



Wind induced detachment of granular material on the Martian surface

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The aeolian transport of granular material (sand and dust) is one of the most powerful and dynamic processes, which has shaped and is still shaping the Martian surface. Suspended dust also strongly affects solar heating of the atmosphere and therefore the climate. A detailed understanding of the physical processes governing grain transport is lacking. Specifically the abundant transport of dust, but little evidence for sand transport is at odds with current semi-empirical theory.

Using a Mars simulation wind tunnel facility the threshold for wind induced detachment of grains from surfaces has been investigated and a simple theoretical treatment applied based on force balance equations. This work will be used to investigate the suggestion that aggregation of dust into larger (low mass density) grains is responsible for lowering the wind speed threshold at which dust becomes detached and transported on Mars.