US DOE: Water Cycle Workshop

Water Resources and Water-Related Hazards

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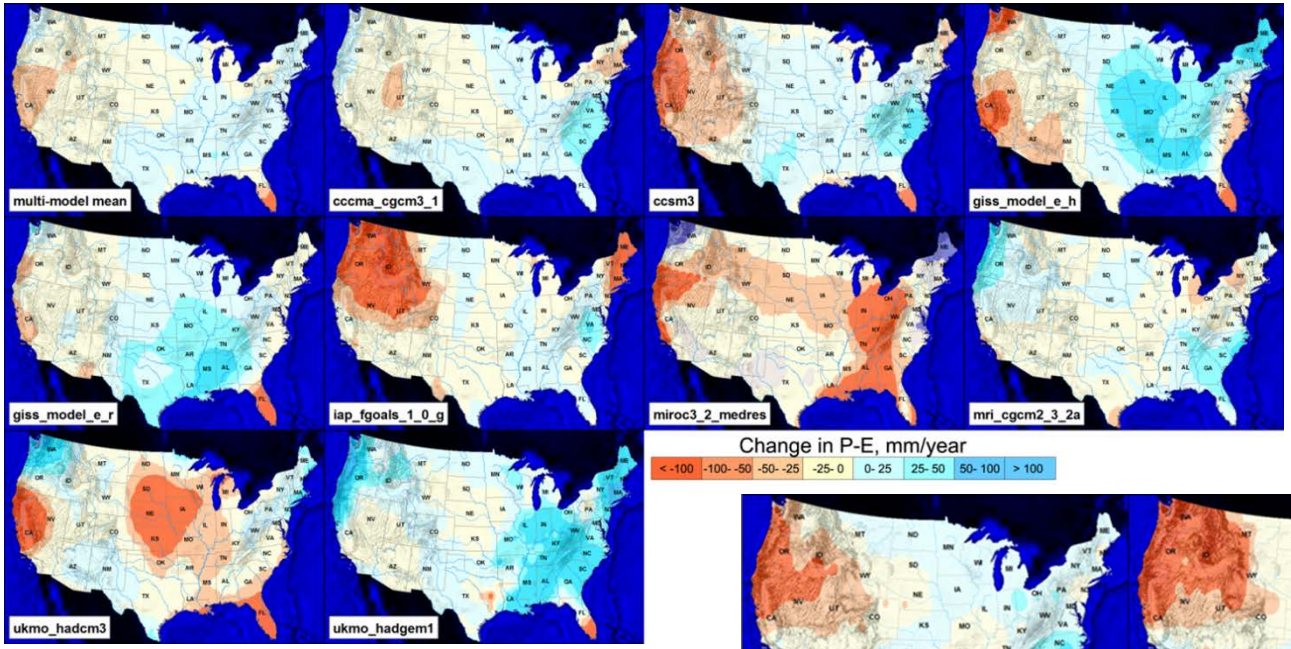


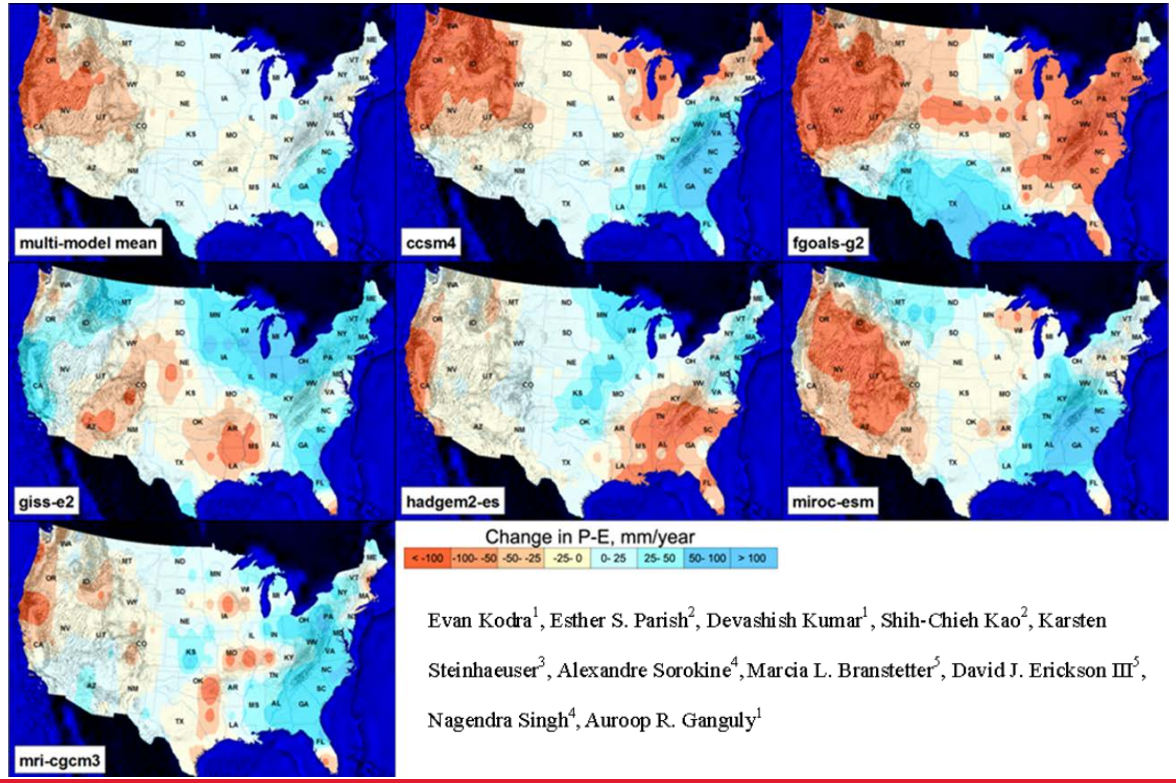
Δ (P – E): 2030's vs. Current

Darker brown: Dryer

Darker Blue: Wetter

CMIP3 MMEs Median

Nine CMIP3 models



CMIP5 MMEs Median

Seven CMIP5 models

Evan Kodra[1], Esther S. Parish[2], Devashish Kumar[1], Shih-Chieh Kao[2], Karsten Steinhaeuser[3], Alexandre Sorokine[4], Marcia L. Branstetter[5], David J. Erickson III[5], Nagendra Singh[4], Auroop R. Ganguly[1]

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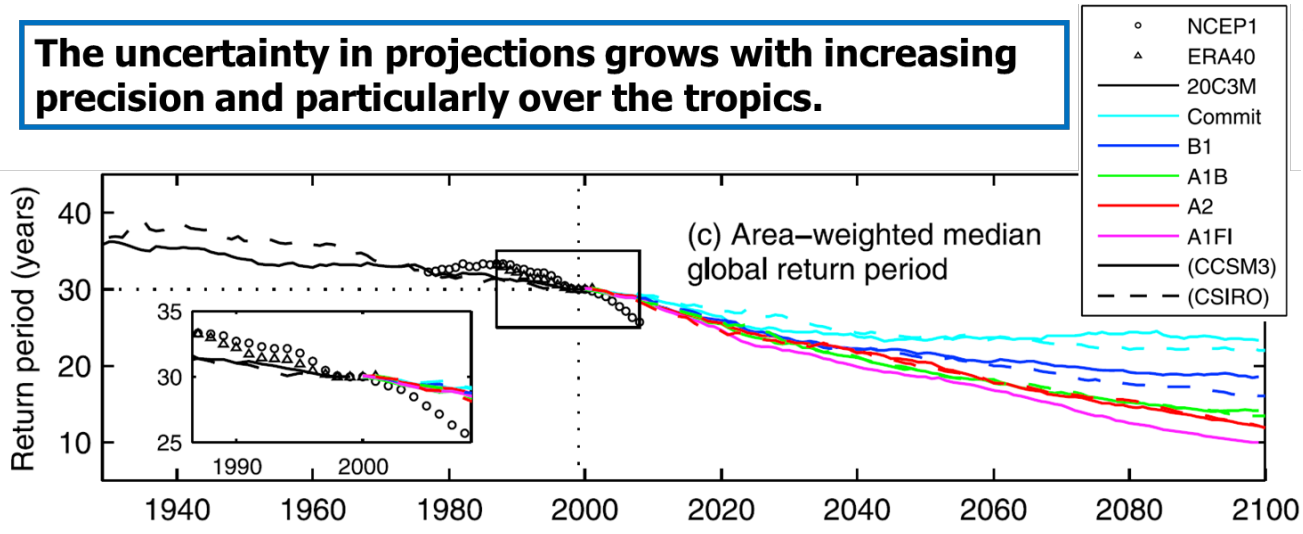
Precipitation Extremes for Flood Hazards & Hydraulic Infrastructures

The uncertainty in projections grows with increasing precision and particularly over the tropics.



Translation to Intensity-duration-frequency (IDF) design curves

Kao & Ganguly, JGR, 2011

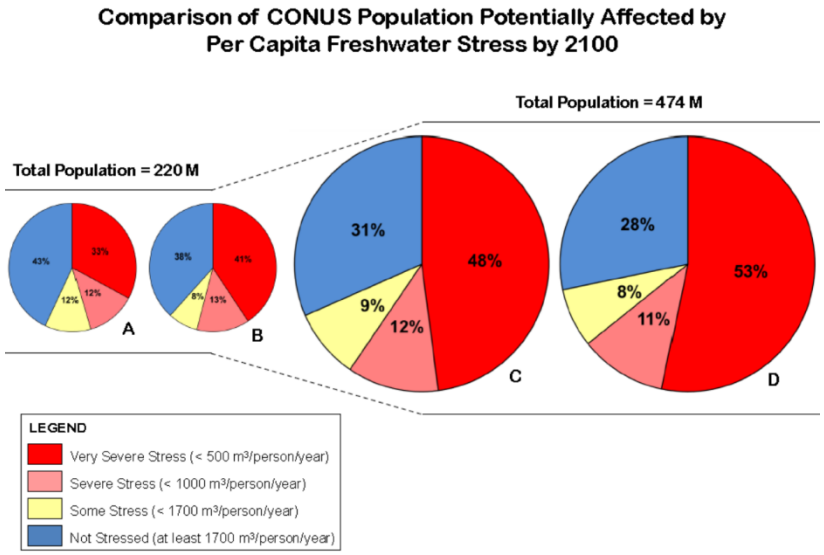
No uniform increase of extreme rainfall but growing trend of spatial variability

Ghosh, Das, Kao & Ganguly, Nature Climate, 2012

Water Stress at Basin-scales under Global Climate & Population Change

Water stress at watershed scales from climate (CCSM3) projections and disaggregated IPCC population storylines

Parish, Kodra, Steinhaeuser, Ganguly Computers & Geosciences, 2012



Water stress in the United States and around the world

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