

IMPACT OF GLOBAL CHANGE ON THE COASTAL AREAS OF THE RIO DE LA PLATA: SEA LEVEL RISE AND METEOROLOGICAL EFFECTS

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(ii) Project Summary

Title: Impact Of Global Change On The Coastal Areas Of The Rio De La Plata: Sea Level Rise And Meteorological Effects

A multidisciplinary team of the University of Buenos Aires (UBA), Argentina and of the Republic University, Uruguay will conduct the project. The coordinator will be DR. Vicente Barros

The output of the project will be a set of future scenarios of physical and socio-economic impacts of the global change on the coastal areas of the Rio de la Plata, hereafter referred to as RP. The RP has unique features; it is formed by the junction of the Paraná and Uruguay Rivers, and soon reaches a 50-Km width that increased until reaching around 250 Km at its outlet on the Atlantic Ocean. Its height over the sea level is very small, no more than 2 m at its upper part. Besides, most of its margins on the Argentine side are low. These features make these areas vulnerable to the tide floods produced by storms over the RP or over the nearby areas of the Atlantic Ocean. Because of its origin, these tides frequently come along with destructive winds that harm coastal facilities at both the Argentinean and the Uruguayan coasts. These facilities include enormous investments as the population along both margins of the RP amounts more than 14 million people. The increasing development of resort areas at both coasts of the RP and of the nearby Paraná delta as well as the occupation of part of the coastal areas for precarious housing by impoverished population intensifies the social and economical impacts of the tide floods. The predicted sea level rise may only worsen this situation.

The Project will developed future scenarios, crossing time every 20 years, of the direct impact of the sea level rise on the coastal areas of the RP and of its indirect impact through the enhancement of tide floods provoked by weather storms. For the two aspects, direct and indirect impacts, sea level scenarios are going to be used as input for the studies and will be taken from the IPCC TAR. The enhancement of the tide floods is assumed to have a non-linear response to sea level rise and hence it will be studied with a numerical model of the RP forced by winds. Frequency and strength of storms over the region near the RP will be studied, both with historical data and with a high-resolution atmospheric regional model. Coastal dynamics is going to be considered in all cases. Present social indicators of vulnerability to floods require further refinement to assess more precisely the direct population involved. After this step and according to physical impact projections, future social and economic impacts will be estimated. The methods and criteria for identifying and evaluating adaptation options consider the involvement of stakeholders in their definition to assure that the analysis of adaptation is pragmatic and relevant to vulnerable populations

The countries involved in the Project are Argentina and Uruguay and the study covers the Rio de la Plata and its coastal areas. The length of the Project will be 3 years and the requested budget is 120 000 U\$\$. The University of Buenos Aires has awarded 100 000 U\$ to fund the same activities of this Project to the Argentine group of researchers.

(iii) Project Description

Objectives and expected outputs

Objectives

- a) To assess the vulnerability of human activities and natural areas on the coast of the Rio de la Plata to sea level rise.
- b) To strengthen the technical capacity of the participating countries in vulnerability studies to climate change

Expected outputs

- a) Future scenarios, crossing time every 20 years, of the direct impact of the sea level rise on the coastal areas of the RP.
- b) As in a) but through the enhancement of tide floods provoked by weather storms due to the sea level rise.
- c) Assessment of the effect of the sea level rise on the dynamics of the RP coasts.
- d) Assessment the social impact of the present tide floods on the coastal areas of the RP and projection of these results into the future.
- e) Initiation of public involvement on the discussion of adaptation strategies to level rise of the RP
- f) Enhanced capacity on climate change vulnerability studies:
More training on the use of regional atmospheric and hydrologic models
More trained experts on the assessment of social impacts of floods

Justification

Along the margins of the Rio de la Plata, hereafter referred as RP, live more than 14 million people. This implies enormous investments on the coastal areas that are increasingly growing with time. These investments were made and still are made without consideration to the future impact of the sea level rise in the coastal settlements and facilities.

Other vulnerabilities to global change, other than RP level rise would be expected in the region, particularly in agriculture, one of the more important assets of Argentina and Uruguay, in the hydroelectric power and in health by the propagation of tropical vectors. All these vulnerabilities depend on the regional climate evolution during the next decades, aspect on which there is a great degree of uncertainty. In addition, the agricultural issue was addressed in detail by the "Greenhouse emissions inventory and Climate Change Studies on vulnerability and mitigation in Argentina" and by many authors in Uruguay (Baethgen 1997; Chiara and Cruzand 1997; Panario and Bidegain 1997 among others).

Although not free of uncertainty, the prediction of future climate at global scale and of the sea level response to the predicted warming is more reliable. Therefore, with high probability, the sea level rise will affect the population and the assets of the RP and consequently their anticipated knowledge will permit to start adaptation strategies, particularly regarding investments in long term projects.

The direct impact of the sea level rise on the coastal areas of the RP was studied on part of the RP coast in the framework of the Project "Greenhouse emissions inventory and Climate Change

Studies on vulnerability and mitigation in Argentina" Arg/95/G/31/PNUD funded by GEF. The coastal area studied was that of the Samborombon bay. It was estimated that the area subject to possible flooding could be near 3,000 Km², but this result is rather inaccurate due to lack of appropriated altitude data. The magnitude of these estimates, as well as any crude assessment of the vulnerability of the RP coastal areas to tide floods, indicates that it is necessary to appraise more carefully the physical impact of the sea level rise on the RP coasts and, based on that, estimate the social and economic losses and adaptation costs.

Participating researchers and institutions

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Research group

A multidisciplinary team will conduct the Project. The profile of the researchers fits the requirements of the Project. Researchers of Argentina are from the University of Buenos Aires (UBA), Faculty of Sciences (FCEN), Faculty of Philosophy (FP), Faculty of Engineering (FE) and Faculty of Agronomy (FA). Researchers from Uruguay are from the Republic University (UR), Faculty of Sciences (FS). The next table includes details. Arg. stands for Argentine and Ur. for Uruguayan.

<u>Name</u>	<u>Nationality</u>	<u>Affiliation</u>	<u>Area of expertise</u>
Dr. Vicente Barros	Arg.	UBA, FCEN	Climate Variability and C. Change
Dr. Jorge Codignotto	Arg.	UBA, FCEN	Sea Level Rise, Coastal Dynamics
Dr. Claudia Natenzon	Arg.	UBA, FP	Geography-climate social impacts
Eng. Angel Menendez	Arg.	UBA, FE	Hydrology
Lic. Julieta Barrenechea	Arg.	UBA, FP	Sociology
MSc. Pedro Tsakoumackos	Arg.	UBA, FP	Economy
Lic. Elvira Gentile	Arg.	UBA, FP	Geography (Human aspects)
Lic. Mario Bidegain	Ur.	UR, FS	Meteorology
MSc. Maria González	Arg.	UBA, FA	Agrarian Economy
Dr. Walter Vargas	Arg.	UBA, FCEN	Climatology

Dr. Roberto Kokot	Arg.	UBA, FCEN	Geology
Lic. Mario Caffera	Ur.	UR, FS	Agrometeorology
Dr. Susana Bischoff	Arg.	UBA, FCEN	Meteorology
Dra. Inés Camilloni	Arg.	UBA, FCEN	Climatology

Technical Approach

To assess the vulnerability of the coastal areas of the RP, the Project will develop future scenarios every 20 years of the direct impact of the sea level rise on the coastal areas of the RP and of its indirect impact through the enhancement of tide floods provoked by weather storms. These results will be the base for the study of the impact in the coastal dynamics and in the social vulnerability.

Physical Background

The RP has unique features as a river; it is formed by the junction of the Paraná and Uruguay Rivers, and soon reaches a 50 Km. width that increased until reaching around 250 Km at its outlet on the Atlantic Ocean. Because of that, more than a river, it is considered an estuary. Its length is near 300 Km and its height over the sea level is very small, no more than 2 m at its upper part. Therefore its slope is less than 0.01m/km. In the lower part of the RP the slope is even smaller. The mean water level over the sea at the coast of downtown Buenos Aires, 250 Km from the mouth of the river, is only 0.7 m (D'Onofrio et al. 1999). These features make the RP to respond to the tides produced by storms over the nearby areas of the Atlantic Ocean with a wave tide increasing toward the inner estuary. Due to the dimensions proper of a sea, the RP itself has a tide regime that is sensible to weather storms. Because of its origin, the greater tides frequently come along with destructive winds that harm coastal facilities at both the Argentinean and the Uruguayan coasts. On the Argentine coast these effects are worsen by the flooding caused by these tides on many sectors of the coastal areas that are very low with respect to the RP coast. These floods affect also the front of the Paraná delta where there are growing number of settlements and resorts and there are economical activities such as forestry, husbandry and other farming occupations.

The front of the Paraná delta is naturally growing at the expenses of the estuary producing a complex interactive dynamics with the human intervention on the coastal areas of the RP. Other consequences of the sea level rise will be the intrusion of saline water in the big ground reservoir of fresh water, south of Buenos Aires, the effect on the Salado River and its lagoon system that has a slow drainage and the direct flooding of the low lands of the Samborombon bay where this river ends in the RP.

Brief summary

The multidisciplinary nature of the problem requires a variety of different methodologies and techniques to approach each aspect. Therefore before describing the methodologies is convenient to make a brief description of the overall Project.

While the amount of sea-level rise to be expected as a result of global warming by any given date and in any given location is uncertain, some studies are beginning to discuss likely ranges

and probability distributions. Theory, model results and data on current rates of increase could permit to study the sensitivity of human infrastructure in coastal zones to given levels of sea level rise. The effective types of adaptive response are also known in some circumstances, but vulnerability with adaptation is difficult to assess because the capacity and will to respond are uncertain or in doubt in many instances. (Chapters 6, 8, 10-17, IPCC WG2 TAR). Therefore the Project will be aimed to assess vulnerability assuming that adaptation studies require a public awareness that is not present at the moment. However the present study will substantially contribute to this awareness and after discussions with stakeholders will propose some adaptation policies.

The countries involved in the Project are Argentina and Uruguay and the study covers the Rio de la Plata and its coastal areas as well as the front of the Paraná delta. By coastal areas we understand here, those that are now affected by tide floods but also those that will be flooded either continually or temporarily due to the to sea level rise. In addition we considered as coastal areas those that could be modified by the dynamical processes of the coast like sediment displacements, underground fresh water modification or other processes caused by the sea level rise.

Scenarios of the RP response to sea level rise will be developed for every 20 years starting in year 2000. Tide floods are assumed to have a non-linear response to sea level rise and hence its response to sea level rise scenarios will be studied with a numerical model of the RP and of the adjacent ocean forced by winds. Sea level scenarios from the IPCC TAR will be used as input for a hydrologic model of the RP. The model will be validated against present mean conditions in the simulation of the water level, as well as in particular cases of extreme wave tides induced by strong winds. The surface wind field will be calculated with a high-resolution atmospheric model. RP response to sea level rise under future mean climatic scenarios will be studied with the hydrologic model forced by surface winds simulated by climate models whereas the RP response to weather storms will be forced with a high-resolution atmospheric model

Frequency and strength of weather storms over the region near the RP will be studied from historical data. Coastal dynamics is going to be considered in all the scenarios assessing the growth and erosion of the coast.

There are already developed social indicators of vulnerability to floods in most of the Argentine coast, but they require further refinement to assess more precisely the direct population involved (Natenzon 2001). In addition this assessment will be extended to the whole Argentine margin, to the front of the Paraná delta and to the Uruguayan margin. After these steps and according to the projections of the physical studies, future social impacts will be estimated. Finally, the proposal on adaptation policies will be elaborated with stakeholders participation.

Methodology

One scenario for surface wind field will be calculated from NCEP/NCAR reanalysis (Kalnay et al. 1996) downscaling with a high-resolution atmospheric model, the ETA model (Messinger et al 1988). If the more complete climate models present a coherent regional simulation of future

scenarios the outputs of one of them (IPCC Data Distribution Centre) will be used to run the ETA model.

Extreme surges of the 1944-2000 period will be studied using the tide measures from Buenos Aires. Frequency, strength and features of the weather storms over the region near the RP associated to these surges will be determined using NCEP/NCAR reanalyses. They are generally produced by cyclogenesis (Ciappesoni and Salio 1997) but other synoptic situations cannot be disregarded. The typical and more extreme situations will be simulated with the ETA model to estimate the surface wind field associated to them. Due to the lack of reliable observed wind field, validation of these results will be done together with the hydrological model directly in the observed gage levels along the RP. As a first approximation, it will be assumed that the features of the main storms in the region will remain constant in the future. If there are evidences against this assumption, it will be revised accordingly.

Although the water level in the RP is strongly modulated by the wind field, the streamflow from its main tributaries Paraná and Uruguay might have some influence in some particular situations as the maximum registered discharge amounts to five times the mean value. The streamflow in the RP depends on the timing and amount of precipitation on the different sub-basins of its main tributaries. This in turn depends on regional and remote sea surface temperature forcing (Camilloni and Barros 2000). Therefore, extreme discharge scenarios can be constructed based on the assumption of occurrence of certain simultaneous and sequential conditions

In the last years, there was a trend of the Paraná delta to grow at expenses of the RP. For instance, in the last 40 years the island complex Martín García-Timoteo Domínguez duplicates its size (Codignotto 1990; Codignotto and Herrera, 1995). Under these conditions the borders of the RP will be considerably modify in the next 100 years with the delta approaching Buenos Aires. Since, it will be difficult that will occur a change in the sediment rate carried by the Paraná, the present delta advance will be extrapolated for future scenarios. This is not a simple and direct task. One Graduate student is currently preparing his doctoral thesis on this subject under Dr. Codignotto's direction. This thesis will be input for the Project

To determine the water level spatial distribution within the Río de la Plata, it is sufficient to use a two-dimensional horizontal analysis, i.e.; one based on the shallow water equations. We have in operation a numerical hydrodynamic model implemented using software *HIDROBID II* (Menéndez, 1990), which solves the shallow water equations by means of an implicit finite difference method. The model covers the whole Río de la Plata area, from the river head down to the imaginary line joining San Clemente (Argentina) and Punta del Este (Uruguay). The spatial resolution is 1 km in both spatial directions, leading to a 256 x 303 numerical grid. The temporal step is 120 seconds, small enough to solve accurately the propagation of the tidal wave.

The flow dynamics is driven by the incoming ocean tidal wave, the discharge of the tributaries and the winds. The former two are imposed as boundary conditions at the river mouth and head, respectively. The wind is imposed as a shear stress distribution over the whole area.

The model has been calibrated using water level records at the gage stations along the river, for different hydrometeorological conditions and verified based on available velocity records at different locations (Jaime & Menéndez, 1999).

A larger scale (and lower resolution) version of the model will be implemented, which will cover the oceanic platform area, thus allowing the simulation of the propagation of the tidal wave on a longer time period. The need of performing three-dimensional modelling for this larger scale will be evaluated, in which case software COHERENS (Luyten et al., 1999) will be used or other that may result from a consultant advice.

Local winds generate water waves. In the outer RP waves coming from the ocean are also present. They do not reach the inner RP due to attenuation. Well-established methods exist to calculate wind waves generated by known local wind patterns. The propagation of the local or ocean-generated waves along the river can be done using simple refraction models based on ray theory. Eventually, local wave patterns where diffraction effects are significant can be solved using the more sophisticated Berkhoff model (Cavaliere et al., 1992).

Due to the geographical features of the RP estuary, the high of the tide waves is not uniform in space. It is also possible that the mean water level rise in the estuary will be different from the mean sea level rise. This aspect will be explored with the hydrodynamic model to estimate the flooded area in future scenarios both under normal conditions and under extreme wave tide conditions. This aspect requires a more detailed cartography of the present land surface where there is now only a description with 2.5 m. resolution. To solve this problem with limited resources, an approximate cartography will be constructed base on satellite images corresponding to dry, normal and, flooded conditions. This will be done not only for the coast of the RP but for the low lands of the Salado and Samborombon rives in the Samborombon bay. This information will be complemented with some field measurements covering strategic areas and points.

To estimate the physical vulnerability of the coast, outcomes of the hydrodynamic model under different scenarios will be studied with the method of Gornitz (1990) adapted by Shaw et al (1998). This method uses indexes of vulnerability and sensitivity to the sea level rise considering how this change may initiate or alter geomorphologic processes like erosion or others. The indexes are the result of a combination of geological and hydrological factors. It will be developed an additional index to consider the wide range of tides and destructive waves in the RP estuary produced by weather storms. There is already some experience in this field (Kokot 1999).

Fresh ground water vulnerability will be assessed base on the present knowledge of the aquifers along the coast. It is important to notice that the only aquifer south of Buenos Aires that extends over 20 000 Km² is mostly under a surface that is now less than 1 m over the sea level. The soil was originated in deposits of barrier islands that are being now used for the extraction of shells for the cement industry. Therefore, the depressions of anthropic origin should be considered to asses vulnerability since might favour the intrusion of sea water in the aquifer.

An integrated analysis of the identified natural (exposition to flood risks) and of social factors will be made combining qualitative insight and quantitative information to develop tools that may "...facilitate the comparison of vulnerability profiles between at-risk regions and populations and highlight potential reduction in vulnerability..."(IPCC, WG2, 2001:115).

Vulnerability to floods assessment will be based on risk theory, using a multidisciplinary and territorial planning approach, including instruments and techniques like statistical databases from geographical information systems (GIS), field surveys and interviews. Social indicators will be built from existing census data (at departmental level) and include demographic, economic and life quality variables:

1. Total population
2. Population: relative variation between 1980 and 1991
3. Population density
4. Young's potential dependence index
5. Elderly potential dependence index
6. Percentage of households with unsatisfied basic needs (NBI)
7. Percentage of population in households with NBI
8. Percentage of NBI households with three and more deprivation indicators
9. Percentage of woman-headed households
10. Rate of children mortality
11. Rate of newborn mortality
12. Percentage of population without institutional health assistance.
13. Unemployment

An Index is calculated with this variables, as a sum of the values corresponding to each administrative unit for each indicator named above, considering a qualitative rank from 1 to 5, being 1 the lower value of the indicator, and 5 the higher. All the selected indicators have a direct relation with the degree of vulnerability. The final result may range from 12 to 60. These figures are ranked in 4 categories of vulnerability (very low, low, high, and very high), using natural breaks and mapping the results in a geographical information system.

As the result of the crossing of social vulnerability and present and predicted exposition to floods, it will be possible to identify specific areas with high social vulnerability that will received an important impact of the floods with economic detriment and income losses. These areas will be selected as study cases, to make detailed analysis including fieldwork.

The economic aspect of the vulnerability to the sea level rise in the area of the Rio de la Plata is a complex issue. Even in a first degree of approximation, it requires the evaluation of capital losses in real estate and infrastructure that will become obsolete and will require adaptation or replacement. The incremental costs in the new infrastructure and facilities should also be considered as well as the indirect impacts for losses in activities that will be diminished like tourism in some areas. The socioeconomic impacts of the present floods for chosen specific cases, will be a baseline for comparison with the future scenarios of climate change developed by the project. It is necessary to build up an actual structure of costs for floods, looking type of settlements (urban or rural) in front of type of impacts (e.g. sea level rise, flooding, water quality, agricultural and fisheries productivity, etc.). Market and non-market attributes impacts must be

evaluate (IPCC-WGII, 2001:122). It is convenient to express here that the design of the methodology to assess the economic impacts of sea level rise within the framework of this multidisciplinary Project will be done with the assistance of an external consultant.

Once social and physical vulnerability to sea level rise be known, it will be possible to elaborate a proposal on adaptation policies. It is foreseen that different actions could be proposed according to the different geographical locations that range from a very exposed and of relative low value land in the Samborombon bay to the less exposed but highly priced coastal area of Buenos Aires or Montevideo cities. Therefore, it is possible that the recommended policy includes in some areas passive methods ranging from adaptation without major action to the development of new activities according to the new circumstances. In other areas with great historical, cultural or economic values, it will be advisable to promote active policies like the construction of new infrastructure. According to the dynamics of the coast, it will be proposed norms of management in the urban environments to avoid or reduce unwanted anthropic effects that may enhance the negative water rise impacts.

The methods and criteria for identifying and evaluating adaptation options consider the involvement of stakeholders in their definition to assure that the analysis of adaptation is pragmatic and relevant to vulnerable populations. Therefore, the proposal for adaptation policies will be developed in contact with governmental and non-governmental organisations to involve as many stakeholders as possible in the definition of the proposal of adaptation to the water level rise. However, these contacts will start from the beginning of Project with the purpose of

- Testing the project with stakeholders to see if it includes a pragmatic and adaptable analysis that may help them to decrease the vulnerability of the population involved
- Rescuing the “know how” developed by popular culture so as to implement non-structural measures in the prevention and resolution of floods –basically urban floods--.

The activities that involve stakeholders in the project will be prepared within the framework of a collaborative planning methodology. This methodology was developed by the Latin American Faculty on Social Sciences (FLACSO) for addressing the formulation of public policies and the elaboration of development projects (Natenzon et al, 2001). The activities involving stakeholders and researchers prepared under this methodology will be the basis for the reconstruction of the problem in question, a reconstruction that should be made by means of successive approximations and the negotiation of perceptions, objectives, and values. (Natenzon et al, 2000)

Until now, the stakeholders contacted for this Project are:

Governmental:

-At national level, the Emergencies Federal System, at the Presidency office (SIFEM). It coordinates more than 30 institutions related with public emergencies.

-At local level, the Ombudsman of the People of Buenos Aires City for Environmental Matters, and the Secretary of Infrastructure and Public Services of the Buenos Aires City (see letters of support)

Non Governmental:

- The Associated Management of the West (GAO), a network of Buenos Aires neighbour organisations that work together since 1988.
- City Foundation, created in 1995 to contribute for a preservation and development of the urban quality of life, promoting the citizen participation (www.fundacionciudad.org).

Capacity Building

The project will enhance the capacity to handle atmospheric and hydrologic numerical models in both countries. The models to be utilized have a wide range of applications. Their combined use will allow objective forecast of the water level in situations of tide floods. It is reasonable to think that some institutional arrangement will preserve this valuable capacity.

Many of the activities of the Project will include undergraduate and graduate students that will have a first experience in vulnerability to climate change studies. It is not unlikely that some of them will continue working on these subject in the future. The researchers participating of the project, although with expertise in their respective fields will learn about updated tools and methodologies to approach vulnerability to Climate Change.

Most of all, the Project will build up the awareness in the society about the consequences of Climate Change in relation to its impact on the water level rise of the sea and the RP. This in turn will provide further support for future research in the field.

Relevance to Decision Making

IPCC scenarios of the sea level for the next hundred-year range from 0.1 m to 0.9 m rise (Summary for Policymakers of the IPCC WG1 TAR). The predicted sea level rise may only worsen the impacts of tide floods on the RP coasts. An estimate of what this may imply in the case of 1m-sea-level-rise is given in the IPCC document " The Regional Impacts of Climate Change, an assessment of vulnerability". Capital value at loss would be 5,000 M US\$ in Argentina and 1,700 M US\$ in Uruguay with a loss of land in both countries of near 3,500 Km² and a cost for adaptation and protection of 2,800 M US\$. Most of this damage and flooded area was estimated to occur in the RP coasts (" Greenhouse emissions inventory and Climate Change Studies on vulnerability and mitigation in Argentina " Arg/95/G/31/PNUD).

The result of the development of the coastal areas in the last hundred and fifty years has interfered with the evolution of the natural system. Only Buenos Aires, the largest city in the region, increased its surface at expenses of the estuarine by 30 Km², approximately 30 % of its surface. This occupation implies the enlargement of the coastal surface vulnerable to tide floods. The increasing development of resort areas at both coasts of the RP and of the nearby Paraná delta as well as the occupation of part of the coastal areas for precarious housing by impoverished population intensifies the social and economical impacts of the tide floods.

Because of an increase on the rainfall intensity and other aspects derived from the land use, the drainage system of the cities on the Argentine coast has become inadequate, and hence, these cities suffer frequent floods caused by heavy rainstorms that in some cases are accompanied by tide floods. In the case of Buenos Aires, the drainage system is being modified at a cost of more

than 500 M US\$; but this investment has to be done without accurate information of the future impact of the sea level on the combined effect of rainfall and tide floods. The expected outputs of the Project can be used in the implementation of infrastructure facilities and operational activities to mitigate the effects of floods that constitute one of the most severe problems of the city.

Projections of future mean water level as well as of the extreme high levels will be of great utility in the dimension of numerous public or private works that will be constructed in the next years in the coastal area of the RP including the front of the Paraná Delta. These projections together with the vulnerability associated will also be useful to define public policies on coastal areas in relation to the use of the space. Finally, public awareness of future vulnerability will help to the decision making process of multiple investments and planning on the affected areas.

Connections with other projects

At the request of the University of Buenos Aires (UBA) authorities, part of the participants of this Project presented a more general project on floods in eastern Argentina entitled "Floods, genesis, socio-economic costs, adaptation and mitigation". After the presentation of the pre-proposal to AIACC, the UBA approved the funding of the Project and appointed Dr. Barros as Director. The Project deals with floods of the Paraná and Rio de la Plata rivers with main emphasis in the second. With respect to the second it has the same objectives, outputs, methodology and participants than the present Project. UBA also encouraged obtaining additional funding as it is being done with this presentation. Therefore, the two-thirds of the approved funding by UBA is considered as funding of other sources in the Project budget.

Some activities of the Project are partially common with the Pilot Project on the Plata-Paraná floods of PROSUR, a five-year project of the IAI. PROSUR is a project on climate variability over the southeast of South America. Researchers from the universities of Sao Paulo and Paraná of Brazil, Buenos Aires of Argentina, Republic of Uruguay, Asuncion of Paraguay and Maryland of USA participate of this project. Also researchers from the Climate Data Center from NOAA, USA and from the Center for Weather and Climate Prediction (CPTEC) from Brazil are part of this project. The Pilot Project aims to develop predictive tools and will finish by the end of 2002. It is directed by Dr. Barros, and Dr. Vargas, Dra. Camilloni, Lic. Bidegain, Dra. Bischoff and Lic. Caffera participate of it. Although, the main forcing for the water level in the RP is the wind tide effect, little is known about the contribution of the river discharge on this level. Since the discharge varies as much as in a factor of five, it is possible that it affects the water level particularly in the cases of extremely high values. While this aspect will be explored in this Project, in the PROSUR Pilot Project these same events are being studied in the Paraná and the Uruguay rivers in their hydrological features (Magnitude, duration, time of the year) and in their climatological genesis. These Pilot Project results will be input for the possible scenarios of extreme high water streamflows in the RP.

References

Baethgen, W., 1997: Vulnerability of the agricultural sector in Latin America to climate change. *Climate Research*, 9,1-7

Camilloni, I and V. Barros, 2000: The Paraná river response to El Niño 1982-83 and 1997-98 events. *J. Hydrometeorology*, 1, 412-430

Cavaliere, M., A. Menéndez and R. Castellano, 1992: Study of wave conditions in a port through numerical simulation. (in Spanish) *Revista internacional de métodos numéricos para cálculo y diseño en ingeniería*, vol. 8, 4.

Ciappesoni, H. and P. Salio 1997: Forecast of southeaster strong winds in the Rio de la Plata (in Spanish). *Meteorologica*, 22, 71-86

Codignotto, J.O., 1990. Advance of the Parana delta and of the Martín García island (in Spanish). *XI Argentine Geological Congress, Proceedings 1: 272-275*, San Juan.

Codignotto J. and C. Herrera, 1995: Holocen evolution in the coast of the Río de la Plata. estuary (in Spanish). *VI Latin American Congress of Sea Sciences 172: 53*, Mar del Plata

Chiara, J. and G. Cruz 1997: Preliminary results from the implementation of the SPUR2 model in Uruguay. *Climate Research*, 9, 1-7

D'Onofrio, E., M. Fiore and S. Romero 1999: Return periods of extreme water levels estimated for some vulnerable areas of Buenos Aires, *Continental Shelf Research*, 19, 1681-1693

Greenhouse emissions inventory and Climate Change Studies on vulnerability and mitigation in Argentina (in Spanish) Arg/95/G/31/PNUD.

Gornitz, V., 1990: Sensitivity of the east coast, U.S.A., to future sea level rise: *Journal of Coastal Research*. Special Issue N°9, Proceedings, Skagen Symposium, Sept 25, 1990, p. 201-237

IPCC 1998: The regional impacts of Climate Change: An assessment of Vulnerability. Eds: R Watson, M Zinyowera, R. Moss and D Dokken

IPCC 2001: Climate Change 2001, Impacts, adaptation, and Vulnerability. 1032 pp. Eds J McCarthy, O. Canziani, N. Leary, D. Dokken and K. White

Jaime, P., Menéndez, A.N., 1999: Hydrodynamic model of the Río de la Plata (in Spanish). *Report LHA-INA 183-01-99*.

Kalnay, E. and co-authors 1996: The NCEP/NCAR Reanalysis 40-year project. *Bull. Amer. Meteo. Soc.*, 77, 437-471.

Kokot, R.R., 1999. Climatic Change and Argentina Coastal Evolution. (in Spanish) *Doctoral thesis. Faculty of Sciences, UBA*. 254 pp.

Luyten, P., J. Jones, R. Proctor, A. Tabor, P. Tett and K. Wild-Allen, 1999: COHERENS. A Coupled Hydrodynamical-Ecological Model for Regional and Shelf Seas: User Documentation. *MUMM Report, Management Unit of the Mathematical Models of the North Sea*, 914 p.

Menéndez, A., 1990: System HIDROBID II for simulation of streamflows (in Spanish) *Revista internacional de métodos numéricos para cálculo y diseño en ingeniería*, 6, 1.

Mesinger, F., Z. I. Janjic, S. Nickovic, D. Gavrilov, D. Deaven, 1988: The step-mountain coordinate: Model description and performance for cases of Alpine lee cyclogenesis and for a case of an Appalachian development. *Mon. Wea. Rev.*, 116, 1493-1518.

Natenzon, Claudia E. 2001: *Risk, catastrophes and vulnerability*. To be published by EUDEBA

Natenzon, Claudia E. y Héctor A. Poggiese . 2001: “Collaborative planning and co-management. The development plan for Zudañez, Chuquisaca, Bolivia”. En: *Implementing Sustainable Development, Integrated Assessment and Participatory Decision-Making Processes*. Edward Elgar Ed./ SCOPE/ UNEP. Project “Environmental Economics, Accounting and Management Tools

Panario, D. and M. Bidegain, 1997: Climate change effects on grasslands in Uruguay. *Climate Research*, 9, 37-40

Shaw, J., R.B. Taylor, D.L. Forbes, M.H. Ruzz And S. Solomon, 1998. Sensitivity of The Coasts of Canada to Sea-Level Rise. Geological Survey of Canada. Bulletin 505. 79pp.

Work Plan (LA26)

Introduction

There were three motives to revise the Work Plan. First, the amount reserved by AIACC was 100,000 USD, that is 20,000 USD less than the original proposal. Second, we were asked to include explicit tasks of coordination with Project L32. Finally, we found good suggestions in the referee comments and therefore we incorporated a few of them. The main difference with the original Work Plan is in the last part of the Project that initially had a considerable effort in dissemination of results and discussions with stakeholders. Though these activities were not suppressed, they were reduced because of their cost. We expect to find additional funds for these activities in the next two years. Except for this aspect, there are only minor alterations of the original Work Plan, mainly reflecting the cooperation with Project L32.

Revised Work Plan

Tasks are ordered according to their end date

1. Compilation of precipitation data of the Rio de la Plata basin. Point 2 of the Joint Document. W. Vargas. February 2002
2. Surface wind estimates download from NCEP/NCAR reanalysis. Climatological fields. M. Bidegain and G. Escobar. January to March 2002.
3. Compilation of cartography, satellite images, air photography and urban information. J. Codignotto, J. Barrenechea and C. Natenzon. January to April 2002.
4. Analysis of tide dynamics in the Rio de la Plata. Consultant E. D'Onofrio and V. Barros. April 2002.
5. Procurement of social data and cartographic information Satellites images analysis. C. Natenzon and J. Barrenechea. January to May 2002.
6. Initial presentation of the Project and its objectives, through interviews with stakeholders. V. Barros and C. Natenzon and J Barrenechea. March to May 2002.
7. Implementation of ETA model. Consultant O. Frumento, M. Caffera and G. Escobar. May 2002.
8. Development of a large-scale version of the HIDROBID II model. A. Menendez and M. Re. April to June 2002
9. Extreme surge analysis. S. Romero. April to June 2002.
10. Photo interpretation of dry, normal and flood events (Scale 1: 20 000 and 1: 60 000). R. Kokot. April to June 2002.

11. Data bases construction, in a GIS environment. Point 3 of the Joint Document. C. Natenzon, D. Rios and R. Kokot.. April to July 2002.
12. Topographic measurements and fieldwork will be carried out to produce detailed altitude level maps of coastal areas subject to possible floods. J. Codignotto and R. Kokot and C. Herrera. April to July 2002.
13. Election of future climate scenarios in cooperation with Project L32. M. Bidegain and I. Camilloni. Point 6 of the joined document. April to July 2002.
14. Training in the hydro-dynamical model HamSOM. Consultants M. Nuñez and C. Simionatto, M. Re, M. Doyle and A. Menendez. July 2002.
15. Study of weather storms over the region embracing the RP using NCAR/NCEP reanalysis for the period 1944-2000. Study of frequency and strength of these systems and of its seasonal and interannual variability, its trends or decadal variability. W Vargas, S. Bischoff and G. Escobar. January to August 2002.
16. Development of future scenarios for the Paraná delta growth. J. Codignotto. January to August 2002.
17. Joint Course on Climate Change with Project L32 as explained in Point 11 of the joint document. V. Barros and S. Bischoff. September 2002
18. Joint workshop with Project L32 as explained in point 10 of the joint document. Coordination with Project L32: V. Barros. September 2002.
19. Writing of a paper manuscript on the study of weather storms over the region embracing the Rio de la Plata using NCAR/NCEP reanalysis for the period 1944-2000. W Vargas, S. Bischoff and G. Escobar. September to October 2002
20. Estimate of extreme streamflow events. Statistical approach based on historical data and a conceptual approach based on the relationship of rainfall and discharge with SST in the sub-basins. In the Paraná River: I. Camilloni and V. Barros. In the Uruguay River: M Caffera. Point 1 of the Joint Document. March to October 2002.
21. Writing of a paper manuscript on extreme streamflow events in the Paraná and Uruguay rivers. I. Camilloni, V. Barros and M Caffera. October to November 2002.
22. Consultancy about demands and communication of Project partial results with stakeholders through mail and email. V. Barros and C. Natenzon. May to November 2002.
23. Implementation of the hydrodynamical models. A. Menendez, M. Re and M. Doyle. July to November 2002.

24. Geomorphology description and study of the evolution of the coastal area and construction of geomorphology maps. J Codignotto, R. Kokot and C. Herrera. July to December 2002.
25. Develop of a Social Vulnerability Index to flooding in a GIS environment. C. Natenzon, E. Gentile and D. Rios. Point 3 of the Joint Document July to December 2002.
26. Preparation and submission to AIACC of the end of year 2002 progress report and financial report. V. Barros. January 2003.
27. Selection of sea level scenarios according to TAR IPCC. J. Codignotto. January 2003.
28. Validation of the ETA model and the hydrodynamical models. M. Caffera, G. Silvestri, M. Bidegain, A. Menendez, M. Doyle and M. Re. December 2002 to January 2003.
29. Running of the ETA and the hydrodynamic models for the dates of the oceanographic campaigns conducted by Project L32 as explained in point 7 of the joint document. M. Caffera, M. Bidegain, A. Menendez, M. Doyle and M. Re. January to March 2003.
30. Selection of some cases of typical weather storms and analysis of them with the ETA model to estimate the surface wind fields. S. Bischoff. G. Silvestri and M. Vargas. December 2002 to January 2003.
31. Develop scenarios of strong waves. Consultant E. D'Onofrio, Menendez and M. Re. March to June 2003.
32. Development of mean and extreme scenarios of water level with the hydrodynamic models. Consultants M. Nuñez and C. Simionatto, A. Menendez, M. Doyle and M. Re. February to May 2003.
33. Development of extreme scenarios of water level with the hydrodynamic models under different storm weather scenarios. A Menendez and M. Doyle June to July 2003
34. Writing of a manuscript paper on the future mean and extreme scenarios of water level V. Barros, A. Menendez, J. Codignotto and W. Vargas. (Other participants expected to be co-authors of the paper). May to June 2003.
35. Engineering implications and prospective of the geomorphologic evolution of coastal area, complementing the geologist point of view. This includes both the new coastal geography arising from the sea level rise and the advancement of the Paraná delta front Consultant A. Pujol and J. Codignotto. June 2003.
- 36 Identification of critical zones of social vulnerability to flooding. C. Natenzon, D. Rios and E. Gentile. April to July 2003
- 37 Identification of economic impacts produced by present floods. Review of existing research and bibliography. M. González and P. Tsakoumagkos. March to June 2003.

- 38 Methods and techniques of economic impacts of flooding under future scenarios. of river level rise. Consultant Expert, M. González and P. Tsakoumagkos. Open to participants of Project L32 as explained in point 9 of the joint document. July 2003.
- 39 Elaboration of a cost structure for possible scenarios. Non-market economic impacts. Characterization for possible scenarios. M. González and P. Tsakoumagkos. August to September 2003.
- 40 Joint course with Project L32 as explained in Point 11 of the joint document. V. Barros and S. Bischoff. September 2003
- 41 Joint workshop with Project L32 as explained in point 10 of the joint document. Coordination with Project L32: V. Barros. September 2003.
- 42 Evaluation of enhanced risks in urban areas for human action. J. Codignotto. August to October 2003.
- 43 Integrated analysis of the lower basin and mouth of the Santa Lucia using the Samborombón experience as explained in point 8 of the joint document. J. Codignotto, R. Kokot, C. Natenzon, E. Gentile and P. Tsakoumagkos. September to December 2003.
- 44 Confection of natural risk maps. R. Kokot and J. Codignotto. September to November 2003.
- 45 Indicator analysis and social vulnerability diagnosis. C. Natenzon and D. Rios. August to December 2003.
- 46 Identification of adaptation, prevention and mitigation actions: Avoidable costs. V. Barros, J. Codignotto, M. González and P. Tsakoumagkos. October to December 2003.
- 47 Evaluation of Project results (in a preliminary version). Discussion between the research group and stakeholders. V. Barros and C. Natenzon and J. Barrenechea. October to December 2003.
- 48 Preparation and submission to AIACC of the end of year 2003 progress report and financial report. V. Barros January 2004.
- 49 Final report elaboration. V. Barros, C. Natenzon, A. Menendez, S. Bischoff, J. Codignotto, W. Vargas and M. Caffera. May to June 2004.
- 50 Presentation of the Project results to stakeholders. V. Barros and C. Natenzon. July to December 2004.
- 51 Preparation and submission to AIACC of the final Project report and final financial report. V. Barros. March 2005.

Project Budget

Introduction

The budget was revised due to a reduction of 20,000 USD from what was asked in the original proposal, new activities arising from the cooperation with Project L32 and a sudden and marked change in Argentine economy. On one side, the local currency was devaluated 40 %. This circumstance allowed reducing the originally proposed monthly rate of pay in USD of the personnel. At the same time, there is a difficult situation with young scientists. Because of the economic crisis, it is now more difficult to find funds to retain them when they finish their fellowships. Therefore, we try to preserve the research groups committed to the Project by funding some of their young scientists in that situation. However, due to the new value of the currency, the increment in the personnel item is only about 20 %.

The main savings were made in publication costs, travel and subcontracts. The suppression of this last item implies less emphasis in certain activities as explained in the Work Plan introduction.

Narrative summary of budget

Amount reserved by AIACC

The total amount reserved is 100,000 USD. It is required 47,240 USD for the first year, 42,551 USD for the second and 10,209 USD for the third year.

Status of collateral funds

Two-thirds of the approved funding by UBA was considered as funding of other sources in the Project budget. This amounted to 100 000 \$ (100 000 USD). For the first and the second year 50 000 \$ each. We do not know yet, if this amount will in fact be reduced to 71 000 USD because of the sudden depreciation of the 40 % of the Argentine currency, but this is the more likely outcome. On the other hand, the study of the floods of the Paraná River (another 50 000 \$ funded by UBA) was not initially considered as collateral funds of the Project. We found now, that the streamflow of the Paraná River and its variability is far more relevant to our Project than it was initially thought. Therefore for all this reasons, we maintain the same figures in the collateral funds.

Personnel

Maira Doyle, post-doc researcher (atmospheric sciences). With good knowledge of workstation management, she will be trained in the operation of the hydrodynamic HamSOM model. Later, she will implement, validate and run this model for special cases required by Project L32 and to develop the water level future scenarios under mean and extreme wind conditions. All this under A. Menendez's direction. Funded from August 2002 to July 2003.

Gustavo Escobar, post-doc researcher (meteorology). He will prepare surface wind downloaded from NCEP/NCAR reanalysis for climatological analysis. Under S. Bischoff direction, he will identify the weather storms causing strong tides using NCAR/NCEP reanalysis for the period

1944-2000. After completing the training with the ETA model, he will use it to generate the surface wind field of the storm-cases studied. Funded from January 2002 to October 2002

Julieta Barrenechea, sociologist. She will perform a diagnostic of the present institutional system of catastrophic floods management. She will coordinate the consultation with NGOs and main stakeholders about this system and the objectives and results of the Project. She will contribute in the search and compilation of urban and social data. Funded from March to May 2002 and from October to December 2003

Silvia Romero, oceanographer. She will make the analysis of extreme surge data. Funded from April 2002 to June 2002

Claudia Herrera, graduate student (geologist). She will take part of the topographic measurements and fieldwork necessary for producing detailed altitude level maps of coastal areas subject to possible floods. She will construct geomorphology maps of the coastal areas. Funded from April 2002 to December 2002

Mariano Re, hydraulic engineer. Under A. Melendez's direction, he will perform the implementation, validation and running of the large-scale version of the HIDROBID II model for special cases required by Project L32 and to develop the water level future scenarios under mean and extreme wind conditions. He will cooperate in the development of strong waves scenarios. Funded from April 2002 to June 2003.

Elvira Gentile, graduate student (geographer). She will work in processing social information, in the construction of the social and economic database required by the Project and in the management of a GIS for social vulnerability analysis, Funded from July to December 2002 and from April to October 2003.

Diego Rios (Student of geography). He will assist for the searching and processing of social and economic information in a GIS environment. Funded from April 2002 to September 2003

Vicente Barros, (Project coordinator). He will teach in a course on Climate Change in Montevideo. Funded for five days in September 2002

Susana Bischoff (senior researcher). She will teach in a course on Climate Change in Montevideo. Funded for five days in September 2002

Equipment

One personal computer. This equipment is necessary for the Uruguayan participants of the Project that have only two old PC that probably will become no utilizable soon.

Publication costs

The more important scientific journals of the world in climatology and oceanography charge to the authors through the mechanism of having a minimum number of separates to be acquired by the authors or by their institution or by a direct charge according to number of pages and figures. In some exceptional cases, they waive this obligation but then usually postpone the publication

in time. Since the academic institutions of Argentina do not have funds for that purpose, this cost has to be covered by grants or project funds. The average cost of the expected articles will be around 2,500 USD. During 2003, two of these publications will be ready. In addition, geologic analysis of coastal areas requires for their publication a presentation estimated at 1,500 USD. Therefore, 6,500 USD was budgeted for 2003. Another article of this type will be ready for publication during 2004. The outcomes of the Project require a great dissemination to be socially effective. This will be done through a number of CDs (from 500 to 1000 according to the costs at 2004) at a total cost of 4,500. This CD will be distributed to stakeholders, NGOs and government officials.

Travel

It includes field campaigns to obtain physical and social data as enquired. It will amount 3,250 USD during 2002 and 1500 USD during 2003.

Coordination with Project L32 will require two travels to Montevideo of two days each year. Each travel will cost 325 USD composed of Ticket 125 USD and two days living expenses at 100 USD a day. This implies 650 USD during 2002 and the same amount in 2003.

Workshop in Montevideo will cost 2200 USD during 2002. It will cover the travel (125 USD) and the living expenses one day and a half (150 USD) of eight participants.

Living expenses for two professors during the Course will cost 1000 USD during 2002. It covers five days each at 100 USD.

Consultants

Oscar Frumento. He will provide training in the use of a high-resolution atmospheric model, the ETA model and technical support for its implementation. Funded May 2002.

Enrique D'Onofrio. He will assist in the analysis and modelling of tides in the Rio de la Plata and in the analysis of strong wave scenarios. Funded April 2002 and 20 days in March 2003.

Mario Nuñez. He will provide training in the use of the hydrodynamic HamSOM model. Funded July 2002 (15 days) and February 2003 (15 days).

Claudia Simionatto. She will provide training in the code of the hydrodynamic HamSOM model, as well as technical support. Funded July 2002 (15 days) and February 2003 (15 days).

Alfonso Pujol. He will analyse the engineering implications and perspective of the geomorphologic evolution of coastal area, complementing the geologist point of view. This includes both the new coastal geography arising from the sea level rise and the advancement of the Paraná delta front. Funded June 2003.

Expert Economist. He will train Project personnel in the methodology and techniques of evaluation of economic impacts of future scenarios due to sea level rise. Funded July 2003.

Indirect costs

The University of Buenos Aires does not charge overheads to scientific project grants. Under this item, it is calculated the cost of administration done by UBATEC that charges only 4%.

Revised Budget for LA26	Year 1		Year 2		Year 3		Total	
	AIACC funds (months)	Collateral funds	AIACC funds (months)	Collateral funds	AIACC funds (months)	Collateral funds	AIACC funds	Collateral funds
Personnel *1	24250	10000	11250	10000	1800		37300	20000
Moira Doyle (investigator) 600 USD/ month	3 000 (5)		4 200 (7)					
Gustavo Escobar (investigator) 600 USD/ month	6 000 (10)							
Julieta Barrenechea (investigator) 600 USD/ month	1 800 (3)				1 800 (3)			
Silvia Romero (graduate student) 400 USD/ month	1 600 (4)							
Claudia Herrera (graduate student) 400 USD/ month	3 600 (9)							
Mariano Re (graduate student) 400 USD/ month	3 600 (9)		2 400 (6)					
Elvira Gentile (graduate student) 400 USD/ month	2 400 (6)		2 400 (6)					
Vicente Barros(senior investigator) 3000 USD/ month	500 (5 days)							
Susana Bischoff (senior investigator) 3000 USD/ month	500 (5 days)							
Diego Rios (graduate student) 250 USD/ month	2 250 (9)		2 250 (9)					
Materials & Supplies	500	6000	500	6000			1000	12000
Equipment *2	1500	13000		15000			1500	28000
Personal Computer	1 500							
Telecommunications	1000		1000		1000		3000	
Computer services	1000	10000	199	10000			1199	20000
Publication costs (including dissemination)		5000	6500	3000	7000		13500	8000
Travel	7100	6000	2400	6000			9500	12000
Consultants *3	10000		19000				29000	
Oscar Frumento (Argentine)	3 000 (30 days)							
Enrique D`Onofrio (Argentine)	3 000 (30 days)		2 000 (20 days)					
Claudia Simionatto (Argentine)	1 500 (15 days)		1 500 (15 days)					
Mario Nuñez (Argentine)	1 500 (15 days)		1 500 (15 days)					
Economist (no yet specified)*4			11 000 (30 days)**					
Alfonso Pujol (Argentine)			3 000 (30 days)					
Indirect costs *5	1890		1702		409		4001	0
TOTAL	47240	50000	42551	50000	10209		100000	100000

(v) Training and Technical Support Needs

Need for Training and Technical Support

- It will be necessary to have technical support and training in the use of a high-resolution atmospheric model at the earlier stages of the Project. One participant from Uruguay and other from Argentina will be trained as well as two students. It is foreseen the need of one consultant expert during a month.
- The complex system of tides in the RP needs to be considered in the hydrological model and in its validation and in the sedimentary growth of the front of the Paraná delta. It will be required one consultant expert for during a month.
- Training in estuarine hydrological and oceanographic modelling will be required. One consultant expert during a month can start this activity. This activity will be completed with the training of one participant abroad with other sources funds.
- The assessment of the economical costs and consequences of the sea level rise is a new challenge that has never been done neither in Argentina nor in Uruguay and therefore, it will be convenient to learn from the international expertise. It will require one consultant expert for two months

Areas in which the Project might provide Technical Support to other project

- Climate variability in relation to ENSO.
- Sedimentary process in estuarine systems.

AIACC Proposal budget template								11/20/02
LA26								
	Year 1		Year 2		Year 3		Total	
	AIACC funds (months)	Collateral funds	AIACC funds (months)	Collateral funds	AIACC funds (months)	Collateral funds	AIACC funds	Collateral funds
Personnel *1	24250	10000	11250	10000	1800		37300	20000
Moira Doyle (investigator) 600 USD/ month	3 000 (5)		4 200 (7)					
Gustavo Escobar (investigator) 600 USD/ month	6 000 (10)							
Julieta Barrenechea (investigator) 600 USD/ month	1 800 (3)				1 800 (3)			
Silvia Romero (graduate student) 400 USD/ month	1 600 (4)							
Claudia Herrera (graduate student) 400 USD/ month	3 600 (9)							
Mariano Re (graduate student) 400 USD/ month	3 600 (9)		2 400 (6)					
Elvira Gentile (graduate student) 400 USD/ month	2 400 (6)		2 400 (6)					
Vicente Barros(senior investigator) 3000 USD/ month	500 (5 days)							
Susana Bischoff (senior investigator) 3000 USD/ month	500 (5 days)							
Diego Rios (graduate student) 250 USD/ month	2 250 (9)		2 250 (9)					
Materials & Supplies	500	6000	500	6000			1000	12000
Equipment *2	1500	13000		15000			1500	28000
Personal Computer	1 500							
Telecommunications	1000		1000		1000		3000	
Computer services	1000	10000	199	10000			1199	20000
Publication costs (including dissemination)		5000	6500	3000	7000		13500	8000
Travel	7100	6000	2400	6000			9500	12000
Consultants *3	10000		19000				29000	
Oscar Frumento (Argentine)	3 000 (30 days)							
Enrique D`Onofrio (Argentine)	3 000 (30 days)		2 000 (20 days)					
Claudia Simionatto (Agentine)	1 500 (15 days)		1 500 (15 days)					
Mario Nuñez (Argentine)	1 500 (15 days)		1 500 (15 days)					
Economist (no yet specified)*4			11 000 (30 days)**					
Alfonso Pujol (Agentine)			3 000 (30 days)					
Indirect costs *5	1890		1702		409		4001	
							0	
TOTAL	47240	50000	42551	50000	10209		100000	100000
NOTES:								
*1 - List the name of all persons to receive salary and benefits in a separate row, indicate their role in the project (e.g. investigator, graduate student, clerical), their monthly rate of pay, and the proposed budget for salary and benefits each person for each year. NOTE: the monthly rate of pay includes all benefits.								
. Colateral funds are for graduate student fellowships that are to be awarded following UBA regulatios that do not permit to know the names in advance								
*2 - Equipment purchases must be itemized and justification given in the budget narrative.								
*3 - List each consultant separately and indicate nationality. Consultant services must be detailed in the budget narrative.								
*4 - Includes Salary 6000 USD. Living expenses 3000 USD and air ticket estimated in 2000 USD								
*5 - Indirect costs (management or overhead charges) are limited to not more than 10% of the total funding from AIACC.								
NOTE: UBATEC charges 4 %								

*1 - List the name of all persons to receive salary and benefits in a separate row, indicate their role in the project (e.g. investigator, graduate student, clerical), their monthly rate of pay, and the proposed budget for salary and benefits each person for each year. NOTE: the monthly rate of pay includes all benefits.

. Colateral funds are for graduate student fellowships that are to be awarded following UBA regulations that do not permit to know the names in advance

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*4 - Includes Salary 6000 USD. Living expenses 3000 USD and air ticket estimated in 2000 USD

*5 - Indirect costs (management or overhead charges) are limited to not more than 10% of the total funding from AIACC.

NOTE: UBATEC charges 4 %

JOINT DOCUMENT OF PROJECTS L26 and L32

Both Projects are complementary and share some activities. Although they have a common geographical scope, namely the Rio de la Plata River and its coastal areas, their objectives and the general approach are different. Project L26's main objective is to develop future scenarios of the river as a consequence of the sea level rise caused by climate change and to assess the vulnerability of human activities and natural areas to this change. On the other hand, the central objective of Project L32 is to assess vulnerability and impacts of the influence in the estuarine ecosystem of the Rio de la Plata River caused by climate variability and climate change. Methodologies are basically different, though highly complementary. Project L32 emphasizes analysis of past information and fieldwork, while Project L26 utilizes more numerical modeling. Therefore, results of Project L32 will be useful for the adjustment and verification of the models and similarly, results of modeling from Project L26 will improve the understanding of the hydrological processes. In view of all these concepts, it will be of highly benefit for both Projects to coordinate their activities of common interest. At the same time, coordination will permit to share basic information and to use common and consistent climate scenarios and to produce consistent results.

There are three major areas of common interest:

- i) The streamflows of the two main tributaries of the Rio de la Plata River, namely the Paraná and Uruguay rivers are one of the external variables that determine the height of the river. Therefore their variability and future projections is needed for Project 26 objectives. At the same time, these streamflows have a considerably influence in the physical and chemical properties as well as in the biology of the Plata river whose variability is subject of study of Project L32.
- ii) The baseline scenario of regional climate, particularly the precipitation and the surface wind fields.
- iii) The enhancement of the regional technical capacity to study the vulnerability to climate change.

Both Projects share a common weakness, that is the lack of experience in the integration of economical analysis to physical and social research.

Coordination between both Projects

According to outlined points, the projects will share results and experiences. More specific, certain activities will produce results that will be inputs to both Projects. Other tasks will be undertaken as joint efforts.

Results of Project L26 considered as input to Project L32.

There are many tasks in Project L26 whose results will be of interest to Project L32. The more important are

1. Estimates of extreme high streamflow events in the Paraná and Uruguay rivers. Statistical approach based on past data and a conceptual approach based on the relationship of rainfall and discharge in the basins with sea surface temperature.

2. Precipitation data within the Plata basin will be gathered by Project L26. Project L32 will supply the Uruguayan information. The data set will be handed out to Project L32 to develop the baseline climate scenario.

3. Construction of a social vulnerability index in a GIS environment

Results of Project L32 considered as input to Project L26.

4. Baseline scenarios of the mean climate as well as of the statistical properties to be produced by Project L32 are important inputs to project L26 to compare present and future scenarios of the River height. Emphasis will be given to precipitation, surface temperature and surface wind fields.

5. Study of the tide record in the Uruguayan coast, with emphasis in the long record of Montevideo.

Joint activities.

6. Based on the experience to be gained in the Climate Scenario Workshop to be held in Norwich, participants of both Projects will choose common future climate scenarios to be used in both Projects.

7. The analysis of the Rio de la Plata River hydrology will be conducted with different but complementary approaches. Project L32 emphasizes analysis of past information and fieldwork, while Project L26 utilizes numerical modeling. Therefore, results of Project L32 will be useful for the adjustment and verification of the models and similarly, results of modeling will improve hydrological analysis. This cooperation will be extended throughout many tasks of both Projects, but for simplicity, the specific commitment of cooperation will be in the analysis of the oceanographic campaigns in the Canal Oriental. The campaigns will be conducted by Project L32 and Project L26 will run the models for those specific dates.

8. Integrated site analysis in the lower basin and mouth of the Santa Lucia in the Rio de la Plata River. This place is about 30 Km west of Montevideo. Previous experience from the Samborombón bay from Project L26 on the coastal dynamics under sea level rise scenarios will be applied. Physical vulnerability indicators will be developed by Project L32. In this integrated site analysis, it will be discussed a common methodology for social and economical analysis.

9. The lack of experience in both Projects' participants on sea level rise economic impacts will be partially amended with the contract of an international expert by Project L26. Project L32 will benefit from this task sending a participant to Buenos Aires during the expert mission.

10. Two coordination workshops including presentation of stage of advance of the interrelated and complementary tasks. The first will be held in Montevideo in the second semester of 2002 and the second will be held in Buenos Aires in the second semester of 2003.

11. Education activities: immediately before each workshop, it will be offered a course for graduate students on Climate Change. Students in each case will be locals.

(vi) Appendix of Supplementary Documentation

Curricula vitae

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Education:

1961-65 University of Buenos Aires. Licenciado in Meteorological Sciences.
1969-71 The University of Michigan. Master of Science in Meteorology.
1972-73 University of Buenos Aires. Doctor in Meteorological Sciences.

Teaching position:

University of Buenos Aires: Full Professor in Climatology

Past teaching activities:

International Centre for Theoretical Physics (Trieste, Italy):

1988 Course on modeling of atmospheric flows over complex terrain
1990 Course on the Physics of the atmospheric boundary layer and its applications to wind energy

Scientific Position:

National Council of Scientific Research (CONICET): Senior researcher (highest level)

Management and scientific administration positions:

Member of the Directive Board of the Faculty of Sciences (UBA).
Director of the Master program on Environmental Sciences. Faculty of Sciences (UBA).

Publications

In Scientific Journals: 35 papers on Climatology, Climate variability, Wind energy and atmospheric circulation.

Last publications:

- *Urban biased trends in Buenos Aires mean temperature*, 1994. *Climate Research*, vol 4, 33-45. Barros, V. and I. Camilloni.
- *Pressure and temperature anomalies in Argentina in connection with the Southern Oscillation*. 1994. *Atmosfera*. Vol. 7 N° 3. Barros, V. and L. Scasso.
- *Precipitation trends in southern South America, east of the Andes* (in Spanish). 1994. *Meteorológica*, 23-32. Castañeda, E. and V. Barros.
- *Influence of the urban heat island in the temperature secular trends in subtropical Argentina* (in Spanish). 1995. *Geofísica Internacional* 4, 161-170. I. Camilloni and V. Barros.
- *On the urban heat island effects dependence on temperature trends*, 1997. *Climatic Change* 3, 665-681. I. Camilloni and V. Barros.
- *Statistical aspects of the annual cycle of precipitation in subtropical Argentina*, (in Spanish) 1996. *Meteorologica*, Vol. 21, 15-26. M. Gonzalez and V. Barros.
- *On the minimum of the Cuyo rivers discharge in the beginning of 1970 decade*, 1997. *Climate Research*, Vol 9. 121-129. A. Carril, M. Doyle, V. Barros and M. Nuñez.
- *The relation between tropical convection in South America and the end of the dry period in Subtropical Argentina*, 1998. *International Journal of Climatology* 18, 1669-1685. M. Gonzalez and V. Barros.
- *On the increase of temperature in autumn in subtropical Argentina* (in Spanish) 1999. *Meteorológica*, 23, 37-46. Bejarán, R. and V. Barros.
- *On the outgoing longwave radiation in the Paraguay river basin and streamflows* (in Spanish), 1999. *Meteorológica*, 23, 15-28. Almeida, L. and V. Barros.
- *Climate variability in southern South America associated with El Niño and La Niña events*, 2000. *Journal of Climate* 1, 35-58. A. Grimm, V. Barros and M. Doyle.
- *The Paraná river response to the 1982-83 and 1997-98 ENSO events*, 2000. *Journal of Hydrometeorology* 1, 412-430. Camilloni I. and V. Barros.
- *Influence of the South Atlantic convergence zone and South Atlantic sea surface temperature on interannual summer rainfall variability in Southeastern South America*, 2000. *Theor. Appl. Climatol.*, 67, 123-133. Barros, V., M. Gonzalez, B. Liebmann and I. Camilloni.

Other scientific publications (Chapters in books, Institutional reports, etc): 18

Past activities on matters related to Climate Change:

- National Report to the United Nations Conference on Sustainable Development and Environment, Rio de Janeiro 1992. .579 pp. 1991. Coordinator.
- Background report for the Initial National Communication to the United Nations Framework Convention on Climate Change, 1997. Coordinator
- National Director of the Project: Greenhouse gasses emissions inventory and Climate Change Studies on Vulnerability and Mitigation. 1997-1998. GEF-UNDP.
- Technical Director of the Emission target study of greenhouse gases. 1999. EPA- UNDP
- Revision of the First National Communication to the United Nations Framework Convention on Climate Change, 1997. Coordinator
- Contributing author of the IPCC TAR. Group 1, chapter 12.

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Education:

1994. University of Buenos Aires, Faculty of Social Sciences. Licenciada in Sociology.
In preparation: Thesis for Doctor in Social Sciences. University of Buenos Aires.

Scholarships:

National Council of Technical and Scientific Research (CONICET)

- **Start-up Fellow:** (1996 – 1998) Project : *Political and Institutional aspects in the management of Amplified Industrial Risks. The case of Zarate and Campana Petrochemical Pole. Province of Buenos Aires. Argentine*

- **Advanced Fellow:** (1998 – June 2001) Project: *Institutional Dimensions of the Amplified Industrial Risk in Dock Sud Petrochemical Pole. Municipality of Avellaneda, Province of Buenos Aires. Argentine.*

Scientific Position:

University of Buenos Aires (Environmental and Natural Resources Research Programme-PIRNA- Institute of Geography): Junior Researcher (July 1996 to present)

Main Publications and Conference Presentations of the last five years:

- Barrenechea, J y Natenzon (1997). *National Direction of Civil Defence and Second Reform of the State. Modification of institutional framework* (in Spanish) in: Territories in Redefinition. Place and World in Latin America. 6th Meeting of Latin American Geographers. Buenos Aires, Argentina. 17th al 21th March 1997.
- Barrenechea, J y Natenzon (1997). *Internet Resources for Social Sciences and the Environment* (in Spanish). Meeting of Educational Computing 1997. Sponsored by National Ministry of Culture and Education. Buenos Aires, 30th August to 2nd September 1997.
- Barrenechea, J. y Gentile, E. (1998) *Local Management of Urban Risks: floods and industrial accidents in Zarate and Campana Municipalities, Province of Buenos Aires. (In Spanish).* Meeting: The Urban Issue in the New Millennium. Faculty of Social Sciences Research Institute; Institute of Geography, Faculty of Philosophy and Letters; CEUR – CEA de la UBA. (Collaboration) Buenos Aires November 23-24.
- Acerbi, M. y Barrenechea, J. (1999) *Analysis of the Strategies in front of de Magdalena petroleum spill, Province of Buenos Aires, Argentine.* (in Spanish). V International Congress about Disasters. September 7-10, Palacio de las Convenciones, la Habana, Cuba.

- Barrenechea, J. y Gentile, E. (1999) *Natural and technological risks: its incorporation in local urban management*(in Spanish). V International Congress about Disasters, September 7-10, Palacio de las Convenciones, La Habana, Cuba.
- Barrenechea, J. y Gentile, E. (2000) *Preliminary identification of problems related to chemical amplified risks in Dock Sud Petrochemical pole. Avellaneda* (in Spanish). (Technical Report) Response and Prevention in Emergencies in Buenos Aires City. People's Defender. Buenos Aires
- Barrenechea, J. y Gentile, E. (2000) *Industrial accidents in Bahia Blanca; Building a newspaper article about a case of chemical risk in the city; Environmental Risks and Social Conflict. The installation of a manufacturing site* (in Spanish). Educational WWW Site. National Ministry of Culture and Education. www.educ.ar
- Barrenechea, J. y Gentile, E. (2000) *About the chlorine an ammoniac escape occurred in Ing. White, Bahia Blanca; Two cases to think about risk management* (in Spanish). Environmental WWW Site AMBIENTE ON LINE. www.ambienteonline.com.ar
- Barrenechea, J., Gentile, E, Gonzalez, S. y Natenzon, C. (2000) *A methodological proposal to study social vulnerability in the framework of social theory of risk* (In Spanish) IV Meeting of Sociology. Faculty of Social Sciences; UBA. Buenos Aires, November 6-10, 2000. (Book in edition)
- Barrenechea, J.;Gentile, E.; Gonzalez, S.; Natenzon, C. (In press) *Risks in Buenos Aires Disasters and Society*. La Red, ITDG. Lima.

Academic Profile:

She is working in academic research projects about natural and technological risks in big and middle cities since 1995. Personal projects are financed by CONICET, focus in the analysis of risks management institutional models, social risk communication, and institutional and social vulnerability. Over the last 3 years, as a member of the PIRNA-Programa de Investigaciones en Recursos Naturales y Ambiente, she has been developing a risk diagnosis methodology focusing in demographic, socio-economic, territorial and political dimensions.

She has written technical documents, academic, and didactical publications on her subject of expertise. She has also made technical collaborations in public and private organisations and has participated in many events on the topic. Regarding her education, she has participated in numerous postgraduate courses related to environmental risks and is preparing her Ph. D thesis. She has been assistant teacher in the careers of Sociology and Social Work of the Faculty of Social Sciences, University of Buenos Aires and in courses for High School teachers from de Ministry of Education.

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Education:

1977-81 School of Engineering University of Republic (UR). Bachelor in Sciences.
1981-82. Meteorologist Class II W.M.O. National Institute of Meteorology. España.
1984-86. University of Sao Paulo. Master in Atmospheric Sciences. Brazil

Teaching position:

University of Republic: Professor in Meteorology and Climatology

Past teaching activities:

1995 Course on applications of meteorology in atmospheric pollution
1998 Course on meteorology for atmospheric corrosion.
2001 Course on applied agrometeorology for wine production.

Scientific Position:

National Council of Scientific Research (CONICYT): Researcher

Management and scientific administration positions:

Director of Climatic Data Center (National Meteorological Service). Uruguay
Instructor of the Master program on Agrometeorology Sciences. Faculty of
Agronomy (UR).

Publications

In Scientific Journals: papers on Climatology, Climate variability and Climatic Change

Last publications:

- *Climate Changes effects on grasslands in Uruguay.* Climate Research. CR. Special. Vol.9 N°1 and 2. 1997.
- *Performance of general circulation models in southeastern South America.* Climate Research. CR. Special. Vol.9 N°1 and 2. 1997.
- Bidegain M., P. Krecl; 1998; *Surface temperature anomalies in Southern South America (Uruguay) associated to ENSO events* (in Spanish). VIII Congreso Latinoamericano e Ibérico de Meteorología. Brasilia.Brasil. Octubre de 1998.
- Bidegain M., Podestá G.; 2000; *ENSO-related Climate Variability on Precipitation and Temperature in Southeastern South America.* Sixth International Conference on Southern Hemisphere Meteorology and Oceanography. Santiago, Chile.

- Grimm.A.; S.E.T.Ferraz; V.Barros; M.Bidegain; 2000; Intraseasonal Variations of the South American Summer Rainfall. *EXCHANGES Newsletter. Vol.5 N°2. June 2000.*
- Grondona M., Podestá G., Bidegain M., Marino M. and Hordij H.; 2000; *A Stochastic Precipitation Generator Conditioned on ENSO Phase: A Case Study in Southeastern South America* . J. Climate, Vol. 13, 2973-2986.
- Bidegain M., P.Krecl; 2001; *Anomalies of water vapor pressure in Southern South America (Uruguay) related to ENSO events* (in Spanish). Preprints of IX Latin American Congress on Meteorology. Buenos Aires. Argentina.
- Bidegain M., M. Renom; 2001: *Distribution of daily minimum temperatures in Uruguay according to the ENSO phase* (in Spanish). Preprints of IX Latin American Congress on Meteorology. Buenos Aires. Argentina.

Other scientific publications (Chapters in books, Institutional reports, etc)

Chapters in books: 2

Final Report:

- Project “Climate Variability and Agriculture in Argentina and Uruguay”. Support by Interamerican Institute on Global Change (I.A.I) and National Science Foundation (U.S.A.). 2000

Past activities on matters related to Climate Change:

- National representative on tenth session of Intergovernmental Panel on Climate Change. Nairobi. Kenya. 10 - 12 November 1994.
- National representative on Working Group II. Intergovernmental Panel on Climate Change. Second Session. Nairobi. Kenya. 8 November 1994.
- Participant at Vulnerability and Adaptation Assessment Training Workshop. U.S.Country Studies Program. Honolulu. Hawaii. U.S.A.. January 30 to February 10,1995.
- Co-Investigator on U.S. Country Studies Project on Climatic Change in Uruguay. Phase I. 1995-1997.
- Co-Investigator on U.S. Country Studies Project on Climatic Change in Uruguay. Phase II. 1998-1999.
- Workshop on Climate Change in Latin-America. Montevideo. Uruguay. April 1996.
- First IAI for Global Change Research Investigators meeting. Long Beach California U.S.A. February 1-2 .1997.
- Workshop “Understanding ozone and UV-B radiation: past accomplishments and future opportunities”, Buenos Aires, March 9 to 11, 1998
- 79th meeting of American Meteorological Society “Climate Change in the Americas”. Dallas. EE.UU. January 10-15, 1999.
- Co-Principal Investigator in National Working Groups of Water Resources and Agriculture to prepare the Uruguayan contribution to FCCC. 2001.

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Education:
1962-1967 University of Buenos Aires (UBA). Licenciada in Meteorological Sciences.
1988 University of Buenos Aires. Doctor in Meteorological Sciences.

Teaching position:
University of Buenos Aires: Professor of Climatology

Past teaching activities:
- **Professor:** *University of Buenos Aires (Arg.), University of La Plata (Arg.) and University of Litoral (Arg.)* graduate and postgraduate courses

Scientific Position:
University of Buenos Aires (Argentina): *Scientific Senior Researcher*

Management and scientific administration positions:
Scientific Research Program Director: *University de Buenos Aires, National Council Of Scientific and Technological Research (CONICET), Agency for Scientific and Technological Research. Projects of the European Community.*

Publications

Last publications:

- M. Seluchi, S. Bischoff, E. Lichtenstein: *Low and high pressure systems over Argentina: characteristics about their structure and relationship with the weather* (in Spanish). Meteorológica. Vol VIII. 1995.
- G. Escobar, S. Bischoff, J. Gardiol: *Anomalies of geopotential height and temperature in the troposphere over Argentina and their relationship with extreme minimum temperatures.* (Spanish). Meteorológica. Vol XXI. 1996.
- A. Coronel, S. Bischoff, M. Lara: *Temperature anomalies in the troposphere of Ezeiza (Argentina): persistence and intensity* (in Spanish). Energías renovables y Medio Ambiente. Vol 5. 1998.
- G. Escobar, S. Bischoff: *Meteorological situations associated with significant temperature descents in Buenos Aires: an application to the daily consumption of residential natural gas.* Meteorological Applications. 1999.
- S. Bischoff, N. Garcia, W. Vargas, P. Jones, D. Conway: *Climatic variability and the Uruguay River.* Water International, Vol 25, 2000.

Other scientific activities:

Lecturer of research papers in national and international scientific meetings (50)

Other academic activities:

Ph. D. Thesis Director (2), Licenciatura Thesis Director (5), Member of Thesis Reading Committee (7 Ph. D., and 20 of Licenciatura). Fellowships Director University of Buenos Aires and CONICET.

Member of Technical Advisory Panel in Earth Sciences: University of Buenos Aires and CONICET.

Member Ph. D. Advisory Panel in Atmospheric Sciences.

Member Didactic of Teaching and Training in Sciences.

Member Advisory Panel Education and Culture Ministry of Argentine.

Invited Lecturer: “El Niño”, “Climatic Change”, “Climatic Variability”.

Past activities on matters related to Climate Change:

Work Group of IPCC for Latin America, nov. 1999, Buenos Aires.

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Education:

1974-1979: University of Buenos Aires (UBA). Licenciado in Meteorological Sciences.
1983-1984: Fondation Universitaire Luxembourgeoise (Belgium) Maîtrise (3ème Cycle) en Sciences de l'Environnement – Option Agrométéorologie.
1993-1996: University of Buenos Aires. Ph.D. attendant

Teaching position:

Universidad de la República: Adjoint professor of Meteorology

Past teaching activities:

- National Meteorological College (technical level college at the National Weather Service): Mathematics, Statistics, Synoptic Meteorology and Agrometeorology (1980-1982, 1985-1987).
- External Professor, Dynamical Meteorology, Polytechnical College, Universidad Nacional de Asunción, San Lorenzo, Paraguay, Aug1991-Feb1992.

Scientific Position:

National Council of Scientific Research (CONICYT): Start up researcher

Management and scientific administration positions:

- Head of the Meteorological Unit at the Physics Institute, College of Sciences, Universidad de la República, Uruguay.
- IAI 055 CRN Project: Co-Principal Investigator for Uruguay

Publications:

- *Interannual and Interdecadal Variability in Stream Flow from the Argentine Andes.* 2000 Physical Geography, 21, 5, 452-465. Waylen P., R. Compagnucci and R. M. Caffera

Other scientific publications (Chapters in books, Institutional reports, etc):

- 2001. (in Spanish) Caracterización de las Rachas de Sequía sobre Uruguay en la Segunda Mitad del Siglo Veinte mediante Quintiles de Precipitación (*Drought Spells Categorization over Uruguay During the Second Half of the XXth Century by Means of Precipitation Quintiles*) ref. 047, VIII Congreso Argentino de Meteorólogos, IX FLISMET Congress. May 7-11 2001, Buenos Aires.
- 1998 (in Spanish) Caffera R.M. & M. Renom. “Cambios interdecadales en la climatología de algunos fenómenos significativos sobre la Costa oriental del Río de la Plata”(*Interdecadal changes in the Climatology of Some Significant Phenomena over the Eastern Side of the Rio de la Plata*). ref. CL98069. X Congresso Brasileiro de Meteorologia - VIII FLISMET Congress. Brasilia, Oct. 26-30 1998.
- 1996. IDRC (Canada) funded, ECOPLATA project Phase II. State-of.the-art of Atmospheric Setting over the Rio de la Plata Region. (EcoPlata Team) Eds. 1996. The Rio de la Plata. An Environmental Overview. An EcoPlata Project Background Report. Working Draft, November 1996. Dalhousie University, Halifax, Nova Scotia. Pp 27-32.
- 1996 Compagnucci, R.H. and R.M.Caffera. "*Climatic Trends in Middle Latitude Andes through streamflow and Precipitation Data*". Conference on Environmetrics in Brazil, July22-26, Sao Paulo (abstracts, C10-C11).

Past activities on matters related to Climate Change:

- 2001.(in Spanish) Tendencia Secular de la disponibilidad de agua sobre el territorio uruguayo. (*Secular Trend on water availability over Uruguay*). Doctoral thesis, actually under submission.
- Geneva, June 1993. XXII IPCC meeting. National Scientific Representative.

Inés Angela Camilloni

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Education:
1982-87 University of Buenos Aires. Licenciado in Meteorological Sciences.
1990-95 University of Buenos Aires. Doctor in Atmospheric Sciences.

Teaching position:
1991-present **University of Buenos Aires:** Teaching Assistant in Climatology

Past teaching activities:
University of Buenos Aires. Faculty of Architecture:
1999-2000 Course on Urban Climate
University of Buenos Aires. Master program in Environmental Sciences:
2000 Course on Environmental Impact Assessment

Scientific Position:
1998-present **National Council of Scientific Research (CONICET):** Assistant research scientist

Management and scientific administration positions:
1998-2001 Assistant Director. Department of Atmospheric and Oceanic Sciences. Faculty of Sciences, University of Buenos Aires
2001-present Secretary of Academic Affairs. Master program on Environmental Sciences. Faculty of Sciences, University of Buenos Aires.

Publications

- *Analysis of Thermal Effects of Urbanization.* 1991. Architecture and Urban Space. Kluwer Academic Publishers. S. Alvarez et al (eds.), 47-52. I.Camilloni and V.Barros.
- *Buenos Aires Urban Meteorological Data Analysis of a Five-Day Period.* 1991. Energy and Buildings 15, 339-343. N. Mazzeo and I. Camilloni.
- *Urban biased trends in Buenos Aires mean temperature,* 1994. Climate Research, vol 4, 33-45. Barros, V. and I. Camilloni.

- *Influence of the urban heat island in the temperature secular trends in subtropical Argentina* (in Spanish). 1995. *Geofísica Internacional* 4, 161-170. Camilloni, I. and Barros, V.
- *On the urban heat island effects dependence on temperature trends*, 1997. *Climatic Change* 3, 665-681. I. Camilloni and V.Barros
- *The Paraná river response to the 1982-83 and 1997-98 ENSO events*, 2000. *Journal of Hydrometeorology* 1, 412-430. Camilloni I. and V. Barros.
- *Influence of the South Atlantic convergence zone and South Atlantic sea surface temperature on interannual summer rainfall variability in Southeastern South America*, 2000. *Theor. Appl. Climatol.*, 67,123-133. Barros, V., M. Gonzalez, B.Liebmann and I. Camilloni.

Jorge Osvaldo Codignotto

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Email: codibarnes@yahoo.com

Education:

1961-1967 University of Buenos Aires (UBA). Licenciado in Geologic Sciences
1972-1976 University of Buenos Aires (UBA). Doctor in Geology

Teaching position: University of Buenos Aires: Professor in Geomorphology and Marine Geologist

Specialist in: Evolution of Coastal form

Participation in the Working Group II of the Intergovernmental Panel on Climate Change (IPCC) 1999-2001.

Lead author of Chapter & "Coastal Zones and Marine ecosystems", of the third Assessment Reports (TAR)

Working meeting held during 1999 and 2000.

January 1999 Participant of the IPCC Workshop held at Geneva (Suizerland)

December 1999 Participant of the IPCC held at Canberra (Australia)

August 2000; Participant of the IPCC Workshop held at Lisbon (Portugal)

November 2000 Participant of IPCC Workshop held at Moscow (Russia)

Publications

(74) Seventy-four.

(7) Chapter of books

(67) Papers

- Codignotto, J. O., R. R. Kokot y A. J. A. Monti. *Rapid Change in Caleta Valdes Coast, Chubut*. Revista de la Asociación Geológica Argentina.(in Spanish)
- Kokot R. R., J. O. Codignotto, P. Richter y C. L. Herrera 1999. *Hidraulic Evaluation in Vicente López coast*. Revista de Geología Aplicada a la Ingeniería y al Ambiente. N° 13, 73-86. (in Spanish)

- Codignotto, J.O., C. L. Herrera y P.A. Aiello, 1996. *Antroponenic phenomena dynamic and Río de la Plata Coast*., Asociación Argentina de Geología Aplicada a la Ingeniería, Rev. X, 82-93. Córdoba.(in Spanish)
- Codignotto J. O. y C. L. Herrera 2000. *Vulnerability in Ensenada Ferrer. Santa Cruz*. IV Jornadas Nacionales de Ciencias del Mar. Res. Pag. 52. Puerto Madryn.(in Spanish)
- Codignotto, J.O., del Valle M.C.,1995. *Cualitative Evaluation and geologic risk in Rada Tilly, Chubut*. Asociación Argentina de Geología Aplicada a la Ingeniería. Rev. IX, 64-77. Bs. As.(in Spanish)
- Aguirre M. L., J. O. Codignotto. 2000. *Late Pleistocene and Holocene Coastal Records Along the Golfo San Jorge (Patagonia): Molluscan Composition and Palaeoenvironments. Coastal Interactions During Sea-level Highstands*. Patagonia 2000. International Conference. Abstracts Volume, p.1. Puerto Madryn
- Codignotto J. O., R. R. Kokot y A. J. A. Monti. 2000. *Gravel Transport and Sedimentation in Caleta Valdés*. II Taller sobre Sedimentología y Medio ambiente. 15-16. Buenos Aires.(in Spanish)
- Kokot. R.R., del Valle, M. C., Codignotto, J. O., Cagnoni, M. 1998. *Preliminary Environmental, impact Assessment of Yacht port projet on the coast of Buenos Aires, Argentina*. International Association of Engineering Geologist 8th Congress. Vancouver, B.C. Canada

Member:

Titular member of Sea Academy

Active Member of Environment Science in Argentine Academy

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Education:

- 1991 University of Buenos Aires (UBA), Dep. of Geography. Profesora de Enseñanza Media, Normal y Especial en Geografía. (Geography Teacher for High School and Preparatory).
- 1993 University of Buenos Aires (Dep. of Geography). Licenciada in Geography.
- 1998 University of Buenos Aires. Applicant for Doctor in Geography.

Teaching Position:

University of Buenos Aires. Assistant Professor in the following courses: “Physical Geography of Argentina” and “Climatology”.

Scientific Position:

- Institute of Geography (UBA): Junior Researcher in the Environmental and Natural Resources Research Programme-PIRNA- (1993-present).
- National Council of Scientific Research (CONICET): awarded Advanced Fellowship for doctoral studies.

Publications:

- Gentile, Elvira (1994) - "*El Niño is not to blame: vulnerability in northeastern Argentina*", (In Spanish). in: Desastres y Sociedad, N° 3, Ago-Dic. pp. 87-106
- Gentile, Elvira (1994) - "*El Niño-Southern Oscillation (ENSO) and floods of middle Paraná river* ", (In Spanish) in: Sociedad Argentina de Estudios Geográficos, Contribuciones Científicas. 55a Semana de Geografía, 3-7 de octubre de 1994, pp. 123-132.
- Gentile, E. (Editor).1996. Inter-American Institute for Global Change Research (IAI) "Report of the "IAI Workshop on Global Change Research in the Americas"", Belem, Brasil, 28-30 August de 1995.
- Gentile, Elvira; M. Miraglia y L. Bachmann (1996) "*Socio-economical aspects of droughts in Argentina*", (In Spanish) In: "Impacto de las Variaciones Climáticas en el Desarrollo Regional: un análisis interdisciplinario". Actas del VII Congreso Argentino de Meteorología / VII Congreso Latinoamericano e Ibérico de Meteorología. pp. 283-284

- Núñez, Silvia; E. Gentile y H. Hordij (1996) “1995 Rainfall Anomalies in the humid region of Argentina and their impacts in productive activities” (In Spanish) in: “Impacto de las Variaciones Climáticas en el Desarrollo Regional: un análisis interdisciplinario”. Actas del VII Congreso Argentino de Meteorología/VII Congreso Latinoamericano e Ibérico de Meteorología. pp. 313-314
- Natenzon, Claudia, L. Bachmann, E. Gentile, M. Miraglia, C. Belfonte, P. Maldonado, J. Massaldi Fuchs y G. Palé (1997). “*Evaluation of biogeographic classifications*”.(In Spanish) in: Territorios en Redefinición. Lugar y mundo en América Latina. Simposios. 6º Encuentro de Geógrafos de América Latina. Buenos Aires, 17-21 de marzo de 1997 (publicación en CD).
- Prat M-C, Salomon J-N, Gentile, E, Natenzon C, (1998) El delta del Paraná: aspectos naturales y antrópicos (In French and Spanish). Travaux du L.G.P.A. Numéro spécial 1998, Inst. de Géographie, Bordeaux, 123 p., 16 fotos, 37 fig., 7 tabl.
- Gentile, Elvira (1998). “*The debate on global change: complexity and uncertainty*”.(In Spanish) In: Revista Realidad Económica N° 158, Buenos Aires, IADE, pp. 66-91
- Barrenechea, J. y Gentile, E. (1998) *Local Management of Urban Risks: floods and industrial accidents in Zarate and Campana Municipalities, Province of Buenos Aires*. (In Spanish). Meeting: The Urban Question in the New Millennium. Faculty of Social Sciences Research Institute; Institute of Geography, Faculty of Philosophy and Letters; CEUR – CEA-UBA. (Collaboration) Buenos Aires November 23-24.
- Llovet, I, E. Terreno, E. Gentile y A. Barsky (1999). “Understanding use and Perception of Climate Information Among Farmers in the pampean Region, Argentina. A Sociological Research”. “10th Symposium on Global Change Studies – 79th Annual Meeting of the American Meteorological Society”. January 11-15, 1999, Dallas, Texas.
- Barrenechea, J.; E. Gentile; S. González y C. Natenzon (1999). *Risks in Buenos Aires*.(In Spanish) Revista Desastres y Sociedad, La Red. In press.
- Barros, C. -Coord-; R. Alvarado Quetgles; L. Domínguez Roca; E. Gentile; S. González; A. Gutiérrez; C. Pedone; y P. Zusman. (2000) Geography. The organization of global space. (In Spanish). Buenos Aires. Estrada.
- Barrenechea, J., Gentile, E, Gonzalez, S. y Natenzon, C. (2000) *A methodological proposal to study social vulnerability in the framework of social theory of risk* (In Spanish) IV Meeting of Sociology. Faculty of Social Sciences; UBA. Buenos Aires, November 6-10, 2000. (Book in edition)
- Barros, C. – Coord-; E. Gentile, S. González, C. Martínez Ruiz y P. Zusman (2001). Geography of Argentina. Territorial Organization. (In Spanish). Buenos Aires, Estrada.

Other activities on matters related to Climate Change

- 1992-1997 Inter-American Institute for Global Change Research (IAI). Assistant Editor of the IAI Newsletter and rapporteur in scientific workshops of the Institute.

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Education

1965: University of Buenos Aires (UBA) Agronomist. (*Faculty of Agronomy and Veterinary Medicine* -FAUBA)-
1991: M.Sc. in Agrarian Economy. Magister Scientiae Program, Agrarian Economy Area - FAUBA.

Teaching Position:

University of Buenos Aires. Associate professor (full dedication) in Agrarian Economy

Teaching Experience

1967: Assistant professor in Agrarian Economy Course. FAUBA.
2000 - 1992: she has supervised 23 graduate theses in the FAUBA, on subjects such as rural contracts, productive and commercial strategies of farmers, identification of technological options, “agriculturing” process in the Pampean region.

Scientific Research (last 5 years)

2001: Director of research project *Evolution of familiar farms in the Pampeana region, the cases of Azul and Tres Arroyos*, credited by UBA
1998: Director of research project *Economical analysis of the “agriculturing” process in the south of the Pampeana region; case studies in mixed areas*, credited by UBA
1995: Director of research project *Analysis of scale economies in the farms on central Buenos Aires province and their relevance in the productive reconversion*, credited by UBA.

Publications and Research Reports

González MC. y L. Pagliettini (2001, 1993, 1983 y 1981): 4 **books** on agrarian costs and its applications.

- González MC.: Argentina. *Critical situations in land ownership*. (In Spanish). Ministerio de Economía, SAGPYA, PROINDER, Serie Documentos de Formulación. Buenos Aires, 2000. (111 pp)
- Tort M.I., P. Lombardo, M.C. González, L.L. Pagliettini y S. Formento: *The cooperative way. Organizational, economic and legal considerations*. (In Spanish). INTA-UBA, Buenos Aires, 1998. (40 pp)
- González MC. y Pagliettini L. (coordinadoras): *Rural habitat, and little producers in Argentina. Situations of rural poverty*. (In Spanish) FAUBA - Subsecretaría de Vivienda de la Secretaría de Desarrollo Social, De. Subsecretaría de Vivienda, Buenos Aires, diciembre 1996. (276 p)

Other Scientific Publications: In the last 5 years she has written 14 articles that have been published in National and International Journals with Editorial Boards.

Special Tasks and Technical Assistance

- 1999: Consultant in Multisectorial Pre-inversion Program as agrarian expert, to complete the design and analyze the viability of technological alternatives for auto-production of farm products to be introduced by Pro-Huerta Program -Secretaría de Desarrollo Social- (*Secretary of Social Development*).
- 1997: Consultant in the Program to consolidate the administrative and financial reform of the public sector (she collaborated in the definition of productive functions of marine and continental fisheries)
- 1995: Consultant of IICA (PROINDER) to analyze land ownership structure and land markets in Argentina
- 1994: Consultant, agrarian economist expert in projects, of (PROMSA) Programa de Modernización de los Servicios Agropecuarios, (*Agrarian Services Modernization Program*) Convenio de prestación IICA-SAGYP
- 1988-89: Consultant in Lands Policy of UNDP, through the Secretaría de Agricultura, Ganadería y Pesca de la Nación (SAGYP) *Argentine Secretary of Agriculture, Livestock and Fisheries*
- 1986-88: Consultant in Agrarian Development Planning of UNDP through CODESA-Comisión para el Desarrollo de la Zona Deprimida del Salado (*Commission for the Development of the Lowlands of the Salado river*).

Participation in Institutional Programs

- 1996-present: Representative of FAUBA in REDCAPA (*Latin American Network of Institutions related to training in Agrarian Economy and Policies*).
- 1994-present: Representative of UBA before other Universities in Argentina and neighboring countries on Rural Development issues. She is member of the Universities Association “Grupo Montevideo” (AUGM).

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Education:

1984 University of Buenos Aires (UBA). Licenciado in Geological Sciences.
1999. University of Buenos Aires. Doctor en Geological Sciences.

Teaching position:

University of Buenos Aires: Professor in Geomorphology and Quaternary Geology.

Past teaching activities:

1993 Course on Dynamic and coastal evolution in the Holocene. Buenos Aires.
1994 Course on Coastal Hazards. Buenos Aires.
1995 Course on Coastal Quaternary Geology. Puerto Madryn.
1998 Course on Coastal Hazards and Environmental Geology. Buenos Aires.

Scientific Position:

National Council of Scientific Research (CONICET): Researcher

Management and scientific administration positions:

- Member of the Directive Board of the Argentina Geological Association. (1987-1989). (1991-1993)
- CADINQUA Member by Argentina Geological Association. (1987-1989) and (1991-1993)..
- Directive Board Member of the Argentina Engineering Geology Association. (1999-2001).
- Directive Board Member of the Argentina Professional Council. (2001-2003).

Publications

In Scientific Journals : 21 papers on Geology, Coastal Geomorphology, Dynamic and Coastal Hazards.

Last publications:

- Kokot, R.R., 1997. *Littoral Drift, Evolution and Management in Punta Médanos, Argentina*. Journal of Coastal Research, 13 (1): 192-197.
- Codignotto, J.O., R.R. Kokot, M.C. del Valle y S. Ludueña, 1997. *Sensitivity of the coast of Argentina to sea-level rise*. (in Spanish) Proyecto de estudio del Cambio Climático. Programa

de las Naciones Unidas para el desarrollo. Grupo de Trabajo Argentino. Ed. G.M. Perillo, Naciones Unidas 60pp, Anexo Fotos e Imag. Sat.

- Kokot, R.R., A.A.J. Monti and J.O. Codignotto, 1998. *Morphology and Short-Term Changes of the Caleta Valdés Barrier Spit, Argentina*. Journal of Coastal Research. (In revision).
- Codignotto, J.O., R.R. Kokot, C. Herrera y P. Richter, 1999. *Geotechnic Method in Vicente López Coastal Area*. Buenos Aires. (in Spanish) Revista de Geología Aplicada a la Ingeniería y al Ambiente.(13): 11-16.
- Kokot, R.R., J.O. Codignotto, P. Richter y C. Herrera, 1999. *Hydrodynamic in Vicente López Coastal Area*. (in Spanish). Revista de Geología Aplicada a la Ingeniería y al Ambiente, (13): 73-86.
- Kokot, R.R. y M. Otero, 1999. *Environmental Geology and Coastal Hazards in Quequén Port, Buenos Aires Province*. (in Spanish) Revista de Geología Aplicada a la Ingeniería y al Ambiente. (13): 87-100.
- Codignotto J.O, R.R Kokot, y A.A.J. Monti, 2001. *Rapid Changes in Caleta Valdés Coastal Area , Chubut*. (in Spanish) Revista de la Asociación Geológica Argentina 56(1): 67-72.

Other scientific publications (Chapters in books, Institutional reports, Symposiums, etc): 92

Past activities on matters related to Climate Change:

- Geology and Geophysics in Anegada Bay and Valdés Cove. The Austral Ship (ex Atlantis). Geología y geofísica (sísmica), del: área ubicada frente a Bahía Anegada, boca y sector norte del golfo San Matías y bajo fondos situados al NE de caleta Valdés. Buque Oceanográfico El Austral Segundo Jefe Científico de la Campaña oceanográfica 42°S.. Noviembre 1991.
- Sensitivity of the Coast of Argentina to sea-level rise. Academia Nacional de Agronomía y Veterinaria. 1993.
- Environmental Dynamic and Coastal Zonality in Argentina. Proyecto EX055: Res. 1670/95, Expte. 30.994/93 Anexo 11. Secretaría de Ciencia y Técnica (UBA). 1995-1998.
- Vulnerability to sea-level rise. Proyecto IPCC para el estudio de la vulnerabilidad de la costa al ascenso del nivel del mar. Proyecto Argentino de estudio sobre el cambio climático. Director nacional Dr. Vicente R. Barros. Integrante del grupo de trabajo del área norte de la costa de Buenos Aires comprendida entre Punta Piedras y Mar del Plata. 1996/1997.
- Coastal Hazards and Environmental Changes in Argentina Coast. Codirector del grupo de investigación. Proyecto (UBACyT) TW96. Evaluación del Medio Ambiente y de los Factores de Riesgo Geológico en la Costa Argentina. 1998-2001.
- Coastal Hazards and Coastal Zonality in Patagonia. Proyecto PIP – CONICET, Riesgo Geológico y Zonificación en Áreas Costeras urbanas de las provincias de Chubut y Santa Cruz. Codirector, Res. N° 2851 dic/98. 1999-2001.
- Sensitivity of the coast of Río Negro to sea level rise. Codirector del grupo de investigación. Proyecto UBACyT X141 Sensibilidad al ascenso del nivel del mar en Río Negro y control en otros sitios del litoral. 2001-2002.

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Education:
1970-75 University of Buenos Aires (UBA). Licenciado in Physical Sciences.
1980-83 The University of Iowa. Ph. D. in Hydraulic Engineering.

Teaching position:
University of Buenos Aires: Professor. Faculty of Engineering.

Other teaching activities:

- Master in Numerical Simulation and Control, Faculty of Engineering, UBA.
- Master in Environmental Engineering, National Technological University (UTN) - Buenos Aires.
- Specialization Course on Integrated Management of Water Resources, UBA.

Other activities:

Consultant in Hydraulic and Environmental Engineering: *Flood control, dams, sedimentation, bank and beach erosion, bridges, harbours, dredging, navigation, conduits, thermal stratification, water quality, environmental impact.*
Software development: *Flood routing, urban hydraulics, flow in closed-conduits, shallow water waves, sea waves transformation, sedimentation/erosion, porous media flow, pollutant transport, reservoir operation, hydraulic structures, didactic software.*

Publications

In Scientific Journals: 21 papers.
In International and Regional Congresses: 53 papers.
In National Congresses: 33 papers.
Textbook: 1.
Internal INA-Technical Reports: 17.
External INA-Technical Reports: 40.

Awards

“Ing. Luis A. Huergo”, National Academy of Engineering, 1997.

Last publications:

- Menéndez, A.N., *Sistema HIDROBID II para simular corrientes en cuencos (HIDRIBID II system for simulation of currents)*, Revista internacional de métodos numéricos para cálculo y diseño en ingeniería, vol. 6, 1, 1990.
- Menéndez, A.N., Navarro, F., *An experimental study on the continuous breaking of a dam*, Jr. Hydraulic Research, IAHR, vol. 28, No. 6, 1990.

- Carreras, P.E., Menéndez, A.N., *Mathematical simulation of pollutant dispersion*, Jr. Ecological Modelling, 52, November, 1990.
- Cavaliere, M.A., Menéndez, A.N., Castellano, R., *Estudio de las condiciones de agitación por oleaje en un puerto mediante simulación numérica (Study of conditions associated to waves in a harbour using numerical modeling)*, Revista internacional de métodos numéricos para cálculo y diseño en ingeniería, vol. 8, 4, 1992.
- Menéndez, A.N., *The asymptotic wave form for a space-limited perturbation in open channels*, Jr. Hydraulic Research, IAHR, vol. 31, No. 5, 1993.
- Menéndez, A.N., *Simulación numérica de la sedimentación en canales de navegación (Numerical simulation of sedimentation in navigation channels)*, Información Tecnológica - Revista Latino-americana, Vol. 5, N° 4, 1994.
- Menéndez, A.N., *Sedimentologic modelling based on the study scale*, Journal of Hydraulic Engineering, ASCE, Vol. 123, No. 10, Oct. 1997.
- Tarela, P.A., Menéndez, A.N., *A model to predict reservoir sedimentation*, Lakes and Reservoirs: Research and Management, 4, 1999.
- Tarela, P.A., Menéndez, A.N., *Numerical simulation of the wave pattern within a harbour due to ship waves*, to appear in International Journal of Computational Fluid Dynamics.

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Education:

1970-75. University of Buenos Aires (UBA). Professor in Geography
1995-97. University of Sevilla, Spain. Doctorate's Third Cycle.
2001. University of Sevilla. Doctor in Geography.

Teaching position:

University of Buenos Aires: Full Professor in Argentine Physical Geography and Latin American Social Geography.

Other academic activities:

1988-1992: Headmistress of the Geography Department at the BA University; elected.
1990-2001: Professor of post-graduated courses for FLACSO and other national and international Universities.

Scientific Position:

University of Buenos Aires: Senior Researcher.
FLACSO-Latin American Faculty of Social Sciences: Visiting Researcher.

Main Research Activities on Matters Related to Social Aspects of Floods.

2002/2003 – Director. “Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral’s Buenos Aires Metropolitan Area”. With UBA financial support (UBACyT FI 066).
1998/2001 – Director. “Risk, Disasters and Uncertainty. Floods and technical accidents at the littoral of low del Plata basin”. With the following financial supports: UBACyT TL03/ ANPCyT PIC ‘97 Nro. 04-00000-01668/ CONICET PIP 98 N° 0064.
1990/1991. Resercher. Cooperation Project about “The Paraná Delta: an area in natural balance for the Buenos Aires Metropolitan region.”. Cooperation Agreement CONAMBA/ Polytechnic of Milán/ CEE.
1989/90. Director. "Natural Disasters, Public Policies and Development in the rural area of the Salado river basin. Buenos Aires Province". With financial support (UBACyT FI 044).

Main Professional Experience:

1984-1986: Assistant to the President of the National Parks Administration.
1988-89: FAO Consultant.
1990: Consultant for the Federal Council of Investments (CFI).

1996: Consultant for ALADI-Latin-American Association for Integration. Subject: "Fiscal and Human Impacts of the Hidrovia project in the low Paraná/de la Plata rivers"

1996. Consultant for World Bank and Agricultural National Secretary (SAGPyA).

1999: Consultant for World Bank and RUTA. Subject: "Social Evaluation and Natural Disasters". In: II° Workshop of Social Evaluation. San José de Costa Rica.

Last relevant publications:

- Natenzon, Claudia E. –publisher– *Risk, disasters and vulnerability*. Book to be edited for EUDEBA in 2001. In Spanish.
- Natenzon, Claudia E. and Héctor A. Poggiese (In edition) “Collaborative planning and co-management. The development plan for Zudañez, Chuquisaca, Bolivia”. In: *Implementing Sustainable Development. Integrated assessment and participatory decision-making processes*. SCOPE/ UNEP Project: Environmental Economics, Accounting and Management Tools. UK, Edward Elgar publisher.
- Gentile, E.; C.Natenzon, M-C Prat y J-N.Salomon (1998) *The Paraná Delta: natural and anthropic issues*. Travaux du L.G.P.A. Numéro spécial, Inst. de Géographie. Bordeaux; 123 p. 16 fotos, 37 fig., 7 tabl. Libro. In Spanish and French.
- Natenzon, Claudia E. (1998) “What do we owe the future? The construction of a better present”. In: *Forum for Social Economics*. Saint Louis University, USA. Vol.27, N°2:15-22. ISSN 0736-0932.
- Natenzon, Claudia E. (1997) “Cap.1. Background of The Hidrovía Project.”, “Item 3.1.The Natural Framework” and “Chapter 4. Hidrovía in the basin system”. In: *Participative Manajement Project of the Hidrovía Paraná-Paraguay. Physical and Human Impacts in the low Paraná River, Delta and the La Plata river*. Montevideo, ALADI/ CIID. In Spanish.
- Natenzon *et al.* (1997). *Floods, agricultural production and social agents at the Salado river basin, Buenos Aires Province*. Gorizia (Italia), ISIG; Quaderno N° 97-4. In Spanish.
- Natenzon, Claudia E. (1995) *Natural Disastrers, Risk and Uncertainty*. Buenos Aires, FLACSO. Serie Documentos e Informes de Investigación Nro. 197. In Spanish.

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Education:

- 1969: Accountant. University of La Rioja.
- 2001: M.Sc. in Social Sciences, major in agrarian economy, FLACSO Buenos Aires.

Teaching Position:

University of Buenos Aires: Associate Professor in the course “Society and Natural Resources” (Department of Geography).
National University of Luján. Full Professor in Economical Ecology

Past Teaching Activities

- 1971-73: Assistant Professor in the Department of Economic and Social Sciences of the Faculty of Agronomy (University of Chile).
- 1990-92: Associate Professor in the Economy Area of the National University of Luján (Argentina).
- 1994: Professor of the Seminar "Agricultural Development and Environment " in the Post-graduate Course "Sociology of Agriculture"; major in "Social Organization of Agriculture in Arid Zones "; National University of Comahue, Faculty of Law and Social Sciences, GESA (Grupo de Estudios Sociales Agrarios). Neuquén.

Other Research and Professional Positions

- 1977-2000: Officer of the National Service of Social Economy and Sociology and of the Agricultural Development and Planning Office of the Secretary of Agriculture, Livestock and Fisheries (Ministry of Economy)
- 1987-1988: Director of Annual Research Projects (PIA) in the Consejo Nacional de Investigaciones Científicas y Técnicas –CONICET- (*National Council of Scientific and Technological Research*).
- 1987: Socio-economical impact of modernization in pampean agriculture.
- 1988: Objective Interests and Corporative Organizations in pampean agriculture.
- 1989-91: Co-director of the CONICET – PID (Development and Research Project): Grains and Policies. Analysis of social agents in the production and circulation of grains and recent State’s policies.
- 1984-present: Member of GESA (Grupo de Estudios Sociales Agrarios-*Agrarian Social Studies Group*) research group of the national University of Comahue.

1996: Project "Globalization, regionalization and restructuring of the fruits labor market " UNC-CONICET PID.

Main Publications

- 1983. *Pampean Agricultural sector in the 70's: an analysis through their main productions* (co-author). In Spanish. CEPA. Buenos Aires.
- 1986. *The problematic of hunger and alimentation in Latin America* (co-author) In Spanish. "Primer Encuentro sobre el Hambre y la Alimentación en América Latina". ATSA, CEPA, CIPES, FUNDAPAZ, MAE y SERPAJ. Buenos Aires, 1985.
- 1986. *About the disruption of farmers in Argentina.* (in Spanish). CEPA, Buenos Aires (mimeo) Presentado en la XVII Reunión de la AAEA, Luján, Argentina.
- 1987. " *Social Structure and livestock in an arid region of Argentina: the case of the Llanos of la Rioja*" (co-author) In Spanish. SAGyP, IMTI, SEAG e INTA. Buenos Aires.
- 1988. *Some ideological, conceptual and economical limits of the ecological/environmental discourse* (co-author with Marcelo Escolar and Claudia Natenzon). In Spanish. In "Aportes para el estudio del espacio socioeconómico II". Luis Yanes y Ana María Liberali. Editores. Buenos Aires, El Coloquio 1988 (163 - 275).
- 1988. *Transhumancy and capitalist expansion in a frontier area* (co-author) In Spanish; in "I Simposio Internacional de la Universidad de Varsovia sobre América Latina". Universidad de Varsovia - Asociación PAX. Edición de Andrzej Dembicz, Varsovia.
- 1990. (co-author). Equipo CEPA) *Social Transformations in the pampean agriculture 1970-1985.* (In Spanish). Revista Realidad Económica N° 92-93 Primer y segundo bimestre de 1990: 214-224. Buenos Aires.
- 1990. *Political Economy of Natural Patrimony Accounts.* (In Spanish). Documento CEPAL LC/R.877 (Sem. 54/6), 6 de marzo de 1990.
- 1990. *Economical-environmental Indicators for National Accounts.* Documento CEPAL LC/R. 876 (Sem. 54/5), 6 de marzo de 1990. Included in CEPAL/PNUMA/GTZ "Inventories and natural and cultural patrimony accounts in Latin America and the Caribbean".
- 1991. *Little tobacco producers of Tucumán: Diagnostics and alternatives.* (In Spanish). IPDERNOA UNT, San Miguel de Tucumán.
- 1992. *Manual of economical evaluation for projects of improvement of popular urban habitat.* (In Spanish). GTZ/SVCA, Buenos Aires.
- 1994. *Farmers and transhumancy in Neuquén.* (In Spanish) Texto de GESA (Grupo de Estudios Sociales Agrarios) de la Universidad del Comahue. Ed. La Colmena, Buenos Aires.
- 1996. *Work and technical change. The case of Fruit Agribusiness in Rio Negro High Valley* (In Spanish). Mónica Bendini y Cristina Pescio (coordinadoras) Authors: M. Bendini, C. Pescio, R. Merli, C. Nogués, J. L. Bonifacio, P. Tsakoumagkos, M. Murnmis, S. Feldman, V. Mendez Boaglio y M. Arratia. Ed. La Colmena GESA/UNC Grupo de Estudios Sociales Agrarios de la Universidad Nacional del Comahue. Buenos Aires.
- 1996. *About environmental sustainability and Social Sciences* (In Spanish). In: Políticas Agrícolas, Revista de la Red de Instituciones vinculadas a la capacitación en economía y políticas agrícolas en América Latina y el Caribe (REDCAPA), vol. II, N° 2: 5-36, México 1996.

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Education:
1961-65 University of Buenos Aires Licenciado in Meteorological Sciences.
1976-77 University of Buenos Aires. Doctor in Meteorological Sciences.

Teaching position:
University of Buenos Aires: Full Professor of Climatology

Past teaching activities:
University of Cuyo:
1981 Course on Statistical methods in Geophysics

University of La Plata:
1991 Course on the Hydrologic Aspects and Natural Environment.

Scientific Position:
National Council of Scientific Research (CONICET): Senior Researcher.

Management and Scientific administration positions:
Member of the Directive Board of the Faculty of Sciences . University of Buenos Aires (two periods).
Secretary of the International Hydrologic Decade Comission, UNESCO 1978-1982.

Publications:
In Scientific Journals: 68 papers on Climatology and Hydrology.

Last publications:

- *Seasonal and diurnal patterns of dry and wet bulb temperatures over Argentina.* Matilde Rusticucci-Walter M Vargas. International Journal of Climatology. Vol.15. 1995.
- *Statistical study of climate Jump in the regional zonal circulation over South America.* Walter M. Vargas-Juan Minetti- Arnobio Poblete. Journal of the Meteorological Society of Japan. Vol. 73. N. 5. 1995.

- *Synoptic situations related to spell of extreme temperature over Argentina.* Matilde Rusticucci-Walter M. Vargas. Meteorological Applications. Royal Meteorological Society , U.K. Vol.2. Part 4. 1995.
- *Climatology of the extreme Rainfall in Buenos Aires, Argentina.* Olga C.Penalba-Walter M. Vargas. Meteorological Applications. Royal Meteorological Society.No 3. 1996.
- *The spatial variability of runoff and precipitation in the Rio de la Plata basin.* Norberto García. Walter M. Vargas. Hydrological Sciences-Journal des Sciences Hydrologiques. Vol 41. No 3. June 1996.
- *Interaction Processes between the annual wave and the disturbances in series of daily temperature.* Juan Minetti- Walter M. Vargas. Journal of Climate. American Meteorological Society. Vol 10. N 2. February 1997.
- *Temperature, humidity and precipitation variations in Argentina and the adjacent sub-antartic region during the present century.* José A. J. Hoffmann, Silvia E. Nuñez and Walter M. Vargas. Meteorol. Zeitschrift, N:F,6, 3-11. Originalarbeiten.February 1997.
- *The temporal climatic variability in the Rio de la Plata basin displayed by the river discharges.* Garcia N. y Vargas W. M., Climatic Change, Vol. 38, 359-379,1998 .
- *500 hPa vorticity analyses over Argentina:Their Climatology and Capacity to distinguish synoptic-scale Precipitation.* Nora Ruiz and Walter M. Vargas. Theoretical and Applied Climatology., 60, 77-92. 1998.
- *Trends and Jumps in the annual Precipitation in South America, South of the 15°S.* Juan Minetti, Walter M. Vargas. ATMOSFERA. 11, 205 - 221 , 1998.
- *The Behavior of the Subtropical Anticyclonic Border over the Atlantic Coast of South America and the Center of the Atlantic.* Juan Minetti, Walter M. Vargas. Australian Meteorological Magazine. 4, 69 - 77, 1998.
- *Interannual variability of the Cuyo rivers´streamflow in the Argentinean Andean mountains and ENSO events.* Rosa H. Compagnucci - Walter M. Vargas. International Journal of Climatology 18, 1593 - 1609, 1998.
- *Mid- troposphere variables and their association with daily local precipitation.* Nora Ruiz and Walter M. Vargas. Meteorological Applications.Royal Meteorological Society. 6, 1-10, 1999. 1999.
- *Climatic variability and the Uruguay River.* Bischoff, S.; Garcia N., Vargas W and Jones P. Water International , Vol. 25. 2000.

Others Activities

1998. Contributing Author: Regional Impacts of the Climatic Change. Vulnerability Evaluation on Latin America. WMO – PNUMA.

2000. Contributing Author : IPCC WG2 Third Assessment Report. Chapter 14. Latin America

Current and Pending Support

Name of Investigator: Vicente R. Barros				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed	-	30	30	20
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R. Barros	University of Buenos Aires	Active		30	30	-
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Name of Investigator: Julieta Barrenechea				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente Barros	AIACC	Proposed	-	70	70	---
Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral's Buenos Aires Metropolitan Area	Claudia E.Natenzon	University of Buenos Aires/ FONCYT	Pending	---	30	30	---

Name of Investigator: Mario Bidegain Dorelo				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Dr. Vicente Barros	AIACC	Proposed	-	20	20	10
Hydroclimatic variability, ENSO-related and human-induced trophic status change in the Río de la Plata Ecosystem.	Dr. Gustavo Nagy	AIACC	Proposed	-	20	20	10
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Name of Investigator: Susana Amalia Bischoff				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed	-	25	10	10
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R. Barros	University of Buenos Aires	Active		25	25	-
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Name of Investigator: Ruben Mario Caffera				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed	-	20	20	15
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Name of Investigator: Inés A. Camilloni				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed	-	30	10	-
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R. Barros	University of Buenos Aires	Active		25	25	-
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Name of Investigator: Jorge Osvaldo Codignotto				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R.Barros	AIACC	Proposed	-	40	20	10
Quaternary Coastal Evolution in Rio Gallegos Estuary.	J.O.Codignotto	National University of Patagonia	Active		10	10	-
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R.Barros	University of Buenos Aires	Active		25	25	-

Name of Investigator: Elvira R. Gentile				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente R. Barros	AIACC	Proposed		30	50	-
Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral's Buenos Aires Metropolitan Area	Claudia E.Natenzon	University of Buenos Aires/ FONCYT	Pending		20	20	-
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R.Barros	University of Buenos Aires	Active		20	30	-

Name of Investigator: María del Carmen González				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente R.Barros	AIACC	Proposed		30	40	-
Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral's Buenos Aires Metropolitan Area	Claudia E.Natenzon	University of Buenos Aires/ FONCYT	Pending		40	30	30

Name of Investigator: Roberto Roque Kokot				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente R. Barros	AIACC	Proposed		30	25	-
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R.Barros	University of Buenos Aires	Active		25	25	-

Name of Investigator: Angel N. Menéndez				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed		50	40	10
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R. Barros	University of Buenos Aires	Active		15	25	-
Environmental Protection of the Río de la Plata and its maritime front	Jaime Cantera	GEF	Active		25	25	-

Name of Investigator: Claudia Eleonora Natenzon				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente R.Barros	AIACC	Proposed		40	40	30
Floods: genesis, socio economic costs, adaptation and prevention	Vicente R.Barros	University of Buenos Aires	Active		20	20	-
Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral's Buenos Aires Metropolitan Area	Claudia E.Natenzon	University of Buenos Aires/ FONCYT	Pending		20	20	-

Name of Investigator: Pedro S. Tsakoumagkos				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente R.Barros	AIACC	Proposed		30	40	-
Environmental Risk, Disasters and Social Vulnerability. The analysis of the littoral's Buenos Aires Metropolitan Area	Claudia E.Natenzon	University of Buenos Aires/ FONCYT	Pending		40	30	30

Name of Investigator: Walter M. Vargas				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of global change on the coastal areas of the Río de la Plata: sea level rise and meteorological effects	Vicente R. Barros	AIACC	Proposed		25	10	10
Floods: origin, economical and societal costs, adaptation and prevention.	Vicente R. Barros	University of Buenos Aires	Active		25	25	-
PROgram for the study of regional climate variability, their prediction and impacts, in the mercoSUR area (PROSUR)	Mario N. Nuñez	IAI	Active		10	10	10

Copies of 1 or 2 key papers referenced in the proposal

Letters of support

Original Documents

Enclosed is a scanned version of two letters of support. One of the Secretary of Infrastructure and Public Services of the City of Buenos Aires and the other of the Ombudsman Office of the same City. The English version of these documents is also accompanied.

English Translation

1. Secretary of Infrastructure and Public Services of the City of Buenos Aires letter

GOVERNMENT OF THE AUTONOMOUS CITY OF BUENOS AIRES

Secretary of Infrastructure and Public Services

Buenos Aires, September 20, 2001

MISTER
NEIL LEARY
TECHNICAL COMMITTEE
AIACC

The Secretary of Infrastructure and Public Services of the City of Buenos Aires is directly interested in the objectives of the Project "Impact of Global Change on the Coastal Areas of the Rio de La Plata: Sea Level Rise and Meteorological Effects" submitted by Dr. Vicente Barros from the University of Buenos Aires. The expected outputs of the Project can be used in the implementation of infrastructure facilities and operational activities to mitigate the effects of floods that constitute one of the most severe problems of the city.

Projections of future mean water level as well as of the extreme high levels will be of great utility in the dimension of numerous public or private works that will be constructed in the next years in the coastal area of the city and of its suburbs. Therefore is our hope that the above mentioned Project will be funded in the context of the AIACC program.

Sincerely yours

Ing. ABEL FATALA
Secretary of Infrastructure and Public Services
Government of the City of Buenos Aires

2. Deputy Ombudsman of the City of Buenos Aires

Buenos Aires, September 18th, 2001

Dr. Vicente Barros,

I have been informed of the interesting Project under your direction. I would like to congratulate you for this interdisciplinary proposal about a problem that historically has been approached from a different point of view.

In this *Office of the Deputy Ombudsman of the city of Buenos Aires* we are worried about the lack of preparation at governmental level to adapt ourselves to the consequences of climate change.

As I see from the objectives of your project, your research group aims to describe how climate change will affect floods in the coastal areas of the Rio de la Plata and we are invited to participate in different steps of the research.

We are very interested in participating in the discussion meetings of your project. We can collaborate with our experience as an Institution committed to the needs of the inhabitants of Buenos Aires and we can also cooperate in the dissemination of the results of the project.

The staff of this Office is at your disposal and I would also like to inform you that we are organizing the First Meeting on Adaptation of the City of Buenos Aires to Climatic Change.

Yours Sincerely,

Lic. Antonio Brailovsky
Deputy Ombudsman of the City of Buenos Aires



GOBIERNO DE LA CIUDAD AUTONOMA DE BUENOS AIRES

SECRETARIA DE OBRAS Y SERVICIOS PUBLICOS


Buenos Aires, 20 de septiembre de 2001.

**SEÑOR
NEIL LEARY
COMITÉ TÉCNICO
DEL AIACC**

La Secretaría de Obras y Servicios Públicos de la Ciudad Autónoma de Buenos Aires encuentra que los objetivos del Proyecto "Impacto del Cambio Global en las áreas costeras del Río de la Plata: Aumento del nivel del mar y efectos meteorológicos" presentado por el Dr. Vicente Barros de la Universidad de Buenos Aires son de su interés directo. Los resultados esperados podrán ser utilizados en la implementación de medidas estructurales y no estructurales para morigerar los efectos de las inundaciones que son uno de los problemas más severos que enfrenta la ciudad.

Las proyecciones futuras sobre el nivel de las aguas en condiciones medias y extremas serán de suma utilidad en el dimensionamiento de numerosas obras públicas y privadas que en los próximos años se ejecutarán en el área costera de ciudad y en sus alrededores. Por lo tanto, es nuestra aspiración que el mencionado proyecto obtenga financiación en el marco del Programa de Evaluación de Impactos y Adaptación al Cambio Climático.

Saluda atentamente.


ISABEL FATALA
Secretaría de Obras y Servicios Públicos
Gobierno de la Ciudad de Buenos Aires



Defensoría del Pueblo Adjunta
de la Ciudad de Buenos Aires



Buenos Aires, 18 de Setiembre de 2007

Sr. Director del Proyecto UBA
"Inundaciones: génesis, costo socio-económico, adaptación y prevención"
Dr. Vicente Barros

He tomado conocimiento del interesante proyecto que Ud. dirige. Quiero felicitarlos por la propuesta interdisciplinaria sobre una problemática que históricamente se ha abordado de otro modo.

En la Defensoría Adjunta a mi cargo nos preocupa la falta de preparación a nivel gubernamental para adaptarnos a las consecuencias del cambio climático.

Según surge de los objetivos planteados por el proyecto, su equipo de investigación se propone dilucidar cómo afecta el cambio climático a las inundaciones en el Litoral argentino y en la ribera del Río de la Plata. Y para ello, se nos invita a dar nuestra opinión en distintas etapas evolutivas de la investigación.

Desde luego, nos interesa participar en las reuniones de discusión, tanto para aportar la experiencia propia como organismo cercano a las necesidades de los habitantes de la Ciudad, como para conocer los resultados obtenidos. Asimismo, ofrecemos darles difusión y apoyarlos de la mejor manera posible.

Pongo a su disposición el equipo de esta Defensoría Adjunta, que actualmente se encarga de la preparación del Primer Encuentro sobre Adaptación de la Ciudad de Buenos Aires y su Área Metropolitana al Cambio Climático.

Sin otro particular lo saluda Atte.



Lic. Antonio Elío Brailovsky

Defensor del Pueblo Adjunto de la Ciudad de Buenos Aires

Gustavo J. Nagy Breitenstein

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Working Address: Facultad de Ciencias (FC), Universidad de la República (UdelaR),
 Montevideo, Uruguay.
Telephone: (5982) 2032358/5258618-30 (ext. 128)
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Education:

1983. BSc. in Biological Oceanography. Trend: Chemical Oceanography.
1985. Marine Chemistry of Anoxic and Suboxic Environments Post- Graduate Course: UN/ROSTLAC/PUC TALCAHUANO, Chile.
1989. MSc.GeoSciences/Oceanography (Coastal and Estuarine Environments. "Bilan des connaissances sur l'hydrologie et l'hydrodynamisme sédimentaire du Río de la Plata. Apports de la télédétection et conséquences sur l'environnement biologique". Mém. de D.E.A., Univeristé de Bordeaux I. France:
1993. PhD in Oceanography. (Estuarine Environments Hydrosedimentary Processes and Management). Analyse quantifiée de l'évolution hydromorphologique séculaire de l'estuaire amont de la Gironde. Thèse Doctorat Nouvelle Formule (PhD), U. Bordeaux I, 194 p. Université de Bordeaux-I, France.
1994. Post-Graduate Course in Remote Sensing for Educators. UN/BITS/Stockholm University/ Dep. Physical Geography, Sweden.

Teaching position:

Facultad de Ciencias (FC), Universidad de la República (UdelaR), Montevideo, Uruguay. Associate Professor of Oceanography and Environmental Sciences.

Past teaching activities:

- 1983-87. Assistant of Chemical Oceanography. Facultad de Humanidades y Ciencias, UdelaR, Uruguay.
- 1993-98. Associate Professor of Oceanography, FC-UdelaR:
 - Descriptive Physical Oceanography.
 - Chemical Oceanography.
 - Estuarine Environments.
 - Biogeochemical Cycles and Global Environmental Change.

- 1997-98. Associate Professor of Environmental Sciences Post-Graduate Program. FC-UdelaR.
 - Atmosphere_Land-Ocean Interactions.
 - Marine Ecosystems.

Consulting activities

1989. EDF/IGBA N° 87138 GT. Report: “Les débits fluviaux de la Gironde depuis 1914. L’année 1989 dans le contexte historique. Prévision”. Nagy, G.J., et P. Castaing, 1990, 10 pp.
- 1997: EIA-Project “Tertium Millenarium”. Nagy, G.J., y A.C. Blanco.
- 1997: EIA-Project “Gasoducto Buenos Aires-Montevideo”. SERMAN & ASOCIADOS S.A. Buenos Aires, Argentina. In charge of Natural Environment. Presented.

Publications

Last publications:

- Nagy G.J., C.M. Martínez & D. Severov, 1995. *Southwestern Atlantic front dynamics 1988-1992, from satellitary SST data*. Rev. Fr. Mar. 3 pp.
- Nagy, G.J., Martínez, C.M., Caffera, R.M., Forbes, E.A., Perdomo, A.C., & López Laborde, J. 1996. *The hydrological and climatic setting of the Río de la Plata*. In: *The Río de la Plata. An environmental overview*. Chapter 2, pp 17-68. Publ. Dalhousie University, Canada, 1996.
- López Laborde J. & G.J. Nagy. In Press. *Hydrography and sediment Transport Characteristics of the Rio de la Plata*. In “Estuaries of Latin America”. Eds. Perillo, G.M.E, Pineo, M. & C. Piccolo. Special Number of the Journal of Geophysical Research (AGU), 25 pp.
- Severov D. N., V. Severova, M.M. Blanco & G.J. Nagy. *Identification, characterization and Classification of water masses, fronts and frontal zones in the Southwestern Atlantic Ocean*. To be published in AGU “WOCE special number of the Journal of Geophysical Research”.

Innovative Education Projects

- 1996-97. “Applied Areas in Medicine and Environment” (FC-UdelaR-CSIC). Martínez & Nagy.
1996. “Interdisciplianry Master of Science Program in Environmental Sciences”. Panario, Nagy, Cayssials, Altesor, Mazzeo, Scasso & Norbis.
- 1998-2000. “Earth System Science and Global Change Education Workshops: Building IAI capacity with a Science and Education Network”. IAI ISP III Project. Donald Johnson (Earth Systems Education Program Network, USA, ESSE) et al. IAI-ISP-III (1997). Co-Principal Investigator.

Name of Investigator: Gustavo J. Nagy Breitenstein				% of Time Committed to Project			
Project Title	Principal Investigator or Project Coordinator	Supporting Agency	Project Status (active, pending, proposed)	2001	2002	2003	2004
Impact of Global Change on the Coastal Areas of The Rio de la Plata: Sea Level rise and Meteorological Effects	Vicente Barros	AIACC	Proposed		20	15	10
Hydroclimatic variability, ENSO-related and human-induced Trophic status change in the Rio de la Plata estuarine ecosystem. Assessment of Vulnerability and Impacts, and Adaptation Strategies.	Dr. Gustavo Nagy	AIACC	Proposed	-	40	35	30
Evaluation of the trophic status of the Río de la Plata	Dr. Gustavo Nagy	DINACYT-Uruguay	Pending		30	0	0