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TITLE: **A comparative study of the physical properties of mud volcano sediments in Trinidad as an analogue to the geology of Mars**

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One of the ways in which the multidisciplinary field of astrobiology explores the possibility of life existing elsewhere in the universe is by examining the origin and evolution of life on Earth. This can be done by understanding the variety of conditions under which life may exist and searching for evidence of life on habitable extraterrestrial bodies. Since researchers are currently restricted from actually visiting interstellar locations by time, distance and technology, they use extreme environments on Earth as analogues to the harsh locations that life in outer space can be subjected to. There is evidence of Mars having volcanoes on its surface and methane in its atmosphere; as such, Trinidadian mud volcanoes were studied as they bubble methane gas from the interior.

In this project, sediments from three mud volcanoes in Trinidad – Devil's Woodyard, Piparo and Digity – were sampled and analyzed using X-ray diffractometry, electron microscopy and microfossil paleontology. The samples were found to have similar clay-like properties and structures containing kaolinite, illite and quartz, although the estimated ages of the rocks from which the sediments were derived ranged between 5.3 and 33.4 million years.