

## News & Comments

# A Stunning Perspective of our Four Galactic Neighbours, in Images

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An incredible NASA photo it once took shows stars and cosmic dust swirling about in beautiful patterns in our neighbouring galaxy.

In four galaxies nearest to our Milky Way, NASA and the ESA have collected images of dust filling the spaces between stars. In addition to being stunning, the snapshots also offer insight into how dramatically dust clouds can vary within a galaxy. The snapped images include Large and Small Magellanic Clouds, dwarf galaxies orbiting our own; the Andromeda galaxy, a large spiral galaxy at a distance of 2.5 million light-years; and the Triangulum galaxy, a spiral galaxy 2.73 million light-years away.

Galaxies can't exist without dust and gas. A star forms when a dense knot of material collapses under gravity, absorbing material from its surroundings. With its new, heavier elements fused during its lifetime, the star ejects its outer material back into space when it dies.

The problem is a lack of uniform distribution of dust. Interstellar dust can be sculpted and pushed into complex shapes by stellar winds, galactic winds, and gravity. To understand the formation of... well... pretty much anything, one must map the structures and the elements within them.

The images also shed light on how interstellar dust interacts, according to the researchers. Oxygen, carbon, and iron are heavy elements and are often bound to dust grains in clouds with a high dust-to-gas ratio. Dust can absorb and re-emit light differently as a result of this.

The new images were obtained between 2009 and 2013 by the Herschel Space Observatory operated by the European Space Agency. Herschel was the largest infrared telescope ever launched until the launch of Webb, which has yet to deliver its first science images.

### KEYWORDS

Galaxies, Milky Way, stars, Magellanic Clouds, dwarf galaxies, Andromeda galaxy, spiral galaxy, Triangulum Galaxy, Stellar winds, galactic winds, Herschel Space Observatory, European Space Agency, infrared telescope; Herschel images, astronomy, astrophysics

