UCI Samueli School of Engineering | Department of Civil and Environmental Engineering

Presented By:
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Environmental Engineering Seminar Series

Friday, May 12th, 2017
McDonnell Douglas Engineering Auditorium (MDEA)
1:30PM to 2:30PM

Mathematical Analyses of Interesting Coastal & Estuarine Challenges, & The Policies That Govern Them

The threat of climate change and sea level rise is becoming increasingly apparent in coastal communities around the world, as tidal and storm-driven flooding events increase in magnitude, duration and frequency. Specific events punctuate the long-term changes underway and create greater urgency for communities to prepare, but the impacts of events are not felt uniformly throughout a region, leading to variability in the motivation of communities in a region to invest in adaptation strategies. This variation creates a barrier to coordinated regional action, which must be overcome if a region is going to avoid a piecemeal, and likely sub-optimal, approach to climate change adaptation. In order to facilitate regional planning, it is important that multi-scale interactions, including the regional costs of local actions (or inaction) and the local costs of regional actions, be clearly understood. In this talk, I will use sea level rise in the San Francisco Bay Area as a case study to understand regional interdependencies in adaptation to climate change. Using future scenarios for environmental forcing and shoreline configurations to drive linked hydrodynamic-transportation models, I will quantify three different types of interdependence: shared experiences, interdependent vulnerabilities and interdependent adaptations. Each creates particular incentives for regional action, whether in the form of sharing information, investing in local solutions, or developing a regional vision for Bay shorelines. I will finish the talk with consideration of alternative futures for the San Francisco Bay area and contrast the regional outcomes that may emerge.

Mark Stacey is the Lawrence E. Peirano Professor in the Civil & Environmental Engineering Department at UC-Berkeley, where he has been on the faculty since 1999. His research and teaching have been in the broad area of environmental fluid mechanics, with an emphasis on estuarine and coastal physics. In recent years, Professor Stacey has developed a focus on climate change and sea level rise, with implications for infrastructure systems in coastal communities. Professor Stacey received his PhD and MS in Civil Engineering and a BAS in Physics and Political Science, all from Stanford University.

Questions? - cee@uci.edu - (949) 824-5333