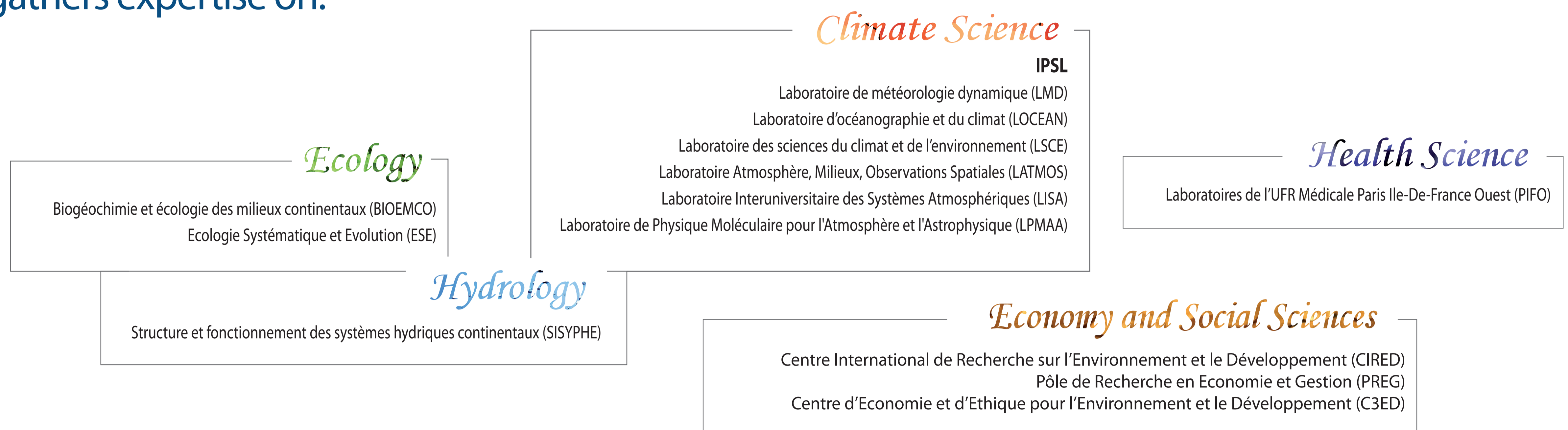


Paris Consortium "Climate - Environment - Society": Sylvie Joussaume, Chantal Pacteau, Robert Vautard
Institut Pierre Simon Laplace: Hervé Le Treut, Jean-Louis Dufresne, Philippe Keckhut, Philippe Bousquet
 Contact: sylvie.joussaume@gisclimat.fr

Paris initiative gathers expertise on:



This initiative aims to understand and predict climate change and its impacts in all their socio-economic dimensions

Methodology

Modeling

Earth System Modeling
SRES A2 scenario, IPCC AR4
Simulation with the IPSL -CM model
Temperature anomalies (°C)
(2090-2099) compared to (2000-2009)

Regional modeling
Simulation of high tropospheric ozone during the summer 2003 heat wave with the CHIMERE model, comparison with observations (dots)

Observation

Long term observing networks
eg. Carbon Observation System (ICOS)
Sonic anemometer and CO2/HO2 analyzer rapid "open-path" measuring fluxes

Satellite Instrumentation & Observation
CALIPSO (NASA, CNES, IPSL) is part of the A-Train platform dedicated to clouds and aerosols study.

Experimentation

Field campaigns
eg. African Monsoon
Multidisciplinary Analyses
Radar set up in Benin to monitor precipitation systems during the monsoon season

In situ experimentation
eg. Biodiversity and ecosystem functioning
Biodiversity and nitrogen cycle, Foljuif experimental centre

Examples

Four Interdisciplinary Research Areas

Global climate, energy policies and economic development

Assembling biophysical and economic models to assess long run integrated scenarios.
Labs involved: LSCE, LMD, CIRED

Objectives:

- A new modeling platform built for IPCC report (AR5)
- Embedded Land-Use choices in a world macro-energy model
- Scenarios with full consistency between socio-economic pathways and biophysical constraints

Climate extremes analyses and vulnerable regions

Regionalization of precipitation, and hydrological and agricultural impact of climate change on vulnerable regions
Labs involved: LOCEAN, LSCE, CIRED, LMD

Objectives:

- Assess precipitation regimes in a context of climate change
- Quantify uncertainties
- Comprehend hydrological and agricultural impacts in three vulnerable regions: Mediterranean, Sahel and Amazonian basin

Climate - Yield modeling: importance of daily rain distribution using ORCH-Mil, SARRAH

Climate change, ecosystems, water resources and land use

Human Impacts on Biodiversity, Ocean Environment and Climate in the Anthropocene: Linking environmental and biodiversity research.
Labs involved: ESE, BIOEMCO, LMD, LOCEAN, LSCE

Objectives:

- Better consider biodiversity into climate models
- Ease interface ecologists and climate scientists
- Develop a service interface for ecologists

Projections of climate change impacts - CASTANEA with CO2, ANR Project QDiv

Climate change impacts on health

Pollen, Allergy and Climate
Labs involved: LSCE, LMD, LISA, PIFO

Objectives:

- Develop a platform for the impacts of climate change on pollen and allergy
- Coupling models for phenology, pollen transport and allergy risk to provide maps of allergy risks
- Develop an alert system

Modeling chain used for the project

Provision of climate information to end-users requires to strengthen integrated research on the processes (climate system, ecosystems, health, society...) and their interdependence to comprehend climate change in its complexity.

New projects integrating natural and economico-political challenges

- vulnerable regions : migrations & evolution of coastal regions (Sahel), water resources and land-use (Mekong)
- climate policies and use of ecosystems in cities
- air quality, climate and health