

Messier Catalogue									Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	40,0°	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	-	-	5:28	17:30	11:29	Sunset	17:30	(P0)	17:30	0:00	-0,5°	270,3°	90,3°	-		
Sun	-		359,7	-0,1			0	-	-	4:28	18:31	11:29	twilight ends	18:31	(P0)	18:31	1:00	-12,0°	280,1°	105,4°	-		
Sun	-		359,7	-0,1			0	-	-	4:04	18:55	11:29	end of astron. twilight	18:55	(P0)	18:55	1:24	-16,5°	284,2°	111,4°	-		
45	C	Tau	56,7	24,1	100	1,5	4,0E+2	Plejades, Seven Sisters: weak reflection nebular in very dark sky	E3	8:49	23:43	16:16	in evening sky	18:55	1	18:55	1:24	41,8°	268,0°	111,4°			
110	X	And	10,1	41,7	17,4	8	2,8E+6	accompanying galaxy of Andromeda, asymmetrical shape	N0	3:54	22:22	13:10	in evening sky	18:55	2	18:59	1:28	9,5°	317,8°	127,5°			
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	4:00	22:21	13:13	in evening sky	18:55	3	19:01	1:30	17,6°	309,6°	112,9°			
32	X	And	10,7	40,9	7,6	8,2	2,8E+6	accompanying galaxie of Andromeda, star-spaped with binoculars	N0	4:04	22:18	13:13	in evening sky	18:55	4	19:03	1:32	17,1°	309,5°	113,4°			
74	X	Psc	24,2	15,8	10,2	9,2	5,0E+7	very difficult in lightpolluted sky, smallest magnification	E1	7:09	21:01	14:07	in evening sky	18:55	5	19:07	1:36	9,9°	282,4°	114,4°			
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	18:55	6	19:09	1:38	12,0°	259,7°	114,9°			
33	X	Tri	23,5	30,7	62	5,7	3,0E+6	Triangulum nebela: lowest magnification and very dark sky	N0	6:02	22:02	14:04	in evening sky	18:55	7	19:13	1:42	17,5°	295,7°	115,9°			
79	G	Lep	81,1	-24,5	8,7	8	4,0E+4	very difficult to resolve (far our of milky way plane)	E4	13:24	22:23	17:54	in evening sky	18:55	8	19:17	1:46	17,4°	213,9°	116,9°			
42	N	Ori	83,8	-5,4	66	4	1,4E+3	Orion nebula: prime example of gasous nebulars, imbedded stars	E4	12:24	23:45	18:04	in evening sky	18:55	9	19:21	1:50	34,8°	222,9°	117,9°			
43	N	Ori	83,9	-5,3	20	9	1,4E+3	northern part of Orion nebula, separated by a dark dust cloud	E4	12:24	23:46	18:05	in evening sky	18:55	10	19:23	1:52	34,7°	223,3°	118,4°			
78	N	Ori	86,7	0,1	8	8	1,2E+3	brightest reflection nebular, a bigger telescope shows dark dusty structures	E5	12:17	0:11	18:16	in evening sky	18:55	11	19:25	1:54	40,5°	224,5°	118,9°			
34	O	Per	40,5	42,8	35	5,2	1,5E+3	beautiful with binoculars, lowest magnification with telescope	N4	5:45	0:30	15:12	in evening sky	18:55	12	19:29	1:58	32,7°	301,0°	119,9°			
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	18:55	13	19:33	2:02	15,5°	343,6°	136,0°			
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	18:55	14	19:35	2:04	30,5°	325,8°	121,4°			
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	18:55	15	19:37	2:06	26,8°	316,2°	121,9°			
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	10:46	1:22	18:04	in evening sky	18:55	16	19:41	2:10	52,2°	253,5°	122,9°			
35	O	Gem	92,2	24,3	28	5,1	3,0E+3	bright, beautiful resolved with telescope using low magnification	E7	11:10	2:06	18:38	in evening sky	18:55	17	19:43	2:12	59,5°	248,5°	123,4°			
38	O	Aur	82,1	35,8	21	6,4	4,0E+3	partly resolved, interesting arrangement of small stars	N6	9:30	2:25	17:58	in evening sky	18:55	18	19:47	2:16	56,6°	276,6°	124,4°			
36	O	Aur	84,0	34,1	12	6	4,0E+3	already resolved with binoculars, starry concentrations along arms	N6	9:48	2:22	18:05	in evening sky	18:55	19	19:49	2:18	57,1°	272,9°	124,9°			

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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
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	10:14	2:29	18:22	in evening sky	18:55	20	19:51	2:20	59,2°	267,8°	125,4°			
50	O	Mon	105,8	-8,3	16	5,9	3,5E+3	beautiful with telescope and low magnification , little asymmetrical shape	E8	14:01	1:03	19:32	in evening sky	19:32	21	19:55	2:24	38,1°	206,3°	126,4°			
47	O	Pup	114,1	-13,9	30	4,4	1,8E+3	impressive with small instruments	E8	14:54	1:16	20:05	at transit	20:05	22	19:57	2:26	34,8°	195,2°	126,9°			
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	15:03	1:18	20:10	at transit	20:10	23	19:59	2:28	34,1°	194,1°	127,4°			
48	O	Hya	123,5	-5,8	54	5,8	2,5E+3	beautiful and bright with binoculars	E10	15:03	2:22	20:43	at transit	20:43	24	20:01	2:30	44,0°	186,2°	127,9°			
41	O	CMa	101,7	-20,7	38	4,5	2,5E+3	very well resolved with binoculars, only little impressive with telescope	E6	14:31	23:57	19:16	in evening sky	19:16	25	20:05	2:34	24,2°	208,0°	128,9°			
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	15:41	0:41	20:13	at transit	20:13	26	20:07	2:36	24,9°	193,5°	129,4°			
44	O	Cnc	130,0	20,0	95	3,1	6,0E+2	Praesepe: impressive with binoculars	E9	13:59	4:19	21:09	at transit	21:09	27	20:19	2:48	69,9°	187,1°	132,6°			
67	O	Cnc	132,6	11,8	30	6,9	2,5E+3	big nebular with binoculars, very well resolved with telescope	E9	14:40	3:58	21:19	at transit	21:19	28	20:21	2:50	61,8°	181,0°	133,1°			
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	60,9°	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	60,4°	359,6°	149,4°			
95	X	Leo	161,0	11,7	7,4	9,7	4,0E+7	star-shaped core	E11	16:33	5:51	23:12	at transit	23:12	31	22:12	4:42	61,7°	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	16:36	5:54	23:15	at transit	23:15	32	22:14	4:44	61,8°	179,6°	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	16:34	5:58	23:16	at transit	23:16	33	22:16	4:46	62,6°	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	17:03	6:31	23:47	at transit	23:47	34	22:18	4:48	62,4°	164,8°	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	17:05	6:32	23:48	at transit	23:48	35	22:20	4:50	62,3°	165,2°	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	5:09	74,5°	26,8°	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	5:11	68,8°	25,7°	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	5:13	74,4°	357,9°	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	5:15	75,0°	358,7°	169,3°			
98	X	Com	183,4	14,9	9,5	10,1	6,0E+7	outer bounds weak, hardly structured	E14	17:51	7:32	0:38	at transit	0:42	40	23:42	6:11	64,9°	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	17:58	7:36	0:43	at transit	0:47	41	23:44	6:13	64,4°	178,2°	183,9°			
100	X	Com	185,7	15,8	6,9	9,4	6,0E+7	elongated central area with star-shaped core	E14	17:57	7:45	0:47	at transit	0:51	42	23:46	6:15	65,8°	177,0°	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	17:51	7:56	0:49	at transit	0:53	43	23:48	6:17	68,1°	176,4°	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	14:27	11:11	0:43	at transit	0:47	44	23:52	6:21	82,6°	353,6°	185,9°			
61	X	Vir	185,4	4,4	6	9,7	6,0E+7	spiral arms with bigger telescope hardly visible	E14	18:36	7:03	0:46	at transit	0:50	45	23:56	6:25	54,4°	182,6°	186,9°			
49	X	Vir	187,4	8,0	8,9	8,4	6,0E+7	brightest galaxy of Virgo cluster, big	E14	18:32	7:24	0:58	at transit	0:58	46	23:58	6:27	58,0°	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	18:10	7:36	0:49	at transit	0:53	47	0:02	6:31	62,7°	184,7°	188,4°			
86	X	Vir	186,5	12,9	7,4	9,2	6,0E+7	no structures visible	E14	18:11	7:37	0:50	at transit	0:54	48	0:04	6:33	62,8°	185,2°	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	18:17	7:40	0:59	at transit	0:59	49	0:06	6:35	62,4°	183,6°	189,4°			
88	X	Com	188,0	14,4	6,9	9,5	6,0E+7	few structures seen with telescope	E14	18:11	7:49	1:00	at transit	1:00	50	0:08	6:37	64,3°	184,3°	189,9°			
91	X	Com	188,8	14,5	5,4	10,2	6,0E+7	no structures visible	E14	18:14	7:52	1:03	at transit	1:03	51	0:10	6:39	64,5°	183,6°	190,4°			
89	X	Vir	188,9	12,5	4,2	9,8	6,0E+7	bright, almost star-shaped core, perfect round	E14	18:22	7:45	1:04	at transit	1:04	52	0:14	6:43	62,4°	185,3°	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	18:21	7:49	1:05	at transit	1:05	53	0:16	6:45	63,0°	185,8°	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	18:26	7:45	1:06	at transit	1:06	54	0:18	6:47	61,7°	186,2°	192,4°			
59	X	Vir	190,5	11,6	5,1	9,8	6,0E+7	dim star-shapeder core, use medium magnification	E14	18:31	7:49	1:10	at transit	1:10	55	0:20	6:49	61,5°	185,0°	192,9°			
60	X	Vir	190,9	11,5	7,2	8,8	6,0E+7	bright star-shaped core	E14	18:33	7:50	1:12	at transit	1:12	56	0:22	6:51	61,4°	185,2°	193,4°			
68	G	Hya	189,9	-26,7	12	8,2	3,0E+4	with bigger telescopes resolvable into center	E12	20:48	5:27	1:08	at transit	1:08	57	0:26	6:55	23,2°	184,4°	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	19:49	6:27	1:08	at transit	1:08	58	0:28	6:57	38,2°	186,2°	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	16:12	10:30	1:19	at transit	1:19	59	0:32	7:01	87,3°	295,2°	195,9°			
63	X	CVn	198,9	42,0	12,3	8,6	3,0E+7	Sunflower galaxy: prominent core, otherwise invisible	N12	16:29	11:02	1:44	at transit	1:44	60	0:34	7:03	87,3°	42,1°	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	15:40	12:20	1:58	at transit	1:58	61	0:36	7:05	81,8°	27,3°	196,9°			

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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
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	18:08	8:46	1:25	at transit	1:25	62	0:41	7:10	71,4°	191,7°	198,2°			
53	G	Com	198,2	18,2	12,6	7,7	6,0E+4	prominet core, edge partly resolved with telescope	E13	18:38	8:48	1:41	at transit	1:41	63	0:43	7:12	68,2°	181,2°	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	22:01	6:09	2:05	at transit	2:05	64	1:05	7:34	20,1°	180,0°	204,2°			
3	G	CVn	205,5	28,4	16,2	6,4	3,0E+4	resolvable with bigger telescopes only	E15	18:23	10:00	2:10	at transit	2:10	65	1:10	7:39	78,4°	179,9°	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	75,7°	0,0°	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	3:34	67	1:33	8:02	71,3°	27,7°	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	21:40	9:56	3:46	at transit	3:46	68	2:28	8:57	51,9°	172,7°	225,1°			
80	G	Sco	244,2	-23,0	8,9	7,2	3,0E+4	very bright center, can take high magnification	E18	0:05	9:24	4:44	at transit	3:58	69	2:32	9:01	24,8°	161,6°	226,1°			
4	G	Sco	245,9	-26,5	26,3	5,9	7,0E+3	easy to find, wonderfully resolvable with telescope	E18	0:27	9:15	4:51	at transit	3:58	70	2:34	9:03	21,1°	161,5°	226,6°			
13	G	Her	250,4	36,4	16,6	5,9	2,5E+4	Herkules cluster: bright with binoculars, outer cluster resolvable	N14	20:38	13:44	5:09	in morning sky	3:58	71	2:38	9:07	71,8°	94,1°	227,6°			
92	G	Her	259,3	43,1	11,2	6,5	3,0E+4	similar to M13, but dimmer	N14	20:19	15:14	5:44	in morning sky	3:58	72	2:40	9:09	66,6°	72,1°	228,1°			
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	23:10	15:35	7:21	in morning sky	3:58	73	2:44	9:13	46,5°	81,4°	229,1°			
56	G	Lyr	289,1	30,1	7,1	8,3	3,0E+4	quite weak, difficult to resolve into stars	N18	23:48	15:42	7:43	in morning sky	3:58	74	2:46	9:15	41,2°	82,2°	229,6°			
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	1:16	15:29	8:20	in morning sky	3:58	75	2:50	9:19	28,7°	89,0°	230,6°			
27	P	Vul	299,9	22,7	15,2	8,1	1,0E+3	Big Dumbbell nebular: maybe the most beautiful planetary nebular, more strukturen senn with telescope	E21	1:05	15:51	8:26	in morning sky	3:58	76	2:52	9:21	30,2°	84,6°	231,1°			
29	O	Cyg	306,0	38,5	7	6,6	4,0E+3	only a few stars, use only low magnification	N20	0:01	17:41	8:51	in morning sky	3:58	77	2:56	9:25	34,5°	65,8°	232,1°			
39	O	Cyg	323,0	48,4	32	4,6	1,0E+3	few, but bright stars, interesting sight only with binoculars	N24	23:17	20:45	9:59	in morning sky	3:58	78	2:58	9:27	28,5°	49,1°	232,6°			
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	23:22	11:11	5:15	in morning sky	3:58	79	3:02	9:31	44,9°	153,8°	233,6°			
10	G	Oph	254,2	-4,1	15,1	6,6	1,5E+4	only edge well resolved with bigger telescope	E17	23:39	11:13	5:24	in morning sky	3:58	80	3:04	9:33	42,2°	152,4°	234,1°			
14	G	Oph	264,4	-3,2	11,7	7,6	3,0E+4	oval, nebular with amateur size telescopes	E17	0:13	11:57	6:05	in morning sky	3:58	81	3:06	9:35	38,9°	140,4°	234,6°			
107	G	Oph	248,1	-13,1	10	8,1	2,0E+4	hardly resolvable even with bigger telescope	E17	23:46	10:18	5:00	in morning sky	3:58	82	3:10	9:39	35,6°	165,0°	235,6°			

Messier Catalogue										Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	40,0°	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
9	G	Oph	259,8	-18,5	9,3	7,9	2,5E+4	hardly resolvable	E17	0:49	10:44	5:46	in morning sky	3:58	83	3:12	9:41	27,5°	154,6°	236,1°			
62	G	Oph	255,3	-30,1	14,1	6,6	2,0E+4	very asymmetrical, nebulous arms, interesting object	E18	1:26	9:35	5:29	in morning sky	3:58	84	3:16	9:45	17,9°	163,5°	237,1°			
19	G	Oph	255,6	-26,3	13,5	7,2	3,0E+4	rather oval, egde resolvable	E18	1:08	9:55	5:30	in morning sky	3:58	85	3:18	9:47	21,6°	162,7°	237,6°			
26	O	Sct	281,3	-9,4	15	8	5,0E+3	still nebular with smaller telescopes	E19	1:45	12:43	7:12	in morning sky	3:58	86	3:22	9:51	26,8°	131,5°	238,6°			
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	1:40	13:00	7:18	in morning sky	3:58	87	3:24	9:53	28,7°	128,5°	239,1°			
23	O	Sgr	269,2	-19,0	27	5,5	2,0E+3	impressive at low magnification	E20	1:32	11:20	6:24	in morning sky	3:58	88	3:28	9:57	25,1°	149,5°	240,1°			
24	O	Sgr	274,2	-18,5	100	4	8,0E+3	bright star cloud of milky way	E20	1:50	11:42	6:44	in morning sky	3:58	89	3:30	9:59	23,7°	145,1°	240,6°			
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	1:53	11:09	6:29	in morning sky	3:58	90	3:34	10:03	21,5°	151,5°	241,6°			
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	2:01	11:05	6:31	in morning sky	3:58	91	3:36	10:05	20,2°	152,1°	242,1°			
21	O	Sgr	271,1	-22,5	13	5,9	4,0E+3	few stars, bright but inconspicuous	E20	1:54	11:13	6:32	in morning sky	3:58	92	3:38	10:07	22,1°	151,6°	242,6°			
16	C	Ser	274,7	-13,8	35	6	7,0E+3	eagle nebular: without filter is the cluster more conspicuous	E20	1:34	12:01	6:46	in morning sky	3:58	93	3:40	10:09	28,7°	144,6°	243,1°			
18	O	Sgr	274,9	-17,1	9	6,9	4,0E+3	low in stars, not much conspicuous, situated before light background	E20	1:47	11:50	6:47	in morning sky	3:58	94	3:42	10:11	25,9°	146,5°	243,6°			
17	C	Sgr	275,2	-16,2	46	6	6,0E+3	Omega nebular: phantastically structured, bright arms and dark dust layers	E20	1:45	11:55	6:48	in morning sky	3:58	95	3:44	10:13	26,8°	146,3°	244,1°			
25	O	Sgr	277,9	-19,2	32	4,6	3,0E+3	very beautifully resolved with binoculars, irregular structure	E20	2:07	11:54	6:59	in morning sky	3:58	96	3:46	10:15	23,2°	145,7°	244,6°			
28	G	Sgr	276,1	-24,9	11,2	6,9	2,0E+4	asymmetrical shape, bright center, hardly resolvable	E20	2:24	11:23	6:51	in morning sky	3:58	97	3:50	10:19	19,2°	150,9°	245,6°			
22	G	Sgr	279,1	-23,9	24	5,1	1,0E+4	very bright, oval, impressively resolved with bigger telescope	E20	2:32	11:39	7:03	in morning sky	3:58	98	3:52	10:21	19,1°	148,2°	246,1°			
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	3:16	16:41	9:57	in morning sky	3:58	99	3:56	10:25	19,0°	89,8°	247,1°			
6	O	Sco	265,0	-32,2	15	4,2	2,0E+3	Butterfly cluster: wonderful with any kind of instrument	E18	2:15	10:03	6:07	in morning sky	3:58	100	4:00	10:29	16,1°	165,2°	248,1°			
7	O	Sco	268,4	-34,8	80	3,3	9,0E+2	well resolved with binoculars, southernmost Messier Object	E18	2:44	10:01	6:21	in morning sky	3:58	101	4:02	10:31	13,0°	163,4°	248,6°			
69	G	Sgr	277,8	-32,3	7,1	7,7	3,0E+4	partly resolved with bigger telescope	E20	3:07	10:53	6:58	in morning sky	3:58	102	4:06	10:35	13,1°	155,8°	249,6°			
70	G	Sgr	280,8	-32,3	7,8	8,1	3,0E+4	dim, prominet center, outer edge just resolvable	E20	3:19	11:05	7:10	in morning sky	3:58	103	4:08	10:37	12,3°	153,8°	250,1°			

Messier Catalogue										Marathon Planning					Marathon on			20.03.2004		λ, ϕ, T	-9,0°	40,0°	2.453.084,5
Mess. No.	Type	Con-stell.	Rekt. [°]	Dekl. [°]	Size [']	Mag-nitude	Dist. [LYrs]	Description accord. to Karkoschka	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?		
54	G	Sgr	283,7	-30,5	9,1	7,7	8,0E+4	hardly resolvable, can take high magnification	E20	3:21	11:27	7:22	in morning sky	3:58	104	4:10	10:39	13,1°	151,1°	250,6°			
72	G	Aqr	313,3	-12,5	5,9	9,4	6,0E+4	weakest globular cluster of Messier catalogue, not resolvable	E24	4:04	14:40	9:20	in morning sky	4:22	105	4:14	10:43	12,5°	118,4°	251,7°			
73	O	Aqr	314,7	-12,6	3	9	2,0E+3	3-4 stars	E24	4:10	14:45	9:25	in morning sky	4:22	106	4:16	10:45	11,8°	117,8°	252,2°			
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	4:03	16:00	10:00	in morning sky	4:22	107	4:18	10:47	14,2°	103,3°	252,7°			
75	G	Sgr	301,5	-21,9	6	8,6	6,0E+4	distant globular cluster, small, not resolvable, extraordinary bright center	E22	3:52	13:17	8:33	in morning sky	3:58	108	4:22	10:51	13,7°	134,9°	253,7°			
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	4:08	12:10	8:07	in morning sky	4:22	109	4:26	10:55	9,8°	145,7°	254,7°			
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	5:32	14:46	10:07	not visible	4:22	110	4:28	10:57	-0,7°	120,3°	255,2°			
Sun	-		0,7	0,3		0		-	-	4:02	18:56	11:29	start of astron. twilight	4:02	(P0)	4:02	10:31	-16,5°	75,2°	248,6°	-		
Sun	-		0,7	0,3		0		-	-	4:26	18:32	11:29	twilight starts	4:26	(P0)	4:26	10:55	-12,0°	79,3°	254,7°	-		
Sun	-		0,7	0,3		0		-	-	5:26	17:31	11:29	Sunrise	5:26	(P0)	5:26	11:55	-0,5°	89,2°	269,8°	-		
Mercury	-		13,0	6,3		0		Mercury	-	6:01	18:42	12:22	at dusk	17:30	(P1)	17:30	0:00	13,8°	266,7°	90,3°			
Venus	-		42,2	18,8		0		Venus	-	7:12	21:24	14:18	in evening sky	18:55	(P2)	18:55	1:24	27,7°	272,0°	111,4°			
Mars	-		56,7	21,0		0		Mars	-	8:00	22:30	15:16	in evening sky	18:55	(P3)	18:55	1:24	40,1°	264,6°	111,4°			
Saturn	-		97,0	22,8		0		Saturn	-	10:36	1:19	17:57	in evening sky	18:55	(P5)	18:55	1:24	68,9°	219,7°	111,4°			
Jupiter	-		163,9	8,4		0		Jupiter	-	15:57	4:51	22:24	at transit	22:24	(P4)	22:24	4:53	58,4°	180,0°	163,9°			
Neptun	-		317,0	-16,5		0		Neptun	-	3:33	13:40	8:39	in morning sky	4:02	(P7)	4:02	10:31	5,1°	116,6°	248,6°			
Uranus	-		336,4	-10,6		0		Uranus	-	4:29	15:19	9:56	not visible	4:26	(P6)	4:26	10:55	-0,6°	103,4°	254,7°			