



## **Saltation may be contributory in the depletion of methane on Mars**

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Photos taken of Martian dunes at different times reveal saltation of surface material and sand grains are observed on the Spirit Rover deck. Photos indicate active saltation processes (1).

Laboratory experiments, which simulate the saltation process in a Martian environment, have been performed in this study. The saltation is associated with a faint glow (triboluminescence) (2), which has been analyzed spectroscopically in the visible and near infrared range. The analysis shows that argon (Ar) atoms are ionized. The ionization energy for Ar exceeds that for methane and is higher than the energies for dissociation reactions of methane. This suggests that species such as  $\text{CH}_4^+$ ,  $\text{CH}_3$ ,  $\text{CH}_2$ , and  $\text{CH}$  may be produced in the Martian saltation process. These species are highly reactive and thus could be involved in the depletion of methane.

References:

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