Visualization Methods for Linking Scientific and Local Knowledge of Climate Change Impacts

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Abstract

Planning support systems for smart cities and spatial planning more broadly must be able to help communities confront the combined effects of climate change: flooding, sea level rise, storm surge, and severe weather events in coastal areas. The goal of this chapter is to extend ideas about the role of geographic visualization in generating a societal response to top-down inaction on changing climate by testing methods and evaluating the effectiveness of geographic information-based tools for developing 3D scenes within a participatory process. The engagement process took place within an Australian coastal community where residential development and infrastructure are vulnerable to flooding, sea level rise and storm surge. This research employed and assessed multiple visual methods including geographic visualization to illustrate the impacts of climate change on the study area. Participant assessment indicated all methods employed were beneficial but 3D visualization was the most effective method for knowledge exchange.

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