SPATIAL DATA ANALYSIS

Ciclo de conferencias y curso de Postgrado del CSIC Demography Today 2017

Profesorado:

Virgilio Gómez Rubio (Universidad de Castilla-La Mancha)

Objetivos:

El curso es una introducción al análisis práctico de datos espaciales. Está estructurado en 4 bloques, que constarán de una parte teórica y una parte práctica cada uno, de manera que los asistentes al curso puedan hacer un análisis espacial con el software R usando varios ejemplos reales. El curso comienza con una introducción al manejo de datos espaciales en R. A continuación, se abordará el análisis de datos agregados y el estudio de la autocorrelación espacial. Los modelos de econometría espacial se verán a continuación. Finalmente, se hará una introducción a la cartografía de enfermedades.

Programa:

1) Introducción a los datos espaciales en R
2) Análisis de datos agregados y autocorrelación espacial
3) Econometría espacial
4) Cartografía de enfermedades

Observaciones:

Duración: 10 horas.
Fecha: 13 y 14 de junio de 2017.
Horario: De 9:00 a 15:00 horas.
Idioma: **Inglés y español**.

Instituto de Estadística y Cartografía de Andalucía
CONSEJERÍA DE ECONOMÍA Y CONOCIMIENTO

Biography:

Virgilio Gómez-Rubio is Associate Professor in the Department of Mathematics, Universidad de Castilla-La Mancha (UCLM) in Spain. Prior to joining UCLM, he was Research Associate at the Department of Epidemiology and Biostatistics, Imperial College London (U.K.).

Dr. Gómez-Rubio has developed and contributed to a number of packages for the R software on spatial data analysis and Bayesian inference. He is also co-author of Springer's bestselling book 'Applied Spatial Data Analysis with R'. He has given courses on spatial data analysis and small area estimation at international conferences and universities worldwide.

Currently, his main research interests are in Bayesian inference, spatial statistics and computational statistics. He is leading a project on the analysis of multivariate data for disease mapping to develop novel models, computational tools and software for Bayesian inference of spatio-temporal models. He is also involved in a project with the VABAR research group at Univesitat de València (Spain) on the analysis of highly correlated data, where he is developing models for the analysis of spatio-temporal data.

Summary:

Governments and statistical agencies often make available area level data on a number of topics (mortality, population, socio-economic variables, etc.) at different administrative regions. Visualisation of spatial data is important as it can provide hints on the relationships among the different variables of study. However, a serious statistical analysis is required in order to assess and confirm any possible relationships. Furthermore, understanding the particularities and subtleties of spatial modeling is important in any serious statistical analysis. In particular, assessing spatial autocorrelation is the first step when analysing area level data. Furthermore, building spatial regression models can highlight important dependencies between the variable of interest and other covariates. Some of these models have been initially developed in the fields of disease mapping and spatial econometrics, which have helped spatial statistics to grow as a discipline and that have provided a number of important statistical models. Most of these statistical methods are available in the R statistical software, which has become an important tool for the visualisation and analysis of spatial data. For this reason, several examples on disease mapping and spatial econometrics will be developed with the R statistical software to illustrate the analysis of spatial data in practice.