CIRED

sciences de l’environnement
CIRED was founded in 1971 by I. Sachs to explore environment-development harmonization strategies, later called sustainable development.

The challenge was to represent explicitly the dynamic links between economic growth regulation and the material impact of technological patterns. Working on public policy (applied to energy, waste, transport, water, food...), CIRED has dealt mainly with global environmental issues – ozone, acid rain, climate change - and the pragmatic application of the precautionary principle since the late 80’s.

Created within EHESS (1971), CIRED has been part of CNRS since 1979. Its other tutors have integrated CIRED in their research and training set-up, firstly CNRS (1980), ENGREF (1997) then École des ponts (2001) and CIRAD (2005). In 2006, Météo France established a research convention with CIRED.

CIRED aims at accumulating knowledge and at being an intellectual actor on the sustainable development issues. Its long run itinerary has helped CIRED to build an experienced expert capacity and to act as a catalyst in some networks:

- Master Économie du Développement Durable, de l’Environnement et de l’Energie (EDDEE)1;
- GIS R2DS-IDF2 created for the Conseil Régional Île-de-France and directed by J.-C. Hourcade;
- GIS LARSEN supported by EDF to work on the electric system regulation directed by D. Finon;
- RTI Sécante working on the non linear dynamics under the responsibility of S. Hallegatte;
- GIS « Climat-Environnement-Société », coordinated by IPSL (University Paris IV)3.

Key facts in 2007

IMACLIM-R model

CIRED largest and most sustained effort has delivered its best outlets. It has been developed in 12 world regions and 12 economic sectors. It has been coupled to the WEM of the International Energy Agency (IEA, Paris) as a contribution to the simulations published in its regular book, World Energy Outlook (IEA, 2007). It revisits the economic and energy trajectories up to 2030 for China and India to such an extent that the global dynamics are modified. J.-C. Hourcade, R. Crassous (IGREF), O. Sassi (IPC), C. Guivarch (IPC) and H.-D. Waisman (ENS Lyon) have been the main producers of this prominent programme within CIRED. Within GIEC, a collaborative effort joins CIRED together with IIM (India) and COPPE (Coordenação de PósGraduação e Pesquisa de Engenharia - Universidad Federal do Rio de Janeiro, Brazil) on country IMACLIM applications.

2 Tutored by CNRS, this GIS brings together 70 teams from 15 universities, “Grandes écoles” and laboratories.
3 This GIS consists of 14 laboratories in the Île-de-France Region. It is based on the Institut Pierre-Simon Laplace (IPSL), with its 5 laboratories (CETP, LMD, LOCEAN, LSCE, SA) working on the Earth global environment sciences. Additional linkages bear on the ecological areas (ESE, BioEMCO), the economy (CIRED, PREG, C3ED), the air quality (LISA), the hydrology (SISYPHE), and the health (PIFO).
R2DS
Catherine Boemare has assisted CIRED’s director to coordinate the first fully fledged year of the « Réseau régional sur le développement soutenable » created by the Île-de-France Region (IdF) in 2005. In March, the IdF Region has launched officially the R2DS programme by convening in its Paris hemicycle a conference on “The sustainable development in Île-de-France and the climate change risks”. The conservation and the development of the ecological functions has been a prominent problematic across the series of programmes selected by the first call for research proposals. No less than thirty doctoral and post-doctoral fellowships have been allocated also in 2007 within a total budget of 3.5 millions euros, which makes quite a different setting for the region research activities [http://www.r2ds.centre-cired.fr]. A meeting was convened by R2DS at the École des ponts site in Paris: “Is the urban sprawl sustainable. Understand and act”. In 2008, R2DS plans to launch a seminar opened to all Île-de-France doctoral research teams, a publication series and an online journal so as to disseminate the R2DS research results within its seventy teams and beyond towards all civil society concerned actors.

Others Key Facts
Minh Ha-Duong has launched an online national forum around the capture and geological sequestration of CO₂ as a contribution to two research programmes. He is coordinator of SOCCECO₂ financed by the ANR and a member of METSTOR (ADEME, coordinated by BRGM).

Through the 2006 Convention with Météo France, S. Hallegatte has done one research project with Southampton University and Risk Management Solutions. It led to an OECD publication, assessing the centennial inundation risk. 40 million persons are at risk in the 136 harbours with more than one million populations in 2005, whereas they would be 150 millions in 2070. The wealth at risk would be 10 times higher, reaching 9% of the 2070 world GNP. Detailed studies on Copenhagen and Mumbaï are to follow up.

In July 2007, V. Gitz (IGREF) shifted from CIRED (where he was head of CIRAD cell) in order to enter within the Cabinet of the newly designated Minister of Agriculture. This happened shortly after he was selected for the award of the best PhD thesis work by Le Monde. The peace Nobel Prize was awarded to the IPCC in Autumn. This is a confirmation of how well inspired was J.-C. Hourcade in 1992 when he decided to enter to the preparation of the SAR (1995) and to the following ones as convening author. He was accompanied by D. Finon (SAR, 1995), É. Fortin (TAR, 2001) and M. Ha-Duong (FAR, 2007). In the FAR (2007), M. Ha-Duong has dealt with the uncertainty issue in Group III. R. Crassous (IGREF) and S. Hallegatte (Météo France) have belonged to the French delegation which approved the conclusions of the FAR (2007) at Paris (January), Brussels (April) and Bangkok (May), Valencia (November).

RESEARCH THEMES
The articulation between short and long run is crucial to the sustainable development problematic. A prospective standpoint is thus required to bring the new analytical tools and the coordination and decentralization processes in the decision making. CIRED has created the capacity to work on this articulation, with a special emphasis on three crucial areas:
– the energy;
– the urban and rural infrastructures (building, transports, and water networks);
– the agricultural and forestry activities.

1. Prospective of links between growth, development styles and the extraction of natural capital resources
Leading investigator: Olivier Sassi

2. Costs of environmental impacts, vulnerability and adaptation policies
Leading investigator: Stéphane Hallegatte

3. The integrated economy-earth system modelling: a case of economy without equilibrium
Leading investigator: Renaud Crassous

4. Decision in the context of controversies and the precautionary principle
Leading investigator: Minh Ha-Duong

5. The public economy tools for sustainable development
Leading investigators: Dominique Finon & Philippe Quirion

6. Political economy of deliberation and negotiation
Leading investigator: Jean-Charles Hourcade

1- Prospective of links between growth, development styles and the extraction of natural capital resources
In order to integrate the links between the economy, the techniques and the environment, the economic modelling has to address the challenge of designing tools for representing in a better way, the following issues:

- The dynamic links between growth and development styles [on consumption (C), technologies (T) and spatial pattern (S)]; this requires an endogenous growth model articulated with a description of the technical content of development;

- The links between the balances of both physical quantities and their corresponding value measurements. What is at stake is the coherence between the engineers’ visions and the economists’ forecasting so that both have an internal and a cross consistency;

- The heterogeneous decision making patterns across agents and across sectoral dynamics and institutional settings; the routine recourse to the perfect anticipation hypothesis does not hold
when we are in front of a sea of uncertainties and price signals become volatile, ambiguous and time horizons are extended;

- The disequilibria resulting from anticipation failures; the techno-economic inertia hinders a rapid correction. We need to represent economies out of their optimal path so as to study their vulnerabilities and to grasp the real potentials of no-regret strategies.

1.1. The IMACLIM-R model

IMACLIM-R is a long run recursive world multisectoral model. It aims at fulfilling these terms of reference by an iterative go and return process between the macro-economic core and the sectoral modules, called Nexus, which are reduced forms of more disaggregated sectoral models.

This tool is designed firstly to explore several global challenges: development styles and energy tensions; impacts on competitiveness and on capital and labour flows of environmental, energy and agricultural policies; synergies between de-carbonization scenarios and a sustainable development strategy which takes into account the existing obstacles in developing economies (energy security, social dualism, poverty); integration of the links between demography, savings and capital flows (the later is done in collaboration with the Ingeneum team of CEPII).

This programme has currently three main outlets:
- Support the World Energy Outlook forecasting exercise published by IEA; coordinate a consortium (with Brazil, China and India teams) for the next generation of IPCC scenarios (i.e. beyond the 2007 Fourth Climate Assessment);
- A prospective exploration of the industrial consequences in the framework of FONDRI and in collaboration with LEPPI and Enerdata (Grenoble, France).
- An additional series of research works consists in applying Nexus modules to specific domains.

1.2. Nexus Agriculture/Land uses

Linking the food, energy and climate issues requires being able to describe the impacts of food, energy, biodiversity and carbon storage objectives:

- On the crop and animal production sectors (and their various associated agro-system management technical patterns), on the managed forests or on the primary tropical forests;
- On the long run land use transformations linked to the water use constraints;
- On the formation and circulation of rents (among the family or business agriculture, urban or rural households, etc.) from the land to the good and service delivery.

These projects are associated to the programme AGRIMONDE on the world agricultural prospective up to 2030, launched in 2007 jointly by CIRED and INRA.

1.3. Nexus Urban/Transport

Urban infrastructures typically absorb more than half the savings capacity of a country and they bear heavily on the behaviours (concerning mobility, heating, air conditioning) which make the brunt of the energy needs and environmental impacts. Their turnover times are very long and the heavy investment costs of their retrofitting in case of an energy price shock or of a carbon cost is at the root of an irreversibility dimension combined to a potential lowering effect on the purchasing power of the household income. The high growth rates of urban infrastructures in the metropolitan areas of the South make it all the more crucial to be proactive if lock-in effects are to be avoided. The modelling tool aims at representing the micro-economic foundations of the urban system dynamics so as to take into account command variables other than the energy price, such as the architectural norms and the land value or infrastructure policies. It also aims at catching the impacts on the local environmental footprint, on the social stratification of the urban space and of the financing constraints.

A third set of projects consists in developing country applications of the Urban/Transports IMACLIM-Nexus models. In France, it is supported by EDF and ADEME. Projects are explored with COPPE (UFR) Federal University of Rio de Janeiro) for Brazil, with the Beijing Energy Research Institute for China and with the Indian Institute of Management of Ahmedabad for India.

2. Costs of environmental impacts, vulnerability and adaptation policies

Concerning the environmental cost issues, there is a permanent balance between the imperative of a monetary assessment (because any euro spent on environment crops out other expenses) and its rejection, either because of uncertainties or of ethical reasons. We often insist on the fact that the social cost is highly dependent on the vulnerability of the impacted society. The issues at stake here are the capability on forecasting, on managing the alert, the solidarity and the insurance mechanisms, as well as the economic growth potential to compensate for the negative impacts.

2.1. Extreme climate events and natural catastrophes

In order to grasp how vulnerable societies are to events such as El Niño, to the 2003 heat-wave in Europe or the Katrina cyclone, we focus our efforts on:

- Damage amplification factors: we study how the repetition of several extreme events can make them become an obstacle to development, either because of the infrastructure reconstruction inertia (lack or delay of aid finance, dearth of qualified labour force, organizational constraints) or because of disequilibria macro-economic transmission effects.

- Measuring local vulnerability thresholds to study the link between the average climate and the catastrophe occurrence. The climate change puts into question the conventional methods based on the statistical analysis of supposedly stationary observed data.
2.2. Adaptation to climate change and impact assessments

The climate change cost is the addition of the adaptation cost and the cost of the residual negative impacts that the adaptation measures will not be able to avoid. The infrastructure adaptation costs should take into account the uncertainty factor that is created by the climate change itself, all the more so as the local climate is constantly prone to grow even less predictable than globally. The following domains are to be considered:

2.3. Agro-systems

Nexus Land-Use is used in addition to other tools (agronomy models and climate models) designed by LMD, LSCE and INRA. They are used to assess how the world agriculture can adapt themselves to their modifying climate contexts, at the continental scale and with a focus on the irrigation constraint. What could be the trajectories of the cropping techniques and of the land use in order to adapt to changing climate contexts? How sustainable could be the economic dynamics for the survival of vital activities such as the cotton crop in West Africa (AMMA project with LMD)?

2.4. Urban infrastructures

The urban habitat and networks form an intricate system of man-made infrastructures which have been designed so as to fit to given stable climate conditions. How vulnerable will they be in front of changing climate conditions depend on the challenge to adapt each component to an ever changing climate prospect. We examine components such as the potential adaptation measures (concerning isolation, air conditioning for habitat and for the underground transport system, etc.). We also want to take into account the macro-economic wealth effect of the potential loss of value of the built capital.

2.5. The segmentation versus mutualisation of global risks

How do the new global risks (natural catastrophes, terrorism, epidemics) affect the public-private partnership in managing the insurance? What trade-offs between private market segmentation of risks and public mutualisation? How voluntary or compulsory, temporary or permanent insurance tools can keep or increase the preventive and pro-active management of risk by information sharing, etc...?

2.6. Value of the meteorological information and proactive strategies

Whereas some traditional precautionary behaviours are dropped, the natural risks are less and less accepted and the protection demand is increasing. It is crucial to measure the risks so as to select the most efficient preventive costs allowing to go beyond the “reactive” behaviour. In front of an increasing climate uncertainty, it is advisable to focus on the link between the meteorological information (how it is produced, publicized and diffused) and its value for some climate dependent economic sectors (power, agriculture, tourism, transport and garment industry). CIRED is linked to MetNext, a start-up of Météo France and to EuroNext, which sell meteorological information to enterprises.

3. The integrated economy-earth system modeling: a case of economy without equilibrium

This is part of the integrated modelling literature which was developed to provide a common frame for analyzing the cost and benefit of (climate) policies. Our approach consists in interfacing reduced forms of economy models, natural cycle models and climate models so as to focus on two major problems:

- Detect and control non linear dynamics which might result from the modelling interface between systems governed by highly heterogeneous laws concerning inertia and time variables. As shown in the ocean-atmosphere case, one should not put together ready pre-existing models without the prior identification of the potential “surprises” that might result from non linear dynamics. We limit ourselves here to designing common analytic frameworks or precise translation languages (of the mini-ker type) between models.

- Designing growth models whereby disequilibria act as the economic engine of integrated models. It is crucial to deal with sustainable development by re-opening the concept of designing transition states towards a stabilized growth path, as the need was stressed by the founding fathers of the general equilibrium approach (Solow, 1988; Arrow, 1989). The key issue is to link the short run (of endogenous cycles or external shocks) to the long run trends, so as to study how the real world economies ridden with technical and institutional frictions are more vulnerable to environmental or unanticipated shocks than the economies assumed in the conventional equilibrium model.

The NEDyM (Non-Equilibrium Dynamic Model) has been designed on the same concepts as IMACLIM to be interfaced with reduced forms of environmental impact models and resource models (focussing on energy or water). What is at stakes here is the capacity to understand why and how some regions of the world stay aside the rest of the growing world economy (poverty trap, large population belonging to the informal sectors).

4. Decision in the context of controversies and the precautionary principle

The sustainable development policy decisions have essentially to be taken much before we get the full information we would need for that matter. A key part of the problem is the inertia-uncertainty couple, as without inertia the adaptation could be carried with negligible corrective costs. From this viewpoint, we aim at a normative analysis of the precautionary principle which must be seen neither as a pre-emption of the future by the present, nor as a dictatorship of the future on the present in the name of the future generations.

The problematic consists in assuming a benevolent planer constrained by imprecise information and controversies on the environmental risks and on the relative efficiency of the various technological and institutional answers. He must propose response strategies taking into account the preferences of all members of his constituency. A first set of models are optimal control models
with expected utility and Bayesian revision of expectations as new information come up with time.

The Response model is a follow-up to the Diam and Start models. It is a compact integrated model designed for analyzing the climate policy timing. It consists in a compact economy growth module with emission abatement cost curves, a carbon cycle module and a climate response module. It incorporates the specific inertia at play and the environmental and technological irreversibility effects. This model can be applied to analyze how differing viewpoint sets on the intergenerational solidarity, or on the risk aversion degree or on the information uncertainties have an effect on a set of issues such as the carbon price time trajectory, the timing of the various forms of sequestration (be it biological, geological or oceanic), the abatement policies on GHG other than CO₂ or the respective weight given to decarbonisation (mitigation) or adaptation policies. The latter are characterized by two sets of uncertainty on concentration targets and on the potential for higher returns due to learning or scale economies on adaptation costs.

A second approach in this programme consists in avoiding the methods which aggregate the expert opinions by averaging their subjective probabilities. A majority of opinions might be subject to a dependency bias in favour of the average view, which is bound to flood out the views of the dissenting minority. The imprecise probability approach works on plausibility intervals and non additive fusions of expert opinions, which respect better the coexistence of mutually non compatible viewpoints.

5. The public economy tools for sustainable development

The sustainable development problematic requires to revisit the public economy toolbox: very long time horizons, scientific controversies, future generations are a crucial stakeholder which is absent or under-represented, interactions between institution dynamics and system dynamics, weight of general equilibrium effects in open economies.

5.1. Infrastructural networks for energy, transport, water must cope both with the market deregulation and the public service constraints and environmental imperatives

The introduction of competition and private ownership regimes in the infrastructure industries coincides with the widening of public policy objectives which bear on them: the environmental protection is coming to the forefront as an add-up to the pre-existing social and territorial equity issues and to the supply security.

The multiple policy objectives make it all the more difficult to coordinate long run anticipations in very capital-intensive industries characterized by discontinuous development cost curves and large technological lock-in effects. Firstly the volatile market signals shorten the decision time horizon and make it more necessary that the public authorities carry a coordinating task to ascertain the peak load supply security for non-storable goods (electricity, transport service); in effect the capacity to supply is a collective good. Secondly, the very nature of sustainable development constraints imposes other technological imperatives for the long run reshaping of material systems and brings into the regulation an element of arbitrary intervention.

A first set of research works deals with the sustainability of the liberalization reforms in the electricity and gas sectors. It implies to revisit how the market can articulate both the short and long run efficiency objectives. The former market efficiency deals with the short run surplus sharing between producers and consumers and is at the core of the modern public economics. The latter long run market efficiency requires both market contestability and securing investment (long run contracts, vertical integration, oligopolies) on volatile markets. A comparative historical approach of institutions is needed to shed light on how the liberalization reform content and efficiency depend on the pre-existing setting, as we are testing in the European Union and in developing countries for electricity and water cases.

A second set of research works revisits the contract theory in various settings encompassing multiple periods, objectives and risks. The question is whether public policies can be designed for promoting stable compromises between various objectives (environment, health, security, basic needs, industrial competitiveness), generally decided by principals belonging to several decision making levels (local, national, European, global). In the case of energy, what is at stakes is the static and dynamic efficiency of the piling up of specific tools meant for integrating various objectives: either climate (carbon markets), energy efficiency (white certificates, standards), innovation (green certificates), balance between territories (cost balancing) and the redistributive tools (subsidies, preferential prices).

5.2. Resource management and sharing and the sustainability of water services

The management of the water resource and services has become an issue debated in all countries. A first issue is about the quantitative prospects of an increasing demand whereas the climate change is bound to make the resource less predictable. A second set of issues deal with the financing modes of the maintenance and the extension of potable water supply networks and sewage networks.

The environmental engineering offers new solutions by managing the resource demand at the local territory level, whereas the conventional supply-oriented solutions were based on civil and sanitation engineering. The public service policies are put into question in Europe in such a way that they might come nearer to the case of developing countries. While keeping in mind the differing contexts, the analysis must deal with two common sets of approaches.

A first approach must grasp the political, institutional, financial and organizational conditions of the past and future evolution of the water supply and sewage networks and how sustainable the various organizational settings are at their various scales. A second approach considers the UE Water Framework Directive and the anticipated mounting water scarcity and derives from them the imperative to examine the potential of more flexible water sharing between users. The economic calculus offers tool
which can be applied to the technical and past heritage of any regional context, while keeping into account the quantitative and qualitative trade-offs so as to prevent water sharing conflicts. Both approaches are combined when the totality of the water resource is used up, so that each productive use is valued while the potable water has to be preserved.

Our research is applied to France and developing countries (Tunisia, Brazil) and in the Water Scarcity Group (UE), the Water World Board, the UNESCO Hydrological Program and to the scientific networks in charge of the Water agencies of two regions in France (Seine/Normandie and Rhône/ Méditerranée).

5.3. The internalisation of environmental costs has to cope with contextual factors: uncertainties, endogenous technical change and open economy

An implementation gap is hindering the implementation of the public economy recommendations that the environmental costs should be internalized. This gap reflects the thorny trade-off between the long run desired incentive effect and the short run effects in a context of uncertainties, of endogenous technical change and of international competition. Each of these three factors is crucial.

5.4. Choice of coordination instruments

Weitzman has analyzed how the contextual uncertainty has a bearing on the comparative advantage of the various instruments (price, tradable permit markets and norms). When the endogenous technical change is brought into the contextual analysis, it stabilizes the expectations (anticipations). What is at stake is whether this positive stabilization effect can more than compensate the negative risk that the norms bring a higher element of arbitrariness. We also want to shed some light on the potential of hybrid instruments combining quantity with price caps, and also extending the analysis to a wider system (as for instance the role of land and housing prices on the mobility demand). Both the lack of counterfactual scenarios and the regulatory instability itself make it all the more difficult to assess their incentive efficiency. We want to carry an in depth comparative long run econometric study of the price-effects in the energy for transport case; it should deal with irreversibility effects and the asymmetrical response to a given up or down price move.

5.5. Sustainable development policies and international competitiveness constraints

Sharper environmental policies are hindered on the ground of the unequal cost advantage that they risk to bring between countries especially for energy intensive sectors (cement, aluminium, iron industry). We have to analyze how the various potential coordination tools can have an impact on the competition (compensated taxes, free or auctioned absolute emission quotas, technology related quotas). We intend to help clarify the effects when a unique regulatory system is imposed to a heterogeneous set of industries with varying growth rates, capacities to carry cost increases through to prices, abatement potentials, and capital structure (CASE model). This analysis takes into account the strategy opportunities opened to the negotiation at the various scales (country, UE, global). It also integrates issues such as the compliance rules for international agreements and/or the protection rules against very asymmetrical constraints (trade tariffs and WTO rules).

5.6. Environmental policies, social policies and taxation

Ecotaxes can have significant general equilibrium effects on the activity, on employment and on equity. Our models aim at comparing them to the effects of other taxation tools, with a special focus on comparing the impact on the long run objectives at stake: energy security, welfare state financing, local pollution abatement. The IMACLIM-S model type is a static variant of the IMACLIM-R, sharing the same sectoral information (as well as the Case model). The current analysis is focussed on two on-going workshops. Concerning the impact on labour of the chosen mode for recycling the tax revenue, we intend to shed new light on the double dividend debate by adding to it the basic difference between labour and energy input expenses from the cyclical point of view. By decreasing the taxation rate on labour, one alleviates a basic barrier for employers to recruit an additional workforce. In case of a cyclical lowering of activity the energy input cost is adjusting much more flexibly than the labour force.

The redistributive impact of eco-taxes can be positive at the aggregate level, but strongly negative at the scale of the lower-income population living in far away urban outskirts or in low density rural areas for which there is no alternative to the private car. With LVMT partners, we work on assessing the eco-taxes, so as to study the case of lump-sum compensation or exemption as well as their combination with the land tax and/or the housing cost subsidy.

6. Political economy of deliberation and negotiation

CIRED always aims at undertaking both the quantitative analytical modelling work and the institution-oriented work dealing with the public debate and public policy-making. The scientific issues raised by negotiation processes are like a blind spot at the crossing of several approaches: the game theory and the social choice theories are focussing on the sharing of a given surplus, the regime theory in political science deal with the rules and institutions upstream the market place, the managerial sciences conceptualize how the deliberative patterns can modify the agent preferences, and the sociology of science. Our experience is based on a long run research effort in the following areas.

Concerning the water resource, the local and regional management are always more and more articulated with the national policy making and with the supranational rules (health and norms). Concerning the electricity area, we study how the negotiation context can affect the deregulation policy, either in Europe or in developing countries.

Concerning the climate negotiation, we deal with issues such as the optimal scale for an international regime. The uniform versus subsidiary dimension of rules closes or opens autonomy margins at the country, region or sector level. The debate on the compliance rules opens the issues of the links between the climate and other global conventions, of the WTO negotiations and of the reform of international financial flows.
INTERNATIONAL COLLABORATIONS

COOPERATION PROGRAMMES

Apart from the EU Centre of excellence networks, fostered by the European Commission, CIRED sustains collaborative activities with the universities of Stanford, Maryland (Pacific Northwest National Laboratory), MIT, Rio de Janeiro (COPPE), Ahmedabad (Indian Institute of Management), PIK (Berlin) and the FEEM Fondazione Eni Enrico Mattei. A collaboration project CNRS-CSIC 2006-2008 has been signed between CIRED and CSIC (Madrid). Within the integrated actions framework of EGIDE, a 2007-2010 project has been signed between CIRED (France) and LAMOS (Laboratoire de modélisation et d’optimisation des systèmes) Bejaia University (Algeria).

In 2007, we have focussed on our collaboration with the International Energy Agency (IEA) and within IPCC (Intergovernmental Panel on Climate Change), which organizes a concerted effort among more than 3.000 scientists across disciplines and countries.

IMACLIM-R model

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<td>JOZAN R.</td>
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<td>MEUNIER Guy</td>
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<td>WAISMAN Henri-David</td>
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### Research Engineers (6)

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<tr>
<th>Name</th>
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<tr>
<td>BAILLON Jean</td>
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<td>BOEMARE Catherine</td>
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<td>CHAABANE Naceur</td>
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<td>MATARASSO Pierre</td>
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<td>ROGALSKI Michel</td>
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<td>VINAVER Krystyna</td>
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### Assistant Engineers (4)

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<tr>
<td>BELALIMAT Nadia</td>
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<td>HENRY Nadia</td>
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<td>MABIRE Patrick</td>
<td>CNRS</td>
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<td>MARDON Gilles</td>
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### Administrative Staff (2)

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<tr>
<td>SERFATY Yaël</td>
<td>Contractual</td>
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<tr>
<td>TYMA Éléonore</td>
<td>CNRS</td>
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</table>
QUANTITATIVE RESULTS

KNOWLEDGE PRODUCTION

Publications

Articles in Web of science

DEMAYL D., QUIRION P. “European emission trading scheme and Competitiveness: a case study on the iron and steel industry”. Energy Economics (in the press)

FINON D., LOCATELLI C. “Russian and European gas interdependence: Could contractual trade channel geopolitics?”. Energy Economics (Digital Object Identifier)


GUSDORF F., HALLEGATTE S. “Behaviours and housing inertia are key factors in determining the consequences of a shock in transportation costs”. Energy Policy, 35 (6), pp. 3483-3495 doi:10.1016/j.enpol.2006.12.022


Others peer reviewed articles


MATHY S. “Urban and rural policies and the climate change issue: the French experience of governance”. Environmental Sciences, 2007, 4(03), pp. 159-169


Tazdait T., Courtois P.

Tazdait T., Courtois P.
« Formation et développement des accords environnementaux Internationaux : les effets de Leadership ». Négociations, 2007, n° 8, pp. 121-137

Treyer S.
“Changing perspectives on foresight and strategy: from foresight project management to the management of change in collective strategic elaboration processes”. Revue Technology Analysis and Strategic Management (accepted for publication)

Menon-Choudhary D., Shukla P. R., Hourcade J.-C. & Mathy S.

Finon D.

Ha-Duong M., De Guillebon B.

Treyer S.

Hay J., Treyer S.

Others publications

APICELLA L., F. Tallet, S. Hallegatte, Nadaud F.

APICELLA L., Tallet F., Hallegatte S.

Barraqué B.

Bouleau Nicolas

Bouleau N.

Crassous R., Hallegatte, S.

Etchant N.

Finon D.

Hourcade J.-C.
• « Peut-on agir contre le changement climatique ? ». Revue de la CFDT, (83), 2007, pp. 11-19

Hourcade J.-C., Ambrosi P. and Hallegatte S.

Hourcade J.-C., Ghersi F.
« La taxe carbone : une bonne idée à ne pas g. cher ». Dossier Pour la Science, 2007, n°54 ‘Climat : comment éviter la surchauffe ?’, pp. 68-71

Kopf S., Hallegatte S., Ha-Duong M.

Scientific books or chapters

Balstard R. Hourcade J.-C.

D. Demailly, P. Quirion.

Finon D.

Finon D.
HAAS R., FINON D., WISER R.

“Promoting Electricity from Renewable Energy Sources – Lessons Learned from the EU, United States, and Japan”. In: Shioshansi F. P. ed., Competitive Electricity Markets, London, Elsevier, chapter 12, pp. 91-133

S. HALLEGATTE, P. AMBROSI

“Assessing the economic impact of climate change: a review”. Climate Change Science and Policy (S. Schneider, M. Mastrandrea and Armin Rosencranz, Eds.), 2007 (in the press)

HOURCADE J.-C.


HOURCADE J.-C., SHUKLA P.-R., MATHY S.

“Untying the Climate – Development Gordian Knot: Economic options in a politically constrained world”. In: the Design of Climate Policy, MIT Press (in the press)

HOURCADE J.-C., MATHY S.

« Un régime de coordination internationale malgré tout ». In: La Documentation Française, 2007, pp. 201-213

TAZDAÏT T. and R. NESSAH


TAZDAÏT T.

« La confiance interpersonnelle : le regard de l’économie ». In : Editions De Boeck Université, collection LMD Eco (in the press)

Book editing

FINON D.

“How to complete electricity markets by capacity payment?” In: Utilities Policy (in the press)

AMBROSI P., HALLEGATTE S.

« Environnement, Changement climatique et Sécurité : questions scientifiques et enjeux opérationnels ». Cahiers de la Sécurité, 2007, n°63, INHES

NADAI A.

“Landscapes of Energies”. Landscape Research (Routledge / Taylor and Francis), Special Issue Editor - Special Theme: “Planning Wind Power, framing the landscape”, Land Use Policy (Elsevier), Editor

Research Reports


CRASSOUS R., MATHY S., COLOMBIER M.

“France LCS (Low-Carbon Society) scenarios report _Japan_UK joint LCS”. Research project 3rd workshop

Written conference communications

BARRAQÉ B.


FINON D.


TREYER S.


On going research contracts

DORIN B. and TREYER S.

Prospective INRA-CIRAD Agrimonde (« Agricultures et alimentations du monde en 2050 »)

HOURCADE J.-C., DEMAILLY D., NEUHOFF K., SATO M.

“Differonation and dynamics of EU ETS industrial competitiveness impacts”

NADAI A.

● « Politique éolienne et construction d’effets externes : une comparaison France - Allemagne - Portugal » with University of Brîme and Université Nouvelle de Lisbonne

Founding: MEDD, Centre Français de l’Énergie and ADEME

● « Planification et acceptabilité sociale de l’éolien en Île-de-France : une mise en perspective nationale et internationale des enjeux de politique publique »

Founding: Région Île-de-France

● « Les paysages de l’énergie : enjeux et politiques publiques »

Founding: Région Île-de-France

● « L’écolabel de produit : fonctionnement et évolution »

Founding: ADEME

QUIRION P.

Genedec project for the European Commission la Commission européenne - IPSL 2007

Editorial Activities

HA-DUONG M.

Member of the editorial board “Sapiens”, the interdisciplinary journal of the Veolia Foundation

TAZDAÏT T.

● Member of the editorial board “Revue d’Économie Politique”

● Editor of the “Revue d’Économie Politique”

Scientific Networks

GIS LARSEN

R2DS
Réseau de recherche francilien sur l’environnement et le développement durable (Île-de-France Region Sustainable Development Research Consortium) GI3 CNRS / Île-de-France.
http://www.r2ds.centre-cired.fr/
Supervisor : Hourcade J.-C.
Supervisor Assistant : Boemare C.

SECANTE
Réseau interdisciplinaire sur le climat : LMD, LSCE, LOCEAN, CERES (ENS), INRA.
Supervisor : S. Hallegatte and P. Dumas

AWARDS / GRANTS
IPCC
Jean-Charles Hourcade, Minh Ha-Duong, Stéphane Hallegatte and Renaud Crassous have contributed to the Fourth Assessment Report (GIEC, 2007)

The Peace Nobel Prize was awarded on 12th of October 2007 to Al Gore and Dr R.K. Pachauri, chairman of the Intergovernmental Panel on Climate Change (IPCC)

Vincent Gitz
He was awarded on 7th of February 2007
Le Monde Academic PhD Prize, for his doctoral dissertation in environmental sciences, entitled: “Land use and global climate policies” (AgroParisTech-CIRE)

CONFERENCES/SEMINARS / MISSIONS/VISITS

National wide/Participation

BOULEAU N.
Quand le hasard fait sens. In : Festival des sciences, May 2007, Chamonix

CRASSOUS R.
• Long-term economic modelling: stakes, tools and challenges. In: First HYMEX workshop, Météo France, 10th January 2007, Toulouse
• Les risques d’emballement des émissions de GES : faut-il craindre le scénario du pire ?. In: Les Mystères du XXIe siècle, 9th December 2007, Saint-Tropez

DEMAILLY D., QUIRION P.

ETCHART-VINCENT N.
• Hétérogénéité des agents et coopération dans un dilemme social : une étude expérimentale. In : Journées de l’AFSE, 24-25th May 2007, Lyon
• Monetary Incentives in the Loss Domain: an Experimental Comparison of Three Rewarding Schemes Including Real Losses (with Olivier L’Haridon, GRID). In: 1st Conference of the Risk Attitude Programme (ANR), 10-11th May 2007, Montpellier
• Probability Weighting and the Level and Spacing of Outcomes: an Experimental Study Over Losses. Leeds University, Center for Decision Research, 21st February 2007
• Monetary Incentives in the Loss Domain: an Experimental Comparison of Three Rewarding Schemes Including Real Losses. In: Journée de recherche : développements récents en microéconomie de l’incertain, 14th December 2007, Nantes

HA-DUONG M., CAMPOS A.-S.
Remarques socio-économiques sur la létalité du CO2 et réaction citoyenne au concept de séquestration / stockage géologique. In : Colloque NABILE 3 (Nouvelles Approches, Besoins et Innovations pour Limiter les Émissions de CO2)

HA-DUONG M.
Workshop on Innovations in Scholarly.
CERN, Geneva

HA-DUONG M., DAPHY E.
Qui archive qui ?. In: Rencontres des professionnels de l’IST, Nancy, France

HA-DUONG M., NADAI A., CAMPOS A.-S.
Une étude sur les perceptions sociales du captage et du stockage du CO2. In : Séminaire Captage et Stockage du CO2, Pau, France

HA-DUONG M., CAMPOS A.-S.
Carbon Capture and Storage. In: Social Research Network (C2S2RN) Meeting, Banff, Canada

HALLEGATTE S.
• Environmental socio-economic research in the Mediterranean area. In: HYMEX workshop, 10th January 2007, Toulouse, France

HOURCADE J.-C.
• Citoyens de la terre ». In : Conférence de Paris pour une gouvernance mondiale, 2nd February 2007, Paris
• Prospective. MEDAD/D4E, 9th March 2007, Paris
• Évolutions climatiques : approches interdisciplinaires. MNHN, 31st March 2007, Paris
• Les éco-parcs, une réponse durable à un enjeu de replantification de l’espace, pour un nouveau dynamisme économique. In : colloque R2DS, 24th April 2007, Paris
• Scénarios sous contrainte carbone : quels enjeux industriels ?. In: IDDRI/EPE, 2nd May 2007, Paris
• Citoyens de la terre. In : Conférence de Paris pour une gouvernance mondiale, 2nd February 2007, Paris
• Prospective. MEDAD/D4E, 9th March 2007, Paris
• Évolutions climatiques : approches interdisciplinaires. MNHN, March 31st 2007, Paris
• Emerging powers in Global Governance: new challenges and policy options. In: IDDRI, 6-7th July 2007, Paris
• Colloque Climate Stratégies. CIREDD/IDDRI, 13-14th September 2007, Paris
- **Approches économiques et régulation environnementale : evaluation des politiques et choix des instruments.** In: Journée DRAST avec PSE et TSE, 21st September 2007, Paris
- **European Meeting RECIPE (Report on Energy and climate policy in Europe).** 23rd October 2007, Potsdam
- **Externalités environnementales, économiques, sociales et politiques du développement des productions agro-énergétiques. Etudes prospectives.** 27-30th November 2007, Brazil
- **Perspectives énergétiques mondiales : comment partager les efforts à accomplir d’ici 2030 ?** In: Cycle de conférences de politiques énergétique 12th December 2007, Paris

**KOPF S., HA-DUONG M., HALLEGATTE S.**

European Geosciences Union general assembly: using analogues to assess uncertainty in urban area climate relocation. Internationale Conférence, Vienne

**NADAI A.**

- **Acceptabilité sociale de l'énergie éolienne ? La planification comme enjeu.** (Social acceptance of wind power ? Planning as an issue). In: Social issues of the CO₂ stockage in France, April 2007 / CIRED, Nogent-sur-Marne

**International wide/Participation**

**BARRAQUÉ B.**


**BERG, QUIRION P., LABBOUZ B., SULTAN B.**

A room for weather index-based insurance in Western Africa? In: AMMA 2nd International Conference, 28th November 2007, Karlsruhe

**CRASSOUS R.**

- **Long-term economic modelling: stakes, tools and challenges.** In: First HYMEX workshop, Métoé France, 10th January 2007, Toulouse
- **The inflationary effects of climate policies and climate change.** In: RBS Inflation Conference, 6th September 2007, Copenhagen

**CRASSOUS R. GUIVARCH, C. HOURCADE, J.-C. SASSI, O. WAISMAN H.**


**DEMAILLY D., QUIRION P.**

Changing the allocation rules for EU greenhouse gas allowances: impact on competitiveness and economic efficiency. In: European Association of Environmental and Resource Economics, June 2007, Thessalonica

**ETCHART-VINCENT N. (with Olivier L’Haridon, GRID)**


**FINON D.**

- **Investment Risk Allocation and Need of Vertical Arrangements in Restructured Electricity Markets.** In: Liberalization of infrastructures reconsidered. Experiences and prospects in energy, telecom, and water, 1st-2nd June 2007, 10th Conference Technical University Delft
- **Production Investment and Vertical Integration in Restructured Electricity Markets.** In: Energy and Climate Policy - Supply Security in International Comparison, International Conference of the European network REFORM Group, September 2007, Salzburg, Austria
- **Conflicting Strategies in Entry Deterrence under Demand Variability. The case of electricity markets.** In: Game theory applied to energy and environmental markets, Seminar HEC Montreal, October 2007 (with Guy Meunier)
- **The Correspondence of energy models to different cultural paradigms: need of convergence for better use in decision making.** In: colloquia of the Swiss association of energy economists, “Wechselwirkung zwischen Energiemodellen und Politik”, 30th November 2007, ETH, Zurich

**MESTRE O., HALLEGATTE S.**

Predictors of extreme hurricane intensities over the North Atlantic - An Application of Vector Generalized Predictive models In: EGU Annual meeting, 16th April 2007, Vienne

**HALLEGATTE S.**

- **A Cost-Benefit Analysis of the New Orleans Flood Protection System.** In: EGU Annual meeting, 20th April 2007, Vienne
- **Endogenous Business Cycle & Exogenous Shocks.** In: EGU Annual meeting, 16th April 2007, Vienne, Austria
- **The use of synthetic hurricane tracks in risk analysis and climate change damage assessment.** In: EGU Annual meeting, April 20th 2007, Vienne
- **The use of synthetic hurricane tracks in risk analysis and climate change damage assessment.** In: 1st international summit on climate Change and Hurricanes, 31st May 2007, Crète, Greece
- **The economic value of meteorological and hydrological information - The case of extreme events.** In: WMO workshop on the economic value of NMHS, 6th February 2007, Zagreb, Croatia
- **The economic value of meteorological and hydrological information - The case of extreme events (Poster).** In: WMO workshop on the economic value of NMHS, 20th March 2007, Madrid
- **The economics of Natural Disasters.** In: AGU Joint Meeting, 23rd May 2007, Acapulco
- **Endogenous Business Cycle & Exogenous Shocks.** In: Workshop on Advances in Macroeconomic Dynamics, Bielefeld, 28th July 2007
- **Rebuilding a Safer New Orleans: the Role of CBA and Uncertainty.** In: The
SOPHIE HALLEGATTE, ANJAN BIJUS, MARCELLE SCHLUMBERGER
Modelling Regional Impacts of Natural Disasters. In: AGU Joint Meeting, 23rd May 2007, Acapulco

HOURLCADE J.-C., CRASSOUS R., SASSI O., WAISMAN H., GUIVARCH C.

HOURLCADE J.-C.

KOPF S., HALLEGATTE S., HA-DUONG M.
Present analogues of Europe's future climates. (Poster). In: EGU Annual meeting, 19th April, Vienne

NADAI A.

TARIK T.
● 15th Annual Conference of the European Association of Environmental and Resource Economists. University of Macedonia Thessaloniki, Greece
● 3rd Spain, Italy, Netherlands Meeting on Game Theory. University Complutense of Madrid, Spain
● 4th Colloque International sur les Méthodes d’Optimisation d’Aide à la Décision. University of Bejaia, Algeria
● The Fifth International Conference on Nonlinear Analysis and Convex Analysis (NACA 2007). National Tsing-Hua University, Taiwan

WAISMAN H., HOURLCADE J.-C., SASSI O., CRASSOUS R., GUIVARCH C.

ORGANIZATION
Debates about social acceptability of CO2 capture and storage in France.
Workshop between NGO’s, industrialists, governmental institutions and the academy, organized by CIRED & APESA on 27th April 2007, Nogent-sur-Marne

Emerging Energies, Emerging Landscapes: Revisiting the Past, Constructing the Future - June 2007
Exploratory Workshop organised by the CIRED and founded by the European Science Foundation, in collaboration with:
● University of Birmingham (UK) (Department of Earth and Environmental Sciences),
● University of Amsterdam (Department of Geography, Planning and International Development Studies) (NL),
● University of St Gallen (Sw) (Institute for Economy and the Environment),
● University of Breme (D) (Department of Cultural Research),
● Université Nouvelle de Lisbonne (P) (Departamento de Antropologia).

EDUCATION ACTIVITIES
SUPERVISION ACTIVITY
Ongoing theses

ARSALANE Y. / Université de Cergy-Pontoise
Modélisation des marchés internationaux de biocarburants. Étude des conditions d’émergence et de viabilité des filières sous contraintes de politiques publiques agricoles, énergétiques et environnementales

BOULIPOUY C. / AgroParisTech-ENGREF
Apport des théories économiques à la justification du système international d’indemnisation des marées noires face aux critiques dont il fait l’objet

CAMPOS A.-S. / EHESS
Dimensions sociologiques de l’acceptabilité des sites de stockage de CO2 fossile

CARDOSO De MENDONCA M.-J. / EHESS
Économie spatiale des changements d’usage des sols en Amazonie. Approche économétrique des facteurs de déforestation

CEPEDA M. / ESS
Analyse économique de l’élargissement de la gestion du bien collectif sécurité de fourniture de long terme dans le contexte de l’intégration des marchés électriques

COMBET E. / EHESS
Fiscalité énergétique et accompagnement de la transition vers un objectif de facteur 4. Le double dividende revisité

CRASSOUS R. / AgroParisTech-ENGREF
Modélisation prospective et évaluation des politiques climatiques et énergétiques : diagnostic sur l’état de l’art et nouveaux apports du modèle IMACLIM-R

DOS SANTOS PEREIRA A. / EHESS
Scénarios de production et usage à grande échelle d’éthanol au Brésil. Impacts économiques, environnementaux et sociaux
DUBOIS G. / EHESS
Transport aérien pour le tourisme. Éléments de prospective dans le contexte de politiques climatiques

GUILLET F./ Université de Cergy-Pontoise
Choix stratégiques des organisations environnementales et efficacité de leurs actions

GIRAUDET L.-G. / Université Paris-Est
Les politiques de maîtrise de l’énergie. Analyse des instruments économiques incitatifs (certificats blancs, taxes). Modélisation sous IMACLIM-France de leur impact dans le secteur du bâtiment

GIVARCH C./ École des ponts
Évaluation des politiques climatiques au niveau local. Vers un outil de prospective de long terme intégrant les dynamiques spatiales

HAMDI-CHERIF M. / EHESS
Modélisation intégrée et outils numériques de prospective énergétique et économique de long terme

MEUNIER G. / EHESS
Analyse de stratégies multi marchés des énergéticiens européens

NASSOPoulos H. / Université Paris-Est
Ressources en eau et évaluation des impacts du changement climatique en région méditerranéenne

NGUYEN T. N. / EheSS
Planification des choix dans l’industrie électrique du Vietnam dans les contextes élargis à la région ASEAN et de la Convention climat

OLIVIER H. / EHESS
Arbitrages entre bioénergie, alimentation et environnement. Rôle du commerce international

SAGLIO A. / Université Paris-Est
Variables de contrôle des politiques environnementales dans les transports urbains : valeurs immobilières, prix des carburants, tarification des infrastructures

SASSI O. / École des ponts
Le changement technique induit dans une modélisation hybride des trajectoires économiques et énergétiques. Une application de l’outil IMACLIM-R à la question des émissions de GES sur le XXe siècle

POLY G. / Université Paris-Est
Étude de la sensibilité des modèles climatiques. Nouvelle approche par la théorie du calcul d’erreur et formes de Dirichlet. Études de stabilité et problèmes de stabilisation par adjonction de bruit

PROSKURNYA E. / EHESS
L’évaluation des projets d’électrification appropriés aux conditions économiques, sociales et environnementales dans les régions les moins équipées

TARAVELLA R. / AgroParisTech-ENGREF
Analyse comparative du développement économique de deux fronts pionniers amazoniens et de leurs effets sur la gestion environnementale

WAISSMAN H.-D. / EheSS
Économie spatiale : étalonnage urbain, localisation des activités, rentes foncières, équilibre général, modèle IMACLIM

DEMAILLY D.
Compétitivité et fuites de carbone dans l’industrie sous politique climatique asymétrique

EMERIT A.
Les aires protégées gérées. Zonage de l’espace et différenciation des rôles des acteurs : conditions d’une gestion intégrée des territoires

GAUDEFROY de MOMBYNES T.
Les porteurs de projets dans le processus participatif : une analyse à l’interface entre leurs enjeux d’organisation interne et leurs stratégies de relations externes

LEFEVRE M.
Les firmes transnationales et l’institution social-historique du changement climatique

TOVAR EléBabeth
La ségrégation urbaine : représentation économique et évaluation éthique, avec une application à l’île-de-France des années 1990

TEACHING ACTIVITIES

Lectures

École des ponts

Économie de l’environnement

Histoire des Sciences et Épistémologie

ENSTA

Économie de l’environnement

Masters

Master PFR TRADD

Initiation à l’analyse économique

Changement climatique

PFR TRADD

H. Le Treut et J.-C. Hourcade, Professors ; P. A. Jayet, directeur de recherche ; É. Fortin, P. Dumas, P. Quirion, Assistants
Instruments économiques des politiques de transports
PFR TRADD
M. Glachant & É. Fortin, Managers

Le facteur 4 dans les transports en Europe
PFR TRADD
O. Sassi, manager

Les transports électriques à Paris
PFR TRADD
F. Gusdorf, manager

Master EDDEE
Économie du développement durable, de l’environnement et de l’énergie
UP X, INAPG, ENGREF, EHESS, X, École des ponts, Mines ParisTech

Politiques publiques et incertitudes dans la prospective énergétique, économie, et environnement global
J.-C. Hourcade, professor

Commerce, Environnement et négociations internationales
T. Tazdaït, Research Fellow

Organisation des industries des réseaux énergétiques et stratégies des firmes dans la filière Économie Politique de l’Énergie et de l’Environnement
École nationale supérieure du pétrole et des moteurs
D. Finon, Senior fellow

Master MISE
Management et Ingénierie des Services à l’Environnement

Économie de l’environnement
É. Fortin

Master CORPFIN
Ingénierie financière méthodes quantitatives

Introduction à l’analyse économique
É. Fortin - École des ponts

Other teaching activities of CIRED members

Méthodes expérimentales pour la décision
Nathalie Etchart-Vincent, research fellow

Sensibilité et calculs d’erreur, Application à la finance
Nicolas Bouleau

Économétrie & Introduction à l’Économie Politique Économie de l’environnement
Aïcha Ouharon, Assistant Professor, Université Paris 13

Économie du changement climatique
Renaud Crassous, IGREF, enseignant Mastère ISIGE

Économie de l’environnement et contrôle optimal
Henri Waisman, CIRED Ph D Student Université de Nanterre

AGROPARISTECH-ENGREF

Économie de l’Environnement
Renaud Crassous, IGREF, assistant professor

Change ment climatique
European Week ATHENS
Renaud Crassous, IGREF, manager
With Patrice Dumas, Stéphane Hallegatte, S. Treyer

Dossiers d’Économie Publique
Renaud Crassous, IGREF

Economic policies for envi ronmental resources
European Week ATHENS
Sébastien Treyer, IGREF

Module Méthodes de prospectives
Sébastien Treyer

Module Prospective et gestion des bassins versants
Voie d’approfondissement Eau
Sébastien Treyer

Module Gestion forestière et projets de développement
Voie d’approfondissement Forêt Nature Sociétés, Montpellier
Sébastien Treyer, IGREF

AGROPARISTECH-INAPG

Module Prospective, dans Gestion du vivant et stratégies patrimoniales
Sébastien Treyer

UPEMLV

Croissance et développement
Mastère Politiques publiques
E. Tovar, Ph D Student

Introduction à l’Analyse de la Croissance
E. Tovar, Ph D Student

Politique économique
L2, TD (lecture : J.-C. Pereau)
Henri Waisman, Ph D Student

Économie de l’environnement
L3, TD (lecture : J.-C. Pereau)
Henri Waisman, Ph D Student
INDUSTRIAL PARTNERSHIPS

EDF
- Analyse des comportements d’investissements sur les marchés électriques libéralisés
- Production de scénarios contrastés
- Étude des critères d’évaluation des investissements au regard des objectifs de développement durable
- Analyse des règles de marché et des modes d’organisation favorables à l’investissement dans les industries électriques libéralisées
- IMACLIM-R France et scénarios CHypSE à l’échelle nationale

EPE
Scénarios sous contrainte carbone

CFE
- Politique éolienne et construction d’effets externes : une comparaison France - Allemagne – Portugal
- Compétition énergie-alimentation dans l’usage des sols. Perspectives et viabilité des biocarburants

Veolia
Analyse du rapport Stern sur le climat au regard de ses implications

PUBLIC POLICY SUPPORT

ADEME
- METSTOR : Méthodologie de sélection des sites de stockage du CO2 dans des réservoirs souterrains en France.
- Analyse économique de l’élargissement de la sécurité des fournitures de long terme par l’intégration des marchés et systèmes électriques
- L’écolabel : fonctionnement et évolution

International Energy Agency
Model development, scenarios, expertise: World Energy Outlook

ANR
- AUTREMENT : Aménager l’Utilisation des Terres et des Ressources de l’Environnement en Modélisant les Ecosystèmes aNtropiques
- ANR – MEDUP (Forcast and Projection in climate scenario of Mediterranean intense events: Uncertainties and Propagation on Environment): coordonné par Véronique Ducrocq (CNRM, GAME), avec le SA (IPSL), le LTHe et quelques autres partenaires
- Programme Risk Attitude (ANR): Risques individuels et collectifs : mesure, analyse socio-économique et implications
- Projet ANR : SOCECO2 - Programme Captage et Stockage du CO2

European commission
- TranSust.scan: Scanning Policy Scenario for the transition to Sustainable Economic Structures
- EzC2 “Extreme Events: Causes and Consequences”
- ENSEMBLE-Based Predictions of Climate Changes and their Impacts
- Modelling the Transition to Sustainable Economic Structures
- New Energy Externalities Development for Sustainability
- CIRCE: Climate Change and Impact Research: the Mediterranean Environment
- CLIMA: euro_asian research and training in climate change management

DEBATE & PUBLIC EXPERTISE

Hallegatte S.
He belongs to the Interministerial Group on climate change economic impact (coordinated by D4E/MEDAD and ONERC). Member of the ANR Scientific Committee

Ville de Paris
Représentation économique et évaluation éthique de la ségrégation urbaine à Paris

OECD
“The cost of inaction”, a study on the climate change impact on urban infrastructures, in cooperation with the Southampton University and with Risk Management Solutions

PARTICIPATION TO PUBLIC EXPERTISE

VMC (Vulnerability, Milieu & Climate)
Mathy S.
Took part to the “Grenelle meeting on Environnement” in the Climate & Energy Group chaired by Jean Jouzel. Design of a set of climate measures for Alliance for the Planet