

## SAM Sniffs the Martian Atmosphere

Hi, I'm Pan Conrad, deputy principal investigator of the SAM instrument suite on the Mars Science Laboratory and this is your Curiosity rover update.

While our robotic explorer has been busy characterizing the surface of Mars, the **SAM team has also been busy, but we've** been looking at something invisible, the Martian atmosphere.

SAM, or Sample Analysis at Mars, is not one instrument, but three, all of which are designed to work together to chemically characterize Mars. SAM measures chemical elements and molecules in a mass or size range between 2 and 535 mass units and we do this by looking at gases. We can bake solid samples until they give up their volatile components or their gases or we can directly inhale the Martian atmosphere (deep breath), through our inlet ports.

The tunable laser spectrometer has a special role for SAM in that it can very sensitively detect the organic molecule, methane, which has been observed from the Earth telescopically and also by the Mars Express orbiter at very, very low limits in the Martian atmosphere.

**We're trying to discover whether or not we can see this molecule from the Martian surface and if it has any variation from season to season. So we've already begun prospecting for methane and to date we don't have a definitive detection. We'll continue looking during the course of the mission.** In the coming months, wherever Curiosity goes SAM will continue to sniff the Martian atmosphere periodically looking for changes on a seasonal or even diurnal basis and that will tell us something about the dynamics the exchange between the surface and the atmosphere.

This has been your Curiosity rover update. Check back for more