



Center for Western Weather
and Water Extremes

SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

FIRO WORKSHOP

Applying Climate Change Science to FIRO

Moderator: Mike DeFlorio (CW3E); Slides prepared by Julie Kalansky (CW3E)

Presentations: Scott Steinschneider, Cornell University; Mike Sierks, CW3E

Panelists:

Mike Dettinger, CW3E

John Leahigh, CA DWR

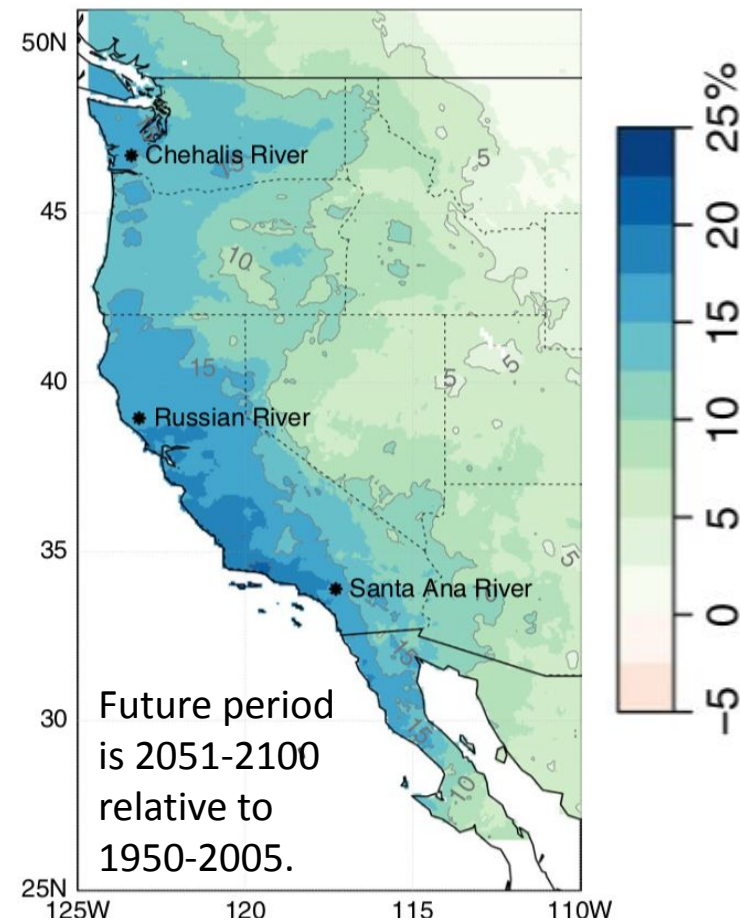
Karla Nemeth, CA DWR

Sean Smith, USACE



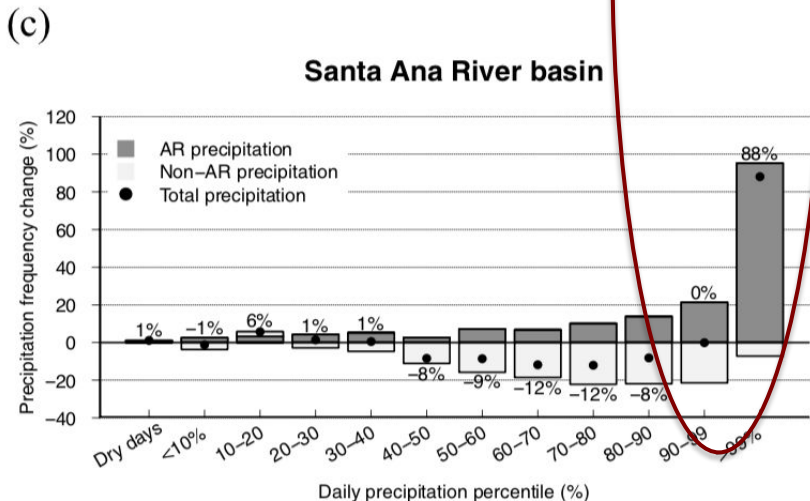
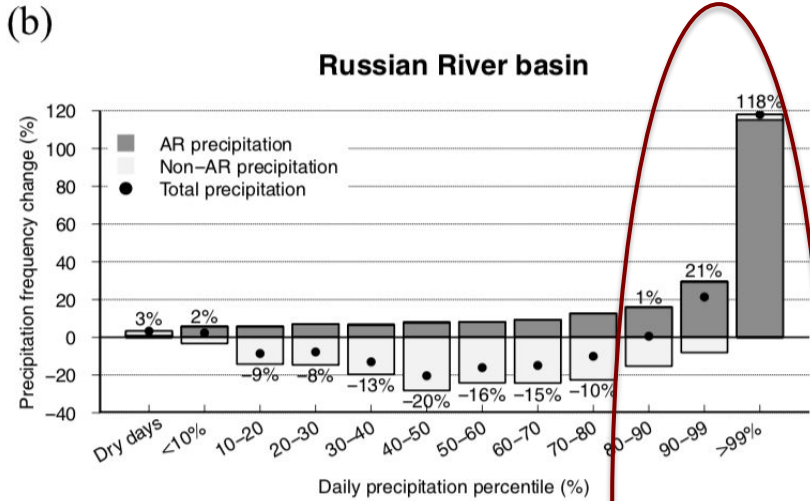
ARs More Important with Climate Change

% change in the contribution of ARs to total precipitation



Precipitation Regime change in Western North America: The role of Atmospheric Rivers

A. Gershunov, T. Shulgina, R. Clemesha, K. Guirguis, D. Pierce, M. Dettinger, D. Lavers, D. Cayan, S. Polade, J. Kalansky, F. M. Ralph, (Scientific Reports 2019)

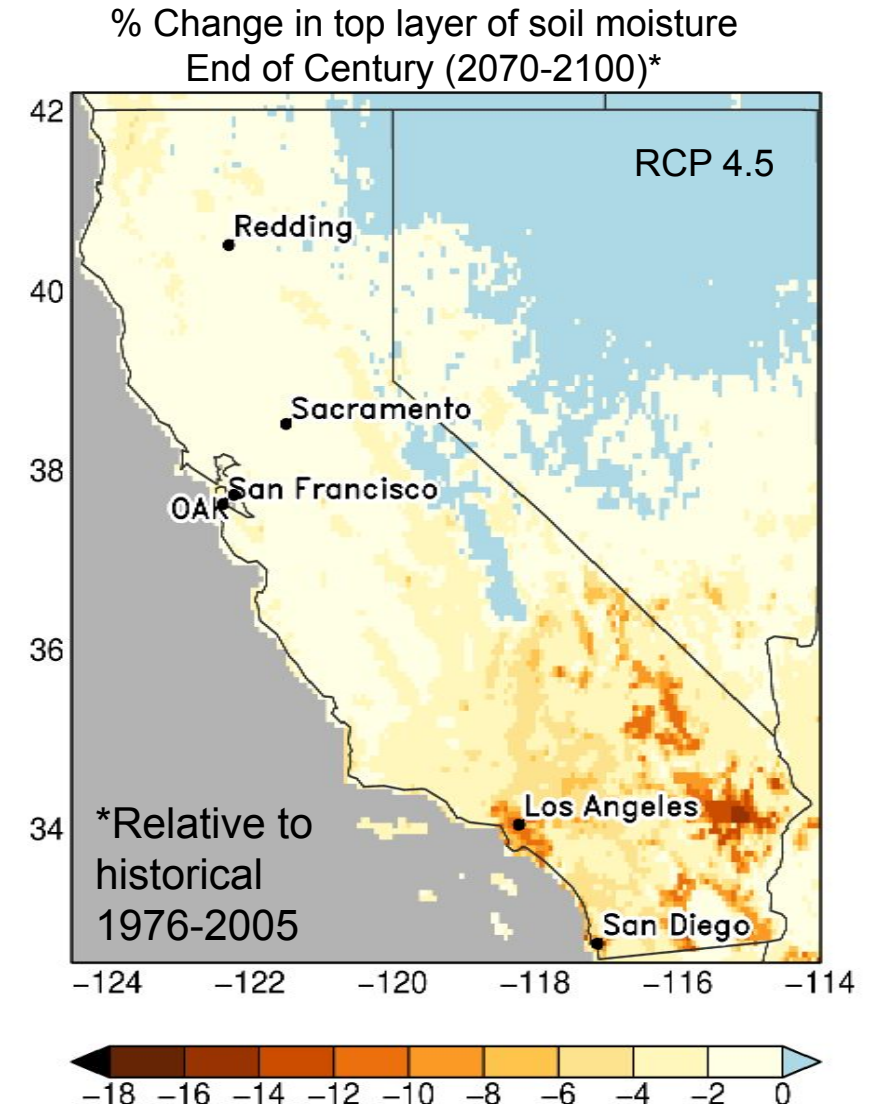


**MOST
EXTREME
EVENTS ARE
GOING TO
OCCUR MORE
OFTEN AND
ARE CAUSED
BY ARs**

Temperature Impacts on Water Resources

Temperature Impacts

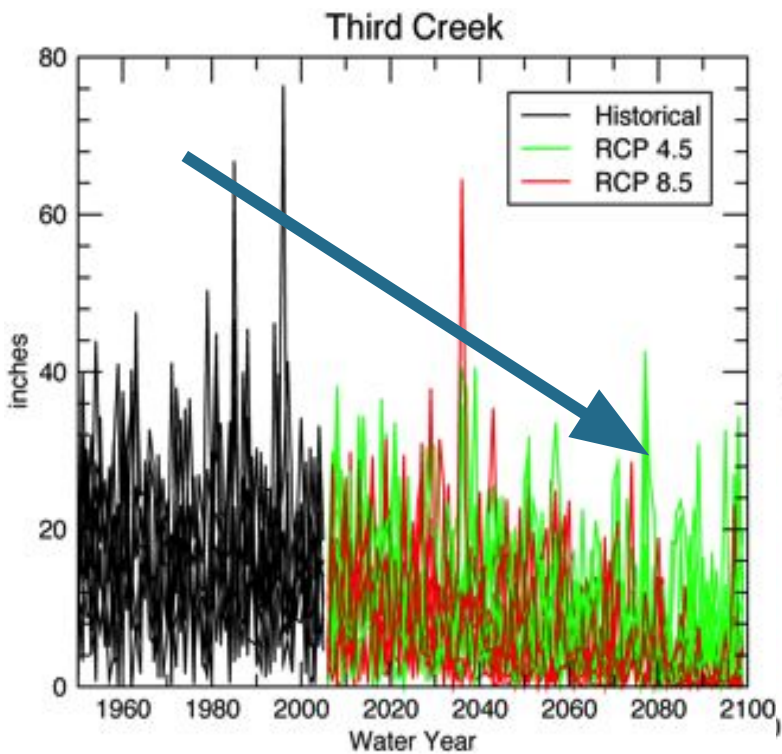
- Reduced Stream Flows
- Warmer water temperatures
- Reduced Run-off
- Reduced Recharge
- Less snow, more rain (snow-drought)



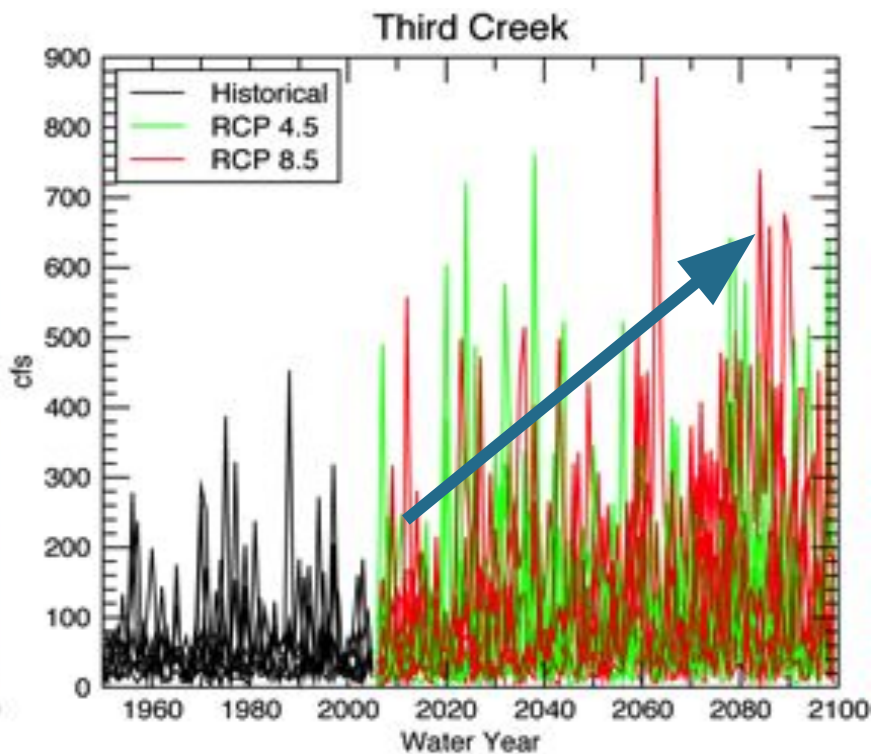
Pierce et al., 2018, California's Fourth Climate Change Assessment.

Snow Loss And Increase Inflow

April 1 Snow Water, Lake Tahoe



3-day MAX FLOWS, Lake Tahoe



*Decrease in snow water equivalent;
increase in 3-day Maximum flows*

Dettinger & Rajagopal, in prep



Center for Western Weather
and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

FIRO WORKSHOP

Applying Climate Change Science to FIRO

Speakers



Scott Steinschneider
Cornell



Mike Sierks
CW3E



Center for Western Weather
and Water Extremes

SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

FIRO WORKSHOP

Applying Climate Change Science to FIRO

Panelists



Michael Dettinger
CW3E



John Leahigh
California DWR



Karla Nemeth
California DWR



Sean Smith
USACE

UC San Diego



Moderator: Mike DeFlorio, CW3E