



# From observations and measurements to realistic modelling of cometary nuclei

By Jean B Vincent

Uni - Edition Gmbh Mai 2010, 2010. Taschenbuch. Book Condition: Neu. 211x152x10 mm. Neuware - Studying the surface of a comet is challenging as the nucleus is either too far to be resolved in details, or it is close enough but its own activity hides all the features we would like to investigate. One of the topic of interest is the localization of active regions on the surface. Although this can be done from a spacecraft, the jets of gas and dust represent a hazard for any probe passing at close distance from the nucleus and any hint on the local activity should be taken into consideration to constrain the approach. This thesis discusses observations, analysis, and simulations of dust coma structures: patterns embedded in the coma and considered as signatures of active dust emitting regions at the surface of the nucleus. We present a scientific software package that allows to determine a realistic physical model of cometary nuclei from ground or space based observations. Our model includes a flexible 3D representation of the nucleus and a physical description of the dust acceleration processes its neighborhood. Several results are presented here, among them a full analysis of the coma structures...



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