
Power

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(Music)

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00:00:04,000 --> 00:00:08,000
Hi, I'm Pan Conrad, deputy principal investigator of the SAM instrument suite

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on Mars Science Laboratory and this is your Curiosity rover update.

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While our robotic explorer has been busy characterizing the surface of Mars,

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the SAM team has also been busy,

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but we've been looking at something invisible, the Martian atmosphere.

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SAM, or Sample Analysis at Mars, is not one instrument, but three, all of which are designed

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to work together to chemically characterize Mars. SAM measures chemical elements and molecules,

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in a mass or size range between 2 and 535 mass units and we do this by looking at gases.

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We can bake solid samples until they give up their volatile components or their gases or we can directly

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inhale the Martian atmosphere (deep breath) through our inlet ports.

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With our QMS, SAM is able to detect the most dominant gas in the Martian atmosphere, carbon dioxide. We've

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not only measured its abundance and the ratio to other gases in the Martian atmosphere but we've also

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measured its isotopic character. The other instruments are a tunable laser spectrometer and a gas

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chromatograph, the latter, being used mostly to look for organic molecules in solids.

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Now, the tunable laser spectrometer has a special role for SAM in that it can very sensitively detect the

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the organic molecule, methane, which has been observed from the Earth telescopically

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and also by the Mars Express orbiter at very, very low limits in the Martian atmosphere.

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We're trying to discover whether or not we can see this molecule from the Martian surface

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and if it has any variation from season to season. In the coming months, wherever Curiosity goes SAM will

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continue to sniff the Martian atmosphere periodically looking for changes on a seasonal

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or even diurnal basis and that will tell us something about the dynamics