Dynamical downscaling and socio-economic land use scenarios for regional scale adaptation to climate change in Tokyo metropolitan area

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The responses of the climate system to increases in carbon dioxide concentrations and to changes in land use/land cover and the subsequent impacts of climatic variability on humans and natural ecosystems are of fundamental concern. Because regional responses of surface hydrological and biogeochemical changes are particularly complex, it is necessary to develop assessment tools for regional scale adaptation to climate change. We are developing 1) dynamical downscaling method using socio-economic land use scenarios in Tokyo Metropolitan Area to add spatial resolution to accurately assess critical interactions within the regional climate system for vulnerability assessments to climate change for regional scale adaptation, 2) regional-scale assessment of the impacts of climate and socio-economic change on flood and agriculture with the bottom-up perspective and landuse scenarios in Tokyo Metropolitan Area using an urban economic model. We will introduce our current perspectives and progress on this newly launched integrated research project for regional scale adaptation to climate change.