When a wind blowing over bed of sand becomes sufficiently strong, grains in the size range of 100-500 microns begin to jump over the surface. This saltation is the primary mode of sand movement at modest wind speeds. It begins when a grain is lifted from the bed by a strong, localized turbulent eddy. The drag of the wind on the grain then accelerates it, and it returns to the bed with increased momentum. Grains impacting the bed rebound and eject other grains that may also be accelerated by the wind until a sufficient number of grains are participating in the process to diminish the wind near the bed and create a steady balance in the exchanges of momentum between the grains and the wind and the grains and the bed.

The talk will concern recent experimental, numerical, and analytical studies that have been carried out in attempts to understand and predict the process of saltation. A continuum theory for saltation will be described and its predictions compared with single-particle numerical simulations and recent experimental measurements.