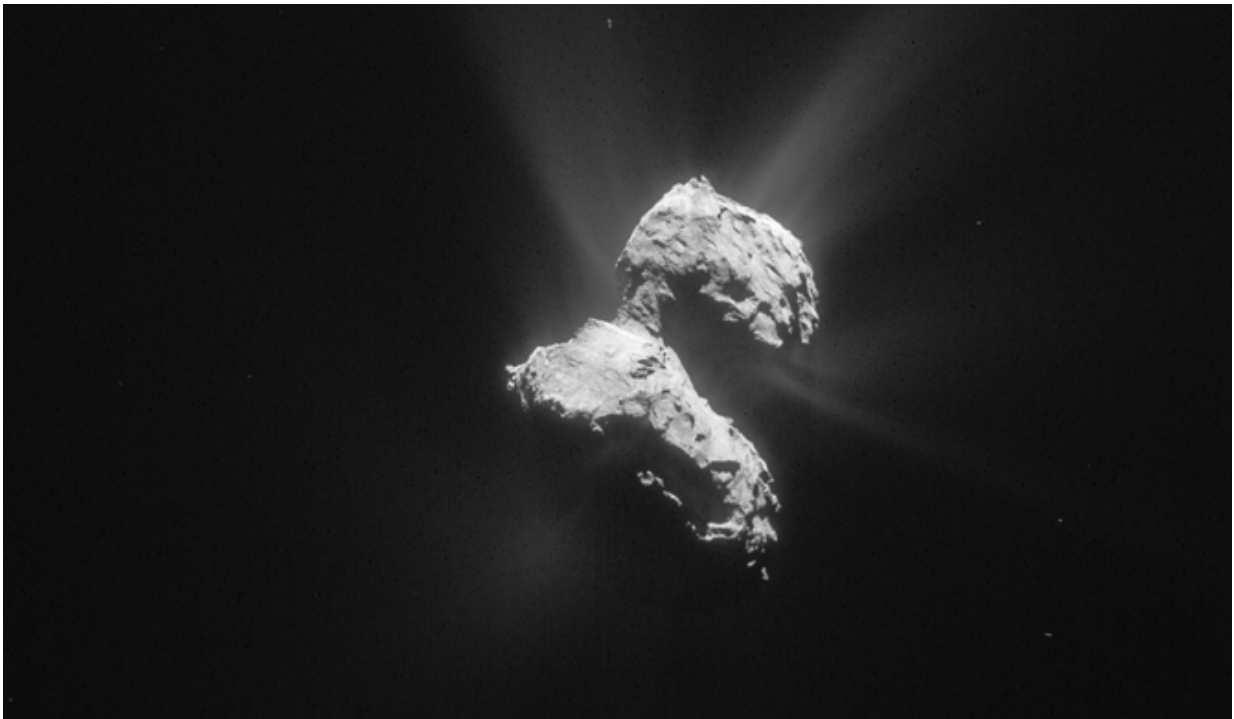


# There's no evidence to suggest there is life on Comet 67P

July 8 2015, by Monica Grady

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No green little men as far as the eye can see. Credit: ESA/Rosetta/NavCam , CC BY-NC-SA

As far as underwhelming headlines go: "No Alien Life Found on Comet" must rank very close to the top. [An article with this title](#) appeared in the Guardian on July 6 in [response to a story](#) claiming that there could be life on comet [67P/Churyumov-Gerasimenko](#).

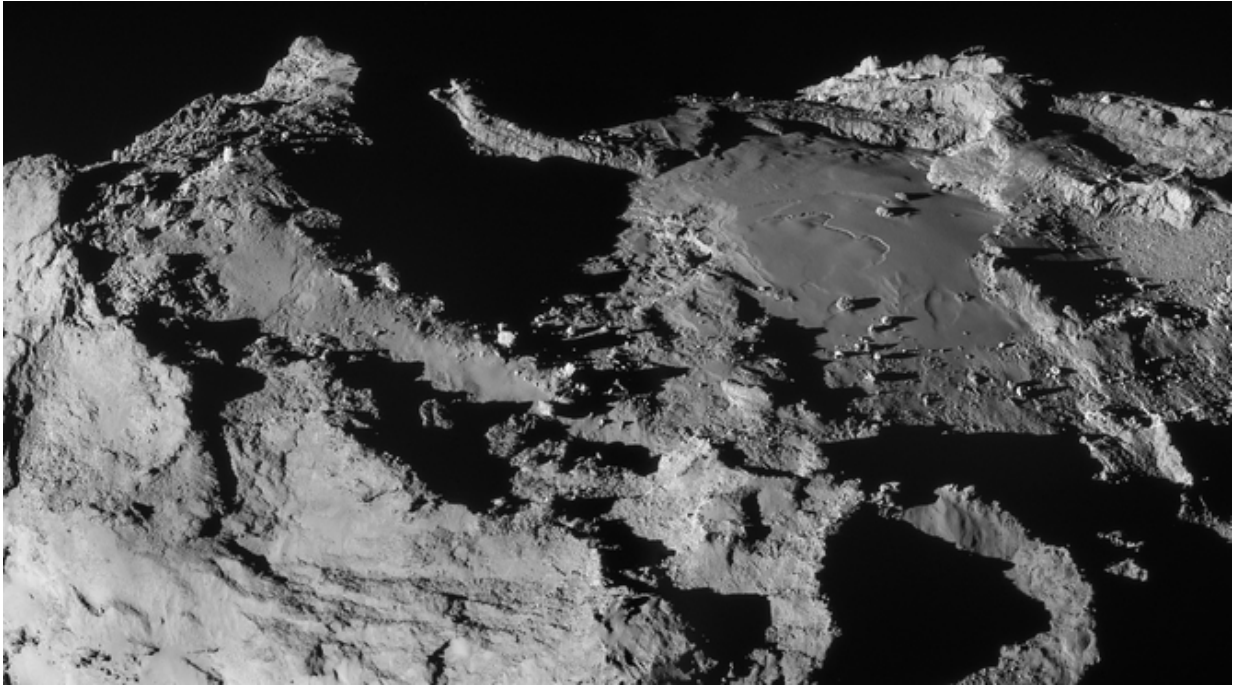
But there simply isn't enough evidence behind this theory. The chance that [life](#) could flourish on a freezing body with no sunlight or oxygen is in fact vanishingly small.

The claims were made at the National Astronomy Meeting in Llandudno, Wales, as well as in a [press release](#) ahead of the conference. I was asked to comment on the [press release](#), and remarked that I found the claim 'highly unlikely' Nevertheless, the story got picked up by the media and naturally created a storm on social media.

Of course, there has been enormous interest in reports about the [comet](#), which is the target of the [European Space Agency's Rosetta mission](#), before. Other discoveries about the comet have been published in peer-reviewed journals and many [amazing images](#) of the comet's surface have been reproduced on websites and in newspapers across the globe.

But in all this coverage, there has until now not been one sniff of a hint of a rumour that the comet, currently speeding towards the Sun (and coming closer to Earth), might be bearing [alien life](#).

## **Shaky ground**



Alien life in the eye of the beholder? Credit: ESA/Rosetta/NAVCAM, CC BY-SA

So what is the story behind the headline? It comes from interpretation of images of features on 67P's surface in terms of production by microbial organisms. In fact, the press release was entitled: "Do micro-organisms explain features on comets", a question which, in my opinion, leads to the succinct answer "No".

The authors, astrobiologists [Max Wallis](#) from the University of Cardiff and [Chandra Wickramasinghe](#) from the University of Buckingham, propose that the environment of the comet might be suitable for microbes to survive.

They argue that some micro-organisms on Earth can survive temperatures as low as  $-40^{\circ}\text{C}$  (although most studies suggest [that  \$-20^{\circ}\text{C}\$](#)

[is the limit](#)). And the comet's temperature should have heated up to around that now that it is closer to the Sun, meaning micro-organisms could be active. In particular, they argue that the presence of water ice and organic compounds on the surface of the comet – along with cracks and fissures which bacteria could colonise – are all signs that life could be present.

Indeed, it is not completely impossible. The lack of light and no atmosphere does not necessarily mean that living organisms can't exist on a comet. Abundant fauna thrive in the dark of Earth's deep ocean floor. Similarly, bacteria and other micro-organisms can survive at low temperatures – and have been preserved and [found to be viable following freezing](#).

But one of my greatest problems with this argument is that there are many non-biological mechanisms which can produce [organic compounds](#) : organic molecules, which are precursors for life, are not necessarily biotic (created by living organisms). Also, photosynthesis is out, as there is no light. What chemical reactions are taking place that might drive an ecosystem? I am not certain that there is one.

Leaving all that aside and accepting that microbes might survive on the comet in some form of hibernation, one very significant question remains. Where have they come from? That is one of the main issues I have with the authors' [version of Panspermia](#), which states that life came to Earth via bodies from outer space.

The origin of life on Earth is not fully understood, but we are making great strides towards recognising the mechanisms that make up each stage. Placing those mechanisms in an unknown environment and suggesting that life on Earth was seeded by microbes on comets solves nothing. It merely moves the problem further away, making it even harder to study.

Is it a slow summer? Are we already fatigued by the heatwave which lasted a couple of days? I suppose if there is nothing else to worry about, then we can ponder the chances of finding alien life beyond the Earth. Now, what's that Curiosity Rover up to on Mars?

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