

## • **Transportation media**

### **1- Water**

The most important agents for transporting the weathering products. Sediments moved by water are larger than sediments moved by air (due to density and viscosity differences). This agent may be strong enough to carry coarse material along the base of the bed and finer material in suspension.

### **2- Air: Wind**

The next most important transporting media. Wind can pick up dust and sand and carry it to large distances. The capacity of transported materials by wind is limited by the low density and viscosity of air, therefore, grain sizes of the sediment transported by air are fine sand and smaller.

### **3-Gravity:**

Sediments mixtures move under the direct action of gravity. It occurs generally on a sloping surface, such as hill, cliffs, continental shelf-continental slope boundary.

### **4- Ice: Glaciers and icebergs**

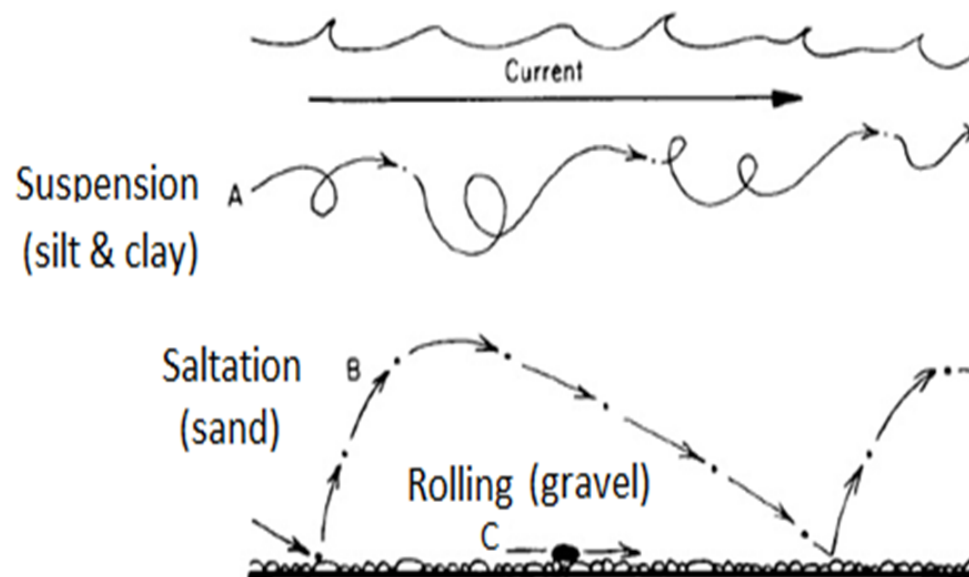
It moves across the land surface very slowly. It is high density and viscosity fluid capable of transporting large amounts of clastic debris. It is significant in polar ice caps and mountainous areas with permanent or semi-permanent glaciers.

- **Transportation effects:**

Reducing of grain size, rounding of grains, sorting of grains, weathering of minerals and mixing of grains from different origins. These effects increase with transport distance.

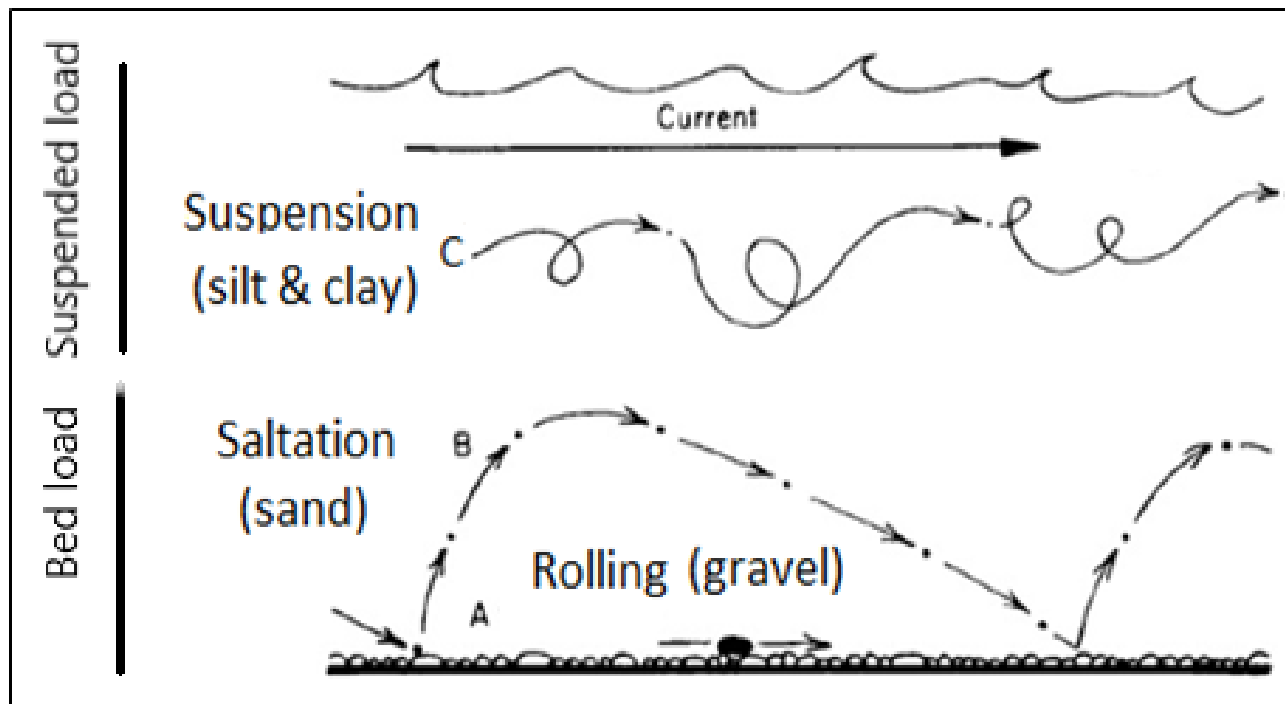
- **Types of grain movement in fluid**

These include **rolling** (heaviest) close to bed, **saltation** (lighter) and **suspension** (lightest). In a situation such as river channel, therefore, gravel will roll along the bottom, sand will saltate, and silt and clay will be carried in suspension.



## ➤ Main type of sediment loads Transport

- 1- Bed Load (traction) transport** consist of coarse sediments such as gravel and coarse sand move on or very close to the bed and generated by bedload transport (traction) from traction currents (mainly by rolling and saltation).
- 2- Suspended Load transport** consist of fine-grained clays and silts carried higher up above the bed. Fine grains (clays) move in continuous suspension derived from river bank or upstream called *wash loads*.
- 3- Dissolve load (in water)** includes the dissolved ions in solution that are transported within the water such as (Ca, Mg, Na, K, Cl, SO<sub>4</sub>.....etc.).



**Types of grain movement and Main type of sediment loads Transport**