

# Saltation Encyclopedia Article

## Saltation

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# Saltation

Saltation is the transportation of **sand** grains in small jumps by **wind** or flowing **water**. The term does not refer to salt, but is derived from the Latin *saltare*, to dance.

Certain conditions are necessary for saltation. First, a bed of sand grains must be covered by flowing air or water, as in a streambed or windy **desert**. Second, this flow must be turbulent. In turbulent flow, a fluid swirls and mixes chaotically—and virtually all natural flows of water and air are turbulent. Third, some of the eddies in the turbulence must be strong enough to lift individual sand grains from the bottom. Fourth, the turbulence must not be so strong that grains cannot settle out again once suspended.

An individual saltating grain spends most of its time lying at rest on the bottom. Eventually an eddy happens to apply enough suction to the upper surface of the grain to overcome its weight, lifting it into the current. The grain is carried for a short distance, and then allowed to settle to the bottom again by the ever-shifting turbulence. After a random waiting period, the grain is lifted, carried, and dropped again, always farther downstream.

Grains too small to settle once suspended are carried indefinitely by the current; intermediate-size grains saltate; and grains too large to saltate either remain unmoved or move by sliding or rolling. Turbulent flow thus tends to sort grains by size.

## See Also

Bed or Traction Load; Bedforms (Ripples and Dunes)