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On 12 November 2014, ESA's Rosetta mission soft-landed its Philae probe on comet 67P/Churyumov-Gerasimenko, the first time in history that such an extraordinary feat has been achieved. During the next phase of the mission, Rosetta will accompany the comet through perihelion (August 2015) until the nominal end of the mission. On its 10 year journey towards comet 67P/Churyumov-Gerasimenko, the spacecraft has passed by two asteroids: 2867 Steins (in 2008) and 21 Lutetia (in 2010). The spacecraft entered deep-space hibernation mode in June 2011, and 'woke up' on 20 January 2014.

Rosetta's deployment of Philae to land on Comet 67P/Churyumov-Gerasimenko.

The animation begins with Philae still on Rosetta, which will come to within about 22.5 km of the centre of the nucleus to release the lander on 12 November 2014.

The animation then shows Philae being ejected by Rosetta and deploying its own three legs, and follows the lander's descent until it reaches the target site on the comet about seven hours later. The animation is speeded up, but the comet rotation is true: in the time it takes for Philae to descend, the nucleus has rotated by more than 180° (the comet's rotation period is 12.4 hours).

The final steps of Philae's descent towards the comet are shown as seen by a hypothetical observer close to the landing site on the comet.

Finally, the animation shows Philae landing on the comet. Because of the comet's extremely low gravity, landing gear will absorb the small forces of landing while ice screws in the probe's feet and a harpoon system will lock the probe to the surface. At the same time a thruster on top of the lander will push it down to counteract the impulse of the harpoon imparted in the opposite direction. Once it is anchored to the comet, the lander will begin its primary science mission, based on its 64-hour initial battery lifetime. The animation shows a number of the science instruments in action on the surface.

Acknowledgement: The background image of the sequence showing Philae closing in on the landing site was taken by Rosetta's OSIRIS narrow-angle camera (ESA/Rosetta/MPS for OSIRIS Team MPS/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA) on 14 September 2014 from a distance of about 30 km.

(Fonte: ESA - <http://www.esa.int/ESA>)