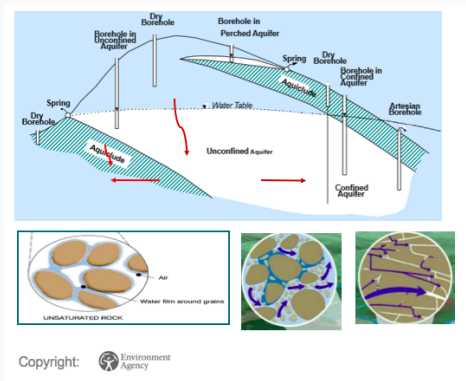# Random process in random media to model nitrate flow

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Motivation.

Modelling flow of polluted water through porous medium $\longrightarrow$ inhomogeneous structure.

Consider models with only a few parameters.

Questions for the week.

- Look at one dimensional toy example: to understand transport of pollutant through water flow on a line.
- Simplified equation for concentration of pollutant:

$$\frac{\partial C}{\partial t} = -(v + s_1)\frac{\partial C}{\partial x} + (D + s_2)\frac{\partial^2 C}{\partial x^2}.$$

- What is a good model for random fields s_1, s_2?
- Run simulations for discretised model using random walks in random environment.
- Understand fluctuations compared to averaged model?