

Test of the MarsSedEx Settling Tube Photometer during the 2nd Swiss Parabolic Flight Campaign

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Gravity affects flow hydraulics and thus limits the application of simple models for sediment transport developed for Earth on Mars. The significance of the differences in sediment settling has been demonstrated for sand-sized particles by measuring settling velocities using video-imaging during parabolic flights. This approach does not work for finer particles because they cannot be distinguished individually on a video. Tracking of fine sediment clouds is also difficult using videos because changes in density are not captured. Photometers, on the other hand, are able to capture differences in turbidity and offer the potential to measure the settling behaviour of clouds of fine and differently-sized sediment particles. In this study, the feasibility of using a settling-tube photometer used for the rapid assessment of settling velocities developed by the University of Basel during a parabolic flight with reduced gravity is presented. In addition, the potential of the results generated in this Martian-analogue environment to support the identification sediments containing traces of life on Mars is discussed.