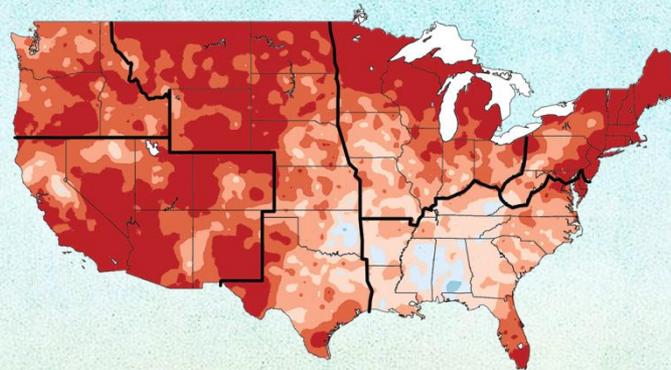


Third National Climate Assessment

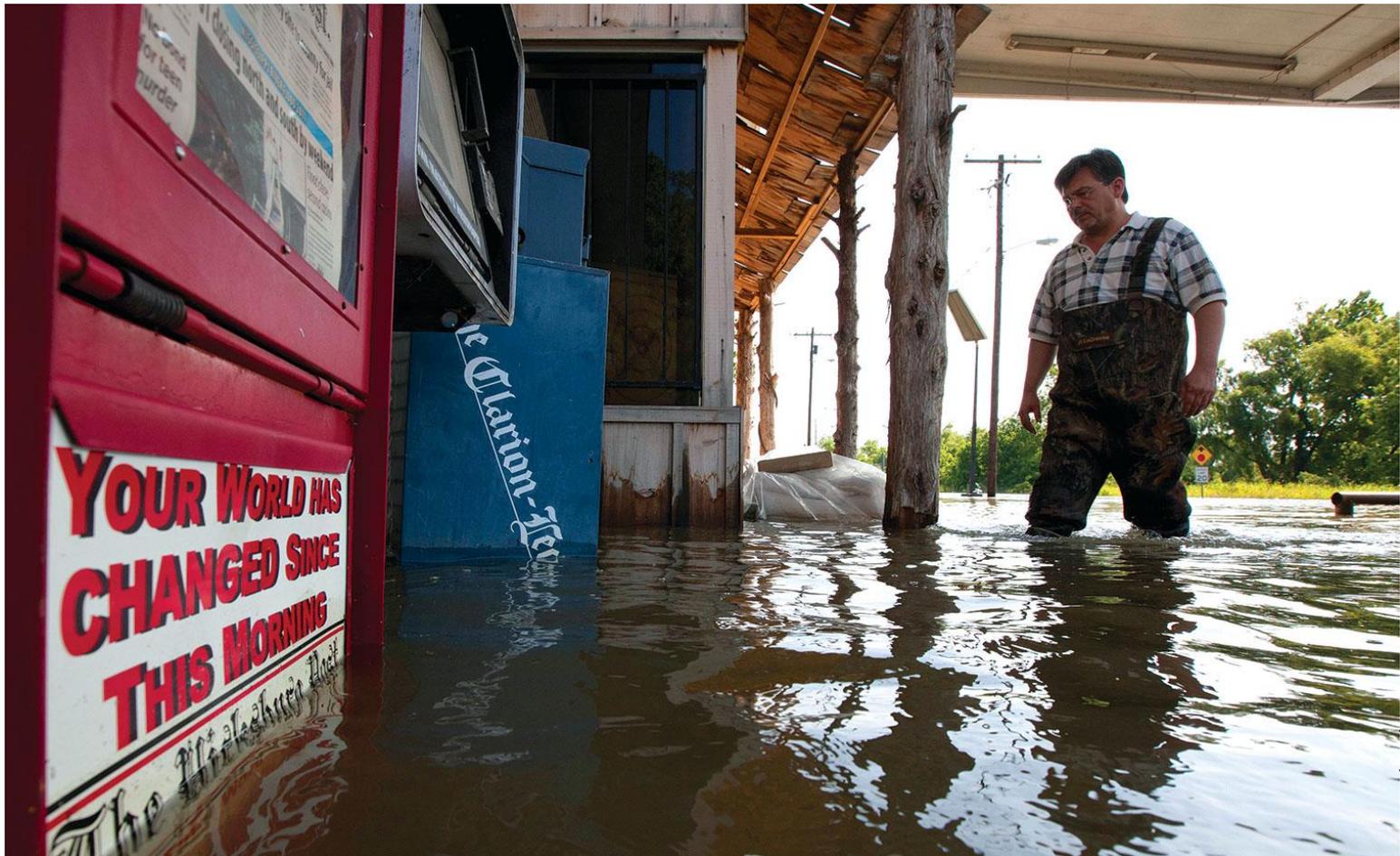
Climate Change Impacts in the United States



TC Richmond, VanNess Feldman
Phil Mote, Oregon Climate Change Research Institute
Paul Fleming, Seattle Public Utilities

May 13, 2014

Human-induced climate change has moved firmly into the present.



© Dave Martin/AP/Corbis

Americans are already feeling the effects of increases in some types of extreme weather and sea level rise.



© Stan Honda/AFP/Getty Images

Date

| Name of Meeting

Impacts are apparent in every region and in important sectors including health, water, agriculture, energy, and more.



© Scott Olson/Getty Images

Date

Name of Meeting

There are many actions we can take to reduce future climate change and its impacts and to prepare for the impacts we can't avoid.



©Dennis Schroeder, NREL



©Esperanza Stancioff, UMaine Extension and Maine Sea Grant

Date

| Name of Meeting

The NCA Process

Inclusive, broader expertise

- 300 authors
- 60 member Federal Advisory Committee

Public engagement

- Listening sessions around the country
- Request for information, input reports

Focus on sustained assessment

- Intermediate products planned as well as quadrennial reports

The NCA Process, continued

New topics covered

- Oceans, Coasts, Urban, Rural, Land use
- Cross-sector links like Energy/Water/Land

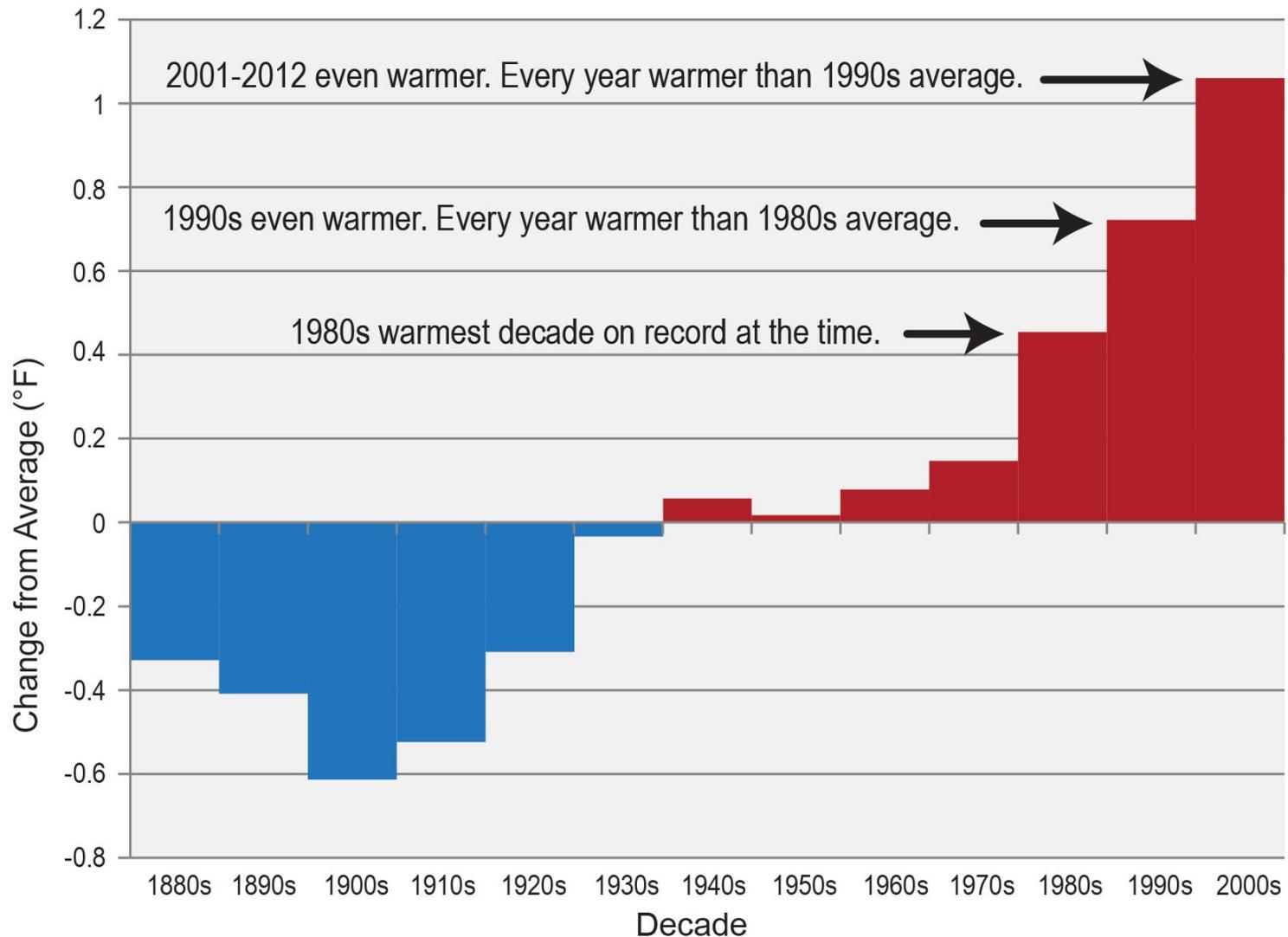
New format

- Digital products and interactive website
- Highlights, GCIS, traceable accounts

Extensive Review

- National Academy of Sciences, agencies, public review, responses to all comments

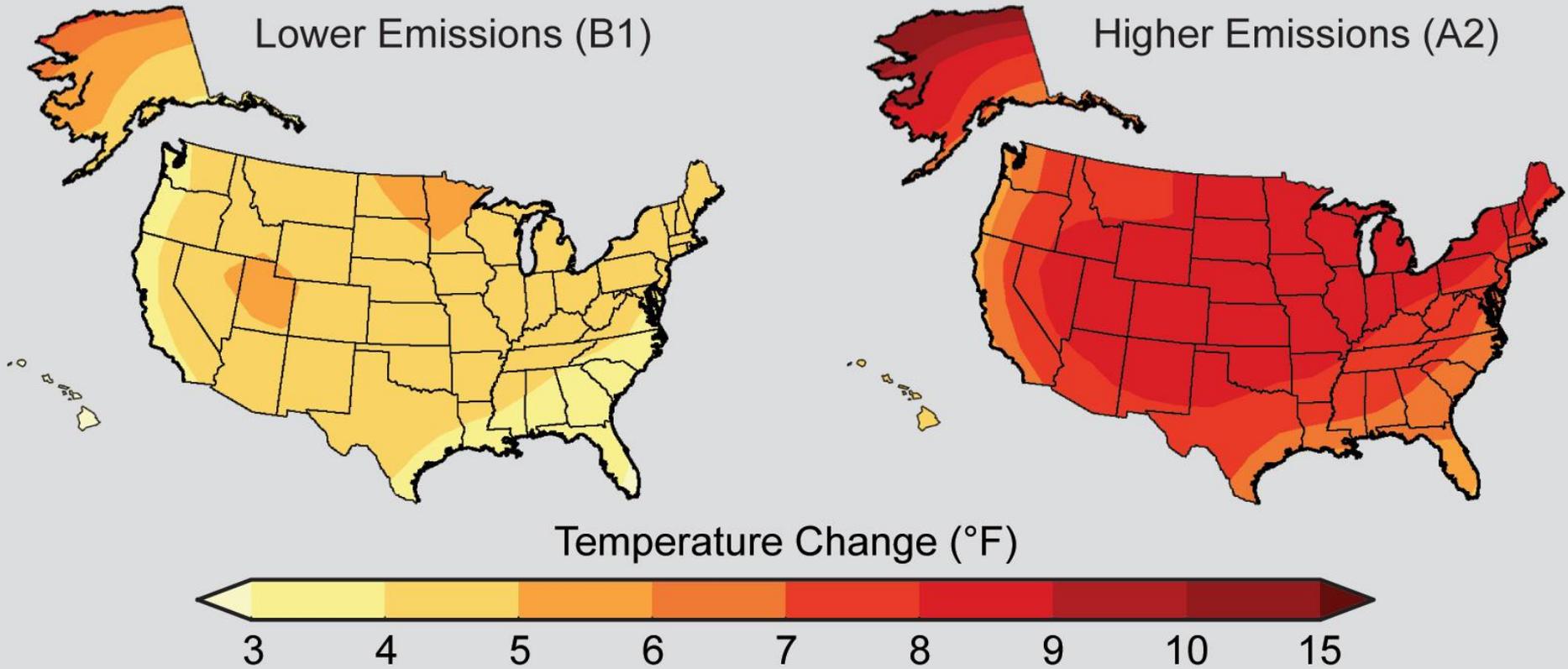
Temperature Change by Decade



Date

Name of Meeting

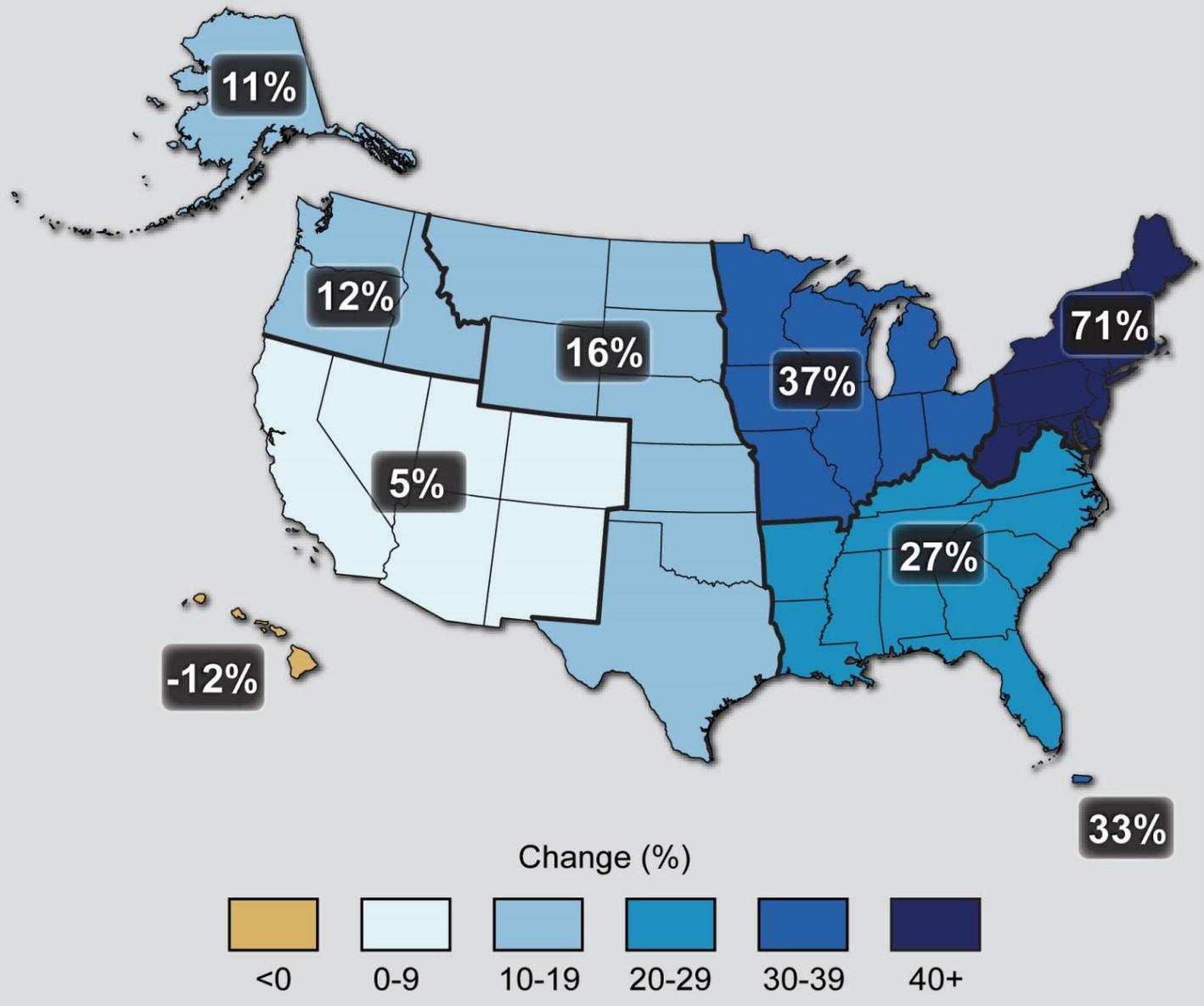
Projected Temperature Change



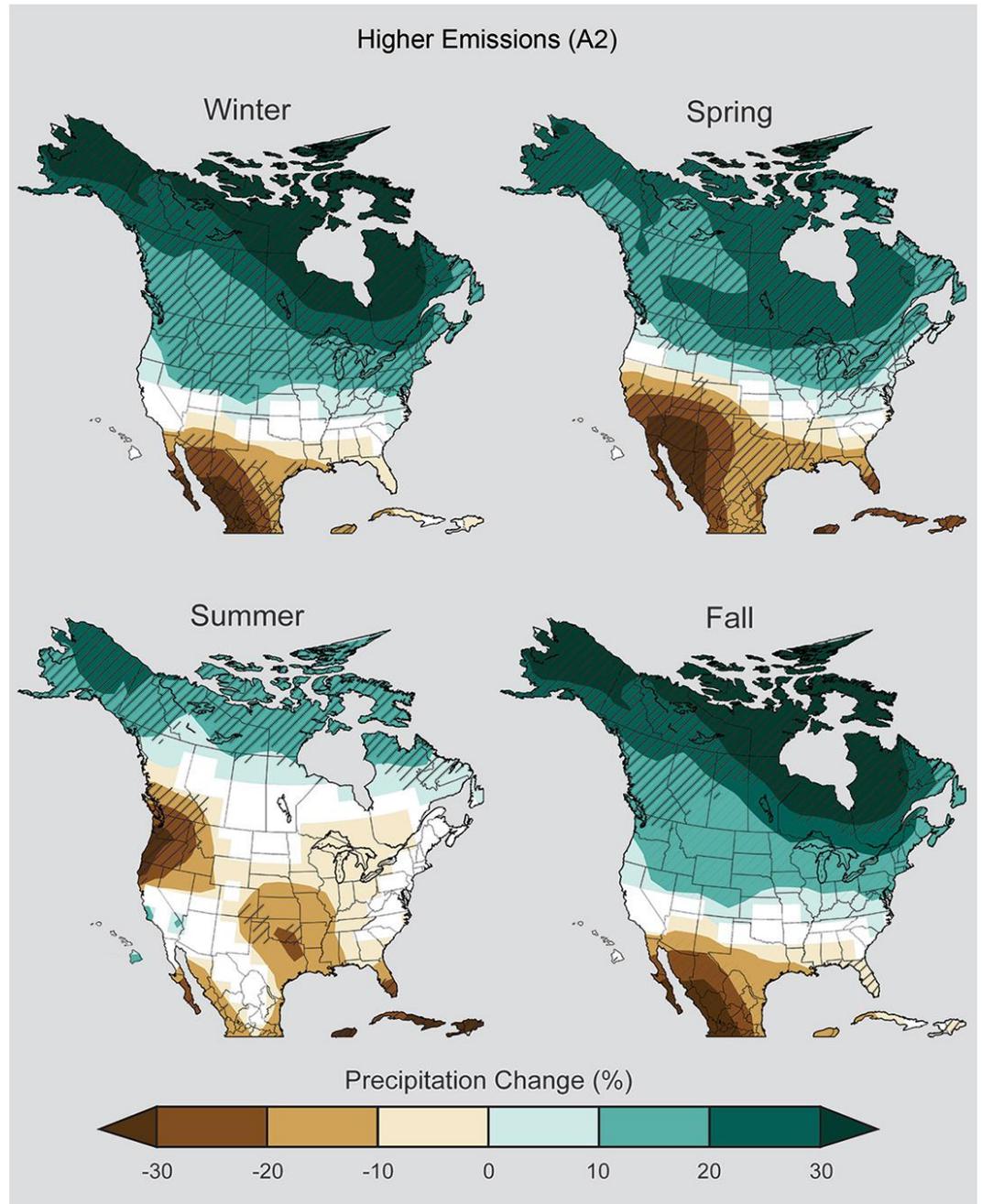
Date

Name of Meeting

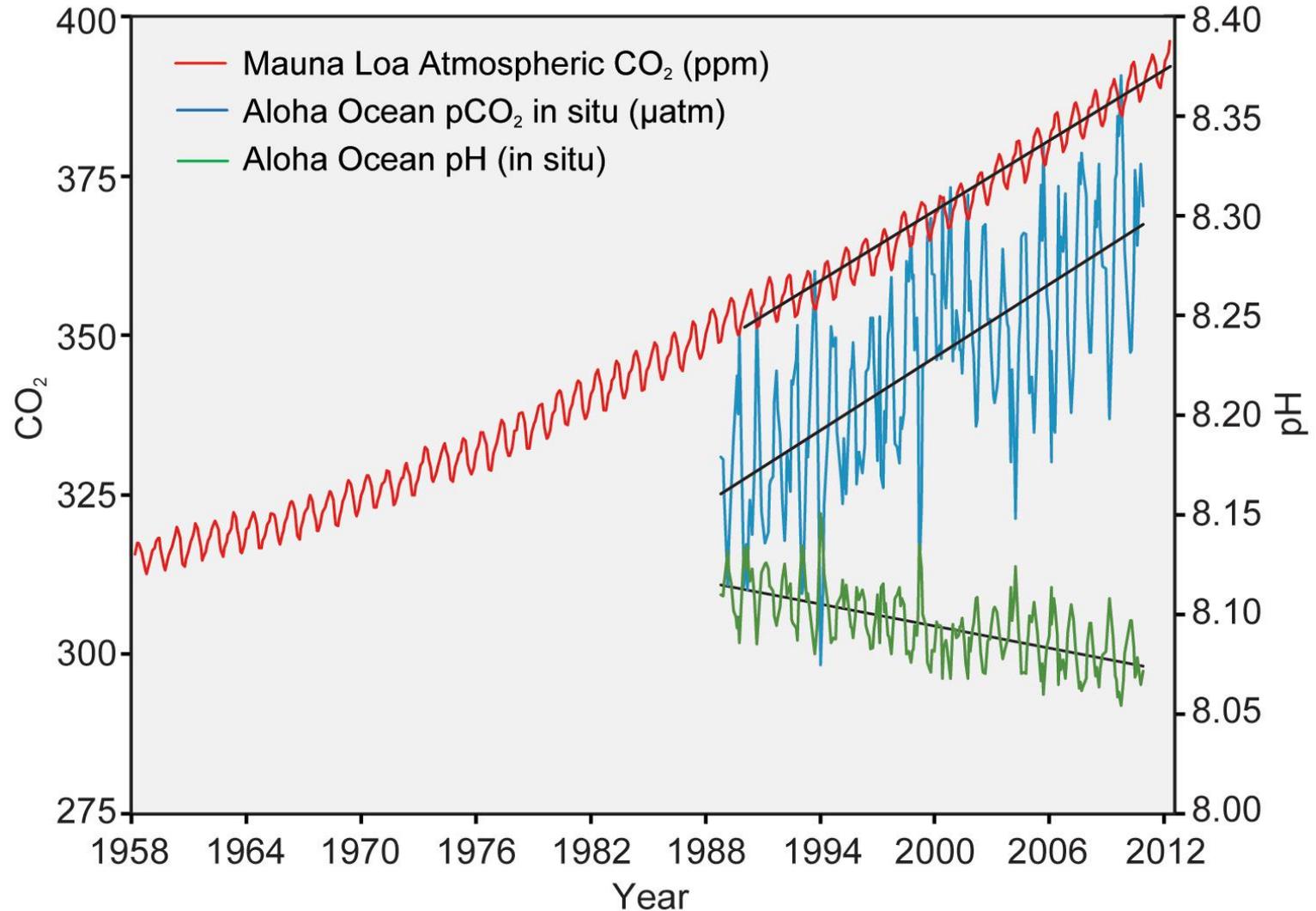
Observed Change in Very Heavy Precipitation



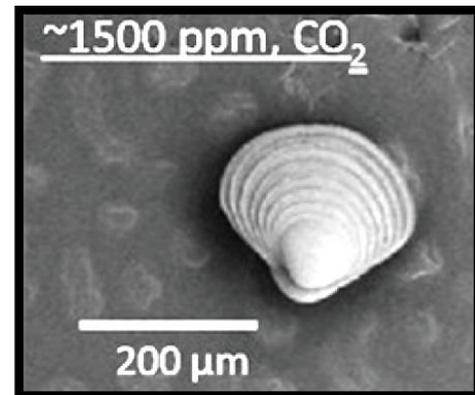
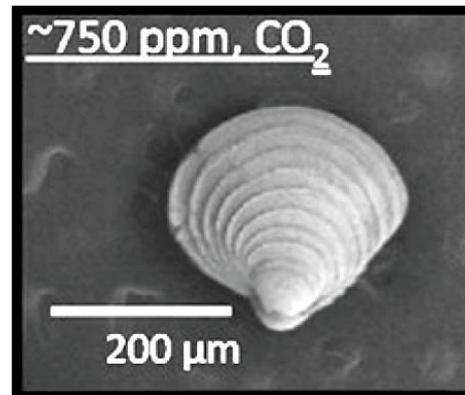
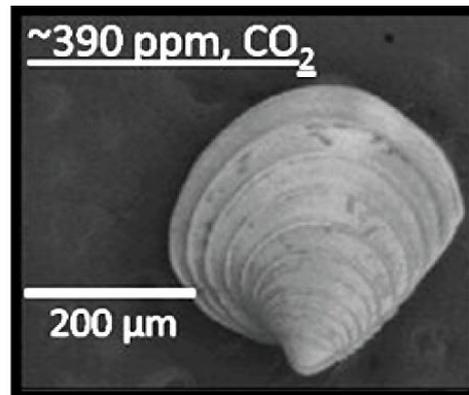
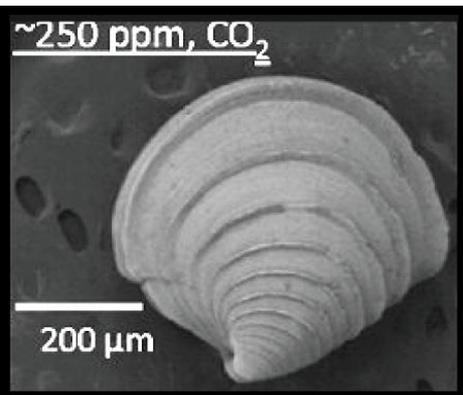
Projected Precipitation Change by Season



As Oceans Absorb CO₂ They Become More Acidic



Ocean Acidification Reduces Size of Clams



Northwest Chapter Key Messages

Water related challenges

Coastal vulnerabilities

Impacts on forests

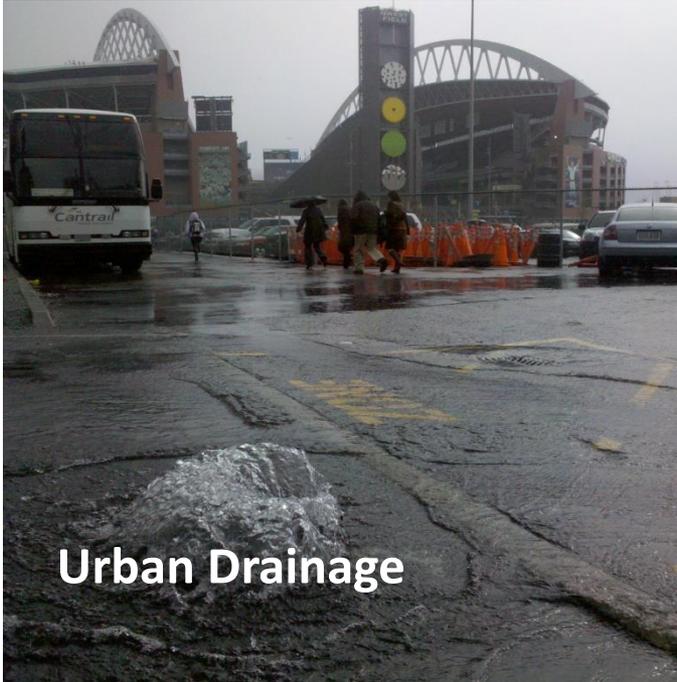
Adapting agriculture

SPU's climate program

Water Supply



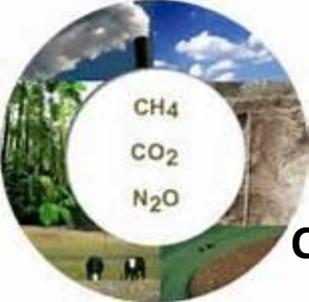
Urban Drainage



Sea Level Rise



Carbon neutrality



SPU's climate program

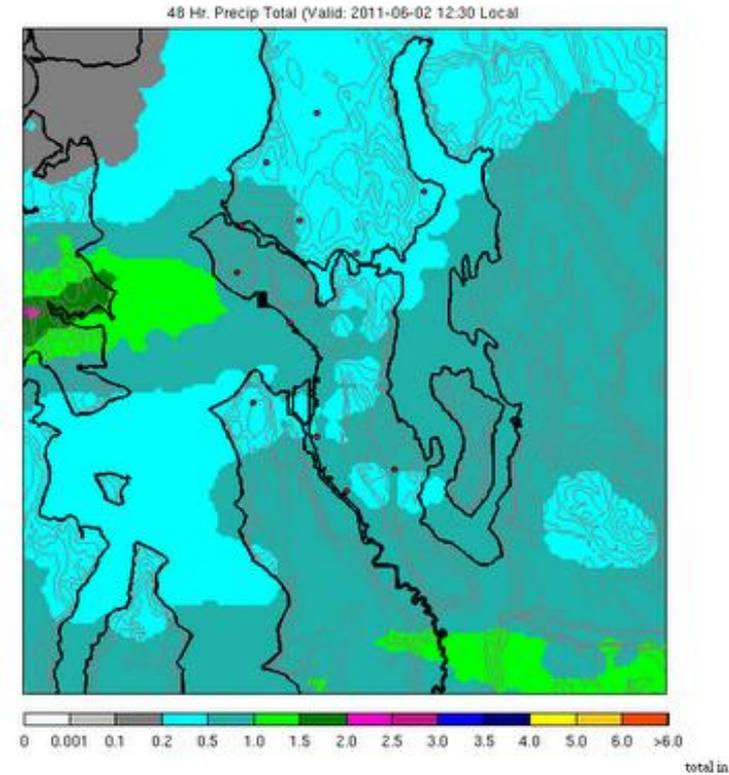
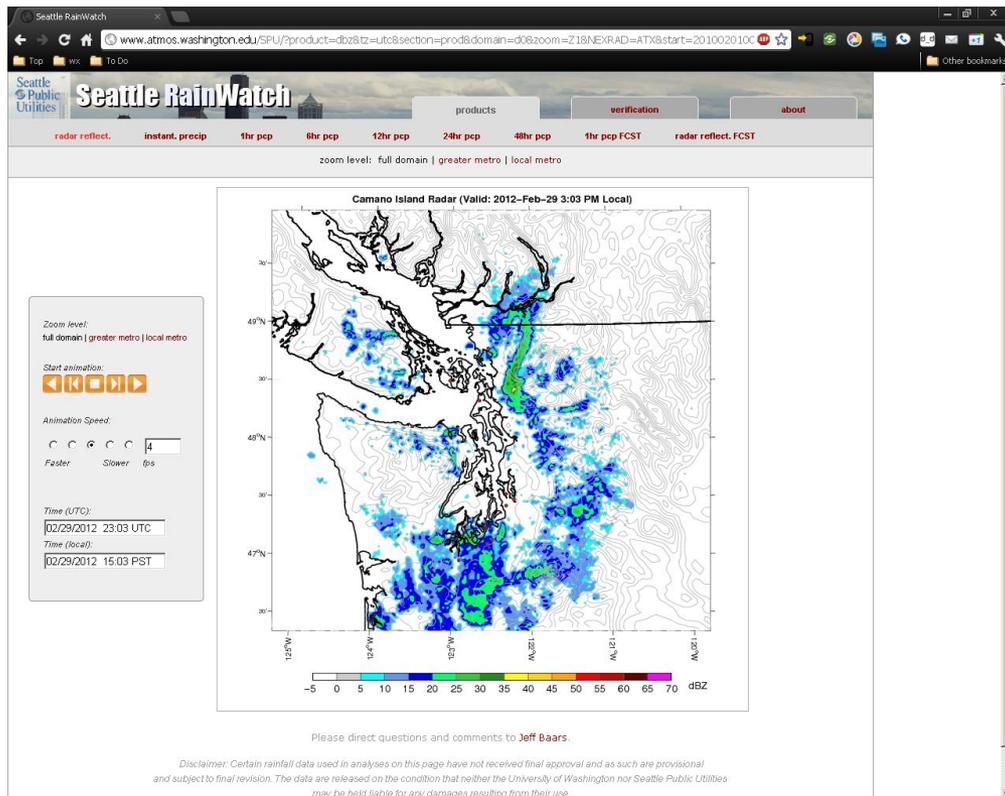
- enhance knowledge by engaging the science
- assess impacts and vulnerabilities
- establish collaborative partnerships
- strengthen institutions and people
- mainstream adaptation into decision-making
- develop portfolios of approaches
- quantify and neutralize our emissions

establish collaborative partnerships



*Mission: The Water Utility Climate Alliances provides leadership in assessing and adapting to the potential effects of climate change through collaborative action. We seek to enhance the **usefulness of climate science** for the adaptation community and improve water management **decision-making in the face of climate uncertainty.***

Seattle RainWatch



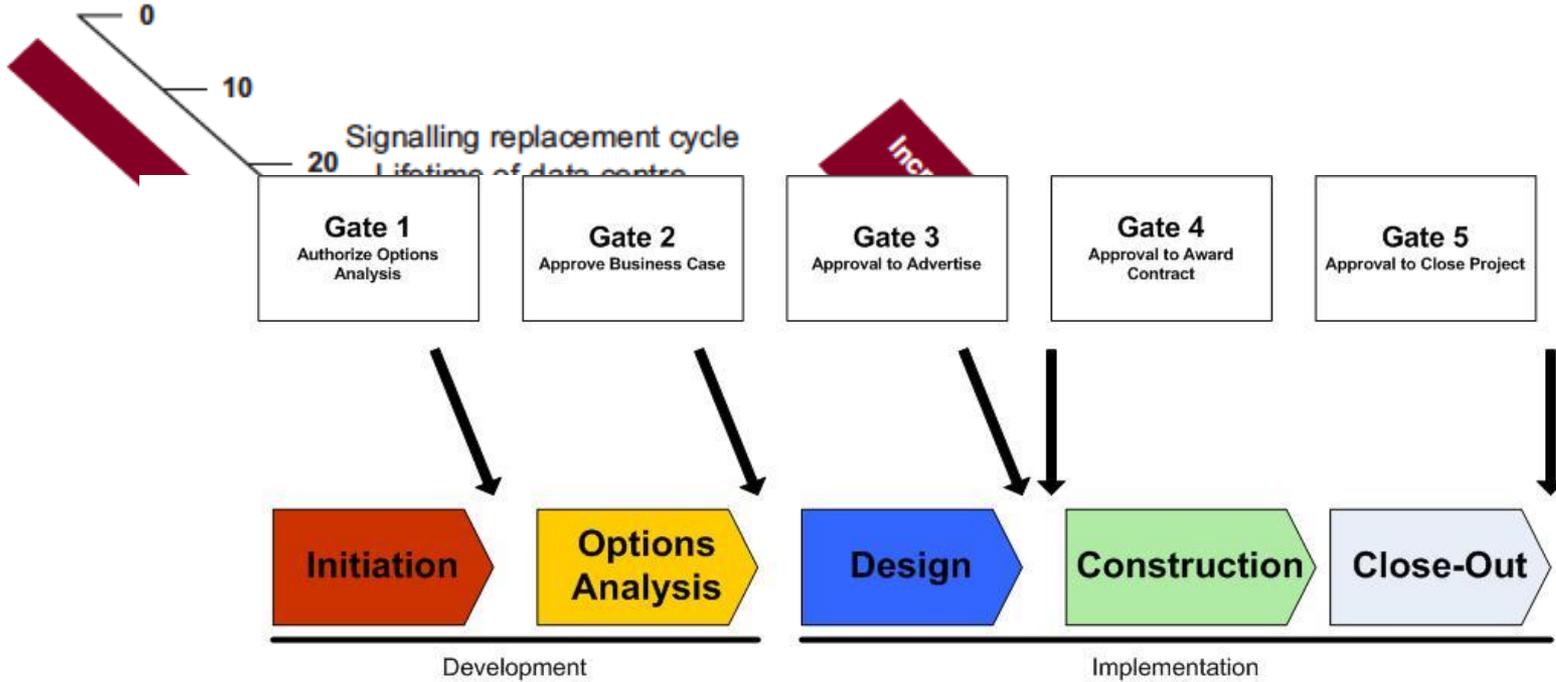
<http://www.atmos.washington.edu/SPU/>

initiatives going forward

- PUMA project with CIRC
- climate impacts on:
 - supply and operations
 - atmospheric rivers
 - forest fires
 - timing of fall rains
 - ENSO/PDO
 - precipitation thresholds in-city
- evaluate combined effects of sea level rise + precip
- enhanced meteorological forecasting
- incorporation into capital and asset planning

mainstream adaptation

Lifetime of infrastructure with illustrative climate change timescales for the UK



LEAD	Specifier	Specifier	Project Mgr	Project Mgr	Project Mgr
APPROVER	Deputy Director, USM, F&A, or CSCO	AMC or LOB AMC	Deputy Director, PDB	Deputy Director, PDB	Deputy Director, FOM

sea level rise possible

Questions

Climate Change Impacts
in the United States

Thank you