Organizing committee : C. Déandréis, A. Magnan, D. Joussaume, P. Delecluse, P. Braconnot

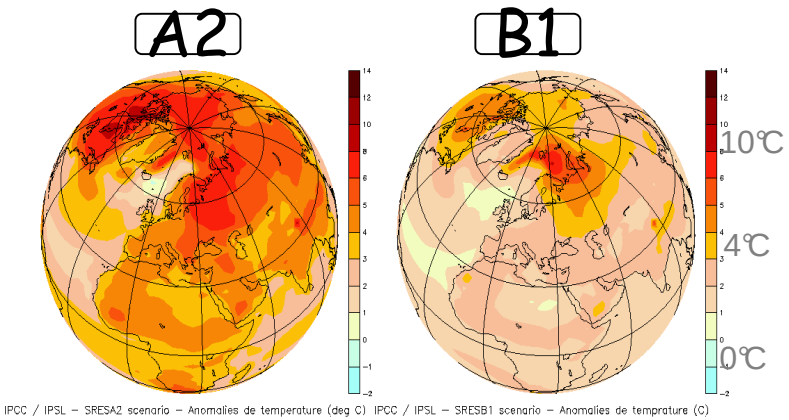
Event organized as part of the French projects:

SECIF & INVULNERABLE

Climate change and human activity

What we know (IPCC, 2007):

- Climate is warming and human activity plays a major role in it
- These change will continue at a rapid rate
- They will depend on the level of greenhouse gas emissions.



Projected warming in 2100 pour 2 socio-economic scenarios

Dufresne et al. La Météorologie 2007
ESCRIME, livre blanc 2007

Questions for society

- Irreversibility (threshold) and risks
- Future energy
- Impact of climate change (ecosystem, hydrology, health, economy, society,..)
- feedbacks and uncertainties

Anticipation and adaptation

Modeling climate evolution to:

- Understand
- Test how different socio-economical choices would affect climate
- Caracterise extremes (heat waves, droughts, floods, storms, …)
- Inform

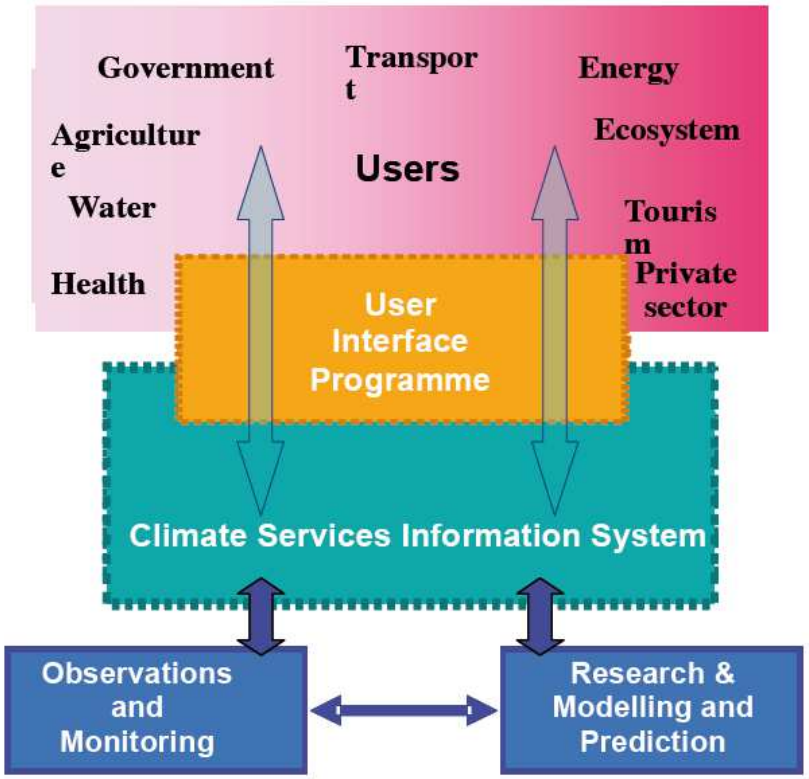
Climate services

Mitigation

Adaptation

Decision making

A global framework for climate services



"Enable better management of the risks of climate variability and change and adaptation to climate change at all levels, through development and incorporation of science-based climate information and prediction into planning, policy and practice."

Figure 1: Components of Global Framework for Climate Services

Climate services : building an information system

Interaction with users/stakeholders

Decision support tools
Dedicated analyses
Support Innovation : eg EIT

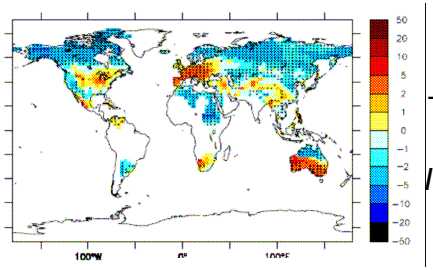
Impact studies
Socio-economy, Ecosystems, Health
Develop Interdisciplinarity

Climate Indicators
Heat waves, drought/floods

Climate projections
Global models
downscaling

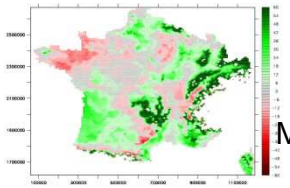
Climate Observations

Examples



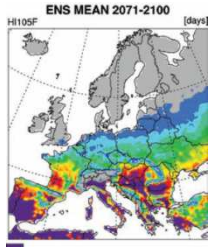
Energy supply
Threshold diurnal Amplitude
INVULNERABLE

SECIF



Maize yield change
ANR Autrement

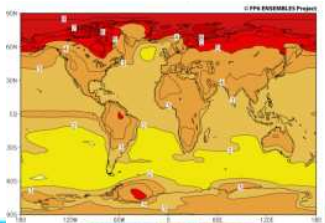
CLIMAT ENVIRONNEMENT SOCIÉTÉ
Groupement d'Intérêt Scientifique



Heat index
ENSEMBLES

InfraStructure for the European Network for Earth System Modelling
is-enes

Temperature projections
ENSEMBLES



InfraStructure for the European Network for Earth System Modelling
is-enes

Données globales

Données régionales
DRIAS

From S. Joussaume

Dealing with uncertainties

Class	Type	Methods	Action
Inherent uncertainties	Climate system understanding	None	None
	Natural variability	Multi-realisation analysis	Make distinction between variability and anthropogenic signals
	Socio-economical projections	Multi-scenario analysis	Assess range of values depending on "socio-economic" decisions and time frame.
Models imperfection	model uncertainties	Multi-model analysis	Assess range of values
		Model bias analysis	Making data correction to reduce bias
		Model performance analysis	Subsetting dataset to get a "best dataset" and reduce bias
	Downscaling uncertainties	Comparison of several downscaling methods (dynamical and statistical)	Assess range of values
Methods limitation	Errors inherent to analysis methods (grid or temporal interpolation; extreme analysis…)	Comparison of several methods	Select the best one or assess uncertainties comparing different method results

Need to deliver a message that is :

Credible
Understandable
Actionable

Need to understand the user need to provide the right level of information

Each case is specific and requires its own treatment of uncertainty.

Déandréis et al. Submitted

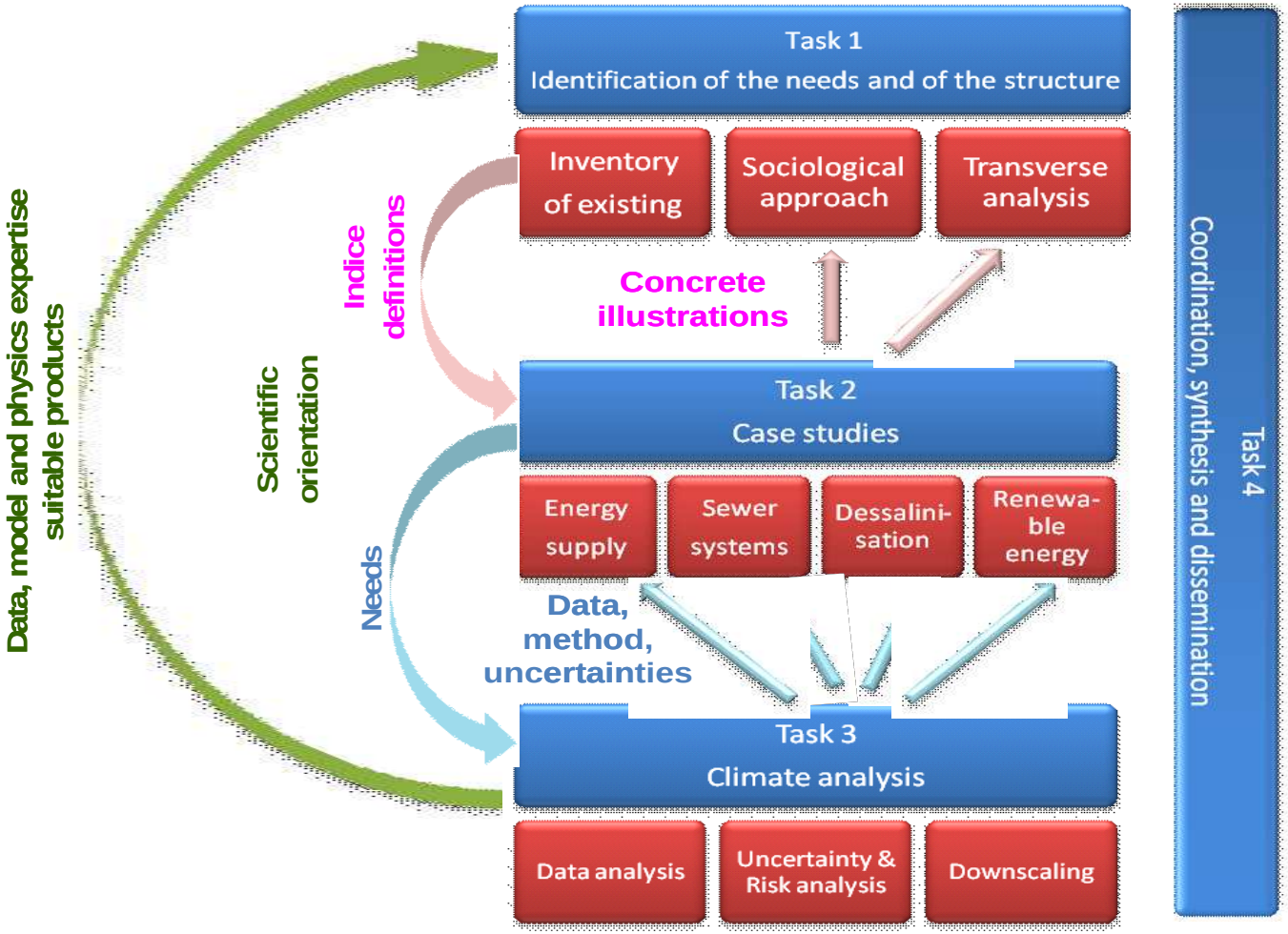
Towards a climate service for industry (energy, water)

- Objectives: Upstream research for the definition of a dedicated climate service (needs, type of products, organization)

- Consortium:
  - ✓Industry/compagny: EDF; Veolia Eau; Veolia Environnement
  - ✓PMEs: CLIMPACT; ARIA
  - ✓Climate experts: IPSL; CNRM/Météo-France; CERFACS
  - ✓Link research/industry: IDDRI
  - ✓Sociology experts: INRA Strasbourg

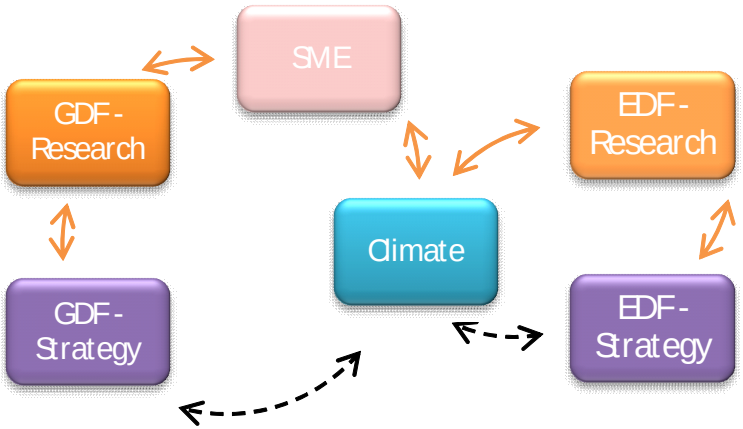
And other contribution (water agency …)

Project organisation

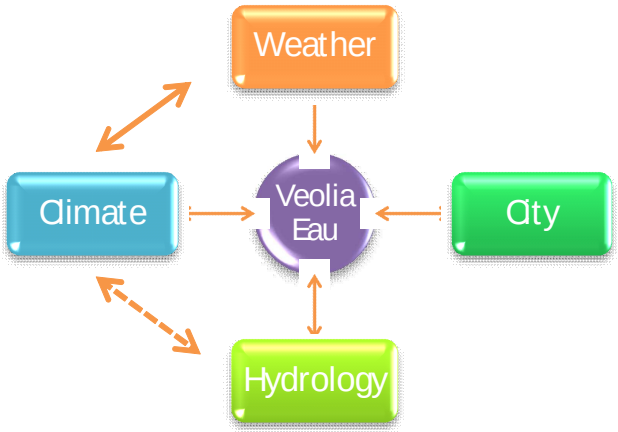


Different models for interactions between partners

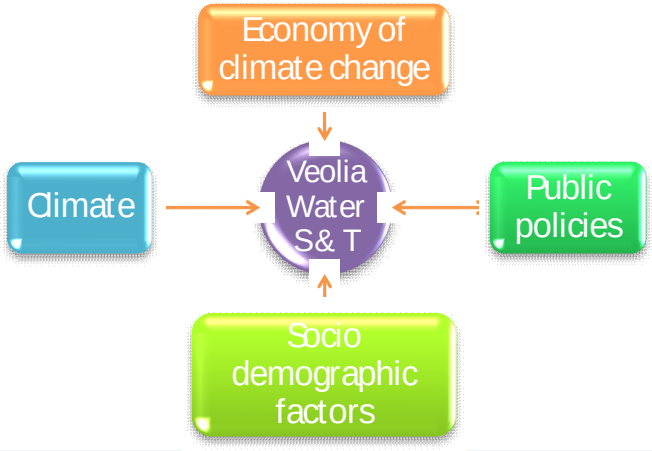
Energy supply



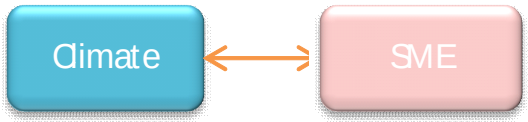
Sewer system



Desalinisation plant



Renewable energy



Specific aims

- National organization/coordination of research institutes to face the growing user demand
- Better integration of climate information in business plans and activity
- Role of PME and other non academic partners in these services

Objective of the meeting

- Provision of climate services to the industry, an overview
- Which climate information for industrial adaptation strategies?
- Needs for climate services and answers to requests, current and future practices
- Which future organisation at the national level?

Agenda

Morning

- **Session 1 : Climate services in different countries**
  - **Presentations + discussion**
- **Session 2 : Adapation strategy in different sectors**
  - **Presentation + discussion**

Lunch break

Afternoon

- **Table 1 : Needs for climate services**
- **Table 2 : Organization at the national level.**

Conclusion