

HEAVENLY NEWS – “Galaxy Season”

By Teri Smoot, Lead Docent Community Observatory

As the Earth revolves around the Sun, the early evening night sky looks out on different parts of the universe around us. During the late summer, when the Milky Way is high above us, we see an “edge on view” of our galaxy. At that time, telescopes will show views of objects such as the globular star clusters that tend to be found orbiting around the center of our galaxy. We also see the nebulae and open star clusters that lie within our galaxy’s arms. In the late winter and early spring, however, the early evening night sky is looking in a direction that is perpendicular to the disk of our galaxy. In essence, we tend to be looking out of our galaxy. As a consequence it is at this time of the year that we have the best views of the other galaxies in the universe.

Galaxies are collections of a very large number of stars that are gravitationally bound. Galaxies (such as the Milky Way galaxy in which we live) typically contain hundreds of billions of stars in a region of a few hundred thousand light years. There are probably around 100 billion galaxies in the known universe. The nearest large galaxy is the Andromeda galaxy that is located about 2.5 million light years away. The galaxies that are typically viewed by amateur astronomers range from this distance to a distance of a few hundred million light years away. However, large telescopes can see galaxies with distances of nearly 13 billion light years away; nearly to the extent of the universe.

Galaxies come in all sizes and shapes. They range from giant elliptical galaxies that appear as fuzzy balls of stars to elegant spirals having well defined arms and a central disk. The spirals can also be seen at various angles; some are face on with easily seen structure while others lie at an angle to us with structure less obvious. Galaxies typically form in groups and there are frequently interactions between different galaxies. This gives rise to irregular shapes and long tails of stars that can stretch from one galaxy to another.

Most of the mass in galaxies is composed of poorly understood dark matter. Most galaxies (including our Milky Way) also harbor super massive black holes at their center. In some galaxies, these black holes are very active devouring large amounts of mass and giving off large amounts of radiation (often directed in jets). Fortunately for us, the black hole in the center of the Milky Way is quiescent.

Please join us at the Community Observatory, a gift of the Cameron Park Rotary Club, some weekend night this spring and let us show you all of the different types of galaxies that are currently visible. The docents will be happy to explain what you are seeing and discuss how and why the galaxies look the way they do. The Cameron Park Community Observatory is located in Placerville, at the Folsom Lake Community College. For more information and driving directions, please go to www.communityobservatory.com.