CALGARY RASC MARATHON TIPS

By: Tom Cameron

PREPARATION

Last Revised February 2007

- First off, it could and very likely will be **COLD**!!!
- Dress appropriately and bring a thermos of something hot.
- Dew can be a factor. Make sure you have dew shields for your main scope and finder(s). Make them out of cardboard if you have to.
- Cleaning the dust off your optics beforehand can help reduce the impact of humidity
- BE PREPARED in terms of charts and a plan of attack. *Sky Atlas 2000* will do, but *Uranometria* is better. Computer prepared charts for problem areas are advisable.
- 60-65 can be done prior to about 12:00-12:30
- The entire run takes 11 hours or so and goes from sunset to sunrise about 5:30 AM
- Don't forget, that **M40** and **M73** are asterisms and are sometimes not marked on some charts. **M102** will be considered to be **NGC5866**.

THE EARLY EVENING ASSAULT

- According to the checklist you received, **M74** and **M77** are the first by virtue of their right ascension. However about 9 others can be done before it gets dark enough to do these two.
- Between 7:30 and 7:50 you can start with **M41** by sitting on Sirius until the cluster appears just below
- about this time **M45** should be getting to naked eye visibility
- Easily done before true darkness are **M37**, **M36**, **M38** and **M34**
- It's important to get **M31** early and wait until the fainter nearby **M32** and **M110** come into view
- By this time it's dark enough to attempt **M77** and **M74**. (Good luck with **M74** and call me if you think you have it!)
- If you think you have finished the toughest of the early evening, think again. Don't forget to go after **M79** below and to the west of Orion.
- After this point the list can be followed directly until near midnight when the Realm of the Galaxies in Virgo comes into view.

THE REALM OF THE GALAXIES

- First the bad news. I don't believe this can be done with strictly a Telrad as a finder. If all you have is a Telrad, you would be wise to team up by a scope with a finder capable of ID'ing 8-9 magnitude stars.
- The star hop I have plotted for you is only one way of working through this area. It's OK to create your own path but this area is no place to try and find these objects without a plan.
- By 12:30 to 1:00 you should be going after the very difficult **M83**.

HERE COMES THE DAWN

- This is especially difficult from this site. The light pollution from Okotoks gets worse every year.
- The action is to the southeast and so is Okotoks.
- You need to alternate between keeping an eye on the Eastern horizon for **M72**, **M73** and **M15** while collecting as much as possible as it rises out of the murk of the southeast.
- Tricky business this, in 1994 and 1995 I wasn't the only one to pull **M69** and even **M70** out of this mess. But in 1999 I found **M69** was barely detectable and only due to the nearby guide stars at that. The two marker stars are getting tougher to spot every year as well.

MESSIER MARATHON SWEEP LIST **Page: 1**

NAME: _____ Location: _____ Date: _____

M#		From:	Sweep		(deg.)		Type	Mag	Size	Tir	Ura	MAP	TIME	Order
74	η	eta Psc	0.4	N	1.3	E	Gal	10.5	10x9	10	173	10R		1
77	δ	delta Cet	0.3	S	0.8	E	Gal	10.5	6x5	10	220	10L		2
33	α	alpha Tri	1.0	N	4.0	W	Gal	7.0	65x35	4	91	4R		3
31	μ	mu And	2.8	N	2.6	W	Gal	4.5	160x35	4	60	3L 4R 9L		4
32		M31	0.4	S			Gal	10.0	3	4	60	3L 4R 9L		5
110		M31	0.4	N	0.4	W	GAL	10.0	10x4	4	60	3L 4R 9L		6
52	β	beta Cas	2.4	N	5.1	W	OC	8.0	12	3	15	3L		7
103	δ	delta Cas	0.5	N	1.0	E	OC	7.0	5	1	16	1R 3L		8
76	φ	phi Per	1.0	N			PN	12.0	2x1	1	37	1R 3L 4R		9
34	γ	gamma And	0.4	N	6.9	E	OC	6.0	20	4	62	1R 4L 5R		10
45		**Pleiades**					OC					4L 5R		11
79	β	beta Lep	3.8	S	0.9	W	GC	8.5	3	19	315	17R		12
42	θ	theta Ori					DN		60	11	225	11R		13
43		M42	0.1	N			DN		20x15	11	225	11R		14
78	ζ	zeta Ori	2.0	N	1.5	E	RN		8x6	11	226	11R		15
1	ζ	zeta Tau	0.9	N	0.7	W	SNR	8.5	6x4	5	135	5R		16
37	θ	theta Aur	4.7	S	1.6	W	OC	6.0	20	5	98	5R		17
36		M37	1.6	N	3.2	W	OC	6.5	12	5	97	5R		18
38		M36	1.7	N	1.5	W	OC	7.0	20	5	97	5R		19
35		1 Gem	1.1	N	1.1	E	OC	5.5	40	5	136	5L		20
41	α	alpha CMa	4.0	S	0.4	E	OC	5.0	30	19	318	17L		21
50	θ	theta CMa	3.7	N	2.1	E	OC	7.0	16	12	273	11L		22
47	γ	gamma CMa	1.2	N	8.0	E	OC	4.5	25	12	274	11L 12R 17L 18R		23
46		M47	0.4	S	1.1	E	OC	6.5	25	12	274	11L 12R 17L 18R		24
93	ξ	xi Pup	1.0	N	1.1	W	OC	6.5	25	19	319	17L 18R		25
48	ζ	zeta Mon	2.8	S	1.6	E	OC	5.5	30	12	230	11L 12R		26
44	δ	delta Cnc	1.6	N	1.0	W	OC	4.0	95	12	141	6R 12R		27
67	α	alpha Cnc	0.1	S	1.8	W	OC	7.5	15	12	186	12R		28

M#		From:	Sweep		(deg.)		Type	Mag	Size	Tir	Ura	MAP	TIME	Order
81		23 (h) UMa	6.0	N	2.2	E	GAL	8.5	20x10	2	23	1L 2R		29
82		M81	0.6	N	0.1	E	GAL	9.5	9x4	2	23	1L 2R		30
108	β	beta UMa	0.7	S	1.4	E	GAL	11.0	8x1	2	46	1L 2R		31
97		M108	0.7	S	0.4	E	PN	12.0	3	2	46	1L 2R		32
109	γ	gamma UMa	0.3	S	0.6	E	GAL	11.0	6x3	2	47	1L 2R		33
106	χ	chi UMa	0.5	S	5.6	E	GAL	9.5	19x7	7	74	2R 6L 7R		34
40	δ	delta UMa	1.2	N	2.6	E	DBL*	9.0	50" sep	2	47	2R		35
95	α	alpha Leo	0.2	S	8.7	E	GAL	11.0	6x4	13	190	12L		36
96		M95	0.1	N	0.7	E	GAL	10.5	5x4	13	190	12L		37
105		M96	0.7	N	0.2	E	GAL	11.0	2	13	190	12L		38
65	θ	theta Leo	2.3	S	1.2	E	GAL	10.5	7x1	13	191	12L		39
66		M65	0.1	S	0.3	E	GAL	10.0	8x2	13	191	12L		40
51	η	eta UMa	2.1	S	3.0	W	GAL	10.0	10x5	7	76	7R		41
63		M51	5.2	S	2.7	W	GAL	10.0	10x5	7	75	6L 7R		42
101	η	eta UMa	5.0	N	2.3	E	GAL	8.5	20	2	49	2L		43
94	α	alpha CVn	2.8	N	1.0	W	GAL	9.5	5x3	7	75	6L 7R		44
3	β	beta Com	0.5	N	6.6	E	GC	7.0	10	7	109	7R		45
53	α	alpha Com	0.6	N	0.7	E	GC	8.5	3	14	150	7R 13R		46
64	α	alpha Com	4.2	N	3.1	W	GAL	9.0	6x3	7	149	7R		47
98	β	beta Leo	0.3	N	6.0	E	GAL	11.0	8x2	13	193	6L 7R 12L 13R		48
99		M98	0.5	S	1.2	E	GAL	10.5	4	13	193	6L 7R 12L 13R		49
100		M99	1.4	N	1.0	E	GAL	10.5	5x4	13	193	6L 7R 12L 13R		50
85		M100	2.4	N	0.5	E	GAL	10.5	2	13	148	6L 7R 13R		51
84	ο	omicron Vir	4.2	N	4.8	E	GAL	11.0	1	13	193	12L 13R		52
86		M84			0.3	E	GAL	11.0	2x1	13	193	12L 13R		53
88		M86	1.5	N	1.5	E	GAL	11.0	5x2	13	193	7R 12L 13R		54
91		M88	0.1	N	0.8	E	GAL	11.5	4x3	13	193	7R 13R		55
49	ο	omicron Vir	0.7	S	6.1	E	GAL	10.0	2x1	13	193	12L 13R		56

M#		From:	Sweep		(deg.)		Type	Mag	Size	Tir	Ura	MAP	TIME	Order
60	ε	epsilon Vir	0.6	N	4.5	W	GAL	10.5	2	13	194	13R		57
59		M60	0.1	N	0.4	W	GAL	11.5	2X1	13	194	13R		58
58		M59	0.2	N	1.1	W	GAL	11.0	4X3	13	194	13R		59
87		M58	0.6	N	1.6	W	GAL	11.0	2	13	193	12L 13R		60
89		M87	0.2	N	1.2	E	GAL	11.5	1	13	193	13R		61
90		M89	0.6	N	0.3	E	GAL	11.0	7X2	13	193	13R		62
61	η	eta Vir	5.1	N	0.5	E	GAL	10.5	5	13	238	12L 13R		63
104	η	eta Crv	4.6	N	1.9	E	GAL	9.5	6X2	13	284	13R		64
68	β	beta Crv	3.4	S	1.2	E	GC	9.0	3	21	329	18L 19R		65
83	π	pi Hya	3.2	S	6.3	W	GAL	8.5	10X8	21	370	19R		66
102	ι	iota Dra	3.2	S	2.6	W	GAL	11.5	2X1	2	50	2L		67
5	α	alpha Ser	4.3	S	6.4	W	GC	7.0	12	14	244	13L		68
13	η	eta Her	2.5	S	0.2	W	GC	7.0	10	8	114	7L 8R		69
92	π	pi Her	6.3	N	0.4	E	GC	7.5	8	8	81	2L 7L 8R		70
12	δ	delta Oph	1.7	N	8.2	E	GC	8.0	9	15	246	14R		71
10		M12	2.3	S	2.4	E	GC	7.5	8	15	247	14R		72
107	ζ	zeta Oph	2.5	S	1.2	W	GC	10.0	2	15	291	14R		73
80	δ	delta Sco	0.4	S	3.9	E	GC	8.5	3	22	335	19L 20R		74
4	α	alpha Sco	0.1	S	1.3	W	GC	7.5	14	22	336	19L 20R		75
14	β	beta Oph	7.8	S	1.5	W	GC	9.5	3	15	248	14R		76
9	η	eta Oph	2.8	S	2.1	E	GC	9.0	2	15	337	14R 20R		77
19	α	alpha Sco	0.2	N	7.5	E	GC	8.5	4	22	337	20R		78
62		M19	3.8	S	0.3	W	GC	8.0	4	22	375	20R		79
57	β	beta Lyr	0.3	S	0.8	E	PN	9.5	1	8	117	8L		80
56	β	beta Cyg	2.2	N	3.0	W	GC	9.5	1	8	118	8L 9R		81
29	γ	gamma Cyg	1.7	S	0.3	E	OC	9.0	12	9	84	8L 9R		82
39	α	alpha Cyg	3.2	N	8.5	E	OC	5.5	30	9	86	9R		83
27	γ	gamma Sge	3.2	N	0.2	E	PN	7.5	8X4	8	162	8L 9R		84

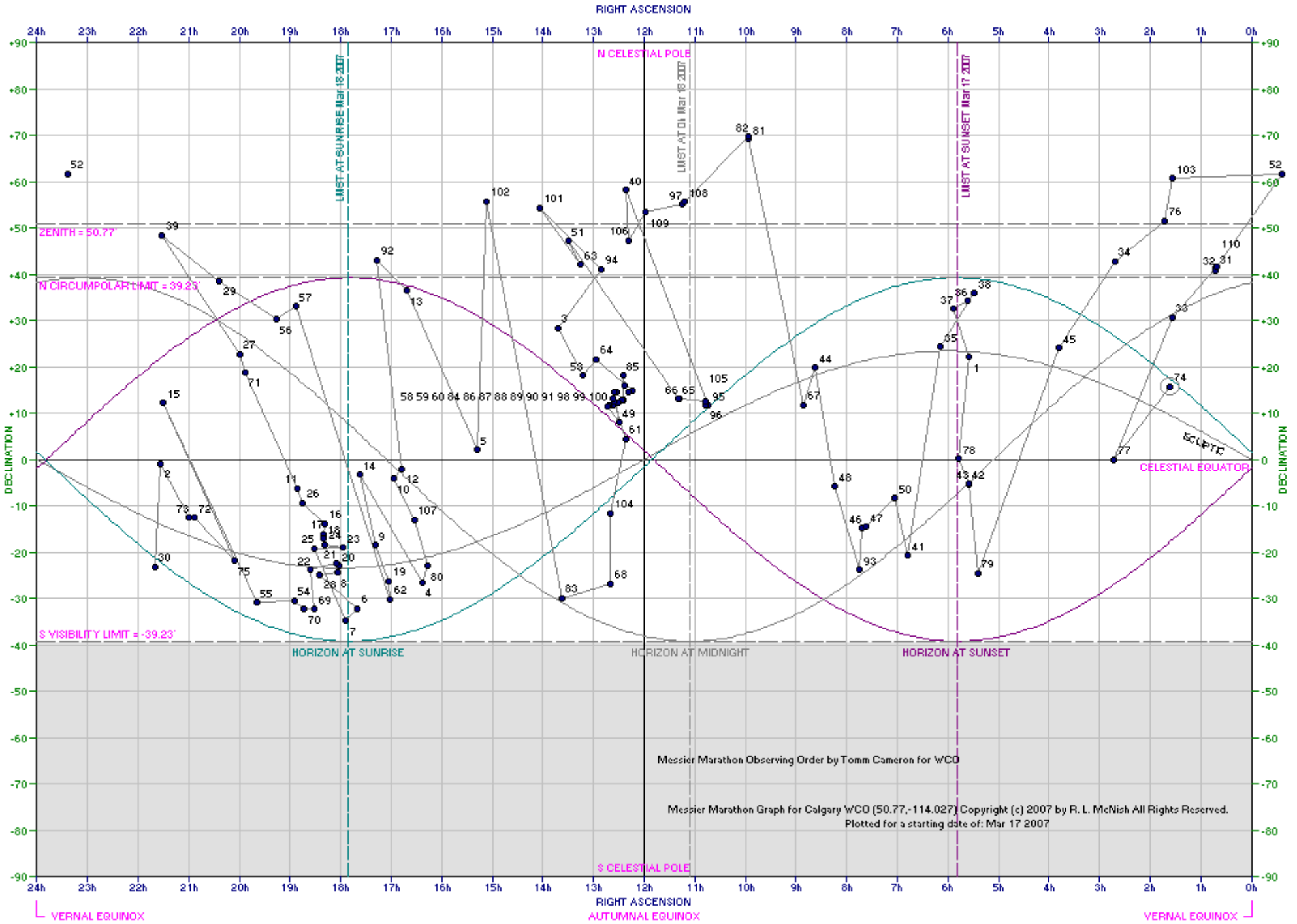
M#		From:	Sweep		(deg.)		Type	Mag	Size	Tir	Ura	MAP	TIME	Order
71	γ	gamma Sge	0.7	S	1.2	W	GC	8.5	6	16	162	8L 9R 14L 15R		85
11	β	beta Sct	1.5	S	1.0	E	OC	7.0	10	15	295	14L		86
26		M11	3.2	S	1.5	W	OC	9.5	9	15	295	14L		87
16	γ	gamma Sct	0.8	N	2.5	W	DN	6.0	20	15	294	14L		88
17	γ	gamma Sct	1.5	S	2.0	W	DN	7.0	20x10	15	294	14L 20L		89
18		M17	1.0	S	0.2	W	OC	8.0	12	15	294	14L 20L		90
24		**Small Sagittarius Star Cloud**						4.5				14L 20L		91
23		M24	0.5	S	5.1	W	OC	6.0	25	15	339	14R 20R		92
25	γ	gamma Sct	4.7	S	0.6	E	OC	6.5	40	15	340	14L 20L		93
7	λ	lambda Sco	2.3	N	4.3	E	OC	3.5	60	22	377	20R		94
6		M7	2.6	N	2.9	W	OC	4.5	25	22	376	20R		95
28	λ	lambda Sgr	0.6	N	0.7	W	GC	8.5	5	22	339	20L		96
8		M28	0.6	N	4.6	W	DN	5.8	60x35	22	339	20L		97
20		M8	1.3	N	0.6	W	DN	8.5	20	22	339	20L		98
21		M20	0.5	N	0.7	E	OC	7.0	10	22	339	20L		99
22	λ	lambda Sgr	1.5	N	1.9	E	GC	6.5	17	22	340	20L		100
69	ε	epsilon Sgr	2.0	N	1.5	E	GC	9.0	3	22	378	20L		101
70		M69			2.7	E	GC	9.0	2	22	378	20L		102
54		M70	1.8	N	2.6	E	GC	8.5	2	22	378	20L		103
55	ζ	zeta Sgr	1.1	S	8.1	E	GC	7.0	10	22	379	20L 21R		104
15	ε	epsilon Peg	2.3	N	3.5	W	GC	7.5	7	16	210	15R		105
75	β	beta Cap	7.1	S	3.5	W	GC	9.5	2	23	343	20L 21R		106
72	ε	epsilon Aqr	3.0	S	1.4	E	GC	10.0	2	16	299	15R		107
73		M72	0.1	S	1.4	E	OC	9.0		16	299	15R		108
2	β	beta Aqr	4.8	N	0.5	E	GC	7.5	8	16	255	15R		109
30	γ	gamma Cap	6.5	S			GC	8.5	6	23	346	21R		110

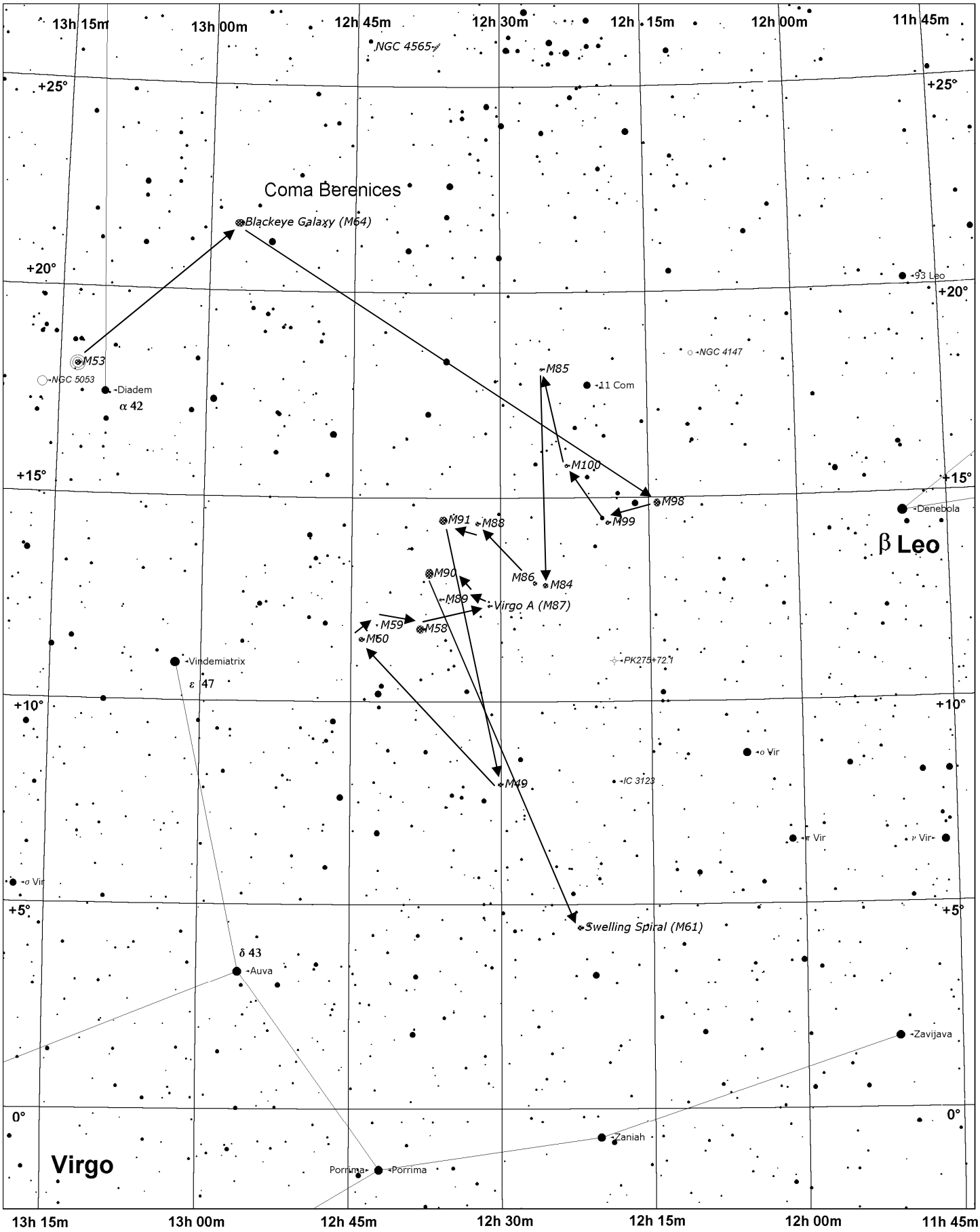
Order	M#	Description
1	M74	G-SAc just NE of Eta Piscium and SW of Gamma Arietis
2	M77	G-SABab south of Gamma Ceti in the tail of the whale
3	M33	G-SAcd NW of Alpha Trianguli SE of Beta Andromedae
4	M31	G-Saab - The Andromeda Galaxy NW of Beta Andromedae
5	M32	G-E5pec companion to M31 just south of the centre
6	M110	G-E3pec companion to M31 just NW of the centre
7	M52	OC near Beta Cassiopeiae Bubble Nebula NGC7635 nearby
8	M103	OC near Delta Cassiopeiae
9	M76	PN - Little Dumbbell south of Delta Cassiopeiae / M103
10	M34	OC NW of Algol NE of Gamma Andromedae
11	M45	OC - the Pleiades NW of Aldebaran
12	M79	GC south of Beta Leporis which is SW of Sirius
13	M42	E/RN - the Orion Nebula
14	M43	E/RN - a detached part of Orion Nebula just N of M42
15	M78	RN NE of Alnitak the westernmost star in the belt of Orion
16	M1	SNR - Crab Nebula NW of Zeta Tauri
17	M37	OC one of 3 OCs NE of Beta Aurigae
18	M36	OC one of 3 OCs NE of Beta Aurigae
19	M38	OC one of 3 OCs NE of Beta Aurigae
20	M35	OC NW of the rightmost foot of Gemini NE of M1
21	M41	OC south of Sirius
22	M50	OC - NE of Sirius NW of M46/M47 between Sirius and Procyon
23	M47	OC east of Sirius just NW of M46
24	M46	OC east of Sirius just SE of M47
25	M93	OC NE of Wezen (Delta Canis Majoris) just NW of Xi Puppis south of M46/M47
26	M48	OC NE of M46/M47
27	M44	OC - Beehive Cluster or Praesepe NW of Delta Cancri
28	M67	OC south of Delta Cancri and M44

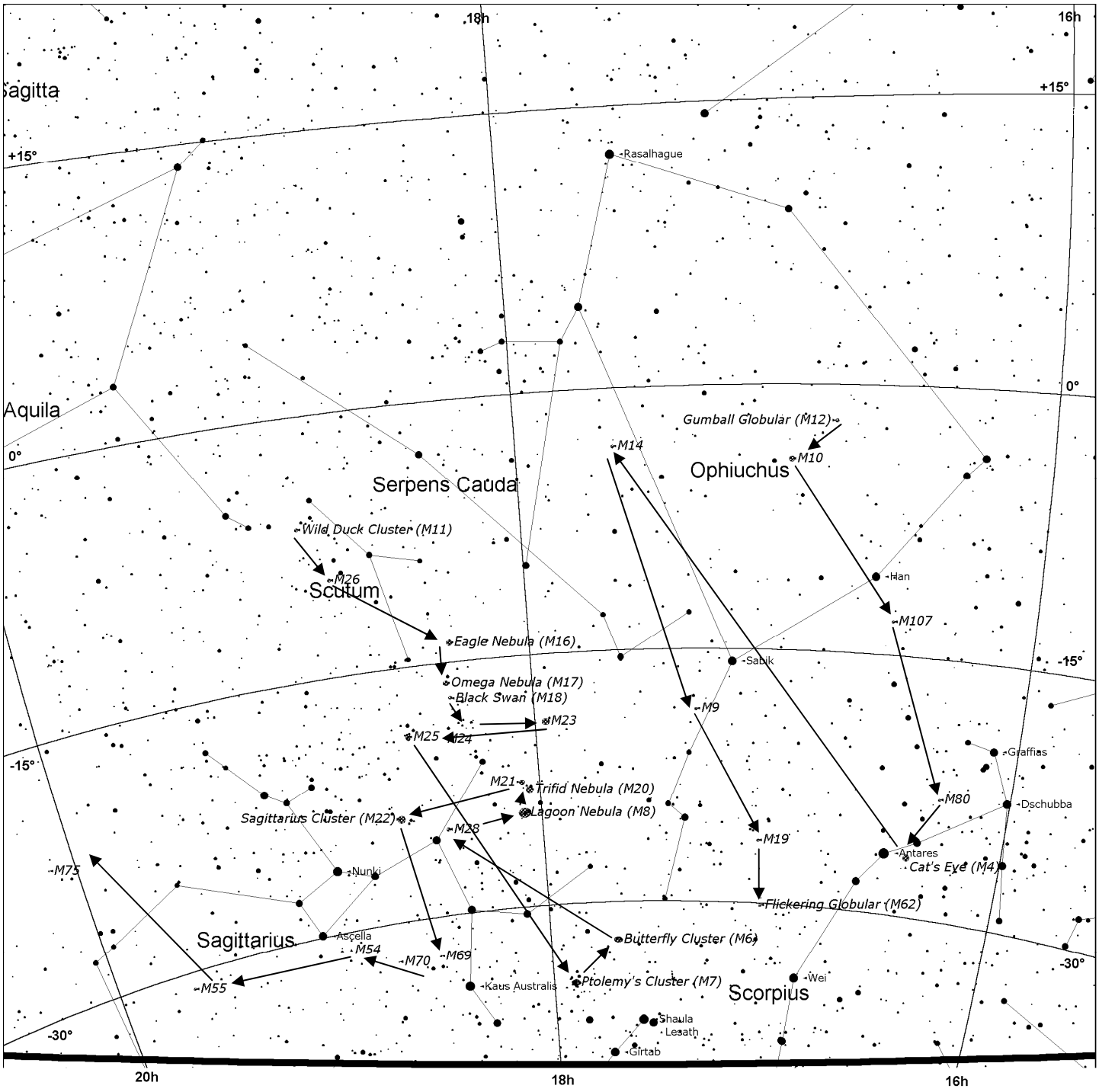
Order	M#	Description
29	M81	G-SAab Bode's Galaxy just south of M82
30	M82	G-I0 - the Cigar Galaxy (the exploding galaxy) just north of M81
31	M108	G-SBcd near Merek (Beta Ursae Majoris) and M97
32	M97	PN - Owl Nebula near Merek (Beta Ursae Majoris) and M108
33	M109	G-SBbc near Phecda (Gamma Ursae Majoris) north of M106
34	M106	G-SABbc south of M109 / Phecda (Gamma Ursae Majoris)
35	M40	OC 2 stars - Winnecke 4 NW of Delta Ursae Majoris
36	M95	G-SBb paired with M96 in the Leo group of objects
37	M96	G-SABab paired with M95 in the Leo group of objects
38	M105	G-E1 just north of M95/M96 in the Leo group of objects
39	M65	G-SABa paired with M66 in the Leo group of objects
40	M66	G-SABb paired with M65 in the Leo group of objects
41	M51	G-SAbc - Whirlpool Galaxy south of Alkaid (last star in big dipper handle)
42	M63	G-SAbc - Sunflower Galaxy south of M51
43	M101	G-SABcd - Pinwheel Galaxy north of Alkaid (last star in big dipper handle)
44	M94	G-SAab south of M51
45	M3	GC east of Beta Comae Berenices NW of Arcturus
46	M53	GC just NE of the Coma/Virgo Cluster of objects
47	M64	G-SAab - Black Eye Galaxy NE of the Coma/Virgo Cluster of objects
48	M98	G-SABab in the Coma/Virgo Cluster of objects
49	M99	G-SAc in the Coma/Virgo Cluster of objects
50	M100	G-SABbc in the Coma/Virgo Cluster of objects
51	M85	G-SA0* in the Coma/Virgo Cluster of objects
52	M84	G-E1 paired with M86 in the Coma/Virgo Cluster of objects
53	M86	G-E3 paired with M84 in the Coma/Virgo Cluster of objects
54	M88	G-Saab in the Coma/Virgo Cluster of objects
55	M91	G-SBb (some lists say M91 is M58 not NGC 4548) in the Coma/Virgo Cluster of objects
56	M49	G-E2 just south of the Coma/Virgo Cluster of objects

Order	M#	Description
57	M60	G-E2 - paired with M59 in the Coma/Virgo Cluster of objects
58	M59	G-E5 - paired with M60 in the Coma/Virgo Cluster of objects
59	M58	G-SABb in the Coma/Virgo Cluster of objects
60	M87	G-E0-1 (the one with the jet and black hole) in the Coma/Virgo Cluster of objects
61	M89	G-E in the Coma/Virgo Cluster of objects
62	M90	G-SABab in the Coma/Virgo Cluster of objects
63	M61	G-SABbc south of the Coma/Virgo Cluster of objects
64	M104	G-SA - Sombrero Galaxy west of Spica
65	M68	GC SE of Beta Corvi NW of M83
66	M83	G-SABc SE of M68
67	M102	G-SA0* near Iota Draconis (some lists say M102 is M101)
68	M5	GC in Serpens Caput
69	M13	GC - Hercules cluster just SW of NGC6207
70	M92	GC NE of M13
71	M12	GC NW of M10 in middle of Oph asterism
72	M10	GC SE of M12 in middle of Oph asterism
73	M107	GC SW of Zeta Oph at the bottom of the Oph asterism
74	M80	GC NW of Antares / M4
75	M4	GC just W of Antares SE of M80
76	M14	GC east of M10/M12 in left side of Oph asterism
77	M9	GC west of M23
78	M19	GC east of Antares SW of M9 N of M62
79	M62	GC SE of Antares south of M19 NW of M6
80	M57	PN - Ring Nebula between Beta and Gamma Lyrae NW of M56
81	M56	GC SE of M57 between M57 and Albireo
82	M29	OC south of gamma Cygni
83	M39	OC NE of Deneb
84	M27	PN - Dumbbell Nebula N of Gamma Sagittae NE of M71

Order	M#	Description
85	M71	GC just SW of Gamma Sagittae SW of M27
86	M11	OC - Wild Duck Cluster SE of Beta Scuti NE of M26
87	M26	OC SE of Alpha Scuti SW of M11
88	M16	EN+OC - Eagle Nebula with open cluster N of M17
89	M17	EN - Swan or Omega Nebula northernmost Sgr item
90	M18	OC just SW of M17 just NE of M24
91	M24	starcloud SW of M17/18 NE of M8/20/21
92	M23	OC west of M24 NW of M8/20/21 east of M9
93	M25	OC east of M24
94	M7	OC NE of Shaula SE of M6
95	M6	OC - Butterfly Cluster NW of M7 SE of M62
96	M28	GC just NW of Lambda Scorpii west of M22 east of M8
97	M8	EN - Lagoon Nebula just south of M20 and M21
98	M20	E/RN - Trifid Nebula emission + reflection nebula
99	M21	OC just north of M20 and M8
100	M22	GC east of M28 NE of Lambda Scorpii
101	M69	GC the westernmost of 3 GCs at the bottom of the teapot
102	M70	GC the central of 3 GCs at the bottom of the teapot
103	M54	GC the easternmost of 3 GCs at the bottom of the teapot
104	M55	GC east of M54 SW of M75
105	M15	GC NW of Enif (Epsilon Pegasi) SW of NGC7094
106	M75	GC NE of M55 SW of Beta Capricorni
107	M72	GC NW of Theta Capricorni just W of M73 and NGC7009 the Saturn Nebula
108	M73	OC 4 stars NW of Theta Capricorni just E of M73 and W of NGC7009 the Saturn Nebula
109	M2	GC north of Beta Aquarii
110	M30	GC SE of Gamma Capricorni just south of NGC7103


RIGHT ASCENSION
24h 23h 22h 21h 20h 19h 18h 17h 16h 15h 14h 13h 12h 11h 10h 9h 8h 7h 6h 5h 4h 3h 2h 1h 0h
+90 +80 +70 +60 +50 +40 +30 +20 +10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
DECLINATION
N CELESTIAL POLE
S CELESTIAL POLE
LMST AT SUNRISE Mar 18 2007
LMST AT 0h Mar 18 2007
LMST AT SUNSET Mar 17 2007
ZENITH = 50.77°
N CIRCUMPOLAR LIMIT = 39.23°
S VISIBILITY LIMIT = -39.23°
CELESTIAL EQUATOR
ECLIPTIC
HORIZON AT SUNRISE
HORIZON AT MIDNIGHT
HORIZON AT SUNSET
58 59 60 84 86 87 88 89 90 91 98 99 100
Messier Marathon Observing Order by Tomm Cameron for WCO
Messier Marathon Graph for Calgary WCO (50.77,-114.027) Copyright (c) 2007 by R. L. McNish All Rights Reserved.
Plotted for a starting date of: Mar 17 2007
VERNAL EQUINOX
AUTUMNAL EQUINOX
VERNAL EQUINOX


13h 15m
13h 00m
12h 45m
12h 30m
12h 15m
12h 00m
11h 45m
NGC 4565
+25°
Coma Berenices
Blackeye Galaxy (M64)
+20°
93 Leo
M53
NGC 5053
Diadem
α 42
NGC 4147
M85
11 Com
M100
+15°
M98
M99
M91
M88
Denebola
β Leo
M90
M86
M84
M89
Virgo A (M87)
M59
M58
M60
Vindemiatrix
ε 47
PK275+72.1
+10°
o Vir
M49
IC 3123
π Vir
ν Vir
o Vir
+5°
Swelling Spiral (M61)
δ 43
Auva
Zavijava
0°
Zaniah
Virgo
Porrima
Porrima


18h
16h
Sagitta
+15°
Rasalhague
Aquila
0°
Gumball Globular (M12)
M14
M10
Ophiuchus
Serpens Cauda
Wild Duck Cluster (M11)
M26
Scutum
Han
M107
Eagle Nebula (M16)
Sabik
-15°
Omega Nebula (M17)
Black Swan (M18)
M9
M23
M25
M24
Graffias
M21
Trifid Nebula (M20)
M80
Dschubba
Sagittarius Cluster (M22)
Lagoon Nebula (M8)
M28
M19
Antares
M75
Nunki
Cat's Eye (M4)
Flickering Globular (M62)
Sagittarius
Ascella
Butterfly Cluster (M6)
M54
M70
M69
-30°
M55
Kaus Australis
Ptolemy's Cluster (M7)
Wei
Scorpius
Shaula
Lesath
Girtab
20h
18h
16h