

A search for SO₂ in the martian atmosphere using ASTE observation

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One of the most puzzling aspects of Mars is that organics have not yet been found on the surface. The simplest of organic molecules, methane, was detected in the Martian atmosphere for the first time in 2003 [cf. Krasnopolsky et al., 2004]. The existence and behavior of methane on Mars is of great significance, as methane is a potential biomarker. Possible sources and sinks of methane on Mars have been recently investigated [cf. Atreya et al., 2007]. Volcanic activity has been also suggested as a source of abiogenic methane on Mars, either by magmatic degassing or reactions in hydrothermal fluids heated by a magma intrusion. However, seepage of volcanic gases has not been detected yet [cf. Krasnopolsky, 2005]. Thorough investigation into volcanic activity on Mars is needed to discuss the origin of methane. Here, we preliminary review our current observation relevant to the SO₂, which is the most abundant species in terrestrial volcanic gases, of Mars using Atacama Submillimeter Telescope Experiment (ASTE) on December 2007.