

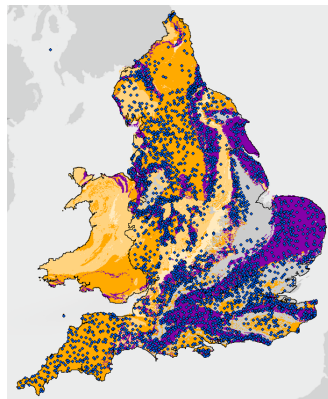
Nitrates, Boreholes and Geodistance

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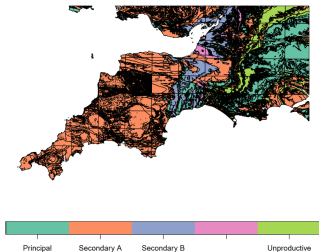
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The problem

- ▶ Boreholes measuring Nitrate levels are situated round the country.
- ▶ A map of Nitrate Vulnerable Zones is made using ordinary Kriging.
- ▶ Currently, covariance structure is assumed to depend only distance between points.
- ▶ Can we use geological information to improve this?



General idea



- ▶ Boreholes in the same aquifer/ similar rock type probably more similar.
- ▶ Can we define a better measure of similarity?
- ▶ 'Geodistance' to go into covariance function as well.

Where do we go from here?

First approach:

- ▶ Classify all the boreholes in subset of locations.
- ▶ Assume correlation between boreholes in same aquifer and rock type: Geodistance of 0 or 1 .
- ▶ Block diagonal matrix :)

Cleverer things:

- ▶ Use permeability of rock types and travelling time between boreholes to inform Geodistances.