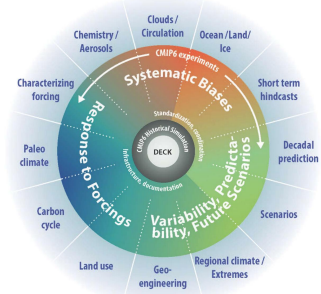


# CMIP6 Task Force



Starting in 2019, MAPP organized the Coupled Model Intercomparison Project phase 6 (CMIP6) Task Force to coordinate research activities targeted toward the development of climate projections.

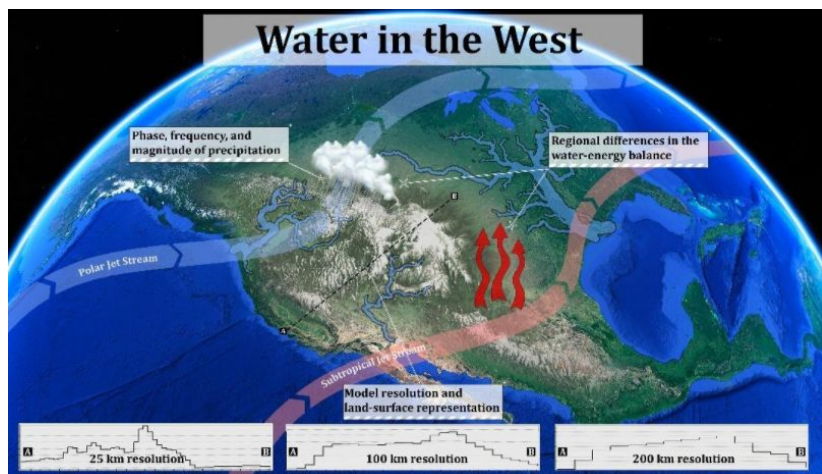
The CMIP6 Task Force links researchers across 13 funded projects from the FY19 21st Century Integrated U.S. Climate Predictions and Projections funding opportunity, to facilitate communication, coordination, and synthesis of research results.

The CMIP6TF has organized around three primary themes described herein and held a virtual 'Write-a-thon' event during summer 2020 that brought together researchers to explore collaborative themes and target input for the fifth National Climate Assessment (due 2023). Major themes include:

- Teleconnections
- Tropical and arctic climate linkages
- Extra-tropical cyclones
- Sea level rise
- Coastal ecosystems and stressors
- Western U.S. hydro-climate
- Heat waves and droughts
- Detection of emergent signals and long-term trends.



## Three Key Thematic Areas of the CMIP6 Task Force

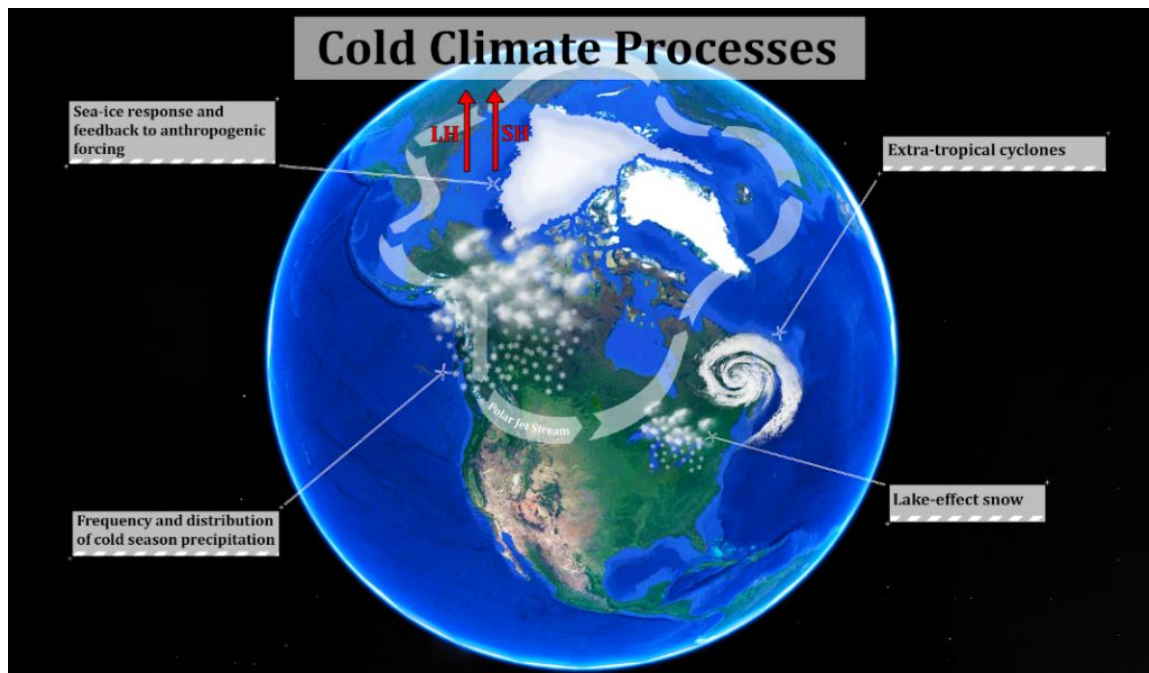


### (1) Water in the West

How will flooding, drought, and water availability change in response to future changes in precipitation phase, cloud cover, and shifts in the surface energy balance?

- How reliable are projected changes across models, scenarios, and variable resolution?
- Which regions are most sensitive to projected changes in mean climate and variability?
- How will changes in phase, frequency, and magnitude of precipitation events impact flood risk and water management?

## Cold Climate Processes



## (2) Cold Climate Processes

How well do the state-of-the-science climate models represent critical cold season processes associated with arctic sea ice, large inland lakes, and extratropical cyclones? What are the projected changes in these processes?

- How will the

frequency and distribution of extreme cold season precipitation change in warmer climates, including ice storms, lake effect snow, and processes related to extratropical cyclones?

- What will the response of sea ice be to thermodynamic and dynamical forcing by the ocean and the atmosphere associated with anthropogenic forcing and low frequency variability of the climate system?
- How will changes in sea ice and extreme precipitation interact? Are feedbacks between sea ice and extreme precipitation captured by the CMIP6 models?

## (3) Combined Extreme Events

How will the magnitude, frequency, and coincidence of extreme events such as drought, heat waves, and marine upwelling change in projected climates?

- What is the definition of a “combined extreme event” in the climate system?
- What do observations and models suggest about the types, magnitudes, and frequencies of combined extremes?
- How can climate models and new analysis tools improve detection-attribution of concurrent and compound extremes?

## Combined Extreme Events

