



Photometric correction for VIRTIS-M data of comet 67P/CG

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VIRTIS, the Visible Infrared Thermal Imaging Spectrometer onboard the Rosetta orbiter [1], has acquired so far millions of spectra of the comet 67P/Churyumov-Gerasimenko [2]. The instrument is composed of two subsystems: a high-resolution channel (VIRTIS-H) which is a punctual spectrometer (2.0-5.0 μm) and the mapper (VIRTIS-M) able to produce hyper-spectral images of the target (0.25-5.1 μm). The huge amount of data produced by VIRTIS has been acquired under different observation and illumination conditions. This induces photometric effects on the measured signal that need to be quantified and removed, in order to characterize the intrinsic spectral variability of the surface. To achieve this task we computed a photometric correction from VIRTIS-M data (Ciarniello et al, 2015), starting from August 2014, when the nucleus was largely resolved (MTP006-MT007 observation sequences) by means of a simplified Hapke model [3]. The global surface single particle phase function (SPPF) and the single scattering albedo (SSA) are determined as well as the effect of sub-pixel roughness is discussed. Comparisons with photometric properties of other comets are shown.

This work is supported by the Italian Space Agency (ASI). We acknowledge funding from French and German space agency.

References

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- 2- Capaccioni et al., Science, in Press, 2015
- 3- Hapke, Theory of reflectance and emittance spectroscopy. Cambridge University Press, 2012