

HEAVENLY NEWS

“Our Galaxy, the Size of North America?”

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The universe is everything that exists – all matter, space, and time. It’s the home of billions of galaxies, each filled with stars, gas, dust, and objects that we haven’t discovered yet! Galaxies are commonly described as spirals, barred spirals, elliptical or irregular in shape but each has its own character and its own orientation. Our galaxy, the Milky Way, is one of the most awesome objects in the sky. Because we are inside of the Milky Way, we cannot view its entire extent. However, by mapping the distribution of stars and gas, scientists know that it would look like a giant flat pinwheel with a bright center and spiral arms made of stars and clouds of gas, all of which is surrounded by a halo of dispersed stars and dark matter. Our Milky Way is described as a barred spiral. This means the spiral arms extend from the ends of a center bar. No one knows what cause the arms to form or what maintains their structure. They are bright because they contain gas and the hot young stars that were recently born out of the gas. The spiral arms rotate around the center.

Our Sun lies approximately about half way out from the center of the galaxy in one of its spiral arms. This position gives us a great vantage point to see both inside and outside of our galaxy, depending on where the Earth is when it orbits around the Sun. During the summer months, we find ourselves looking toward the Great Sagittarius Star Cloud hoping to see the center of the galaxy. At the center is a giant black hole with the equivalent mass of 4.2 million suns. The black hole is surrounded by spiraling clouds of hot hydrogen gas. None of this can be seen by our eyes because of numerous dust clouds that lie between us and the center, but it has been detected and mapped by infrared telescopes and radio astronomers. With telescopes, we can see globular star clusters, open star clusters and nebulae which are part of our galaxy while during the winter and early spring months, the Earth’s position gives us the ability to view other galaxies which lie outside of our own galaxy.

The Milky Way is over 100,000 light years (the distance light travels in a year) in diameter but only a 1,000 light years thick. Hard to fathom? Then try this scale. If our Solar System was the size of a quarter, our galaxy would be the size of North America. If we continue with this scale, then the North Star which is 430 light-years away would be about 11 miles away - or about as far away as Cameron Park is from Placerville. Space is huge! When you are looking at the twinkling stars in the night sky you only see a few thousand stars, however, there are over 200 billion stars in our galaxy.

To learn more about our Milky Way galaxy come by the Cameron Park Rotary Community Observatory in Placerville any Friday, Saturday or Sunday evening 8:30pm – 10:30pm. For more information about the Cameron Park Rotary Community Observatory, to check closure notices and get driving directions go to www.communityobservatory.com.