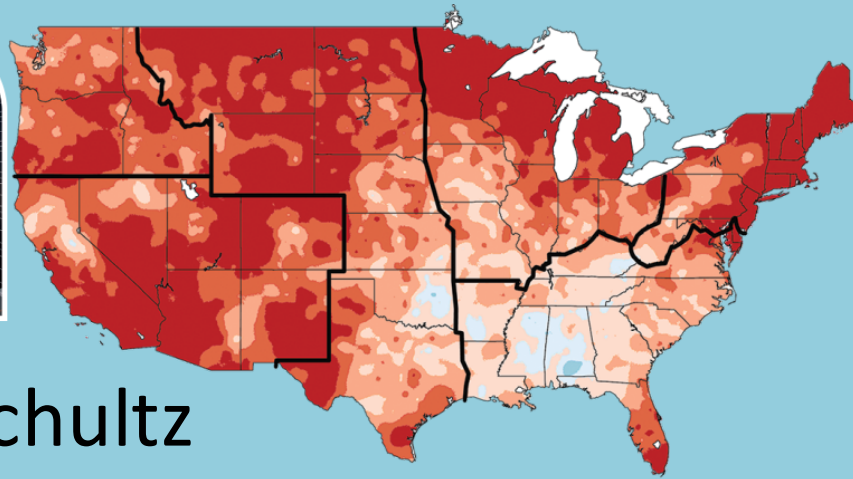


Climate projection data, information, and knowledge: Perspectives from USGCRP's leadership role at the boundary of science advancement and application



Dr. Fred Lipschultz
NCA Regional Coordinator
National Coordinating Office
U.S. Global Change Research Program

My Charge

- Reflect on NCA3 process
- USGRP activities
- Input from scientists & practitioners
- Mechanisms to enhance communication & dissemination

What I hear		What climate scientists say
I need extreme rainfall projections at 5 min intervals	USGCRP	Even the sign of precipitation trends in most of the country is unknown. Extremes are not even realistic.
To credibly work with local people, I need downscaling at 1 Km or better reflecting local topography & conditions		All downscaling is 'crap'. Models lack small-scale physics, stationarity, etc.
I only use GCM's that do a 'good' job matching historical climate		No empirical evidence or criteria to down-select, non-independence, etc.
I need precise predictions to plan to - how high to build my levee/size my AC unit/culvert etc.		We do not provide predictions on what we call projections/scenarios. Not forecasts but foresight.
There is too much information, how do I choose what to use.		I can help once my contract is in place.
I need the probability that these things will happen to assess the risk.	USGCRP	Our models don't span the probability space, are not independent realizations, etc. Besides, socioeconomics lacks real probabilities.
30 years is too far off, what about 5-20 years?		That's not climate!

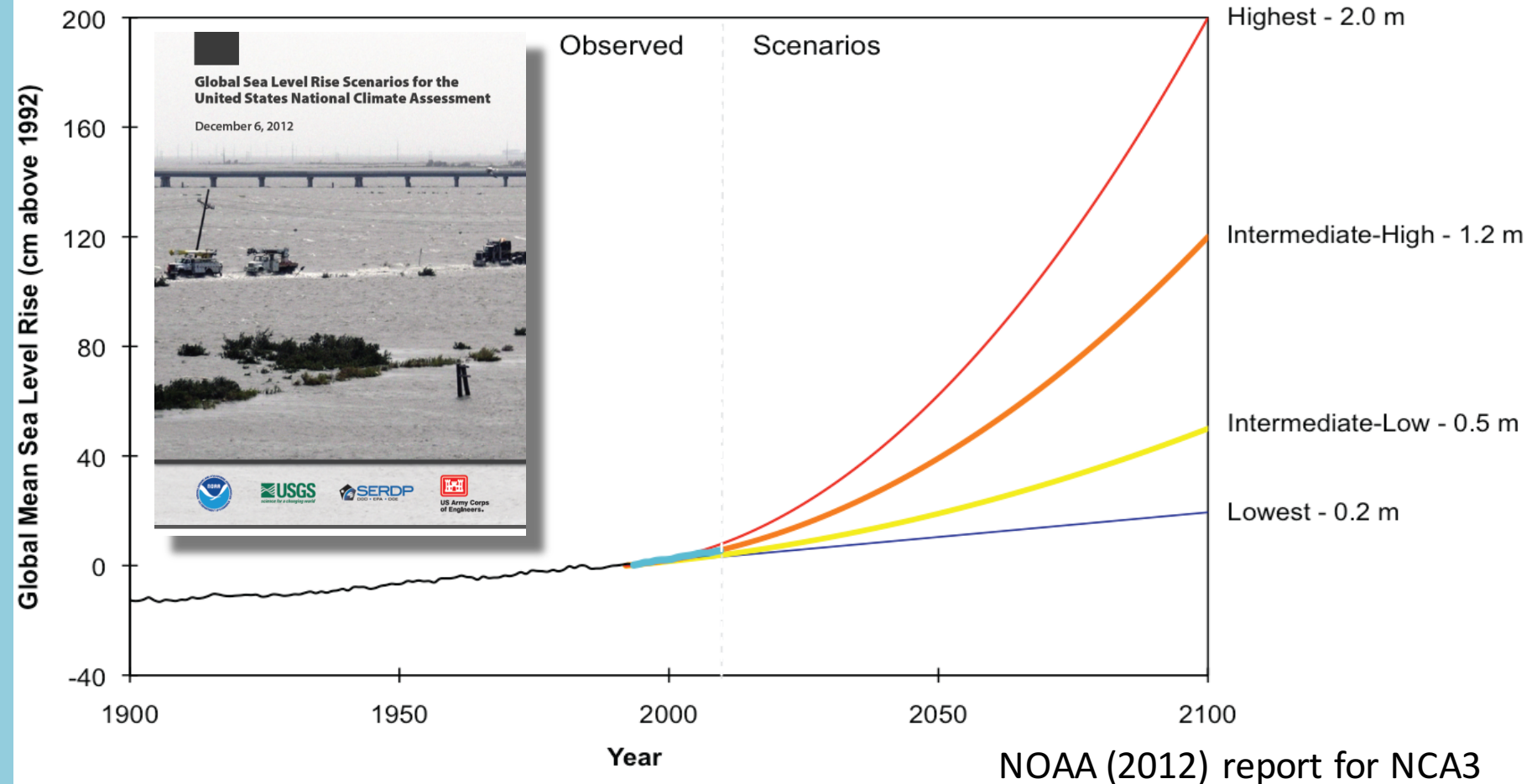
The Federal Space

- Climate Action Plan & Executive Order's
 - linked to NCA's,
 - climate information both U.S. & global,
 - consistency & training
- NCA3 -> Sustained Assessment
 - Scenarios: A2 & B1 SRES -> RCP8.5 & RCP4.5; **SLR**
 - GCM regional maps,
 - Global Change Information System,
 - EPA's ICLUS – Pop, Housing, impervious surface
- **Climate Data and Tools (CDAT)**

USGCRP's Role

- Federal Projections meeting – Feb 2015
 - Climate Resilience Toolkit **Climate Explorer**
 - Climate Scenarios Task Force (CSTF)
 - ✧ Scenarios for sustained assessment & NCA4
 - ✧ GCM's
 - ✧ Downscaling – **Perfect Model** -> RCM?
- Scenarios & Interpretive Sci Coordinating Group
 - LULC
 - Population
- Interagency National Climate Assessment **WG**

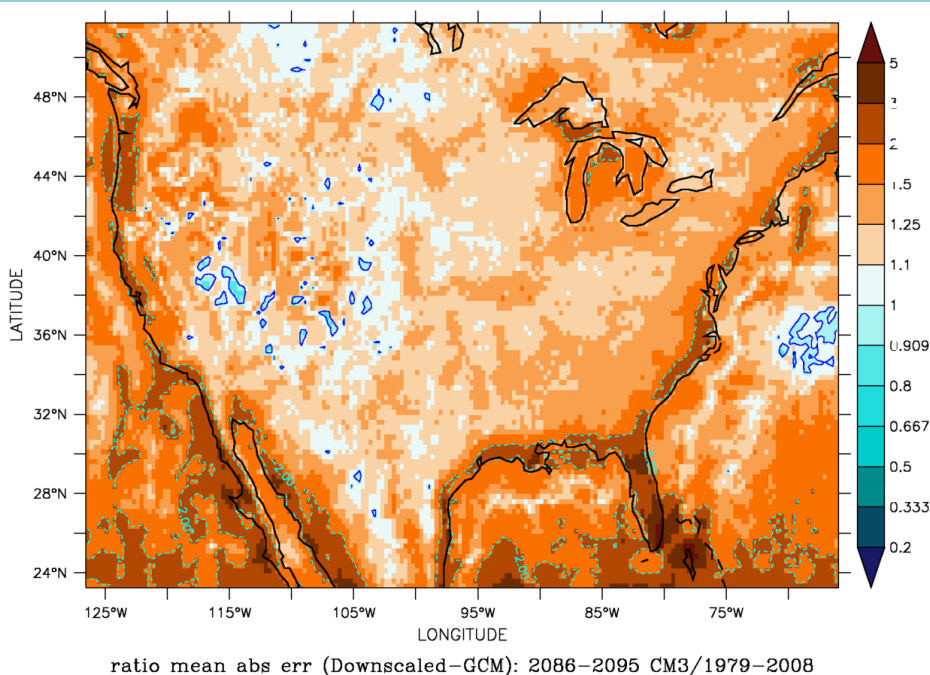
Risk-Based Framing Approach



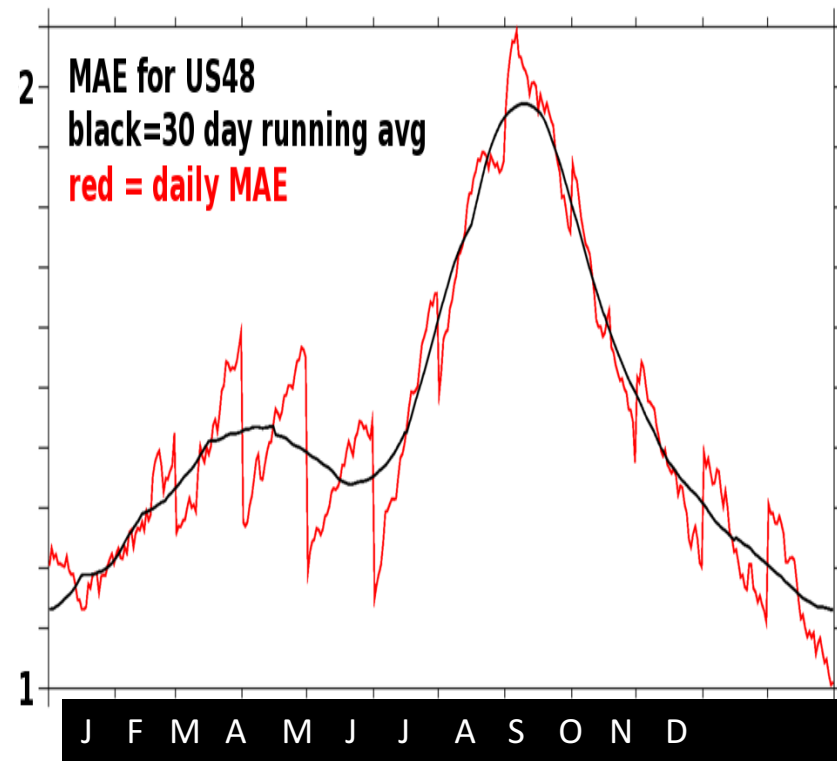
Confidence (>90%) was assigned to the range as bounding possible futures, with no likelihoods assigned to individual scenarios.

Perfect Model approach to compare downscaling

(results from the Perfect Model Experimental Design (manuscript in prep.))



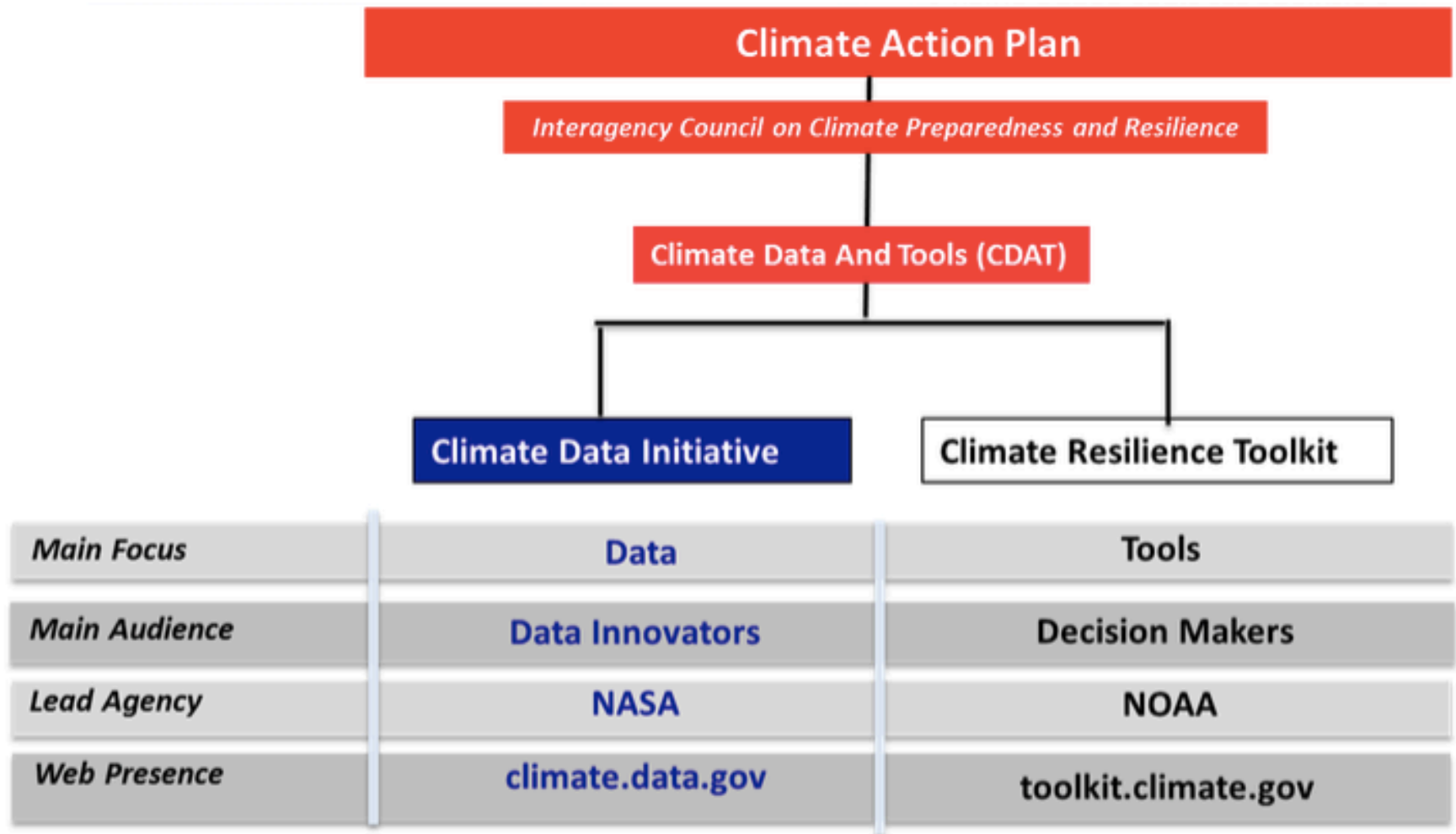
Ratio of the Mean Absolute Downscaling Error
"C" 2086-2095 MAE
1979-2008 MAE



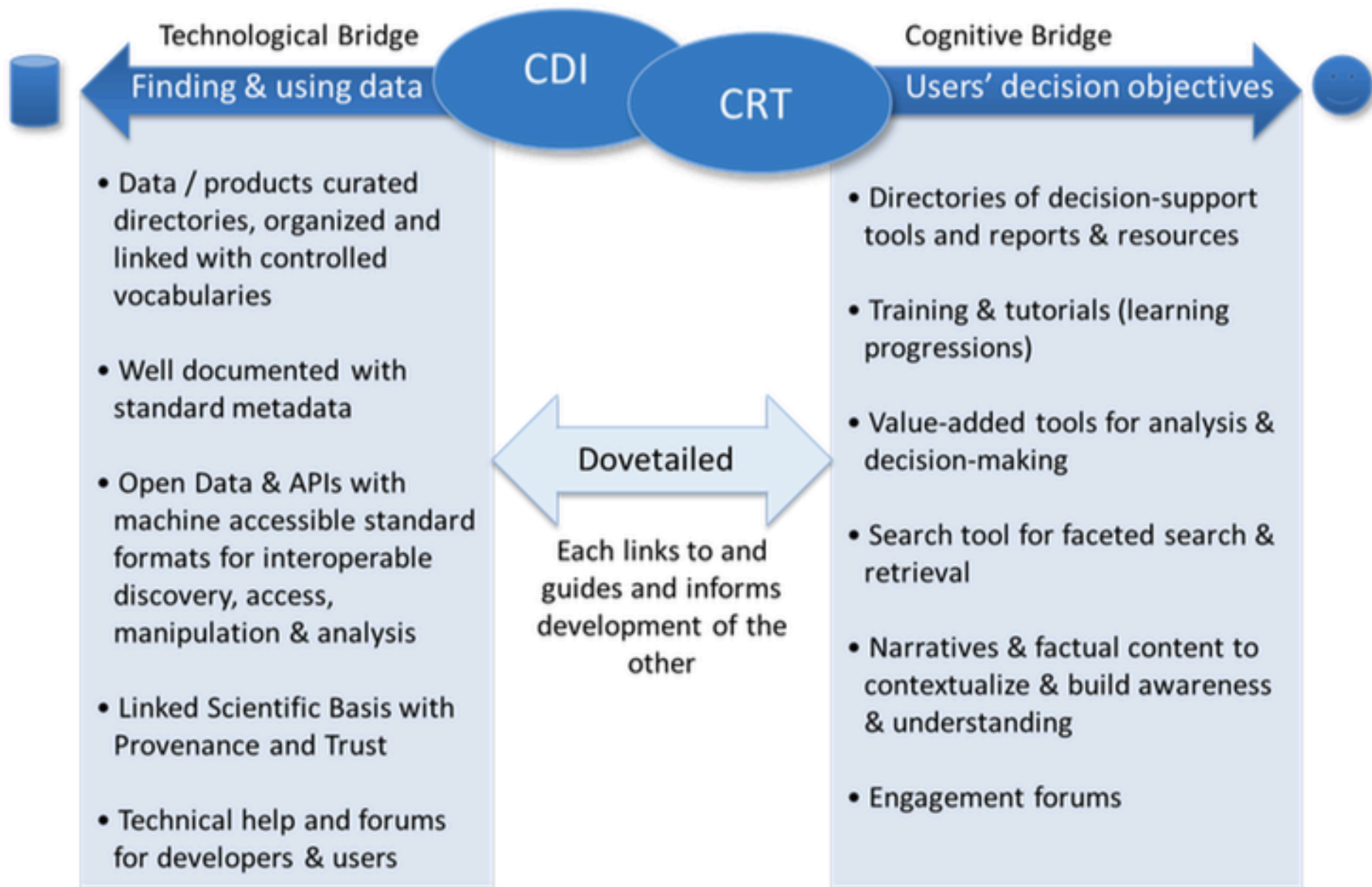
A clear intra-month MAE trend in some months

This ESD method's downscaling errors are larger for daily max temp at end of 21stC than for 1979-2008; Larger along coasts and in summer.
(In SE Florida, errors are ~5x greater for late 21st Century than late 20thC.)

Communications & Dissemination: Federal Collaborations



CDI & CRT: two sides of a coin



Results set page for WHERE

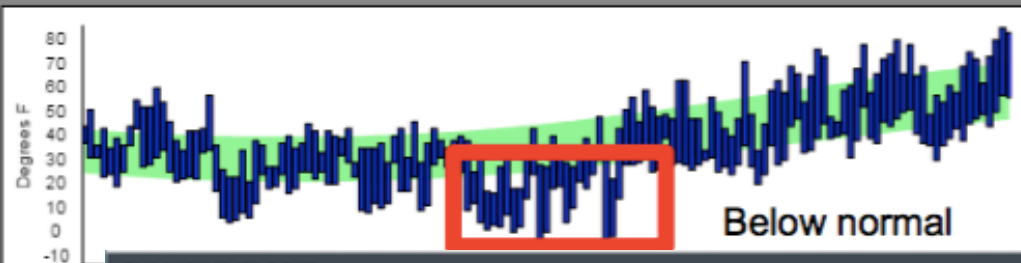
Gettysburg, PA

Observed vs normal temperature for **Gettysburg, PA** – Feb 13-27, 2015

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TEMPERATURE

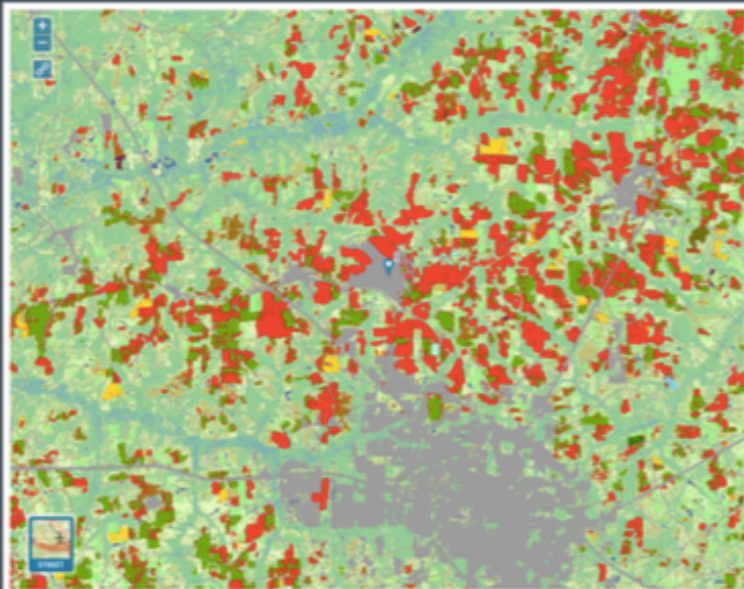


CLIMATE EXPLORER



Launch [Climate Explorer 2](#)

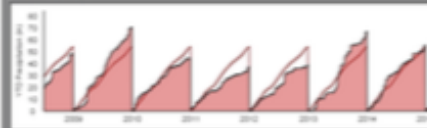
CLIMATE EXPLORER



STATION DETAIL:

(1) DOTHAN BONE, APAL

PRECIPITATION



two lines of text. [View thumbnail](#) | [KML](#) | [Data Services](#)

<http://www.cpc.noaa.gov/yo/yoyoyo.html>

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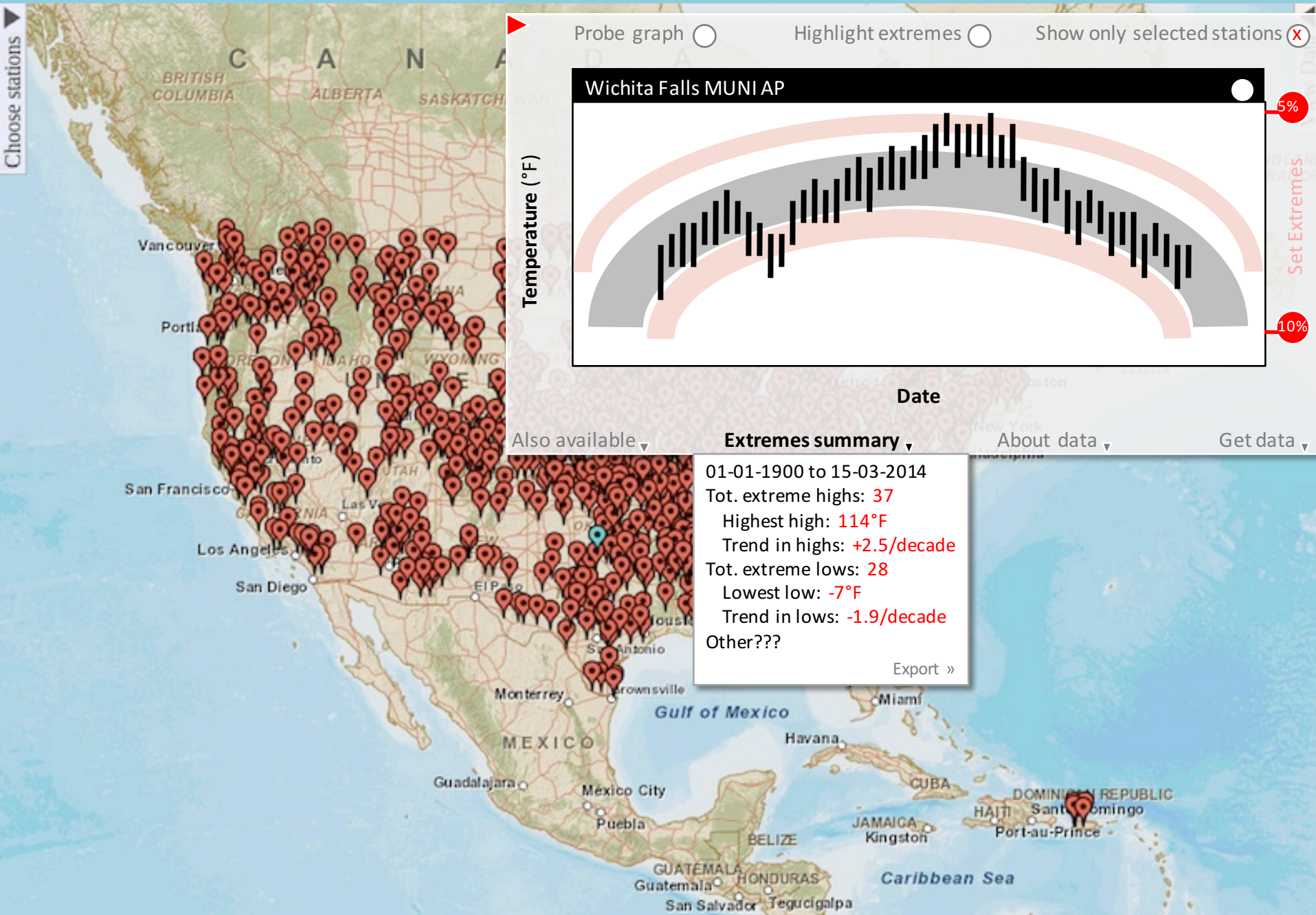
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nt city, state, & regional
& reports

Relevant local / regional case studies

Climate Explorer => Extremes summary



Moving Forward

- Role of USG providing climate projections?
 - NCEI state reports
 - Mis-match with local knowledge & needs
- EPA's CIRA, Risky Business & IAM's?
- CRT & NCA4?
- Community of Practice? NCAnet

Questions?

<http://nca2014.globalchange.gov>

<http://www.globalchange.gov>

<http://toolkit.climate.gov>



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