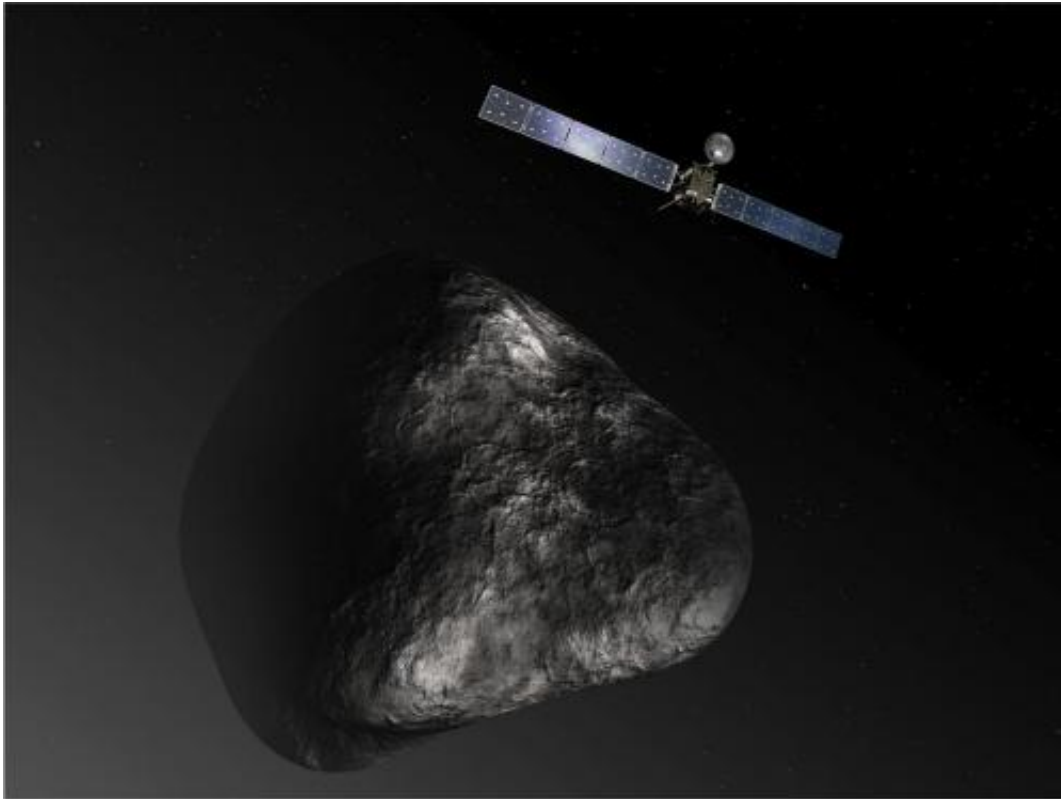


The wake-up call that sent hearts racing

October 1 2014



This artist's impression shows the Rosetta orbiter at comet 67P/Churyumov-Gerasimenko. The image is not to scale. Credit: ESA/ATG Medialab

"But as the minutes ticked by, the relaxed attitude of many of us began to dissolve into apprehension. Our levels of adrenaline and worry began to rise."

"The room went silent, interspersed with only an occasional murmur, all

faces fixed on a noisy, fuzzy line on our computer screens."

For some of the 300 scientists and engineers gathered around the computer screens, decades of hard work had culminated in this one moment – the comet-chasing Rosetta [spacecraft](#), floating in space over 8 million km away from Earth, was about to wake up from a 957-day period in which it had been in "hibernation".

The mood in the European Space Agency (ESA) control room, as described by Rosetta project scientist Matt Taylor in this month's issue of *Physics World*, soon switched from trepidation to jubilation as a clear spike on the computer screen indicated that Rosetta had come to life.

"We were back in business," he writes.

This thrilling moment signalled the end of the long period in which the Rosetta spacecraft had been surviving in "hibernation mode" to preserve energy as it travelled further away from the Sun, which acts as its power supply.

Since this critical moment on 20 January 2014, the Rosetta spacecraft has rendezvoused with the comet that it is chasing – Comet 67P/Churyumov–Gerasimenko – and officials last month selected the site that the piggybacked Philae robot will land on once dispatched from the spacecraft. Touchdown is set to take place on 12 November.

But this "audacious and exciting" mission is no ordinary space project. Most exploration missions start with observations of the destination from Earth, followed by the deployment of a craft to observe it from space and then, only afterwards, is a landing craft considered. The Rosetta mission will instead condense two space missions into one.

It is hoped that Comet 67P – a mixture of dust, rock and frozen gases

that spans 4.5 km in length – will help to unlock the mysteries of how our solar system formed some 4.5 billion years ago and how it developed into what we see today.

As Taylor describes in the article, the spacecraft and accompanying lander will deploy specific instruments to probe the surface of the comet, its physical and chemical make-up, as well as its interaction with the Sun.

The stakes are high, which made events in the ESA [control room](#) on 20 January even more gruelling. Yet for Taylor, the deployment of the Philae lander on the 12 November this year will be even more dramatic.

"Compared with the wake up, the landing will be even more nerve-wracking – it will not be a gut-wrenching few minutes, but a torturous few hours," he writes.

Provided by Institute of Physics

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