

Mars Rover device gets new mission on Earth

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Mars Rover at the Udvar-Hazy Center of the National Air and Space Museum in Chantilly, Va. Credit: Wikipedia Commons

Developed to sniff out extraterrestrial life on other planets, a portable device known as the Mars Organic Analyzer (MOA) is taking on a new role in detecting air pollutants on Earth. Researchers in California report the development of a modified MOA able to detect polycyclic aromatic hydrocarbons (PAHs), potentially carcinogenic molecules from cigarette smoke and wood smoke, volcanic ash, and other sources. The report appeared in the Jan. 15 issue of ACS' semi-monthly journal *Analytical Chemistry*.

In the report, Richard A. Mathies and colleagues indicate that current earthbound PAH detection focuses on the cleanup of environmental contamination sites. On other planets, the concentration of organic PAH molecules can provide valuable insight into environmental conditions

and the potential for extraterrestrial life. But existing PAH detection methods are slow and costly. Scientists thus are seeking an inexpensive, rapid and nondestructive technique for the measurement of PAH contamination.

The researchers tested samples from Lake Erie and a hydrothermal vent from the Gulf of California, as well as a Martian analogue sample from the Mars-like Atacama Desert, one of the driest spots on earth. They found that the detection sensitivity of the device was on par with current laboratory methods. “The method of PAH analysis developed here significantly advances the MOA’s capabilities for organic carbon detection and may also prove useful for environmental monitoring,” says Mathies.

Article: "Polycyclic Aromatic Hydrocarbon Analysis with the Mars Organic Analyzer Microchip Capillary Electrophoresis System",
Analytical Chemistry

Provided by ACS

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