

Better physics for coastal dynamics



School of Geosciences

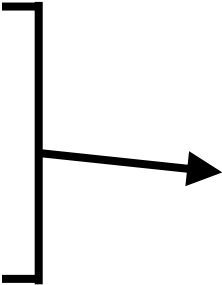
sediment transport

- 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** as the layer above is moving faster and tends to drag it along.

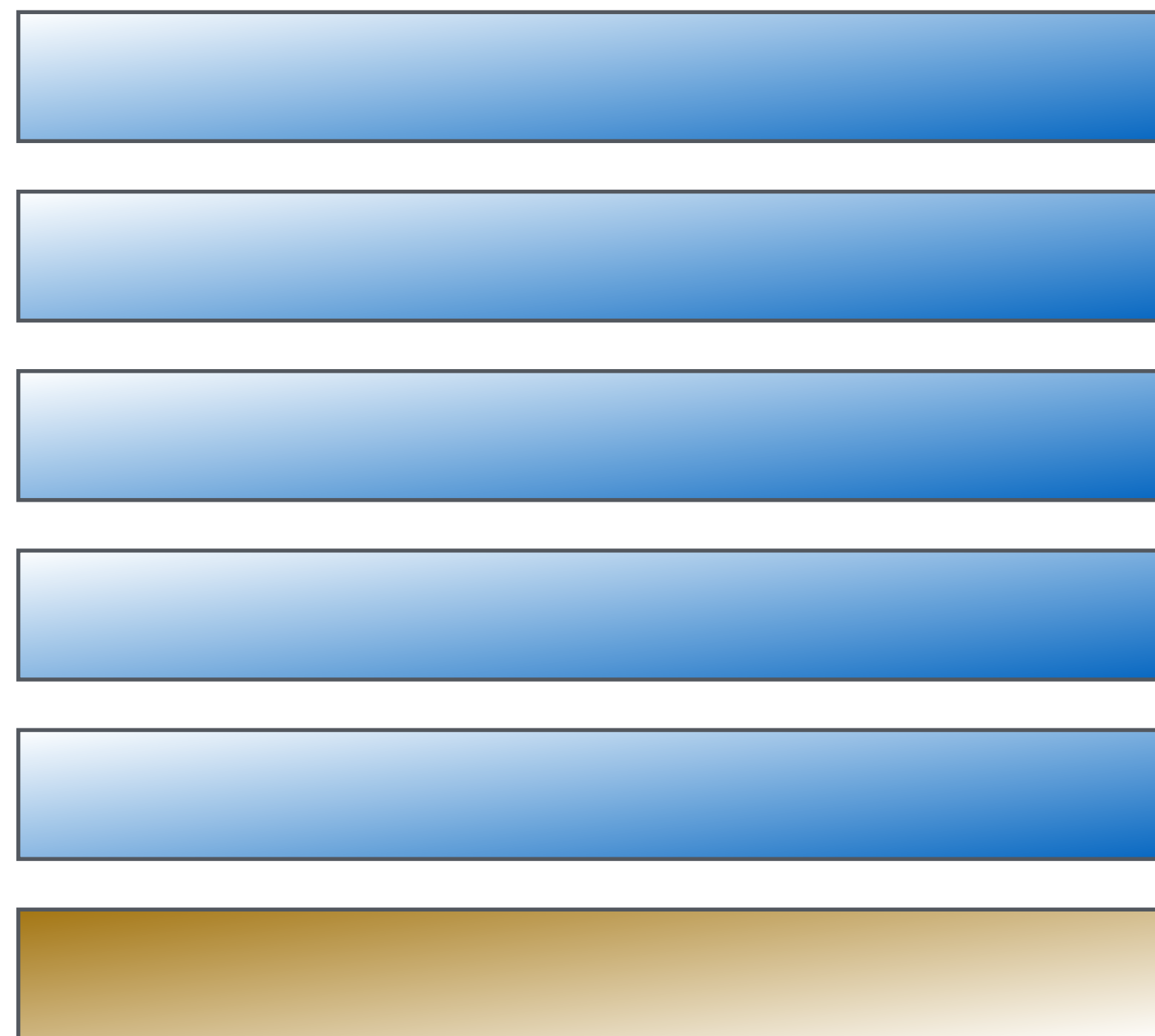
as well as a **shear stress** due to the layer below
which is moving slower and tending to drag it back.



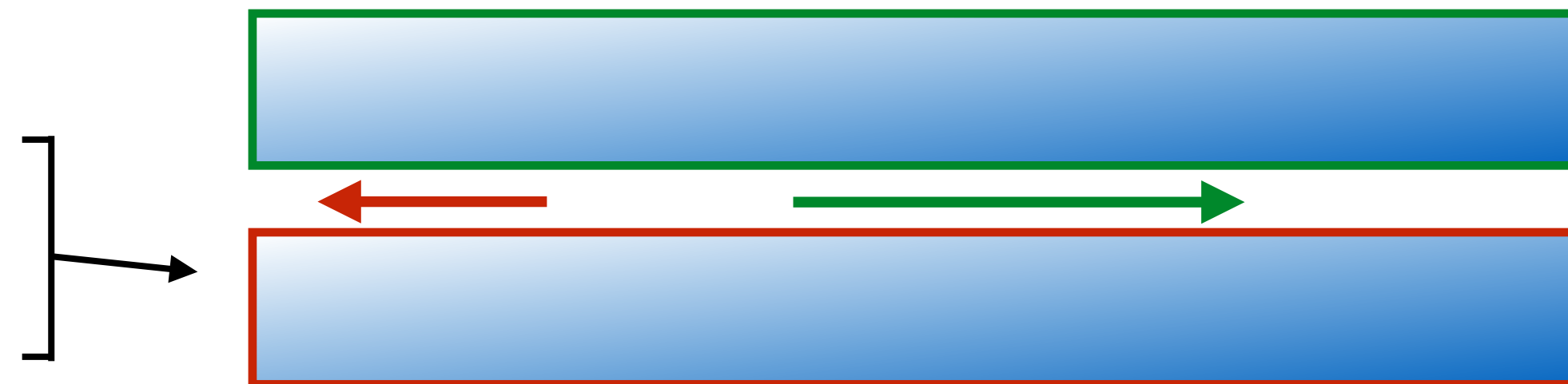
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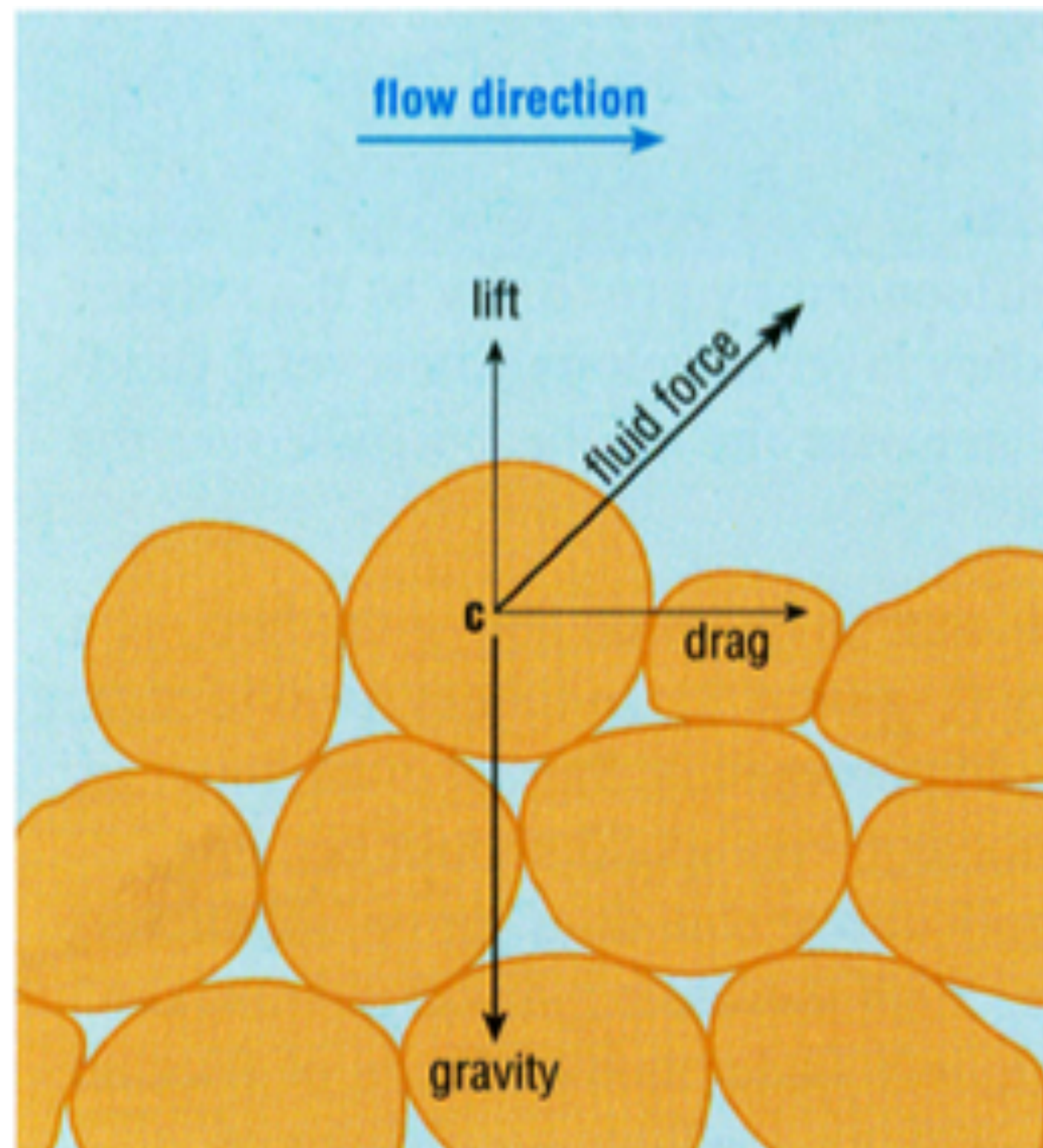


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Sediment transport

- To determine if seabed sediment is likely to be moved by a current we need to know the value of the shear stress at the bed!
- Measuring its value directly is impractical but we can use the rate of increase of the current speed with distance from the bed as a proxy.



- The shear stress is proportional to the square of the speed of the flow
- In addition to the frictional drag, particles are subject to a lifting force by the moving current.