

GeoDiverCity

Analysing and modelling the geographical diversity of cities and city systems

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Cities are today the main form of occupation of the Earth's surface by human societies, and their development, combining design and self-organisation, sets numerous challenges in terms of collective territorial intelligence. On the scale of national and continent-wide territories, or indeed world-wide territories for the largest, cities are interconnected by way of numerous networks, in particular economic networks that make them increasingly interdependent and associate them one with another in a process of co-evolution within which they have to structure and adapt conjointly. It is also important to underline the existence of path dependence processes, whereby the mark of previous choices is retained over several centuries in urban morphology, and often over several decades in social or economic specialisations. The present project sets out to gather the main stylised facts making up our knowledge about the dynamics of complex urban systems that has been acquired from observation and different analytical modelling processes, and to use them in new simulation models so as to reconstruct the interaction networks making up these systems. These models will be validated using a multi-scale procedure based on temporal geo-referenced data bases. The generic model SIMPOP will be completed and transferred to an open and scalable simulation platform, and specific versions will be developed and tested for the main regions of the world. The ultimate aim is to provide a series of validated models able to provide medium-term forecasts of the way in which the main urban and global territorial balances will evolve, and to explore scenarios whereby these city systems might adapt to the policies enacted aiming to counter the effects of climate change.