

ROSETTA MISSION: OU's Ptolemy finds organic compounds on comet

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Scientists at The Open University (OU) have published their first findings from Ptolemy, their gas analysis instrument on the Rosetta spacecraft's lander Philae which landed on a comet last November. Analysis of the comet's dust particles collected by Ptolemy has revealed the presence of organic compounds – key elements in the formation of life on Earth.

Ptolemy sprang into action when Philae bounced off Comet 67P/Churyumov-Gerasimenko last November. The lander kicked up a dust cloud which enabled Ptolemy – the gas analysis instrument on board, to sniff the particles on the surface. Ptolemy detected compounds containing carbon, hydrogen and oxygen – all of which are key elements in the formation of water and simple sugars. The compounds detected are not biogenic in nature and therefore do not indicate signs of life. According to Ian Wright, OU Professor of Planetary Sciences and Principal Investigator on Ptolemy, the compounds found are elements that "will have gone into the mix that led to the formation of the life on Earth".

Not only has Ptolemy's first analysis given scientists insight into what comets are made of, it has also revealed more about what chemical reactions occur on the surface. Ptolemy investigator Dr Andrew Morse said: "We now know more about the surface of comet 67P that we ever did before. Findings such as the fact that its surface is soft and dusty, but beneath that is hard layer of ice, will play an important part to inform plans for future comet landings and space exploration."

Last month Philae tweeted back to Earth that it was alive and well after its solar-powered batteries ran down due to lack of sunlight. Now that the lander is awake scientists at the OU, and across Europe, are hoping that it will be able to continue capturing data about the comet and transmitting it back to Earth. Professor Wright added: "We're incredibly excited by these findings. As this was the first ever attempt to land on a comet to do science, we had very limited knowledge about what to expect. Ptolemy, like all of the instruments on board, was designed to be as flexible as possible to adapt to the hostile environment in space. The fact that it has managed to capture this data and transmit it back to us despite such a tumultuous landing is incredible."

The paper 'CHO-bearing organic compounds at the surface of 67P/Churyumov-Gerasimenko revealed by Ptolemy' was published in Science magazine. It was authored by the OU Ptolemy team which consists of Dan Andrews, Simeon Barber, Geraint Morgan, Andrew Morse and Simon Sheridan, and is led by Professor Ian Wright.

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Notes to editor

To read the full paper 'CHO-bearing organic compounds at the surface of 67P/Churyumov-Gerasimenko revealed by Ptolemy' please visit the Science magazine's website - <http://www.sciencemag.org/content/349/6247/aab0673.abstract>

Further information on Space Science research at the OU - <http://www.open.ac.uk/research/main/our-research/space>

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