

- The rate at which speed increases gradually lessens with increasing distance from the bed as the influence of friction with the bed begins to vanish. Eventually the speed stops increasing and reaches a more or less constant value at the top of the boundary layer.







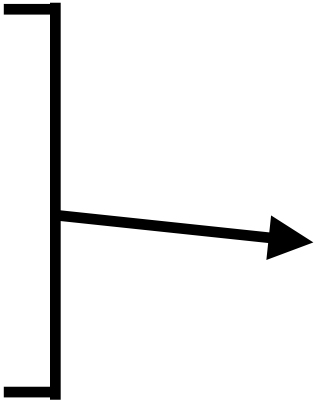














Top of each layer is acted upon by a **shear stress** due to the layer above which is moving faster and tending to drag it along.

as well as a **shear stress** due to the layer below which is moving slower and tending to drag it back.

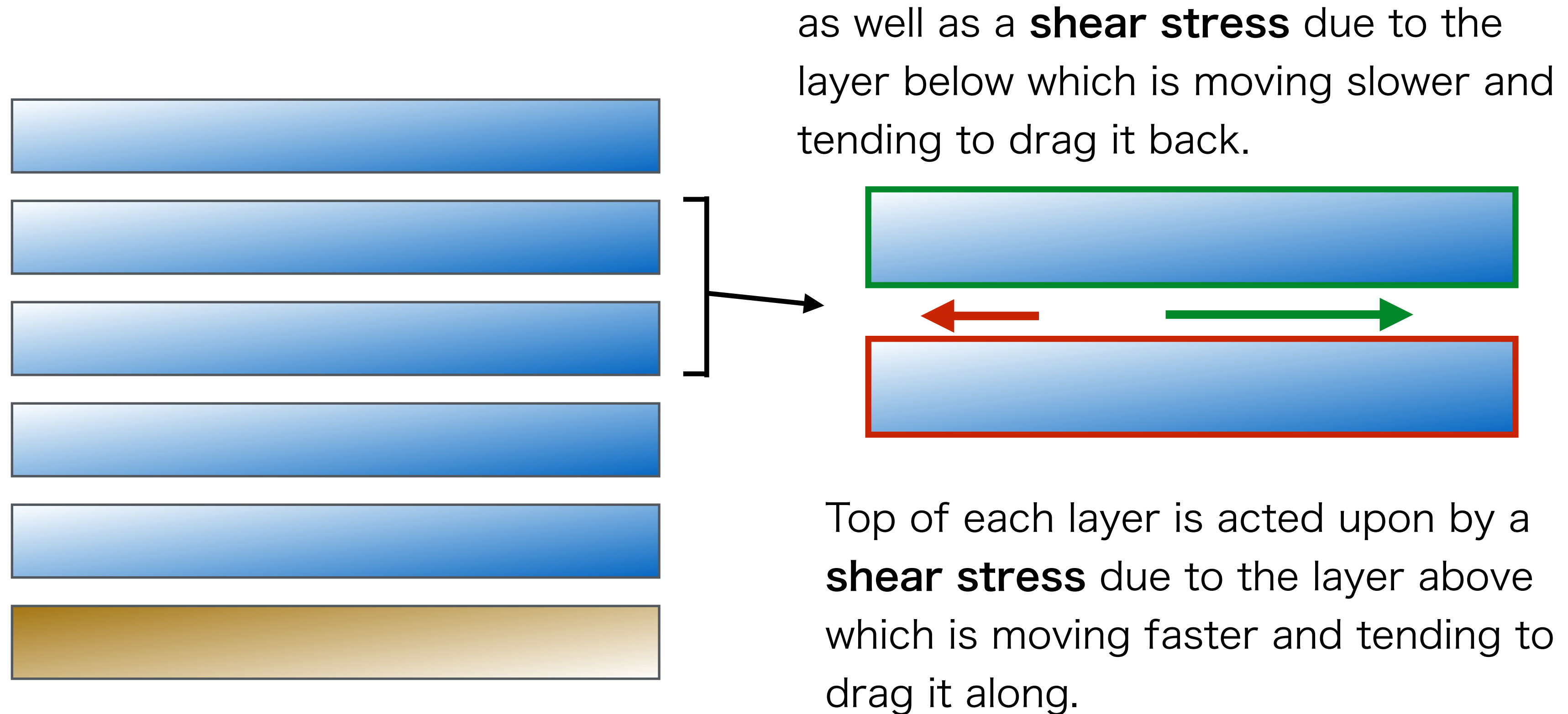


Frictional forces and the boundary layer

School of Geosciences

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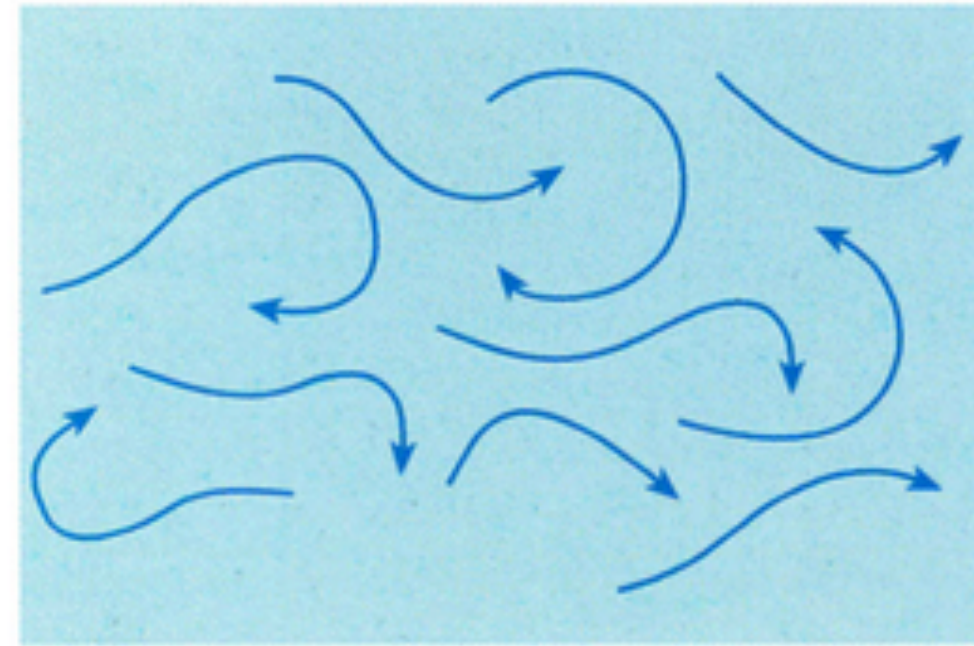


Frictional forces and the boundary layer

- Flow in the boundary layer might be **laminar** or **turbulent**. In the oceans most of the erosion and deposition takes place in the benthic boundary layer



laminar flow



turbulent flow

(complex multi-directional eddies superimposed on the overall flow direction)

Benthic boundary layer: approx. tens of metres thick -> in shallow water it can occupy the whole water column)

