Atmospheric River Characteristics under Decadal Climate Variability

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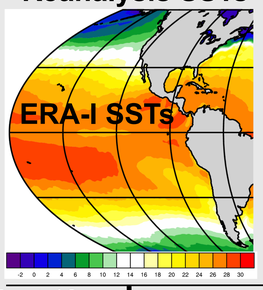
1. Science Question

How does decadal climate variability change the nature and predictability of atmospheric rivers over the Western U.S.?

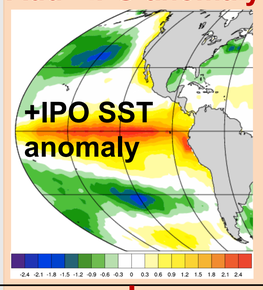
2. Approach

Simulations of the 2016/2017 season under opposite phases of the Interdecadal Pacific Oscillation (IPO), using the Model for Prediction Across Scales.

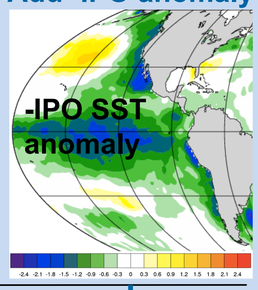
Control Runs
Reanalysis SSTs

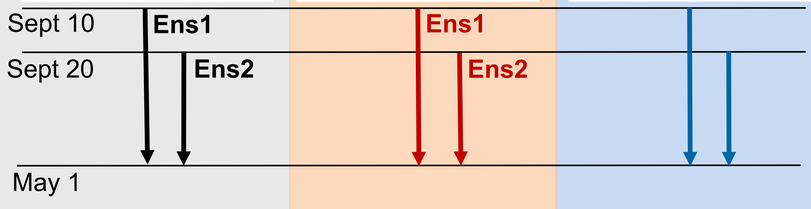


+IPO Runs
Add +IPO anomaly

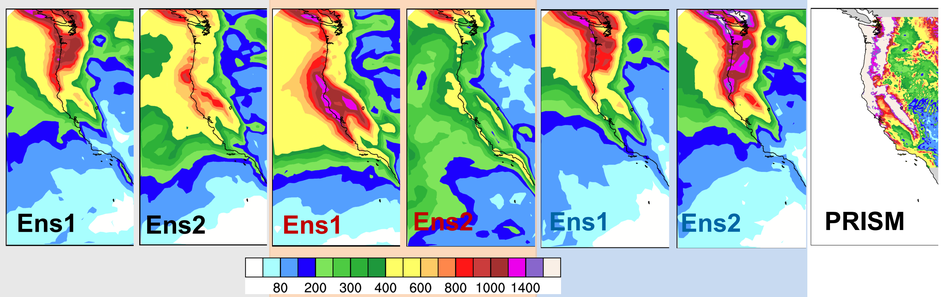


-IPO Runs
Add -IPO anomaly





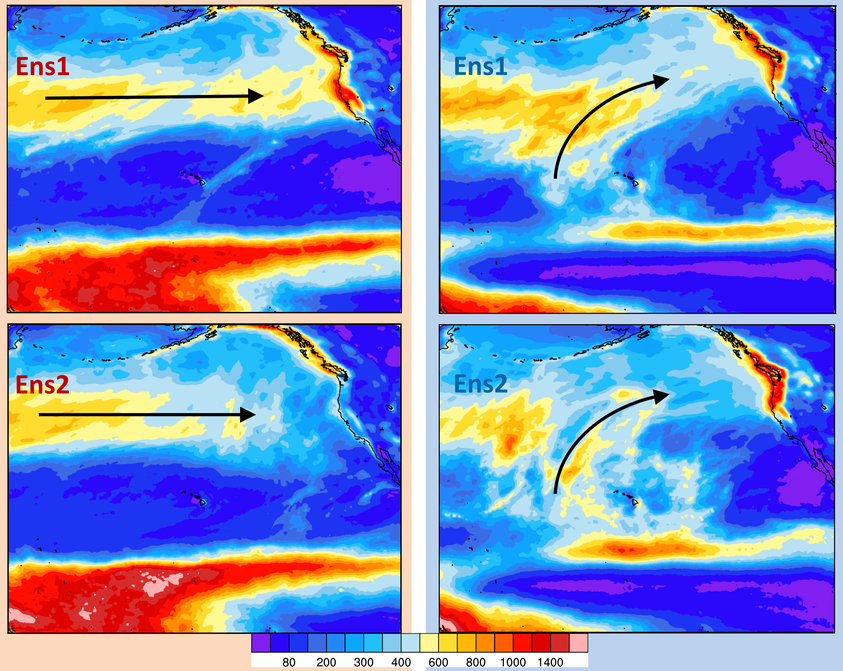
Total Western U.S. Precipitation (mm)



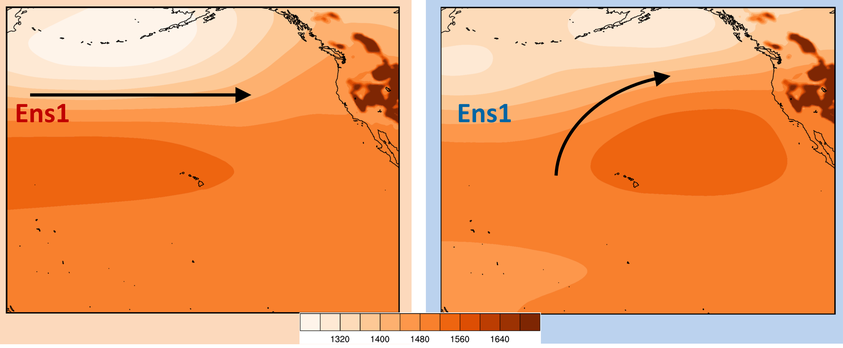
3. IPO modifies connection to tropical moisture

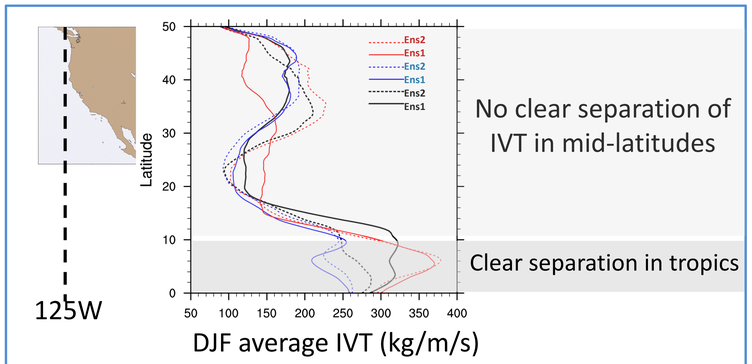
+IPO | **-IPO**

DJF Precipitation (mm)



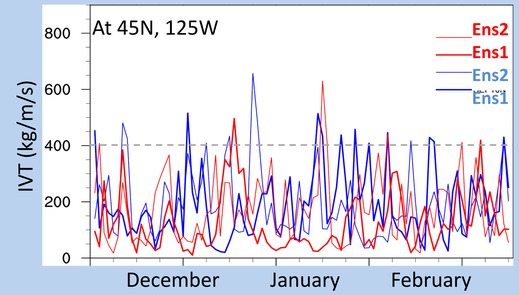
DJF 850hPa Geopotential Height (m)



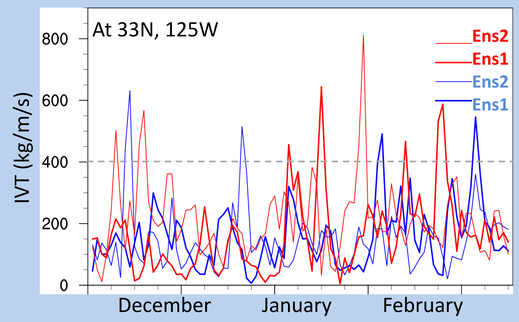


4. IPO modifies latitude of AR landfall

Pacific Northwest:
2.3 times the number of strong ARs in -IPO than +IPO



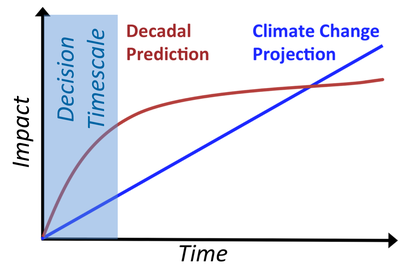
Southern California:
1.8 times the number of strong ARs in +IPO than -IPO



NSF AGS-1419563

UDECIDE

- This work contributes to the UDECIDE (Understanding Decision-Climate Interactions on Decadal Scales) project.
- UDECIDE explores the role of decadal climate information for water management decisions.



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