

Rosetta Mission : Flight Dynamics Aspects of the Philae Delivery

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The European mission Rosetta has reached its target comet 67P/Churyumov-Gerasimenko in August 2014. Both its nucleus and coma have been studied allowing the selection of a landing site for Philae, the lander provided by an international consortium with major contributions from DLR, CNES and ASI. Philae was separated from the Rosetta main spacecraft on November 12, 2014 and touched the comet surface after seven hours of descent. Due to the double failure of the hold-on thrust and of the anchoring system the lander bounced off the comet surface and came at rest only 2 hours after initial touchdown. Despite this complicated landing, Philae was operational for almost 64 hours after separation and provided unique information from the surface of the comet. The presentation will address the flight dynamics studies and operations conducted to achieve this first-ever soft landing on a comet.