

Abstract Submitted
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Money circulation networks reveal emerging geographical communities D. BROCKMANN, MPI-DS, Goettingen, Germany & Northwestern University, F. THEIS, CMB, Institute for Bioinformatics, Neuherberg, Germany, V. DAVID, MPI-DS, Goettingen, Germany — Geographical communities and their boundaries are key determinants of various spatially extended dynamical phenomena. Examples are migration dynamics of species, the spread of infectious diseases, bioinvasive processes, and the spatial evolution of language. We address the question to what extent multiscale human transportation networks encode geographical community structures, how they differ from geopolitical classifications, whether they are spatially coherent, and analyse their structure as a function of length scale. Our analysis is based on a proxy network for human transportation obtained from the geographic circulation of more than 10 million dollar bills in the United States recorded at the bill tracking website www.wheresgeorge.com. The data extends that of a previous study (Brockmann et al., Nature 2006) on the discovery of scaling laws of human travel by an order of magnitude and permits an approach to multiscale human transportation from a network perspective.

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