An Integrated Framework to Analyze Local Decision Making and Adaptive Capacity to Large-Scale Environmental Change: Community Case Studies in Brazil, UK and the US (METROPOLE)

Call: Coastal Vulnerability
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While researchers have studied the role of visualization tools in decision making, new research is needed to understand how the social, cultural and political context impacts how decision makers and the public perceive and respond to potential local environmental, economic and health risks due to large-scale change. The hypothesis is that risk knowledge is best understood as being co-produced by science and by the social, political and cultural context. The research team will develop downscaled climate models for communities in Brazil, the United Kingdom, and the United States and engage stakeholders and policymakers in participatory planning meetings to analyze the social and cultural factors that impact decision making and regional adaptive capacity. For each site, we will co-produce scenarios using state-of-the-art visualization tools developed in Brazil and the US. Data include changes in sea level, temperature, storm frequency, precipitation and other variables in the past 100 years and high resolution (10km) projections in 5-10 year increments to 2070 under the IPCC's 5th AR scenarios.

The tools integrate scientific and economic data for the smallest local area, and illustrate potential impacts on infrastructure, health, economic risk, adaptation options, and cost-benefit analyses over time.

The social research will use: 1) surveys to analyze values and beliefs prior to and after meetings, 2) choice evaluation models to study risk/cost trade-offs, and 3) interviews after the meeting to assess the Adaptive Capacity Index (developed in the UK). Expected results include: a new framework to integrate scientific, economic and cultural factors into adaptation planning; insights on the role of values and beliefs in adaptation decision making; and resources to improve public engagement strategies in any coastal community, including publications.