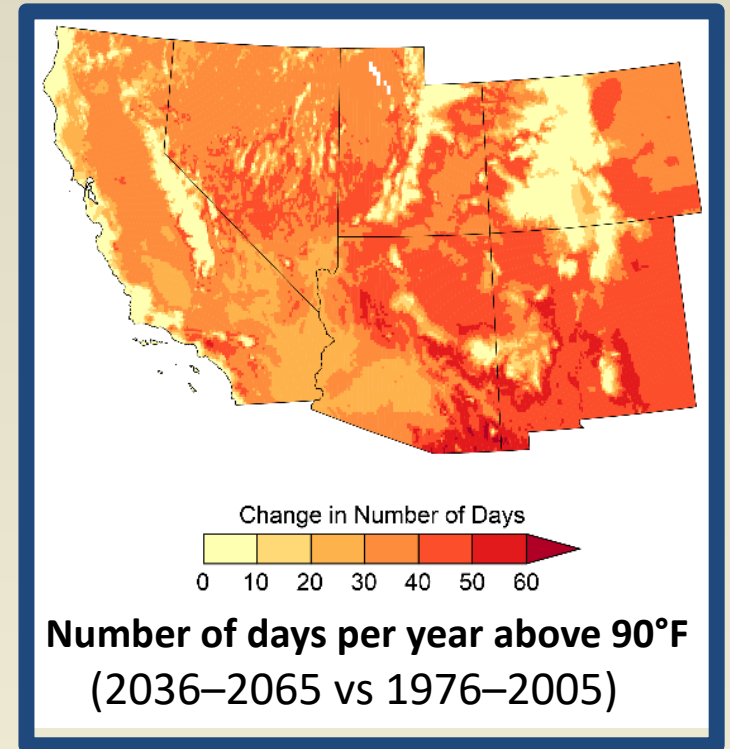


WRRC – Water at the Crossroads:
The Next 40 Years
June 18 & 19, 2020

Reading the Road Signs: Climate and Impacts



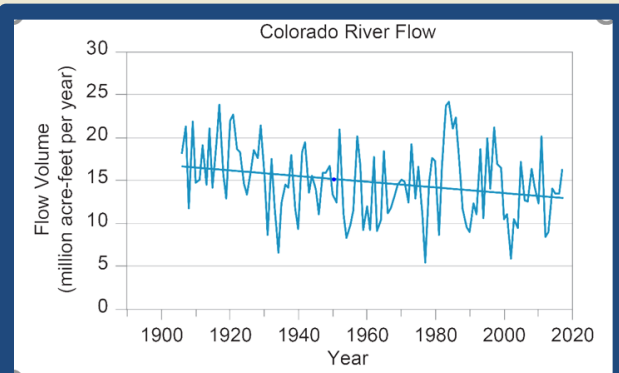
Kathy Jacobs

University of Arizona

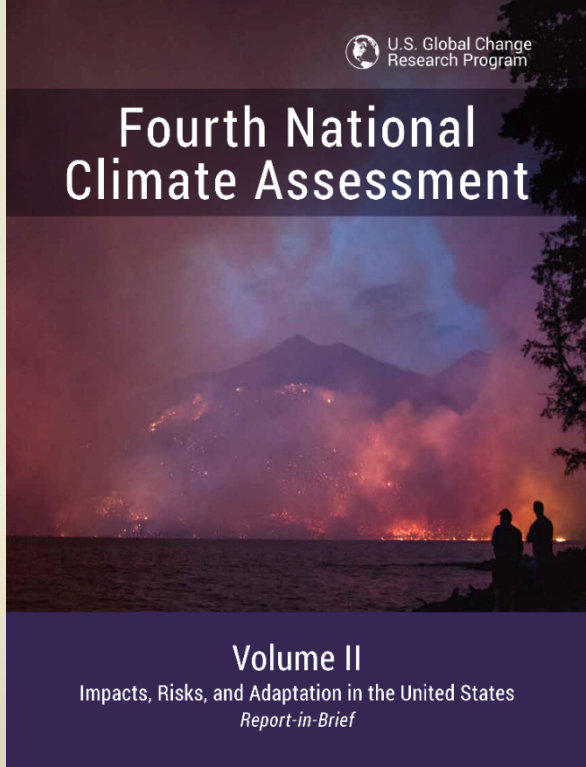
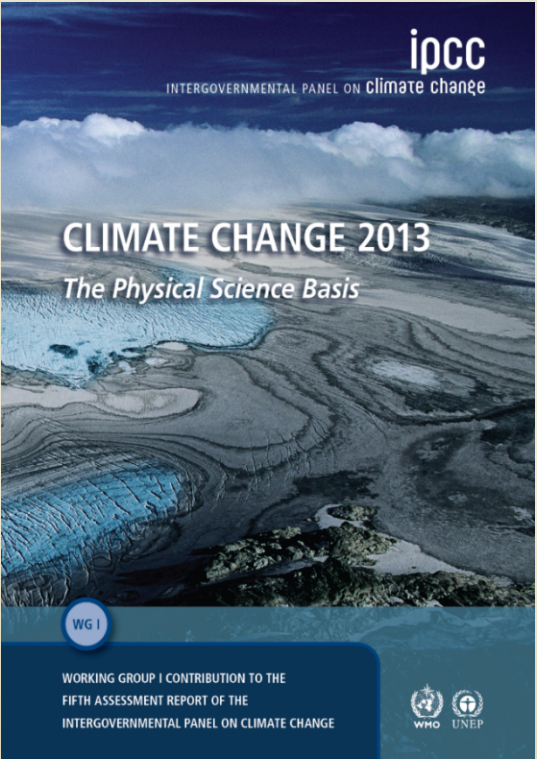
Director, Center for Climate Adaptation

Science and Solutions

Department of Environmental Science



Assessing the Science of the Changing Climate and its Societal Impacts: 5 International and 4 National Climate Assessments since 1990

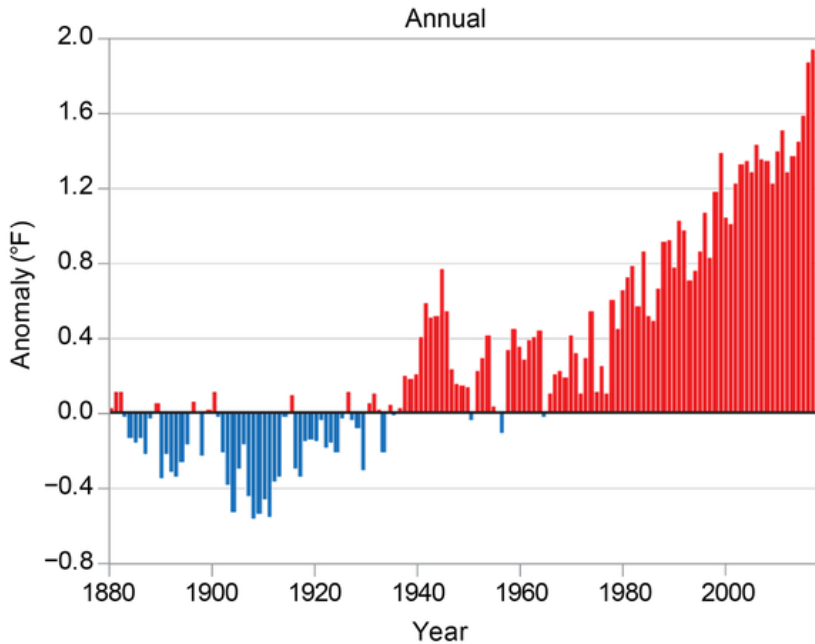


NCA3 and NCA4: Impacts are already apparent in every region and sector, e.g., health, water, agriculture, ecosystems energy....

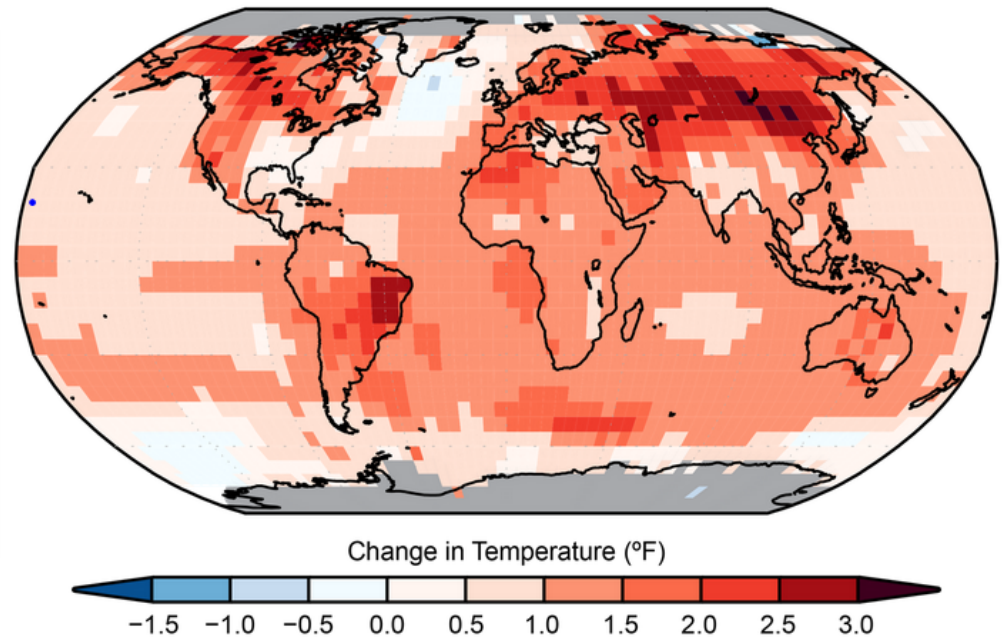


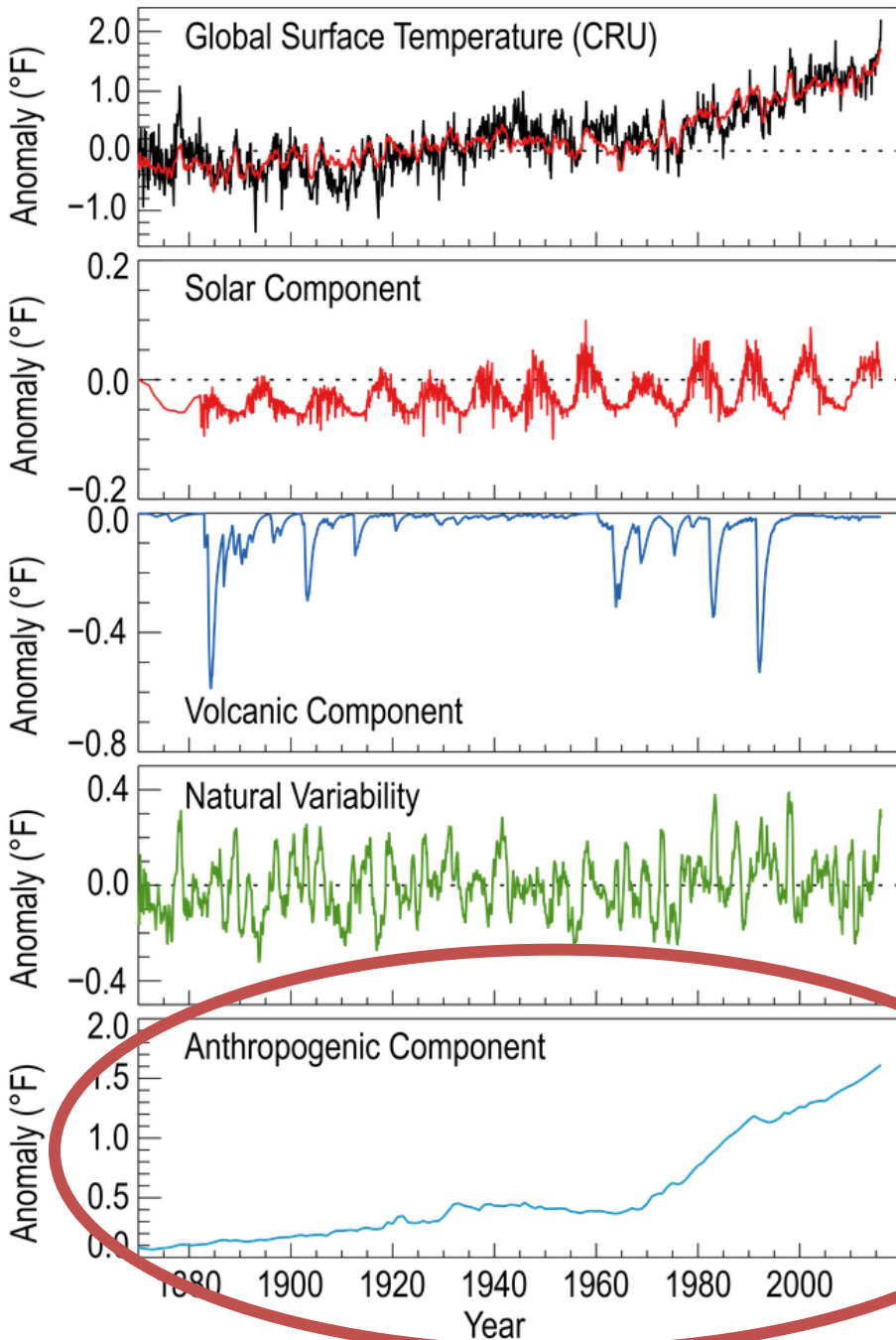
Global Land and Ocean Temperature Anomalies

Global Land and Ocean Temperature Anomalies



Surface Temperature Change

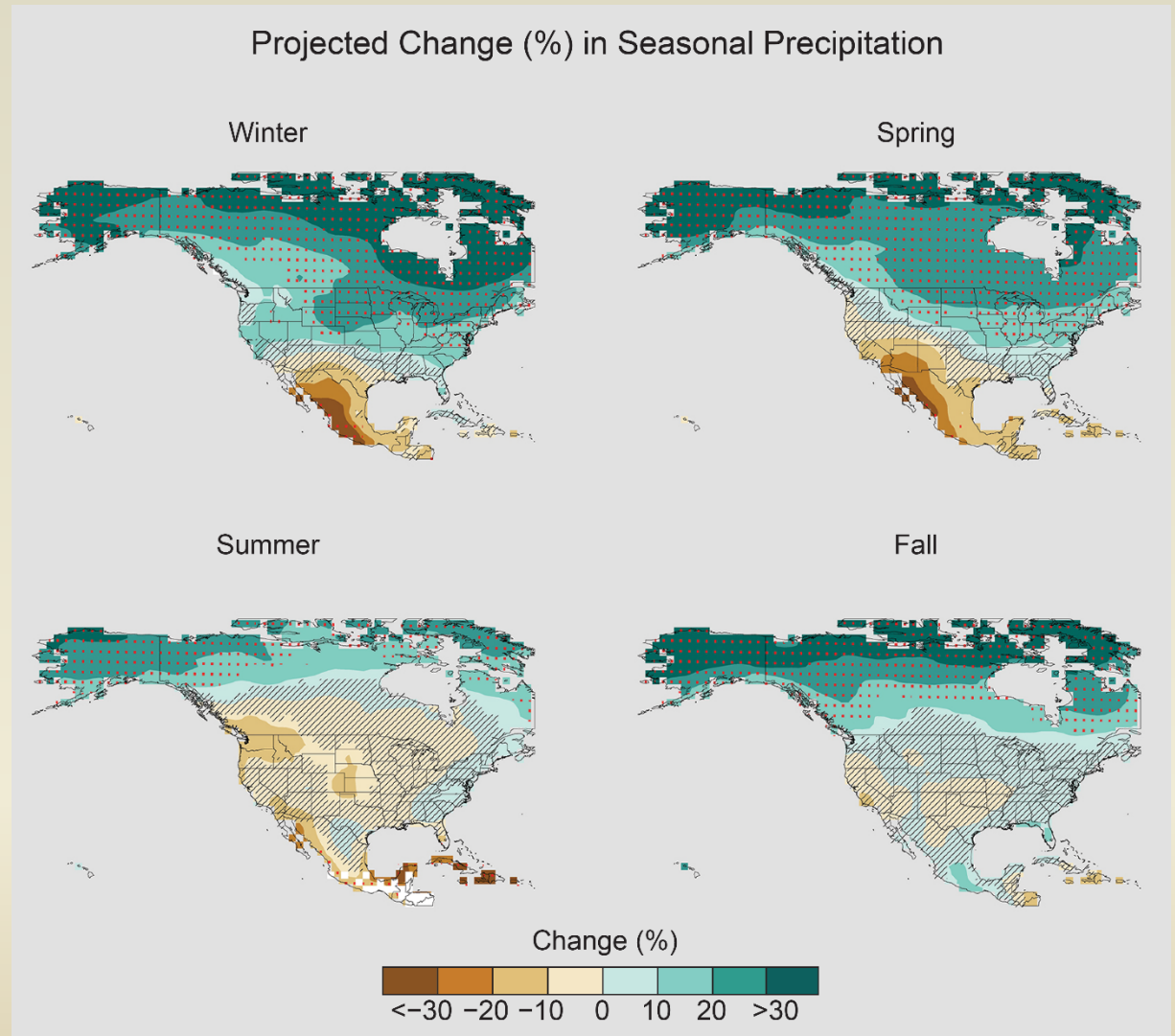




Road Signs: Surface Temperature and Forcing Factors

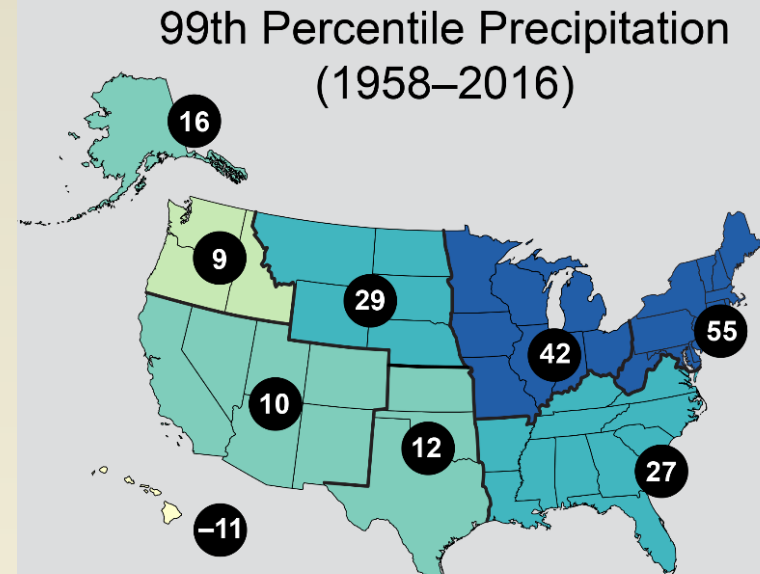
Fourth National Climate
Assessment, Vol. 1, Climate
Science Special Report

Increasing precipitation in northern latitudes...
Generally drier in the SW...



NCA4: Certain Types of Extreme Events Show Important Trends

- Heat waves are generally increasing in number and intensity.
- More precipitation coming as larger events.
- Increasing risk of floods (NE, MW).
- Increasing intensity of droughts (SW, SE).
- Incidence of large wildfires has increased (esp. West, Alaska)
- Increasing intensity of hurricanes expected



Simplifying climate impacts for the **Southwest**

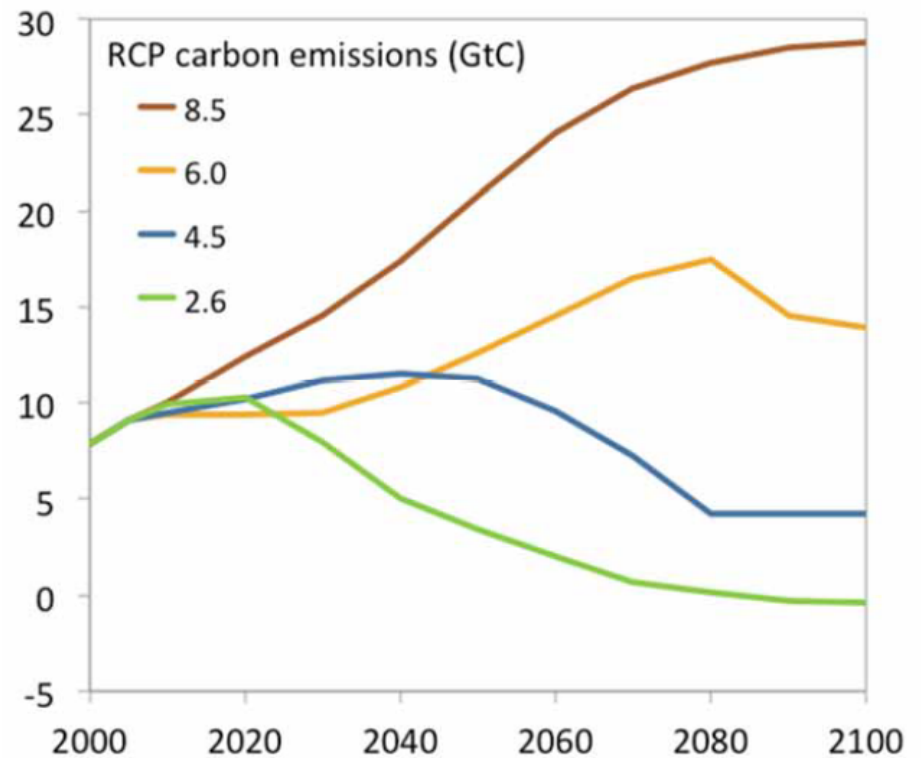
- It is going to get hotter
- Streamflow is lower
- Reductions in snowpack have serious implications for storage and seasonality of flows
- ET is increasing
- Drier on average but with intense rainstorms
- Likelihood of cascading effects increasing (eg heat waves, brown outs, forest fires, air quality, etc)
- Colorado River allocations are at risk
- Serious implications for ecosystems, human health and historically disadvantaged populations



Future Climate Change Depends Primarily on Emissions Levels

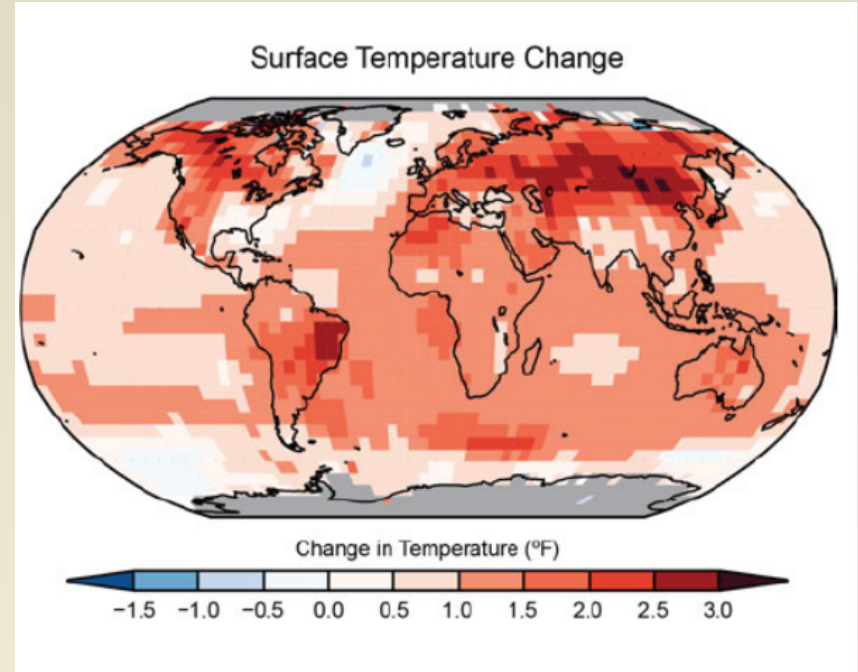


Future Scenarios



The Path Forward

- Is there a way to protect both our economy and the fragile environment that we live in in the context of climate change?
- How can we integrate these factors into land and water decisions?
- Can we manage risk and manage emissions at the same time?



ADEQ



Casa Grande Dispatch

Seeds of hope

- The Precautionary Principle – giving options to future generations
- Protect private property rights – enlightened self interest
- New roles for NGOs and philanthropy
- Recognize the economic benefits of healthy ecosystems
- Solutions tailored to local hydrology, economy, and community values
- Investments in sustainable communities
- Empower emerging leaders

