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Cometary dust at the sub-micrometre scale: Dust particle catalogue and statistics from the MIDAS Rosetta instrument

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The Micro-Imaging Dust Analysis System (MIDAS) instrument, on-board the Rosetta comet orbiter, was an atomic force microscope developed to investigate the morphology of nearly unaltered cometary dust, giving unprecedented insight into the history of our early solar system and the history of comets. MIDAS measured the 3D topography of approximately 1-50 micrometre sized dust particles, with resolutions down to a few nanometres.

We present a new catalogue of all dust particles collected by MIDAS, allowing us, for the first time, to investigate the statistical characteristics of cometary dust collected by MIDAS. The catalogue is an extremely useful tool for identifying and investigating cometary dust, allowing quick access to a variety of particle properties and statistics, and will be made available in the ESA Planetary Science Archive. Preliminary particle statistics and properties are presented here.