RECLAMATION

Managing Water in the West

Hood River Basin Study

Climate Change Analysis & Application

12SEP2013

U.S. Department of the Interior

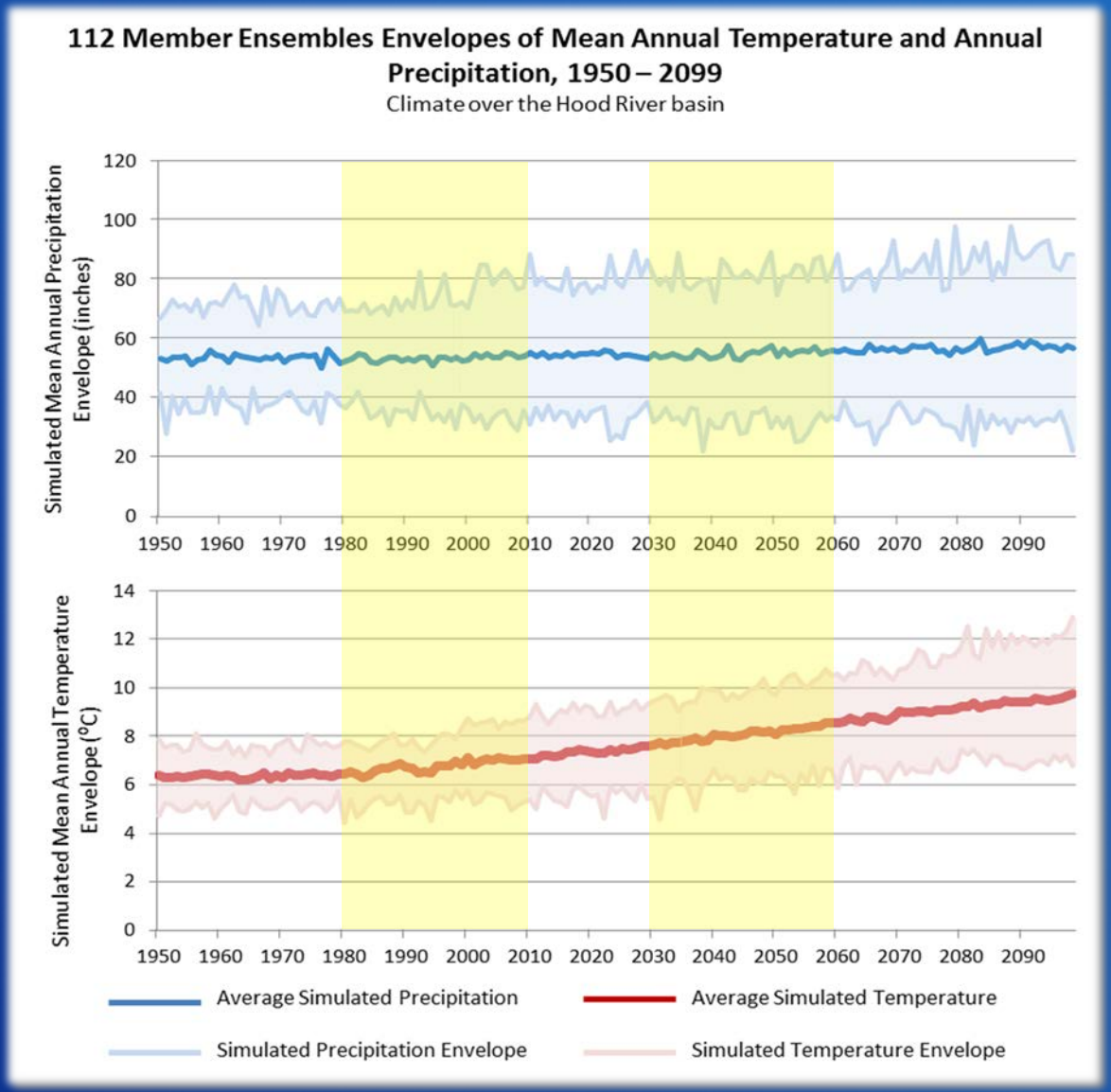
Bureau of Reclamation

Climate Change Conditions

- **Simulation of climate change conditions mimic procedures and strategies used in other Reclamation studies.**
  - **Climate Change Dataset**
    - ***CMIP3***
  - **Projection Processing Technique**
    - ***Hybrid Delta Ensemble using 10 projections comparing 1980 – 2009 vs. 2030 – 2059***
  - **Uncertainty Characterization**
    - ***20 – 50 – 80 percentiles***
  - **Climate Characterization**
    - ***MW/W, C, and LW/D***

CMIP3 Climate Change Data

- **Period Change between 1980 – 2009 and 2030 – 2059**



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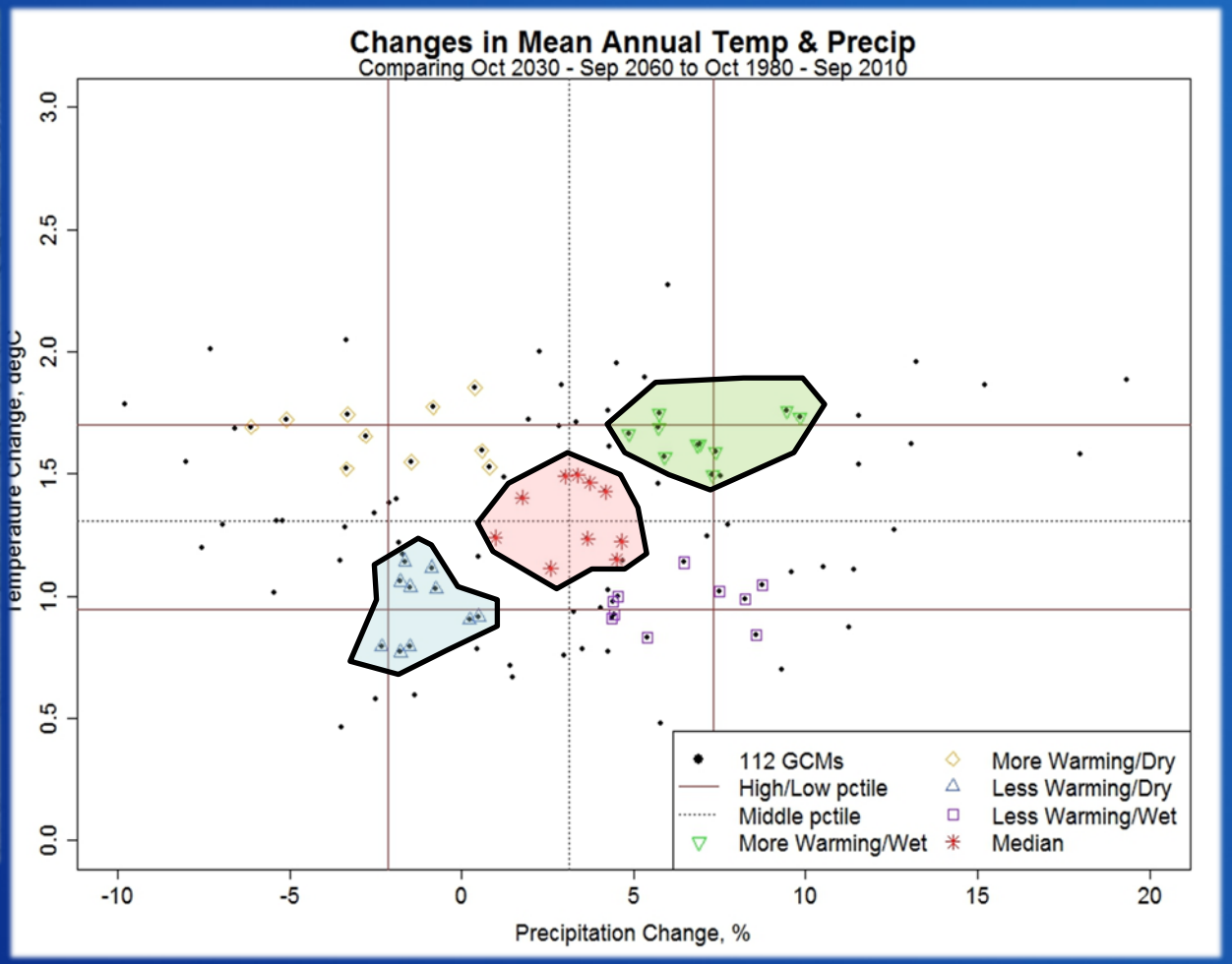
Projection Selection



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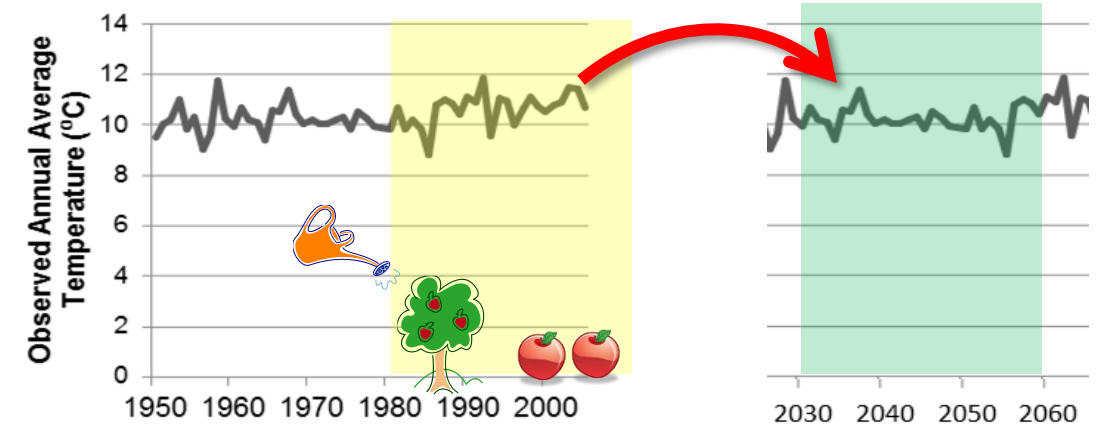
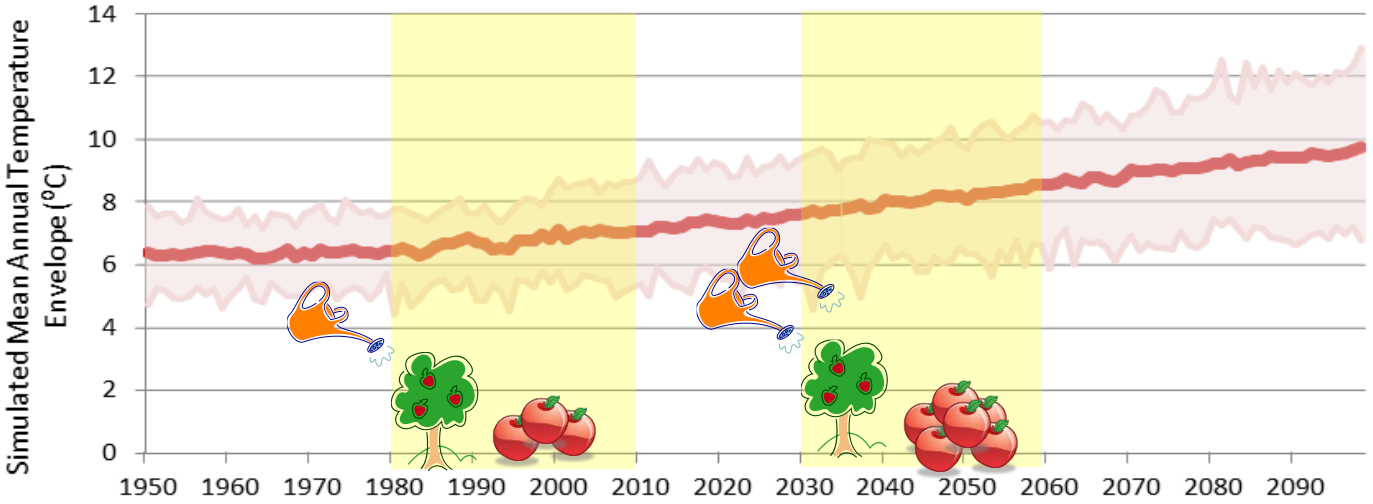
Projection Processing Methodology





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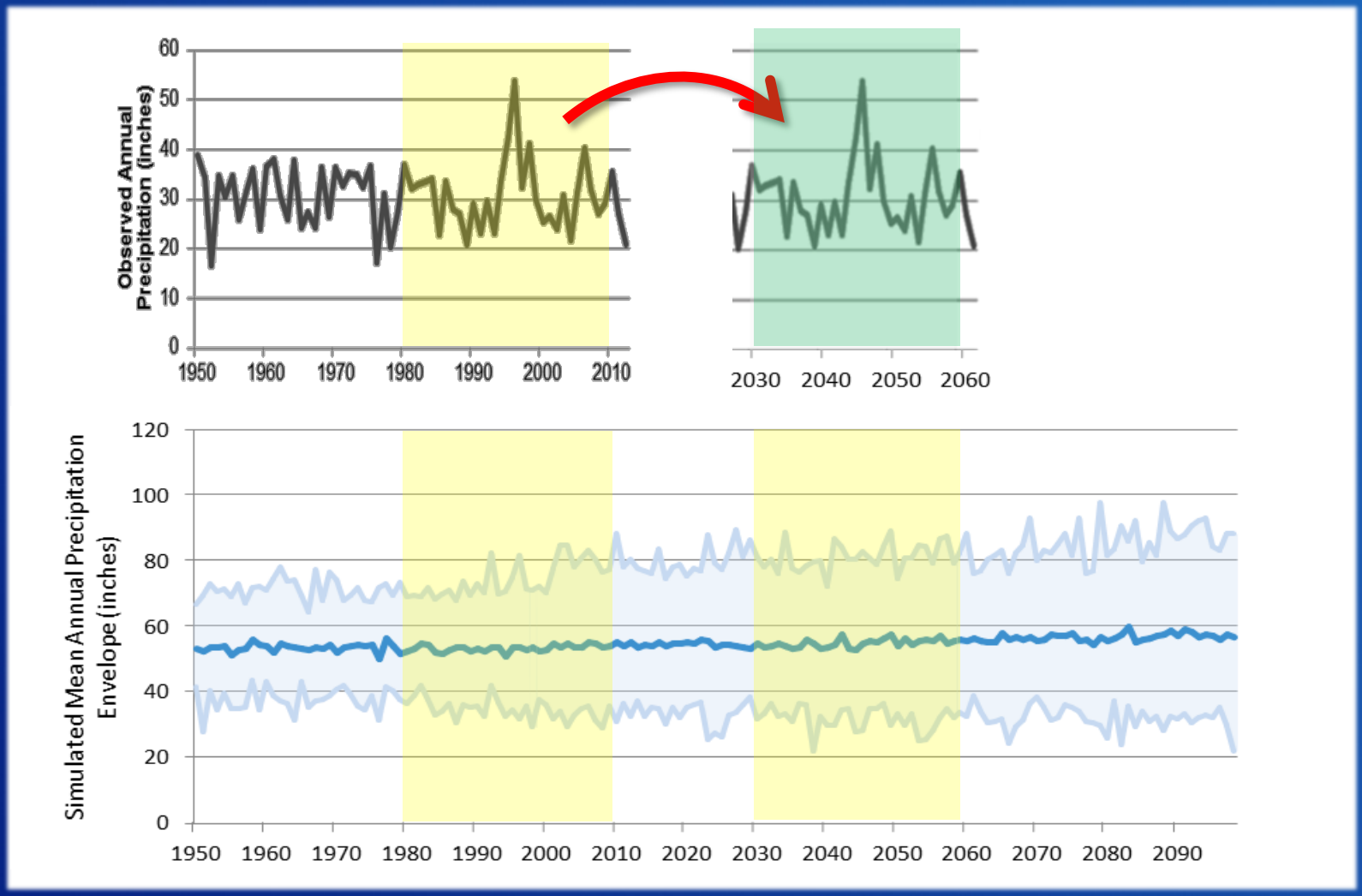
Projection Processing Methodology



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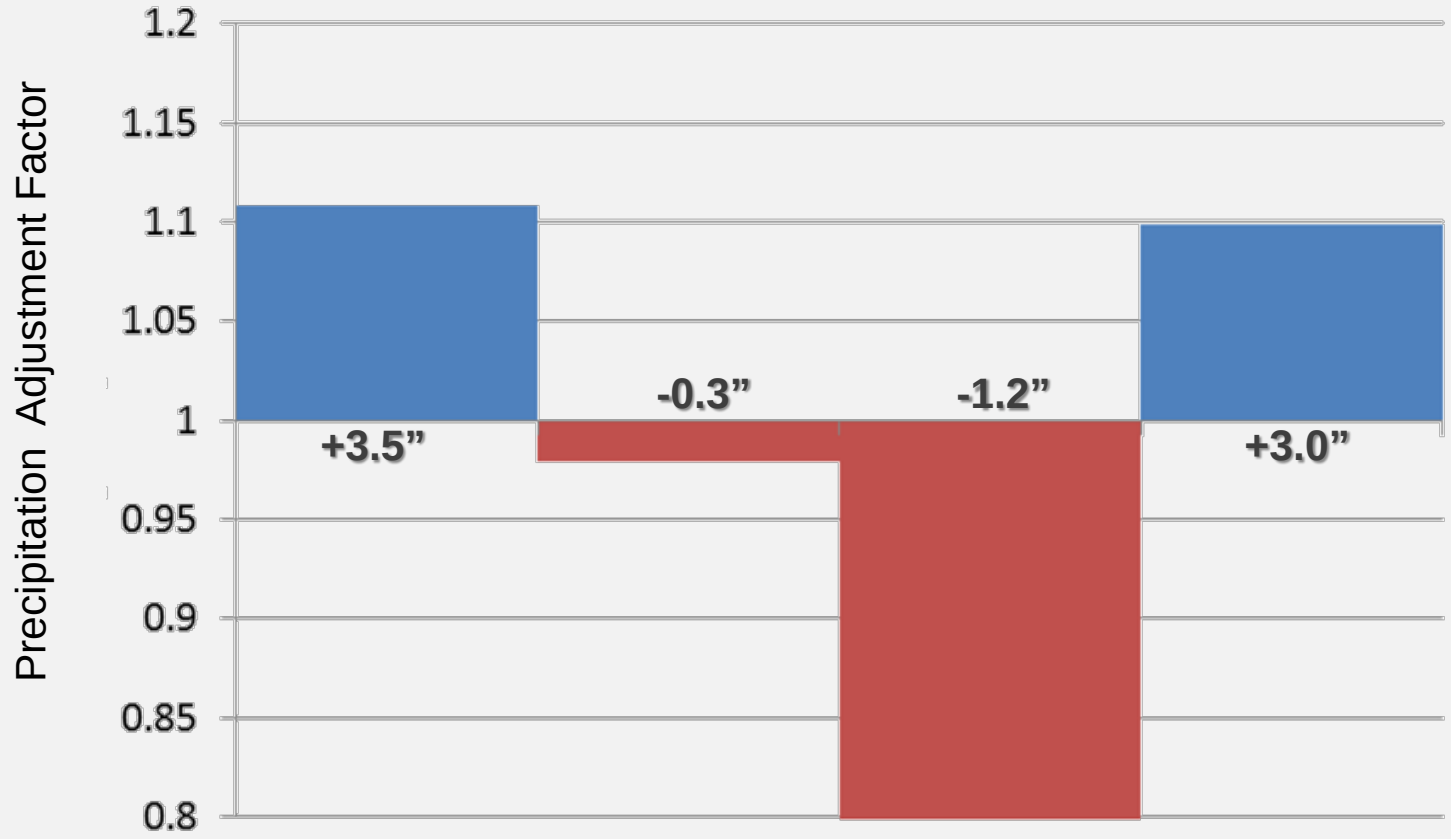
Projected Precipitation: Wet Conditions

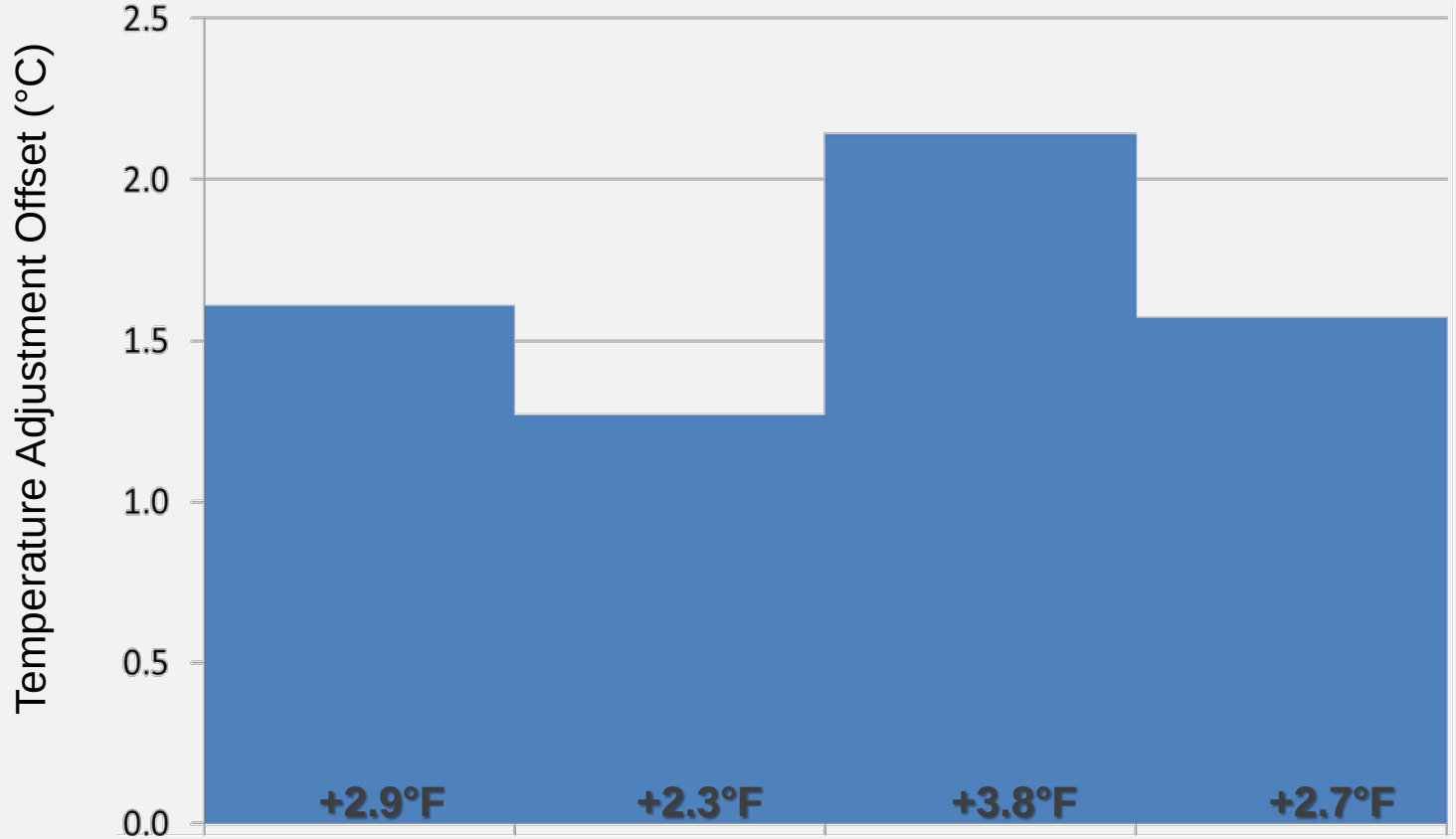


	Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
Average Precip (inches)	32.3	16.7	6.11	33.0

Projected Precipitation: Median Conditions

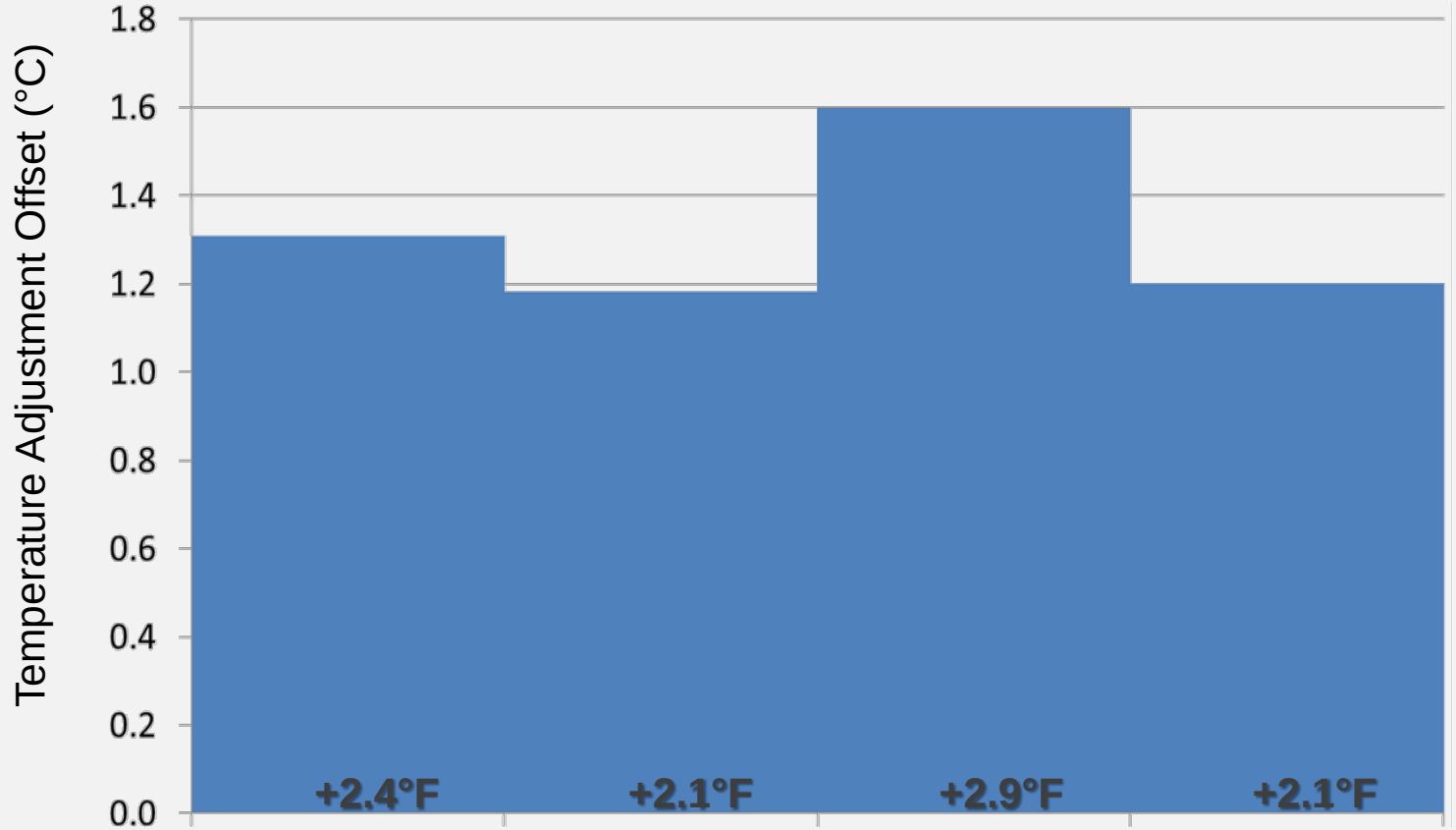
Projected Precipitation: Dry Conditions

Projected Temperature: More Warming Conditions



	Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
Average Temp (°F)	38.8	56.1	64.8	43.0

Projected Temperature: Median Warming Conditions



	Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
Average Temp (°F)	38.8	56.1	64.8	43.0

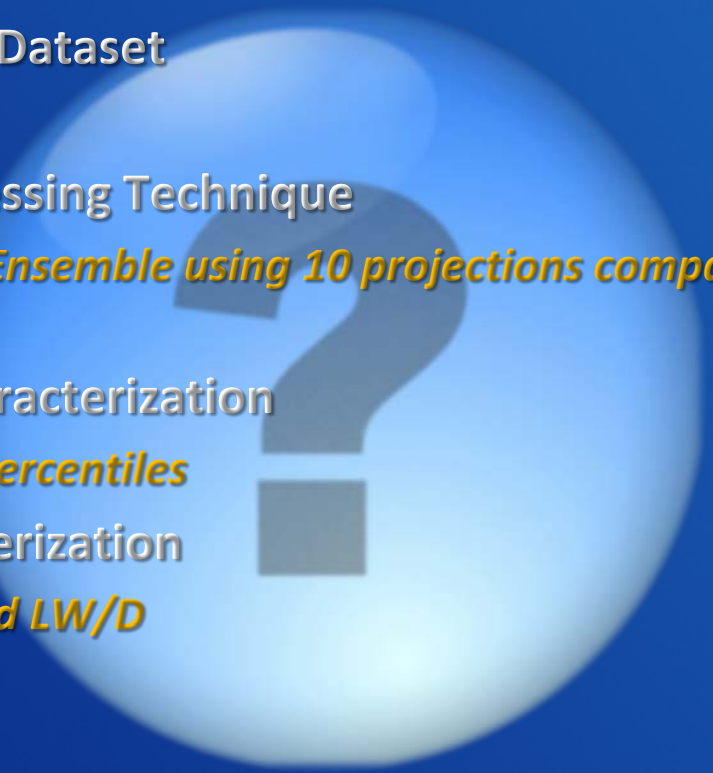
Projected Temperature: Less Warming Conditions

Climate Change Analysis

- **Apply adjusted observed data to hydrologic models to assess climate change impacts.**
  - **Groundwater model and impacts assessed**
    - **MODFLOW: water table, pumping supply, aquifer recharge**
  - **Hydrologic model and impacts assessed**
    - **DHSVM: glacier, rainfall and snowmelt runoff**
  - **Water resource model and impacts assessed**
    - **MODSIM: reservoir storage, stream flows, irrigation supply**

Questions

- Climate Change Dataset
  - *CMIP3*
- Projection Processing Technique
  - *Hybrid Delta Ensemble using 10 projections comparing 1980 – 2009 vs. 2030 – 2059*
- Uncertainty Characterization
  - *20 – 50 – 80 percentiles*
- Climate Characterization
  - *MW/W, C, and LW/D*



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