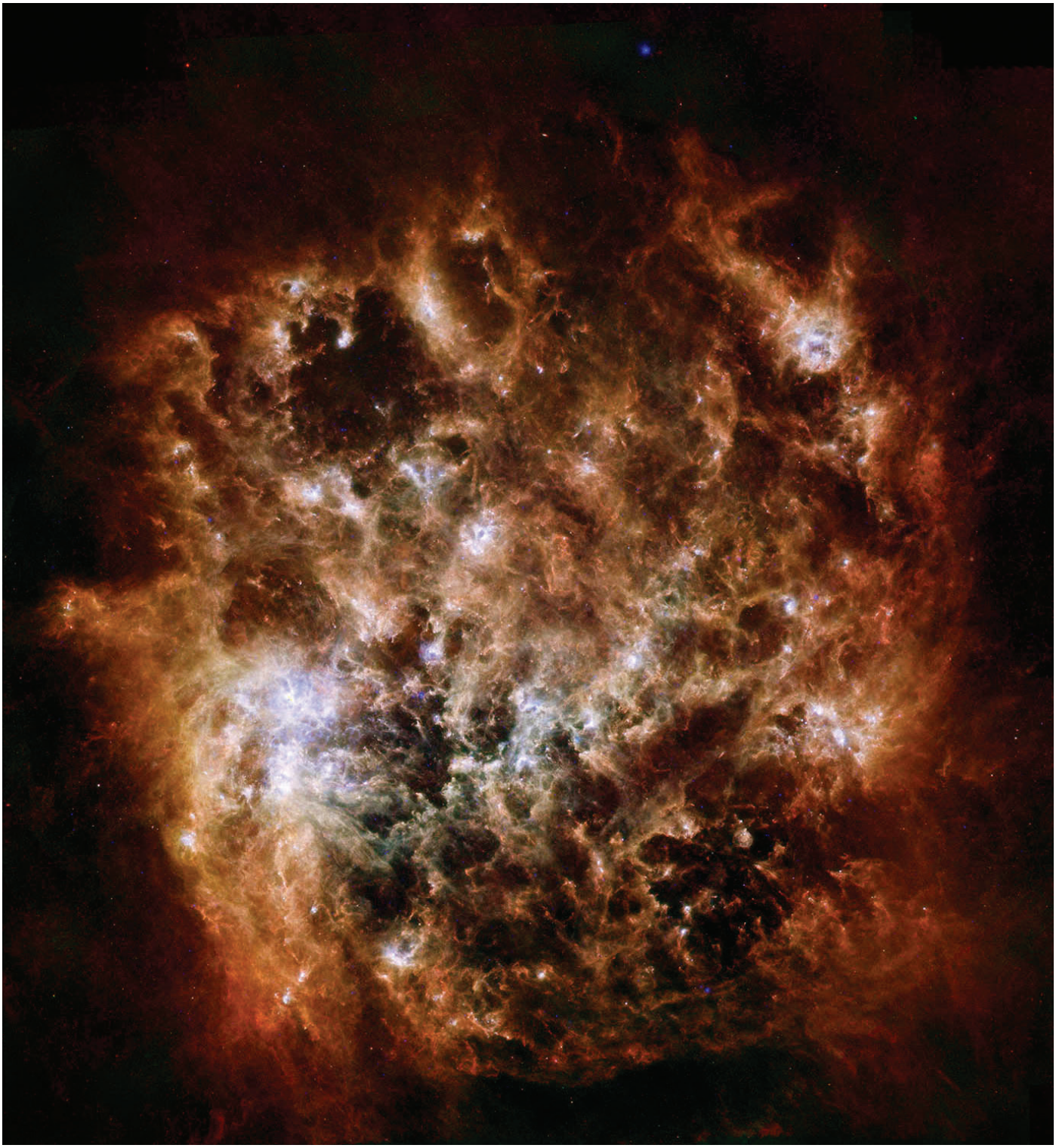
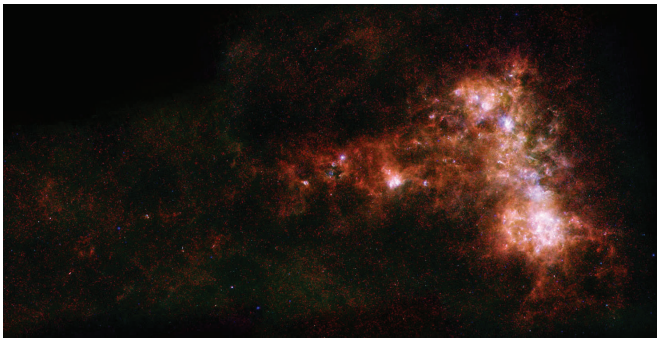


The Large Magellanic Cloud, One of Our Busy Galactic Neighbors

Our Busy Galactic Neighbors

The cold dust that builds blazing stars is revealed in this image that combines infrared observations from the European Space Agency's Herschel Space Observatory and NASA's Spitzer Space Telescope. The image maps the dust in the galaxy known as the Large Magellanic Cloud, which, with the Small Magellanic Cloud, are the two closest sizable neighbors to our own Milky Way Galaxy.

The Large Magellanic Cloud looks like a fiery, circular explosion in the combined Herschel–Spitzer infrared data. Ribbons of dust ripple through the galaxy, with significant fields of star formation noticeable in the center, center-left and top right. The brightest center-left region is called 30 Doradus, or the Tarantula Nebula, for its appearance in visible light.

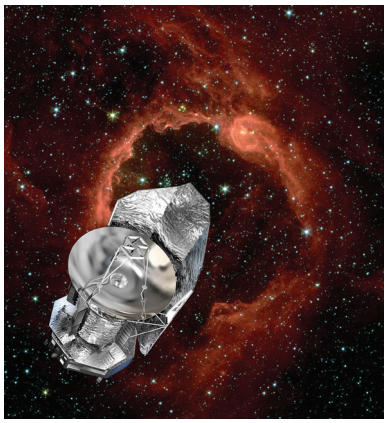


The Small Magellanic Cloud (above) has a much less regular shape. A stream of dust extends to the left in this image, known as the galaxy's "wing," and a bar of star formation appears on the right.

The colors in these images indicate temperatures in the dust that permeate the Magellanic Clouds. Colder regions show where star formation is at its earliest stages or is shut off, while warm expanses point to new stars heating dust surrounding them. The coolest areas and objects appear in red, corresponding to infrared light taken up by Herschel's Spectral and Photometric Imaging Receiver at 250 microns, or millionths of a meter. Herschel's Photodetector Array Camera and Spectrometer fills out the mid-temperature bands, shown in green, at 100 and 160 microns. The warmest spots appear in blue, courtesy of 24- and 70-micron data from Spitzer.

Studying these galaxies offers us the best opportunity to learn about star formation outside of the Milky Way. Star formation affects the evolution of galaxies, so the story of these stars may answer questions about galactic life cycles.

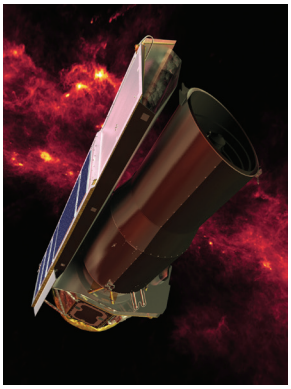
The Large and Small Magellanic Clouds are the Milky Way's two biggest satellite galaxies, though they are still considered dwarf galaxies compared with our big spiral galaxy. Dwarf galaxies also contain fewer metals or elements heavier than hydrogen and helium. Such an environment is thought to slow the growth of stars. Star formation in the universe peaked around 10 billion years ago, even though galaxies contained lesser abundances of metallic dust. Previously, astronomers only had a general sense of the rate of star formation in the Magellanic Clouds, but the new images enable them to study the process in more detail.



Herschel is a European Space Agency cornerstone mission, with science instruments provided by consortia of European institutes and with important participation by NASA. NASA's Herschel Project Office is based at NASA's Jet Propulsion Laboratory, Pasadena, Calif. JPL contributed mission-enabling technology for two of Herschel's three science instruments. The NASA Herschel Science Center, part of the Infrared Processing and Analysis Center at the California Institute of Technology in Pasadena, supports the United States' astronomical community.

Find out more about the Herschel Space Observatory and its images at the following websites:

http://www.herschel.caltech.edu
http://sci.esa.int/herschel



JPL manages the Spitzer Space Telescope mission for NASA's Science Mission Directorate, Washington. Science operations are conducted at the Spitzer Science Center at Caltech. Caltech manages JPL for NASA.

See more Spitzer images at

http://www.spitzer.caltech.edu

National Aeronautics and Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

LG-2013-01-012-JPL — JPL 400-1523 01/13