

Abstract Submitted
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Enhanced Flow of Granular Material GEORGE MCMURDY,
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— We study a peculiar, anomalous weakening in wet sand brought about by the addition of small amounts of fine silt. The effect has been observed in uncontrolled field experiments, which we reproduce in the lab. Samples consist of sand from a local state park with a broad grain-size distribution between 300-600 microns, to which we add controlled amounts of silt, with a size distribution between 25-75 microns. Moisture contents range from 0-15% (by mass); we find our samples unable to hold much more than 15%. Samples are formed into free-standing cylinders and loaded from above until collapse. Mass fraction of silt varies from 0-20%, spanning the range observed in coastal sands. Results are compared with dynamic deflection moduli found in the field, and possible mechanisms are discussed.

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