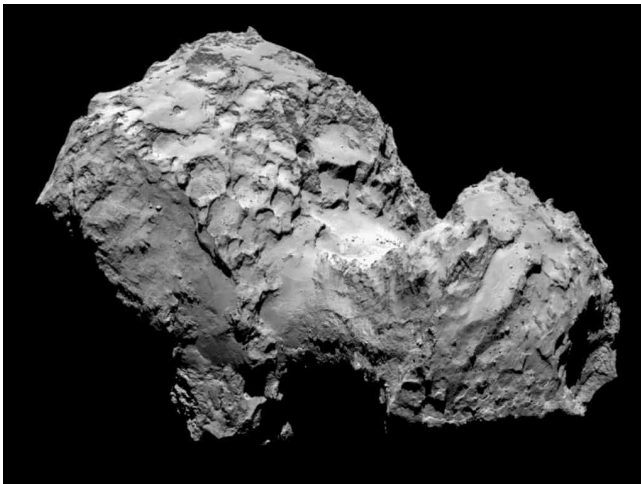
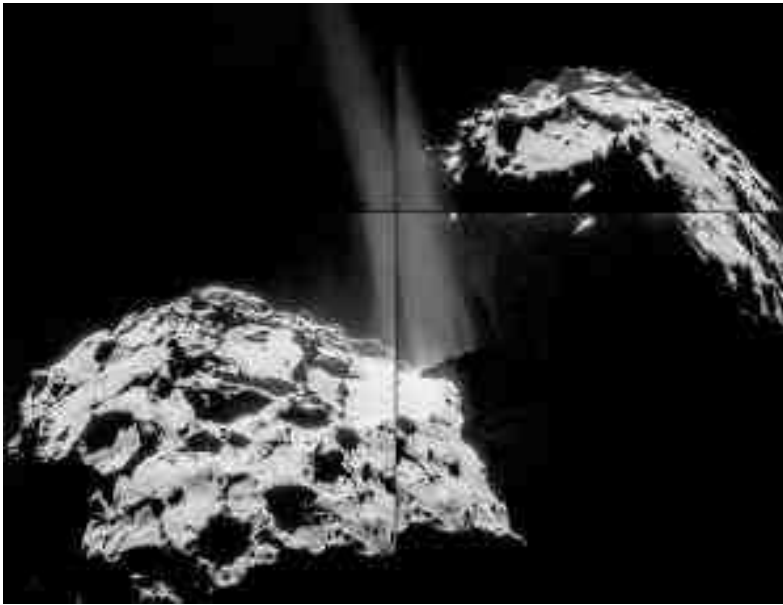


Comet stinks of rotten eggs and cat wee, finds Rosetta

14:00 24 October 2014 by [Jacob Aron](#)

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What does a comet smell like? Pretty awful, as it turns out. Data from the European Space Agency's [Rosetta probe](#) has revealed that eau de comet 67P/Churyumov-Gerasimenko is a mixture of rotten eggs, cat urine and bitter almonds.

This bad smell is actually good news. The molecules behind the odours – hydrogen sulphide, ammonia and hydrogen cyanide – are mixed up with frozen water and carbon dioxide, so Rosetta's spectrometers

weren't expected to detect such a variety until the comet approached the sun and warmed up. Formaldehyde, methanol and sulphur dioxide are also in the mix.

"It's really fabulous. You wait 10 years and all of a sudden it's there," says Kathrin Altwegg of the University of Bern in Switzerland, who is in charge of Rosetta's electronic nose, otherwise known as the Rosetta Orbiter Spectrometer for Ion and Neutral Analysis (ROSINA). "What's surprising is we already have extremely rich chemistry at this distance from the sun."

When the icy comet heats up further, ROSINA will be able to detect more complex molecules. Altwegg will compare the comet's molecular make-up to that of other known ice balls in an attempt to determine whether they have a common origin.

Comets are the leftover building blocks from the earlier days of the solar system, and one of the aims for Rosetta is to identify whether they [are all made from the same stuff](#) 🚀. If some comets differ, that could explain the origin of molecules required to start life on Earth.

As for that smell, the molecules are in very low concentrations so a human standing on 67P probably wouldn't notice the odour, says Altwegg. "You would probably need a good dog to smell it."