

Models 2 and 3

Formalassurements

and regions

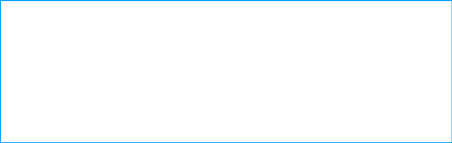
i = 1, , *j*

$n = 1, \dots, N$

$$\log(\text{PM}_{2.5, n_j}) \sim N(\mu_{n_j}, \sigma)$$

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

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





Exploratory data analysis

building a network of models

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For measurements $n = 1, \dots, N$
and regions $j = 1, \dots, J$

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

Prior predictive checks

Fake data can be almost as valuable as real data