空间广义线性混合模型及其在预测流行病中的应用

Spatial Generalized Linear Mixed Models with Application to Prevalence Mapping

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内容提要

Examples

1. radionuclide concentrations on Rongelap Island
2. childhood malaria in the gambia
3. Loa loa prevalence in Cameroon and surrounding areas

Introduction

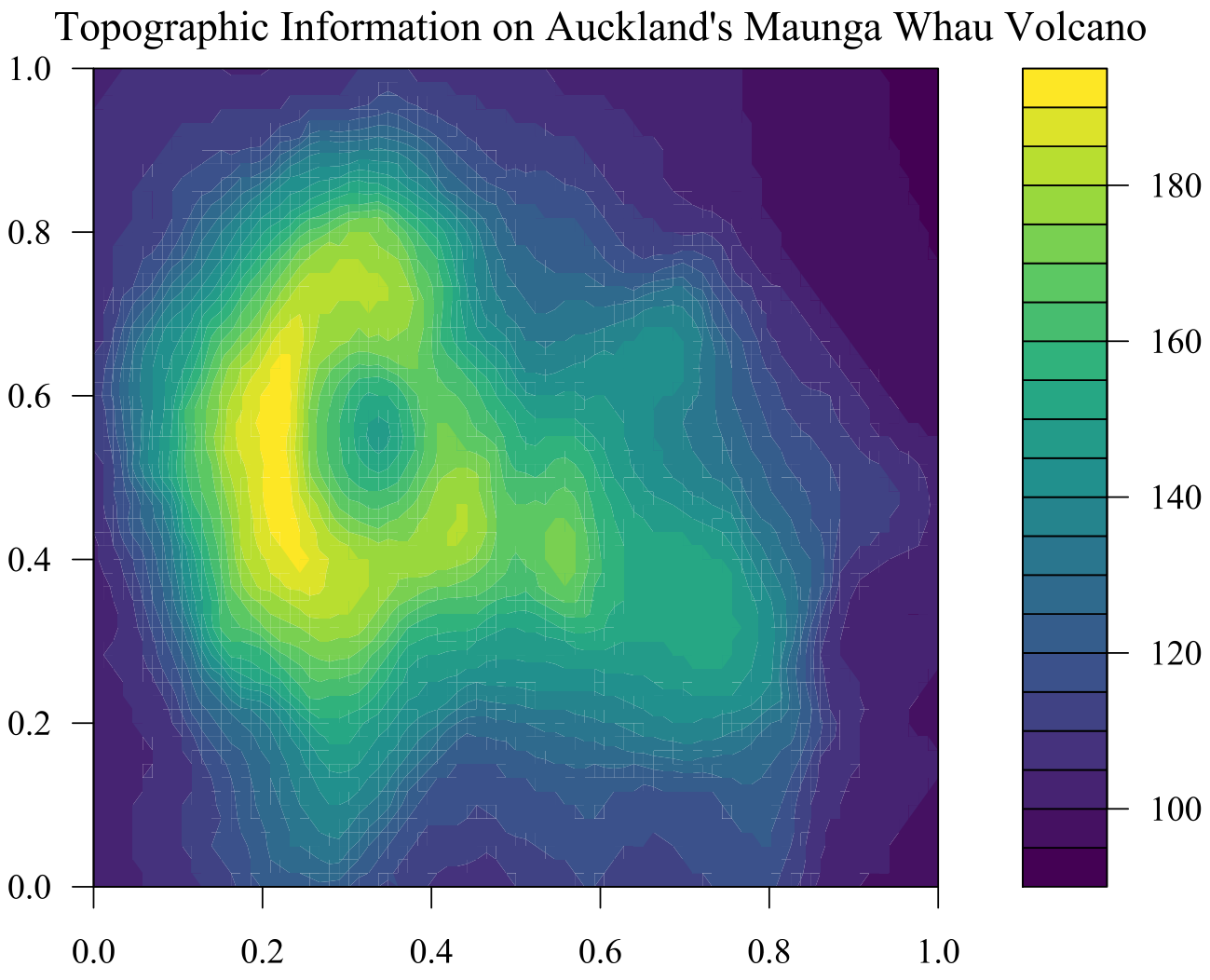
Diggle *et al.* (2002)

- the effects of child level covariates (age and bed net use)
- village level covariates (the primary health care and greenness of surrounding vegetation)
- separate components for residual spatial
- non-spatial extrabinomial variation

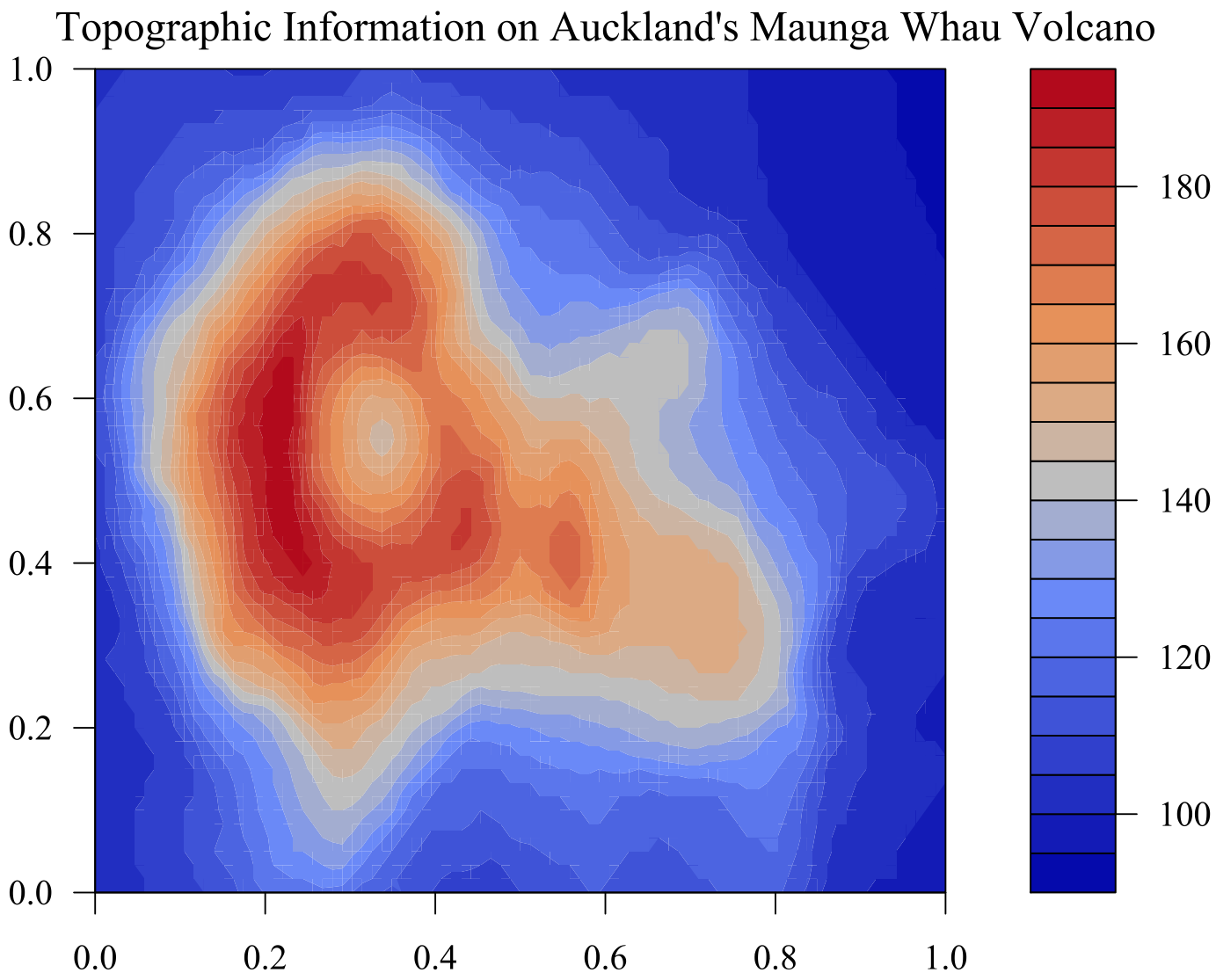
$\mathbb{R}^n$

$$\log\{p_{ij}/(1-p_{ij})\} = \alpha + \beta' z_{ij} + U_i + S(x_i)$$

疟疾流行度与植被关系


Topographic Information on Auckland's Maunga Whau Volcano
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
180
160
140
120
100

疟疾流行度与植被关系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谢谢！

参考文献 I

Diggle, Peter, Moyeed, Rana, Rowlingson, Barry, & Thomson, Madeleine. 2002. Childhood malaria in the Gambia: a case-study in model-based geostatistics. *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, **51**(4), 493–506.