

Herschel's daring test: A glimpse of things to come

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Red, green and blue correspond to the 160-micron, 100-micron and 70-micron wavelength bands of the Herschel's Photoconductor Array Camera and Spectrometer, PACS. Glowing light from clouds of dust and gas around and between the stars is visible clearly. These clouds are a reservoir of raw material for ongoing star formation in this galaxy. Blue indicates regions of warm dust that is heated by young stars, while the colder dust shows up in red. Credit: ESA and the PACS Consortium

Herschel opened its 'eyes' on 14 June and the Photoconductor Array Camera and Spectrometer obtained images of M51, 'the whirlpool galaxy' for a first test observation. Scientists obtained images in three colours from the observation, which clearly demonstrate the superiority

of Herschel, the largest infrared space telescope ever flown.

This image shows the famous 'whirlpool galaxy', first observed by Charles Messier in 1773, who provided the designation Messier 51 (M51). This [spiral galaxy](#) lies relatively nearby, about 35 million light-years away, in the constellation Canes Venatici. M51 was the first galaxy discovered to harbour a spiral structure.

The image is a composite of three observations taken at 70, 100 and 160 microns, taken by Herschel's Photoconductor Array Camera and [Spectrometer](#) (PACS) on 14 and 15 June, immediately after the satellite's cryocover was opened on 14 June.

Herschel, launched only a month ago, is still being commissioned and the first images from its instruments were planned to arrive only in a few weeks. But engineers and scientists were challenged to try to plan and execute daring test observations as part of a 'sneak preview' immediately after the cryocover was opened. The objective was to produce a very early image that gives a glimpse of things to come.

The obvious advantage of the larger size of the telescope is clearly reflected in the much higher resolution of the images: Herschel reveals structures that cannot be discerned in a Spitzer image of M51.

These images clearly demonstrate that the shorter the [wavelength](#), the sharper the image — this is a very important message about the quality of Herschel's optics, since PACS observes at Herschel's shortest wavelengths.

Produced from the very first test observation, these images lead scientists to conclude that the optical performance of Herschel and its large telescope is so far meeting their high expectations.

Source: [European Space Agency](#) (news : web)

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