

Image: Where stars are born

December 23 2010



Image Credit: NASA, ESA, and The Hubble Heritage Team (STScI/AURA);
Acknowledgment: J. Gallagher (University of Wisconsin), M. Mountain (STScI),
and P. Puxley (National Science Foundation)

(PhysOrg.com) -- This mosaic image is the sharpest wide-angle view ever obtained of the starburst galaxy, Messier 82 (M82). The galaxy is remarkable for its bright blue disk, webs of shredded clouds and fiery-looking plumes of glowing hydrogen blasting out of its central regions.

Throughout the galaxy's center, young stars are being born 10 times faster than they are inside our entire [Milky Way](#) Galaxy, which results in

a huge concentration of young stars carved into the gas and dust at the galaxy's center. The fierce galactic superwind generated from these stars compresses enough gas to make millions of more stars.

In M82, [young stars](#) are crammed into tiny but massive star clusters. These, in turn, congregate by the dozens to make the bright patches, or starburst clumps, in the central parts of M82. The clusters in the clumps can only be distinguished in the sharp Hubble images. Most of the pale, white objects sprinkled around the body of M82 that look like fuzzy stars are actually individual star clusters about 20 light-years across and contain up to a million stars.

The rapid rate of [star formation](#) in this galaxy eventually will be self-limiting. When star formation becomes too vigorous, it will consume or destroy the material needed to make more stars. The starburst then will subside, probably in a few tens of millions of years.

The observation was made in March 2006, with Hubble's Advanced Camera for Surveys' Wide Field Channel. Astronomers assembled this six-image composite mosaic by combining exposures taken with four colored filters that capture starlight from visible and infrared wavelengths, as well as the light from the glowing hydrogen filaments.

Provided by JPL/NASA

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