

# **NARCCAP and National Climate Assessment**

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# National Climate Assessment

- 1990 Global Change Research Act - mandated national climate assessments every four years
- Assessment reports in 2000 and 2009
- Range of activities being undertaken toward a 2013 report
- National climate assessment office within US GCRP
- Kathy Jacobs is the Director of the NCA
- Federal Advisory Committee (National Climate Assessment Development and Advisory Committee-NCADAC): will write report; first meeting Apr 4-6

# Report

- Target date for draft is June 2012
- As with previous reports, will likely include region and sector sections
- Goal is to maximize participation in the preparation of material for the NCADAC
- Highly Influential Scientific Assessment

# Possible Regional Products

- Regional Climatology: Description of those climate aspects closely linked to societal vulnerabilities and to those aspects where trends have been occurring
- Regional Climate Outlooks: A set of basic climate outlook data and narratives that are scientifically sound, based on the state of the art, and in a form that is usable for impacts and adaptation studies

# Possible Regional Foci in Regional Climatologies

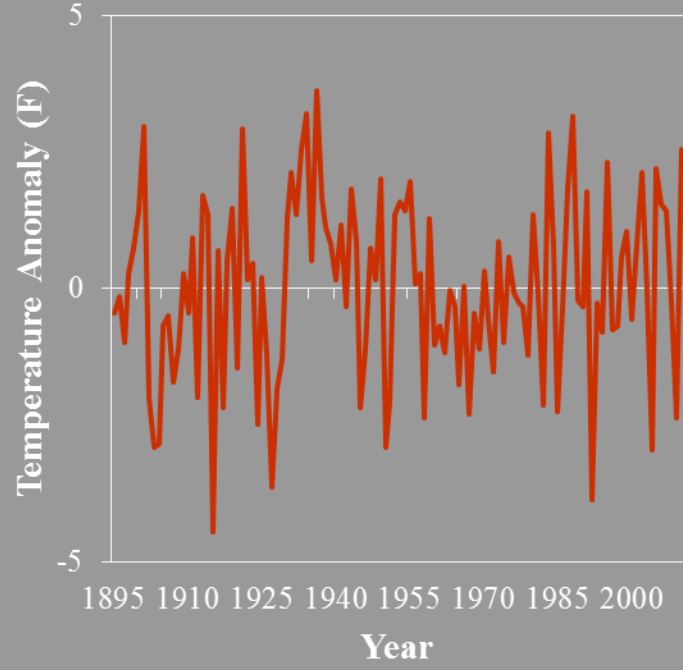
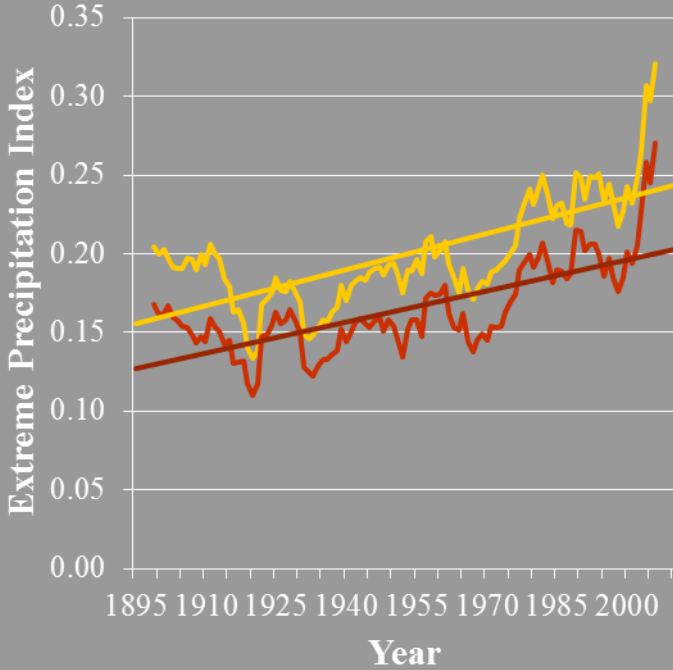
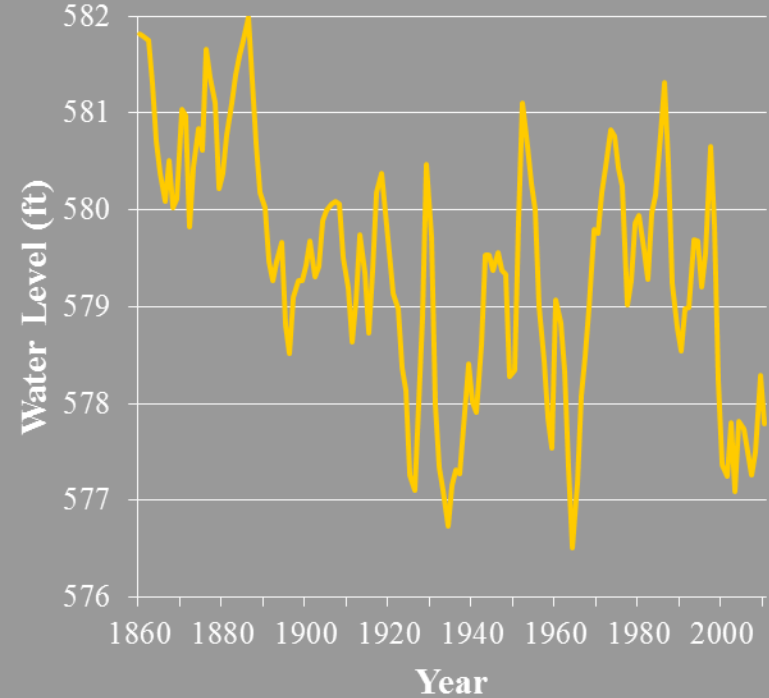
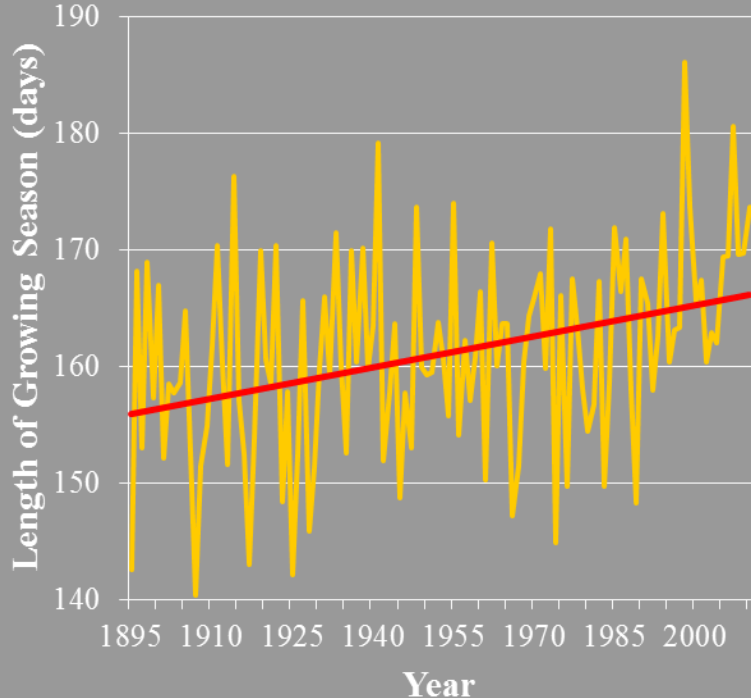
- Northeast-nor'easters, urban heat waves, extreme precipitation
- Southeast-drought, heat waves, hurricanes
- Midwest-growing season weather, Great Lakes water levels, extreme precipitation
- Great Plains-drought, winter storms, heat waves
- Southwest-drought, heat waves, fire weather
- Northwest-extreme precipitation, winter storms, mountain snowpack
- Alaska-coastal storms, temperature (permafrost), drought (forest fires)
- Islands-sea level, hurricanes, drought
- Coasts-hurricanes, sea level, winter storms

# Contents of Draft Midwest Climatology

- General Climate Description
- Vulnerabilities
  - Floods
  - Severe thunderstorms
  - Summer growing conditions (heat, drought, and excessive rain)
  - Heat waves
  - Great Lakes water levels
  - Winter storms

# Contents of Draft Midwest Climatology

- Trends
  - Precipitation
  - Temperature
  - Extreme precipitation
  - Cold waves
  - Heat waves
  - Growing Season
  - Lake Michigan-Huron levels
  - Ice Cover
  - Humidity
- Frequently Asked Questions
- Sources





# Possible Model Datasets

- CMIP3 simulations
- Statistically downscaled data from the CMIP3
- Regional climate model simulations
  - NARCCAP
  - Other regional climate model simulations

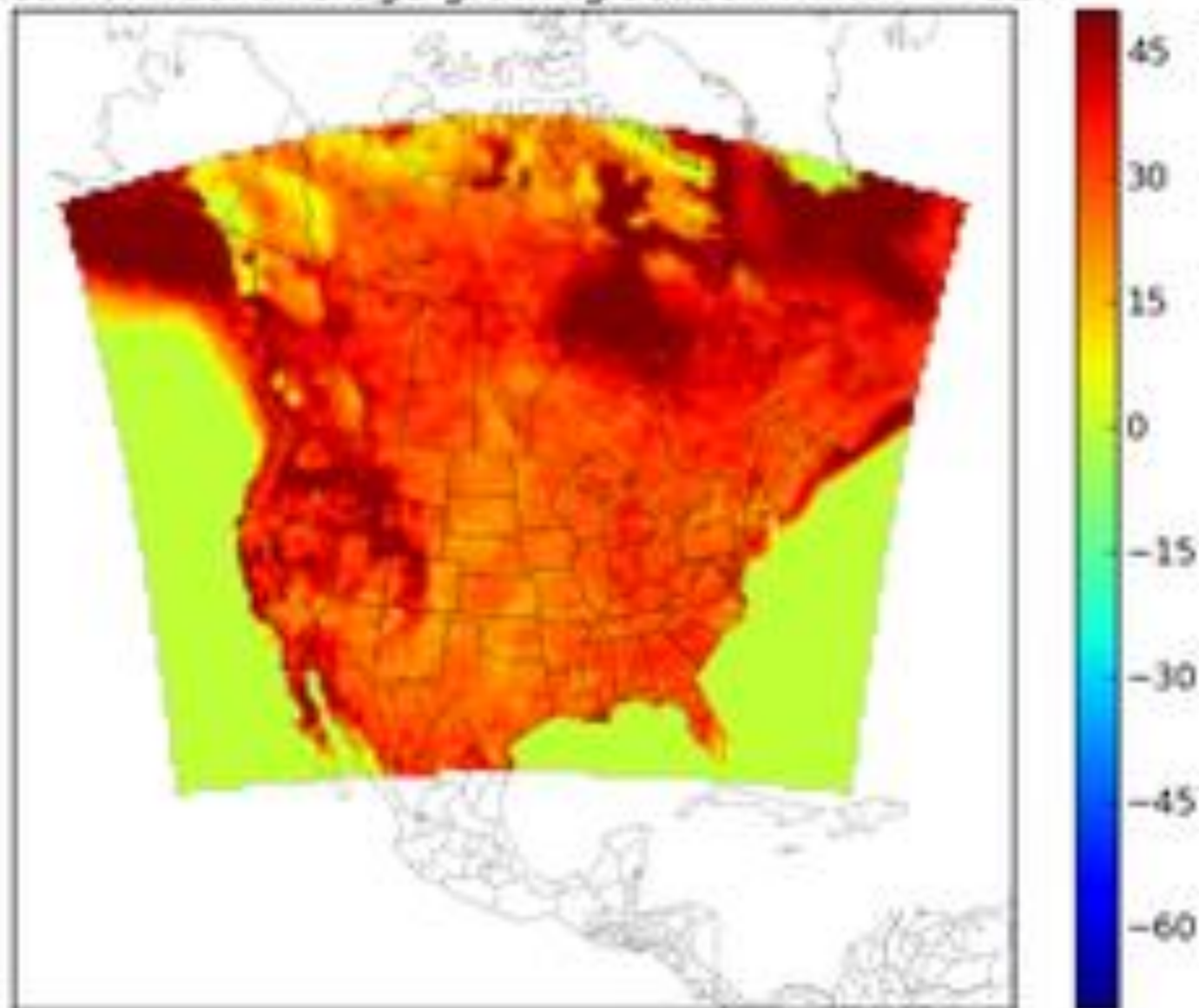
# Issues

- Information Quality Act
- Impacts and Adaptation relevant derived variables

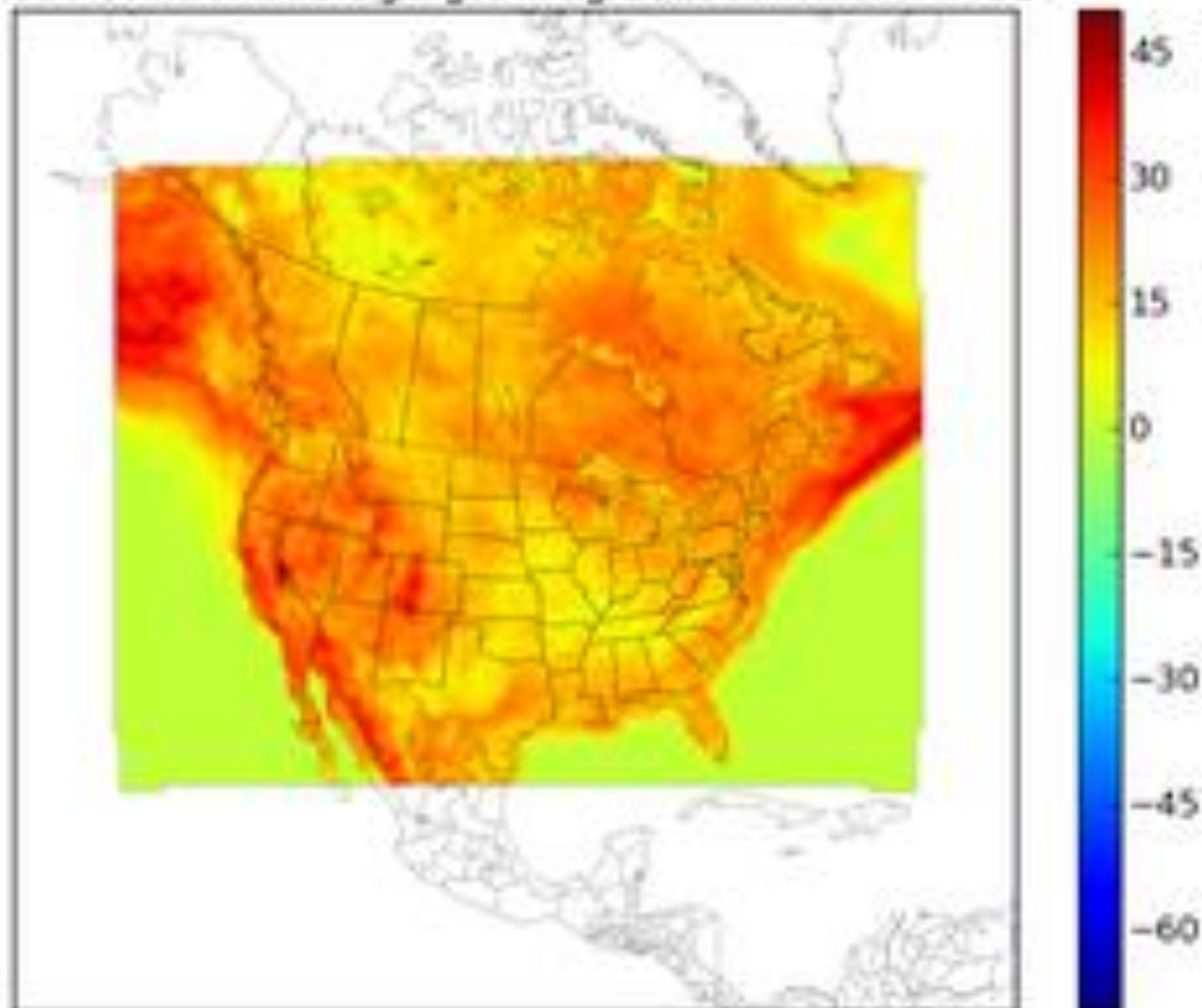
# Secondary Variables

- Seasonal and annual temperature changes for mean and variability
- Seasonal and annual precipitation changes for mean and variability
- Changes in drought frequency and intensity (measured by the PDSI)
- Changes in precipitation extremes (return periods, #days above thresholds, multi-day events)
- Changes in temperature extremes [threshold (both fixed and percentile-based) exceedances, heat/cold wave (multi-day events) frequency and intensity]
- Frost-free season changes
- Changes in # of frost days
- Changes in degree days
- Snow cover changes
- Snow water equivalent changes

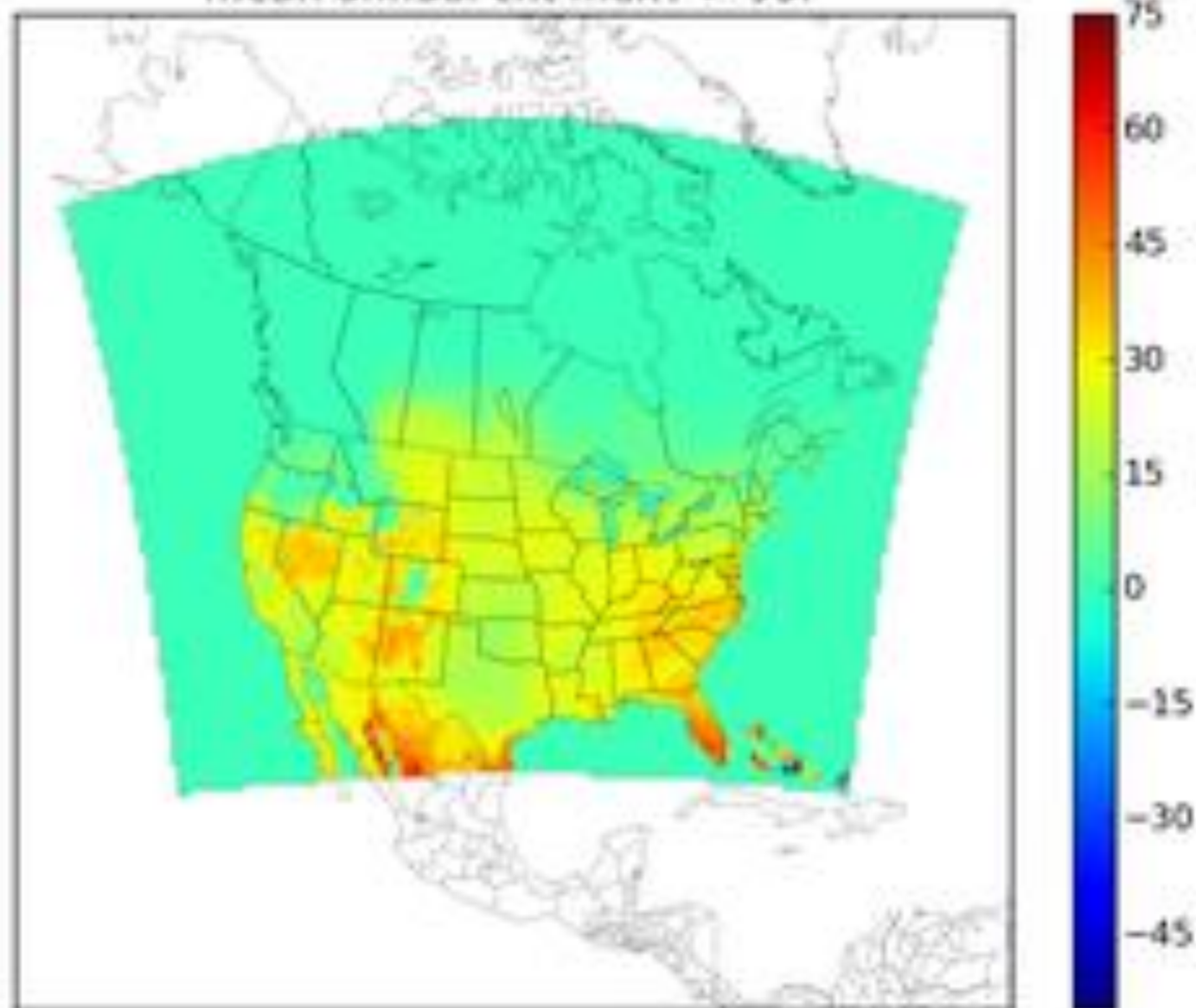
CRCM-CCSM future minus current  
mean annual average growing season minT  $\geq$  32F



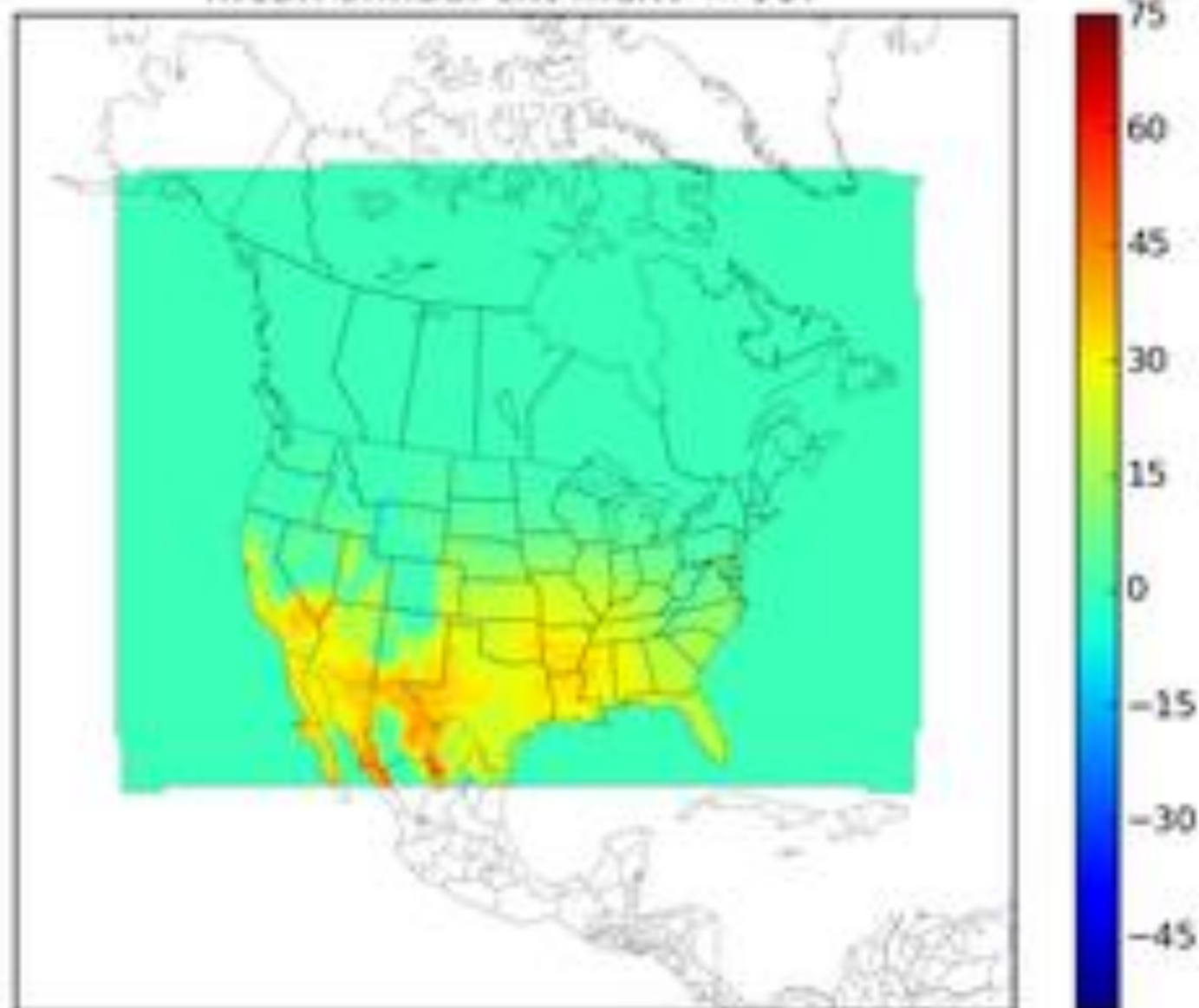
RCM3-GFDL future minus current  
mean annual average growing season minT  $\geq$  32F



CRCM-CCSM future minus current  
mean annual cnt maxT > 95F



RCM3-GFDL future minus current  
mean annual cnt maxT > 95F



# Points/Questions

- Use of NARCCAP simulations in the NCA
  - Highly probable
- Publication of results – information quality act
- Use of studies in regional outlooks
- Participation in regional and sectoral teams
  - Both climatologies and outlooks
- Very short timeline for initial preparation
- Funding (or lack thereof)