



Regional Climate Change Adaptation

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Abstract

Adaptation to climate change is increasingly critical for economic development. Socioeconomic systems face not only gradual shifts in average conditions but also abrupt, extreme events that surpass typical adaptive capacities. Climate-induced natural hazards, especially water-related events such as river and coastal floods, are already inflicting significant economic damage globally, with losses projected to escalate under climate change scenarios. These hazards are exacerbated by accelerated sea-level rise, storm surges, and extreme precipitation unevenly across regions, intensifying the need for comprehensive climate adaptation strategies.

Effective climate change adaptation (CCA) requires coordinated actions across scales, incorporating both public, government-led adaptation and private, autonomous efforts by households and businesses. This multifaceted approach includes public infrastructure projects, such as levees and seawalls, as well as private adaptations like flood-proofing, insurance purchases, and relocation. However, economic assessments have largely focused on government-led initiatives, with limited integration of autonomous adaptation measures in existing assessments and in socio-economic models. In particular, while flood risk reduction has been extensively studied, there remains a gap in quantifying the costs and benefits of various adaptation strategies, especially at the local and regional level. Recent research highlights the need for detailed economic evaluations of adaptation portfolios that consider both costs and effectiveness across scenarios and regions.

This Special Session will address these challenges by exploring innovative economic assessments of CCA, focusing on regional adaptation strategies. The session seeks contributions that assess the costs, benefits, and implementation pathways of adaptation measures, integrating both public and private responses and offering insights into the effectiveness of adaptation investments at the regional scale.