Difference between dispersion and diffusion

Dispersion is a large time scale which average over long time.

**Is dispersion a physical process?**

Dispersion leads to higher entropy.

Free energy (potential energy) can convert energy.

Dispersion dissipates free energy.

No, because we can only observe concentration and then come out with dispersion.

**How to determine dispersion**

By observing concentration and calibrate the parameter D

Mass balance of substance (kg) and mass balance of water.

Mass balance of water: dA/dt + dQ/dx = 0 (integration over x, A becomes storage)

Substance: d(cA)/dt + dF/dx = 0

Flux is the integration of width and depth over one cross-section.

Engineering thinking:

Predictive D we can not determine how much volume can be taken out without salt water.