 31 +28.0	3.1,5.1	34.5"	K3II, B8V
ST697	R-Cyg	SAO 31822	GCVS R Cyg	Var	19h 36m 49.6s	+50°12'00"	19 37 +50.2	6.1-14.4	Period: 426.45	S2.5,9e-S6,9e(Tc)
ST701	16-Cyg	Struve 146		DB	19h 41m 53.1s	+50°31'12"	19 42 +50.5	6.0,6.1	39.3"	G0 G0
ST703	oStruve 191			DB	19h 45m 49.6s	+35°00'39"	19 46 +35.0	A=6.2,B=8.5,C=9.2	AB=38.7,AC=44.6"	K0 A2v
ST705	17-Cyg		SAO 68827	DB	19h 46m 23.6s	+33°44'43"	19 46 +33.7	5.0,9.2	26"	F5 K5
ST720	h1470			DB	20h 03m 36.8s	+38°19'56"	20 04 +38.3	7.3,9.4	28.8"	A2v M
ST728	RS -Cyg	GCVS RS Cyg		SRa, Var	20h 13m 24.0s	+38°43'44"	20 13 +38.7	6.5-9.3	Period: 417.39	C8,2e(N0pe)
ST729	Struve 2658			DB	20h 13m 39.0s	+53°07'14"	20 14 +53.1	7.1,9.2,10.3	5.4",49.3"	A2v F5 B8
ST734	34 P-Cyg	SAO 69773		S Dor Var	20h 17m 47.6s	+38°02'00"	20 18 +38.0	3.0-6.0		B1IaPec
ST737	U-Cyg	GCVS U Cyg	SAO 49477	M Var	20h 19m 36.1s	+47°53'43"	20 20 +47.9	5.9-12.1	Period: 463.24	C7,2e-C9,2(Npe)
ST745	50-Alpha	Deneb	SAO 49941	aCyg Var	20h 41m 25.9s	+45°16'49"	20 41 +45.3	1.21-1.29	Type older S Dor?	A2Ia
ST746	52-Cyg	HIP 102453		DB	20h 45m 39.8s	+30°43'11"	20 46 +30.7	4.22, 9.4	6", Dist 205.91 ly	K0III
ST759	62-Xi Cyg	HIP 104060	SAO 50424	Var	21h 04m 55.9s	+43°55'40"	21 05 +43.9	3.5-3.79	Dis 1177.46 ly	K5Ibv SB
ST760	61-Cyg		Struve 2758	DB	21h 06m 54.7s	+38°39'04"	21 07 +38.7	5.23,6.05	30.3"	K5V K7V
ST772	V460	GCVS V460 Cyg		Lb Var	21h 42m 00.7s	+35°30'37"	21 42 +35.5	5.57-7.0	Period: 180	C6,4(N1)

Objects below are NOT charted										
Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
NGC 7027				PN	21h 07m 06.0s	+42°14'00"	21 07 +42.2	11.3	Size:15"	
ST702	18-Delta Cyg	HIP 97165		DB	19h 44m 55.1s	+45°07'34"	19 45 +45.1	2.91,6.33	2.5"	B9III
ST710	Chi-Cyg	GCVS chi Cyg		M Var	19h 50m 33.4s	+32°54'53"	19 51 +32.9	3.3-14.2	Period: 406.93	S6,2e-S10,4e
ST715	24-Psi Cyg	HIP 98055		DB	19h 55m 35.5s	+52°25'59"	19 56 +52.4	4.9,7.4	3.2"	A3
ST725	RY-Cyg	(in a nest of OC)	GCVS RY Cyg	Lb Var	20h 10m 23.9s	+35°56'51"	20 10 +35.9	8.5-10.0		C4,8-C6,4(N)
	30, 31+ Cyg	SAO 49337, 49338	SAO 49332	Trip	20h 13m 37.9s	+46°44'29"	20 14 +44.5	a=3.8, c=6.7, d=4.8	ac=107", ad=338"	a=K0, c=B9, d=A2
ST736	Struve 2671			DB	20h 18m 22.3s	+55°23'49"	20 18 +55.4	6.1,7.5	3.5"	A0
	45-Omega1 Cyg	SAO 49712		DB	20h 30m 03.5s	+48°57'13"	20 30 +49.0	ac=5.0,9.5	56.3"	B3
ST743	49-Cyg		Struve 2716	DB	20h 41m 02.9s	+32°18'22"	20 41 +32.3	5.7,7.8	2.7"	K0
ST744	V-Cyg	GCVS V Cyg		M Var	20h 41m 17.9s	+48°08'34"	20 41 +48.1	7.7-13.9	Period: 421.43	C5,3e-C7,4e(Npe)
ST748	54-Lambda Cyg	HIP 102589		DB	20h 47m 23.7s	+36°29'05"	20 47 +36.5	4.85,6.07	0.9"	B5V
ST773	SS-Cyg	GCVS SS Cyg		UG(X) Var	21h 42m 42.8s	+43°35'09"	21 43 +43.6	8.2-12.4	Period: 50.1	A1-dGep

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC 2157				OC	06h 05m 00.0s	+24°00'00"	06 05 +24.0	8.4	Size: 7.0'	OB
M35	M35	NGC 2168		OC	06h 08m 54s	+24°20'00"	06 09 +24.3	5.1	Size: 28.0'	B3
NGC 2158				OC	06h 07m 30.0s	+24°06'00"	06 08 +24.1	8.6	Size: 5.0'	F0
NGC 2392	NGC 2392	Eskimo Neb	Clown Face	P Neb	07h 29m 12s	+20°55'00"	07 29 +20.9	10,47	Size: 0.7'	O7F
ST230	TU			Var	06h 10m 54s	+26°10'00"	06 11 +26.2	9.4-12.5	Period 230 d	C4,6
ST234	Porpus	GCVS 7eta	HIP 29655	DB, A=Var	06h 14m 53s	+22°30'25"	06 15 +22.5	3.2-3.9,8,8	1.6", Period 232.9d	M3111ab
ST240	13 Mu	HIP 30343	GCVS mu Gem	Var	06h 22m 58s	+22°30'49"	06 23 +22.5	2.76-3.02		M3111var
ST244	15 Gem			DB	06h 27m 48s	+20°47'00"	06 28 +20.8	6.6,8.1	27.1"	K0
ST247	20 Gem	Struve 924		DB? Var	06h 32m 18s	+17°47'00"	06 32 +17.8	6.3,6.9	20"	F8,Colored
ST265	VW	GCVS VW Gem		Var	06h 42m 09s	+31°27'16"	06 42 +31.5	8.14-8.52		C5,4(Na)
ST275	38 Gem	HIP 33202		DB	06h 54m 38s	+13°10'40"	06 55 +13.2	7.74,7.68	7.1"	F0V G4V
ST278	oStruve 80			Asterism	06h 58m 04s	+14°13'01"	06 58 +14.2	7.6,7.3,8.2	124", 78.8",?	B9 A5 G5
ST284	43 Zeta Gem	Mekbuda	HIP 34088	Var	07h 04m 07s	+20°34'11"	07 04 +20.6	3.66-4.16	Period: 10.15082 d	F71b-G31b
ST286	R Gem	HD 53791		Var	07h 07m 22s	+22°42'10"	07 07 +22.7	6-14	Period 369.18 d	S2,9e-S8,9e
ST289	46 Tau Gem	HIP 34693	NSV 03437	DB	07h 11m 08s	+30°14'43"	07 11 +30.2	4.4,10.9,12.3	1.9", 58.4"	K2111
ST290	Struve 1035			DB	07h 12m 00s	+22°17'06"	07 12 +22.3	8.2,8.2	8.7"	F5 (Pretty Yel Pair)
ST291	Struve 1037	47 Gem	HIP 34860	DB	07h 12m 49s	+27°13'29"	07 13 +27.2	7.2,7.2	1.1"	F6V
ST295	55 Delta	Wasat	HIP 35550	DB	07h 20m 07s	+21°58'56"	07 20 +22.0	3.55,8.18	5.8"	F01V K3V
ST301	66 Alpha	Castor	HIP 36850	Trip	07h 34m 36s	+31°53'18"	07 35 +31.9	1.94,2.92,8.8	4.0",72.5"	A1V A2Vm M1
ST302	69 Upsilon Gem	HIP 36962	HIP 36962	Var	07h 35m 55s	+26°53'45"	07 36 +26.9	4.0-4.8	2.5 Orbit	K5111
ST306	77 Kappa Gem	HIP 37740		DB	07h 44m 27s	+24°23'42"	07 44 +24.4	3.6,8.1	7.1"	G5
ST310	GCVS U Gem	HD 64511		Var	07h 55m 06s	+22°00'09"	07 55 +22.0	8.2-14.9	Period 103 d	Pec(UG)+M4.5V

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M13	NGC 6205	The Wall		GC	16h 41m 42.0s	+36°28'00"	16 42 +36.5	5.86	Size:16.6'	F5
M92	NGC 6341			GC	17h 17m 06.0s	+43°08'00"	17 17 +43.1	6.52	Size:11.2'	F2
NGC 6207				GX	16h 43m 06.0s	+36°50'00"	16 43 +36.8	11.62	Size:3.0' x 1.4'	
ST 566	7-Kappa	HIP 79043		DB	16h 08m 07.1s	+17°03'02"	16 08 +17.1	5.3,6.5	28.4"	G5 G5
ST 596	64-Alpha	Rasalgethi		DB, Var	17h 14m 39.7s	+14°23'06"	17 15 +14.4	3-4,5.4	4.6"	v=M5I db=M
ST 597	65-Delta	Struve 3127		DB	17h 15m 00.7s	+24°50'11"	17 15 +24.8	3.1,8.3	8.9"	A2
ST 598	67-Pi	HIP 84380	NVS 08431	Star,Var?	17h 15m 02.8s	+36°48'33"	17 15 +36.8	3.0-3.16		K3IIvar
ST 602	75-Rho	HIP 85112		DB, Var?	17h 23m 39.4s	+37°08'29"	17 24 +37.1	4.6,5.6	4.1"	B9.5III A0Vn
ST 608	76-Lambda	HIP 85693	NSV 09070	Star Var?	17h 30m 44.3s	+26°06'38"	17 31 +26.1	4.3-4.42		K3IIIvar
ST 614	85-Iota	HIP 86414	NVS 09501	Star Var?	17h 39m 27.9s	+46°00'23"	17 39 +46.0	3.8-0.01?		B3V SB
ST 629	95-Her	HIP 88267		DB	18h 01m 32.5s	+21°35'55"	18 02 +21.6	5.0,5.1	6.3"	A3 G5
ST 633	100-Her			DB	18h 07m 50.0s	+26°05'51"	18 08 +26.1	5.9,6.0	14.2"	A3 A3

NOT POSTED on CHART

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
NGC 6210				PN	16h 44m 30.0s	+23°49'00"	16 45 +23.8	12.9	Size: <14"	O3
ST 576	Struve 2052			DB	16h 28m 56.3s	+18°23'46"	16 29 +18.4	7.7,7.8	2.0"	K2V
ST 584	40-Zeta	HIP 81693		DB, Var	16h 41m 17.2s	+31°36'10"	16 41 +31.6	2.7-2.85, 5.53	1.6"	F9IV G7V
ST 651	oStruve 359			DB	18h 35m 33.8s	+23°35'52"	18 36 +23.6	6.3,6.5	0.7"	G0III
ST 652	oStruve 358			DB	18h 35m 51.1s	+16°58'53"	18 36 +17.0	6.8,7.0	1.3"	G2V G2V

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M65	NGC 3623	Leo's Triplet		GX	11h 18m 55.2s	+13°05'35"	11 19 +13.1	9.3	Size: 9.7' x 2.8'	
M66	NGC 3627	Leo's Triplet		GX	11h 20m 14.4s	+12°59'42"	11 20 +13.0	9.6	Size: 9.2' x 4.2'	
M95	NGC 3351			GX	10h 43m 58.0s	+11°42'15"	10 44 +11.7	10.7	Size: 7.4' x 5.0'	
M96	NGC 3368			GX	10h 46m 45.2s	+11°49'16"	10 47 +11.8	9.9	Size: 7.5' x 5.2'	
M105	NGC 3379	NorthEast of NGC 3384		Gx	10h 47m 49.8s	+12°34'57"	10 48 +12.6	10.1	Size: 5.3' x 4.7'	
NGC 2903	UGC 5079			EIng Gx	09h 32m 12.0s	+21°30'00"	09 32 +21.5	9.56	Size:1.6' x 6.6'	
NGC 3384	UGC 5911	SouthWest of M105		GX	10h 48m 17.2s	+12°37'49"	10 48 +12.6	10.9	Size: 5.9' x 2.6'	
NGC 3521	UGC 6150			EIng Gx	11h 05m 48.0s	-00°02'00"	11 06 -00.0	9.7	Size: 9.5' x 5.0'	
NGC 3626	NGC 3626	Cadwell 40		EIng Gx	11h 20m 06.0s	+18°21'00"	11 20 +18.4	10.9	Size: 3.0' x 2.4'	
NGC 3628	NGC 3628	Leo's Triplet		Edge-on GX	11h 20m 16.2s	+13°35'22"	11 20 +13.6	10.5	Size:14.7' x 2.9'	
ST360	1-Leo (Kappa)	HIP 46146		Trip	09h 24m 39.3s	+26°10'56"	09 25 +26.2	4.5,10.3,10.5	2.1",52.6"	K2III
ST363	2-Leo (Omega)	HIP 46454		DB	09h 28m 27.4s	+09°03'24"	09 29 +09.1	5.87,6.53	0.6"	F9V
ST365	Struve 1360			DB	09h 30m 35.1s	+10°35'41"	09 31 +10.6	8.3,8.6,12.3,11.2	14.2",85",158"	G5
ST369	Alterf	4-Lambda	HIP 46750	Star, Var?	09h 31m 43.2s	+22°58'05"	09 32 +23.0	4.32		K5IIIvar
ST374	19-R Leo	GCVS R Leo		Var	09h 47m 33.2s	+11°25'46"	09 48 +11.4	4.4-11.3	Period: 309.95	M6e-M8IIIe-M9.5e
ST377	Rasalas	24-Mu	HIP 48455	Star	09h 52m 45.8s	+26°00'25"	09 53 +26.0	3.88		K0III
ST379	Regulus	HIP 49669		Star	10h 08m 22.3s	+11°58'02"	10 08 +12.0	1.3,7.6,13.2	177",2.5",217"	B7V G
ST381	ADS7704			DB	10h 16m 14.8s	+17°44'08"	10 16 +17.7	7.2,7.5	1.5"	F0
ST382	Adhafera	36-Zeta	HIP 50335	DB	10h 16m 41.4s	+23°25'02"	10 17 +23.4	3.6,5.9	326"	F0III G0
ST385	Algieba	41-Gamma1	HIP 50583	DB	10h 19m 58.4s	+19°50'29"	10 20 +19.8	2.33,3.47	4.4"	K0III
ST389	45-Leo			DB	10h 29m 11.1s	+10°09'20"	10 29 +10.2	7.8,9.7	0.8"?, was 3.9"	F8
ST392	47-Leo (Rho)	HIP 51624	GCVS Rho	Star	10h 32m 48.7s	+09°18'24"	10 33 +09.3	3.83-3.9 (0.07)		B1Ib SB
ST393	49-Leo			DB	10h 35m 03.2s	+08°39'00"	10 35 +08.7	5.8,8.5	2.4"	A0
ST404	54 Leo	HIP 53417		DB	10h 55m 36.8s	+24°44'59"	10 56 +24.8	4.5,6.3	6.5"	A0
ST408	Struve 1529			DB	11h 19m 24.8s	-01°38'49"	11 19 -01.7	7.0,8.0	9.6"	F8 (Yel-White)
ST410	78-Leo (Iota)	HIP 55642		DB	11h 23m 55.5s	+10°31'46"	11 24 +10.5	4.03,6.7	1.7"?, was 3.1"	F2IV
ST411	83 Leo			Trip	11h 26m 50.6s	+03°00'00"	11 27 +03.0	6.2,7.9,9.9	28.5", 90.3"	K0 K0
ST412	84-Leo (Tau)	HIP 55945		DB	11h 27m 56.2s	+02°51'23"	11 28 +02.9	5.1,8.0,9.9,14.3	91.1",765",107"	K0 G8II-III
ST414	88 Leo			DB	11h 31m 48.1s	+14°21'53"	11 32 +14.4	6.4,8.4	15.4"	G0
ST417	Struve 1552	90-Leo		Trip	11h 34m 42.4s	+16°47'50"	11 35 +16.8	6.0,7.3,8.7	3.3,63.1"	G0
ST419	Denebola	94-Beta	HIP 57632	Star,(Var?)	11h 49m 03.6s	+14°34'19"	11 49 +14.6	2.14		A3V, var?
ST421	oStruve 112			DB	11h 54m 33.1s	+19°24'37"	11 55 +19.4	8.4,8.4	73.2"	G0 G5

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
NGC 2419	Intergalactic Wanderer	Caldwell 25		Globular Cluster	07h 38m 06.0s	+38°53'00"	07 38 +38.9	10.4	Size 4.1m	
NGC 2683	NGC2683			Galaxy, Edge O	08h 52m 42.0s	+33°25'00"	08 53 +33.4	9.7	Size 8.0' x 1.8'	
ST267	12 Lyn	Struve 948		DB	06h 46m 14.5s	+59°26'56"	06 46 +60.4	5.37,6.95,7.3	AB=1.7",AC=8.7"	A2
ST268	Struve 958			DB	06h 48m 14.2s	+55°42'37"	06 48 +56.3	6.3,6.3	4.8"	F5 F5
ST285	Struve 1009			DB	07h 05m 39.3s	+52°45'07"	07 06 +52.8	4.1,6.4	4.1"	G0G0
ST296	19 Lyn	Struve 1062		DB	07h 22m 51.6s	+55°16'44"	07 23 +55.3	5.6,6.5	14.8"	B8 A
ST325	31 Lyn	NSV 04030	HIP 41075	Star	08h 22m 50.1s	+43°11'17"	08 23 +43.5	4.2-4.27		K5111
ST342	Struve 1282			DB	08h 50m 47.7s	+35°03'41"	08 51 +35.7	7.5,7.5	3.6"	F8
ST357	40 Alpha Lyn	NSV 04456		Var?	09h 21m 04.3s	+34°23'14"	09 21 +34.6	3.1-3.17		M0111
ST371	Struve 1369			Trip	09h 35m 21.2s	+39°57'18"	09 35 +40.3	7.0,8.0,8.7	24.7",117.8"	F2,F2,G0

NOT Charted										
ST270	14 Lyn		Struve 963	DB	06h 53m 07.3s	+59°26'57"	06 53 +60.4	5.7,6.9	0.4"	F5 A2
	R Lyn			Var, Type M	07h 01m 18.2s	+55°19'50"	07 01 +56.2	7.2-14.3	387.75 Days	S2.5,5e-S6,8e:
ST299	Struve 1093			DB Challenge	07h 30m 17.9s	+49°58'41"	07 30 +50.7	8.8,8.8	0.8" ?	F5
	Kui 37 (10 Uma)	SAO 42642	HIP 44248	Close 5*?	09h 00m 45.5s	+41°47'38"	09 01 +42.4	4.1, 6.2,>9	0.6" - 225.4"	F5
ST356	Struve 1338			DB	09h 20m 58.3s	+38°11'37"	09 21 +38.8	6.5,6.7	0.4"	F3V

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M56	NGC 6779			GC	19h 16m 36.0s	+30°11'00"	19 17 +30.2	8.25	Size: 7.1'	F5
M57	NGC 6720			Ring Neb	18h 53m 36.0s	+33°02'00"	18 54 +33.0	9	Diam: 70"/150"	
NGC 6791	NGC 6791			OC	19h 20m 42.0s	+37°51'00"	19 21 +37.9	9.5	Size:16.0'	F2
ST634	GCVS W Lyr			Var	18h 14m 56.1s	+36°40'13"	18 15 +36.7	7.3-13.0	Period:196.54	M2e-M8e
ST636	Kappa	HIP 89826	NSV 10657	Star	18h 19m 49.4s	+36°03'52"	18 20 +36.1	4.3-4.35		K2IIIvar
ST647	GCVS T Lyr			Var	18h 32m 19.9s	+36°59'53"	18 32 +37.0	7.84-9.6		R6(C5,3)
ST653	3 Alpha	Vega	HIP 91262	Star,Var	18h 36m 56.3s	+38°47'01"	18 37 +38.8	0.03-0.02	Period: 0.07days	A0Vvar
ST655	GCVS HK Lyr			Var	18h 42m 50.3s	+36°57'33"	18 43 +37.0	9.5-11.6		Nb(C6,2)
ST657	5 Epsilon2&4ε1	Double Double	HIP 91926	Quad	18h 44m 22.8s	+39°36'46"	18 44 +39.6	5.0,6.1 & 5.2,5.5	2.6",2.7"	A4V F2V, A8Vn F0Vn
ST658	7-Zeta2	HIP 91973		DB	18h 44m 48.2s	+37°35'41"	18 45 +37.6	ad=4.3,5.9	ad=43.7"	A3 A3
ST662	GCVS 10 bet	Sheliak	HIP 92420	Var	18h 50m 04.8s	+33°21'45"	18 50 +33.4	3.34-4.34, 5.52	47".Period:12.913834	B7Ve + A8p
ST666	12-Delta 2	GCVS del Lyr	HIP 92791	DB	18h 54m 30.3s	+36°53'55"	18 55 +36.9	4.22-4.33,11.2	86.2"	AO,M4IIvar
ST667	oStruve 525	HIP 92833		DB	18h 54m 52.0s	+33°57'40"	18 55 +34.0	6.0,7.7	45.4"	G A
ST669	13 R	GCVS R	HIP 92862	Var	18h 55m 20.2s	+43°56'44"	18 55 +44.0	3.88-5.0	Period: 46	M5III
ST671	ADS11871	HIP 93017		DB	18h 57m 01.6s	+32°54'05"	18 57 +32.9	5.36",7.46"	0.7"	G0V
ST672	Struve 2422			DB	18h 57m 10.0s	+26°05'58"	18 57 +26.1	8.0,8.1	0.7"	AO A0
ST682	Struve 2474			Quad	19h 09m 03.4s	+34°35'40"	19 09 +34.6	6.7,8.8 & 6.6,8.6	16.2"&13.4"	G5 B3
ST690	GCVS RR Lyr			Var	19h 25m 28.1s	+42°47'14"	19 25 +42.8	7.06-8.12	Period: 0.56686776	A8-F7

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M9	NGC 6333			GC	17h 19m 12.0s	-18°31'00"	17 19 -18.5	7.90	Diam: 9.3'	F3
M10	NGC 6254			GC	16h 57m 06.0s	-04°06'00"	16 57 -04.1	6.57	Diam:15.1'	F8
M12	NGC 6218			GC	16h 47m 12.0s	-01°57'00"	16 47 -02.0	6.60	Diam:14.5'	F7
M14	NGC 6402			GC	17h 37m 36.0s	-03°15'00"	17 38 -03.3	7.56	Diam:11.7'	F8
M19	NGC 6273			GC	17h 02m 33.6s	-26°16'00"	17 03 -26.3	7.15	Diam:13.5'	F5
M62	NGC 6266			GC	17h 01m 12.0s	-30°07'00"	17 01 -30.1	6.60	Diam:14.1'	F8
M107	NGC 6171			GC	16h 32m 27.9s	-13°03'00"	16 33 -13.1	8.13	Diam:10.0'	G0
NGC 6572	NGC 6572			PN	18h 12m 06.0s	+06°51'00"	18 12 +06.9	9.00	Diam:8"	0F+WR
NGC 6633	NGC 6633			OC	18h 27m 42.0s	+06°34'00"	18 28 +06.6	4.60	Diam:27.0'	B6
ST 572	5 Rho-Oph	HIP 80473		DB	16h 25m 35.9s	-23°26'47"	16 26 -23.4	5.3,6.0	3.1"	B4
ST 573	V-Oph	GSC V-Oph		Var Type M	16h 26m 44.1s	-12°25'36"	16 27 -12.4	7.3-11.6	Period:297.99	N3e(C6,3e)
ST 582	13 Zeta-Oph	HIP 81377	SAO 160006	Star	16h 37m 09.5s	-10°34'02"	16 37 -10.6	2.60	Dist:458.09 ly	O9.5V
ST 591	27 Kappa-Oph	HIP 83000	SAO 121962	Star	16h 57m 40.1s	+09°22'30"	16 58 +09.4	3.20 v?	Dist:85.85 ly	K2IIIvar
ST 599	36-Oph	HIP 84405		DB	17h 15m 24.6s	-26°33'54"	17 15 -26.6	5.05,5.08	4.9"	K0V K1V
ST 578	10 Lambda-Oph	Marfik	Struve 2055	DB	16h 30m 56.9s	+01°59'00"	16 31 +02.0	4.16,5.22	1.5"	A1V
ST 600	39 Omicron-Oph			DB	17h 18m 00.4s	-24°17'32"	17 18 -24.3	5.4,6.9	10"	K2 F6
ST 601	42 Theta-Oph	HIP 84970	SAO 185320	Star	17h 22m 00.6s	-24°59'58"	17 22 -025	3.27	Dist:563.31 ly	B2IV
ST 605	49 Sigma-Oph	HIP 85355	SAO 122387	Star	17h 26m 30.9s	+04°08'25"	17 27 +04.1	4.34	Dist:1173 ly	K3IIVar
ST 595	35 Eta-Oph	Sabik		Star (DB)	17h 10m 22.7s	-15°43'30"	17 10 -15.7	3.0,3.5	0.6"	A2V
ST 613	Rasalhague	55 Alpha-Oph	HIP 86032	Star	17h 34m 56.1s	+12°33'36"	17 35 +12.6	2.10	Dist:46.70 ly	A5III
ST 618	Cebalrai	60 Beta-Oph	HIP 86742	Star	17h 43m 28.4s	+04°34'02"	17 44 +04.6	2.77		K2III
ST 619	61-Oph			DB	17h 44m 37.4s	+02°34'24"	17 45 +02.6	6.2,6.6	20.6"	A0 A0
ST 623	Y-Oph	GCVS Y Oph		Var Type dCepS	17h 52m 38.9s	-06°08'38"	17 53 -06.1	5.92-6.38	Period:17.12413	F8Ib-G3Ibv
ST 631	70-Oph	GSC 434:5213	HIP 88601	DB	18h 05m 27.3s	+02°30'00"	18 06 +02.5	4.21,6.00	3.8"	K0V
ST 654	X-Oph	GCVS X Oph		Var Type M	18h 38m 20.5s	+08°50'00"	18 38 +08.8	5.9-9.2	Period:334.39	M6IIIe+ K1III
ST 630	69 Tau-Oph		Struve 2262	DB	18h 03m 02.6s	-08°10'57"	18 03 -08.2	5.24,5.94	1.7"	F4IV F3

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M42	NGC 1976	Orion Nebula		Bright Neb	05h 35m 24.0s	-05°27'00.0"	05 35 -05.5	2.9	Size:66"x60"	OB
M43	NGC 1982	Part Ori Neb		Bright Neb	05h 35m 36.0s	-05°16'00.0"	05 36 -05.3	6.85	Size:15"x20'	B1V
M78	NGC 2068			Bright Neb	05h 46m 42.0s	+00°03'00.0"	05 47 +00.1	10.5	Size: 8.0'	B5
ST161	3-Pi 4	HIP 22549		Star	04h 51m 12.4s	+05°36'18.4"	04 51 +05.6	3.68		B2III SB
ST163	8-Pi 5	HIP 22797		Star	04h 54m 15.1s	+02°26'26.4"	04 54 +02.4	3.71		B2III SB
ST164	9-Omicron 2	HIP 22957		Star	04h 56m 22.3s	+13°30'52.1"	04 56 +13.5	4.05		K2III
ST166	10-Pi 6	HIP 23123		Star	04h 58m 32.9s	+01°42'50.5"	04 59 +01.7	4.47		K2IIvar
ST169	Struve 627	HIP 23287		DB	05h 00m 33.4s	+03°36'56.0"	05 01 +03.6	6.6,7.0	21.3"	A0A0
ST171	Struve 630	HIP 23419		DB	05h 02m 00.0s	+01°36'31.9"	05 02 +01.6	6.5,7.7,9.5	14.2",130"	B8
ST174	GCVS W Ori	HIP 23680		Var	05h 05m 24.0s	+01°10'38.0"	05 05 +01.2	8.2-12.4	Period: 212	C5,4(N5)
ST182	17-Rho		HIP 24331	DB	05h 13m 19.8s	+02°52'08.0"	05 13 +02.9	4.6,8.4	7"	K0,(Colored?)
ST183	19-Beta	Rigel	HIP 24436	DB	05h 14m 32.3s	-08°12'05.9"	05 15 -08.2	0.1, 6.8	9.5"	B8
ST190	23-Ori	Struve 696	HIP 25142	DB	05h 22m 51.5s	+03°32'46.0"	05 23 +03.5	5.0,7.1	32.1"	B3 A
ST191	Struve 701	HIP 25187		DB	05h 23m 17.8s	-08°25'20.0"	05 23 -08.4	6.0,7.8	5.9"	A0
ST192	28-Eta	HIP 25281		DB, Var-eb	05h 24m 25.8s	-02°23'28.0"	05 24 -02.4	3.14-3.35,4.8	Period:<8days,1.5"	B1
ST195	24-Gamma	Bellatrix	HIP 25336	Star	05h 25m 07.9s	+06°20'59.0"	05 25 +06.3	1.64		B2111
ST198	31-Ori	HIP 25737		Star	05h 29m 44.0s	-01°05'32.1"	05 30 -01.1	4.71		K5111
ST200	34-Delta	Mintaka	HIP 25930	DB, Var-eb	05h 32m 00.4s	-00°17'56.7"	05 32 -00.3	2.25,13.7,6.3	32.8"52.6"	B0,O9.5II,B0
ST205	39-Lambda	Meissa	HIP 26207	DB	05h 35m 08.3s	+09°56'03.0"	05 35 +09.9	3.3,5.5,11,11	4",28",78"	O5 O5
ST206	41-Theta 1	Trapezium	HIP 26221	Quad	05h 35m 16.5s	-05°23'22.9"	05 35 -05.4	6.7,7.9,5.1,6.7	ab8.8" ac12.8",ad21.5"	B5 B2 B3 d=?
ST207	44-Iota	HIP 26241		Star	05h 35m 26.0s	-05°54'35.6"	05 35 -05.9	2.75		O9III
ST208	46-Epsilon	Alnilam	HIP 26311	Star	05h 36m 12.8s	-01°12'06.9"	05 36 -01.2	1.69		B0Ia
ST209	40-Phi 2	HIP 26366		Star	05h 36m 54.4s	+09°17'26.4"	05 37 +09.3	4.09		G8III-IV
ST211	48-Sigma	HIP 26549		Mult	05h 38m 44.8s	-02°36'00.2"	05 39 -02.6	a4,b6,c10,d7.5,e6.5	ab0.2",c11",d13",e44"	abO9.5V
ST213	50-Zeta	Alnitak	HIP 26727	DB	05h 40m 45.5s	-01°56'33.3"	05 41 -01.9	1.88,4.02,9.9	2.3",57.6",59.7"	O9.5Ib SB (B0B0)
ST218	53-Kappa	Saiph	HIP 27366	Star	05h 47m 45.4s	-09°40'10.6"	05 48 -09.7	2.06		B0.5Iavar
ST223	Struve 817			DB	05h 54m 53.9s	+07°02'08.0"	05 55 +07.0	8.8,8.9	19"	A5
ST224	58-Alpha	Betelgeuse	HIP 27989	Var	05h 55m 10.3s	+07°24'25.4"	05 55 +07.4	0.4-1.3	Period: 2110	M21b
ST225	GCVS U Ori			Var	05h 55m 49.3s	+20°10'31.0"	05 56 +20.2	4.8-12.6	Period: 372.4	M6.5111e
ST229	Struve 855	HIP 29151		DB	06h 09m 01.3s	+02°30'04.0"	06 09 +02.5	6.0,7.0,8.9	29.3",118"	A0
ST243	GCVS BL Ori	HIP 30564		Var	06h 25m 28.2s	+14°43'21.0"	06 25 +14.7	8.5-9.7		Nb(C6,2)

NOT CHARTED

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
NGC 1788				Neb, Emis	05h 06m 54.0s	-03°21'00"	05 07 -03.4	30	Size: 8.0' x 5.0'	3 star, brightest=10
NGC 1973				Neb, Emis	05h 35m 06.0s	-04°44'00"	05 35 -04.7	30	Size: 5.0'	brightest Star=8
NGC 2024	Flame Nebula			Neb, Emis	05h 41m 54.0s	-01°51'00"	05 42 -01.9	30	Size:30.0'	Put Zeta out of field
NGC 2022				PN	05h 42m 06.0s	+09°05'00"	05 42 +09.1	12.8	28" x 27"	
NGC 2194				OC	06h 13m 48.0s	+12°48'00"	06 14 +12.8	8.5	Size:10.0'	Compressed in ctr
Ref:ST206	43-Theta 2	HIP 26235		Triple	05h 35m 22.9s	-05°24'57.8"	05 35 -05.4	5.2,6.5,9.1	53",129"	O9.5Vpe
ST219	52-Ori	HIP 27386		DB	05h 48m 00.2s	+06°27'15.0"	05 48 +06.5	6.1,6.1	1.6"	A5V A3

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
NGC 7814	Cadwell 43	UGC 8		GX,S	00h 03m 18.0s	+16°09'00"	00 03 +16.2	10.5	Size: 6.3' x 2.6'	
M15	NGC 7078			GC	21h 30m 00.0s	+12°10'00"	21 30 +12.2	6.35	Size:12.3'	F3
NGC 7331	UGC12113	Deer Lick Group	Cadwell 30+	GX,S	22h 37m 05.1s	+34°25'10"	22 37 +34.4	9.51	Size:10.7' x 4.0'	
NGC 7448	UGC 12294			GX	23h 00m 06.0s	+15°59'00"	23 00 +16.0	11.65	Size: 2.7' x 1.3'	
NGC 7479	Cadwell 44	UGC 12343		GX,Bar S	23h 04m 54.0s	+12°19'00"	23 05 +12.3	11.0	Size: 4.1' x 3.2'	
ST 010	Algenib	88-Gamma	GCVS gam Peg	Star, Var?	00h 13m 13.7s	+15°10'59"	00 13 +15.2	2.83		B2IV
ST 776	Enif	8-Epsilon		Var,DB	21h 44m 11.2s	+09°52'30"	21 44 +09.9	v=0.7-3.5, 8.5	83"	K2Ibvar K0
ST 778	GCVS AG Peg	HD 207757		Var	21h 51m 01.7s	+12°37'35"	21 51 +12.6	6.0-9.4	Period: 830.14	WN6+M3III
ST 780	Struve 2841			DB	21h 54m 18.3s	+19°43'20"	21 54 +19.7	AB=6.4,7.9	22.3", c=out	K0
ST 781	GCVS RX Peg	NOT IN SKY CATALOG		Var	21h 56m 22.2s	+22°51'41"	21 56 +22.9	9.7-11.6	Period: 629	C4,4J(N3)
ST 805	37 Peg		Struve 2920	DB	22h 34m 33.9s	+04°12'59"	22 35 +04.2	8.2,9.2	13.6"	A0
ST 817	52 Peg		OStruve 483	DB	22h 59m 12.0s	+11°44'09"	22 59 +11.7	6.1,7.4	0.7"	F0V
ST 818	Scheat	53-Beta Peg		Var,DB	23h 03m 46.5s	+28°04'58"	23 04 +28.1	2.31-2.74, 11.	108",253"	M2II-IIIvar, M
ST 820	Struve 2978			DB	23h 07m 29.2s	+32°49'27"	23 07 +32.8	6.5,7.5	8.4"	A2

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
IC 348				Cluster&Neb	03h 44m 30.0s	+32°17'00"	03 45 +32.3	7.3	Size:7.0'	B6
M34	M34	NGC 1039		OC	02h 42m 00.0s	+42°47'00"	02 42 +42.8	5.2	Size:35.0'	B8
M76	Little Dumbbell	NGC 650		PN	01h 42m 18.0s	+51°34'00"	01 42 +51.6	12	Size: 65" x 290"	
NGC 744	NGC 744			OC	01h 58m 24.0s	+55°29'00"	01 58 +55.5	7.9	Size: 11'	B9
NGC 869	1/2 Dbl Cluster			OC	02h 19m 00.0s	+57°09'00"	02 19 +57.2	4.3	Size:30.0'	B0
NGC 884	1/2 Dbl Cluster			OC	02h 22m 24.0s	+57°07'00"	02 22 +57.1	4.4	Size:30.0'	B0
NGC 1023	UGC 2154			GX	02h 40m 24.1s	+39°03'46"	02 40 +39.0	10.46	Size: 8.7' x 3.0'	
ST061	Phi-Per	GCVS phi Pe	HIP 8068	Var	01h 43m 39.7s	+50°41'22"	01 44 +50.7	4.03-4.11	Period: 19.5	B2Vep
ST062	Struve 162			Trip?	01h 49m 12.9s	+47°53'54"	01 49 +47.9	ab=7.0,c=8.4,d=10.2	ab-c=19.2",ab-d=137.2"	A2
ST085	Struve 268	AnotherDb-Db?		DB	02h 29m 26.2s	+55°31'52"	02 29 +55.5	6.8,8.2	2.7"	A2
ST095	15-Eta-Per	HIP 13268		DB	02h 50m 41.9s	+55°53'55"	02 51 +55.9	3.8,8.5,9.8	28.3",66.6"	K0
ST101	Struve 331			DB	03h 00m 49.6s	+52°20'54"	03 01 +52.3	5.3,6.7	12.1"	B5
ST103	25-Rho-Per	GCVS rho Per	HIP 14354	Var	03h 05m 10.2s	+38°50'32"	03 05 +38.8	3.3-4.0	Period: 50	M4II
ST106	26-Bata	Algol	HIP 14576	Var	03h 08m 09.7s	+40°57'22"	03 08 +41.0	2.12,3.4	Period: 2.8673043	B8V...
ST110	Struve 369			DB	03h 17m 08.3s	+40°29'09"	03 17 +40.5	6.7,8.0	3.5"	A0
ST115	33-Alpha-Per	Mirfak	HIP 15863	Star Var?	03h 24m 19.4s	+49°51'40"	03 24 +49.9	1.79 V?		F5Ib
ST116	Y-Per	GCVS Y Per		Var	03h 27m 42.4s	+44°10'36"	03 28 +44.2	8.1-11.1	Period: 252.61	C4,3e(R4e)
ST120	35-Sigma-Per	NSV 01167	SAO 3889	Star Var?	03h 30m 34.2s	+47°59'14"	03 31 +48.0	4.3-4.38		K3III
ST126	38-Omicron-Per	HIP 17448	GCVS omi Per	Var	03h 44m 19.1s	+32°17'19"	03 44 +32.3	3.79-3.85	Period: 4.4191666	B1III+B2V
ST132	44-Zeta-Per	Atik	HIP 18246	Star Var?	03h 54m 07.9s	+31°53'01"	03 54 +31.9	2.93 Var?		B1Iab
ST134	45-Epsilon-Per	HIP 18532		DB	03h 57m 48.7s	+40°00'24"	03 58 +40.0	2.9,8.1,13.8	8.8,13.8"	B1
ST137	O Struve 531			DB	04h 07m 32.6s	+38°05'10"	04 08 +38.1	7.4,8.9	1.8"	K2V
ST148	Struve 552			DB	04h 31m 26.3s	+40°01'03"	04 31 +40.0	7.0,7.2	9"	B8

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M74	M74	NGC628		GX, Spiral	01h 36m 42.0s	+15°47'00"	01 37 +15.8	9.2	Size: 10.2' x 9.5'	
ST002	30 Psc	HIP 154	GCVS YY Psc	Var	00h 01m 56.5s	-06°00'51"	00 02 -06.0	4.35-4.41		M3III
ST013	35 Psc (Σ 12)	HIP 1196		DB	00h 14m 56.5s	+08°49'22"	00 15 +08.8	6.0,7.6	11.6"	F0
ST025	51 Psc (Σ 36)	Struve 36	HIP 2548	DB	00h 32m 21.4s	+06°57'08"	00 32 +07.0	5.7,9.5	27.5"	A0
ST028	55 Psc (Σ 46)	HIP 3138		DB	00h 39m 57.8s	+21°25'58"	00 40 +21.4	5.4,8.7	6.5"	K0 F3V,Blu,Gold
ST030	O Struve 18	HIP 3326		DB	00h 42m 23.2s	+04°09'60"	00 42 +04.2	7.8,9.4	1.6"	F8V G7V
ST032	63 Delta	HIP 3786		Star	00h 48m 40.9s	+07°35'06"	00 49 +07.6	4.44,13.0	132.2"	K5111
ST034	65 Psc	Struve 61	HIP 3885	DB	00h 49m 51.6s	+27°42'42"	00 50 +27.7	6.3,6.3	4.4"	F0 Colored
ST042	85 Phi-1		HIP 5742	DB	01h 13m 43.8s	+24°34'49"	01 14 +24.6	4.7,10.1,13	7.8",144"	K0
ST043	77 Psc	HIP 5141		DB	01h 05m 46.4s	+04°55'09"	01 06 +04.9	6.8,7.6,+2	33"	F2 F2
ST048	86 Zeta	Struve 100		DB	01h 13m 36.0s	+07°36'00"	01 14 +07.6	5.6,6.5,12.2	63",80"	A5,F8,?
ST050	Z Psc	HIP 5914	GSC 1750:2134	Var	01h 16m 05.0s	+25°46'10"	01 16 +25.8	8.8-10.1	Period 144 days	C7,3
ST074	113 Alpha	Alrescha		DB	02h 02m 02.8s	+02°45'50"	02 02 +02.8	4.1,5.2	1.8"	A2 A2
ST832	19 Psc	TX Psc	HIP 117245	Var	23h 46m 23.5s	+03°29'13"	23 46 +03.5	6.9-7.7		C6.2

NOT Charted										
See:RA,DEC	99 Eta	HIP 7097		DB	01h 31m 29.0s	+15°20'45"	01 31 +15.3	3.62,10.6	1"	G8III

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	\omicron omicron	ϕ phi
δ delta	κ kappa	π pi	χ chi
ϵ epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M8	NGC 6523	Lagoon	Hour Glass	Diffuse Neb	18h 03m 48.0s	-24°23'00"	18 04 -24.4	5.80	Dim:90'x40'	6,500 ly
M17	NGC 6618	Swan	Omega	Diffuse Neb	18h 20m 48.0s	-16°11'00"	18 21 -16.2	6.00	Dim:46' x37'	5,000 ly
M18	NGC 6613			OC	18h 19m 54.0s	-17°08'00"	18 20 -17.1	6.90	Dim:9'	B3 6,000 ly
M20	NGC 6514	Trifid		Diffuse Neb	18h 02m 18.0s	-23°02'00"	18 02 -23.0	7.63	Dim:29'x27'	O5e2,200 ly
M21	NGC 6531			OC	18h 04m 36.0s	-22°30'00"	18 05 -22.5	5.90	Dim:13'	B0 4,250 ly
M22	NGC 6656			GC	18h 36m 24.0s	-23°54'00"	18 36 -23.9	5.10	Dim:24'	F5 10,100 ly
M23	NGC 6494			OC	17h 56m 48.0s	-19°01'00"	17 57 -19.0	5.50	Dim:27'	B9 4,500 ly
M24	NGC 6603	Little Star Cloud		OC	18h 18m 24.0s	-18°25'00"	18 18 -18.4	11.10	Dim:5'	B9 10,000 ly
M25	IC 4725			OC	18h 31m 36.0s	-19°15'00"	18 32 -19.3	4.90	Dim:32'	B5 2,000 ly
M28	NGC 6626			GC	18h 24m 30.0s	-24°52'00"	18 25 -24.9	6.90	Dim:11.2'	F8 17,900 ly
M54	NGC 6715			GC	18h 55m 06.0s	-30°29'00"	18 55 -30.5	7.70	Dim:9.1'	F7 82,800 ly
M55	NGC 6809			GC	19h 40m 00.0s	-30°58'00"	19 40 -31.0	6.95	Dim:19'	16,600 ly
M69	NGC 6637			GC	18h 31m 24.0s	-32°21'00"	18 31 -32.4	7.70	Dim:7.1'	G5 25,400 ly
M70	NGC 6681			GC	18h 43m 12.0s	-32°18'00"	18 43 -32.3	8.10	Dim:7.8'	G0 28,000 ly
M75	NGC 6864			GC	20h 06m 06.0s	-21°55'00"	20 06 -21.9	8.60	Dim:6'	F8 57,700 ly
NGC 6822	IC 4895	Caldwell 55	Barnard's Gx	GX	19h 44m 54.0s	-14°48'00"	19 45 -14.8	9.35	Dim:10.2'x9.5'	Size:10.0'
ST 627	h 5003	HIP 88060	Pz	DB	17h 59m 07.3s	-30°15'36"	17 59 -30.3	5.2,9.9,13	5.5",26.2	M0III
ST 635	Eta-Sgr	HIP 89642		Star	18h 17m 37.7s	-36°45'42"	18 18 -36.8	3.11		M2III
ST 637	19-Delta-Sgr	Kaus Media	HIP 89931	Star	18h 20m 59.6s	-29°49'41"	18 21 -29.8	2.72	Dis:305.68 ly	K3III
ST 641	21-Sgr		Jc 6	DB	18h 25m 21.3s	-20°32'45"	18 25 -20.5	4.9,7.4	1.8"	K0 A0
ST 644	22-Lambda-Sgr	Kaus Borealis	HIP 90496	Star	18h 27m 58.3s	-25°25'18"	18 28 -25.4	2.8	Dist:77.29 ly	K0IIIb
ST 668	34-Sigma-Sgr	Nunki	HIP 92855	Star	18h 55m 15.9s	-26°17'48"	18 55 -26.3	2.0	Dist:224.32 ly	B2.5V
ST 676	h 5082			Trip	19h 03m 04.6s	-19°14'20"	19 03 -19.2	6.0,9.5,10.7,13.5	7.5",20.2",25.9"	G5
ST 686	RY-Sgr			Var, RCB	19h 16m 32.7s	-33°31'20"	19 17 -33.5	6.0->15		G0laep(C1.0)
ST 688	V 1942			Var, Lb	19h 19m 09.7s	-15°54'33"	19 19 -15.9	6.74-7.1		C6,4(N2/R8)
ST 699	54-Sgr			DB	19h 40m 43.2s	-16°17'10"	19 41 -16.3	5.4,11.9,8.9	38",45"	K0 G0
ST 716	RR-Sgr			Var, M	19h 55m 56.6s	-29°11'24"	19 56 -29.2	5.6-14	Period:336.33	M4e-M7e
ST 717	RU-Sgr			Var, M	19h 58m 43.1s	-41°50'56"	19 59 -41.8	6.0-13.8	Period:240.49	M3e-M6e
ST 733	RT-Sgr			Var, M	20h 17m 43.9s	-39°06'45"	20 18 -39.1	6.0-14.1	Period:306.46	M5e-M7e

Not Charted										
	PLN 25-17.1	Little Gem		Planetary Neb	19h 43m 57.4s	-14°09'10"	19 44 -14.2	9.9	Ang Size:>17.1'	
ST 620	SZ-Sgr			Var, SRb	17h 44m 56.2s	-18°39'24"	17 45 -18.7	11.05-11.9	Period:73	C7,3(Nb)
ST 645	SS-Sgr			Var, SRb	18h 30m 25.9s	-16°53'54"	18 30 -16.9	10.9-11.3		C3,4(R3/N)
ST 697	AQ-Sgr			Var, SRb	19h 34m 18.8s	-16°22'25"	19 34 -16.4	9.1-10.9	Period:199.6	C7,4(N3)

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M4	NGC 6121			GC	16h 23m 36.0s	-26°32'00"	16 23.6 -26.5	6.4	Diam:26.3'	6,800 ly
M6	NGC 6405	Butterfly Cluster		OC	17h 40m 06.0s	-32°13'00"	17 40.1 -32.2	4.2	Diam:15'	B5, 2,000 ly
M7	NGC 6475			OC	17h 53m 54.0s	-34°49'00"	17 53.9 -34.8	3.3	Diam:80'	M7, 1,000 ly
M80	NGC 6093			GC	16h 17m 00.0s	-22°59'00"	16 17.0 -23.0	7.2	Diam:8.9'	F7, 27,400 ly
NGC 6124	NGC 6124	Caldwell 75		OC	16h 25m 36.0s	-40°40'00"	16 25.6 -40.7	5.8	Diam:29.0'	B8
NGC 6231	NGC 6231	Caldwell 76		OC	16h 54m 00.0s	-41°48'00"	16 54.0 -41.8	2.6	Diam:15.0'	O8
NGC 6302	NGC 6302	Caldwell 69	Bug Neb	PL Neb	17h 13m 42.0s	-37°06'00"	17 13.7 -37.1	13.0	Diam: 50'	OV1, 1,956 ly
ST 557	5-Rho	HIP 78104		Star	15h 56m 53.1s	-29°12'51"	15 56.9 -29.2	3.9	Dist:409.23 ly	B2IV/V
ST 559	6-Pi	HIP 78265		Star v?	15h 58m 51.1s	-26°06'51"	15 58.9 -26.1	2.89	Dist:459.38 ly	B1V + B2V
ST 562	7-Delta	HIP 78401		Star	16h 00m 20.0s	-22°37'18"	16 00.3 -22.6	2.29	Dist:401.67 ly	B0.5IV
ST 563	Xi	SAO 159665		DB a to c	16h 04m 24.5s	-11°22'30"	16 04.4 -11.4	a4.8,b5.1,c6.8,	ab0.1",ac7.6"	F5IV
ST 564	8-Beta-1	Acrab Graffias		Star v?	16h 05m 26.2s	-19°48'20"	16 05.4 -19.8	2.5	Dist:530.34 ly	B0.5V
ST 565	9-Omega-1	HIP 78933		Star	16h 06m 48.4s	-20°40'09"	16 06.8 -20.7	3.93	Dist:423.58 ly	B1V
ST 567	14-Nu	HIP 79374		DB	16h 12m 00.9s	-19°27'33"	16 12.0 -19.5	a4.3,b6.8,c6.4,d7.8	ab.9",ac41",cd2.3"	B2IV
ST 571	20-Sigma	HIP 80112		DB v?	16h 21m 10.9s	-25°35'22"	16 21.2 -25.6	2.9,8.5	20"	B1
ST 577	Antares	21-Alpha	HIP 80763	DB	16h 29m 26.1s	-26°26'16"	16 29.4 -26.4	1.2,5.4	2.6"	M1Ib + B3V
ST 581	H	SAO 207814	HIP 81304	Star	16h 36m 22.5s	-35°15'19"	16 36.4 -35.3	4.18	Dist:338.69 ly	K5III
ST 587	26-Epsilon	GSC 7367:804	HIP 82396	Star	16h 50m 09.8s	-34°17'36"	16 50.2 -34.3	2.29	Dist:65.43 ly	K2IIb
ST 588	Mu	SAO 208116	HIP 82545	Star	16h 52m 20.1s	-38°01'03"	16 52.3 -38.0	3.56	Dist:516.89 ly	B2IV
ST 590	RR	HD 152783		Var Type M	16h 56m 37.6s	-30°34'36"	16 56.6 -30.6	5.0-12.4	Period:279.42	M6II-IIIe-M8(II)e
ST 609	Lesath	34-Upsilon	HIP 85696	Star	17h 30m 45.8s	-37°17'45"	17 30.8 -37.3	2.7	Dist:518.53 ly	B2IV
ST 612	Shaula	35-Lambda	HIP 85927	Star v?	17h 33m 36.5s	-37°06'14"	17 33.6 -37.1	1.62	Dist:702.92 ly	B1.5IV+..
ST 616	Kappa	HIP 86670		Star v?	17h 42m 29.3s	-39°01'48"	17 42.5 -39.0	2.39	Dist:463.95 ly	B1.5III
ST 621	SV	HD 161652		Var Type M	17h 48m 19.6s	-35°41'36"	17 48.3 -35.7	8.7-14.9	Period:256.2	M3e
ST 622	G	HIP 87261	(Over NGC 6441)	Star	17h 49m 51.5s	-37°02'36"	17 49.9 -37.0	3.19	Dist:126.86 ly	K0/K1III

Note: Beta1&2 Mag2.5 & 4.9 = 2.5" Sep.

Omega1&2 Mag3.9 & 4.3 = 876" (14.6') Sep.

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M5	NGC 5904			GC	15h 18m 36.0s	+02°05'00"	15 18.6 +02.1	5.8	Diam:17.4'	F5
M16	NGC 6611	Eagle Neb	Star Queen Neb	OC	18h 18m 48.0s	-13°47'00"	18 18.8 -13.8	6.0	Diam:7'	O6
IC 4756				OC	18h 39m 00.0s	+05°27'00"	18 39.0 +05.5	5.4	Diam:52'	B7
ST 535	Struve 1931			DB	15h 18m 42.5s	+10°26'07"	15 18.7 +10.4	7.1,8.5	13.4"	F8
ST 543	13-Delta Ser	HIP 76276		DB	15h 34m 47.2s	+10°31'56"	15 34.8 +10.5	4.2,5.2	4.4"	F0
ST 552	24-Alpha Ser	Unukalhai	HIP 77070	Star	15h 44m 16.1s	+06°25'32"	15 44.3 +06.4	2.63	Dist:73.23 ly	K2III
ST 554	35-Kappa Ser	HIP 77450		Star, Var?	15h 48m 44.4s	+18°08'30"	15 48.7 +18.1	4.1		M1III
ST 555	R Ser			Var, TYPE M	15h 50m 41.4s	+15°08'00"	15 50.7 +15.1	5.16-14.4	Period:356.41	M7IIIe
ST 643	59-d Ser	HIP 90441		DB, Var?	18h 27m 13.0s	+00°11'35"	18 27.2 +00.2	5.3v,7.6	3.8"	G0III+A6V
ST 659	Struve 2375			DB	18h 45m 30.9s	+05°30'14"	18 45.5 +05.5	a6.9,b6.9,c7.9,d7.9	ab0.1",cd0.1",abxcd2.5"	A0
ST 670	Alya	63-Theta Ser		DB	18h 56m 10.0s	+04°11'45"	18 56.2 +04.2	4.5,5.4	22"	A5 A5

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M1	M1	Crab Neb	NGC 1952	Neb, P	05h 34m 30.0s	+22°01'00"	05 35 +22.0	8.4	Size: 6' x 4'	
M45	M45	Pleiades	7 Sisters	OC	03h 47m 00.0s	+24°07'00"	03 47 +24.1	1.2	Size: 100'	B5
NGC 1555	Hind's Variable	NGC1555	NGC1554?	Neb, Planetary	04h 22m 54.0s	+19°32'00"	04 23 +19.5	9.4	(Unstable)	dG5e
NGC 1647	NGC1647			OC	04h 46m 00.0s	+19°04'00"	04 46 +19.1	6.4	Size:45.0'	
NS 062	The Hyades	Hyades	Caldwell 41	OC	04h 27m 05.0s	+16°55'58"	04 27 +16.9	0.5	Size: 330'	
ST121	Stuve 401			DB	03h 31m 20.1s	+27°34'32"	03 31 +27.6	6.4,6.9	11.3"	A0
ST129	30 Tauri	HIP 17771	Struve 452	DB	03h 48m 16.3s	+11°08'36"	03 48 +11.1	5.1,10.2	9"	B3V
ST136	35 Lambda	HIP 18724		Var, Eclipsing	04h 00m 40.8s	+12°29'25"	04 01 +12.5	3.3-3.8	3.95 days	B3V + A41V
ST142	52 Phi	HIP 20250		DB	04h 20m 21.2s	+27°21'03"	04 20 +27.4	5.0,8.4	52.1"	K1III
ST144	59 Chi	HIP 20430		DB	04h 22m 34.9s	+25°37'46"	04 23 +25.6	5.5,7.6	19.4"	B9V
ST152	87 Alpha	Aldebran	HIP 21421	DB,Var-Irreg?	04h 35m 55.2s	+16°30'34"	04 36 +16.5	0.9,13.4	30.4"	K5III
ST155	Struve 572	HIP 21619		DB	04h 38m 28.5s	+26°56'03"	04 38 +26.9	8.3,8.3	4"	F0
ST162	GCVS TT Tau			Var	04h 51m 31.7s	+28°31'34"	04 52 +28.5	10.2-12.2	Period: 166.5	SRb
ST197	118 Tauri		HIP 25695	DB	05h 29m 15.4s	+25°08'55"	05 29 +25.1	5.8,6.6	4.8"	A0
ST199	TL9	(Sky Chart)		Asterism	05h 30m 00.0s	+17°00'00"	05 30 +17.0	5	5 Deg	
ST201	119 Tauri	HIP 25945		Star	05h 32m 12.8s	+18°35'39"	05 32 +18.6	4.29		M2Ib
ST210	123 Zeta	HIP 26451		Var, Irregula	05h 37m 38.7s	+21°08'33"	05 38 +21.1	2.9-3.3	~133 Days	B4IIIp

NOT POSTED ON CHART										
ST143	GCVS T Tau			Var	04h 21m 59.2s	+19°32'07"	04 22 +19.5	8.4,13.5		F8Ve-K1IV-Ve(T)
ST145	ADS3169	HIP 20440		DB	04h 22m 44.2s	+15°03'22"	04 23 +15.1	7.3,8.5	1.4"	F9V
ST150	Struve 559	HIP 21251		DB	04h 33m 35.3s	+18°00'42"	04 34 +18.0	6.9,7.0	3.1"	B8
Near 10 Tau	Struve 422		HIP 16846	DB,3-*, Var?	03h 36m 50.2s	+00°35'51"	03 37 +00.6	5.88,8.83	6.7"	G9V,K6V

lower case Greek Alphabet			
α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M40	ST437	Woops		DB	12h 22m 24.0s	58°05'00"	12 22 +58.1	9	50"	
M81	M81	NGC 3031		GX, Spiral	09h 55m 33.5s	69°04'00"	09 56 +69.1	7.9		
M82	M82	NGC 3034		GX, Spiral	09h 55m 54.0s	69°40'57"	09 56 +69.7	9.2		
M97	M97	NGC 3587	Owl Nebula	Neb	11h 14m 48.0s	55°01'00"	11 15 +55.0	11.2		
M101	M101	NGC 5457		GX, Spiral	14h 03m 12.8s	54°21'03"	14 03 +54.4	7.9		
M108	M108	NGC 3556		GX, Spiral	11h 11m 31.8s	55°40'15"	11 12 +55.7	10.7		
M109	M109	NGC 3992		GX, Spiral	11h 57m 36.2s	53°22'31"	11 58 +53.4	10.6		
NGC 2685	Helix Galaxy	NGC 2685		GX, Lenticula	08h 55m 35.3s	58°44'02"	08 56 +58.7	11.9		
ST345	Rho , Sigma 2, 1	HIP 44390		Var? & Star group	09h 02m 32.7s	67°37'47"	09 03 +67.6	4.74		M3III
ST348	Sigma 2 , 1, Rho	HIP 45038	Struve 1306	13-Sigma 2=DB	09h 10m 23.5s	67°08'03"	09 10 +67.1	4.85,8.16	3.9"	F7IV-V
ST352	Struve 1321			DB	09h 14m 54.1s	52°42'14"	09 15 +52.7	7.61,7.71	17.2"	MOV MOV
ST368	23 Uma	HIP 46733	Struve 1351	DB Mag Contrast	09h 31m 31.7s	63°03'43"	09 32 +63.1	3.7,8.9	22.7"	F0IV
ST386	34 Mu	NSV 04829	Tania Australis	Var	10h 22m 19.5s	41°29'50"	10 22 +41.5	2.99		
ST399	R Uma			Red Var	10h 44m 38.9s	68°46'32"	10 45 +68.8	6.5-13		
ST400	VY Uma			Var	10h 45m 03.8s	67°24'29"	10 45 +67.4	5.9		C6,3(N0)
ST406	53 Xi	NSV 05165	Alula Australis	DB, Var	11h 18m 10.9s	31°31'45"	11 18 +31.5	4.32,4.79	1.8"	GOV GOV
ST407	54 Nu	HIP 55219	Alula Borealis	DB	11h 18m 28.7s	33°05'40"	11 18 +33.1	3.5,9.9	7.2"	K 3111 SB
ST422	65 Uma		Close HIP 58112	DB	11h 55m 06.1s	46°28'36"	11 55 +46.5	ab6.5,8.5,c8.3,d6.5	ab0.2",c3.1",d63"	A0
ST470	79 Zeta /80-Uma	Mizar /Alcor	HIP 65378	Vis DB. (A-B)	13h 23m 55.5s	54°55'31"	13 24 +54.9	2.3,4.0	14.4"(11' 49")	Mizar=A2 A2
	Ref: Alcor			(A-C)	13h 25m 13.5s	54°59'17"	13 25 +55.0	4.0	708.6"	Alcor=5AV SB
ST482	85 Eta	Alkaid	HIP 67301	*	13h 47m 32.4	49°18'48"	13 48 +49.3	1.85		B3V SB

NOT CHARTED

NGC 2841	NGC 2841			GX, Elong	09h 22m 00.0s	+50°58'00"	09 22.0 +51.0	9.3		Size: 7.0' x 3.0'
NGC 3079	NGC 3079			GX, Edge on	10h 02m 00.0s	+55°41'00"	10 02.0 +55.7	10.6		Size: 7.5' x 1.0'
NGC 3077	NGC 3077			GX, Elong	10h 03m 18.0s	+68°44'00"	10 03.3 +68.7	9.9		Size: 3.4' x 2.8'
NGC 3184	NGC 3184			GX, Round	10h 18m 18.0s	+41°25'00"	10 18.3 +41.4	9.8		Size: 7.0'
NGC 3675	NGC 3675			GX, Elong	11h 26m 06.0s	+43°35'00"	11 26.1 +43.6	11.0		Size: 6.0' x 3.5'
NGC 3877	NGC 3877			GX, Very Elong	11h 46m 06.0s	+47°30'00"	11 46.1 +47.5	12.0		Size: 5.0' x 1.2'
NGC 3941	NGC 3941			GX, Round	11h 52m 54.0s	+36°59'00"	11 52.9 +37.0	11.0		Size: 1.7' x 1.0'
NGC 4026	NGC 4026			GX, Edge on	11h 59m 24.0s	+50°58'00"	11 59.4 +51.0	12.0		Size: 4.0' x 0.9'
NGC 4088	NGC 4088			GX, Barred	12h 05m 36.0s	+50°33'00"	12 05.6 +50.6	10.5		Size: 5.5' x 2.0'
NGC 4605	NGC 4605			GX, Very Elong	12h 40m 00.0s	+61°37'00"	12 40.0 +61.6	11.0		Size: 5.3' x 2.0'
	50 Alpha	Dubhe	HIP 54061	Close DB	11h 03m 43.7s	61°45'04"	11 04 +61.8	1.81	0.6"	F7V comp
	48 Beta	Merak	HIP 53910	*	11h 01m 50.5s	56°22'57"	11 02 +56.4	2.34		A1V
	69 Delta	Megrez	HIP 59774	DB Mag Contrast	12h 15m 25.6s	57°01'57"	12 15 +57.0	3.3/9.9	190"	A3Vvar
	77 Epsilon	Alioth		Var	12h 54m 01.7s	55°57'35"	12 54 +56.0	1.76		A0p
	64 Gamma	Phecda	HIP 58001	*	11h 53m 49.8s	53°41'41"	11 54 +53.7	2.41		A0V SB
	1 Omicron	Muscida	HIP 41704	*, (Var?)	08h 30m 15.9s	60°43'05"	08 30 +60.7	3.35	7.1"	G4III-III
	30 Phi	HIP 48402	O Struve 208	Close DB	09h 52m 06.4s	54°03'52"	09 52 +54.1	4.45	0.3"	A3IV

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega

Reference	Name	Alt Name	Alt Alt	What is	Hours	Degrees	Scope	Mag	Sep	Spectral
M49	NGC 4472	UGC7629		Elliptical GX	12h 29m 46.5s	+07°59'58"	12 30 + 07 60.0	8.37	Size:8.9'x7.4'	
M58	NGC 4579	UGC7796		Spiral GX	12h 37m 42.0s	+11°49'00"	12 38 + 11 49.0	9.8	Size:5.4'x4.4'	
M59	NGC 4621	UGC7858		Elliptical GX	12h 42m 00.0s	+11°39'00"	12 42 + 11 39.0	9.8	Size:5.1'x3.4'	
M60	NGC 4649	UGC7898		Elliptical GX	12h 43m 40.2s	+11°32'58"	12 44 + 11 33.0	8.8	Size:7.2'x6.2'	
M61	NGC 4303	UGC7420		Spiral GX	12h 21m 54.0s	+04°28'00"	12 22 + 04 28.0	9.7	Size:6.0'x5.5'	
M84	NGC 4374	UGC7494		Lenticular GX	12h 25m 03.7s	+12°53'15"	12 25 + 12 53.3	9.3	Size:5'x4.4'	
M86	NGC 4406	UGC7532		Lenticular GX	12h 26m 11.8s	+12°56'49"	12 26 + 12 56.8	9.18	Size:7.4'x5.5'	
M87	NGC 4486	UGC7654		Elliptical GX	12h 30m 49.7s	+12°23'24"	12 31 + 12 23.4	8.6	Size:7.2'x6.8'	
M89	NGC 4552	UGC7760		Elliptical GX	12h 35m 42.0s	+12°33'00"	12 36 + 12 33.0	10.8	Size:4.2'x4.2'	
M90	NGC 4569	UGC7786		Spiral GX	12h 36m 48.0s	+13°10'00"	12 37 + 13 10.0	9.5	Size:9.5'x4.7'	
M104	NGC 4594	Sombrero		Spiral GX	12h 40m 00.0s	-11°37'00"	12 40 - 11 37.0	8.3	Size:8.9'x4.1'	
NGC 4697	Caldwell 52	UGCA300		Elongated GX	12h 48m 35.9s	-05°48'02"	12 49 - 05 48.0	9.9	Size:6'x3'	
ST 418	3-Nu	HIP 57380		Star v?	11h 45m 51.6s	+06°31'46"	11 46 + 06 31.8	4.04	313.01 ly	M0III
ST 433	Struve 1627			DB	12h 18m 08.0s	-03°56'20"	12 18 - 03 56.3	6.6,6.9	20.1"	F0 F0
ST 438	17-Vir			DB	12h 22m 30.3s	+05°18'43"	12 23 + 05 18.7	6.6,9.4	20"	F8
ST 441	SS-Vir			Var	12h 25m 13.6s	+00°46'11"	12 25 + 00 46.2	6-9.6	Period: 354.66	C6,3e(Ne)
ST 443	3C273	Most dist object visable		Quasar(Radio)	12h 28m 52.2s	+02°05'13"	12 29 + 02 05.2	12.9	>2 Billion ly	Faint Blue
ST 446	Struve 1649			DB	12h 31m 34.6s	-11°04'09"	12 32 - 11 04.2	8.0,8.4	15.3"	A5
ST 460	43 Delta-Vir	HIP 63090	NSV 06026	Star v?	12h 55m 36.2s	+03°23'51"	12 56 + 03 23.9	3.3-3.4		M3III
ST 466	51 Theta-Vir	HIP 64238		Trip	13h 09m 59.0s	-05°31'59"	13 10 - 05 32.0	4.4,9.4,10.4	7.1",70"	A0
ST 468	54-Vir			DB	13h 13m 27.0s	-18°49'50"	13 13 - 18 49.8	6.8,7.3	5.4"	A0
ST 471	Spica	67-Alpha		Star v?	13h 25m 11.6s	-11°09'41"	13 25 - 11 09.7	0.98	Dist: 262.18 ly	B1V
ST 475	S-Vir			Var	13h 33m 01.0s	-07°11'41"	13 33 - 07 11.7	6.3-13.2	Period: 377.43	M6IIIe-M9.5e
ST 477	Struve 1763			DB	13h 37m 38.6s	-07°52'35"	13 38 - 07 52.6	7.9,7.9,11.0	2.8",14.1"	K2
ST 490	98 Kappa-Vir	HIP 69427		Star	14h 12m 53.7s	-10°16'25"	14 13 - 10 16.4	4.19	Dist:223.55 ly	K3III
ST 497	Struve 1833			DB	14h 22m 41.6s	-07°46'22"	14 23 - 07 46.4	7.6,7.6	5.7"	G0

NOT CHARTED

ST 424	Struve 1593			DB	12h 03m 31.4s	-02°26'25"	12 04 - 02 26.4	8.7,8.7	1.3"	F0
ST 452	Porrima	29-Gamma		DB	12h 41m 43.9s	-01°26'55"	12 42 - 01 26.9	3.48,3.50	1.8"	F0 F0
ST 492	Struve 1819			DB	14h 15m 21.1s	+03°08'03"	14 15 + 03 08.1	7.7,7.8	0.8"	G0V
ST 517	Struve 1883			DB	14h 48m 51.8s	+05°57'01"	14 49 + 05 57.0	7.6,7.6	0.8"	F6V

lower case Greek Alphabet

α alpha	η eta	ν nu	τ tau
β beta	θ theta	ξ xi	υ upsilon
γ gamma	ι iota	ο omicron	φ phi
δ delta	κ kappa	π pi	χ chi
ε epsilon	λ lambda	ρ rho	ψ psi
ζ zeta	μ mu	σ sigma	ω omega