



Periodic saltation over hydrodynamically rough, erodible beds: Aeolian to Aquatic

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We determine approximate, analytical solutions for average, periodic trajectories of particles accelerated by the turbulent shearing of a fluid between collisions with a hydrodynamically rough, particle bed. The viscosity of the fluid may influence the collisions with the bed. The approximate solutions compare well with periodic solutions that are generated numerically. From the former, we can determine the relations between particle flux and the strength of the shearing flow over a range of particle and fluid properties that vary between those for sand in air and sand in water.