



INVESTIGATING FUTURE  
HYDROLOGIC VARIABILITY  
IN THE COLORADO RIVER  
BASIN WITHIN THE 2-5 YEAR  
RANGE



# The Need

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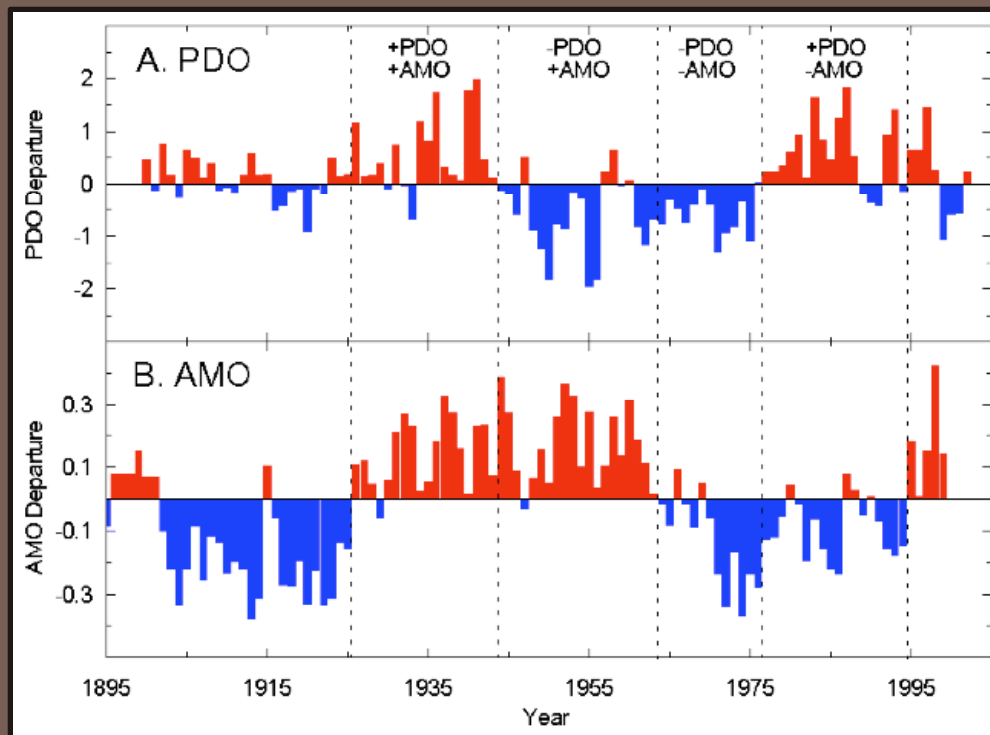
- Improved climate predictability within the 2-5 year range
- Lead to more efficient river management
- Lend policy formation support (i.e. Intentionally Created Surplus)



# Multidecadadal Indices

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- Need a signal that is persistent enough to provide use with useful information for 2-5 year prediction.

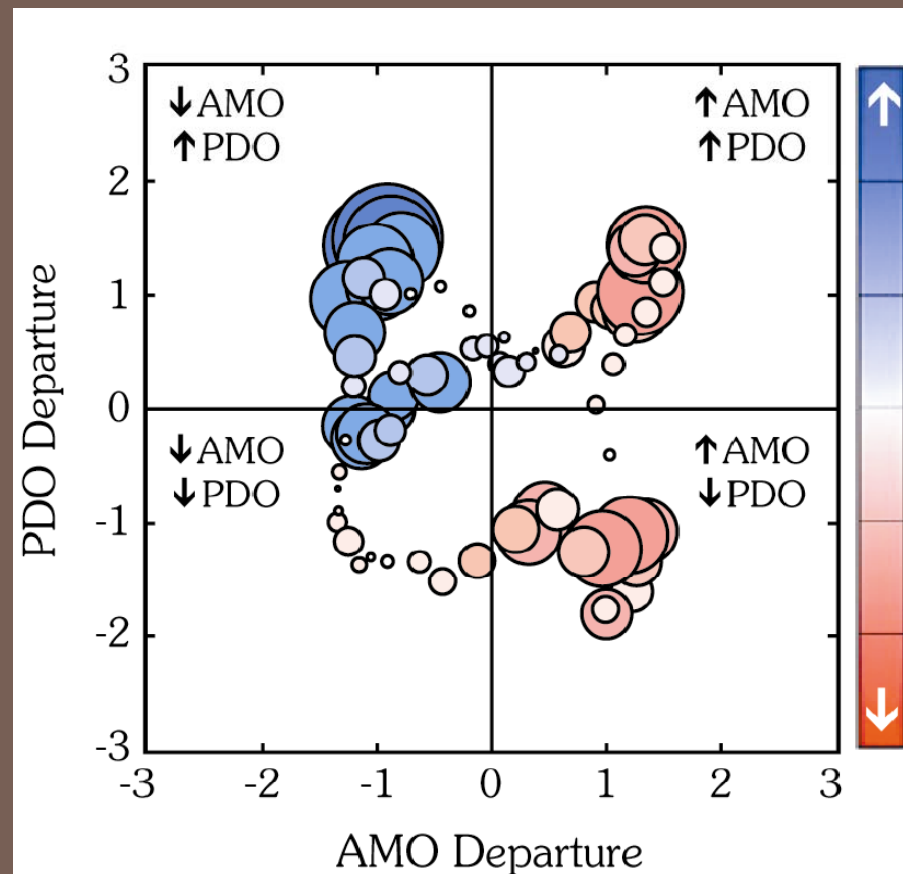


# Correlations with SST and streamflow

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- Generally, low flows in UCRB when AMO is positive (warm).
- Statistically insignificant correlation with PDO and UCRB flows
- However, high flows have generally occur when neg. AMO and pos. PDO

Standardized departure of water year Colorado River stream flow at Lee's

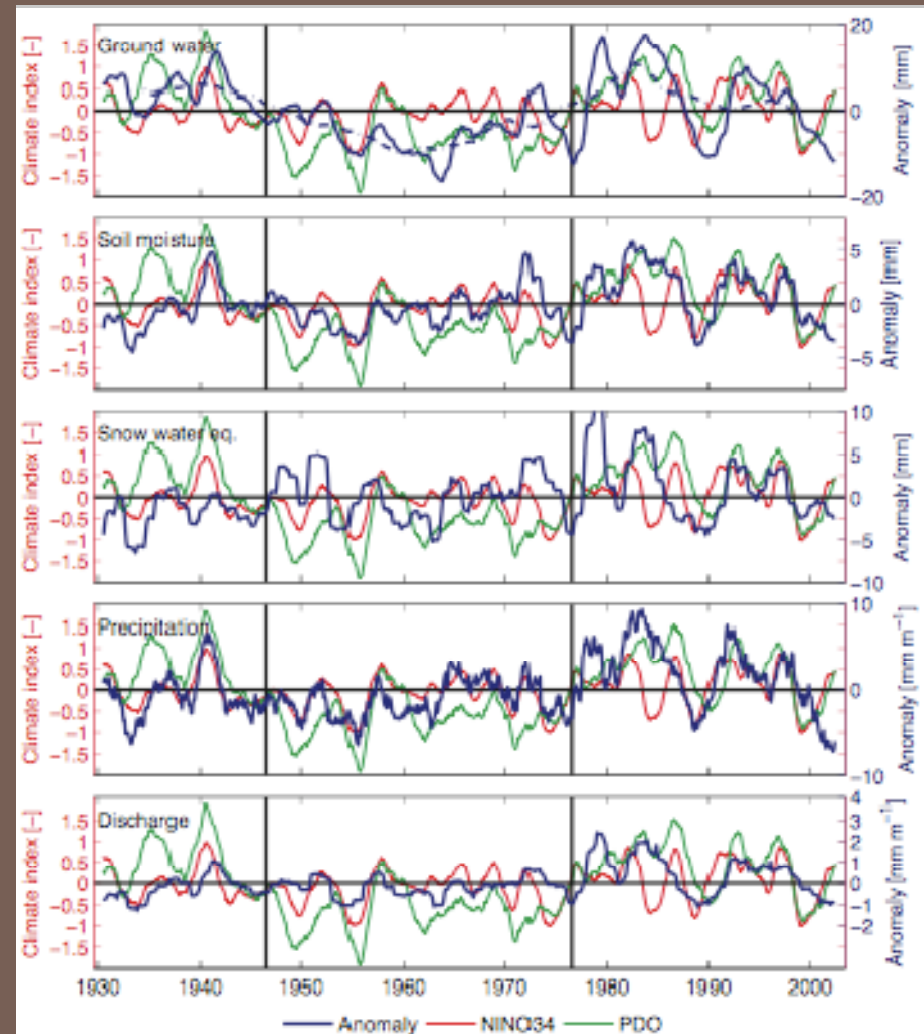


McCabe, Betancourt & Hidalgo, 2007

# Research to date

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- Hurkmans et al. (2008) shows variability for CRB hydrologic properties
- Groundwater patterns follow most closely the PDO signal
- Precip and discharge more variable with positive PDO



# Research to date

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- January and July PDO data correlated with 6 month averages for winter and summer seasons
- 0 and 6-month lags
- Strongest correlation between July PDO and winter average

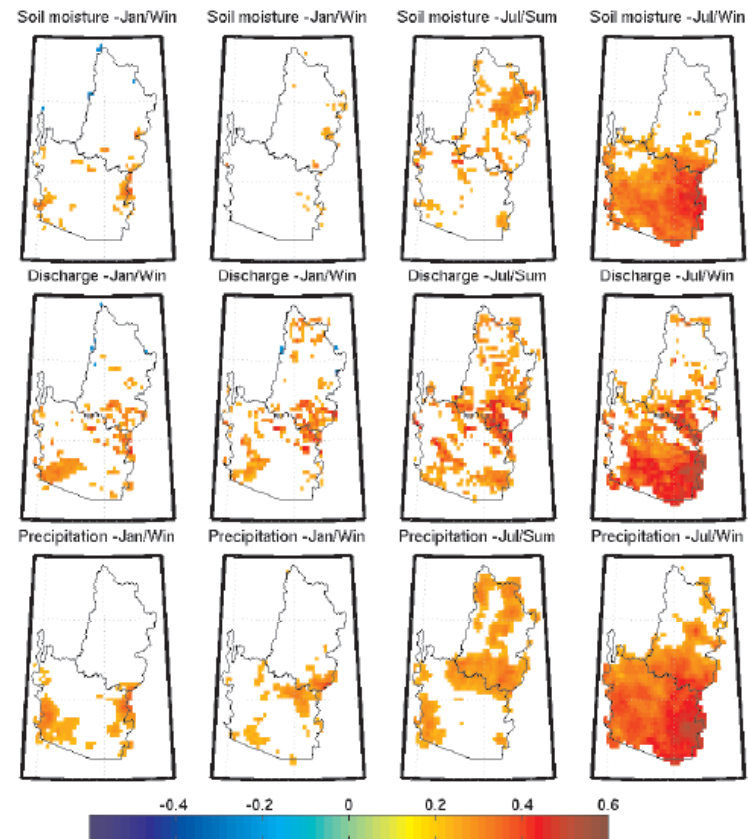


Fig. 9. As Figure 8, but for the climate index PDO.

# Methodology

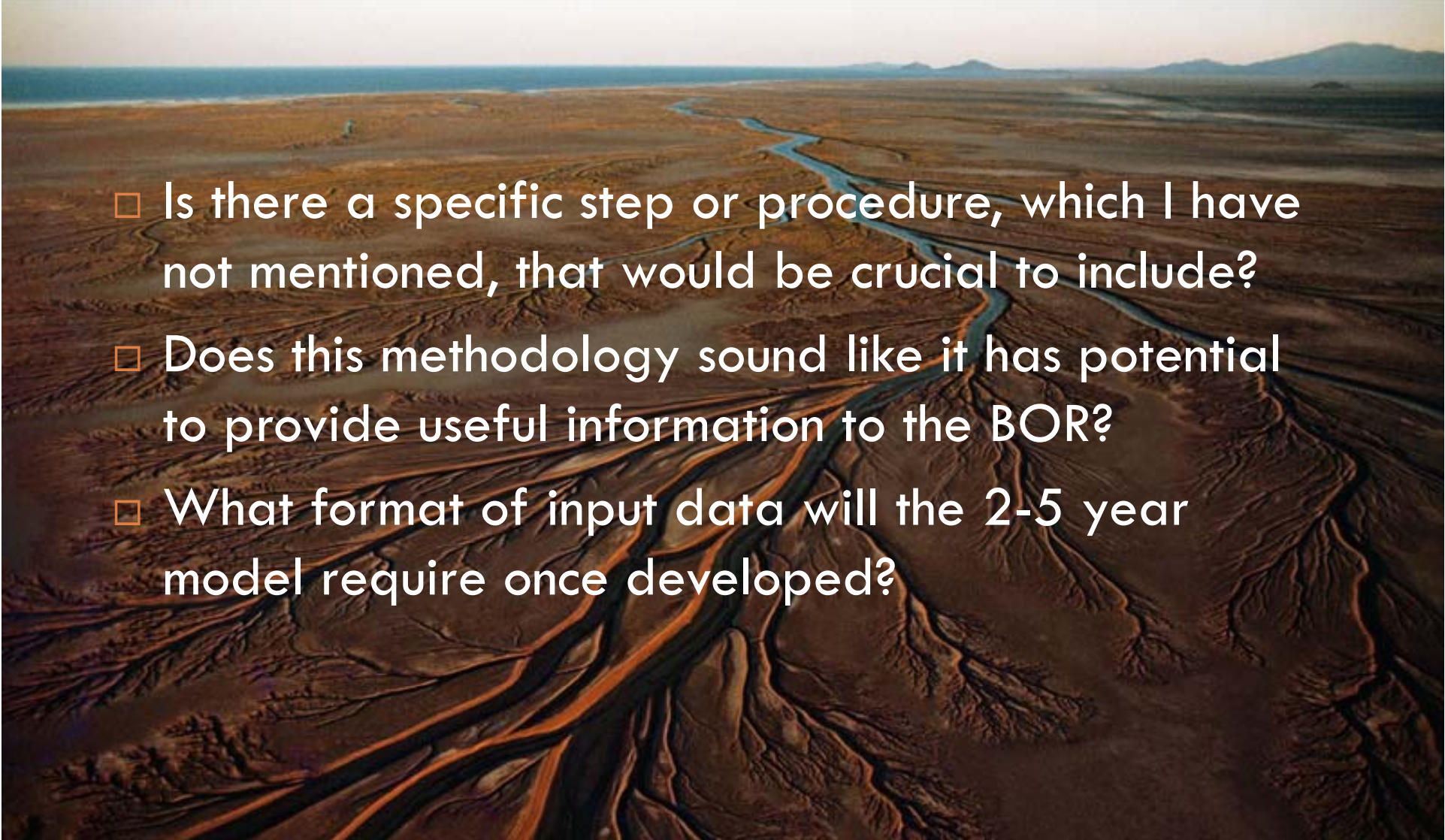
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- Determine if any correlation between VIC output for basin hydrologic conditions and PDO/AMO indices on the 2-5 year range using historical data
- Identify optimum forecasting lag
- Input VIC results into BOR's new 2-5 year river management model



# Suggestions and Questions

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- Is there a specific step or procedure, which I have not mentioned, that would be crucial to include?
  - Does this methodology sound like it has potential to provide useful information to the BOR?
  - What format of input data will the 2-5 year model require once developed?