

# CRN-055 REPORT OF ACTIVITIES

## Third year activities

I- Project General Information
<p><b>Principal Investigator</b> Dr. Mario N. Nuñez (Argentina)</p> <p><b>Co Principal Investigators</b> Vicente Barros, Guillermo Berri, Matilde Nicolini, Walter Vargas and Carolina Vera (Argentina). Tercio Ambrizzi, Iracema Cavalcanti, Alice Grimm, Jose Marengo, Carlos Nobre, Maria Asuncao Silva Dias and Pedro Silva Dias (Brazil). Genaro Coronel and Benjamín Grassi (Paraguay). Mario Bidegain and Mario Caffera (Uruguay). Hugo Berbery, Henry Diaz and Brant Liebmann (USA).</p> <p>In the Project more than 40 collaborators and students are also participating.</p> <p>A multinational and interdisciplinary Human Dimension team is integrated by the following scientist: Argentina: Claudia Natenzon, Silvina Solman, Matilde Rusticucci; Brazil: Luci Hidalgo Nunez; Uruguay: Diego Piñeiro; Paraguay: Lucas Chamorro.</p>
<p><b>Project Title</b></p> <p>Development of a Collaborative Research Network for the Study of Regional Climate Variability and Changes, their Prediction and Impact in the MERCOSUR Area (IAI CRN-055).</p>
<p><b>Major Institutions Involved</b></p> <p>ARGENTINA: Centro de Investigaciones del Mar y la Atmósfera (CONICET - UBA) and Departamento de Ciencias de la Atmósfera y los Océanos de la Universidad de Buenos Aires. BRAZIL: Instituto de Astronomia, Geofísica e Ciências Atmosféricas de la Universidade de Sao Paulo, CPTEC/INPE and Universidade Federal do Paraná. PARAGUAY: Facultad Politécnica and Facultad de Ciencias Exactas y Naturales de la Universidad de Asunción. URUGUAY: Facultad de Ciencias de la Universidad de la República. USA: Climate Diagnostic Center of NOAA and Department of Meteorology of the University of Maryland.</p>
<p><b>Executive Summary</b></p> <p>A Collaborative Research Network (CRN) has been developed to promote research into the causes of climate variability in the Mercosur region of South America. Scientists from Argentina, Brazil, Paraguay, Uruguay and the United States are participating.</p> <p>During year 2002 we continued with the activities to: <i>(a) Promote the research and interactions among PIs on the floods in La Plata Basin; (b) To promote studies on the physical and dynamical processes of extreme events in the MERCOSUR area; (c) Assess the degree of understanding of these extreme events by stakeholders and population in the context of Human Dimension Pilot Project; (d) To develop and support activities related to South American Low Level Jet Field Experiment; (e) Support modeling studies to investigate regional climate variability.</i></p> <p>The overall achievements during the reported year are summarized next:</p> <ul style="list-style-type: none"><li>- 36 Journal articles/book chapters were submitted or published</li><li>- 121 presentations/extended abstracts were produced</li><li>- 21 visits to further ongoing collaborations</li><li>- 10 PhD thesis were initiated or continued.</li><li>- The 3rd CRN 055 Co Principal Investigators workshop was holded in Mar del Plata, Argentina from 14-17 October 2002.</li></ul>

The thematic group reports are enclosed as **annex A**.

All these efforts involved the collaboration and interactions of scientists and graduate students from the different research units participating in PROSUR.

### WORK PLAN FOR THE YEAR 2002

The main objectives of the IAI CRN (*Collaborative Research Network*) Program, the CRN 055 (PRO-SUR) are:

- 1) To support an environment conducive to collaborative research. This is accomplished by sponsoring scientific visits to each of the participating institutions holding regular meetings where results are disseminated and discussed, and by encouraging the free exchange of data.
- 2) To promote the capacity building in the participating institutions, mainly in those with scarce development in the scientific interest area of the Project. The exchange of scientists and students will be strongly promoted, searching for alternative funds for post degree fellowships.
- 3) To promote the free exchange of data among investigators of the CRN. The data have already been useful in several diagnostic studies undertaken by scientists within PROSUR.

Specifically for the year 2002, the goals 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
- To coordinate and participate in the South American Low Level Jet Field Experiment.
- Support modeling studies to investigate regional climate variability.
- To carry on AGCM experiments to analyse the influence of the Pacific and Atlantic SSTs on the precipitation over the La Plata river basin.

The Timetable of activities supporting the above goals follows. Given the nature of these activities they were developed simultaneously along the year.

Relevant publications related with the Project (Authors are CoPIs, collaborators and students, participating in the CRN) produced during the year 2002 can be consulted in the Prosur web site: <http://www.cima.at.fcen.uba.ar/prosur> Publications.

Conference presentations during 2002 and extended abstracts in detail, see Publications in Prosur web site: <http://www.cima.at.fcen.uba.ar/prosur>

#### Scientific Visits to laboratories.

E.A. Collini. to University of Maryland, USA. 3 months, with the objective of helping in the update of the model setup, and to perform long term runs of the Eta model to test its stability in climate mode, explore the sensitivity of precipitation to lower boundary conditions, and many other experiments needed for this project.

Mario Bidegain and G.Cornel, 17-20 March 2003, to CPTEC/INPE, Sao Paulo, Brazil. Coordination activities on soil moisture in Rio de la Plata Basin

Vicente Barros to University of Asunción, Paraguay on two occasions: June and December 2002 (1 week), working about: Largest floods in Paraguay River and their climatic forcings.

B. Liebmann stayed at CIMA working with C. Vera. (June 2002).

Mario Bidegain to UBA, 19 June 2002, visit to coordinate pilot project activities with Dr. Mario Vargas and Lic. Olga Penalba.

Mario Nuñez to CDC, Boulder, to visit Henry Diaz, July 2002.

Visit of Dr. Vicente R. Barros to Federal University of Paraná, 22-27 July 2002, in order to discuss the joint project "Intraseasonal summer climate variations in Southeastern South America" with Dr. Alice M. Grimm.

Visit of Dr. Alice M. Grimm to the University of Buenos Aires, 29 July – 3 August 2002, in order to discuss the joint project "Intraseasonal summer climate variations in Southeastern South America" with Dr. Vicente R. Barros and Moira E. Doyle.

Between 3 and 16 August 2002, C. Vera stayed at CDC working as PROSUR Visiting Scientist.

Guillermo Berri, 21-22 August 2002, to Fac. Ciencias, Montevideo, Uruguay. Coordination activities on evaluation of Climate Outlook Forums of Southeast South America.

Dr. Nuñez and Dr. Barros to University of Maryland, USA to coordinate activities on the La Plata basin hydrologic cycle and climate variability (2 weeks) August 2002

Dr. Nuñez to CPTEC and IAI to visit Carlos Nobre, Jose Marengo, Iracema Cavalcanti, Eduardo Banus (IAI), Silvio Bianchi (IAI) and Gerhard Breulmann (IAI). Brazil, August 2002.

Saulo Freitas (Collaboration between USP/Brazil and UBA/CIMA/Argentina). Visit to UBA -CIMA, 25-29 August 2002.

Dr. Nuñez to University of Sao Paulo to visit Tercio Ambrizzi, Pedro Silva Dias and Maria Asuncao Silva Dias, November 2002.

Dr. Nuñez to University of Maryland, to visit Ernesto H. Berbery, November 2002.

Guillermo Berri to CPTEC, São Paulo, Brasil. 17-20 December 2002.

Visit of Jose Marengo to USP to interact with T. Ambrizzi.

Mario Caffera to University of Buenos Aires, Buenos Aires, Argentina. Visits as a Ph.D. Student. Several times during the year 2002.

#### [Ph.D thesis ongoing and related to the CRN055 project](#)

Argentina: Estela Collini, Moira Doyle, Gabriela Muller.

Brasil: Kelen Andrade Adma, Anita R. M. Drumond, Simone E.T.Feraz, Alexandre B. Pezza, Wagner R. Soares, Cleber A. Souza, Everaldo B. de Souza.

#### [Research Activities.](#)

All PROSUR research lines are under development according to those Research Lines indicated in our web page.

#### [Participation in Meetings and Congress of the IAI CRN-055 members.](#)

82<sup>nd</sup> American Meteorological Society Annual Meeting, 13th Symposium on Global Change and Climate Variations. (AMS), Orlando, Florida, USA, 13-17 January: Grimm A.

VAMOS/CLIVAR/WCRP Conference on SALLJ. Santa Cruz de la Sierra, Bolivia. 5-7 February 2002; Participants from CRN- 055: participated most of the CRN CoPIs and collaborators

5th VAMOS/CLIVAR Panel Meeting. San José, Costa Rica, 12-16 March 2002: Vera C. S.

Workshop on "Soil Moisture Variability in the Río de la Plata Basin: Assessments of the impact of its

variability and forecast applications for end users". CPTEC/INPE. Sao Paulo. Brazil. 17-20 March 2003.

Taller de Planificación sobre Iniciativa Multidisciplinaria en la Cuenca del Plata, organizado por American Association for the Advancement of Science (AAAS). Buenos Aires – Argentina. April 8-10, 2002: Coronel G.

XII Congresso Brasileiro de Meteorologia: A Meteorologia e a Gestão de Energia. III Seminário Brasileiro de Climatologia. 1º Encontro Brasileiro de Variações Climáticas. Foz do Iguaçu, Brazil. August 4-9, 2002: participated most of the CRN CoPIs and collaborators.

Third International Meeting of the IAI CRN-055 Project PROSUR. Mar del Plata, Argentina. October 10-12, 2001: participated most of the CRN CoPIs and collaborators.

27th Climate Diagnostics and Prediction Workshop. Fairfax, Virginia, USA. October 2002: Berri G. J.

American Geophysical Union. San Francisco, USA. December 2002: Berbery H.

International Pacific Research Center, Honolulu, Hawaii, November 2002: Ambrizzi T., Souza E.B.

International Workshop on Regional Integrated Assessment of Climate Impacts. Universidade de Washington, NOAA. Castelvechio Pascoli, Italia. 16-20 September, 2002: Grimm, A. M.

Proceedings of Second International Symposium on Physico-Mathematical problems related to climate modeling and prediction. Shangai, China. CAS-TWA-WMO Forum. 2002. Marengo, JA, IFA Cavalcanti,

#### Miscellaneous.

The CRN-055 is an affiliated Program of the VAMOS. (VAMOS: Variability of the American Monsoon Systems which is a component of CLIVAR under the auspices of WCRP).

#### Future Activities of the PROSUR CRN-055

The goals for the year 2003 and further are:

Promote the exchange of PhD students among different laboratories of the members participating in PROSUR.

Research activities, interactions and cooperation during the year 2003 will be focused to promote the following PROSUR Agenda themes:

- South American Low Level Jet
- Extreme Events
- Land Surface Processes
- Atmospheric Modeling
- Climate Variability. Impacts and mechanisms
- Paraná Plata Basin floods

**Plans for the year 2003: see annex B Time Table**