Meridian: M81 & M82

Forrest Lockhart

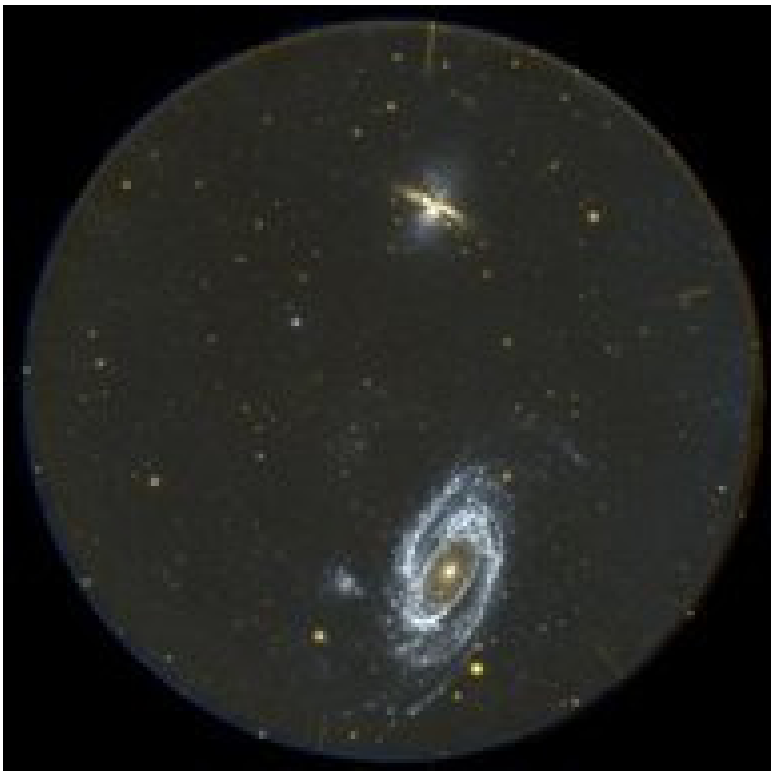
In last month's Meridian article, we took a peek at a bright, extensive open star cluster about 500 light years away. Since there was no response to my invitation to highlight your own favorite celestial object appearing near the meridian in May, I'll have to select another of my standby objects for casual observing. But this time the target is a twosome, the galaxy pair Messier 81 and 82, residing in Ursa Major.

Our Cameron Park Observatory held its annual International Astronomy Day on April 24th. Although The Moon (that is its real name) was 82% illuminated, transparency was good so I pointed my 4" refractor with a 28mm eyepiece in the direction of Polaris, then moved due south until I came upon our targets.

Appearing just a tad west of the meridian in early May, these faint fuzzies are only 38 minutes of arc apart and definitely seem associated. But are they? Let's take a closer look at each.

Messier 81 is a spiral galaxy about 4.5 million LY (light years) away. Arguably the most distant object detectable with the unaided eye, M81 glows at a combined magnitude of 6.9, with an apparent major axis width nearly that of the full Moon. While you will have to search out a dark sky to positively trace out the spiral arms of this beauty, the bright core and egg-shaped inner arm structure is observable under an average suburban sky. First, use your lowest magnification and look for a ghostly bar of light that seems to cross the core and extend out to both sides. While no bar actually exists, most patient observers will detect it and assume correctly that it is the faint signature of the inner spiral arms. Use averted vision to get a hint of faint spiral structure. Now increase magnification to 100x or so and carefully observe the core itself. You might be surprised to glimpse an arc of darkness similar to that found in Messier 64, the Black Eye galaxy. Messier 81 is a fine target for the small to moderate scope.

Messier 82 is an irregular galaxy about 17 million LY away. Glowing at a much dimmer magnitude 8.4, with a more meager major axis dimension of 11.2', this fuzzy offers up an interesting observing contrast. M82 displays an odd clumpiness that stems from an intense, ongoing episode of star formation and death. Stephen James O'Meara likened it to the cracked remains of a ghostly starship floating through space. I don't quite have his imagination, but M82 does seem to conjure up different images for all who devote some time with it. At moderate magnification, search out the brighter zones of starburst activity accentuated by the faint oval halo of the galaxy proper. This galaxy is a definite "keeper" for scopes of all sizes.



So even with the large difference in distance from Earth, is there any connection between M81 and M82? In addition to our ability spot both galaxies in the same FoV of small, lower magnification scopes, they do share a common past. Scientists tell us that about 40 million years ago M81, which is 10 more massive than M82, careened past its smaller neighbor. In that passage, a strong gravity shock wave slammed into M82, disrupting interstellar gas clouds and triggering a massive episode of star formation. The crumpled reminder of that near collision is evident today as we observe these two very different, but very interesting, galaxies.

If you have a favorite object that will be in the vicinity of the meridian in June, please E-mail me at <forrest.lockhart@sbcglobal.net> with your observations. I'll try to give it a good look and report back in the next SVAS Observer.