

Climate Change Impacts and Adaptation in Southern California

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Executive Director

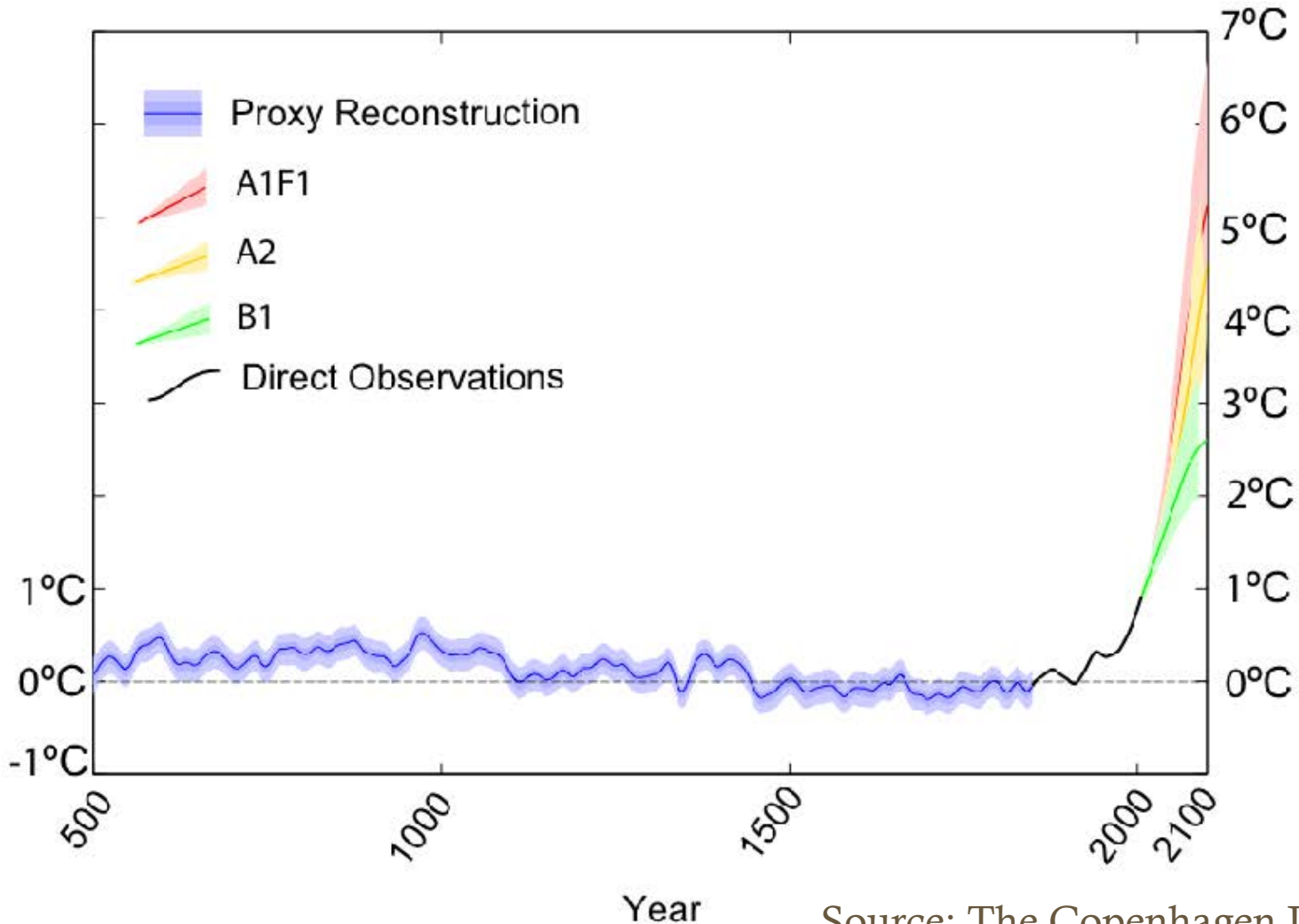
UCLA Center for Climate Change Solutions

Managing Director

Los Angeles Regional Collaborative for Climate Action and Sustainability

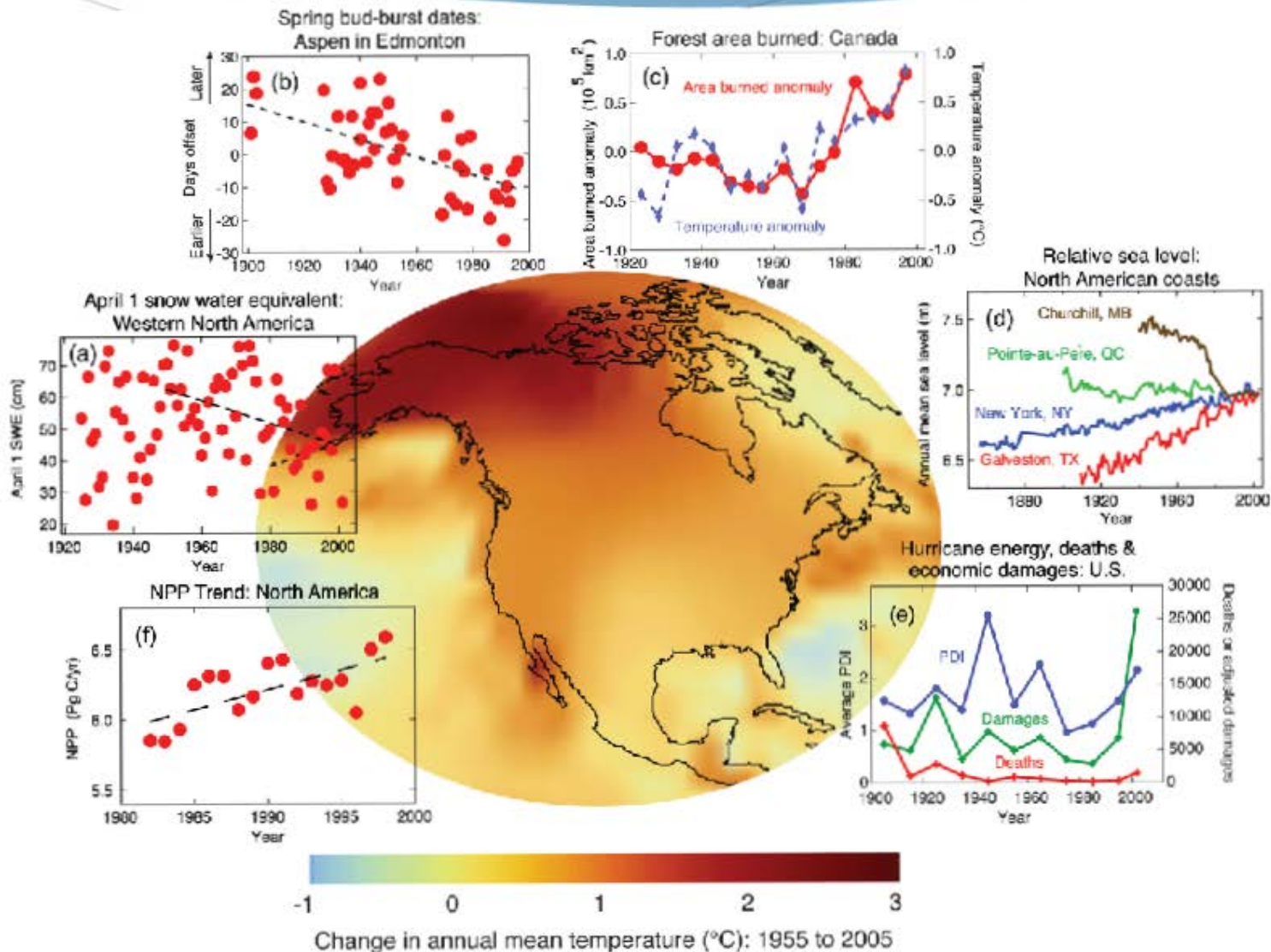
Past and Future Warming

Global Temperature Relative to 1800-1900 (°C)



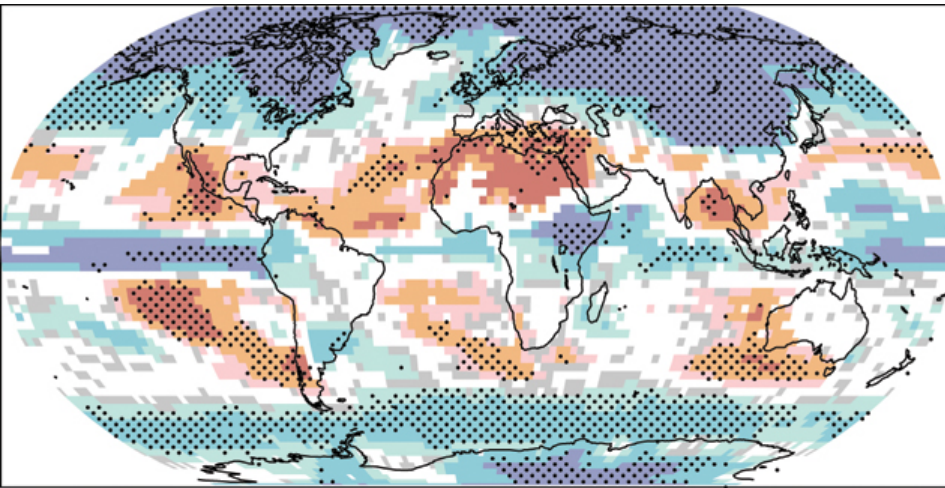
Source: The Copenhagen Diagnosis

Changes in Temperature since 1955

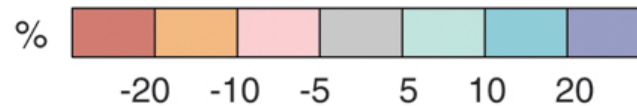
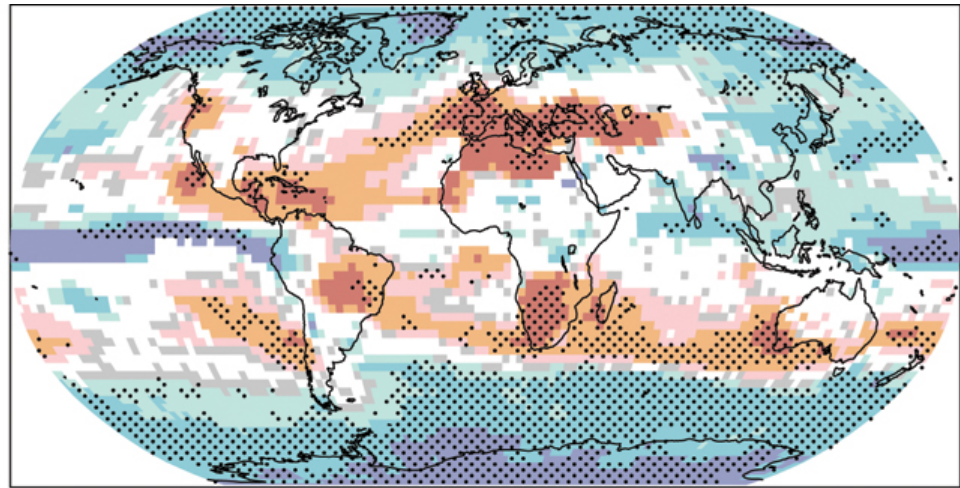


Changes in Precipitation in 2100

Winter



Summer



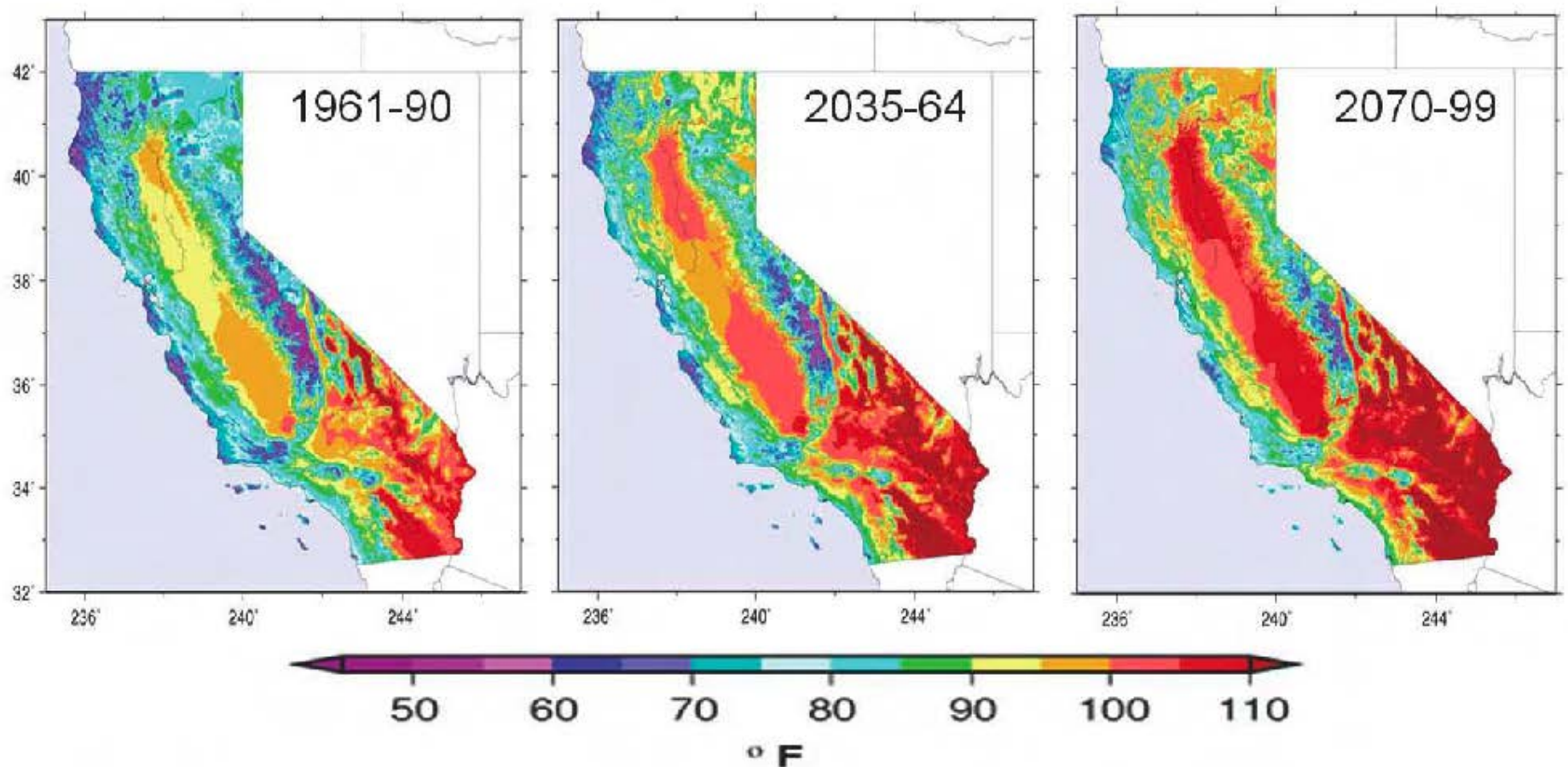


Consequences

- Public Health
 - Diseases
 - Air and water pollution
- Biodiversity and Habitat
 - Invasive species
 - Species extinction
 - Habitat fragmentation
- Ocean and Coastal Resources
 - Sea level rise
 - Ocean acidification
- Forestry
 - Wildfire
 - Invasive species (bark beetle)
- Water Management
 - Water resources
 - Water quality
 - Timing and location of precipitation
 - Extreme precipitation and flooding
- Agriculture
 - Loss of productivity
 - Loss of water
- Transportation and Energy Infrastructure
 - Energy demand (A/C)
 - Roads and rails

Warming

Figure 1. California Historical & Projected July Temperature Increase 1961-2099

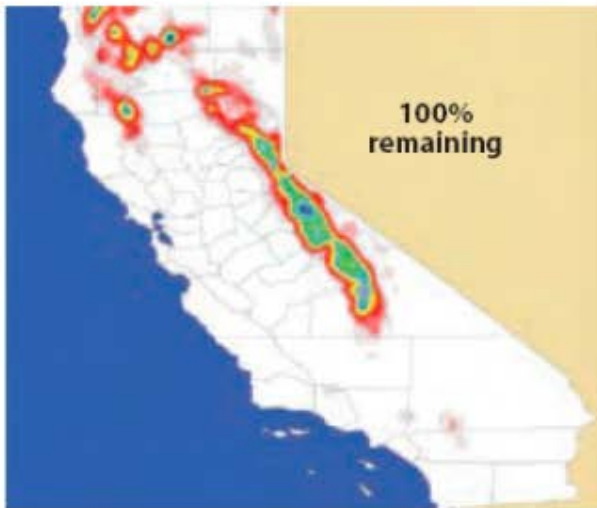


Source: Dan Cayan et al. 2009.

California Snow Pack

Decreasing California Snowpack

Historical Average (1961–1990)



2070–2099

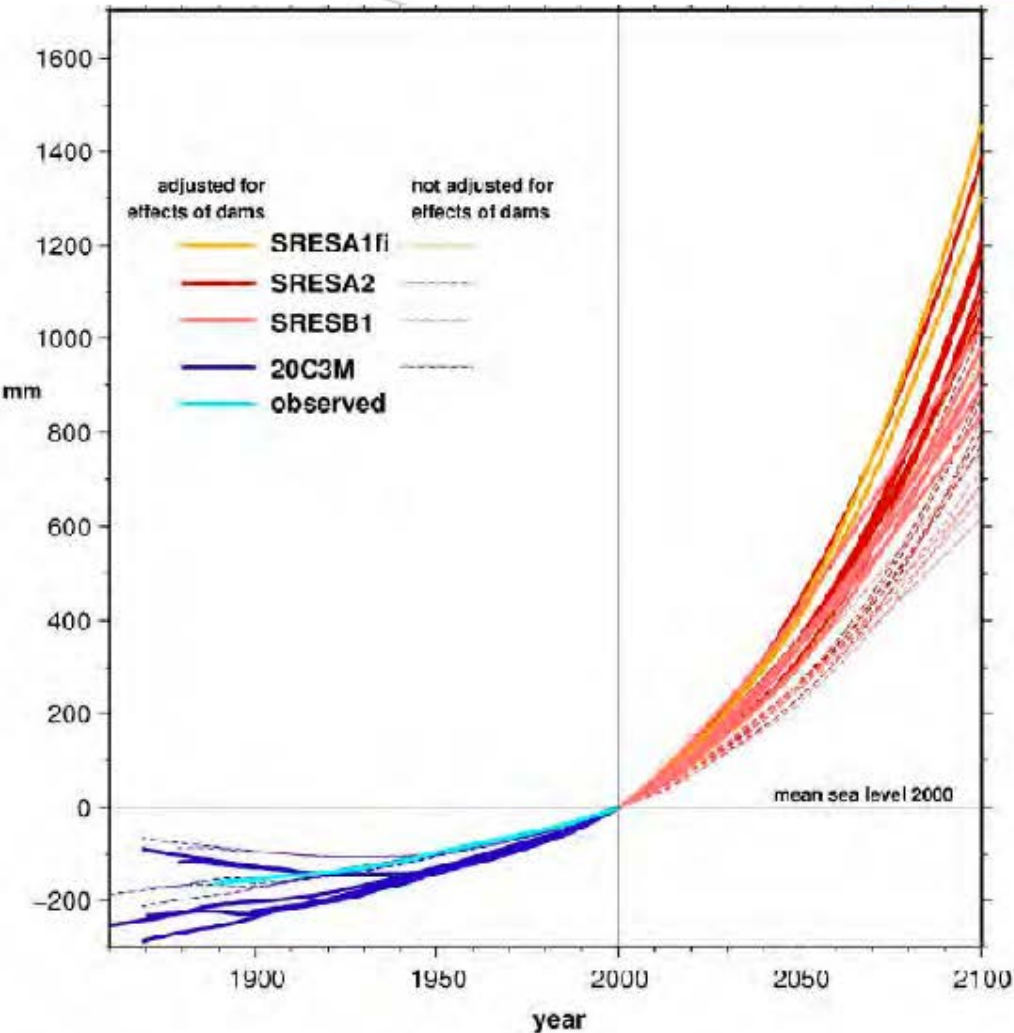
Lower Warming Range
Drier Climate



Medium Warming Range
Drier Climate



Sea Level Rise in California



CNRM CM3 -- GFDL CM2.1 -- MIROC3.2 (med)
MPI ECHAM5 -- NCAR CCSM3 -- NCAR PCM1



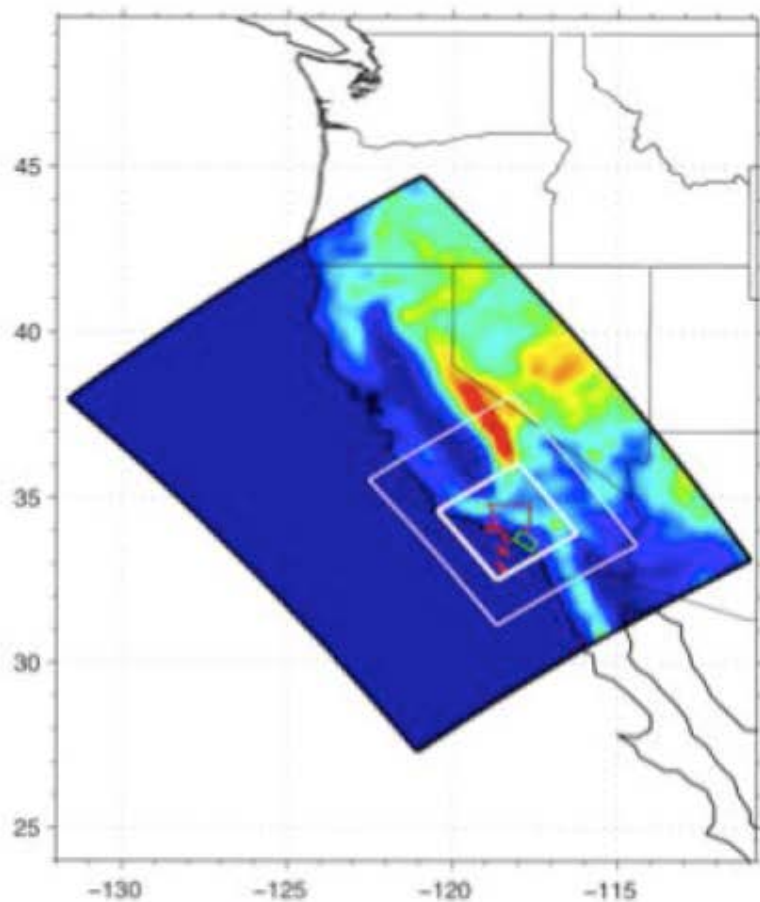
Replacement value of buildings and contents vulnerable to a 100-year coastal flood with a 1.4-meter sea-level rise

* Values are in year 2000 dollars
Data sources: USGS (for topography, FEMA HAZUS model, C&S), FRRI
http://www.pcoast.org/reports/coa_level_rise

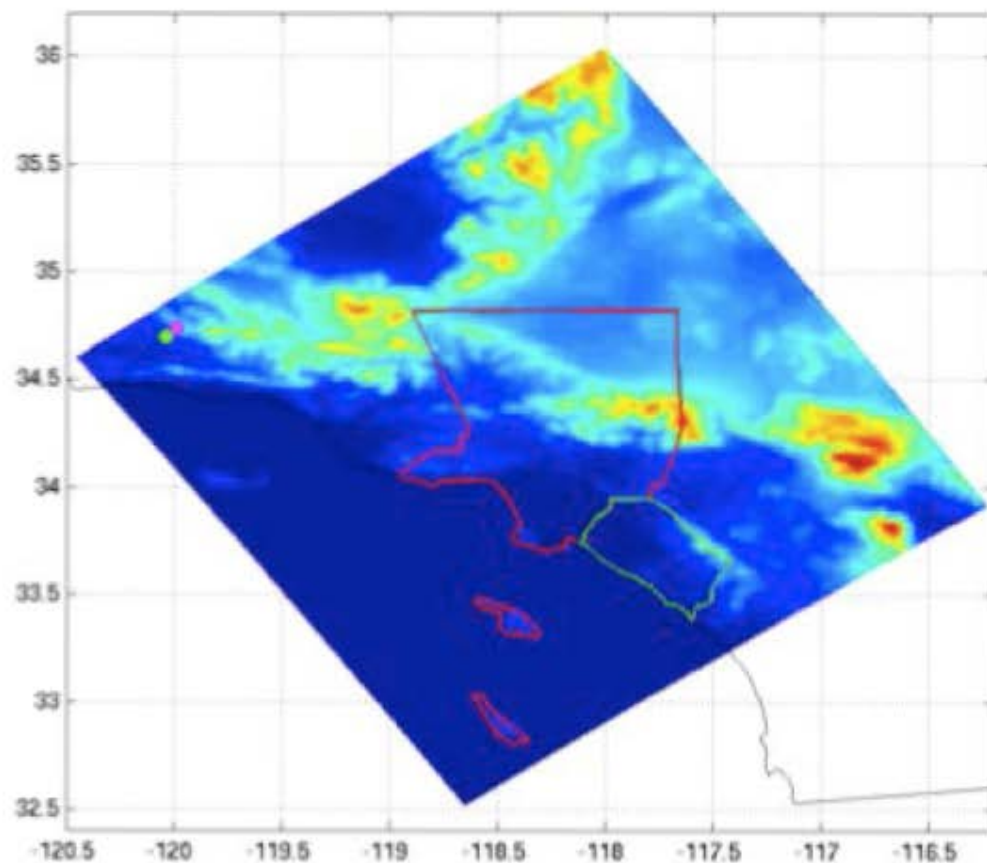
California Fire Risk



Topography

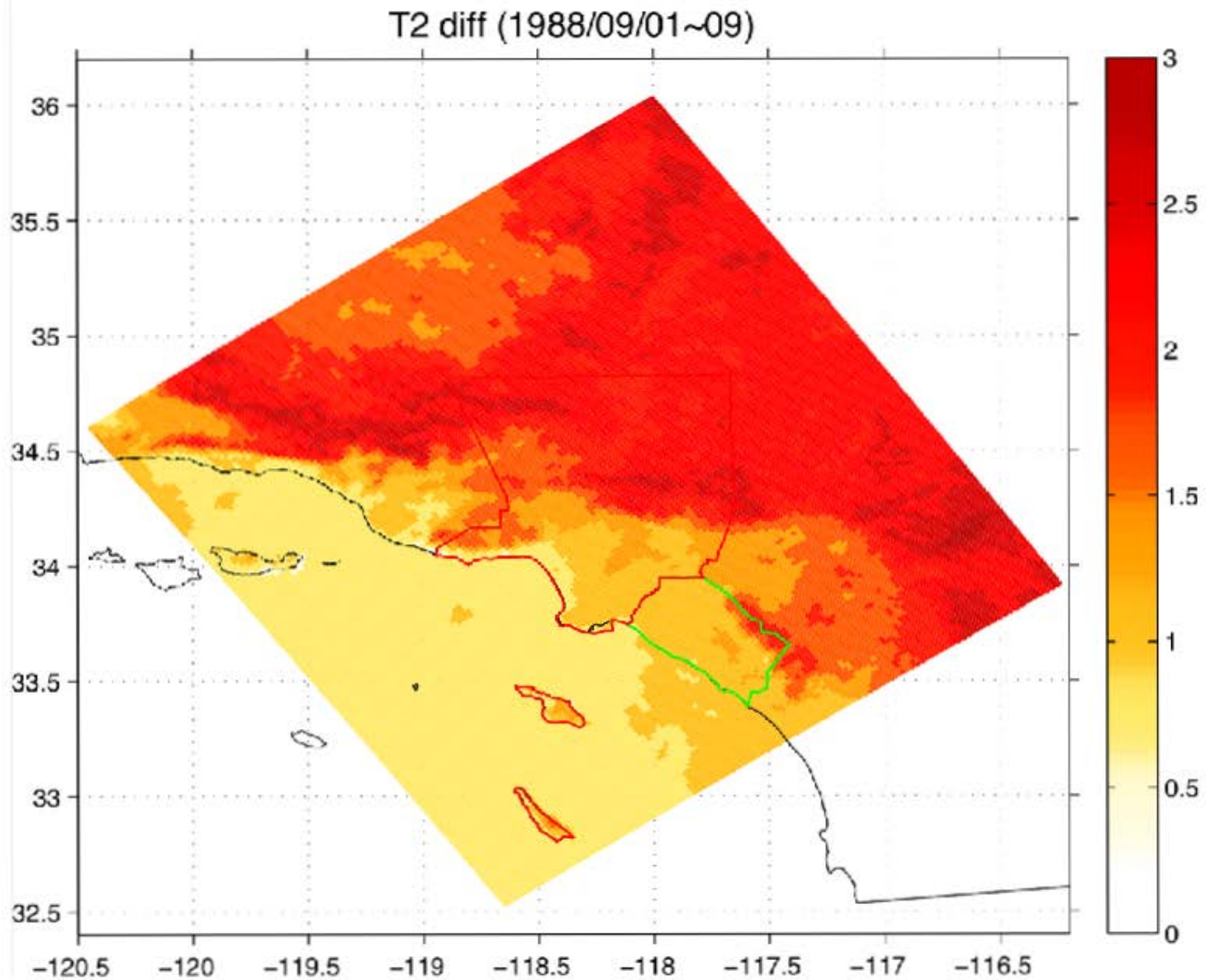


Topography Domain 1 (18 km) &
nested domain 2 (6km) and 3 (2km)

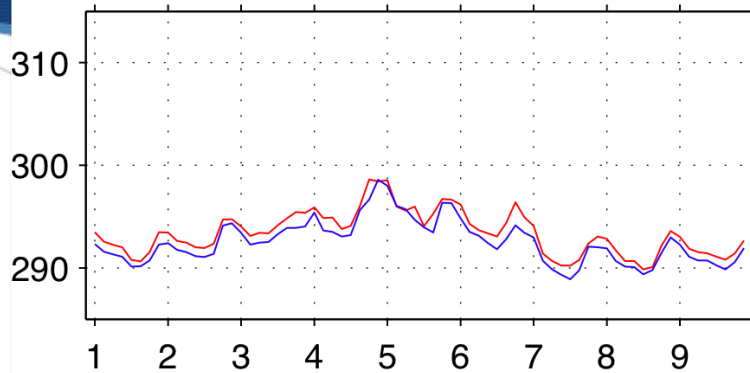


Topography Domain 3 (2 km)

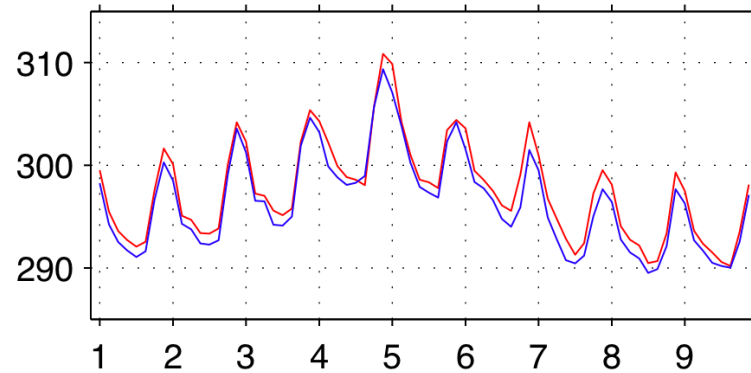
Temperature Change in Sept. 2048



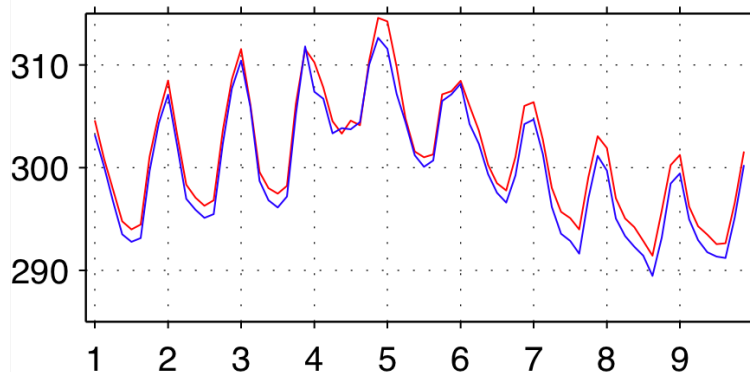
Santa Monica



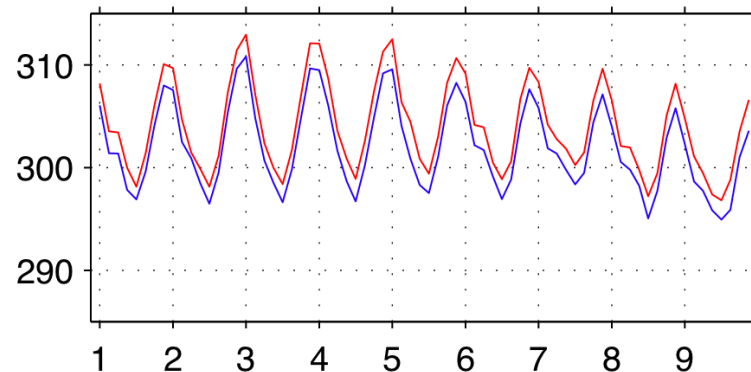
LA downtown



San Fernando



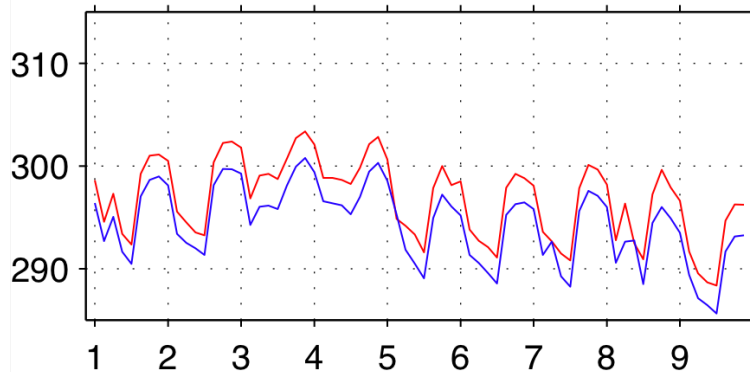
Palmdale



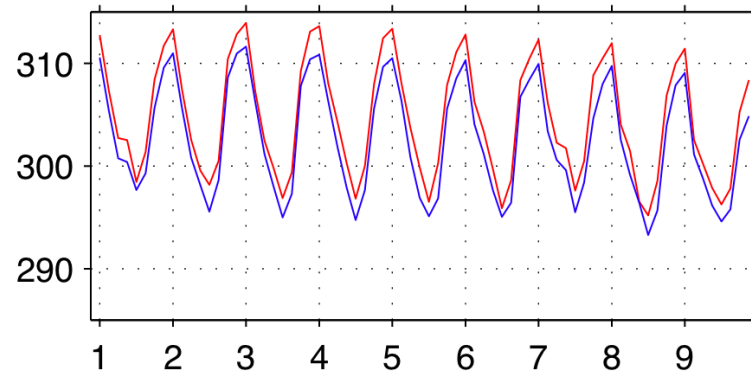
future

current

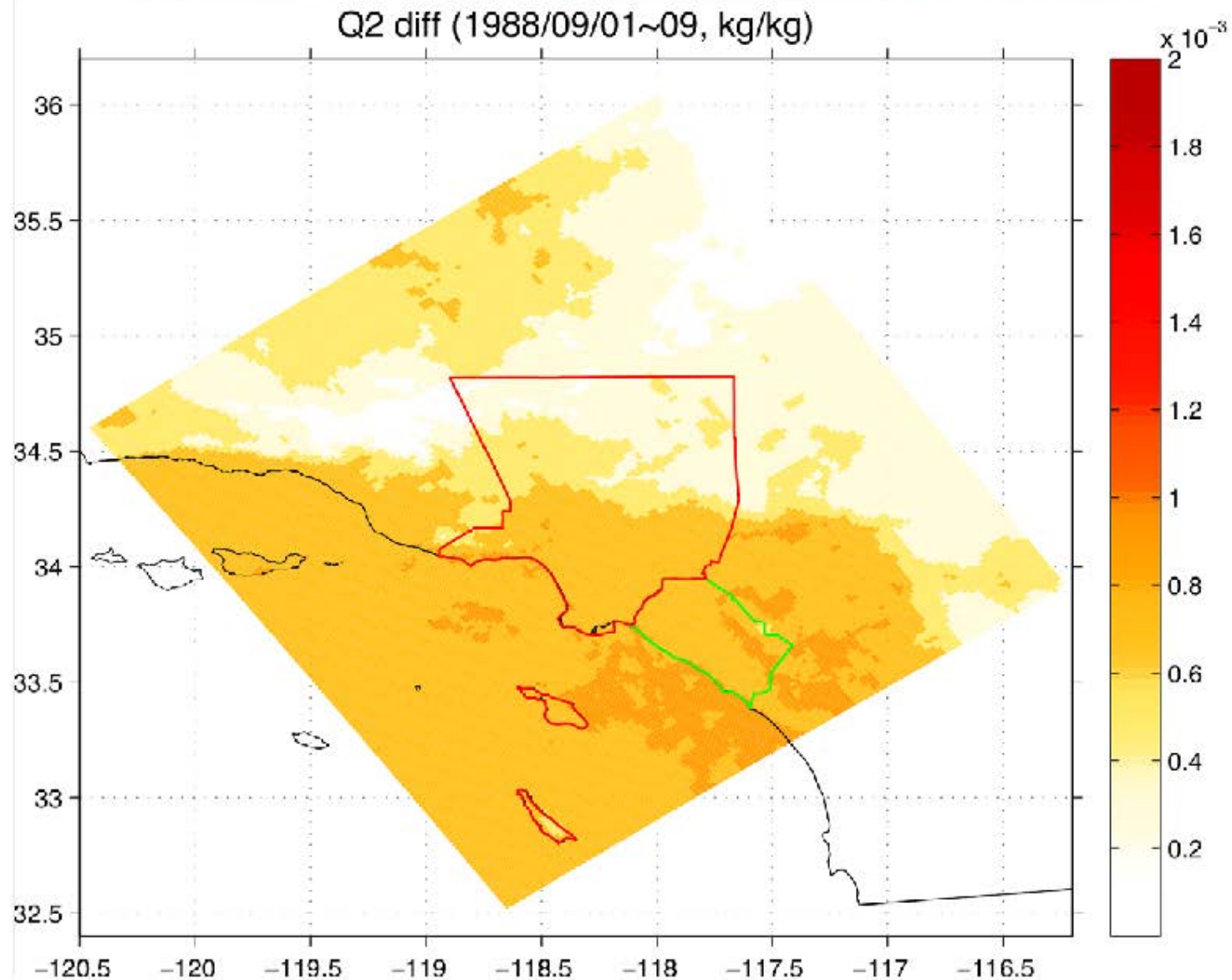
SG mountain



Mojave desert



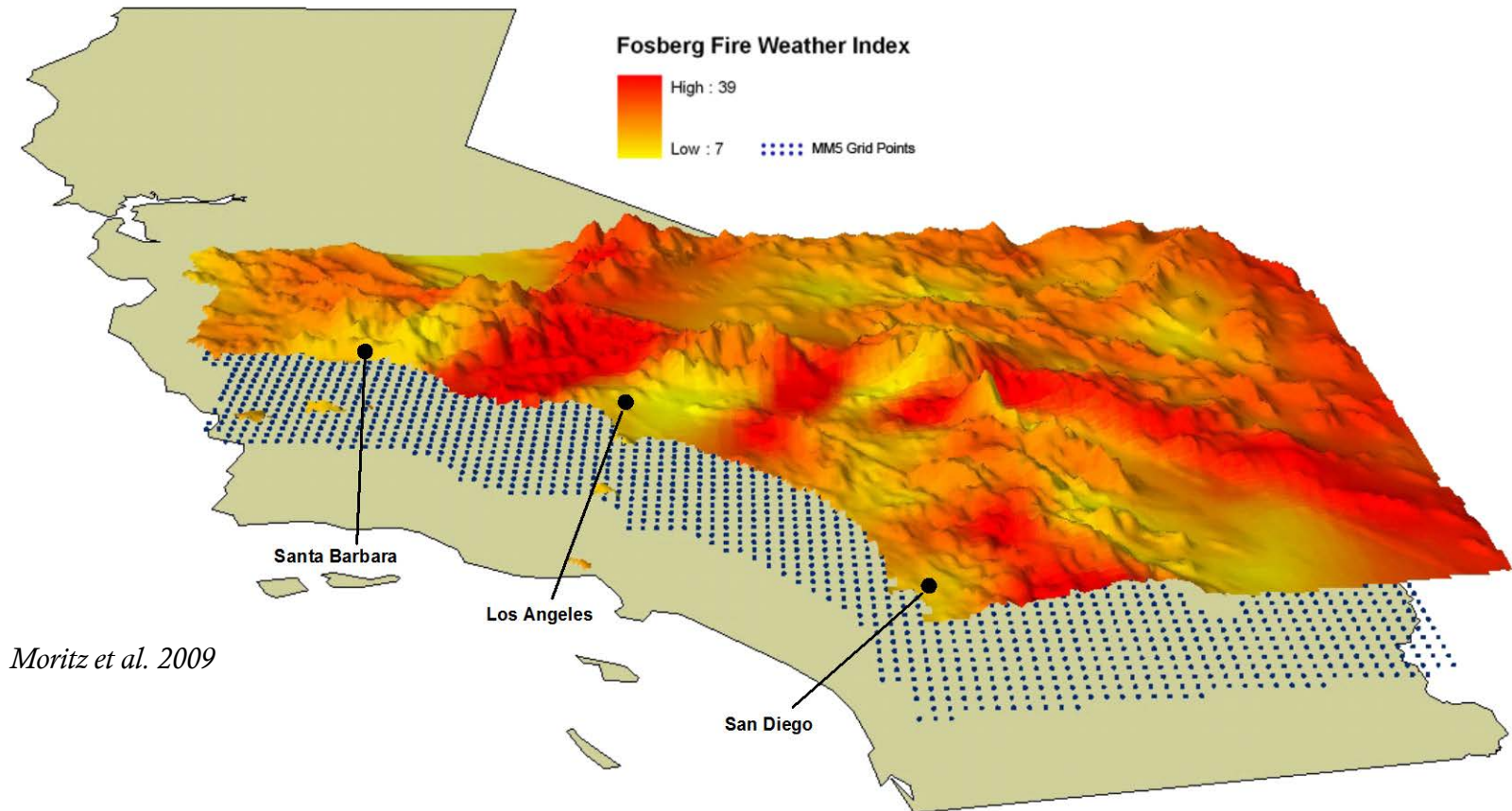
Specific Humidity in Sept. 2048





Southern
California Fires
on October 27,
2003

The Santa Anas and Fire



Modeling fire behavior in response to a changed climate.

Enhanced fire risk is clearly seen in passes where Santa Ana flows are channeled.



The purpose of this collaboration is to share information, foster partnerships, and develop system-wide strategies to address climate change and promote a green economy through sustainable communities.

Goals

- ▶ Climate action
- ▶ Promote a green economy
- ▶ Build sustainable communities

Methods

- ▶ Coordination
- ▶ Planning
- ▶ Resources
- ▶ Engagement

Regional Coordination

BLUEPRINT FOR OUR METROPOLIS

The Los Angeles Regional Sustainability and Climate Action Plan

- Successful climate action actually requires a comprehensive sustainability plan
- The regional Blueprint will:
 - 1) Establish baselines of current greenhouse gas emission levels
 - 2) Identify a full range of measures for reducing greenhouse gas emissions
 - 3) Identify the impacts of climate change on communities within Southern California
 - 4) Identify a full range of measures for adapting to climate change
 - 5) Provide strategies to help meet these goals