Models 2 and 3

For measurements

and regions

$j = 1, \ldots, J$

$n = 1, \ldots, N$

$$\log\left(\mathrm{PM}_{2.5,nj}\right) \sim N(\mu_{nj}, \sigma)$$

$$\mu_{nj} = \alpha_0 + \alpha_j + (\beta_0 + \beta_j) \log (\mathrm{sat}_{nj})$$

$$\alpha_j \sim N(0, \tau_\alpha) \quad \beta_j \sim N(0, \tau_\beta)$$

Exploratory data analysis

building a network of models

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Prior predictive checks

Fake data can be almost as valuable as real data