



Supernova Remnant N 49

These delicate filaments are actually sheets of debris from a stellar explosion in the Large Magellanic Cloud, a nearby companion galaxy to the Milky Way. Denoted N 49, or DEM L 190, this cosmic remnant came from a massive star that died in a supernova blast whose light would have first reached Earth thousands of years ago.

This nebula also harbors a very powerful spinning neutron star that may be the central remnant from the initial blast. It is common for the core of an exploded supernova star to become a spinning neutron star after it sheds its outer layers. Some neutron stars are also pulsars that give off regular pulses of energy as they rotate. In the case of N 49, not only is the neutron star spinning once every eight seconds, it also has a super-strong magnetic field a thousand trillion times stronger than Earth's magnetic field. This places the star into the exclusive class of objects called "magnetars."

On March 5, 1979, this neutron star released a large burst of gamma rays that was detected by various Earth-orbiting satellites. Gamma rays have a million or more times the energy of visible light photons. Since then, the neutron star has had several additional episodes of gamma-ray emission and is now classified as a "soft gamma-ray repeater."

Hubble Space Telescope – Wide Field Planetary Camera 2
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