

Supplemental Information: Failures in Sand in Reduced Gravity Environments

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DIC Parameters

In this work, the following DIC parameters were used.

- Image Resolution: ~ 8 pixels/mm
- Average subset size: ~ 57 pixels
- Step size: 7 pixels
- Strain smoothing filter size: 15 pixels

Movie S1.

Zero gravity run 1 normal video.

Movie S2.

Zero gravity run 1 max shear strain video.

Movie S3.

Zero gravity run 1 volumetric strain video.

Movie S4.

Zero gravity run 2 normal video.

Movie S5.

Zero gravity run 2 max shear strain video.

Movie S6.

Zero gravity run 2 volumetric strain video.

Movie S7.

Zero gravity run 3 normal video.

Movie S8.

Zero gravity run 3 max shear strain video.

Movie S9.

Zero gravity run 3 volumetric strain video.

Movie S10.

Zero gravity run 4 normal video.

Movie S11.

Zero gravity run 4 max shear strain video.

Movie S12.

Zero gravity run 4 volumetric strain video.

Movie S13.

Earth gravity run 1 normal video.

Movie S14.

Earth gravity run 1 density (kg/m^3) video.

Movie S15.

Earth gravity run 1 max shear strain video.

Movie S16.

Earth gravity run 1 volumetric strain video.

Movie S17.

Earth gravity run 2 normal video.

Movie S18.

Earth gravity run 2 density (kg/m^3) video.

Movie S19.

Earth gravity run 2 max shear strain video.

Movie S20.

Earth gravity run 2 volumetric strain video.

Movie S21.

Earth gravity run 3 normal video.

Movie S22.

Earth gravity run 3 density (kg/m^3) video.

Movie S23.

Earth gravity run 3 max shear strain video.

Movie S24.

Earth gravity run 3 volumetric strain video.

Movie S25.

Earth gravity run 4 normal video.

Movie S26.

Earth gravity run 4 density (kg/m^3) video.

Movie S27.

Earth gravity run 4 max shear strain video.

Movie S28.

Earth gravity run 4 volumetric strain video.

Movie S29.

Earth gravity run 5 normal video.

Movie S30.

Earth gravity run 5 density (kg/m^3) video.

Movie S31.

Earth gravity run 5 max shear strain video.

Movie S32.

Earth gravity run 5 volumetric strain video.

Movie S33.

Mars gravity run 1 normal video.

Movie S34.

Mars gravity run 1 density (kg/m^3) video.

Movie S35.

Mars gravity run 1 max shear strain video.

Movie S36.

Mars gravity run 1 volumetric strain video.

Movie S37.

Mars gravity run 2 normal video.

Movie S38.

Mars gravity run 2 density (kg/m^3) video.

Movie S39.

Mars gravity run 2 max shear strain video.

Movie S40.

Mars gravity run 2 volumetric strain video.

Movie S41.

Mars gravity run 3 normal video.

Movie S42.

Mars gravity run 3 density (kg/m^3) video.

Movie S43.

Mars gravity run 3 max shear strain video.

Movie S44.

Mars gravity run 3 volumetric strain video.

Movie S45.

Lunar gravity run 1 normal video.

Movie S46.

Lunar gravity run 1 density (kg/m^3) video.

Movie S47.

Lunar gravity run 1 max shear strain video.

Movie S48.

Lunar gravity run 1 volumetric strain video.

Movie S49.

Lunar gravity run 2 normal video.

Movie S50.

Lunar gravity run 2 density (kg/m^3) video.

Movie S51.

Lunar gravity run 2 max shear strain video.

Movie S52.

Lunar gravity run 2 volumetric strain video.