

PILOT PROJECT ON FLOODS REPORT

1. The characterization of the major floods was started during the 2001:

G. Coronel and J. Baez coordinate the activity in the Paraguay River, I. Camiloni and V. Barros in the the Paraná River and R. Caffera in the Uruguay River.

1.1 In the case of the Paraná River, it was submitted the paper: " The greatest discharge events in the Paraná River and their climate forcing" by I. Camilloni and V. Barros to the Journal of Hydrology with the following results:

During the 1904-2000 period, huge discharges were registered at Corrientes, where the Lower Paraná River begins. The 16 greatest monthly anomaly discharges ranged from 15,000 m³/s to 38,300 m³/s. Since with few exceptions, the main source of the interannual variability in the Paraná streamflow is upstream from Corrientes, the focus was on the contribution to the greatest discharges from the sub-basins upstream from this location

Analyses were based on monthly discharges at Jupιά, Itaipú and Corrientes on the Paraná River, Salto Caxias on the Iguazú River and Puerto Bermejo on the Paraguay River. The location of these stations permits to estimate the contribution of the main sub-basin to the Paraná streamflow. The major discharge anomalies in Corrientes originated in the Middle Paraná basin, especially in its upper part. The contributions of the Paraguay and the Upper Paraná rivers to these anomalies were relatively small. Regarding the season, the major discharge anomalies occurred more frequently in autumn and spring and only in a few occasions in summer or winter.

About two thirds of the major discharge anomalies in Corrientes occurred during El Niño events, and none of these major anomalies took place during La Niña events. The major discharge anomalies that were related to El Niño occurred either in spring of the year of El Niño onset or in the autumn of the following year (autumn (+)), accompanying the precipitation signal of El Niño in the Paraná basin. The top discharges of the Paraná River at Corrientes occurred in the autumn (+) when El Niño SST anomaly in El Niño 3 region persisted until this season. The remaining third of the major discharge contributions from the Middle Paraná, which were not related to El Niño, took place during the austral spring or the austral summer of neutral periods.

1.2 In the Paraguay River, there is a similar analysis that is expected to be documented in a similar paper by the end of 2002.

1.3 In the Uruguay River, due to the rapid runoff and the small dimension of the basin, the major floods are caused by synoptic events. R. Caffera and I. Camilloni are making the characterization of the synoptic conditions prevailing days before the huge rainfalls that originate these floods. They are using concepts developed in a paper by Barros, V and M. Doyle presentation: "*Midsummer circulation in subtropical South America and related precipitation patterns*"

2. General description of the La Plata - Paraná Climate and Hidrology:: It was developed a framework paper by E. Berbery and V. Barros that was submitted to the J. of Hydrometeorology, and accepted subject to minor revisions.

3. Modeling: The especial case of the flood of 1998 that was originated mostly in the Low Paraná is being studied with a high-resolution model by E. Berbery and E. Collini. This study is part of the E. Collini thesis work at the University of Buenos Aires under the direction of E. Berbery and co-directed by V. Barros

The capacity of the climate model of CPTEC to forecast the major climate events that cause floods is being studied by I. Cavalcanti with the cooperation of A. Grimm, V. Barros and P.L. Silva Días.

4. Modeling soil moisture: M. Doyle visited CPTEC in September 2001 and with the direction of J. Tomasella was trained in the use of the CPTEC model of soil moisture. The model is now available for its use in the Province of Buenos Aires. Fig 1 shows results

FIGURE !

