Automated determination of dust particles trajectories in the coma of comet 67P

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Abstract

During more than two years Rosetta spent at comet 67P, it took thousands of images that contain individual dust particles. To arrive at a statistics of the dust properties, automatic image analysis is required. We present a new methodology for fast-dust identification using a star mask reference system for matching a set of images automatically.

The main goal is to derive particle size distributions and to determine if traces of the size distribution of primordial pebbles are still present in today’s cometary dust [1].

Methodology

- We are applying our knowledge acquired in Earth Observation missions to Rosetta in the determination of dust particle trajectories. In particular, we found ‘inspiration’ in other dust research methodologies practices in different comets and meteors [4].

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- The automated pipeline will allow to process any kind of Osiris dust image saving a considerable amount of time. It will be applied as well in some limb determination studies.

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References


