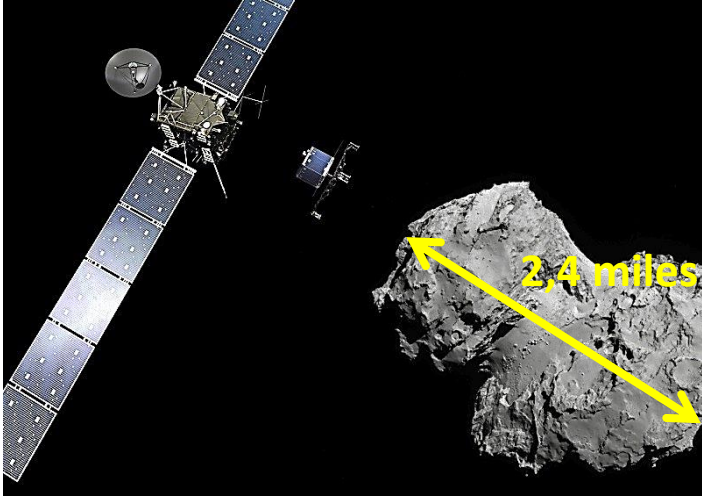
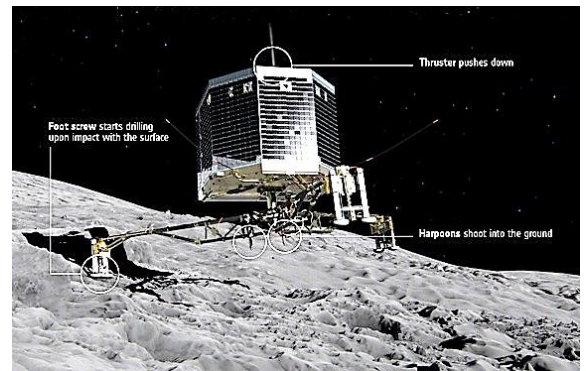


Sujet 3 Rosetta's comet Chury encounter



Doc.2: Rosetta orbiting comet Chury

Doc. 1: watch video1 "comet rendezvous"



Doc.3: Rosetta's Philae probe lands on comet

12 November 2014. ESA's Rosetta mission has soft-landed its Philae probe on a comet, the first time in history that such an extraordinary feat has been achieved. After a tense wait during the seven-hour descent to the surface of comet Churyumov–Gerasimenko (nickname Chury), the signal confirming the successful touchdown arrived on Earth at 16:03 GMT. The purpose of this mission is to answer the very big questions about the history of our Solar System: what were the conditions like at its infancy and how did it evolve? What role did comets play in this evolution?

Rosetta's spacecraft was launched on 2 March 2004 from Kourou (spaceport in french Guiana) and travelled 6.4 billion kilometres through the Solar System before arriving on 6 August 2014 to be put into orbit around Chury. The landing site of Rosetta's lander, Philae, was chosen just six weeks after arrival, based on images and data collected at distances of 30–100 km from the comet. Those first images revealed the comet as a world littered with boulders, towering cliffs and daunting precipices, with jets of gas and dust streaming from the surface. Touchdown was planned to take place at a speed of around 1 m/s, with the three-legged landing gear absorbing the impact to prevent rebound, and an ice screw in each foot driving into the surface.

In spite of bad Sun's illumination and dust covering its solar panels, Philae analysed the composition of the comet's surface materials by drilling samples from a depth of 23 cm and feed them to an onboard spectrophotometer for analysis. In addition, radio signals were beamed between Philae and the orbiter through the nucleus to probe the internal structure.

QUESTIONS :

- 1) Present and comment on this document.
- 2) Why is the touchdown of Philae considered like a feat? What was the purpose of this mission?
- 3) Why is Chury a "world of towering cliffs, with jets of gas and dust streaming from the surface"?
- 4) Watch [video2](#) and explain why Rosetta's mission can help to learn more about our solar system and life on Earth?