

Great e-Debate: Epidemics, Urban Systems and Geosciences (4th May 2020)

A summary and a few outcomes

The COVID-19 pandemic has greatly upset the scientific agenda, particularly that of environment and geosciences. While the goal of urban systems to increase well-being and health has become a recurring theme in international agreements (e.g., UN 2030 Agenda), as well as in research and innovation, it was not expected that it could reach such acuity and pose such radical questions on the functioning of urban systems and their complex interactions with their geophysical environment.

It was therefore deemed essential not to wait until 2021 to have a Great e-Debate “Epidemics, Urban Systems and Geosciences”, but to have it on the occasion of the “EGU2020: Sharing Geoscience Online” and as an extension from the session ITS2.10/NP3.3“[Urban Geoscience Complexity: Transdisciplinarity for Urban Transition](#)” of the European Geosciences Union (EGU).

This e-debate was organised with UNESCO UniTwin CS-DC ([Complex Systems Digital Campus](#)) and held on Monday 4 May 12:30 CET. It gave the opportunity to take stock and open up perspectives, particularly on epidemics and mobility, the dynamics of Covid-19, cities, health and geosciences. The videos of the three introductory lectures and the discussion of the Great e-Debate are now available on YouTube and on the web page [Great e-Debate](#).

This e-debate highlighted the following questions:

- the need to pursue earlier works of multiscale analysis of mobility with the development of smart phone tracking, in particular in frameworks of initiatives to make them open data
- there is no need for centralisation of these data, but on the contrary to fully benefit from the smart phone capacity to store data and preserve privacy
- the Covid-19 outbreak was not without precursor (e.g., SARS, MERS) and will probably not be without successor
- SARS-Cov-2 has innovative, scaring characteristics that may explain its extremely fast transmission and high morbidity rate
- epidemic modelling has a long history, but needs qualitative improvements
- as well as novel epidemic monitoring, data access and assimilation techniques
- this pandemic is also an opportunity to fundamentally revise our urban systems, their greening as well as their mobility offer
- a particular focus should be set on urban biodiversity, in particular to better manage virus vectors
- more generally, urban resilience should include resilience to epidemics.

Due to their expertise, contributions from geoscientists are therefore largely expected to address all these issues, combining data-driven and theory-driven approaches. A preliminary requirement is to develop corresponding research funding. A good starting point to prolongate and extend this discussion, and prepare future actions appears to be the set-up an international e-lab with the support of UNESCO UniTwin CS-DC. We invite you to [found this e-lab](#).

The Great e-Debate conveners: Daniel Schertzer (Ecole des Ponts ParisTech), Alexander Baklanov (World Meteorological Organisation) Paul Bourguin (UNESCO UniTwin), Matthias Demuzere (Ruhr-University Bochum), Klaus Fraedrich (Max Planck Institute, Hamburg), Gaby Langendijk (Climate Service Center Germany), Gabriele Manoli (University College London), Stefano Tinti (Bologna University), Benjamin Zaitchik (Johns Hopkins University).