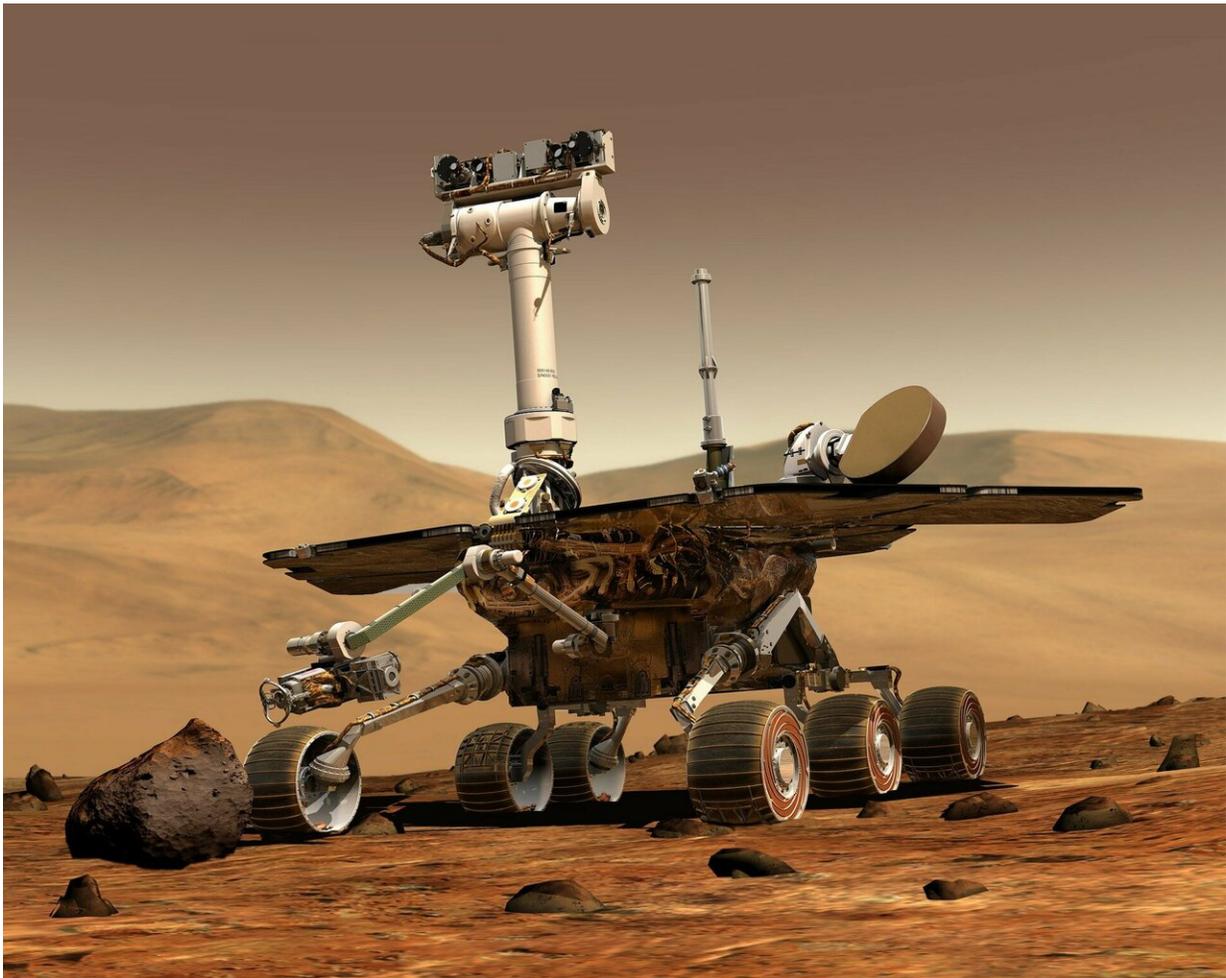


Bringing Martian rocks back to Earth crucial for science, say researchers

March 28 2019, by Katie Willis



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Samples need to be collected from Mars' surface and returned to Earth for examination to answer our most pressing questions about the red planet, according to a group of international scientists.

A new publication with more than 70 authors from around the globe provides a blueprint and recommendations for answering the big unknowns about Mars, including important details for future exploration and understanding Mars' origin.

"We can only understand Mars to a certain point using [remote sensing](#), such as rovers and orbiters," said Chris Herd, a U of A geologist who studies meteorites and a lead collaborator on the paper. "To answer the big questions, we need to collect and return rock samples to Earth."

The recommendations are meant to provide guidance for the scientists involved in the NASA Mars 2020 mission, which will use a rover to collect and cache samples following its landing on the surface of Mars in spring 2021. Following this, the plan is for the samples to be fetched and returned to Earth, although funding for this step is not yet secure.

Context is critical

"Mars 2020 will let us choose where to collect samples and will allow us to get context for the rocks that are collected—their location, surrounding features and more," explained Herd, who is also curator of the University of Alberta Meteorite Collection.

"Returning samples from Mars with that context is the holy grail of Mars exploration. That's the reason why it's so important to bring these samples back."

The U of A is home to more than 1,800 specimens of more than 275 meteorites.

Herd, an internationally recognized expert in Martian meteorites, was lead author on two key sections of the paper, providing valuable insight into the current state of knowledge and the key scientific questions to be asked and answered about Mars.

The paper, "The Potential Science and Engineering Value of Samples Delivered to Earth by Mars Sample Return," was published in *Meteoritics & Planetary Science*.

More information: undefined undefined et al. The potential science and engineering value of samples delivered to Earth by Mars sample return, *Meteoritics & Planetary Science* (2019). [DOI: 10.1111/maps.13232](https://doi.org/10.1111/maps.13232)

Provided by University of Alberta

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