

# **CHARGE to VPM7**

## **Guayaquil, Ecuador, March 2004**

**C. R. Mechoso**



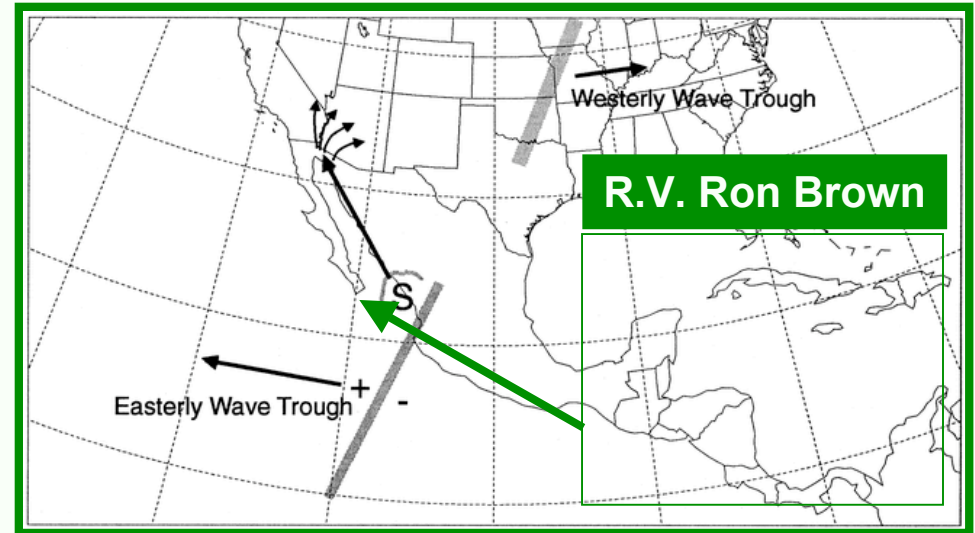
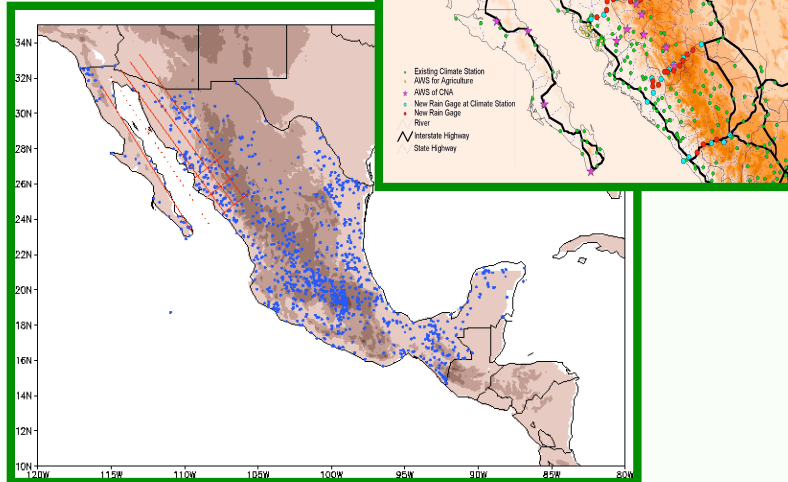
# Charge to VPM7 breakout groups

- **NAME:** Readiness for NAME04; ocean component in NAME Tier 3
- **MESA:** PLATEX, LPBP CSE
- **VOCALS:** International Research Program with strong atmospheric and ocean components
- **Overall:** Participation in CEOP, VAMOS modeling

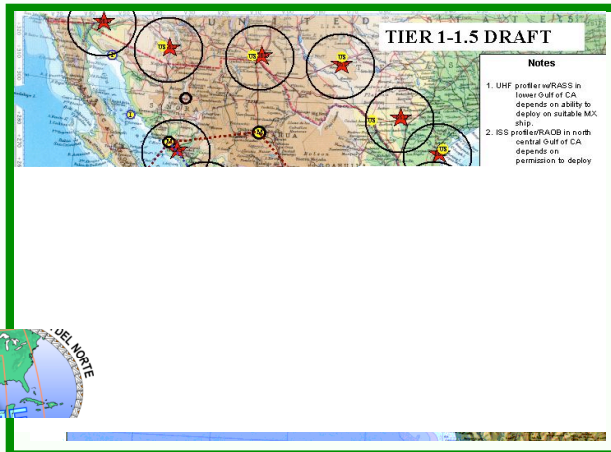


# NAME 2004 FIELD CAMPAIGN: Is everything ready?

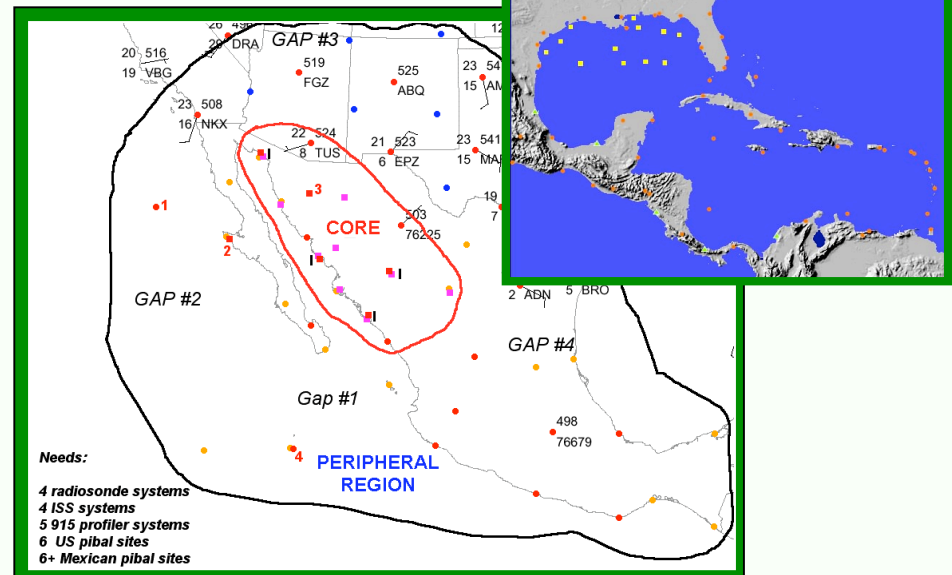
## Enhanced Precipitation Gauge Network



## Radar/Profiling/Radiosondes



## Radiosondes/PIBALS



# **A Field Experiment in LPB: PLATEX**

## **Motivation**

- **Flood impacts on cities and huge flood plains, with associated economic impacts**
- **Hydropower production sensitivity to streamflow variations**
- **Navigation sensitivity to stream discharge variations**

## **Scientific Issues**

- **Strong variability of streamflows on several time scales.**
- **Relative contributions to variability of climate and land use change are not well known.**
- **Effects of aerosols advection from biomass burning from tropical areas are largely unknown.**
- **Strong contribution of MCS to total precipitation.**



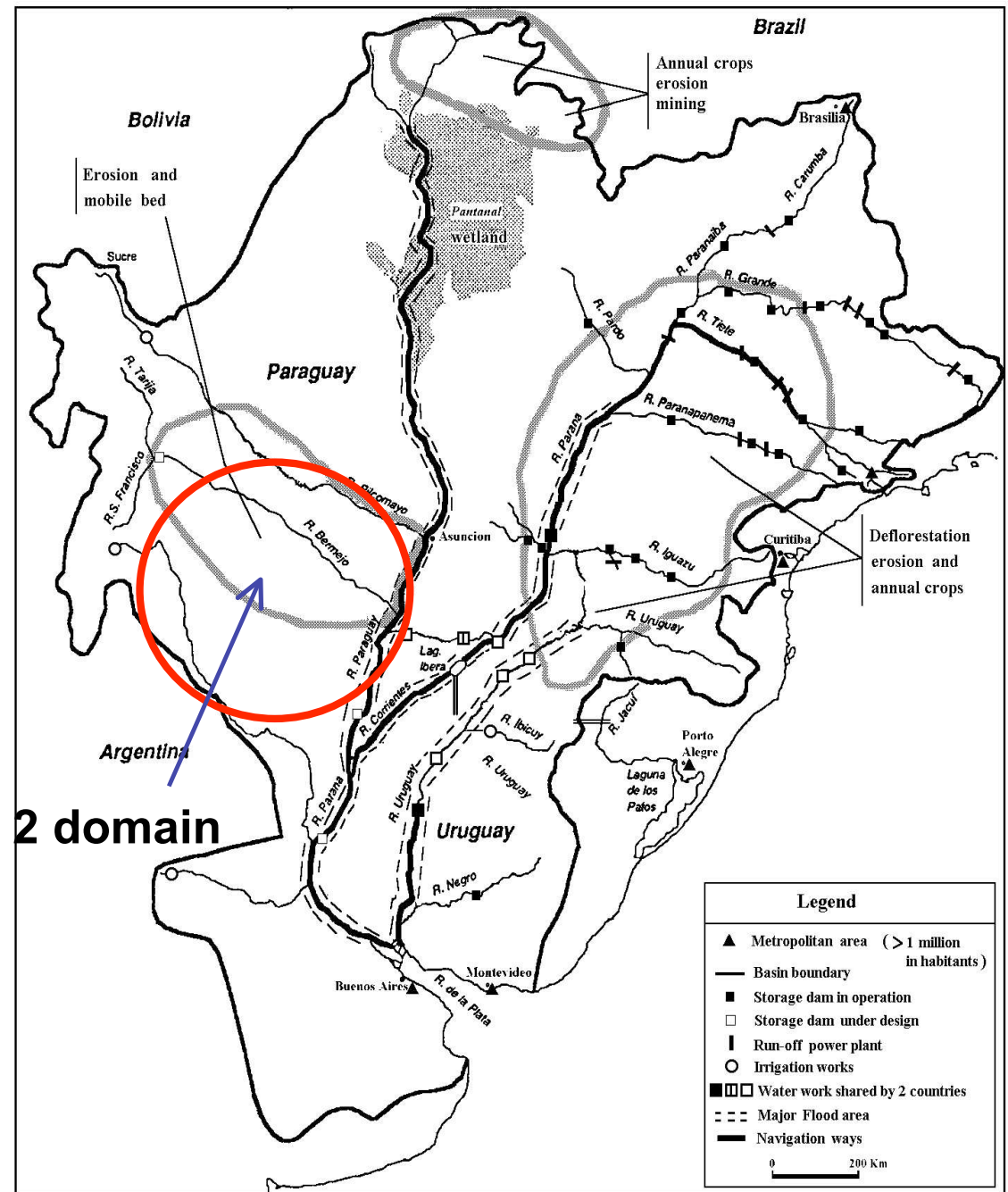
## **Conceptual Design of a Field Program in LPB: PLATEX**

- **Design strategy based on catchments with increased complexity and geographical extent.**
- **The first tier will contrast at least two small catchments ( $\sim 1000 \text{ km}^2$ ) with different land uses. The second tier will select a major sub-basin, and the third tier will target the entire LPB.**
- **The design will include climate and hydrology monitoring, as well as Intense Observing Periods.**
- **Possible start for monitoring: 2005, first IOP in 2006.**
- **Other potential linkages – satellite missions in proposed time frame – HYDROS, GPM, SMOS (possibly), EOS/Terra and Aqua, others...**

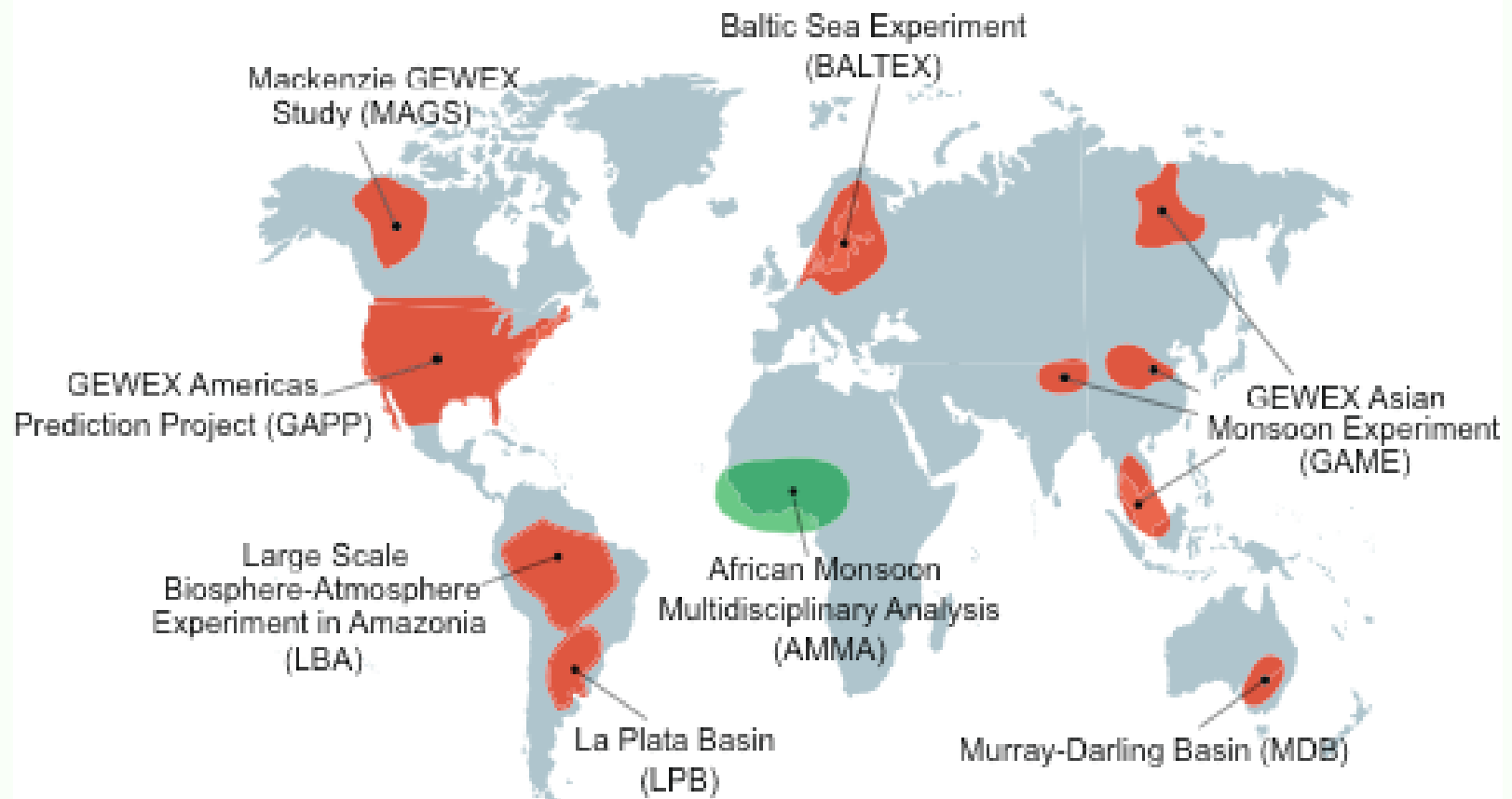


A highly suitable location for Tier 2 of PLATEX would be in the SALLJ path and in an area of maximum (mean and extreme) rainfall.

The Mid-Parana basin is a strong candidate for PLATEX-Tier 2. It is a major source of runoff in the largest floods, and there are strong contrasts in land use change (e.g. from forest to agriculture).



## WCRP/GEWEX CSEs



March 2004

# The LPBP CSE

- The PLATIN SSG found that the range of research activities in LPB can be placed in the framework of a project (LPBP), which satisfies the requirement of a GEWEX CSE.
- The CSE status brings obligations:
  - Representation in the GEWEX GHP
  - Maintenance of a “reference site”, and commitment to regularly produce hydroclimate data.
  - Representation in CEOP implementation meetings
- Commitment to research on LPB hydroclimate





# What is a CSE/CEOP Reference Site?

- **1D Site:** Near surface + surface + sub-surface (Atmospheric sounding\* is highly desirable)
- **2.5D Site:** A few 1D sites + surface heterogeneity, area > 100km<sup>2</sup>
- **3D Site:** 1D sites network (+3D system) or 2.5D site + 3D atmosphere\*\* with an area of about 104 km<sup>2</sup>

## Terminology

**Sub-surface (0 to -1m):** Soil moisture and temp. profile, heat conduction and soil characteristics;

**Surface (0 to +2m):** Four-component radiation, PAR, surface temp., surface soil moisture, precipitation, vegetation type, snow;

**Near surface(+2 to +10m):** Temp., specific humidity and wind speed profiles, surface pressure, momentum, latent and sensible heat fluxes;

**\* Atmospheric soundings:** Radiosonde, wind profile, LIDAR microwave rain radar

**\*\*3D atmosphere:** 3D Doppler radar, cloud radar, aerosonde aircraft.



# CLIVAR JSC25 Summary Issues

- Revamp Project reporting (and guidance) at JSC meetings (Now!)
- CLIVAR involvement in CIMS, Pan-WCRP Monsoon Modelling, perhaps a better use of WCRP resources would be to have a single GEWEX/CLIVAR Asian-Australian Monsoon Panel? Theme for JSC-26?
- **VAMOS → PLATIN transition**  
**(OAS→WMO→PLATIN, increase WMO membership/participation in PLATIN)**
- TAO transfer to NDBC
- Southern Hemisphere Observations
- Funding for African climate initiatives
- COPE link to regional data/modelling activities
- Regional data/modelling links to IPCC



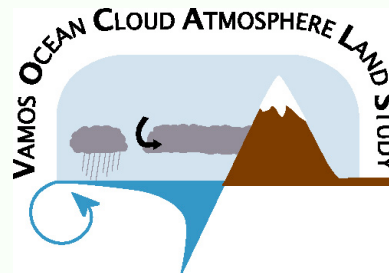
## **MESA: Planning ahead...**

- **PLATIN SSG:** This science study group has produced a prospectus on LPB, and plays a role in the UNDP/OAS CIC GEF projects. It has also started discussions on PLATIN, and successfully championed the LPBP CSE. However...
- ...**PLATEX** and other **PLATIN** activities will not succeed unless there is strong and active regional leadership.
- ...the **LPBP CSE** will not be credible unless it engages regional scientists, facilities and resources.
- **MESA needs to plan carefully and to engage more young scientists, particularly from South America.**



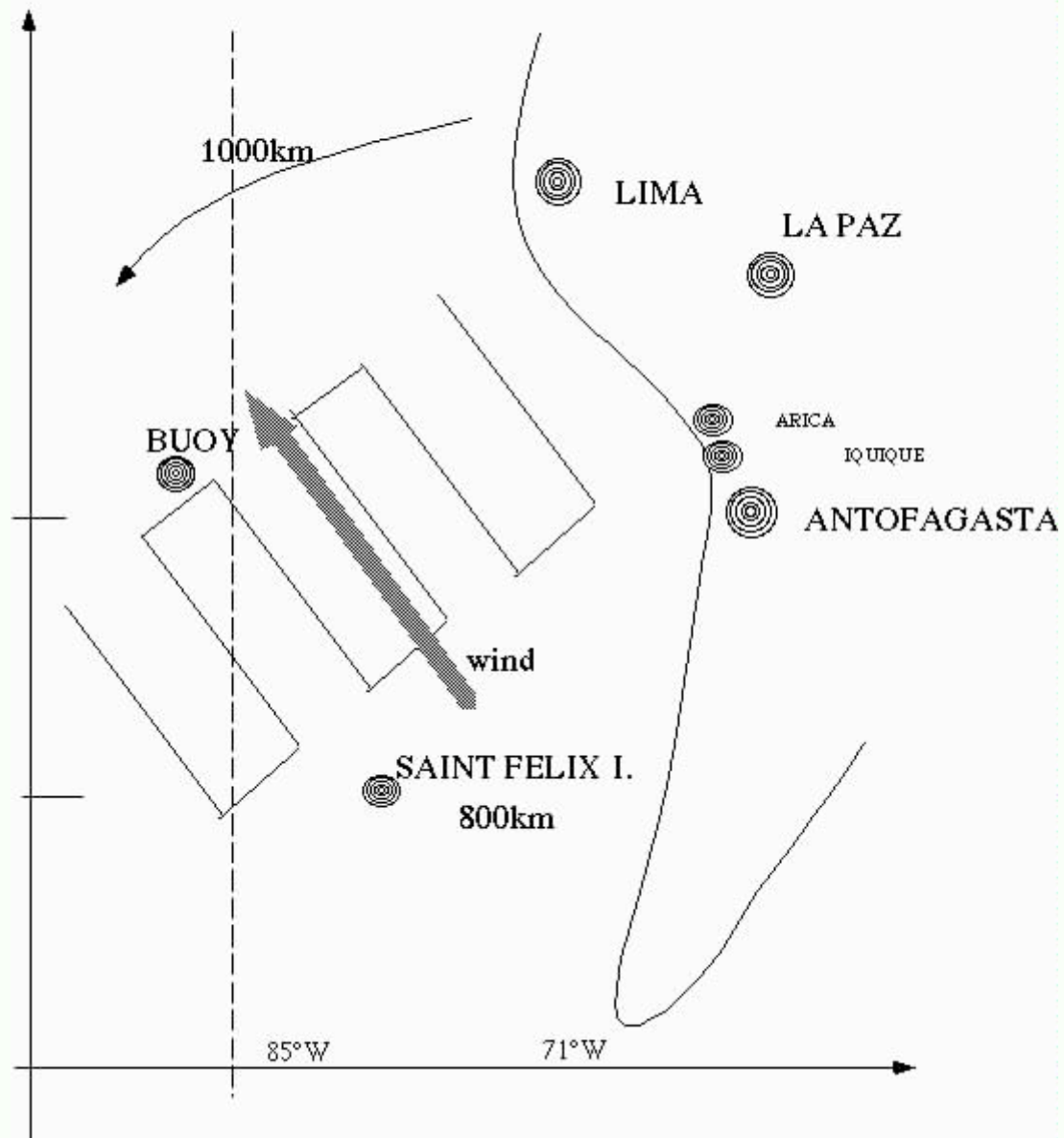
# VOCALS short-term implementation

- **Augment San Felix Island instrumentation with wind profiler, radiation, microwave LWP, and aerosol sampler.**
- **NOAA/ETL sfc/remote sensing instrumentation on Pacific and Atlantic buoy maintenance cruises, and at RICO (funded).**
- **Develop VOCALS data set through distributed satellite/ model/ in situ data archive at UCAR/JOSS. Archive ECMWF and NCEP hi-resolution column data at WHOI buoy and San Felix Island locations, in co-ordination with CEOP (some funding).**
- **Work with cloud-climate sensitivity Cloud Process Team (CPT) to feed into coupled model development.**



## PLANNING FOR OCTOBER 2006

SHIP DOES RADIATOR BETWEEN BUOY, SFI toward shore in cross-wind direction



# WCRP Modelling Panel

- The central role to be played by modelling in COPE, and the over-riding need for coordination of this activity should be enabled by the setting up of a WCRP Modelling Panel. This should have as its members specified JSC members, the Chairs of WGNE, WGCM and the project modelling groups, and the IGBP should be invited to provide a representative. It should be chaired by a JSC member (now identified to be J. Shukla).
- This Modelling Panel would:
  - coordinate modelling activities across WCRP and facilitate collaborations where appropriate
  - focus on the prediction and projection aspects of COPE
  - consider issues of data analysis, reanalysis, assimilation and model initialisation (see also section 15.5 below)
  - oversee data management in WCRP modelling activities.
- The business of the Modelling Panel should be carried out by electronic means to the greatest extent possible, but there should be at least one meeting per year. The Modelling Panel will report to the JSC.
- If VAMOS wants to be represented on this WCRP Modelling Panel it will need to form a VAMOS specific Modelling Group.



# Current Issues on VAMOS's table

- **NAME04:** Major field experiment with modeling activity, very good links to operational centers,...need help?; NAME Tier 3 plans about oceanic influences on NAMS merit revisiting...
- **MESA:** Workplan on the “core monsoon” needs reformulation; work on projects on La Plata Basin (CSE, PLATEX....) needs definition and new, active regional players.
- **VOCALS:** Goals of an international research program on the eastern tropical Pacific can be sharpened; ocean components of current plans can be enhanced.
- **Overall:** The discussion on a modeling component of VAMOS initiated in VPM6 needs to be repeated. Participation in WCRP CEOP has to be discussed.

