PHYSICAL MODELS FOR NITRATE POLLUTION

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THE PROBLEM

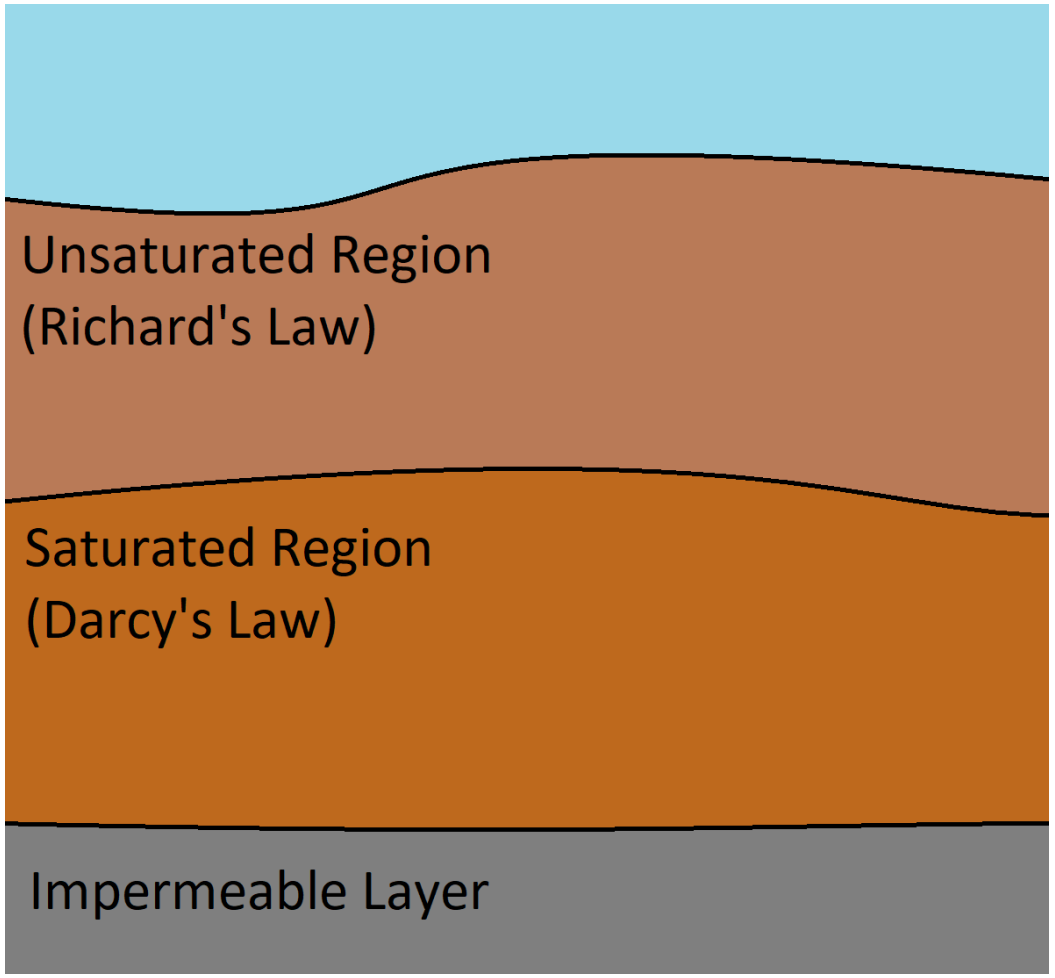
The problem:

- Agriculture uses nitrate to fertilise crops.
- This seeps into the earth and contaminates groundwater.
- Dangerous (costly to treat, else death, illness, misery).

Our Aim:

- To better understand the correlation between agricultural pollutant and borehole measurements, both known.`
- Given a measurement site, and given an pollutant at known location, can measurement be attributed to potential pollutant source?
- Develop sound physical basis for the answer to above.

OUR METHOD



Progressively construct a local physical model for nitrate propagation

- Model 1: Darcy flow in saturated region. Most ideal case, linear.
- Model 2: Add Saturated region above. Governed by Richard's Equation. Nonlinear… **HARDER**
- Model 3: Add random effects.