



On the construction of nonstationary parametric spatial covariance functions

A. Pintore and C. C. Holmes

University of Oxford, 1 South Parks Road, Oxford OX1 3TG, U.K. (pintore@stats.ox.ac.uk)

There is a growing recognition within geostatistical and geophysical sciences that traditional spatial parametric models based on stationary assumptions prove too limited for capturing real world nonstationary phenomena. To match this need, a number of nonstationary methods have been proposed. In this talk we review the main approaches. We then describe a new class of spatially adaptive covariance functions that are built by spatially evolving the spectra of some standard geostatistical stationary covariance functions. The resulting models are of the same form as the stationary ones but now with spatially localised parameters. We illustrate our approach with an analysis of rainfall measurements in Scotland.