

## Bioinvasion and epidemic spread in complex transportation networks (Extension)

Initiative: Modellierung und Simulation komplexer Systeme (beendet)

Ausschreibung: Komplexe Netzwerke als fächerübergreifendes Phänomen

Bewilligung: 28.11.2010

Laufzeit: 3 Jahre

Human mediated bioinvasion refers to the geographical expansion of species into a new range, in which they establish, spread and persist to the detriment of the environment. The phenomenon of bioinvasion is dynamically related to the geographic spread of emergent human infectious diseases driven by mobility of the human hosts. The proposed research is designed to apply complex network theory to investigate the dynamics of bioinvasion and the geographic spread of epidemics as phenomena driven by multi-scale transportation and human mobility networks, ranging from air-transportation and traffic networks, networks of trade- and ship-routes, to migratory bird travel routes. Key to the proposed research is the investigation of both phenomena in a common and comparative context, based on computational as well as analytical methods. Based on the results the team will investigate issues of risk assessment, adaptive predictions and management strategies.

### Projektbeteiligte

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