IPSL Climate Modelling Centre

The IPSL Climate Modelling Center (ICMC) includes modeling teams from various fields: meteorology, oceanography, study of continental surfaces, ... Its goal is to study natural variability of the climate system and the anthropogenic interference with it in its physical, chemical or biochemical aspects.

Context

Human activities (emissions of greenhouse gases and aerosols, land use, deforestation, ...) change the climate through many physical, chemical and biogeochemical processes. This climate change affects ecosystems and human activities. The current research issues are to observe, understand and model all the phenomena that govern climate change both globally and regionally.

IPSL chose to have an integrated multidisciplinary approach of the Earth System and to study in a coherent way past and future climate changes. This approach builds on the work of climate modeling groups in several IPSL laboratories. These efforts are coordinated by IPSL Global Climate Modeling Group (IGCMG).

Currently, the main activities of IGCMG are articulated around:

- The development of an integrated model of the Earth system
- To run and analyse climate simulations
- Working groups to share skills
- A scientific expertise

IGCMG involves approximately 80 IPSL researchers and engineers. A larger group of about 200 people use its results and benefit from the availability of the simulation data.

Climate simulations

IGCMG produces and distributes climate simulations for different programs:

- Simulations that were run for the last IPCC report
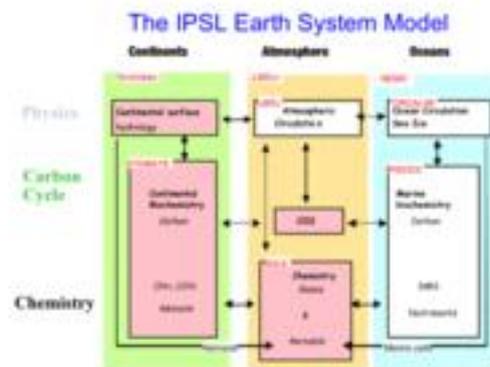- Simulations that were run for the European project Ensembles

These simulations, together with those conducted by Météo-France, were analyzed in the

"Livre Blanc ESCRIME".

The Climate model development

IGCMG continuously develops and improves the climate model and its various components:

- *The components of the model:*
  - the atmospheric model LMDZ; - the NEMO ocean model, including sea ice and marine biogeochemistry; - the ORCHIDEE model of continental surfaces; - the INCA model of chemistry and aerosols- the OASIS coupling module.
- *The tools:*
  - the user interface for the access to the IPSL models - modipsl; - the user interface for the IPSL model inputs/outputs - IOIPSL; - the scripts to run the model - libIGCM
- *The operational version -*
  IPSLCM4_V2

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