The Southeast Climate Consortium: Integrating Research and Extension for Climate, Agriculture, and Water Resources

James W. Jones[1], James J. O'Brien[2], David Letson[3], Gerrit Hoogenboom[4], Keith T. Ingram[1], and Clyde W. Fraisse[1]

[1]Dept. of Agricultural and Biological Engineering, IFAS, University of Florida, Gainesville, FL
[2]Center for Ocean-Atmospheric Prediction Studies, Florida State University, Tallahassee, FL
[3] Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL
[4]Biological and Agricultural Engineering, University of Georgia, Athens, GA

Development of an integrated research and extension program in climate, agriculture and water resources is challenging for many reasons, among which are the complexities associated with each of these components and their interactions from a scientific point of view. Research is needed to help unravel the natural and social interactions among these components, not just for understanding the complexities of complex biological, physical, and chemical interactions that affect these systems but also for developing information that helps inform decisions and policies for managing agriculture and water resources that lead to economic and environmental benefits to society. The Southeast Climate Consortium (SECC) has been developed during the last ten years with this goal as its main target and guiding principal. The purposes of this paper are to present the approaches that are used in the SECC, to describe the processes that are central to our approach, to summarize what we learned through these experiences, and to provide a glimpse into our future ambitions.

The approach that we use is characterized by interdisciplinary research targeted toward producing scientific information for reducing risks of losses and that lead to economic and environmental benefits to agriculture and water resources in the SE USA. The SECC is comprised of seven universities that include land grant universities and state climatologist programs and includes about 50 to 60 faculty members, post docs, and graduate students distributed among our universities. These members have backgrounds in meteorology/climatology, agriculture, engineering, agronomy, economics, anthropology/sociology, and hydrology. The SECC is organized into themes that define research and extension programs in and among these disciplines: Climate, Agricultural Research, Decision Analysis, Water Resources, and Extension. Theme leaders organize meetings as needed throughout the year, and the Extension theme participants hold monthly coordination and planning meetings via video conferencing. We also have an Executive Committee that has a representative from each university. A Coordinator also serves on the Executive Committee and is responsible for working with all themes and universities and for ensuring that program responsibilities to funding agencies are met and that cooperation goals are being met. We have three main funding sources (NOAA, USDA-CSREES, and USDA-RMA) as well as a number of grants that support specific projects within and across the themes and universities. We hold two major program review and planning meetings each year. Program managers from NOAA, USDA-RMA and USDA-CSREES as well as research and extension administrators from each university are invited and attend these meetings. One major characteristic of our multi-state program is that administrators from each university have agreed to waive indirect cost charges to SECC grants to their university for funds that are provided by subcontracts to any of the other participating universities. The Extension component has partners in the Cooperative Extension Services who help define research and extension priorities and also translate information into products and tools that are put into AgClimate for use by Extension Specialists and Agents to inform and advise their clientele in agriculture, forestry, and water resources. We have developed and implemented a web-based information and decision support system (AgClimate.org), which is one of the main methods that the SECC uses to communicate risk management information.

We have followed a process that is characterized by:

- Partnering with Extension
- Emphasizing multi-disciplinary collaboration among institutions
- Using both traditional and advanced, state-of-the-art methods for analyzing historical agriculture, forest fire, economic, and hydrology records for immediate or ultimate applications.
- Adapting and using scientific models (climate, cropping systems, hydrology, economics, decision analysis) for developing climate forecast and risk management information. We emphasize integration of models across disciplines, such as state-of-the-art climate, crop, hydrology, and economic models, to address specific research questions and to provide integrated information on climate variability, forecasts, and risk management.
- Using participatory approaches, such as the *sondeo* or rapid rural appraisal approach, to engage stakeholders in priority setting, AgClimate design, and evaluation of the information and tools that we provide.
- Engaging administrators in research and extension to keep them informed of our effort, to get their input in our evolving program, and to ensure their continuous support.
- Engaging funding agency program managers in our meetings and planning process. We also send delegates to Washington, DC and to Kansas City to give presentations about the SECC approach, accomplishments, and plans to broader agency personnel.
- Promoting proposals from SECC members for specific opportunities and participating in national and international climate and agriculture program development.

The SECC has evolved since its first incarnation as a Florida Consortium with three universities into the existing SECC with seven universities from Alabama, Georgia, Florida, and North Carolina. We have evolved in other ways also. When we started in 1998, we found that interest climate variability and seasonal forecasts was very strong among stakeholders (farmers, ranchers, foresters, and Extension). This interest continues, but during the last year or more, we have found increasing interest in topics related to climate change where there was little interest ten years ago among these stakeholders. Congruent with the rapidly growing interest among all sectors in the US, however, interest in climate projections over periods of several years to decades and even longer term have grown considerable. We are finding strong interest from water managers, land developers, agricultural organizations and associations (such as Farm Bureau, commodity associations, input suppliers, marketing and transportation, etc.), engineering firms, and bankers. This interest is fueled mostly by new opportunities that they anticipate in response to changing policies related to climate change and energy, as well as to reduce climate related risks associated with major investments and decisions.

The SECC has various new, innovative research projects in progress and in preparation. We plan to maintain our emphasis on stakeholder involvement via Extension and to broaden the stakeholders with whom we partner. Some of this new research is already targeting longer term climate projections, water resources management and land management. Our interactions with other national and international groups, such as the International Research Institute for Climate and Society, other NOAA and USDA programs, Reading University, and the Consultative Group for International Agricultural Research Centers will increase. We also aim to strengthen education related to applications of climate information in agriculture and natural resources and hope that CIMR will help to guide our efforts in curriculum development and education.

Contact Information: James W Jones, Dept. of Agricultural and Biological Engineering, IFAS, University of Florida, PO Box 110570, Gainesville, FL 32611, USA; Tel: 352-392-1864 ext.289; Email: jimj@ufl.edu