

Messier Catalogue									Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	53,0°	2.453.084,5	
Mess.	Type	Con-	Rekt.	Dekl.	Size	Mag-	Dist.	Description accord. to Karkoschka		Rise	Set	Culmin.	Classification	best	Observ.	Time	T after	Height	Azimuth	Star-	seen?		
No.		stell.	[°]	[°]	[']	nitude	[LYrs]	"Atlas für Himmelsbeobachter"	Pa.	UT	UT	UT	of visibility	time	index	UT	Start	ab. Hor	180:South	time	y/n	at time	Remarks
Sun	-		359,7	-0,1			0	-	-	5:27	17:31	11:29	Sunset	17:31	(P0)	17:31	0:00	-0,5°	270,5°	90,4°	-		
Sun	-		359,7	-0,1			0	-	-	4:10	18:48	11:29	twilight ends	18:48	(P0)	18:48	1:17	-12,0°	286,2°	109,8°	-		
Sun	-		359,7	-0,1			0	-	-	3:38	19:20	11:29	end of astron. twilight	19:20	(P0)	19:20	1:48	-16,5°	292,9°	117,7°	-		
45	C	Tau	56,7	24,1	100	1,5	4,0E+2	Plejades, Seven Sisters: weak reflection nebular in very dark sky	E3	7:48	0:37	16:16	in evening sky	19:20	1	19:20	1:48	36,3°	262,3°	117,7°			
110	X	And	10,1	41,7	17,4	8	2,8E+6	accompanying galaxy of Andromeda, asymmetrical shape	N0	1:08	1:08	13:10	in evening sky	19:20	2	19:24	1:52	14,8°	322,5°	138,1°			
31	X	And	10,7	41,3	178	3,5	2,8E+6	Andromeda galaxy: core rather bright, dust-lanes w' of core, spiral arms weakly	N0	1:11	1:11	13:13	in evening sky	19:20	3	19:26	1:54	22,5°	309,5°	119,2°			
32	X	And	10,7	40,9	7,6	8,2	2,8E+6	accompanying galaxie of Andromeda, star-spaped with binoculars	N0	1:11	1:11	13:13	in evening sky	19:20	4	19:28	1:56	22,0°	309,6°	119,7°			
74	X	Psc	24,2	15,8	10,2	9,2	5,0E+7	very difficult in lightpolluted sky, smallest magnification	E1	6:36	21:34	14:07	in evening sky	19:20	5	19:32	2:00	8,7°	284,7°	120,7°			
77	X	Cet	40,7	0,0	6,9	8,8	7,0E+7	Seyfert Galaxy, active bright core using high magnification , star-shaped in binoculars	E0	9:13	21:12	15:13	in evening sky	19:20	6	19:34	2:02	5,7°	262,4°	121,2°			
33	X	Tri	23,5	30,7	62	5,7	3,0E+6	Triangulum nebela: lowest magnification and very dark sky	N0	4:33	23:30	14:04	in evening sky	19:20	7	19:38	2:06	19,2°	295,8°	122,2°			
79	G	Lep	81,1	-24,5	8,7	8	4,0E+4	very difficult to resolve (far our of milky way plane)	E4	14:23	21:24	17:54	in evening sky	19:20	8	19:42	2:10	4,3°	217,8°	123,2°			
42	N	Ori	83,8	-5,4	66	4	1,4E+3	Orion nebula: prime example of gasous nebulars, imbedded stars	E4	12:34	23:35	18:04	in evening sky	19:20	9	19:46	2:14	22,4°	224,3°	124,2°			
43	N	Ori	83,9	-5,3	20	9	1,4E+3	northern part of Orion nebula, separated by a dark dust cloud	E4	12:34	23:36	18:05	in evening sky	19:20	10	19:48	2:16	22,3°	224,7°	124,7°			
78	N	Ori	86,7	0,1	8	8	1,2E+3	brightest reflection nebular, a bigger telescope shows dark dusty structures	E5	12:16	0:12	18:16	in evening sky	19:20	11	19:50	2:18	28,2°	225,0°	125,2°			
34	O	Per	40,5	42,8	35	5,2	1,5E+3	beautiful with binoculars, lowest magnification with telescope	N4	3:10	3:10	15:12	in evening sky	19:20	12	19:54	2:22	35,1°	296,5°	126,3°			
52	O	Cas	351,0	61,6	13	6,9	5,0E+3	nebulous figure with binoculars, many small stars in telescope	N22	23:56	23:56	11:50	in morning sky	19:20	13	19:58	2:26	26,2°	347,4°	146,6°			
103	O	Cas	23,3	60,7	6	7,4	7,0E+3	already resolved with binoculars, only slightly better with telescope	N2	2:01	2:01	14:03	in evening sky	19:20	14	20:00	2:28	38,5°	322,7°	127,8°			
76	P	Per	25,6	51,6	4,8	12	4,0E+3	Little Dumbbell nebular: weakest object in Messier catalogue	N0	2:10	2:10	14:12	in evening sky	19:20	15	20:02	2:30	33,0°	313,8°	128,3°			
41	O	CMa	101,7	-20,7	38	4,5	2,5E+3	very well resolved with binoculars, only little impressive with telescope	E6	15:17	23:15	19:16	in evening sky	19:20	16	20:06	2:34	12,5°	206,3°	129,3°			
93	O	Pup	116,1	-23,9	22	6,2	4,0E+3	brighte Sterne with binoculars resolved, nebliger Hintergrund with telescope beautiful resolved	E6	16:38	23:49	20:13	in evening sky	20:13	17	20:08	2:36	12,2°	192,8°	129,8°			
50	O	Mon	105,8	-8,3	16	5,9	3,5E+3	beautiful with telescope and low magnification , little asymmetrical shape	E8	14:18	0:43	19:32	in evening sky	19:32	18	20:12	2:40	25,1°	207,5°	130,8°			
47	O	Pup	114,1	-13,9	30	4,4	1,8E+3	impressive with small instruments	E8	15:23	0:44	20:05	in evening sky	20:05	19	20:14	2:42	21,5°	197,9°	131,3°			

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Mess.	Type	Con-stell.	Rekt. [°]	Dekl. [°]	Size [']	Mag-nitude	Dist. [LYrs]	Description accord. to Karkoschka "Atlas für Himmelsbeobachter"	Pa.	Rise UT	Set UT	Culmin. UT	Classification of visibility	best time	Observ. index	Time UT	T after Start	Height ab. Hor	Azimuth 180:South	Star-time	seen?		
No.			[°]	[°]	[']																y/n	at time	Remarks
46	O	Pup	115,4	-14,8	27	6,1	6,0E+3	big with binoculars, many stars with bigger telescope, rich of small stars	E8	15:33	0:44	20:10	in evening sky	20:10	20	20:16	2:44	20,7°	196,9°	131,8°			
48	O	Hya	123,5	-5,8	54	5,8	2,5E+3	beautiful and bright with binoculars	E10	15:15	2:11	20:43	at transit	20:43	21	20:18	2:46	30,7°	190,2°	132,3°			
1	N	Tau	83,6	22,0	6	8,4	4,0E+3	Crab nebula: difficult with binoculars, irregular shape with bigger telescope (Supernova 1054)	E3	9:55	2:12	18:04	in evening sky	19:20	22	20:22	2:50	41,3°	250,2°	133,3°			
35	O	Gem	92,2	24,3	28	5,1	3,0E+3	bright, beautiful resolved with telescope using low magnification	E7	10:12	3:04	18:38	in evening sky	19:20	23	20:24	2:52	47,6°	243,9°	133,8°			
38	O	Aur	82,1	35,8	21	6,4	4,0E+3	partly resolved, interesting arrangement of small stars	N6	7:03	4:48	17:58	in evening sky	19:20	24	20:28	2:56	49,7°	266,4°	134,8°			
36	O	Aur	84,0	34,1	12	6	4,0E+3	already resolved with binoculars, starry concentrations along arms	N6	7:47	4:19	18:05	in evening sky	19:20	25	20:30	2:58	49,4°	263,3°	135,3°			
37	O	Aur	88,1	32,5	24	5,6	4,0E+3	seen as a big bright nebular with binoculars, with bigger telescope impressive number of stars	N6	8:32	4:11	18:22	in evening sky	19:20	26	20:32	3:00	50,4°	258,2°	135,8°			
44	O	Cnc	130,0	20,0	95	3,1	6,0E+2	Praesepe: impressive with binoculars	E9	13:15	5:03	21:09	at transit	21:09	27	20:36	3:04	56,6°	191,6°	136,8°			
67	O	Cnc	132,6	11,8	30	6,9	2,5E+3	big nebular with binoculars, very well resolved with telescope	E9	14:16	4:22	21:19	at transit	21:19	28	20:38	3:06	48,6°	186,9°	137,3°			
81	X	UMa	148,9	69,1	25,7	6,9	1,3E+7	Bode's nebulae: easily seen with binoculars, bright center and star-shaped core	N8	10:28	10:28	22:24	at transit	22:24	29	21:24	3:53	73,9°	360,0°	148,9°			
82	X	UMa	148,9	69,6	11,2	8,4	1,3E+7	brightest accompanying galaxy of M81, almost seen edge-on, struktures with bigger telescope	N8	10:28	10:28	22:24	at transit	22:24	30	21:26	3:55	73,4°	359,4°	149,4°			
95	X	Leo	161,0	11,7	7,4	9,7	4,0E+7	star-shaped core	E11	16:10	6:15	23:12	at transit	23:12	31	22:12	4:41	48,7°	180,0°	161,0°			
96	X	Leo	161,7	11,8	7,1	9,2	4,0E+7	rather elongated central area, star-shaped core	E11	16:12	6:18	23:15	at transit	23:15	32	22:14	4:43	48,8°	179,7°	161,5°			
105	X	Leo	162,0	12,6	4,5	9,3	4,0E+7	easier visible than M95 or M96, star-shaped core	E11	16:09	6:24	23:16	at transit	23:16	33	22:16	4:45	49,6°	180,0°	162,0°			
65	X	Leo	169,7	13,1	10	9,3	4,0E+7	round central area in front of elongated backgroud nebular	E11	16:36	6:58	23:47	at transit	23:47	34	22:18	4:47	49,7°	169,1°	162,5°			
66	X	Leo	170,0	13,0	8,7	9	4,0E+7	visible with binoculars, interesting sight only with bigger telescopes, dust struktures dimly visible	E11	16:38	6:58	23:48	at transit	23:48	35	22:20	4:49	49,6°	169,4°	163,0°			
109	X	UMa	179,4	53,3	7,6	9,8	6,0E+7	bright core, otherwise weak	N10	12:30	12:30	0:22	at transit	0:26	36	22:40	5:08	83,0°	82,9°	167,8°			
40	2	UMa	185,6	58,1	0,8	8,5	5,0E+2	double star 50" separated	N10	12:54	12:54	0:47	at transit	0:51	37	22:42	5:10	79,0°	55,5°	168,3°			
108	X	UMa	167,8	55,6	8,3	10,1	4,5E+7	edge-on, dust structures with bigger telescope hardly seen	N10	11:43	11:43	23:40	at transit	23:40	38	22:44	5:12	87,3°	347,7°	168,8°			
97	P	UMa	168,7	55,0	3,2	11,2	2,5E+3	Owl nebular: dark eyes invisible with amateur class telescope	N10	11:47	11:47	23:43	at transit	23:43	39	22:46	5:14	88,0°	350,2°	169,3°			
98	X	Com	183,4	14,9	9,5	10,1	6,0E+7	outer bounds weak, hardly structured	E14	17:20	8:03	0:38	at transit	0:42	40	23:42	6:10	51,9°	180,0°	183,4°			

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No.		stell.	[°]	[°]	[']	nitude	[LYrs]	"Atlas für Himmelsbeobachter"	Pa.	UT	UT	UT	of visibility	time	index	UT	Start	ab. Hor	180:South	time	y/n	at time	Remarks
99	X	Com	184,7	14,4	5,4	9,8	6,0E+7	Pin-wheel galaxy: bright central area, with bigger telescopes light knots and beginning of spiral arms	E14	17:28	8:05	0:43	at transit	0:47	41	23:44	6:12	51,4°	178,8°	183,9°			
100	X	Com	185,7	15,8	6,9	9,4	6,0E+7	elongated central area with star-shaped core	E14	17:24	8:18	0:47	at transit	0:51	42	23:46	6:14	52,8°	177,9°	184,4°			
85	X	Com	186,3	18,1	7,1	9,2	6,0E+7	oval not structures galaxy with bright central area	E14	17:12	8:39	0:49	at transit	0:53	43	23:48	6:16	55,1°	177,7°	184,9°			
106	X	CVn	184,7	47,3	18,2	8,3	3,0E+7	with bigger telescope weak dust structures, beginning of spiral arms visible	N12	12:51	12:51	0:43	at transit	0:47	44	23:52	6:20	84,2°	188,2°	185,9°			
61	X	Vir	185,4	4,4	6	9,7	6,0E+7	spiral arms with bigger telescope hardly visible	E14	18:27	7:12	0:46	at transit	0:50	45	23:56	6:24	41,4°	182,0°	186,9°			
49	X	Vir	187,4	8,0	8,9	8,4	6,0E+7	brightest galaxy of Virgo cluster, big	E14	18:16	7:40	0:58	at transit	0:58	46	23:58	6:26	45,0°	180,0°	187,4°			
84	X	Vir	186,2	12,8	5	9,3	6,0E+7	no structures, in area with many 12m bright galaxies	E14	17:44	8:02	0:49	at transit	0:53	47	0:02	6:30	49,8°	183,3°	188,4°			
86	X	Vir	186,5	12,9	7,4	9,2	6,0E+7	no structures visible	E14	17:45	8:04	0:50	at transit	0:54	48	0:04	6:32	49,9°	183,7°	188,9°			
87	X	Vir	187,7	12,4	7,2	8,6	6,0E+7	Virgo A: central galaxy of Virgo cluster, brighter core	E14	17:52	8:06	0:59	at transit	0:59	49	0:06	6:34	49,4°	182,6°	189,4°			
88	X	Com	188,0	14,4	6,9	9,5	6,0E+7	few structures seen with telescope	E14	17:42	8:19	1:00	at transit	1:00	50	0:08	6:36	51,4°	183,0°	189,9°			
91	X	Com	188,8	14,5	5,4	10,2	6,0E+7	no structures visible	E14	17:44	8:26	1:03	at transit	1:03	51	0:10	6:38	51,5°	182,5°	190,4°			
89	X	Vir	188,9	12,5	4,2	9,8	6,0E+7	bright, almost star-shaped core, perfect round	E14	17:56	8:11	1:04	at transit	1:04	52	0:14	6:42	49,4°	183,8°	191,4°			
90	X	Vir	189,2	13,1	9,5	9,5	6,0E+7	brighter elongated central arae, most extended galaxy of Virgo cluster	E14	17:54	8:16	1:05	at transit	1:05	53	0:16	6:44	50,0°	184,1°	191,9°			
58	X	Vir	189,4	11,8	5,4	9,8	6,0E+7	bulk of bulk galaxy detectable with bigger telescope	E14	18:02	8:09	1:06	at transit	1:06	54	0:18	6:46	48,7°	184,5°	192,4°			
59	X	Vir	190,5	11,6	5,1	9,8	6,0E+7	dim star-shapeder core, use medium magnification	E14	18:08	8:12	1:10	at transit	1:10	55	0:20	6:48	48,6°	183,6°	192,9°			
60	X	Vir	190,9	11,5	7,2	8,8	6,0E+7	bright star-shaped core	E14	18:10	8:13	1:12	at transit	1:12	56	0:22	6:50	48,5°	183,7°	193,4°			
68	G	Hya	189,9	-26,7	12	8,2	3,0E+4	with bigger telescopes resolvable into center	E12	21:56	4:20	1:08	at transit	1:08	57	0:26	6:54	10,2°	184,1°	194,4°			
104	X	Vir	190,0	-11,6	8,9	8,3	5,0E+7	Sombrero nebula: almost central dust lane visibvle only with bigger telescopes	E12	20:12	6:04	1:08	at transit	1:08	58	0:28	6:56	25,3°	185,3°	194,9°			
94	X	CVn	192,7	41,1	11	8,2	3,0E+7	bright core, with bigger telescope beginning of spiral arms visible	N12	13:23	13:23	1:19	at transit	1:19	59	0:32	7:00	77,9°	191,7°	195,9°			
63	X	CVn	198,9	42,0	12,3	8,6	3,0E+7	Sunflower galaxy: prominent core, otherwise invisible	N12	13:48	13:48	1:44	at transit	1:44	60	0:34	7:02	78,9°	170,5°	196,4°			
51	X	CVn	202,5	47,2	11	8,4	3,0E+7	Whirlpool-Galaxie: wonderful spiral arms with bigger telescope and NGC5195, most beautiful galaxv	N12	14:02	14:02	1:58	at transit	1:58	61	0:36	7:04	83,2°	146,2°	196,9°			

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64	X	Com	194,2	21,7	9,3	8,5	2,2E+4	Black Eyed galaxy: elongated absorption near core dimly visible with bigger telescope	E13	17:19	9:35	1:25	at transit	1:25	62	0:41	7:09	58,6°	187,1°	198,2°		
53	G	Com	198,2	18,2	12,6	7,7	6,0E+4	prominent core, edge partly resolved with telescope	E13	17:59	9:27	1:41	at transit	1:41	63	0:43	7:11	55,2°	180,8°	198,7°		
83	X	Hya	204,2	-29,9	11,2	7,6	2,0E+7	visible with binoculars, wonderful with bigger telescope, bright core, elongated bulk	E16	23:24	4:45	2:05	at transit	2:05	64	1:05	7:33	7,1°	180,0°	204,2°		
3	G	CVn	205,5	28,4	16,2	6,4	3,0E+4	resolvable with bigger telescopes only	E15	17:08	11:16	2:10	at transit	2:10	65	1:10	7:39	65,4°	180,0°	205,5°		
101	X	UMa	210,8	54,3	26,9	7,7	2,5E+7	Spiralrad-Galaxie: bright core area, enormous size seen in darkest sky	N10	14:35	14:35	2:31	at transit	2:31	66	1:31	8:00	88,7°	0,4°	210,8°		
102	X	Dra	226,6	55,7	5,2	10	4,0E+7	elliptical nebular	N16	15:38	15:38	3:34	at transit	3:32	67	1:33	8:02	80,7°	67,0°	211,3°		
5	G	Ser	229,6	2,1	17,4	5,8	2,5E+4	wonderful, especially with bigger telescopes, elliptical shape, rather easy to resolve	E15	21:36	10:00	3:46	at transit	3:32	68	2:20	8:48	38,8°	171,5°	223,0°		
13	G	Her	250,4	36,4	16,6	5,9	2,5E+4	Herkules cluster: bright with binoculars, outer cluster resolvable	N14	17:59	16:23	5:09	in morning sky	3:32	69	2:24	8:52	65,2°	121,4°	224,0°		
92	G	Her	259,3	43,1	11,2	6,5	3,0E+4	similar to M13, but dimmer	N14	17:49	17:49	5:44	in morning sky	3:32	70	2:26	8:54	65,0°	99,2°	224,5°		
57	P	Lyr	283,4	33,0	2,5	9	1,8E+3	Ring nebular in Lyra: almost star-shaped with binoculars, a bigger telescope shows oval ring and central	N18	21:24	17:21	7:21	in morning sky	3:32	71	2:30	8:58	44,7°	92,3°	225,5°		
56	G	Lyr	289,1	30,1	7,1	8,3	3,0E+4	quite weak, difficult to resolve into stars	N18	22:24	17:07	7:43	in morning sky	3:32	72	2:32	9:00	39,5°	90,8°	226,0°		
71	G	Sge	298,4	18,7	7,2	8,3	1,3E+4	interesting strukture, triangular shape, is maybe a rich open cluster	E21	0:31	16:10	8:20	in morning sky	3:32	73	2:36	9:04	26,0°	93,1°	227,0°		
27	P	Vul	299,9	22,7	15,2	8,1	1,0E+3	Big Dumbbell nebular: maybe the most beautiful planetary nebular, more struktures senn with telescope	E21	0:09	16:44	8:26	in morning sky	3:32	74	2:38	9:06	28,4°	89,4°	227,5°		
29	O	Cyg	306,0	38,5	7	6,6	4,0E+3	only a few stars, use only low magnification	N20	20:56	20:56	8:51	in morning sky	3:32	75	2:42	9:10	36,8°	72,6°	228,5°		
39	O	Cyg	323,0	48,4	32	4,6	1,0E+3	few, but bright stars, interesting sight only with binoculars	N24	22:04	22:04	9:59	in morning sky	3:32	76	2:44	9:12	34,7°	53,7°	229,0°		
12	G	Oph	251,8	-1,9	14,5	6,6	1,8E+4	schwach elliptisch with binoculars, gut resolved with telescope, looks like open cluster	E17	23:26	11:07	5:15	in morning sky	3:32	77	2:48	9:16	32,1°	154,0°	230,0°		
10	G	Oph	254,2	-4,1	15,1	6,6	1,5E+4	only edge well resolved with bigger telescope	E17	23:47	11:05	5:24	in morning sky	3:32	78	2:50	9:18	29,5°	152,6°	230,5°		
14	G	Oph	264,4	-3,2	11,7	7,6	3,0E+4	oval, nebular with amateur size telescopes	E17	0:19	11:51	6:05	in morning sky	3:32	79	2:52	9:20	27,2°	141,8°	231,0°		
107	G	Oph	248,1	-13,1	10	8,1	2,0E+4	hardly resolvable even with bigger telescope	E17	0:09	9:51	5:00	in morning sky	3:32	80	2:56	9:24	22,5°	163,0°	232,0°		
9	G	Oph	259,8	-18,5	9,3	7,9	2,5E+4	hardly resolvable	E17	1:33	10:04	5:46	in morning sky	3:32	81	2:58	9:26	14,7°	153,3°	232,5°		
62	G	Oph	255,3	-30,1	14,1	6,6	2,0E+4	very asymmetrical, nebulous arms, interesting object	E18	2:50	8:07	5:29	in morning sky	3:32	82	3:02	9:30	4,8°	161,2°	233,5°		

Messier Catalogue										Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	53,0°	2.453.084,5
Mess.	Type	Con-stell.	Rekt.	Dekl.	Size	Mag-	Dist.	Description accord. to Karkoschka		Rise	Set	Culmin.	Classification	best	Observ.	Time	T after	Height	Azimuth	Star-	seen?		
No.			[°]	[°]	[']	nitude	[LYrs]	"Atlas für Himmelsbeobachter"	Pa.	UT	UT	UT	of visibility	time	index	UT	Start	ab. Hor	180:South	time	y/n	at time	Remarks
19	G	Oph	255,6	-26,3	13,5	7,2	3,0E+4	rather oval, egde resolvable	E18	2:14	8:49	5:30	in morning sky	3:32	83	3:04	9:32	8,5°	160,5°	234,0°			
26	O	Sct	281,3	-9,4	15	8	5,0E+3	still nebular with smaller telescopes	E19	2:04	12:25	7:12	in morning sky	3:32	84	3:08	9:36	16,2°	132,0°	235,0°			
11	O	Sct	282,8	-6,3	14	5,8	6,0E+3	Wild Duck cluster: a little triangular, a bigger telescope shows high number of stars	E19	1:53	12:48	7:18	in morning sky	3:32	85	3:10	9:38	18,5°	129,6°	235,5°			
80	G	Sco	244,2	-23,0	8,9	7,2	3,0E+4	very bright center, can take high magnification	E18	1:02	8:30	4:44	in morning sky	3:32	86	3:14	9:42	13,7°	172,7°	236,5°			
4	G	Sco	245,9	-26,5	26,3	5,9	7,0E+3	easy to find, wonderfully resolvable with telescope	E18	1:37	8:05	4:51	in morning sky	3:32	87	3:16	9:44	10,1°	171,9°	237,0°			
23	O	Sgr	269,2	-19,0	27	5,5	2,0E+3	impressive at low magnification	E20	2:13	10:39	6:24	in morning sky	3:32	88	3:20	9:48	13,1°	149,8°	238,0°			
24	O	Sgr	274,2	-18,5	100	4	8,0E+3	bright star cloud of milky way	E20	2:30	11:02	6:44	in morning sky	3:32	89	3:22	9:50	12,1°	145,5°	238,5°			
20	C	Sgr	270,5	-23,0	29	6,3	6,0E+3	Trifidnebular: division into three by radial dark dust lanes, use filter and low magnification	E20	2:47	10:15	6:29	in morning sky	3:32	90	3:26	9:54	9,4°	151,3°	239,5°			
8	N	Sgr	270,9	-24,4	90	5,8	6,0E+3	Hourglass nebular: phantastic gasous nebular when viewed with filter, open cluster to the east	E20	2:59	10:06	6:31	in morning sky	3:32	91	3:28	9:56	8,1°	151,8°	240,0°			
21	O	Sgr	271,1	-22,5	13	5,9	4,0E+3	few stars, bright but inconspicuous	E20	2:46	10:22	6:32	in morning sky	3:32	92	3:30	9:58	10,0°	151,5°	240,5°			
16	C	Ser	274,7	-13,8	35	6	7,0E+3	eagle nebular: without filter is the cluster more conspicuous	E20	2:03	11:33	6:46	in morning sky	3:32	93	3:32	10:00	17,2°	145,7°	241,0°			
18	O	Sgr	274,9	-17,1	9	6,9	4,0E+3	low in stars, not much conspicuous, situated before light background	E20	2:24	11:14	6:47	in morning sky	3:32	94	3:34	10:02	14,2°	147,1°	241,5°			
17	C	Sgr	275,2	-16,2	46	6	6,0E+3	Omega nebular: phantastically structured, bright arms and dark dust layers	E20	2:19	11:20	6:48	in morning sky	3:32	95	3:36	10:04	15,1°	147,0°	242,0°			
25	O	Sgr	277,9	-19,2	32	4,6	3,0E+3	very beautifully resolved with binoculars, irregular structure	E20	2:49	11:12	6:59	in morning sky	3:32	96	3:38	10:06	11,6°	146,1°	242,5°			
28	G	Sgr	276,1	-24,9	11,2	6,9	2,0E+4	asymmetrical shape, bright center, hardly resolvable	E20	3:24	10:23	6:51	in morning sky	3:32	97	3:42	10:10	7,1°	150,5°	243,5°			
22	G	Sgr	279,1	-23,9	24	5,1	1,0E+4	very bright, oval, impressively resolved with bigger telescope	E20	3:28	10:43	7:03	in morning sky	3:32	98	3:44	10:12	7,3°	148,0°	244,0°			
15	G	Peg	322,5	12,2	12,3	6,4	3,5E+4	relatively easy to find, a little oval, outer edge resolvable with bigger telescopes	E23	2:51	17:06	9:57	in morning sky	3:32	99	3:48	10:16	17,2°	92,5°	245,0°			
6	O	Sco	265,0	-32,2	15	4,2	2,0E+3	Butterfly cluster: wonderful with any kind of instrument	E18	3:54	8:24	6:07	in morning sky	4:04	100	3:52	10:20	3,2°	164,0°	246,0°			
7	O	Sco	268,4	-34,8	80	3,3	9,0E+2	well resolved with binoculars, southernmost Messier Object	E18	4:50	7:51	6:21	at dawn	4:04	101	3:54	10:22	0,2°	162,2°	246,5°			
69	G	Sgr	277,8	-32,3	7,1	7,7	3,0E+4	partly resolved with bigger telescope	E20	4:47	9:14	6:58	at dawn	4:04	102	3:56	10:24	0,6°	154,4°	247,0°			
70	G	Sgr	280,8	-32,3	7,8	8,1	3,0E+4	dim, prominet center, outer edge just resolvable	E20	4:59	9:26	7:10	at dawn	4:04	103	3:58	10:26	-0,1°	152,4°	247,5°			

Messier Catalogue									Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	53,0°	2.453.084,5	
Mess.	Type	Con-	Rekt.	Dekl.	Size	Mag-	Dist.	Description accord. to Karkoschka		Rise	Set	Culmin.	Classification	best	Observ.	Time	T after	Height	Azimuth	Star-	seen?		
No.		stell.	[°]	[°]	[']	nitude	[LYrs]	"Atlas für Himmelsbeobachter"	Pa.	UT	UT	UT	of visibility	time	index	UT	Start	ab. Hor	180:South	time	y/n	at time	Remarks
54	G	Sgr	283,7	-30,5	9,1	7,7	8,0E+4	hardly resolvable, can take high magnification	E20	4:48	10:00	7:22	at dawn	4:04	104	3:52	10:20	0,3°	148,2°	246,0°			
72	G	Aqr	313,3	-12,5	5,9	9,4	6,0E+4	weakest globular cluster of Messier catalogue, not resolvable	E24	4:29	14:15	9:20	in morning sky	4:04	105	4:00	10:28	4,2°	117,2°	248,0°			
73	O	Aqr	314,7	-12,6	3	9	2,0E+3	3-4 stars	E24	4:35	14:20	9:25	at dawn	4:04	106	4:02	10:30	3,6°	116,6°	248,5°			
2	G	Aqr	323,3	-0,8	12,9	6,5	4,0E+4	bright big nebular with binoculars, very difficult to resolve into stars	E24	4:05	15:59	10:00	in morning sky	4:04	107	4:04	10:32	8,7°	103,2°	249,0°			
75	G	Sgr	301,5	-21,9	6	8,6	6,0E+4	distant globular cluster, small, not resolvable, extraordinary bright center	E22	4:42	12:27	8:33	at dawn	4:04	108	4:08	10:36	2,9°	133,4°	250,0°			
55	G	Sgr	295,0	-30,9	19	7	1,8E+4	rather big nebular with binoculars, with bigger telescope resolved down into the center	E22	5:38	10:40	8:07	not visible	4:04	109	4:10	10:38	-2,4°	143,0°	250,5°			
30	G	Cap	325,1	-23,2	11	7,5	2,5E+4	prominent center, elongated shell, a bigger telescope resolves outer parts of the cluster	E22	6:26	13:52	10:07	not visible	4:04	110	4:08	10:36	-9,9°	115,6°	250,0°			
Sun	-		0,7	0,3			0	-	-	3:36	19:22	11:29	start of astron. twilight	3:36	(P0)	3:36	10:04	-16,5°	66,3°	242,1°	-		
Sun	-		0,7	0,3			0	-	-	4:08	18:50	11:29	twilight starts	4:08	(P0)	4:08	10:36	-12,0°	73,1°	250,0°	-		
Sun	-		0,7	0,3			0	-	-	5:25	17:33	11:29	Sunrise	5:25	(P0)	5:25	11:54	-0,5°	88,9°	269,4°	-		
Mercury	-		13,0	6,3			0	Mercury	-	5:47	18:55	12:22	at dusk	17:31	(P1)	17:31	0:00	12,6°	263,7°	90,4°			
Venus	-		42,2	18,8			0	Venus	-	6:30	22:04	14:18	in evening sky	19:20	(P2)	19:20	1:48	23,5°	270,3°	117,7°			
Mars	-		56,7	21,0			0	Mars	-	7:13	23:18	15:16	in evening sky	19:20	(P3)	19:20	1:48	34,0°	259,9°	117,7°			
Saturn	-		97,0	22,8			0	Saturn	-	9:43	2:11	17:57	in evening sky	19:20	(P5)	19:20	1:48	55,9°	215,7°	117,7°			
Jupiter	-		163,9	8,4			0	Jupiter	-	15:40	5:08	22:24	at transit	22:24	(P4)	22:24	4:53	45,4°	180,0°	163,9°			
Neptun	-		317,0	-16,5			0	Neptun	-	4:08	13:05	8:39	not visible	4:08	(P7)	4:08	10:36	-0,1°	118,1°	250,0°			
Uranus	-		336,4	-10,6			0	Uranus	-	4:51	14:58	9:56	not visible	4:08	(P6)	4:08	10:36	-6,3°	99,3°	250,0°			