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*An Overview of Random Effects Models for Spatial Analyses*

The development of methods for spatial analyses has seen tremendous growth over the last two decades, with considerable impact on disease monitoring and on exploratory analyses to investigate etiology. This talk discusses spatial and spatial-temporal models with specific emphasis on accommodating the dependence across space and time through random effects in the error components. Such a specification provides insights in the spatio-temporal risk surface through the random effects. Spatial random effects models are also useful in the joint analysis of outcomes in mapping studies where shared random effects accommodate correlations in outcomes. A variety of studies will illustrate the methods.