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[High Atmospheric Pressure on Sandy Planets Could Make Lander Modules Sink Like a Rock](#)

This element is important for future manned missions to the Moon and Mars

Landing at high enough speeds on sandy planets could sink the landing module deep in the sand layer, just like a rock diving into a pool. This is the conclusion of a new study that considered the problem of sand on other planets and how that could affect future manned missions to the Moon and Mars. Both Mars and the Moon are covered in a layer of fine particles of dust, and while previous studies have been made to see how the dust could affect parts of the equipment, like thrusters and solar panels, this is probably the first to postulate that the landing module could completely sink in dust. NASA spacecraft have encountered Mars dust before. The Viking landers of 1976, for instance, weathered two big dust storms without being damaged, and NASA recently ordered a study on the effects of dust on the Phoenix Mars Lander, the next robotic probe scheduled to land on Mars, concerned that gusting winds and sand blown off by the exhaust plumes from the Phoenix spacecraft's landing engines could adversely affect it. A new experiment, performed by Detlef Lohse and fellow physicists at the University of Twente in the Netherlands, found that a steel ball hitting loose, fine sand, throws a plume that engulfs the ball completely. Should a space module be approaching a dusty planet having a dense atmosphere at too much speed, the same thing could happen to it. The plume height actually varies with the depth of the rock's penetration into the dust because the plume is caused by the sudden collapse of the cavity formed by the rock's impact. The higher the pressure the more likely the sand to act like a liquid and engulf the probe. For now, the space missions are safe, since Mars has an atmospheric pressure only about 1% of that of the Earth, but it must definitely be taken into account for future missions.