

# **Climate Research within the EC Framework Programmes**

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# EU research: the story so far

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- **1952:** ECSC treaty; first projects started March 1955
  - **1957:** EURATOM treaty; Joint Research Centre set up
  - 1983:** ESPRIT programme
  - 1984:** **First** Framework Programme (1984-1987)
  - 1987:** 'European Single Act' – science becomes a Community responsibility;  
**Second** Framework Programme (1987-1991)
  - 1990:** **Third** Framework Programme (1990-1994)
  - 1993:** Treaty on European Union;  
role of RTD in the enlarged EU
  - 1994:** **Fourth** Framework Programme (1994-1998)
  - 1998:** **Fifth** Framework Programme (1998-2002)
  - 2000:** European Research Area
  - 2002:** **Sixth** Framework Programme (2002-2006)
  - 2005:** Proposal for the **Seventh** Framework Programme (2007-2013)

# The Historical Perspective of EU Climate Change Research

- FP3 & 4:** Research on ecosystem functioning, climate and environment protection technologies
- FP5:** Integration of the environmental dimension in research; more attention to climate change, water, coastal integration and urban dynamics
- FP6:** Sustainability to be integrated in all areas of research, especially Energy, Transport and Agriculture
- FP7:** Sustainable management of the environment and its resources, functioning of climate and the earth system, development of new technologies, tools and services

# The 6th Framework Programme

- FP6 (2002-2006) is the main instrument of the EC to implement the European Research Area (ERA), a new approach for European and international collaboration.
- Implementation mainly through new instruments: Integrated Projects (IP) and Networks of Excellence (NoE).
- The FP6 is open to partners around the world.

# The 3 interrelated pillars of FP6 Priority 6: Sustainable Development, Global Change and Ecosystems

- Sustainable energy systems (810 M€): clean energy, energy savings, alternative motor fuels, fuel cells, energy carriers/transport/storage
- Sustainable surface transport (610 M€): environmentally friendly transport, interoperability, safety
- Global change and ecosystems (700 M€): greenhouse gas emissions, water cycle, biodiversity and ecosystems, natural disasters, land management, climate observation, complementary research, cross-cutting issues



# Work Programme on Area I

## Impact and mechanisms of greenhouse gas emissions and atmospheric pollutants on climate, ozone depletion and carbon sinks

### Research priorities

- I.1 Carbon and nitrogen cycles: sources and sinks
- I.2 Atmospheric pollutants and their regional impacts
- I.3 Climate dynamics and variability
- I.4 Prediction of climate change and its impacts
- I.5 Stratospheric ozone and climate interactions
- I.6 Adaptation and mitigation strategies



# FP6 Climate Research Projects 1st Call for proposals, 2003

- ENSEMBLES – IP: Ensemble-based Predictions of Climate Changes and their impacts
- SCOUT-O3 – IP: Stratosphere-Climate Links with emphasis on UTLS
- ACCENT – NoE: Atmospheric Composition Change: A European Network
- CARBOEUROPE – IP: Assessment of European Terrestrial Carbon Balance
- CLARIS-SSA: A Europe-South America Network for Climate Change Assessment and Impact Studies



# CLARIS Specific Support Action

## A Europe-South America network for climate change assessment and impact studies

- Objective: to strengthen collaboration between research groups in Europe and S. America to develop common research strategies on climate change and impact issues in the subtropical region of South-America through a multi-scale integrated approach
- Coordinator: J.-P. Boulanger, CNRS, France
- Partners: 14 from France, Germany, Argentina, Brazil, Italy, Spain, Uruguay and the Netherlands
- EC support: 500 K€
- Duration: 36 months
- Starting date: 1 July 2004





# FP6 Climate Research Projects 2nd Call for proposals, 2004

- CARBOOCEAN – IP: Marine carbon sources and sinks assessment
- AMMA – IP: African monsoon multidisciplinary analysis
- QUANTIFY – IP: Quantifying the climate impact of global and European transport systems
- DYNAMITE – STREP: Understanding of the Dynamics of the Coupled Climate System



# AMMA Integrated Project

## African Monsoon Multidisciplinary Analysis

Duration: 5 years

EC support: 13 M€ (Total costs: 37 M€)

Objective: to improve the ability to predict the West African monsoon (WAM) and its impact on intra-seasonal to decadal timescales as well as the consequences of climate change on WAM variability.

Coordinator: J. Polcher, CNRS, France

Partners: 57 from France, Germany, UK, Spain, Italy, Denmark, Belgium, the Netherlands, Finland, Niger, Senegal, Mali, Benin, Guinea, Ghana, Nigeria and Burkina Faso



# FP6 Climate Research Projects 3rd Call for proposals, 2005

- MILLENIUM-IP: European climate of the last millennium
- NITROEUROPE-IP: Nitrogen cycle and its interaction with c-cycle
- DAMOCLES-IP: Developing arctic modelling and observing capabilities for long term environmental studies
- ADAM-IP: Adaptation and mitigation strategies: supporting European climate policy
- OOMPH – STREP: Organics over the Ocean Modifying Particles in both Hemispheres
- MAP – STREP: Secondary Marine Aerosol Production from Natural Sources



# FP6 Climate Research projects 4th Call for proposals, 2006

- EUCAARI-IP: Aerosol cloud climate and air quality interactions
- WATCH-IP: Water and global change
- CIRCE-IP: Climate change and impact research - The Mediterranean Environment
- CLAVIER-STREP: Climate change and variability - Impact on Central and Eastern Europe
- CECILIA-STREP: Central and Eastern Europe climate change impact and vulnerability assessment
- HYMN-STREP: Hydrogen, Methane and Nitrous Oxide
- CARBONorth-STREP: The Carbon budget in Northern Russia



# CLIMATE CHANGE - POST 2012

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Communication from the EC (February 2005) :  
“Winning the Battle Against Global Climate Change”

**Challenges :** More drastic GHG reductions will be needed  
max. 2°C increase, max. 450 ppmv, -50 to 60% by 2050

- **Participation Challenge:** Include all major emitters
  - share of EU-25 in world GHG emissions will decline to <10%
  - share of developing countries will expand to >50%
- **Innovation Challenge**
  - *Pulling technological change:* Stimulate markets to promote generation and adoption of new technology
  - *Pushing technological change:* Invest in knowledge economy (Research) to give EU a competitive edge in a low carbon future
- **Adaptation Challenge**

# European Commission-DG Research contributions to UNFCCC meetings

- A. Side event on “**vulnerability of coastal zones to climate change**”, during the UNFCCC **COP-10** in Buenos Aires, 10 December 2004
  
- B. Side event on “**regional climate modelling and impacts**” during the UNFCCC **COP-10** in Buenos Aires, 13 December 2004
  
- C. Side event on “**ice and ocean changes off Greenland**” during the UNFCCC **SBSTA-22** in Bonn, 24 May 2005
  
- D. Side event on “**climate change predictions, impacts and adaptation**”, UNFCCC **COP-11** in Montreal, 28 November 2005



EUROPEAN  
COMMISSION

Community research

Building a  
**Europe** of  
Knowledge

Towards the  
**Seventh**  
Framework  
Programme  
2007-2013

# What's new?

Main new elements compared to FP6:

- **Duration** increased from five to seven years
- More than 50% increase in the annual **budget**
- Basic research (~ €1.5 billion per year)
- New **structure**: cooperation, ideas, people, capacities
- Flexible funding schemes
- Joint Technology Initiatives
- Simpler procedures
- Logistical and administrative tasks → external structures

**Towards FP7**



# FP7 2007 –2013 | Specific Programmes

*Cooperation* – Collaborative research

*Ideas* – Frontier Research

*People* – Marie Curie Actions

*Capacities* – Research Capacity

+

JRC (non-nuclear)

JRC (nuclear)

Euratom

**Towards FP7**

# Cooperation – Collaborative Research

## Nine themes

1. Health
  2. Food, agriculture and biotechnology
  3. Information and communication technologies
  4. Nanosciences, nanotechnologies, materials and new production technologies
  5. Energy
  6. Environment (including climate change)
  7. Transport (including aeronautics)
  8. Socio-economic sciences and the humanities
  9. Security and space
- + Euratom: Fusion energy research, nuclear fission and radiation protection

## 6. Environment (inc. climate change)

- Climate change, pollution and risks
- Sustainable management of resources
- Environmental technologies
- Earth observation and assessment tools

# Environment (inc. climate change)

- Support EU International commitments such as:
  - Kyoto Protocol
  - UN Convention on Biological Diversity
  - World Summit on Sustainable Development
- Contribute to:
  - Intergovernmental Panel on Climate Change (IPCC)
  - Global Earth Observation Initiative (GEO)
  - International Programmes (WCRP, IGPB, etc.)
- Contribute to EU policies such as:
  - 6th Environmental Action Plan and associated Thematic Strategies
  - Action Plans on Environmental Technologies and Environment and Health
  - Water Framework Directive

# Environment (inc. climate change)

- Climate change, pollution and risks
  - Pressures on environment and climate
  - Environment and health
  - Natural hazards
- Sustainable Management of Resources
  - Conservation and sustainable management of natural and man-made resources
  - Evolution of marine environments

# Environment (inc. climate change)

- Environmental Technologies
  - Environmental technologies for observation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
  - Technology assessment, verification and testing
- Earth observation and assessment tools
  - Earth observation
  - Forecasting methods and assessment tools

# Pressures on Environment and Climate Specific Programme

Integrated research on the functioning of climate and the earth system is needed in order to observe and analyse how these systems evolve in the past and predict their future evolution. This will enable the development of effective adaptation and mitigation measures to climate change and its impacts. Advanced climate change models from the global to sub-regional scales will be developed and validated. These models will be applied to assess changes, potential impacts and critical thresholds (e.g. ocean acidification). Changes in atmospheric composition and in the water cycle will be studied. Pressures on environmental quality and on climate from natural and anthropogenic pollution of the air, water and soil will be investigated.

# Pressures on Environment and Climate Work Programme

1. The Earth System and Climate: Functioning and abrupt changes
2. Emissions and Pressures: Natural and anthropogenic
3. The global carbon cycle – Greenhouse Gas budgets
4. Future Climate
5. Climate Change Impacts
6. Response strategies: Adaptation, Mitigation, Policies



# Pressures on Environment and Climate (2007)

1. The Earth System and Climate: Functioning and abrupt changes
  - Stability of the thermohaline circulation

*Expected impact: Quantification of the risk, time horizon and possible scenarios for THC breakdown.*

2. Emissions and Pressures: Natural and anthropogenic
  - Megacities, air quality and climate

*Expected impact: Better quantification of air quality and more reliable tools for prediction of air pollution in cities. Support to CAFÉ programme and AQ regulation. Better quantification on regional and global impacts of megacity air pollution.*

# Pressures on Environment and Climate (2007)

## 3. The global carbon cycle - Greenhouse gas budgets

- Ocean acidification and its consequences

*Expected impact: Impacts and feed-backs of ocean acidification on ocean ecosystems and the carbon cycle should be studied and better described in coupled ocean-climate models.*

## 4. Future Climate

No topic for 2007

# Pressures on Environment and Climate (2007)

## 5. Climate Changes Impacts

- ERA-NET climate change and its impacts in national water policies

Expected impact: To provide integrated information on national research activities related to the water policies that take into account climate change and its influence; to contribute to the definition of related research needs by set up a coordinated common strategy.

- Climate change impacts on vulnerable mountain regions

Expected impact: Expertise and integrated models applicable to other mountain regions of the world.

# Pressures on Environment and Climate (2007)

## 5. Climate Changes Impacts (continued)

- Past and future climate change impacts in Parana-Plata basin of South America

Objective and research tasks: Observations and modelling studies at both regional and continental scale to quantify past and predict future climate changes and impacts in the Parana-Plata basin. Emphasis in climate change impacts should be given to floods, hydrological systems, land-use and agriculture, deforestation and needs to assess the social and economic implications. Adaptation measures to future climate risks and impacts should be also considered.

Expected impact: Strengthening of the cooperation between European and South American multidisciplinary research communities by studying climate change impacts in a basin which largely involves the greater part of the population, economy, agriculture, hydropower production of five major South America countries.

# Pressures on Environment and Climate (2007)

## 6. Response strategies: Adaptation, Mitigation, Policies

- Full costs of climate change

Expected impact: More complete, updated assessment of cost of mitigation, adaptation and damage of climate change including air-quality co-benefits. Support for EU policies on climate change in international negotiations and air pollution policy.

- Effectiveness of adaptation and mitigation measures related to changes of the hydrological cycle and its extremes

Expected impact: Assessment of the efficiency of current and future adaptation and mitigation measures to hydrological changes and related extremes. Support for EU and non-EU research activities and policies as a response to climate change, in particular on adaptation.

- Impacts and feedbacks of climate policies on land use and ecosystems in Europe

Expected impacts: Assessment of the efficiency of current and future land use adaptation and mitigation processes, including Carbon sinks. Identification of the adaptation induced by policies, in particular as a response to Common Agricultural Policy, Rural development Strategy, Forestry related measures and in general EU policies on climate change.

# Ideas – Frontier Research

## ERC – European Research Council

### Commission

### Scientific Council\*

- Approval of work programme, as defined by the Scientific Council

- Preparation of work programme
- Set up of peer review: pool of reviewers, nomination of review panels, evaluation guidelines
- Oversight of the evaluation procedure
- Annual scientific report

- Instruction to implement work programme

- Information and support to applicants
- Reception / eligibility of proposals
- Organisation and execution of evaluation
- Selection decision
- Scientific and financial follow-up of contracts
- Annual implementation report

- Approval of annual implementation report

- Information to programme committee

### Externalised tasks\*\*

\* Created by Commission decision  
\*\* Under the responsibility of the Commission

# People – Marie Curie Actions

- Initial training of researches
  - Marie Curie Networks\*
- Life-long training and career development
  - Individual Fellowships
  - Co-financing of regional/national/international programmes
- Industry-academia pathways and partnerships
  - Industry-Academia Knowledge-sharing Scheme\*
- International dimension
  - Outgoing & Incoming International Fellowships
  - International Cooperation Scheme
  - Reintegration grants;
  - Support to researcher ‘diasporas’
- Specific actions
  - Mobility and career enhancement actions
  - Excellence awards

\* Open to third-country nationals

# Capacities – Research Capacity

1. Research infrastructures
2. Research for the benefit of SMEs
3. Regions of Knowledge
4. Research Potential
5. Science in Society
6. Activities of International Cooperation
7. Coherent development of policies



# Tentative Roadmap for FP7

## 2005

- 6/4 Commission - Adoption of FP7 proposals
- 18/4 Council - Exchange of views
- 7/6 Council - Orientation debate
- 21/9 Commission - Proposals on SPs and Rules for participation and dissemination
- 11/10 Council - Exchange of views on SPs and Rules
- 23/11 Commission - Proposals under Articles 169 and/or 171
- 28-29/11 Council - Orientation debate on SPs and Rules
- 12-15/12 EP - 1st reading on EC FP. Opinion on Euratom FP

## 2006

- Feb/Mar Council - Common position on EC FP  
EP - 1<sup>st</sup> reading on EC Rules. Opinion on Euratom Rules.
- April Common position on EC Rules
- May/June EP - 2<sup>nd</sup> reading on EC FP; Opinion on SPs; 2<sup>nd</sup> reading on EC Rules (earliest)
- June Council - Adoption of FP and Rules (earliest)
- July Council and EP - Adoption of FP and Rules
- July Council - Adoption of the SPs
- Oct Commission - Adoption of Work programmes and necessary materials
- Nov Commission - Publication of 1<sup>st</sup> calls

# Information

- EU research:  
<http://europa.eu.int/comm/research>
- Seventh Framework Programme:  
[http://europa.eu.int/comm/research/future/index\\_en.cfm](http://europa.eu.int/comm/research/future/index_en.cfm)
- Information on research programmes and projects:  
<http://www.cordis.lu/>
- RTD *info* magazine:  
<http://europa.eu.int/comm/research/rtdinfo/>
- Information requests:  
[research@cec.eu.int](mailto:research@cec.eu.int)

