

National Aeronautics and Space Administration



Andromeda Galaxy (M31)

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The Andromeda Galaxy, M31, dominates an exclusive group of objects outside our own galaxy that are visible to the unaided eye. Under dark skies, M31 can be seen as a cloudy patch of light, although even small telescopes reveal its substructure in the form of a central bulge and spiral disk.

The Andromeda Galaxy and Milky Way are the largest, most massive galaxies in the “Local Group.” Oddly, M31 seems to contain less mass than the Milky Way, even though its disk is more than double the diameter of the Milky Way’s. Because it lies only 2.5 million light years away, M31 is an extremely well-studied spiral galaxy, giving us a detailed, external perspective of a galaxy similar to our own. However, much remains to be learned.

## Revealing How Stars Form

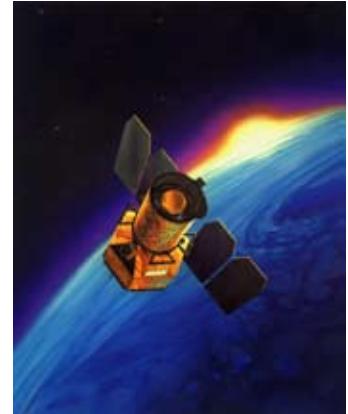
GALEX Space Telescope images of the Andromeda Galaxy in the ultraviolet (UV) portion of the spectrum have provided new insight into the star formation process ultimately driving galaxy evolution. UV imaging traces primarily emission from the atmospheres of hot stars, most of which were formed in the past few hundred million years. The GALEX data vividly reveal the global pattern of “recent” star formation within M31, enhancing the contrast of these features by excluding the light originating from ordinary, cooler stars.

Though large-scale spiral arms dominate the GALEX image of the Andromeda Galaxy, it is the fine resolution and sensitivity of the UV data that make it especially scientifically valuable. GALEX resolves small associations of young, massive stars (and even luminous individual stars) over the entire

extent of M31’s disk, making it possible for astronomers to begin to understand the local physical conditions that promote or inhibit star formation. UV imaging is particularly well suited for studying regions with infrequent (but ongoing) star formation, such as the outermost part of the galactic disk.

## A Different View of the Universe

The Galaxy Evolution Explorer was launched on April 28, 2003. Its mission is to study the shape, brightness, size and distance of galaxies across 10 billion years of cosmic history. The Explorer's



50-centimeter-diameter (19.7-inch) telescope sweeps the skies in search of ultraviolet-light sources.

Caltech leads the Galaxy Evolution Explorer mission and is responsible for science operations and data analysis. NASA's Jet Propulsion Laboratory, Pasadena, California, manages the mission and built the science instrument. The mission was developed under NASA's Explorers Program managed by the Goddard Space Flight Center, Greenbelt, Maryland. South Korea and France are the international partners in the mission.

For more GALEX images and information, visit <http://www.galex.caltech.edu>.