

CONTROL ID: 2568131

TITLE: Mapping of thermal properties of comet 67P/C-G and temporal variations

ABSTRACT BODY:

Abstract (2,250 Maximum Characters): The long-term evolution of the surfaces of comets depends mainly on the erosion rate that is driven by the thermal properties of the regolith and the sub-surface material. Following the diurnal and the seasonal thermal cycles, dust and gas are released progressively, increasing the erosion process. The amount of dust released depends on the surface and subsurface temperatures and thus on thermal inertia and bulk composition.

The ESA's Rosetta spacecraft has followed the comet 67P/Churyumov-Gerasimenko over several months from 4 AU to 1.28 AU heliocentric distance, and the VIRTIS/Rosetta imaging infrared spectrometer was capable of detecting the thermal emission of the surface longward of 3 microns.

The surface temperature was mapped over a large fraction of the nucleus and was previously used to derive thermal inertia of the main geomorphological units.

In this presentation, we now focus on two different aspects: (1) We aim to present a complete detailed map of the thermal inertia by combining measurements of similar areas obtained at different viewing angles ; and (2) we track the evolution of the local thermal properties derived over months when the comet was moving towards perihelion. We then discuss and compare our results with the textural features observed at the surface.

CURRENT * CATEGORY: Comet Physical Characteristics: Surfaces

CURRENT : None

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