



CLIVAR 2004 SCIENCE CONFERENCE

June 21 -25, Baltimore, Maryland, USA

CRN-055: Development of a collaborative Research Network for the study of Regional Climate Variability and Changes, their Prediction and Impact, in the MERCOSUR Area.

www.prosur.fcen.uba.ar

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PROSUR IS AN AFFILIATED PROGRAM OF CLIVAR/VAMOS



PROSUR is a Collaborative Research Network (CRN) to promote research into the causes of climate variability in the Mercosur region of South America

Countries and Participant Organizations

- ✓ **ARGENTINA:** Centro de Investigaciones del Mar y la Atmósfera Dto. de Ciencias de la Atmósfera y los Océanos. UBA.
- ✓ **BRASIL:** CPTEC-INPE Universidade Federal do Paraná Universidade de São Paulo.
- ✓ **PARAGUAY:** Facultad de Ciencias Exactas y Naturales (Universidad Nacional de Asunción)
- ✓ **URUGUAY:** Facultad de Ciencias. Universidad de la República.
- ✓ **USA:** NOAA/OAR/Climate Diagnostics Center Department of Meteorology, University of Maryland

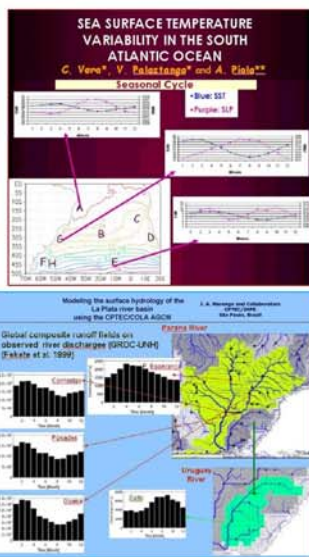
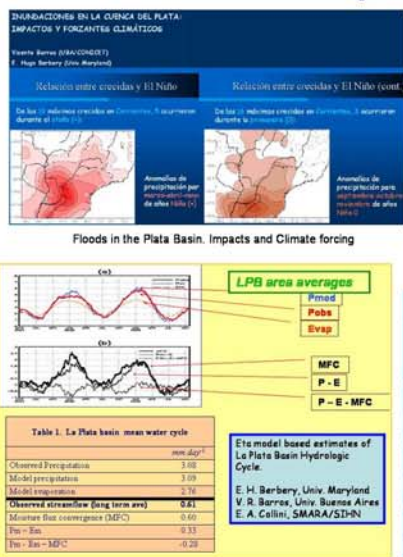
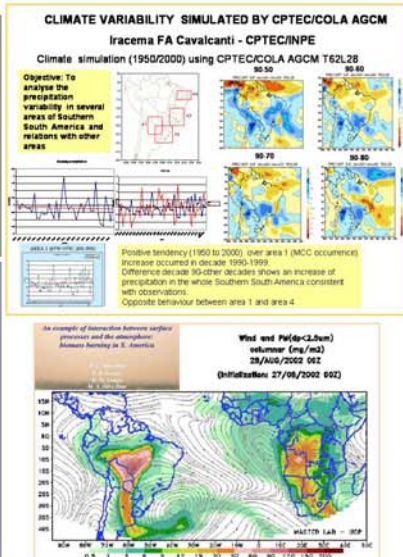
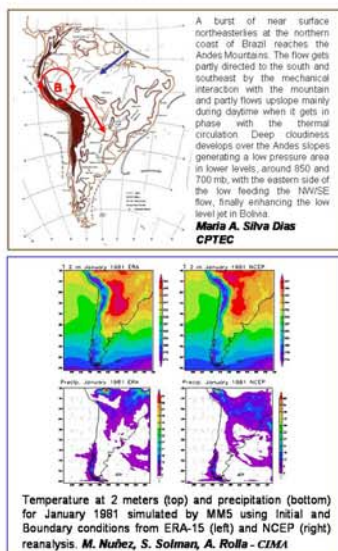
Participant Scientists

- ✓ **Argentina:** M. N. Nuñez (PI), V. R. Barros, G. Berri, M. Nicolini, W. Vargas and C. Vera.
- ✓ **Brazil:** T. Ambrizzi, I. Cavalcanti, A. Grimm, J. Marengo, C. Nobre, M. A. Silva Dias and P. L. Silva Dias.
- ✓ **Paraguay:** G. Coronel.
- ✓ **Uruguay:** M. Bidegain and M. Caffera.
- ✓ **USA:** E. Berbery, H. Diaz, and B. Liebmann.

Graduate Students partially or fully funded by IAI

- ✓ **Argentina:** Moira Doyle (PhD Dissertation concluded in 2001) and Gabriela Muller (now funded by CNPQ to conclude PhD thesis at USP, Brazil. Advisors M. Nuñez and T. Ambrizzi), Adriana Fernández, Claudia Campetella, Bibiana Carne, Gabriel Silvestri, Pablo Antico, Paola Salio (PhD Dissertation concluded in 2002), Inés Camilioni (finished the PhD program).
- ✓ **Brazil:** Anita Rodrigues de Moraes Drumond (MSc Dissertation concluded 2001), Caio Augusto dos Santos Coelho (MSc Dissertation concluded 2001), Ph.D. Thesis ongoing: Alexandre B. Pezza, Anita R. M. Drumond, Everaldo B. de Souza (MSc student), Daniel A. Rodrigues, (MSc Dissertation concluded 2002), Luiz Henrique C. R. Silva, Marcelo M.P. Correa (PhD student), Andrea Cardoso (PhD student), Carlos Raupp (MSc student), Edilson Marton (finished the PhD program), Wagner Soares (PhD student), Ana Claudia Preste, Claudia Camargo (MSc student)
- ✓ **Uruguay:** Madelaine Renom.
- ✓ **Now under consideration some graduates from Paraguay to become PhD students at the University of Buenos Aires.**
- ✓ **More than 30 collaborators from the participants institutions**

Some Results:



Data Analysis and Management

- ✓ Investigators at CDC, CIMA, CPTEC and USP are collaborating to produce a set of daily records from more than 2000 stations south of 15° S with a uniform format.
- ✓ These data were obtained from various public and private sources in Brazil, Paraguay, Argentina, and Uruguay.
- ✓ While station density varies substantially in space and the quality of the records differs, most records begin in the mid-1970s and continue until near the end of the last millennium.
- ✓ The data have already been useful in several diagnostic studies undertaken by scientists within PROSUR.

Principal themes in the PROSUR Agenda now under developing

- Interdecadal, interannual and intraseasonal climate variability. Impacts and mechanisms.
- Extreme Events.
- South American low level Jet.
- Land surface processes.
- Atmospheric Modeling.

Executive Summary

The goals for the last year were:

- Promote the research and interactions among PIs on the floods in La Plata Basin.
- To promote studies on the physical and dynamical processes of extreme events in the MERCOSUR area.
- Assess the degree of understanding of these extreme events by stakeholders and population in the context of Human Dimension Pilot Project.
- To develop and support activities related to South American Low Level Jet Field Experiment.
- Support modeling studies to investigate regional climate variability.

PROSUR has organized 5 Meetings since the start of the Program:

- 1st PROSUR CoPis Activities Result Presentation at Boulder Workshop Boulder, Co., USA, July 10-12, 2000.
- 2nd PROSUR CoPis Activities Result Presentation at Asuncion Workshop Asunción, Paraguay, October 10-12, 2001.
- 3rd PROSUR CoPis Activities Result Presentation at Mar del Plata Workshop Mar del Plata, Argentina, October 14-17, 2002.
- 4th PROSUR CoPis Activities Results Presentation at Cruzeiro Workshop Cruzeiro, SP, Brazil, 6-8 October, 2003.
- 1st Meeting of the Leader Authors PROSUR Book 27 -29 May, 2004 - San Carlos de Bariloche, RN Argentina

MAIN GOAL:

To advance the knowledge of regional climate variability and change, their prediction and impacts, in the MERCOSUR region

Specific objectives:

- THE ROLE OF LARGE-SCALE SEA SURFACE TEMPERATURE VARIATIONS IN DETERMINING CLIMATE VARIABILITY IN SOUTHEAST SOUTH AMERICA.
- TO STUDY THE TROPICAL-EXTRATROPICAL INTERACTIONS RELATED TO THE CIRCULATION AND PRECIPITATION VARIABILITY OVER THE MERCOSUR AREA.
- IMPACTS OF CLIMATE VARIABILITY ON SECTORS OF SOCIAL AND ECONOMIC IMPORTANCE IN THE MERCOSUR REGION

Capacity Building

The network is making a significant contribution to the capacity building in the region by training Ph.D. students, who will contribute to the development of policy in issues of climate variability and change, and prediction of climate.

An enhancement of the smaller groups is being promoted (e.g., with Groups in Paraguay and Uruguay).

Potential for interaction with policy makers and stakeholders

The MERCOSUR region of South America is home to more than 200 million people. That population is profoundly affected by both short- and long-term climate variability.

➢ The majority of the MERCOSUR's Gross Domestic Product is centered in the study region and a large percentage of its energy is hydroelectric.

➢ The CRN will intend to bridge the gap between the science results generated by the program and the information needs of decision and policy makers providing mechanisms to transform research results into information designed to address specific problems.

Applications Component

In the planning meetings for the establishing of the Program, it was specifically recommended that an applications component be included from the beginning of our research activities.

Objective of the Applications Component

The objective of this research theme is to explore all the components and steps necessary, to ensure the successful transfer of scientific results on climate variability to potential users of climate information.

Pilot Projects

Two Pilot Projects in PROSUR

A regional pilot project focused on hydrology is now in execution leaded by Vicente Barros. The objective is to assess the impact of climate variability on surface runoff and streamflow for the Río de la Plata Basin (Cuenca del Plata) and its sub-basins.

Human Dimension of Floods in La Plata Basin.

A Second Pilot Project

Initiative for an Integrated Project on Human Dimensions of floods in the La Plata basin. MAIN GOAL:

- ✓ Risk Management.
- ✓ Impact.
- ✓ Vulnerability.
- ✓ Mitigation Strategies.

This is an interdisciplinary proposal in which natural and social scientists are being involved from Argentina, Brazil, Uruguay, Paraguay and USA.