

Introduction to the Bayesian Maximum Entropy Approach for Space/Time Geostatistical Exposure Assessment – **Detailed program**

n°	Title	Content	Time	Instructor(s)
1	Fundamental concepts of space/time statistics for exposure data, and overview of the BME geostatistical analysis framework	How do we estimate exposure at an unmonitored point using available space/time monitoring data? Short review of the basic concepts of space/time statistics, including information and entropy, general and site specific knowledge bases, and hard and soft data.  Overview of the Bayesian Maximum Entropy (BME) framework for geostatistical estimation.	9:00-10:30	Marc Serre
<b>Coffee break</b>			10:30-10:45	
2	BME geoprocessing of general and site specific knowledge bases for space/time exposure variables	Processing of the general knowledge base, processing of the site specific knowledge base, choice of estimators for exposure assessment.  Dealing with uncertainty, coding of soft data, modelling different sources of exposure data, combining duplicate soft data	10:45-12:30	Marc Serre
<b>Lunch</b>			12:30-13:30	
3	Step-by-step BME analysis of spatial exposure data, and BME in arcGIS™	Conceptual steps of practical BME exposure mapping (exploratory data analysis, modelling variability across space, BME mapping), and step-by-step analysis for a hypothetical Arsenic contamination of an aquifer.  Presentation of the Graphical Users Interface to perform advanced space/time BME analysis in arcGIS™.	13:30 -15:00	Marc Serre and Yasuyuki Akita
<b>Coffee break</b>			15:00-15:15	
4	<b>Case studies</b> of BME space/time analysis of exposure data in the groundwater, the surface water, and the air.	<b>Arsenic</b> concentration in the <b>groundwater</b> of New England, USA: Spatial integration of arsenic monitoring data and soil pH information.  <b>Fecal bacterial contamination</b> of the <b>surface water</b> in New Jersey: Space/time assessment using a river metric  <b>Atmospheric particulate matter</b> (PM) concentration across the USA: Space/time analysis correcting for sampling variability  High <b>ozone</b> episodes over North Carolina: Integrating ozone monitoring data and air quality model predictions	15:15-17:00	Marc Serre

Date and location of short course: October 14, 2007 in Durham, North Carolina, USA