



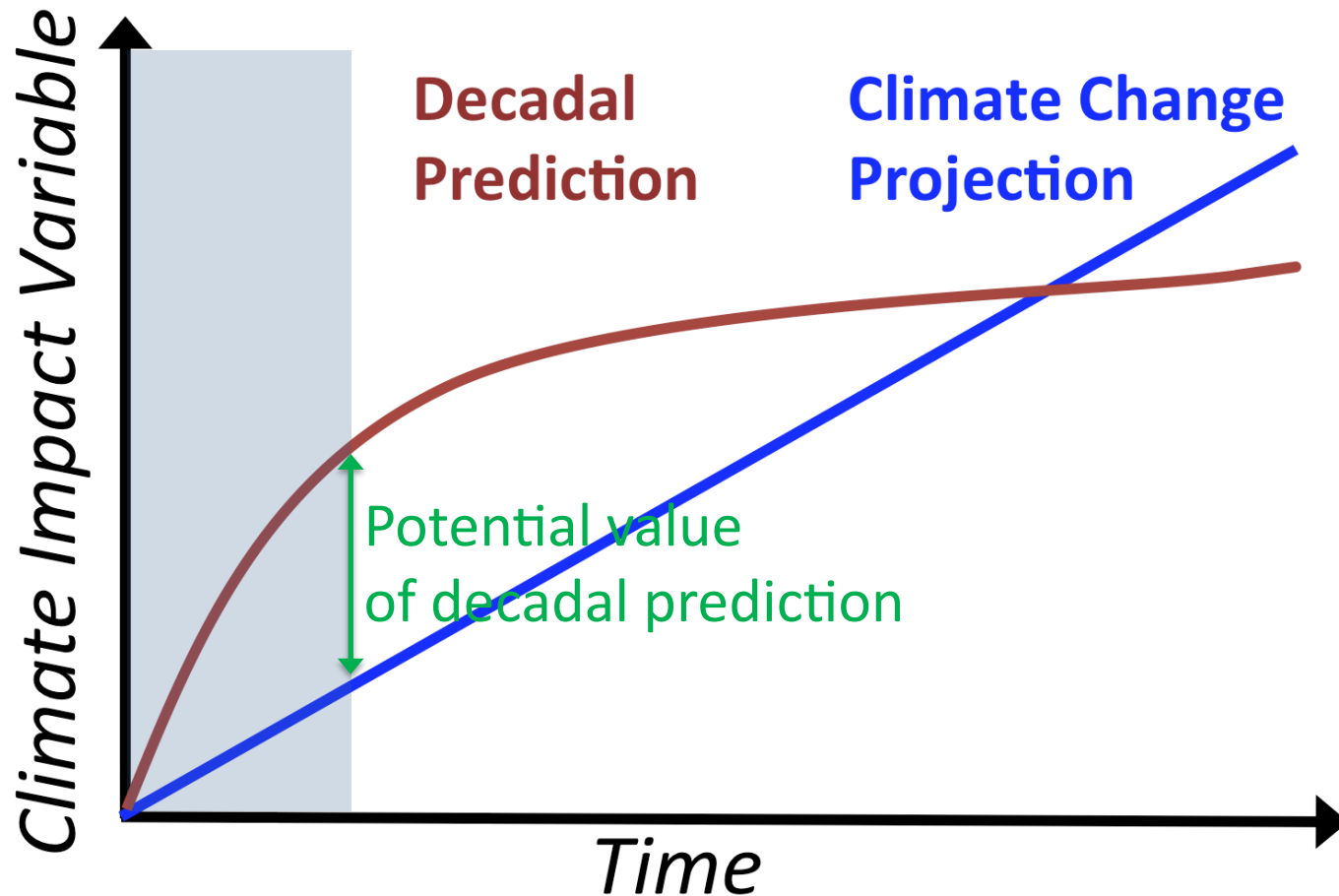
Understanding Decision-Climate Interactions on Decadal Scales

James Done

Jeffrey Czajkowski, Tapash Das, Ming Ge, Joshua Hewitt, Jennifer Hoeting, Heather Lazrus, Rebecca Morss, Armin Munévar, Casey Schafer, Erin Towler, Mari Tye and Alex Van Zant

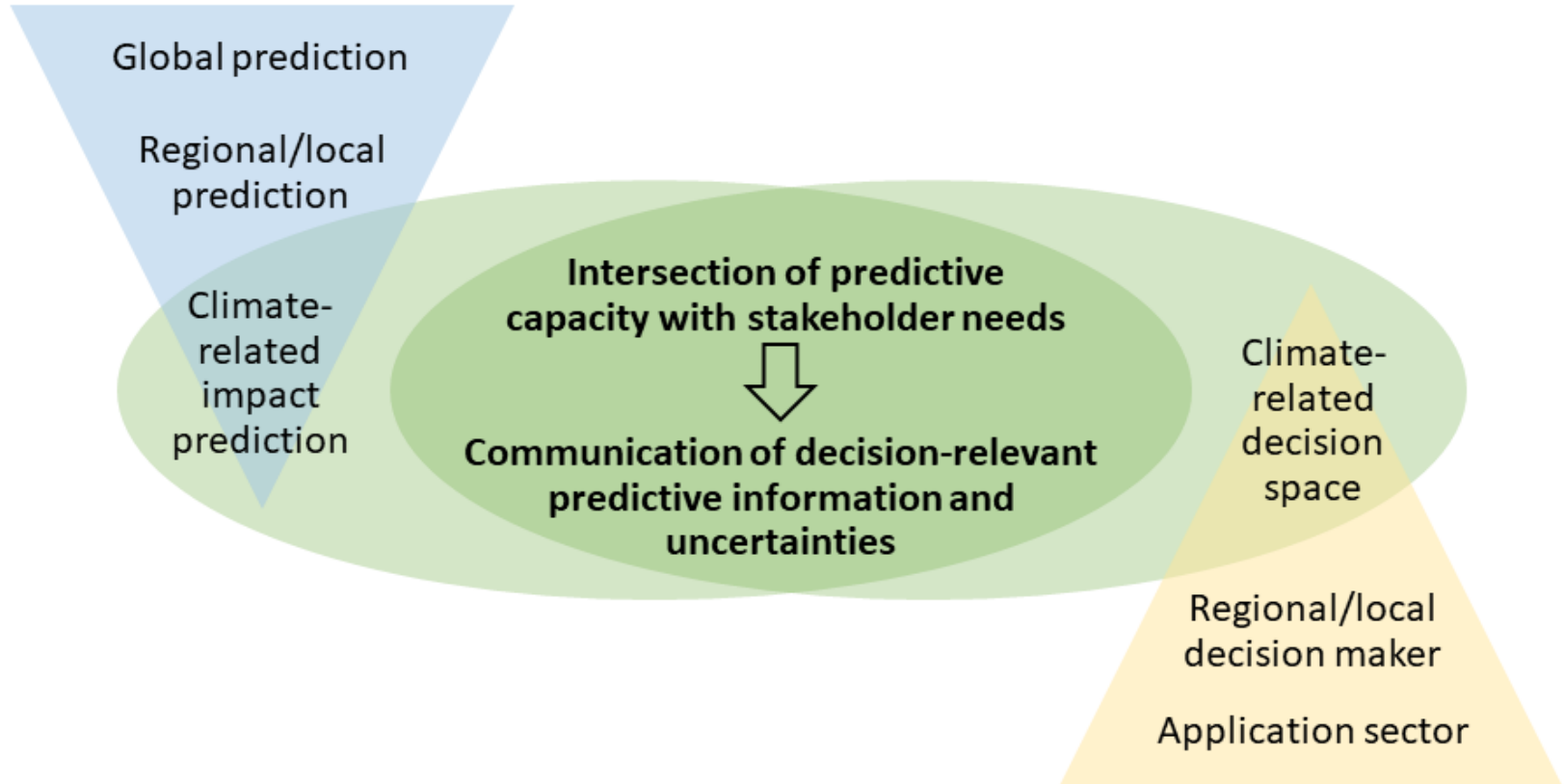


The Potential Value of Decadal Prediction



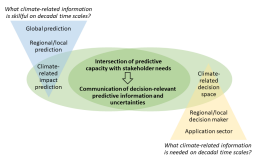
The Approach

What climate-related information is skillful on decadal time scales?



What climate-related information is needed on decadal time scales?

What is Needed?



Urban storm water drainage planners:

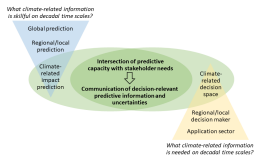
Built versus natural channel construction?



A drinking water utility:

If we're in a drought,
when will we come out of it?



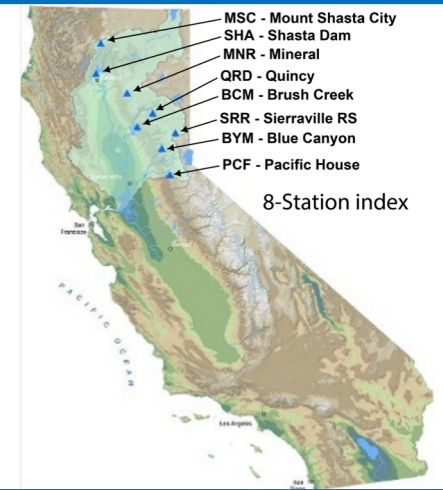


What is Needed?

A county water agency:
 How often will organic carbon exceed a threshold at chlorination intake?



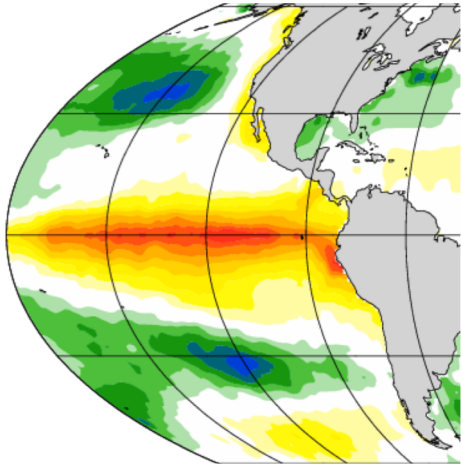
Statewide water agency:
 How often will 8-river index fall below a minimum threshold?



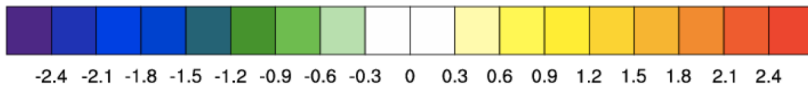
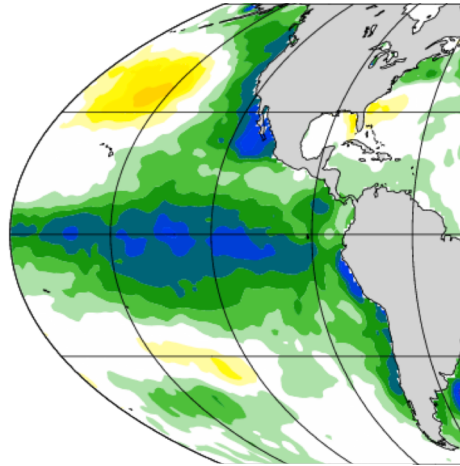
Decadal Conditioning of Atmospheric Rivers

10-member ensemble simulations of the 2016/2017 winter under opposite phases of the Interdecadal Pacific Oscillation (IPO).

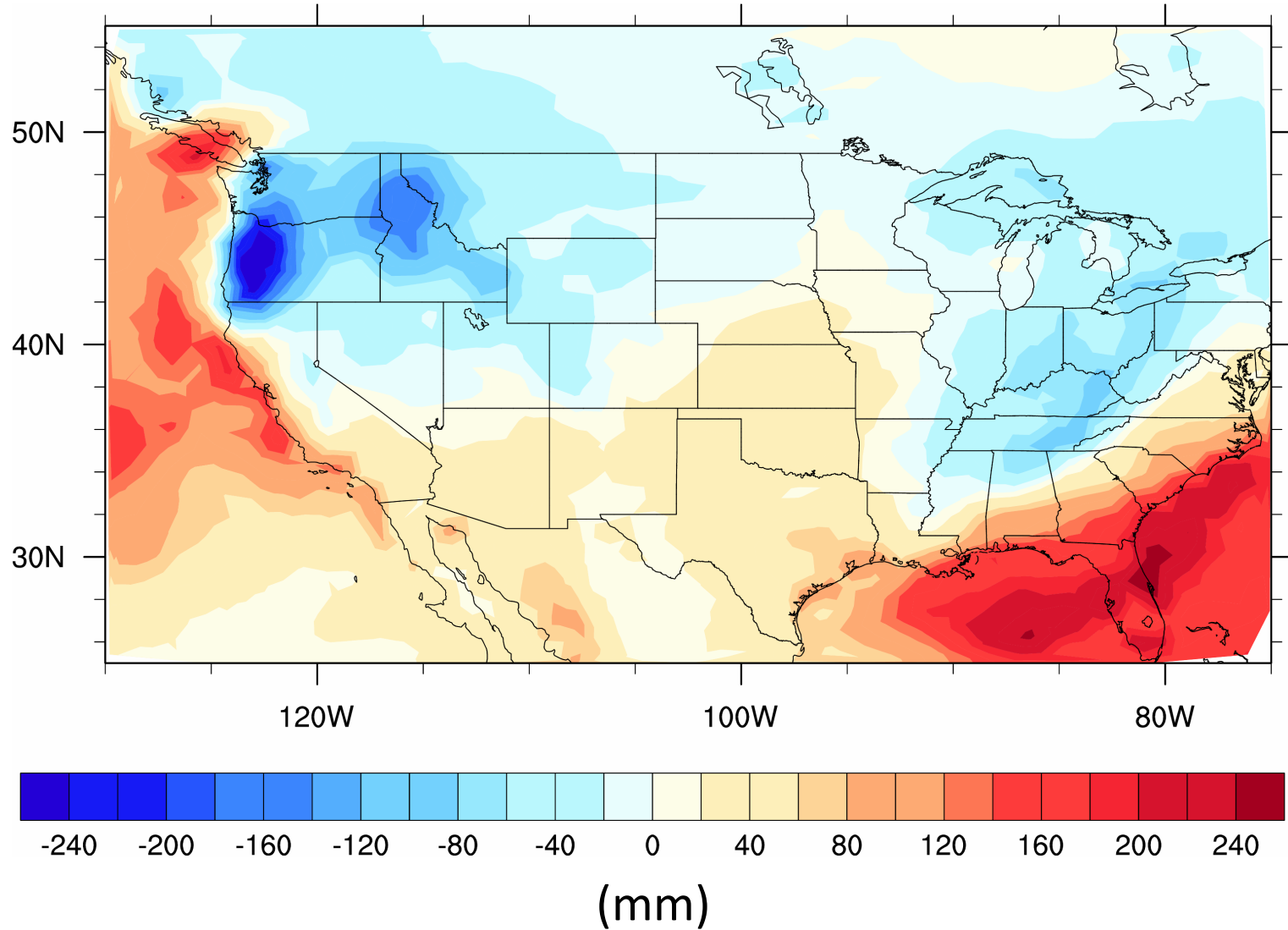
+IPO SST Anomaly



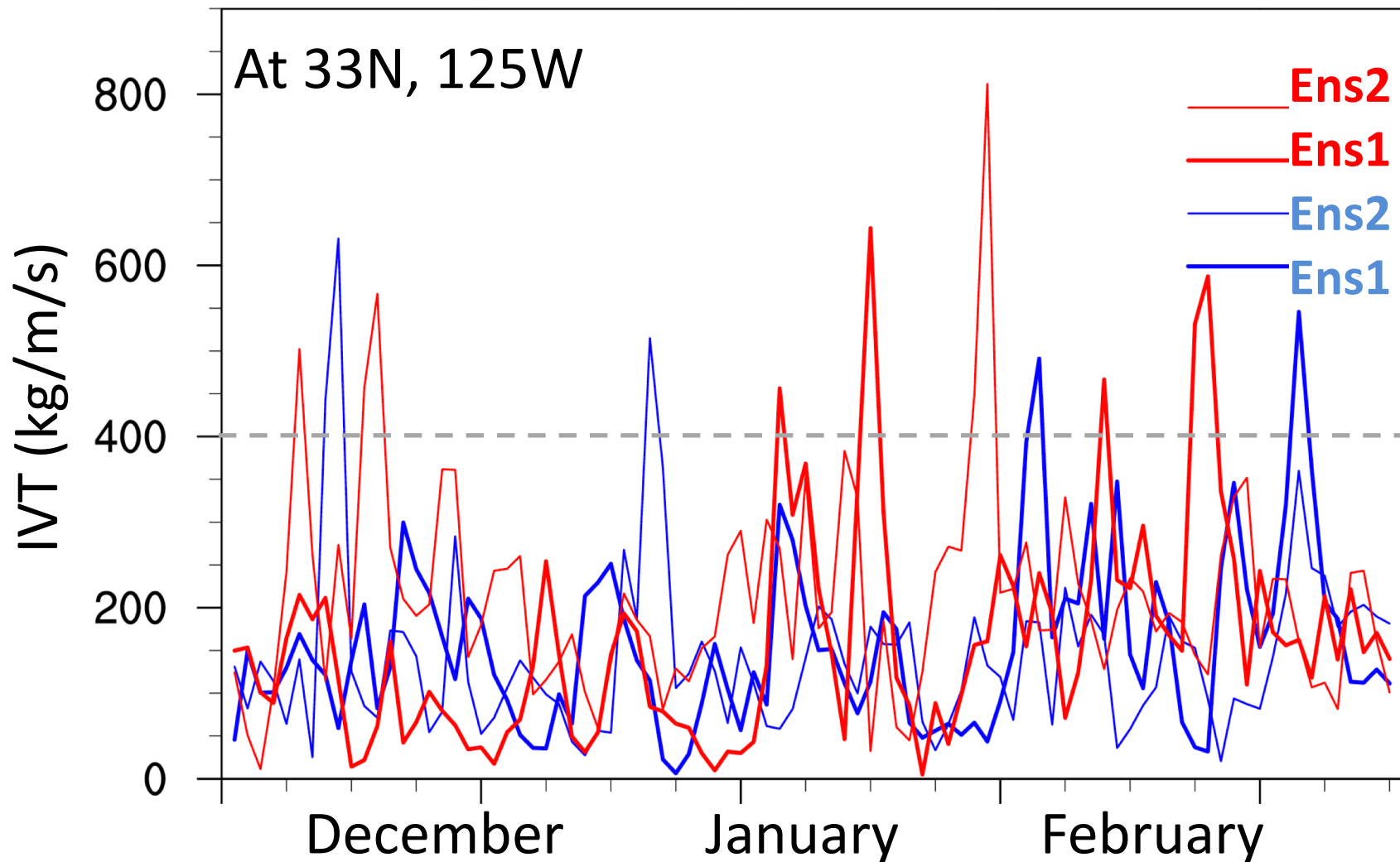
-IPO SST Anomaly



Winter Precipitation Change under +IPO

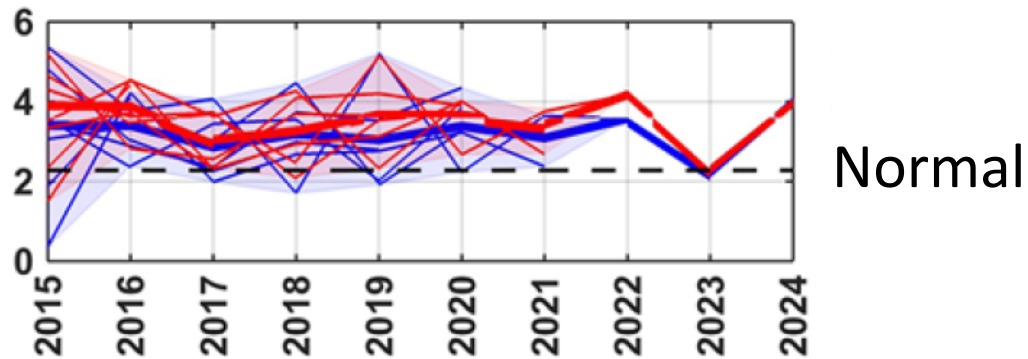


+IPO drives twice the number of strong events into southern California

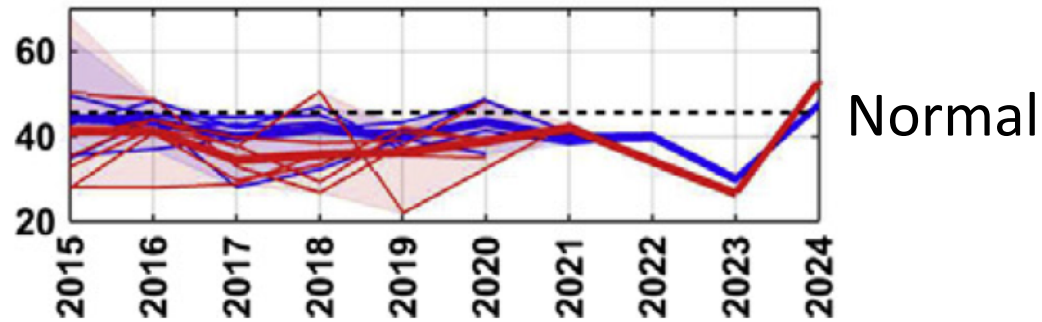


Predictions of warmer and drier winters for the US Southwest

Temperature



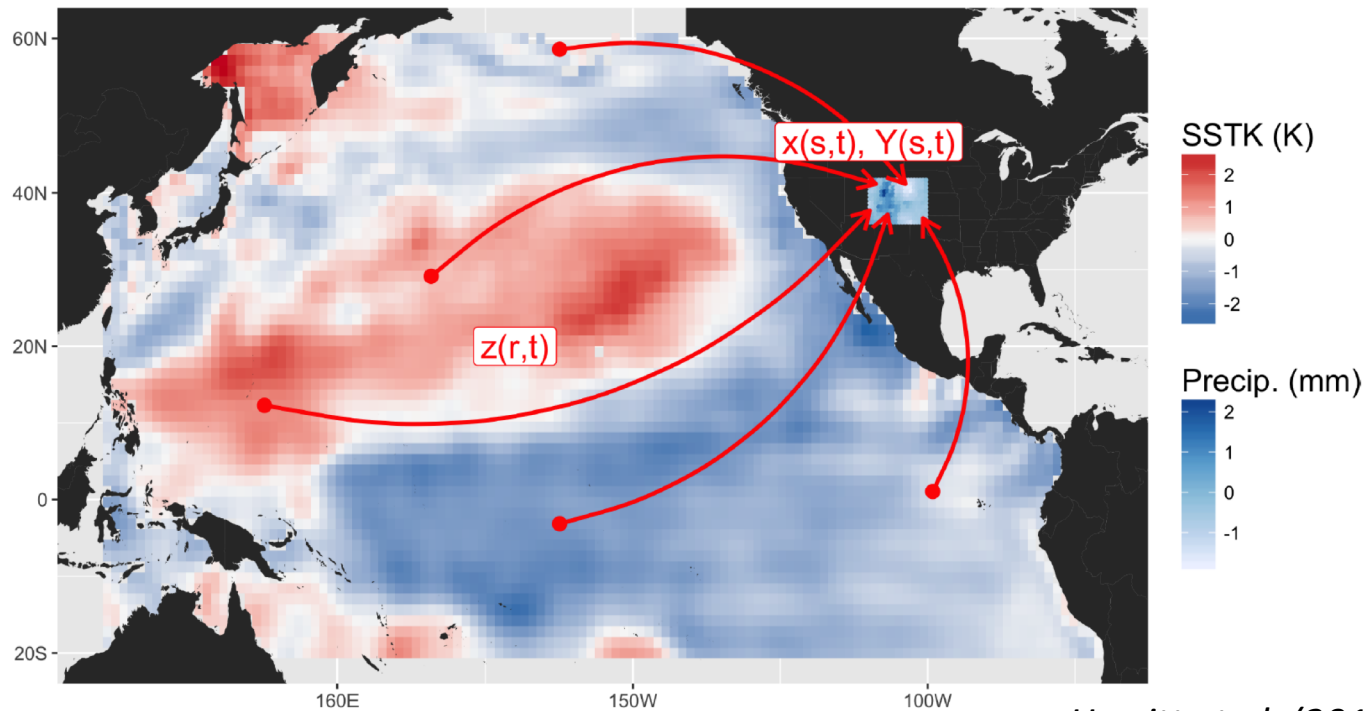
Precipitation



Salvi et al. (2017a,b)

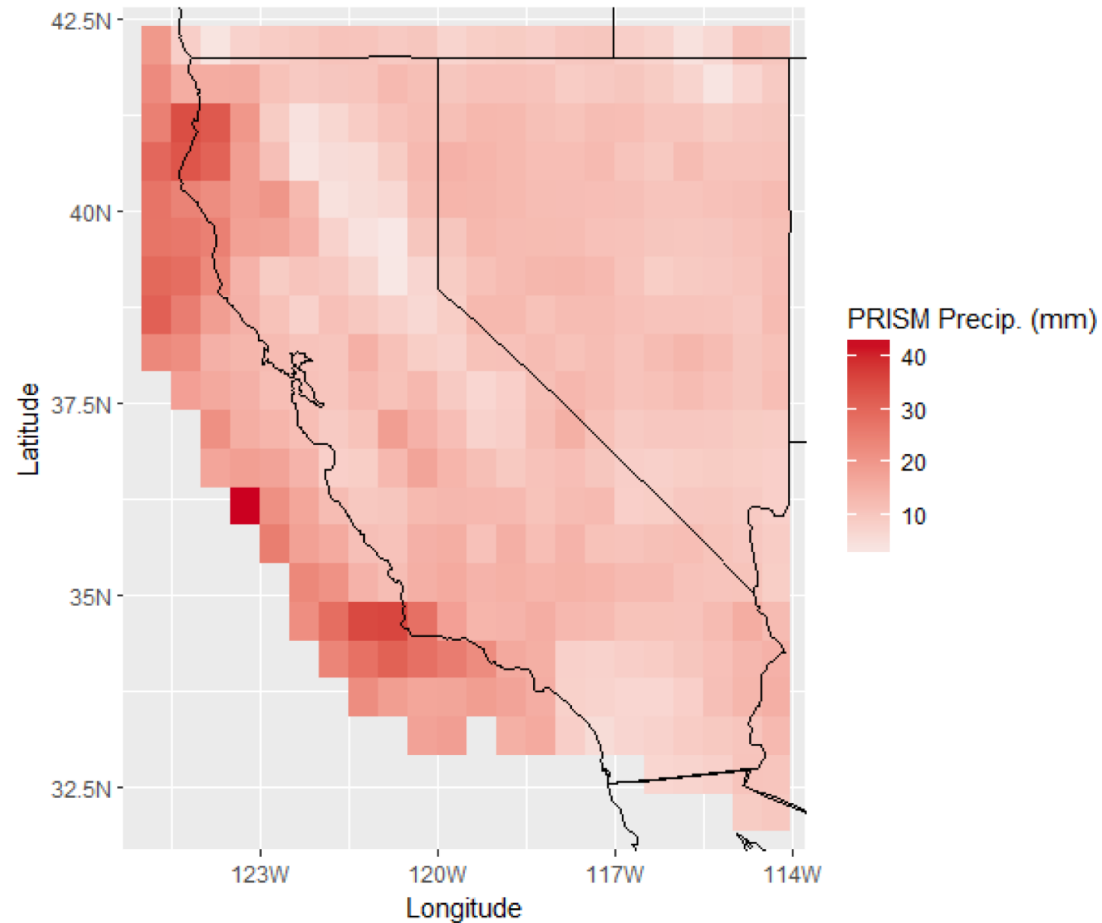
Statistical-Dynamical Prediction of US Precipitation

- Model US precipitation on Pacific Ocean temperature patterns.
- May outperform raw precipitation predictions from global models.



Hewitt et al. (2018)

Winter Precipitation Change under +IPO



Casey Schafer (CSU)

What are the Key Characteristics of Useful Information?

- Finding intersections of skill and need is insufficient.
- Test prototype presentations of predictive information.
- Do predictions narrow the uncertainty compared to projections? And how is this useful?

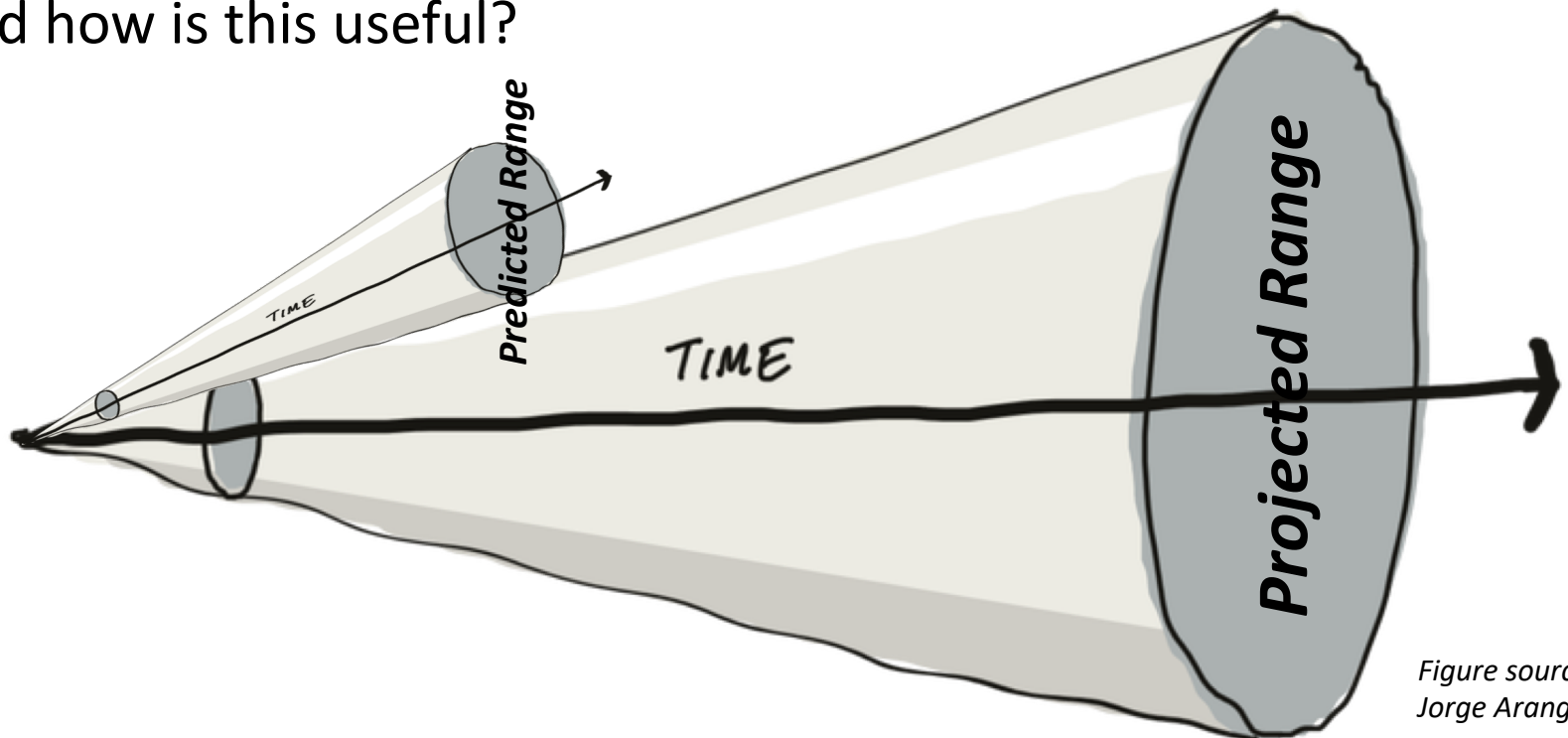
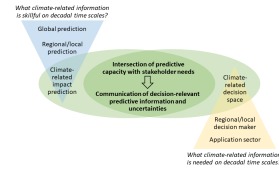


Figure source:
Jorge Arango