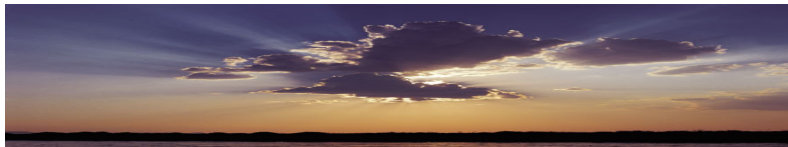
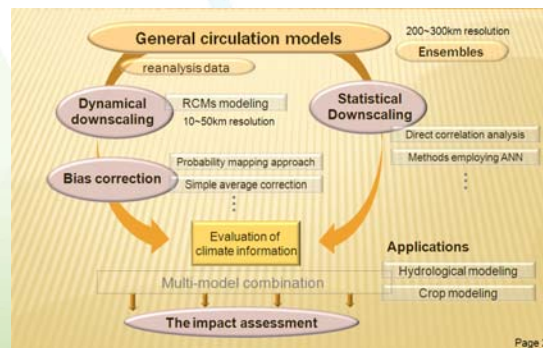




Downscaling from Global to Local: Implications for Vulnerability Research

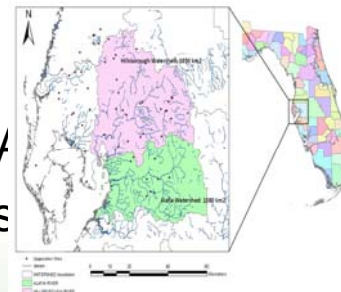
J. W. Jones

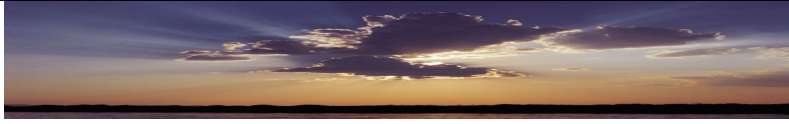
Agricultural & Biological Engineering Department
University of Florida



Outline

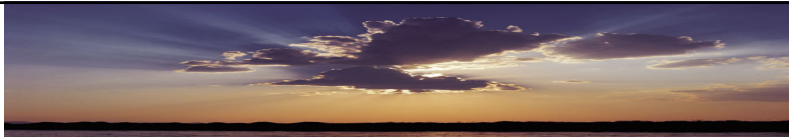
- A few key questions
- Example from the SE USA
- Some concluding remarks





Questions

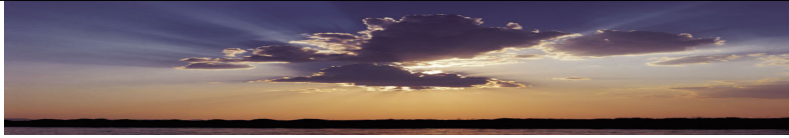
- Why do we need to downscale climate change scenarios or climate forecasts?
- What do stakeholders and researchers need in order to assess vulnerability to climate change and climate forecasts? What variables? What spatial scale? What time scale?
- How do stakeholders and researchers use climate change and climate forecast information to assess vulnerabilities to climate variability and change?



Question 1

- Why do we need to downscale climate change scenarios or climate forecasts?

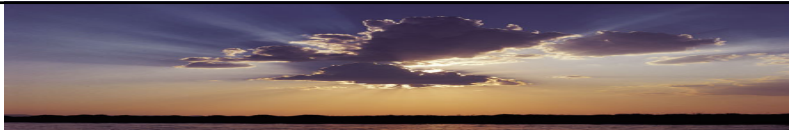
There is a mismatch between what stakeholders need for assessing vulnerabilities and making decisions and the spatial and temporal scales at which the scenarios or forecasts are provided.



Question 2

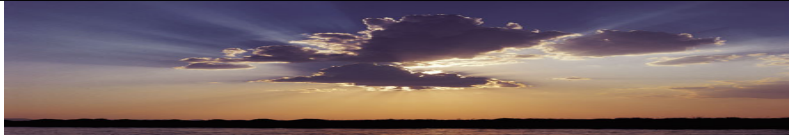
- What do stakeholders, and researchers who aim to provide information to them, need in order to assess vulnerability to climate change and climate forecasts? What variables? What spatial scale? What

This is the key question. The answer varies considerably with the system involved, the decision maker, and the type of decision that is being considered.



Back to the Question “Why Downscale”

- GCMs are not designed to produce all climate information at spatial and temporal scales needed by all decision makers and scientists. Many variables that stakeholders need are derived from basic weather variables that are produced in the GCM-derived climate scenarios. And, there are wide ranges of spatial and temporal scales needed for different vulnerability studies and decisions.



Question 3

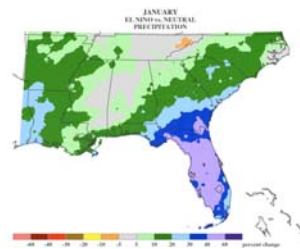
- How do stakeholders and researchers use climate change and climate forecast
- Stakeholders need forecasts or scenarios of specific variables at specific time and space scales for specific decisions or policies
- Models that use climate variables as inputs
- Analysis of existing historical data sets
 - e.g., climate variables vs. stream flow, diseases, crop yield, ...
- Stakeholders may use past experiences

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Southeast Climate Consortium (SECC) Experiences

- One of 9 of NOAA's Integrated Science Assessment (RISA) centers in the USA
- RISA research addresses complex climate sensitive issues of concern to decision-makers and policy planners at local, regional levels
- SECC focus has been on climate variability, climate forecasts, and risk management, now climate



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SECC Members and Expertise (www.SECClimate.org)

- 8 universities in 5 SE states
- About 65 researchers from a wide range of physical, biological, and social sciences
- Agriculture, water resources, coastal ecosystems, and other terrestrial ecosystem applications
- Partnerships with extension & other boundary organizations

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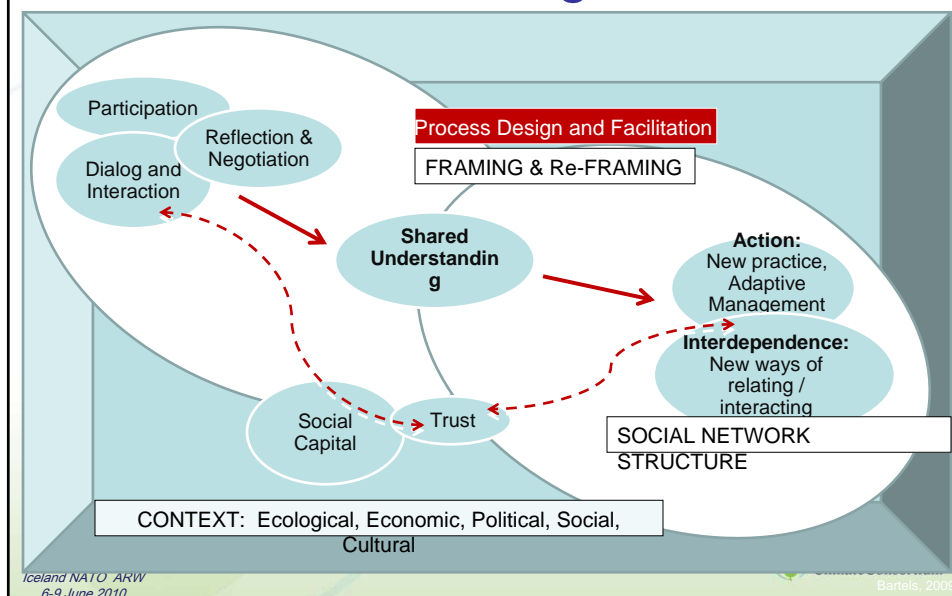
SECC Program Overview

- Climate forecasts, scenarios
- Sector-based modeling and decision analysis (agriculture and water, now broader)
- Understanding & working with decision makers (stakeholders)
- Partnerships with boundary organizations (e.g., Extension, water utilities)
- Participatory development of decision support systems, operated by boundary

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Social Learning is Critical



Scenarios, Vulnerability and Adaptation Analyses



- Climate working groups
 - Agriculture
 - Water utilities
- Participatory, Co-Learning
- Task force approach



Achieving Broad Impact

- Extension service, with agents in each county in 5 states, are partners
- Partner with other boundary organizations
- Develop decision support tools, together with those use them
- Training, education programs

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A Service of the Southeast Climate Consortium

Current Climate Phase: El Niño
The Pacific Ocean is currently transitioning into the El Niño phase.

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News

Hate Calculus? Try Counting Cow Carbon - (Sept. 21, 2009)

Senate ag chair Lincoln sees climate bill slog - (Sept. 9, 2009)

Carbon market evolving - (Sept. 7, 2009)

August weather a mixed bag across Georgia - (Sept. 3, 2009)

Georgia farms will need more water in the future - (Sept. 3, 2009)

AgroClimate releases new Strawberry Disease Tool - (Aug. 14, 2009)

[More News »](#)

Outlooks

Climate Phase Forecast (July 8, 2009): The Pacific Ocean is currently transitioning into the El Niño phase...

SECC Summer Climate Outlook (July 8, 2009): Big Changes in the Pacific Ocean...

SECC Spring Crop Progress and Outlook (June 8, 2009): Extended periods of rain, cloudy skies and unseasonably...

Special Storm Summary for Florida (May 26, 2009): Rare May Storm impacts Florida...

2009 Hurricane Forecast (May 26, 2009): Hurricane forecasts

Climate Phase Forecast for Oct-Nov-Dec

Neutral (14%)	
La Niña (1%)	
El Niño (85%)	

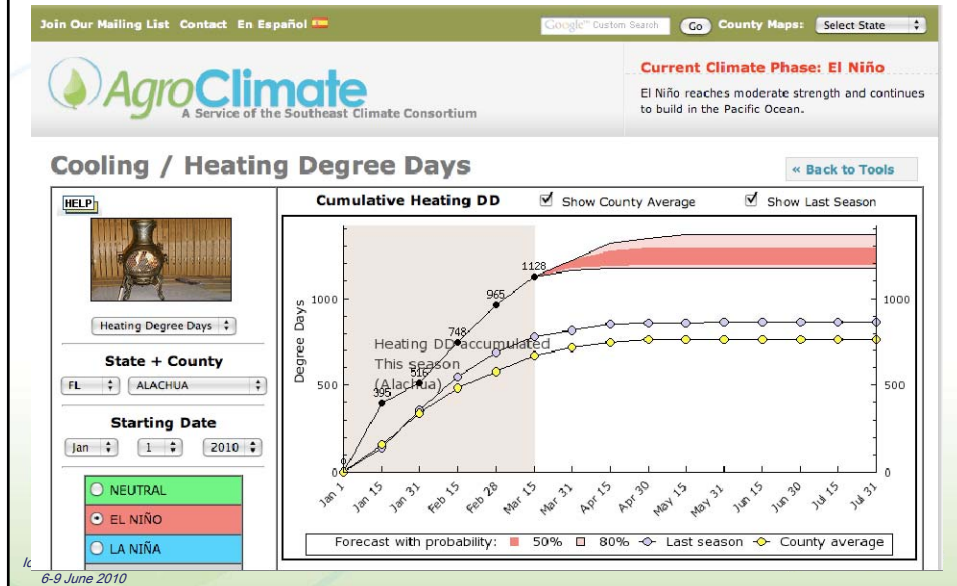
Source: The International Research Institute for Climate and Society

AgroClimate Español

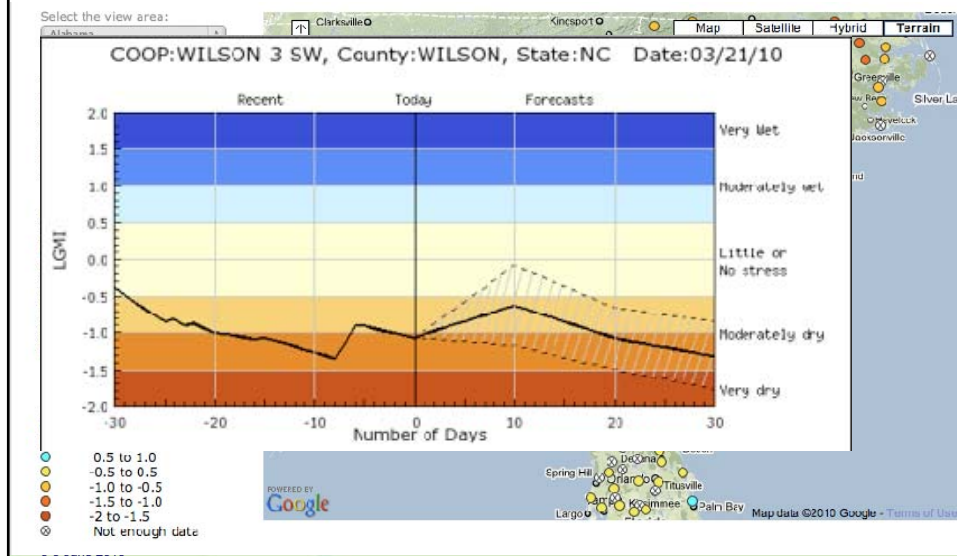
AgroClimate
Now available in Spanish
[Click here to view](#)

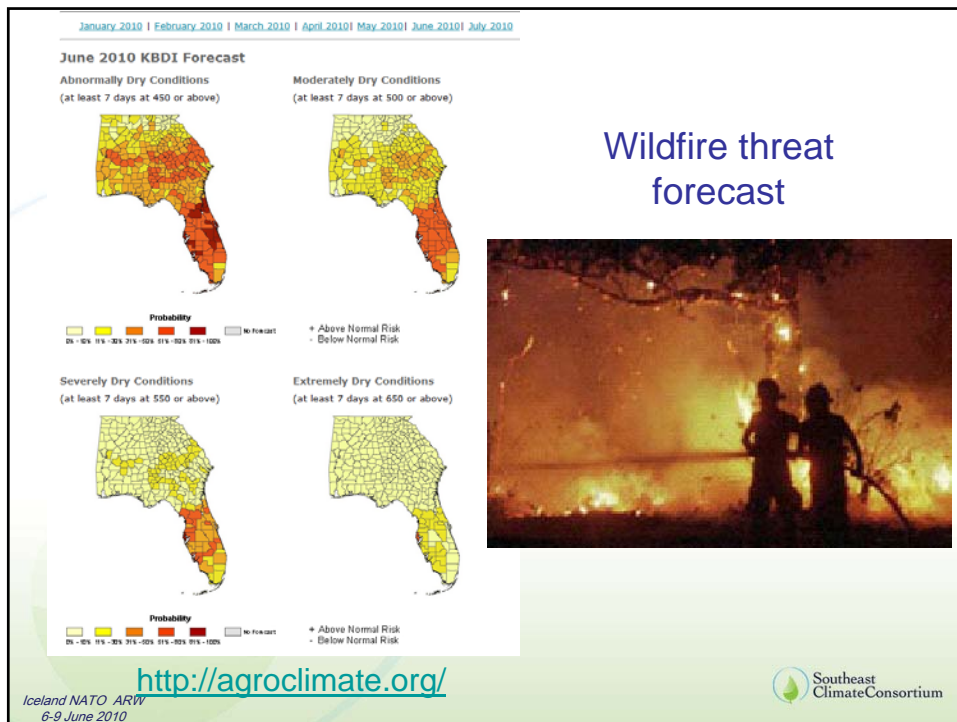
SUPPORTING ORGANIZATIONS

Monitoring and Forecasting



Drought Monitoring and Forecasting





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Open-AgroClimate

An Open-Source Initiative for AgroClimate.org

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Home

Welcome to *Open-AgroClimate*! This is an Open-Source initiative for *AgroClimate.org*, a climate information and decision support system for managing agricultural and natural resources in the Southeast USA.

The main objective of *Open-AgroClimate* is to help ensure that *AgroClimate* continues to evolve to address a wide range of climate-based crop risk management issues after the original implementation project ends. It will also ensure that that codes are fully documented and follows the best programming standards and database design, facilitating its transfer to other states, countries, and organizations with a minimum effort and at a reduced cost.

Open-AgroClimate Brochure: click here to download it.

2nd Open-AgroClimate Workshop

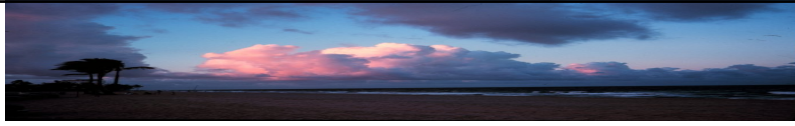
Click here for more information.

Recent Posts

- Location: 2nd Open-AgroClimate Workshop
- Lodging: 2nd Open-AgroClimate Workshop
- Agenda: 2nd Open-AgroClimate Workshop

Climate & Weather Links

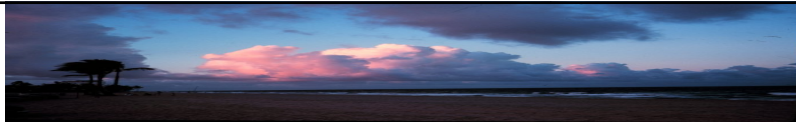
- AgroClimate.org
- Florida Automated Weather Network
- Georgia Automated Environmental Monitoring Network
- National Climatic Data Center
- NOAA Climate Prediction



Concluding Remarks

- Understand stakeholders, work with them to facilitate co-learning, social learning
- Co-develop climate scenarios, adaptive management options; link to the past
- Boundary organizations are essential for achieving impact in large populations of decision makers
- Engagement must be a process, not one-off training or hand-off of tools

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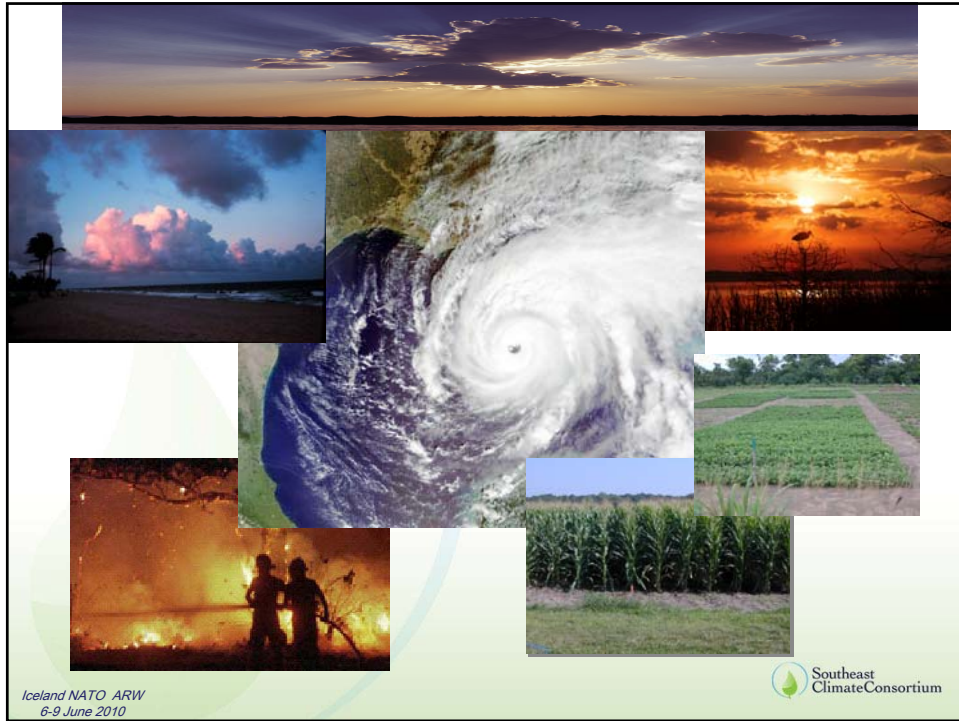


Concluding Remarks

- Downscaling must be based on stakeholders' needs regarding space and time resolutions
- GCMs may not be the best starting point for creating local - regional climate forecasts and scenarios for stakeholder decisions over 5-10 year time horizon
- Trust is critical
- Success takes time, continued commitment

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