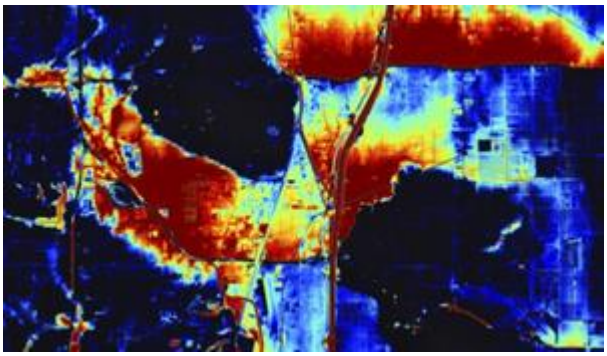
UCI-led team to study socioeconomic effects of coastal flooding in California

NSF-funded project involving 3 other UC campuses will use advanced simulations
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Brian Bell
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Fine-resolution computer simulations will depict flooding scenarios across the Los Angeles metropolitan and Sacramento-San Joaquin River Delta regions, including one comparable to California's Great Flood of 1861-62 (shown here along the Los Angeles River).

Picture Credit:
Blum Center for Poverty Alleviation / UCI

Launched with funding from the National Science Foundation's Coastlines & People initiative, the effort will employ advanced simulation systems to deepen understanding of increasing flood risks within the state's two most imperiled areas: Greater Los Angeles and the Sacramento-San Joaquin River Delta.

"Coastal flooding poses major challenges worldwide that are worsening with climate change and the continued expansion of coastal cities," said co-investigator Brett Sanders, UCI professor of civil & environmental engineering. "Over just the past few years, the U.S. has suffered hundreds of billions of dollars in losses from flooding

disasters linked to hurricanes and intense rainfall, and both the delta and L.A. metro regions are vulnerable to flooding disasters."

In the early stages of the project, Sanders and other scientists at UCI's Blum Center for Poverty Alleviation will combine fine-resolution computer simulations with exposure data to assess the likely range of effects on populations and infrastructure. Researchers from UCI, UC Berkeley, UC Riverside and UC San Diego will then use that information to gauge how flooding impacts will be distributed across social strata, with implications for governance within and across communities.

"The vulnerability of populations to disasters generally reflects socioeconomic inequalities, and when disasters strike, these inequalities are further amplified," said principal investigator Richard Matthew, UCI professor of urban planning & public policy and director of the Blum Center. "This points to a future where more frequent and intense flood events not only impose enormous human and property costs on coastal communities, but also deepen social divisions, place long-term burdens on the poor, generate political outcomes that favor the rich and create conditions conducive to civil unrest."

The broader aim of this work is to devise a method by which vulnerable and divided communities can identify fair, affordable, site-specific interventions that mitigate flood risks and limit the anticipated cascade of negative outcomes.

In addition to Matthew and Sanders, the research team includes Amir AghaKouchak, UCI professor of civil & environmental engineering; Maura Allaire, UCI assistant professor of urban planning & public policy; David Brady, professor of public policy at UC Riverside; Steven Davis, UCI associate professor of Earth system science; Fonna Forman, associate professor of political science at UC San Diego; Robert Reich, Carmel P. Friesen Professor of Public Policy at UC Berkeley; and Nicola Ulibarri, UCI assistant professor of urban planning & public policy.

About the University of California, Irvine: Founded in 1965, UCI is the youngest member of the prestigious Association of American Universities. The campus has produced three Nobel laureates and is known for its academic achievement, premier research, innovation and anteater mascot. Led by Chancellor Howard Gillman, UCI has more than 36,000 students and offers 222 degree programs. It's located in one of the world's safest and most economically vibrant communities and is Orange County's second-largest employer, contributing $5 billion annually to the local

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