



PROgram for the study of regional climate variability,
their prediction and impacts, in the mercoSUR area.

PROSUR
IAI Project CRN 055

HUMAN DIMENSION OF FLOODS IN LA PLATA BASIN PILOT PROJECT

October 2002 Report

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Introduction

In recent decades, catastrophic floods have been an increasingly frequent phenomenon in southeastern South America (southern Brazil, northeastern Argentina, Paraguay and Uruguay). The floods have caused loss of life, displaced populations, extensive damage to property, loss of crops, contamination of drinking water, and increased incidence of water-related diseases. Several possible causes have been cited for the increasing frequency of floods, such as climate variability at interannual and decadal scales, changes in land use (expansion of agriculture), and anthropogenic climate change. In the Rio de la Plata basin, some floods have been tied to increased precipitation associated with the warm phase of El Niño-Southern Oscillation (ENSO) events. For example, floods during the 1997/98 El Niño event affected 25.000 people in Asunción, Paraguay, with a cost of US\$ 6.500.000. In northeastern Argentina, more than 120.000 people were evacuated during that event and total economic losses were about US\$ 2.500.000.000 (according to sources of some public institutions). The economic losses are particularly significant, as countries in the region are undergoing serious financial problems.

Recent scientific advances resulted in the emerging capability to predict, with usable skill, the occurrence of ENSO events and, thus, the increased likelihood of floods. Therefore, it may be possible to use ENSO-related climate information to try to prevent and mitigate some of the negative consequences of floods. Nevertheless, it is unclear if both institutions and the media in the region give to the public the possibility to take advantage of climate information to enhance societal preparedness. Preliminary assessment of previous experiences suggest that institutional response at various levels (federal, provincial, municipal) generally has not been adequate or well organized. In the other hand, mass media present very heterogeneous information to the public that generates confusing messages.

Four main groups of stakeholders could be identified *a priori* as participants of social communication processes. They are: the scientific community, the media, public institutions and the public. The scientific community generates the climatic information, particularly climate prediction. The media covers and disseminates the information to the public. Public institutions use (or not) the scientific production to resolve social problems. The public includes many kind of users, which makes use of the information in different degrees and quality.

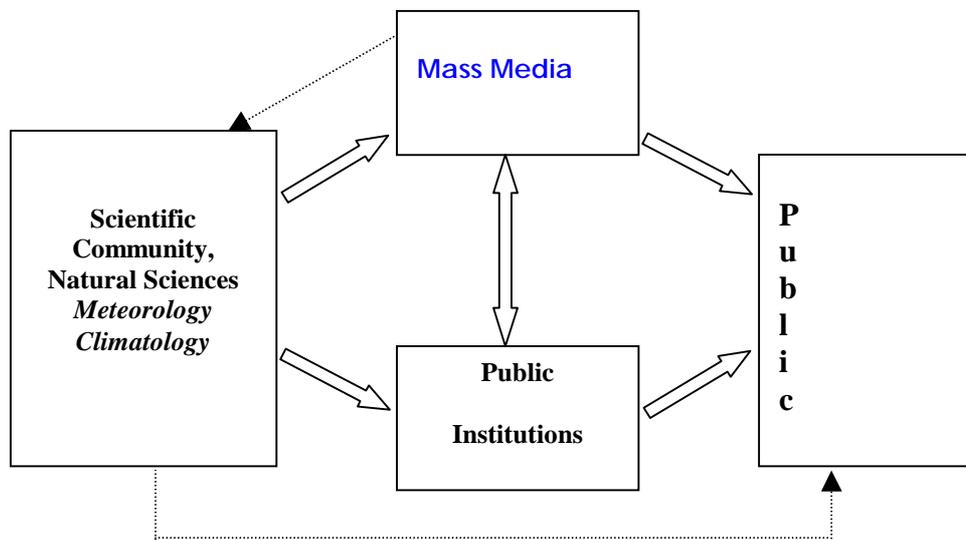


Figure 1: Communication tracks: Full line arrows: Certain flow of information; broken line arrows: Uncertain flow of information.

The schematic figure 1 above represents the communication tracks among the main actors. There are different relationships among these main groups, concerning the direction, the quantity and the quality of the flow of information. In this context, it is possible to identify two communication tracks through which the scientific information reaches the users:

- the one related to the mass media communication.
- the one related into and through public institutions.

Both of them present different objectives. The former is interested in establishing a communication process by itself and they are private enterprises. The latter takes advantage of the information to face specific societal problems.

The framework of our research activities during 2002 aims to improve our understanding of the environmental, social, and economic consequences of floods in southeastern South America associated with El Niño events. The simultaneous study of the communication tracks in four countries in the region for the El Niño 1997/98 allows a unique opportunity to derive useful insights from the comparison of multiple experiences.

Scope:

To diagnose the flow of climate-related information in order to improve its use and application for the decision making processes and the general welfare.

Objective:

The general objective is to analyze the social communication of climate events, in particular, catastrophic floods related to El Niño events in selected case studies over the Rio de la Plata basin.

El Niño-related articles published in relevant newspapers will be analyzed with a technique that allows the systematization of published information (Natenzon, 2000) with the aim of evaluating how the climate event has been installed in the society by the media. In particular, we focused

on the socio-economical impacts taken into account, the relevance given to the information in terms of spatial area, the way the scientific knowledge is transmitted to the public, the actors involved, the quantification of economical and social impacts and institutional responses arisen. All these issues tend to evaluate the way the media disseminates climatic-related information.

Work Team:

Media Communication about climate in Argentina:

Claudia Natenzon (Social Geographer, UBA)
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Media Communication about climate in Brazil:

Lucí Hidalgo Nunes (Geographer, UNICAMP, Campinas)

Media Communication about climate in Paraguay:

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Results

Preliminary results from the case study over Argentina have been presented in the 3rd Co-PI's Meeting, Mar del Plata, October 2002. (Rusticucci & Solman, 2002) and are summarized here. These results are part of the Pilot Project on Human Dimensions of floods of the Mercosur Area, that can be found in Prosur home page (only in Spanish).

In order to analyze the communication social process in Argentina 'Clarín' newspaper was taken as reference (the most popular newspaper in Argentina, over 600.000 issues a day, read mainly by the middle class). All news where 'El Niño' was mentioned were taken into account, from January 1st, 1997 to July 31st, 1998. 143 articles in 66 issues were found from April 16th 1997 to June 17th 1998.

The news appeared mainly in 'Información General', 'Rural' and 'Economía' sections and sometimes in the Cover Sheet.

The importance given by the newspaper has been quantified through the area dedicated to the 'El Niño' related information (figure 2).

AREA News about 'EL NIÑO' (cm2 per day)

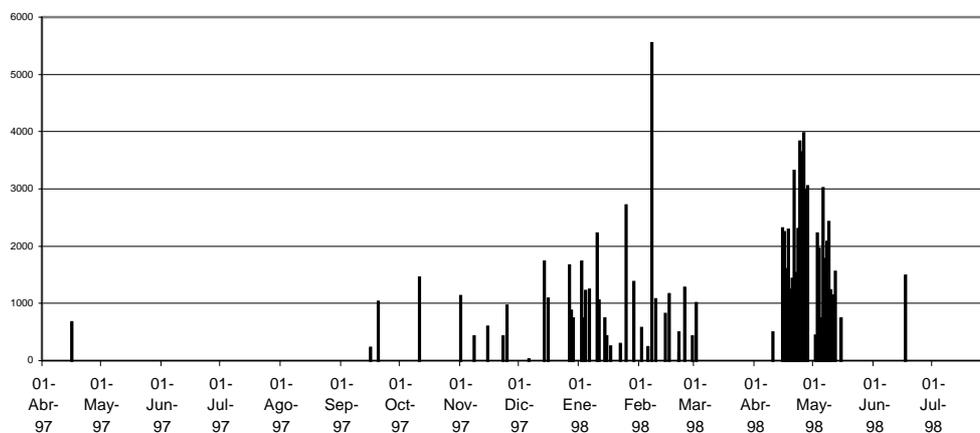


Figure 2: Time evolution of the total daily area of news related to 'El Niño' published in Clarín.

The first new appeared on April 16th 1997 and it was referred to the climatic forecast related to the ongoing El Niño event. Then the information is interrupted until September, when several articles devoted to the explanation of the El Niño event and climate prediction with special emphasis on potential agricultural benefits, from several sources are published. During summer (DJF) the information is related to climate forecast over the most popular tourist destinations for Argentinean people and potential extreme precipitation events related to El Niño. Through these articles it appears that the media relates every rainfall event in any region to El Niño event. It is interesting to mention that the maximum daily area dedicated (February 7th, 1998) is due to a big storm that generated catastrophic floods in Buenos Aires city. The newspaper also related it to El Niño. During February some articles were devoted to floods over La Plata basin. The news disappeared until April when the floods over Northeastern Argentina became catastrophic. The social impact, quantified in terms of people evacuated and economical losses are the main concerns. Mitigation actions (institutional and non-institutional) done and proposed are published during this period. As the El Niño event declined, the information disappeared by the end of June 1998.

The media systematically related every atmospheric event to the occurrence of El Niño and the source of information not always is provided by any academic or scientific community. Nevertheless, the media provides educational material to the public explaining the El Niño phenomena and its impacts over the region repeatedly throughout the analyzed period.

In this way, the media incorporates the climate as an element to be considered for the decision making processes and the general welfare. However some misinterpretation of the published information have arisen through our analysis. The improved communication among media and academic community can be a way to enhance the quality of the information related to climatic events.

I) Products

Media coverage database:

The database was built based on the information published in 'Clarín' and 'La Nación' Newspapers. (The main newspapers with national coverage over Argentina) from January 1st 1997 to December 31st 1998.

The fields considered in this database are: date, title, subtitle, topics, newspaper section, relevance of the article (area), classification of the article (e.g. scientific, descriptive, etc), author, source of the information, impact type, impact places, quantifiable impacts (e.g., costs, evacuated people, etc.).

References

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