



# Dealing with the social complexity of environmental conservation : Challenges of interdisciplinary and stakeholder-involving research

Cécile Barnaud

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J O U R N É E S  
F U T U R E  
E A R T H  
D A Y S

Paris | 30.11 - 01.12.2016



# FORGER LA COMMUNAUTÉ FRANÇAISE DE FUTURE EARTH

## BUILDING THE FRENCH FUTURE EARTH COMMUNITY

**30 NOVEMBRE 1<sup>er</sup> DÉCEMBRE 2016**

**30<sup>th</sup> NOVEMBER-1<sup>st</sup> DECEMBER 2016**

Ministère de la Recherche et de l'Enseignement supérieur  
25, rue de la Montagne Sainte Geneviève - Paris 5<sup>e</sup>  
*Amphithéâtre Henri Poincaré*



## DAY 1: WEDNESDAY, 30<sup>th</sup> NOVEMBER

09:00–10:00 Registration and Coffee

### SETTING THE CONTEXT

**Chair**

**Nicolas ARNAUD**, Deputy Scientific Director, CNRS-INSU

10:00–10:10

**Welcome address**

**Sylvain MAHÉ**, Ministry of National Education, Higher Education and Research (MENESR), Scientific Director of the Environment and Universe Sector

10:10–10:25

**Objectives of the First Future Earth Days**

**Wolfgang CRAMER**, Co-Chair, Future Earth National Committee. CNRS, Mediterranean Institute for Biodiversity and Ecology (IMBE)

10:25–10:45

**Future Earth Vision & Ambition**

**Heide HACKMANN**, Executive Director, International Council for Science (ICSU)

10:45–11:00

**Future Earth Activities**

**Thorsten KIEFER**, Future Earth Secretariat, Director Global Hub Paris

11:00–12:00

**Early Career Researchers in Future Earth: Vision and Activities**

Early Career Researchers Network of Networks

12:00–13:00

**Open Discussion Moderator**

**Wolfgang CRAMER**, CNRS

13:00–14:30 Lunch

### TALKING SCIENCE part 1

14:30–16:00

**Cities in Transformation and Transformation by Cities: Towards Sustainable Urban Futures**

Conveners: **Sébastien TREYER** (chair), Iddri and **Claire WEILL**, INRA, Future Earth

**The Role of Knowledge in the Urban Planet-Reflections on Future Earth and the New Urban Agenda**

**Thomas ELMQVIST**, Stockholm Resilience Centre

**Urban Transformations, Specificity of Local Contexts, Diversity of Pathways: the Example of Energy Transitions in the South and in the North**

**Sylvy JAGLIN**, Université Paris-Est Marne-la-Vallée

**Corinne LARRUE**, École d'Urbanisme de Paris

16:00–16:30 Coffee Break

16:30–18:00

**Living on the Blue Marble: Research for Healthy and Productive Oceans**

Conveners: **Jean-Marie FLAUD**, MENESR and **Thorsten KIEFER** (chair), Future Earth

**Future Ocean: Impacts of and Solution to Climate Change and Ocean Acidification**

**Jean-Pierre GATTUSO**, CNRS and Université Pierre et Marie Curie

**From Physics to Fishermen: Linking Climate to Biogeochemistry to Ecosystem to Humans**

**Eric GALBRAITH**, Universitat Autònoma de Barcelona

**Ocean Governance Challenges**

**Julien ROCHETTE**, IDDRI, Coordinator of the Oceans and Coastal Zones Programme

18:00–20:00

**Poster Session with Cocktail**

## DAY 2: THURSDAY, 1<sup>st</sup> DECEMBER

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### TALKING SCIENCE part 2

9:30–11:00

#### Ecosystem Changes and Benefits Needed for Human Well-Being

Conveners: **Wolfgang CRAMER** (chair), CNRS and **Hannah MOERSBERGER**, Future Earth

#### The Natural Assets Knowledge Action Network: Status and the Way Forward

**Paul LEADLEY**, Université Paris-Sud

#### Dealing with the Social Complexity of Environmental Conservation: Challenges of Interdisciplinary and Stakeholder-Involving Research

**Cécile BARNAUD**, French National Institute for Agricultural Research (INRA)

#### Ecosystem Changes and Implications for Human Well-Being in Amazonia

**Jérôme CHAVE**, CNRS

11:00–11:30 Coffee Break

### FUNDING OPPORTUNITIES

Chair

**Jean-Paul MOATTI**, Chairman of the board & CEO of the French Research Institute for Development (IRD)

11:30–12:00

#### Future Earth and the European and International Research Agendas

**Paul VOSSEN**, European Commission, DG Research & Innovation, Belmont Forum Liaison Officer

12:00–12:30

Discussion

12:30–14:00 Lunch

14:00–15:30

#### A Nexus Approach to a More Sustainable and Equitable Access to Water, Food and Energy

Conveners: **Elisabeth GIBERT**, CNRS, Ex. Sec. AllEnvi and **Sandrine PAILLARD** (chair), Future Earth

#### Nexus Issues: Competing Claims on Land and Water Resources, Tradeoffs and Synergies

**Peter VERBURG**, VU University Amsterdam

#### The Critical Zone as a Conceptual Framework for Time and Space Scale Interactions in the Water, Energy and Food Security Nexus

**Christian VALENTIN**, Institut de Recherche pour le Développement (IRD)

#### Interlinkages between Energy, Agriculture and Economic Dynamics

**Franck LECOCO**, AgroParisTech

### CHALLENGES AHEAD

Chair

**Hervé LE TREUT**, Co-Chair, Future Earth National Committee CNRS-UPMC

15:30 – 16:00

#### 'Grands Témoins'

#### Scientific Research to Better Understand the Dynamics of the Earth System

**Guy BRASSEUR**, Chair, World Climate Research Programme Joint Scientific Committee

#### The Role of Science in The Implementation of The Paris Agreement

**Laurence TUBIANA**, Climate Ambassador and Climate Champion

16:00–16:30

Discussion

16:30–17:00

Closing Remarks

**François JACQ**, President of the National Alliance for Environmental Research, AllEnvi, Chairman of Ifremer, the French National Institute for Marine science and technology

## List of Posters

### **Temperate Seaweed under Pressure: A Meta-Analysis of Eutrophication Impacts on Seaweed-Dominated reefs**

**Thibaut de Bettignies**, Muséum National d'Histoire Naturelle **Annabelle Aish**, **Isabelle Witté**, **Anne-Laure Janson**

### **Environmental Impact of Metal and Mineral For Low-Carbon Technologies**

**Antoine Boubault**, Mines ParisTech

### **Insights Into the Mechanisms Behind Land-Use Change**

**Thierry Brunelle**, CIRAD / CIRED

### **The Sustainable Use of Water Resources in Uzbekistan Challenging Climate Change**

**Carolina Collaro**, University of Bayreuth, Germany

### **Saving the Blue Amazon Through Orchestration of Polycentric Ocean Governance Systems**

**Leopoldo Cavaleri Gerhardinger**, University of the Region of Joinville / Earth System Governance project

### **The Biodiversity-Water-Food Nexus in Kenya**

**Benoit Hazard**, CNRS

### **Interdisciplinary Research on Climate Change: Lessons From the Paris Consortium Climate-Environment-Society**

**Sylvie Joussaume & Chantal Pacteau**, CNRS, GisClimat & **Jean Paul Vanderlinden**, UVSQ

### **Microplastics and associated contaminants in the Ocean, a major issue: The Plastox JPI European project**

**Richard Sempere**, (Aix-Marseille Université, Mediterranean Institute of Oceanography, France), **Andy Booth** (PLASTOX PI), **Kaori Sakaguchi-Söder**, **Paula Sobral**, **Laura Airoidi**, **Jan van Franeker**, **Kerstin Magnusson**, **Thomas Doyle**, **Liam Morrison**, **Iurgi Salaverria**, **Carl Van Colen**, **Dorte Herzke**, **Amaia Orbea**, **Geir Wing Gabrielsen**, **Hartmut Nies**, **Tamara Galloway**, and **Albert van Oyen**

### **Global Environmental Change Impacts on Biodiversity and Ecosystems**

**Cornelia Krug**, bioDISCOVERY / Université Paris-Sud

### **Caloric Refrigeration & Creating an Industrial Environment for 2020**

**Timothy Lorkin**, IIR-IIF

### **Marine Costal Hypoxia, Role and Reaction of The Sediment – Focus on The Fluxes Controlling Eutrophication And on Micro-Organisms From a Microcosm Study**

**Valerie Michotey**, **Pozzato L**, **Perrat M**, **Guasco S**, **Mirleau F**, **Cesbron F**, **Grenz C**, **Deflandre B**, **Radakovitch O**, **Rigaud S**, **Bonin P**

### **Transformations to Sustainability (T2S) Programme**

**Sarah Moore**, International Social Science Council (ISSC)

### **Megalithic Causeway**

**Yves Paumier**, Solidarité & Progrès

### **Risks Of Hypoxia In Transitional Waters: A Case Study in the Gironde Estuary**

**Sabine Schmidt**, MR5805 EPOC & **Mario Lepage**, IRSTEA

### **Oceans Fuel our Brains and Hearts**

**Philippe Soudant**, CNRS, LEMAR-IUEM-UBO

### **Facilitating Complex, Data-Rich Science**

**Alison Specht**, CESAB-FRB

### **Autour des Mers Australes – Around the Southern Seas**

**Emmanuelle Sultan**, Muséum national d'Histoire naturelle

### **Early Career Researchers Network of Networks**

**Leopoldo Cavaleri Gerhardinger** and Future Earth Early-Career Working Group

## Speakers

### Wolfgang Cramer (IMBE)



Wolfgang Cramer, geographer and ecologist, is scientific director at CNRS and deputy director of the Mediterranean Institute for Biodiversity and Ecology (IMBE). Expert in modeling, he has previously been head of the department "Global Change and Natural Systems" at the Potsdam Institute for Climate Impact Research. His main research interest is the global biosphere, including biodiversity and risks to human livelihoods from global change. He coordinated the first assessment of European ecosystem services and coauthored the Millennium Ecosystem Assessment, as well as several IPCC reports. He is co-chair of the Future Earth project ecoSERVICES and the French Future Earth National Committee.

### Heide Hackmann (ICSU)



Heide Hackmann is the Executive Director of the International Council for Science. She holds a M.Phil in contemporary social theory from the University of Cambridge, UK, and a PhD in science and technology studies from the University of Twente in the Netherlands. Heide holds membership of several international advisory structures, and currently co-chairs the UN's 10-member group supporting the Technology Facilitation Mechanism (TFM) on the Sustainable Development Goals.

### Thorsten Kiefer (Future Earth Secretariat Paris)



Thorsten Kiefer is director of the Future Earth Global Hub in Paris. He joined Future Earth after a decade as Executive Director of the Past Global Changes project, which is now under the umbrella of Future Earth. Thorsten's research background is in ocean sciences. He studied past oceanographic and climatic changes from deep-sea sediments as a researcher at the Universities of Kiel, Germany and Cambridge, UK. Thorsten also serves the open-access journal *Climate of the Past* as a co-chief editor.

### Prof Thomas Elmqvist (Stockholm Resilience Centre)



Thomas Elmqvist, PhD, is a professor in Natural Resource Management at Stockholm Resilience Centre, Stockholm University. His research is focused on urbanization, urban ecosystem services, land use change, natural disturbances and components of resilience including the role of social institutions. He serves as associated editor for the journals *Ecology and Society*, *Ecosystem services*, and *Sustainability Science*. He has led the "Cities and Biodiversity project" ([www.cbobook.org](http://www.cbobook.org)) and currently leading the Future Earth project "Urban Planet".

### Sylvy Jaglin (Université Paris-Est Marne-la-Vallée)



Sylvy Jaglin is Professor of urban studies at the École d'Urbanisme de Paris, Université Paris-Est (France). Her research focuses on urban service delivery policies in Sub-Saharan African, looking at issues related to utility politics, infrastructure transition and service access. It examines the patterns of sociotechnical change in relation with urban transformations and shifts in local governance. Her publications include (with A. Dubresson) *Eskom. Electricity and Technopolitics in South Africa*, UCT Press, 2016

### Corinne Larrue (École d'Urbanisme de Paris)



Corinne Larrue (1957) is Professor of urban and environmental planning at the Paris School of Planning (University of Paris Est Créteil) since 2013, and has been previously Professor at University of Tours during 20 years. She is currently co director of the Paris School of Planning, one of the most important Institute for Urban Planning in France. Her major field of research, teaching and expertise is policy analysis with emphasis on environmental and regional policies.

## Jean-Pierre Gattuso (CNRS-UPMC)



Jean-Pierre Gattuso is CNRS Research Professor at the Laboratoire d'Océanographie de Villefranche, CNRS and Université Pierre et Marie Curie-Paris 6, and Associate Scientist at the Institute for Sustainable Development and International Relations. His main research activities relate to the cycling of carbon and carbonate, the response of marine organisms and ecosystems to ocean warming and acidification, and the societal implications of ocean change.

## Eric Galbraith (Universitat Autònoma de Barcelona)



A native of Halifax, Canada, Galbraith studied geology at McGill University and completed a PhD in oceanography at the University of British Columbia in 2006. He worked as a research associate at Princeton University from 2006-2009, then returned to McGill University as an assistant professor, and was recommended for tenure in 2015. He accepted a senior ICREA Research Professorship at the Universitat Autònoma de Barcelona in 2015, where he leads the ERC-funded BIGSEA project

## Julien Rochette (IDDRI)



A lawyer specialised in marine and coastal issues, Julien Rochette coordinates since 2007 the Oceans and Coastal Zones Programme at IDDRI. He provides legal and technical assistance to organisations on the law of the sea, international marine environmental law, oceans governance and integrated coastal zone management. Lately, Julien dealt with the governance of marine biodiversity in areas beyond national jurisdiction, the regulation of offshore oil and gas activities, sustainable management of fisheries, and the implementation of the "Ocean" Sustainable Development Goal.

## Paul Leadley (bioDISCOVERY; Laboratoire d'Ecologie, Systématique et Evolution)



Paul Leadley is professor at Université Paris-Sud. He is specialist of biodiversity modeling, of ecosystem services and of the use of scenarios in order to help decision-making. Member of the multidisciplinary expert panel IPBES, he has also coordinated the 4th World Perspective of Biodiversity of the Convention on Biological Diversity, published in 2014. He has also been lead author of Working Group II (impacts, adaptation and vulnerability) for the IPCC Fifth Assessment Report.

## Cécile Barnaud (INRA)



Cécile Barnaud is a social scientist working on relations among people about environment. After a PhD in human geography focusing on power dynamics in participatory research, based on a research-action she conducted in Thailand, she started to question the uncertainties and controversies surrounding the notion of ecosystem services. She is now a senior scientist at INRA and is interested, among others, in articulating ecosystem services and collective action.

## Jerome Chave (CNRS)



Jerome Chave is senior scientist at CNRS. He combines tropical forest field research, biodiversity maintenance, of biogeochemical cycling, and macroevolutionary patterns. He is the acting science director of laboratory of excellence CEBA (Centre for the study of Biodiversity in Amazonia), and of the CNRS Nouragues ecological research station, in French Guiana.

## Paul Vossen (European Commission)



Dr.ir. Paul Vossen is agricultural engineer (Ghent, 1976; PhD, 1989). His expertise lays in applied climatology, food security, development and research cooperation. His career is a mix of field work (WMO, Africa, 1977-1987), applied research (JRC, 1988-1997), policy interfacing (EC's Scientific Steering Committee, 1997-2003), development cooperation (Niger, Burundi, 2005-2015) and science cooperation (EC Research & Innovation Directorate General, 2003-2005, 2015-now).

## Peter Verburg (VU University Amsterdam)



Peter Verburg is professor and head at VU University Amsterdam and visiting professor at WSL Switzerland. Peter's work focuses on the analysis of land use and ecosystem services at scales from local to global. Methods originate from different disciplines, including social sciences, econometrics, geography and earth sciences. His work on regional-scale land use modeling has resulted in one of the most frequently used land use models worldwide (CLUE-s). He is chair (2012-2016) of the Scientific Committee of the Global Land Programme, an international network/core project of Future Earth.

## Christian Valentin (IRD)



40 years of experience in interdisciplinary research on soil erosion, agronomy, hydrology and ecology, mainly in West Africa and Southeast Asia. He chaired the soil erosion network of the the Global Change and Terrestrial Ecosystems program. He is currently deputy director of Institute of Ecology and Environmental Sciences - Paris, and coordinates working groups on soils for the French Alliance for Environment and for the French Academy of Agriculture.

## Franck Lecocq (AgroParisTech)



Franck Lecocq is director of CIRED and professor of economics at AgroParisTech. He has published extensively on the economics of climate change, and his current research focuses on the role of infrastructure in the mitigation of climate change policies, the relationship between climate change and sustainable development, the economy of the adaptation to climate change and the relationship forest / carbon. He is a member of the Business Council for Sustainable Development of the French Ministry of Environment, Energy and Sustainable Development, and a lead author of the fourth and fifth IPCC assessment reports.

## Laurence Tubiana (MAEDI)



Laurence Tubiana is the French Ambassador for climate change negotiations and the special representative for the Paris Climate 2015 conference (COP21). A globally recognized specialist of climate change and development issues, she founded in 2001 the Institute for sustainable development and international relations (Iddri). From 2009 to 2010 she held the position of Director of global public goods at the Ministry of Foreign affairs and has advised Prime Minister Lionel Jospin on sustainable development issues from 1998 to 2002. She currently chairs the Administrative council of the French Development Agency (AFD), co-chairs the Executive Committee of the Sustainable Development Solutions Network (SDSN) and is a member of the United Nations Scientific Advisory Board.

## Guy Brasseur (WCRP)



Guy Brasseur is a Senior Scientist and former Director at the Max Planck Institute for Meteorology in Hamburg, Germany, and Distinguished Scientist at the National Center for Atmospheric Research (NCAR)

in Boulder, Colorado. He is a former Chair of the Scientific Committee of the International Geosphere Biosphere Programme (IGBP) and the current Chair of the Joint Scientific Committee of the World Climate Research Programme (WCRP)

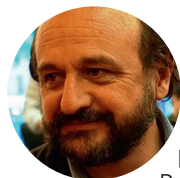
## François Jacq (IFREMER)



François Jacq studied at Ecole Polytechnique and Ecole des Mines in Paris. He holds a PhD in history of science. He has been chief executive officer of the French Agency for Radioactive Waste Management.

In 2009, F. Jacq joined Météo-France as CEO. He was appointed chairman of Ifremer, the French national institute for marine science and technology, in 2013. He has been elected president of AllEnvi in November 2016.

## Hervé Le Treut (CNRS-UPMC)



Hervé Le Treut graduated from École Normale Supérieure and Université Pierre et Marie Curie (UPMC). Currently professor at UPMC and École Polytechnique, he is the director

of Institut Pierre Simon Laplace (IPSL), a federation of 9 major laboratories active in the field of global environment. He has played an active role in the development of the IPSL Earth System Model and its application to the study of the anthropogenic climate changes. He has been actively involved in the IPCC assessment reports and a member of the WCRP Joint Scientific Committee.

# Knowledge-Action Networks

Knowledge-Action Networks are collaborative frameworks that facilitate highly integrative sustainability research. Their aim is to generate the multifaceted knowledge needed to inform solutions for complex societal issues.

Knowledge-Action Networks are open to participation. They build on the range and diversity of specialist expertise represented in the large community of researchers and practitioners associated with Future Earth, e.g. Future Earth's Core Projects, Fast-Track Initiatives and Clusters, but also endorsed and associated organisations, projects, and individuals that are part of the Future Earth Open Network.

## Knowledge-Action Networks launched for scoping

### Food-Water-Energy Nexus



Delivering water, energy and food for all in a sustainable and equitable way is one of the major challenges faced by our societies.

Future Earth will support this goal

by providing the knowledge needed to understand what changes influence interactions between the water, energy and food sector and how the resulting synergies and trade-offs among them can be realized and managed effectively.

### Sustainable finance & Economic Systems



Financial and economic issues underlie virtually every sustainable development decision that must be taken over the coming years.

The Future Earth Finance and Economics Knowledge-Action Network focuses on improving the understanding of sustainability through the lens of business, economic and financial systems, and their inter-dependencies.

### Transformations to Sustainability



Transformation to sustainability is a profound and complex socio-ecological process with both short- and long-term implications for the sustainability of natural and social systems. This Knowledge-Action Network explores and integrates questions, e.g. what type of alternative futures are considered desirable and possible, whose visions count, and the politics and social conflicts surrounding transformation decisions and actions.

### Health



The health of people around the world is tightly linked to the health of the places we inhabit. Research aims for an integrated understanding of the complex interactions between global environmental changes related to pollution, disease pathogens, vectors, and ecosystem services, and the health, livelihood, nutrition and well-being of human beings. Potential priority areas currently discussed include topics such as disasters, food systems, cities, and climate. Integrated observation systems to collect health, socioeconomic and environmental data are considered a key approach.

### Sustainable Development Goals



Science needs to be both a tool and an approach to achieve the Sustainable Development Goals. A focus of Knowledge-Action Network lies on cross-cutting scientific knowledge on underlying methodologies and on the interlinkages, i.e. synergies and tradeoffs, between the goals, in order to inform policy decision making during their implementation.

### Cities



By 2050 more than two thirds of the world's population are estimated to live in cities. This Knowledge-Action Network aims to put research towards the associated challenges and opportunities for sustainability and to concepts of livable, equitable and resilient cities by identifying and shaping innovations that combine better urban environments and lives with declining resource footprints, and provide efficient services and infrastructures that are robust to disasters.

### Oceans



Oceans, including coastal and nearshore areas, provide services essential for life on earth and livelihoods of people, but also are also under pressure from human activities. The Oceans Network aims to generate knowledge on pressing challenges to ocean sustainability through solutions-oriented research and synthesis. Priority topics discussed so far include the sustainable use of marine resources, multiple stresses from global change, pollution, and ocean extremes and associated risk.

### Natural Assets



How will changes to ecosystems and their biota alter the benefits that human societies need to have a fulfilling life? This Knowledge-Action Network aims at achieving a scientifically-based, sustainable and fair stewardship of terrestrial, freshwater and marine natural assets underpinning human well-being by understanding relationships between biodiversity, ecosystems and their benefits to societies, as well as developing effective management and governance approaches.

**Comité d'organisation**  
**Organizing Committee**

Stéphane Blanc  
CNRS INEE

Wolfgang Cramer  
IMBE, COMITÉ NATIONAL  
FUTURE EARTH

Thorsten Kiefer  
CNRS, FUTURE EARTH  
SECRETARIAT

Elisabeth Kohler  
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IDDRI

Claire Weill  
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SECRETARIAT

Miia Ylostalo-Joubert  
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SECRETARIAT

**Pôle du secrétariat  
international de  
Future Earth à Paris**  
**Future Earth  
Secretariat Global  
Hub Paris**

Thorsten Kiefer  
CNRS

Emma Langevin  
STAGIAIRE / INTERN

Edouard Michel  
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Sandrine Paillard  
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Claire Weill  
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Miia Ylostalo-Joubert  
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research for global sustainability

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