



Influence the various parameters of dust in the coma of the Comet 67P/Churyumov-Gerasimenko on radiance spectra

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The work we present deals with the spectrometric measurements of the VIRTIS instrument part of the payload of the Rosetta mission to the Comet 67P/Churyumov-Gerasimenko (C-G).

The dust is an important constituent of cometary environment and is always present on the surface of the nucleus and in the inner coma. The cometary spectra are strongly affected by the processes taking place in the coma and by the structure, composition and the spatial distribution of cometary materials. The particles of the dust, illuminated by solar light, scatter, absorb and emit radiation. The reflected and emitted radiation are transmitted through the coma region before being collected by instruments such as VIRTIS. The reflection, absorption, scattering, and emission processes depend on the Comet-Sun geometry and on the thermal state of the nucleus.

In the present paper which is the continuation of our previous works (e.g. AGU fall meeting 2011- abstract) we are mainly concentrated on the influence of optical parameters of dust on spectra we expect from the VIRTIS measurements.

The main purposes of the paper are:

- 1) short description of numerical calculations done by means of a radiation transfer model
- 2) discussion of possible cometary dust materials with various size distributions and optical parameters (e.g. phase functions, extinction, asymmetry factors) and their influence on the signal to be measured by the VIRTIS spectrometer
- 3) Demonstration of simulated spectra