

The Marathon

As soon as it is possible to see the guide stars for the first objects, begin looking for the first objects. As darkness begins to prevail over twilight, the first objects must be hunted quickly. Do not linger over them, as they will be difficult to find and see at best. The first hour of observing will score you the objects early on the list and you must work rapidly. Once the first early objects are located, you may then begin to work at a slower pace. The first part of the session will end in the Virgo cluster of galaxies. They will challenge even the hardest of observers. After the Virgo cluster is complete, some time around 1 AM, you may then take the one nice long break of the night. You should start back on the search by 2:30 AM, in order to find all the objects left on the list. If you get hung up on any of the remaining objects, remember that they are rising. Don't waste time becoming stranded on one of these, continue with the next objects and come back to the one that tripped you up later.

The Evening Rush

You should begin your search for M74 and M77 as soon as the first stars begin to appear. To track down M74 use the 2.0 magnitude star Hamal and 2.64 magnitude star Sharatan, both in the constellation Aries. These two stars point you southwesterly to the 3.62 magnitude Eta Piscium. About 1.3° northwest of Eta Piscium is the 9.7 magnitude galaxy M74. It's fairly low in the sky after sunset, so detail in the galaxy will be almost nonexistent. Just check it off your list and move onto M77, which is located $2/3^\circ$ from the magnitude 4.0 star Delta Ceti. If you have trouble tracking down Delta Ceti then use 2.53 magnitude Mekar (Alpha Ceti), which is 4° away from M74.

The famous Triangulum Galaxy (M33) is next. It's directly between the stars Hamal (in Aries) and Mirach (in Andromeda). This is a large face-on galaxy, measuring $62' \times 39'$, has an apparent magnitude of 6.2 - pretty bright for a galaxy. Unfortunately the surface brightness is low due to its large size. The next three Messier objects on the list should be very familiar, so they'll be easy to find. The first is the Andromeda Galaxy (M31) and its two nearby satellite galaxies M32 and M110. The next four objects (M52, M103, M76, and M34) are critical since they're getting low in the sky and will be difficult to spot due to atmospheric extension. Once they're out of the way you'll have a little time to relax.

The Cruise

The next object on our list is perhaps the easiest to find. So easy you won't even need a telescope to find it! The Pleiades (M45) is visible as a compact collection of six or seven stars to the naked eye. A simple pair of binoculars will reveal dozens of beautiful blue stars. Next is the first globular cluster on our list, M79. To track down this cluster, the equivalent of 90,000 suns, use the magnitude 2.84 Beta Leporis located 4° southwest of M79. Things get a little easier with M42 and M43. Both are part of the Great Nebula in Orion and are both found in the "sword" of the mighty hunter. Try not to get distracted by the beauty of these nebulae, because you have a long way to go! Two more nebulae are on our list, M78 in Orion and the supernova remnant M1 (the Crab Nebula) in Taurus. Sometimes the Crab Nebula can be little tough to spot, a UHC filter may be helpful in your search.

The next four objects are all open clusters and pretty easy to track down with binoculars. M35 is in Gemini and M37, M36, and M38 are all in the constellation Auriga. We then head south into Canis Major and track down M41, then head north into Monoceros and spot M50, both open clusters. Several more open clusters follow; M47, M46, and M93 in Puppis. M48 is on the boarder of Monoceros and Hydra. M44, better known as the Prasepe or Beehive Cluster, is an easy target in the constellation Cancer. Once you've found M67 (just south of M44) you can take an hour break while the next batch of objects rise higher in the sky.

Two of my favorite galaxies are next. M81 and M82 are very close together and can be found near the "ear" of Ursa Major, the Greater Bear. M108 and M97 (the Owl Nebula) are about a degree away from the star Merak in the bowl of the Big Dipper. M109 is very close (19") from Phad, another bowl star. M40 is a boring double star located about a degree north of Megrez, the faintest star in the Big Dipper. The next five objects are all galaxies in the constellation Leo. M95, M96, and M105 can all be found in a triangle about one degree across. M65 and M66 are visible in the same field-of-view with a low power eyepiece.

We return to Ursa Major to track down the magnificent spiral galaxy M101.

Unfortunately, its true magnificence can only be revealed through long exposure photography. Visually, it's a fairly challenging object to observe. M101 can be found by using the star Mizar and following a trail of fourth and fifth magnitude stars (Flamsteed numbers 81, 83, 85, and 86 UMa). Another magnificent spiral galaxy can be found in Canes Venatici. The Whirlpool Galaxy (M51) is one of the best face-on spiral galaxies in the sky. Through an 8" or 10" telescope with excellent sky conditions, the spiral structure is very obvious. M51 can be found about 2° southeast of Alkaid, which is the star at the end of the Big Dipper's handle.

We now head to the opposite side of Canes Venatici and look for the marvelous Globular Cluster M3, which lies 6° north-northeast of 43 Coma Berenices. Moving into the constellation Coma Berenices and look for M53 and M64. M53 is a globular cluster is about 1° west of Diadem (Alpha Coma Berenices) and M64 is 1° northeast of 35 Coma Berenices.

Heartbreak Hill

The next seventeen objects are all galaxies and are part of the Coma-Virgo cluster. All the galaxies (with the exception of M104) are all very close together. You might think that's a good thing, since you won't have to swing your telescope all over the sky. What makes this part of the marathon difficult is that it's easy to mistake one galaxy for another and not every galaxy you can see is a Messier galaxy. Things will be a little easier if you've been through this area before, but if this is your first time then make sure you have a detailed chart of this region.

The first three galaxies (M60, M59, and M58) are usually the easiest to find. M58 is 1° west of M59, which is in the same field-of-view as M60. Moving 1/4° west and 1/2° north from M58 is M89. Using a low power eyepiece you should be able to find M90 in the same field as M89. M88 is 1.5° north-northwest of M90. Slightly north and 1/2° east of M88 is M91. Backtracking to M89 and then moving about 1.2° southwest leads you to M87. Moving another 1.5° north-northwest of M87 is M86 and M84. M86 is the eastern of these two ninth-magnitude elliptical galaxies. Moving 3° north of M84 is the tenth magnitude spiral galaxy M100.

Catch your breath and then use 3 and 11 Comae to guide you to M85, which is just 1° northeast of 11 Comae. M98 is located $1/2^\circ$ west of 6 Comae and M99 is 1° west of 6 Comae. M49 can be found 2.2° north and $1/4^\circ$ east of 20 Virginis. The last galaxy in this dense region is M61, which can be found 1° south of 17 Virginis. Reward yourself by taking a long look at the beautiful edge-on Sombrero Galaxy (M104) located on the southern tip of Virgo.

Early Morning Objects

If everything is on schedule, it should be around 2:00 a.m. at this point. We'll now slowly move toward the summer time objects. Moving 15° south of M104 is the globular cluster M68 in Hydra. Following the path of Hydra's tail leads us to the magnitude 3.0 star Gamma Hydrae. Moving 6° to the south leads you to M83, which is one of the intrinsically brightest galaxies known. We head north to Draco and track down the controversial galaxy M102. Many believe that M102 was originally a duplicate of M101, but many feel that NGC 5866 was the galaxy that Messier and Méchain meant to catalog. We haven't got time to debate the issue, so just check it off and move on!

We now take a break from galaxies and look for some more globular clusters. If it's close to 3:00 a.m. then look due south to the constellation Serpens. M5 is right on the Meridian at this time around the vernal equinox. We then head north again to the well known "Keystone" asterism in Hercules. The great globular cluster M13 can be found by drawing a line between Eta and Zeta Herculis. A finderscope is all that's needed to see M13, but take a closer look through your telescope. The view is wonderful. Thousands of stars are visible, but you don't have time to count them! One more globular cluster in Hercules awaits. M92 is about 7° north of Pi Herculis and is also a great site through the eyepiece.

Four more globular clusters need to be tracked down in Ophiuchus. M12, M10, and M14 are all inside Ophiuchus and easy to spot with binoculars. M107 is another globular cluster and lies 3° south of Zeta Ophiuchi. We then briefly move into Scorpius and observe the globular clusters M80 and M4. M80 is 4° to the northwest of Antares and M4 is just to the east of this red giant

star. The last two globular clusters are M19 and M62 on the southern border of Ophiuchus.

Between the constellations of Scorpius and Sagittarius are the bright open clusters M6 and M7. Both are easy binoculars targets. The big, bright, and beautiful Lagoon Nebula (M8) can be located by moving up from the star that represents the spout of the Teapot asterism. A degree north of the Lagoon Nebula leads you to the Trifid Nebula (M20). Moving another degree to the west of M20 is the open cluster M21. Three degrees north of M21 is another open cluster, M23. Okay, so I lied, we need to briefly return to Ophiuchus and find one more globular cluster, M9, before we move on to the bright nebulae and open clusters of Sagittarius.

Now things really start speeding up. We'll start at the open cluster M25 and move our way slowly north to the open clusters M24 and M18. Then will stop at the bright Omega Nebula (M17) and the Eagle Nebula (M16) in Ophiuchus. Head east toward the small constellation Scutum and observe the Wild Duck Cluster (M11) and M26. Return to the realm of Sagittarius and track down the globular clusters M22 and M28, which are just above the cover of the Teapot asterism. Inside the Teapot are the globular clusters M69, M70, and M54. Ten degrees to the southeast from M54 is the last globular cluster in Sagittarius, M55.

Our journey now takes us into the Summer Triangle. We'll start in Lyra with the famous Ring Nebula (M57). This beautiful planetary nebula is directly between the two stars Beta and Gamma Lyrae. The globular cluster M56 can be found by using the line formed by Beta and Gamma Lyrae and head east. We then move over to Cygnus and move 2° to the southwest from Sadr to M29. M39 is between the line formed Epsilon Cygni and Zeta Cephei. This leg of our journey comes to an end when we find the globular cluster M71 in Sagitta and the Dumbbell Nebula (M27) in Vulpecula.

Mad Dash to the Finish

Sixth more to go! The first is easy. M15 is a very bright globular cluster just above Enif, the "nose" of Pegasus. M75 is a globular cluster on the

Capricornus-Sagittarius border. M72 and M73 (an asterism of 4 stars) are less than a degree apart and can be found in southern Aquarius. M2 is the globular cluster that started Messier on his quest of creating a catalog of comet-like objects and can be found 9° to the south-southeast of Enif. The final object on the list is M30, which can be located by star-hopping 6° south from Nashira (Gamma Capricorni). M30 will be difficult, since sunrise is imminent.

Our journey is over. We've been all across the heavens in search of Messier's legacy. You can give yourself an A+ if you've tracked down more than 100 Messier objects. Now that the Marathon is over, come back to these objects in the weeks and months ahead and enjoy them. They all deserve your close attention and they'll show you something new every time. I guarantee it!