

Building capacity to provide useful climate information: Lessons/insights from agricultural decision-making in Argentina.

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Current use of climate information to support decision-making in climate-sensitive sectors of society is evolving rapidly. Improved scientific and technological capabilities, a growing appreciation for the importance of climate on human endeavors (including sustainable development, poverty mitigation and food security), and an increasing demand for information to support decisions are all providing strong incentives for the timely production and delivery of useful climate data, information, and knowledge to decision-makers.

This talk reviews insights gained during a multi-year series of projects sponsored by NOAA-OGP and the US National Science Foundation to understand the use of climate information to support decision-making in agricultural production systems in the Pampas of Argentina. The Pampas are among the major agricultural areas in the world and have production systems and technology comparable to the US Corn Belt. As the presentation is intended for staff from NOAA and other agencies, it will emphasize how the Argentina experience relates to the design and contents of a generic climate information system. Nevertheless, relevant scientific results also will be presented to illustrate specific points.

A climate information system should be supported throughout its development (and not only during the design phase) by relevant research. The talk will argue that research projects informing the design of climate services should evolve through three phases of development: exploratory, pilot, and (at least!) semi-operational. This evolutionary pattern is associated with changes in research topics, required partnerships, and the balance between research and extension. Research activities during the exploratory stage typically focus on statistical analyses or simple modeling approaches to establish, for instance, associations between climate conditions and crop yields. During a pilot stage, the modeling may be expanded to explore appropriate management adaptations for various likely climate scenarios. At the semi-operational stage, the spectrum of research topics may include diverse yet very specific issues, such as the assessment of institutional information flows or enhanced modeling of decision-making under uncertainty. The nature of collaborations also changes as a project evolves: early stages typically involve partners from academia or research agencies, whereas later stages necessarily must involve appropriate stakeholders and operational agencies. Finally, as a project evolves often there is increasing tension between research and academic publications, and a sincere commitment towards extension, education of stakeholders, and implementation/testing of various climate products.

One central lesson learned in Argentina is that a climate information system should place balanced emphasis on three types of information: (a) climatological or historical data and derived statistics/indices, (b) information about recent conditions (from one to several months, depending on the sector) that provides context for decisions and the interpretation of seasonal forecasts, and (c) prognostic information or forecasts of regional climate scenarios. Another useful lesson is to avoid a false antinomy between research on social and natural science topics: a broad spectrum of talents working together is necessary. Finally, although “it has been said many times, many ways”, a key element of research expected to support operational use of climate information is continuity, essential to foster trust and the committed involvement of key partners.

About the Speaker

Guillermo Podestá is a Research Associate Professor at the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences. Because of his earlier training in Agronomy, Dr. Podestá recently has become involved in studies of ENSO-related climate variability and agriculture. He is part of various projects exploring end-to-end applications of climate forecasts to improve decision-making in the agricultural sectors of Argentina and the southeastern United States. These projects have been supported by grants from NOAA's Office of Global Programs, the US National Science Foundation (Methods and Models for Integrated Assessment, Biocomplexity in the Environment), and the Inter-American Institute for Global Change Research (IAI). Dr. Podesta's interests also include satellite remote sensing of ocean dynamics using sea surface temperature, ocean color, and sea surface height fields; applications of satellite and *in situ* observations to the understanding of oceanic variability and biological responses; fishery oceanography; and fishery ecology.