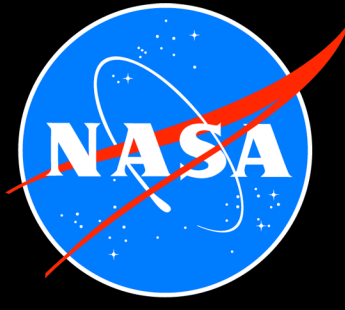
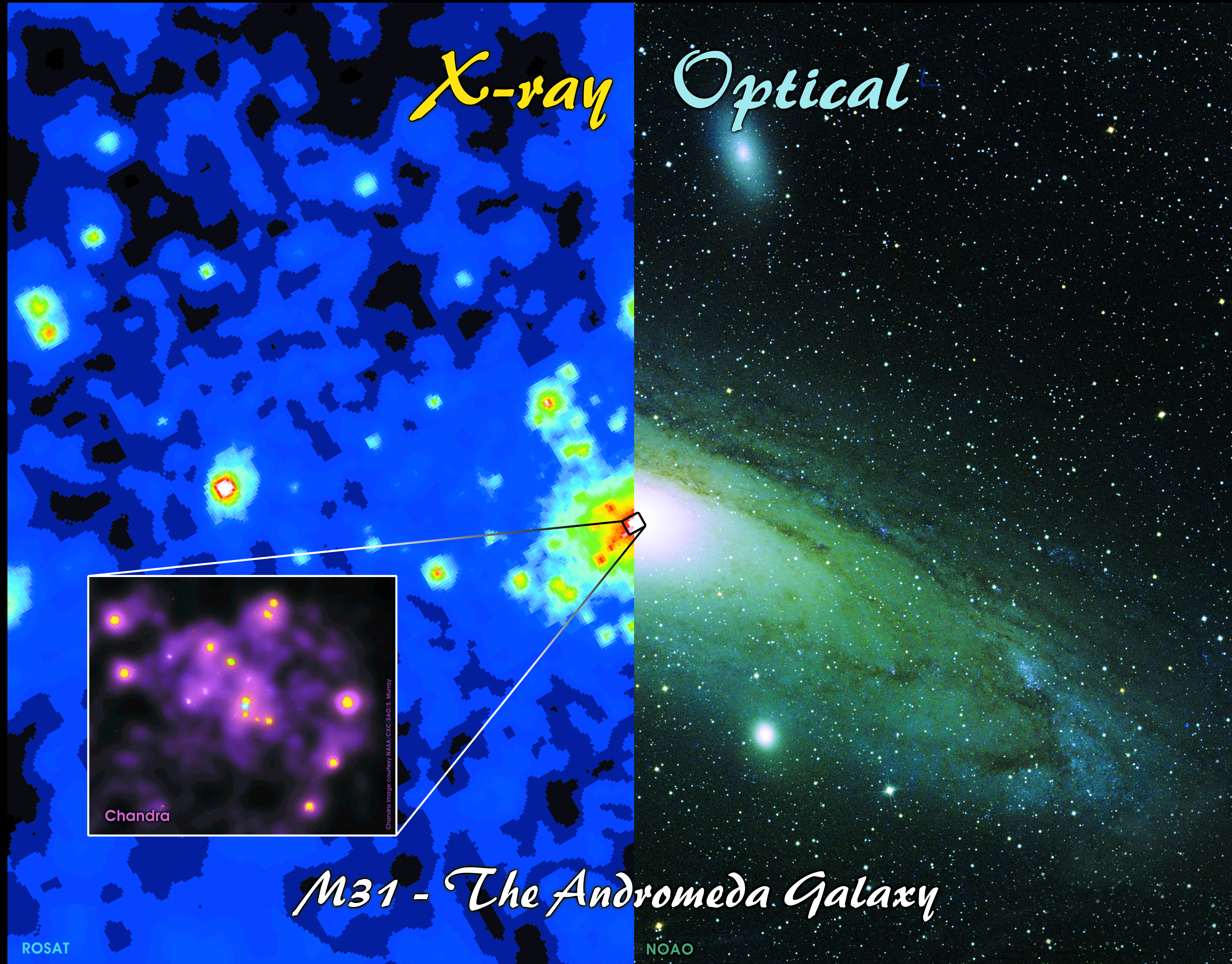


IMAGINE THE UNIVERSE!

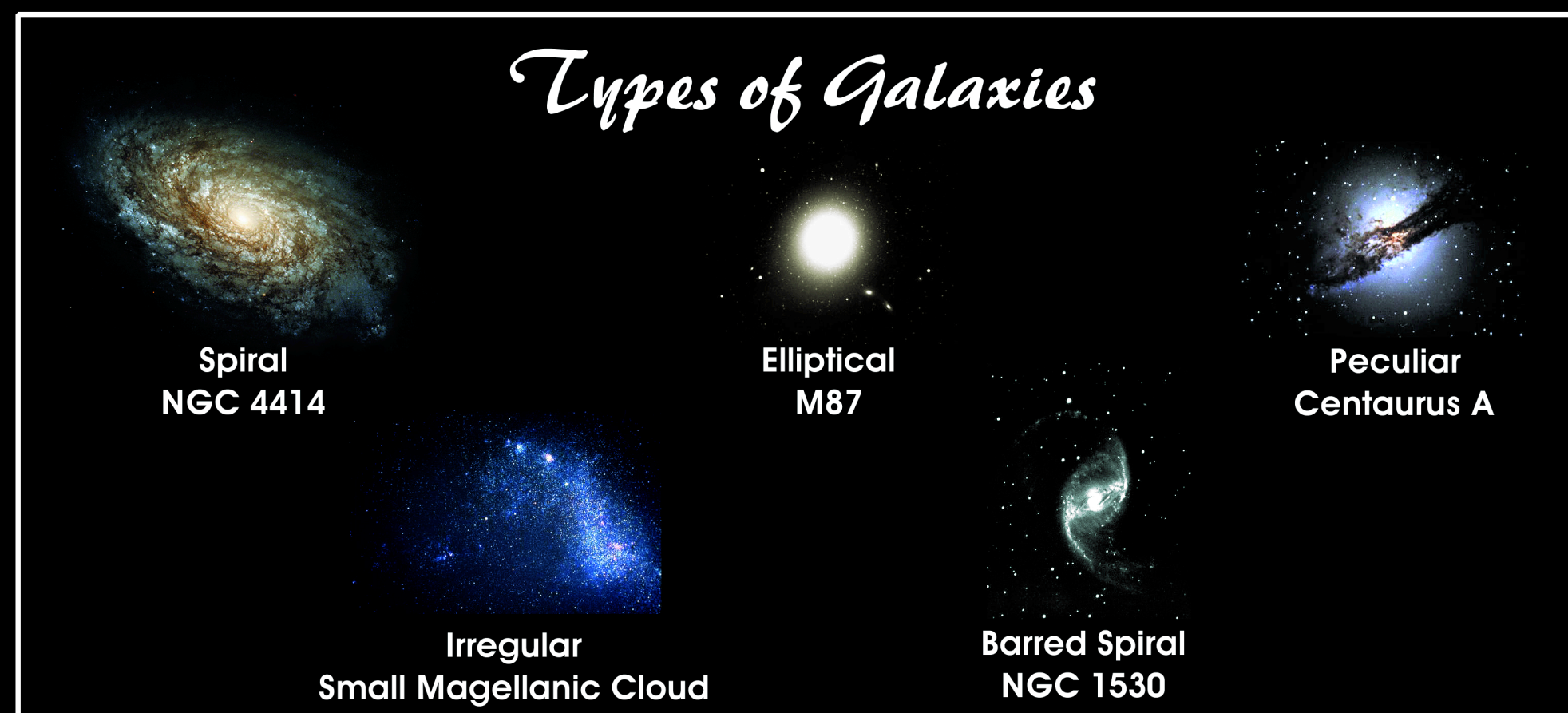
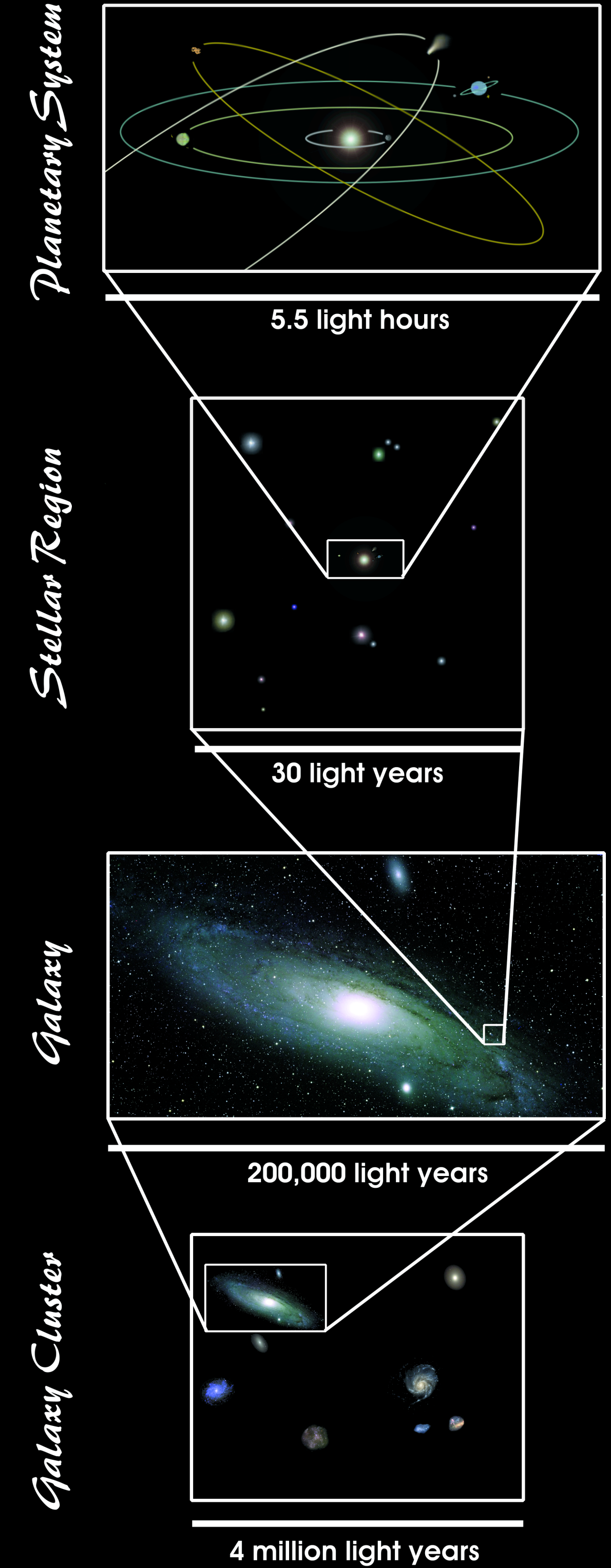
<http://imagine.gsfc.nasa.gov/>



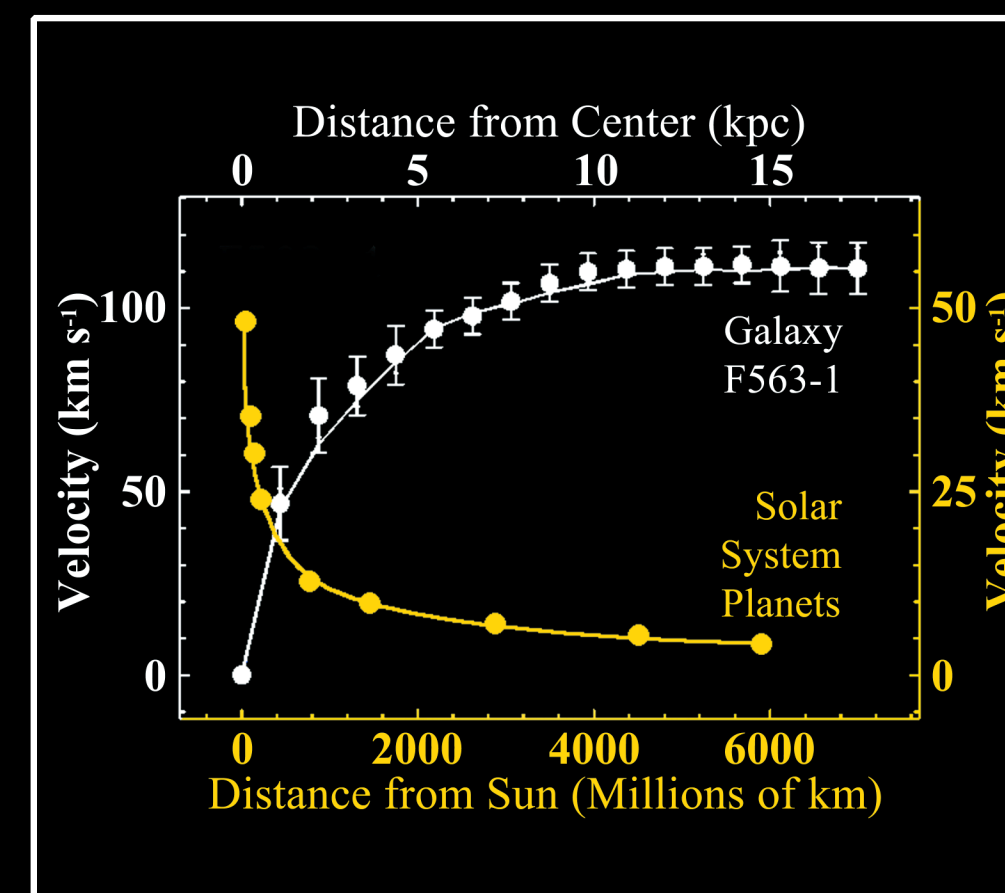
The Hidden Lives of GALAXIES



M31 - The Andromeda Galaxy



Types of Galaxies



Evidence for Hidden Mass

In many systems in the universe, objects move at just the right speed to counteract gravity – any faster would mean escape, any slower, collapse to the center.

In our solar system, the outer planets move slowest (yellow line, at left) to maintain their orbits. Surprisingly, stars in some spiral galaxies travel faster than expected (white line, at left) if they're balanced in orbit by only the matter we can see. X-ray observations of elliptical galaxies (right) reveal the same peculiarity: hot, fast-moving gas in the outer reaches of the galaxies. The black ring (right) is the size of the galaxy in visible light. These galaxies don't seem to contain enough mass to hold on to the gas.

So why don't the stars and gas escape? Scientists hypothesize that "hidden mass" may help galaxies hold these high-speed stars and hot gas.

