



Geomorphological Mapping on the Southern Hemisphere of Comet 67P/Churyumov-Gerasimenko

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Since its rendezvous with comet 67P/Churyumov-Gerasimenko on the sixth of August, 2014, the Rosetta spacecraft has carried out close-up observations of the nucleus and coma of this Jupiter family comet. The OSIRIS, the Scientific Imaging Camera System onboard the Rosetta spacecraft, which consists of a narrow-angle and wide-angle camera (NAC and WAC), has made detailed investigations of the physical properties and surface morphology of the comet. From May 2015, the southern hemisphere of the comet became visible and the adaptal resolution was high enough for us to do a detailed analysis of the surface. Previous work shows that the fine particle deposits are the most extensive geomorphological unit in the northern hemisphere. On the contrary, southern hemisphere is dominated by rocky-like stratified terrain. The southern hemisphere of the nucleus surface reveals quite different morphologies from the northern hemisphere. This could be linked to the different insolation condition between northern and southern hemisphere. As a result, surface geological processes could operate with a diverse intensity on the different sides of the comet nucleus. In this work, we provide the geomorphological maps of the southern hemisphere with linear features and geological units identified. The geomorphological maps described in this study allow us to understand the processes and the origin of the comet.