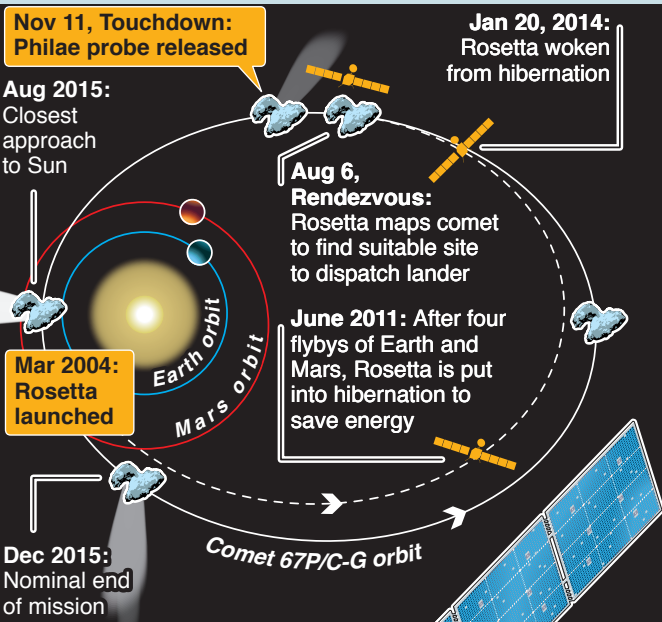


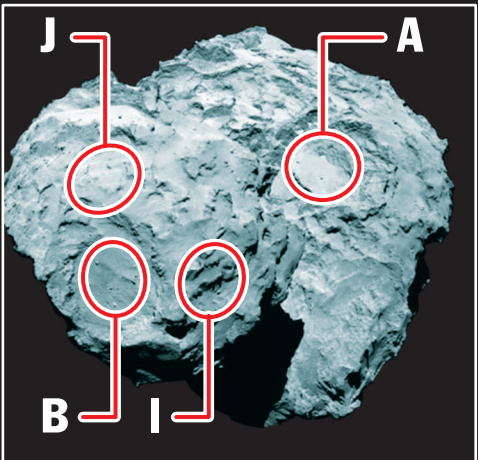
Rosetta mission – comet landing site to be unveiled

The European Space Agency will reveal on September 15 which of five possible sites it has chosen for the touchdown of the *Rosetta* spacecraft's *Philae* lander on 67P/Churyumov-Gerasimenko. The first-ever landing by a spacecraft on a comet is due to take place on November 11



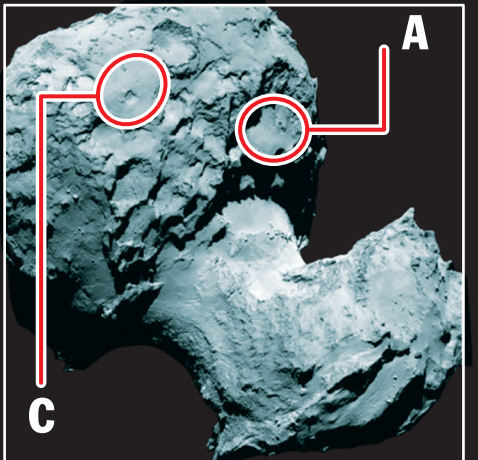
Rosetta orbiter

Instruments measure structure of nucleus, dust and plasma tails. Others for visible, ultraviolet and infra-red imaging



Potential sites

If one considers comet to look like rubber duck, three sites (B, I and J) are on head; two are on body (A and C)



Landing site requirements

- Must be relatively flat and free from boulders and fissures
- Needs right amount of sunlight – enough to recharge lander's batteries but not so much as to cause overheating
- Must offer greatest potential, such as proximity to one of jets of gas and dust that blast out of comet's surface

67P/Churyumov-Gerasimenko

Named after *Klim Churyumov* and *Svetlana Gerasimenko*, who discovered it in 1969

Ice core is around 4km (2.5 miles) wide

Takes 6.5 years to orbit Sun

How to land on a comet

1 Ejection: Once Orbiter is aligned correctly, at around 10km above comet's surface, ground station will command fridge-sized lander to self-eject from mother ship and unfold legs

2 Descent: Philae will "fall" at about 1m per second – due to comet's weak gravitational pull. Descent, expected to take 8-12 hours, can not be controlled from Earth due to immense distance

3 Touchdown: Two harpoons prevent craft bouncing back into space

Philae lander

Experiments: X-ray spectrometer measures elemental composition of comet's surface; radiowaves probe internal structure of nucleus; six micro-cameras take panoramic pictures

Gas analysers identify complex organic molecules and isotopic ratios of light elements

