

Setting up a GI Research Agenda for Environmental Management: The PEER Experience

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- Summary
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 - Members, aims, projects
 - The pillar structure
 - The Geoinformation Pillar
 - Objectives
 - First outcomes of the GI pillar kick-off seminar
 - Toward a research agenda, 3 research hubs
 - Next actions

What is PEER ?

Partnership for European Environmental Research

- **JRC**
- **NERI (Denmark)**
- **UFZ (Germany)**
- **SYKE (Finland)**
- **CEH (UK)**
- **ALTERRA (Netherlands)**
- **CEMAGREF (France)**

Staff : 4700 Budget : 361 M€

PEER aims

- to develop and promote joint strategies in environmental research in support of both EU and national policies;
- to create synergies and critical mass to avoid redundant work, and improve the competitiveness of European environmental research;
- **to build the capacity to integrate European environmental research databases with a focus on their interpretation and exploitation;**
- to facilitate large-scale research infrastructure and to develop management capacities for large-scale and long-term European research projects and programmes dedicated to complex problems.

PEER communication towards institutions

- **DG Research**
- **DG Environment**
- **DG Enterprise**
- **European Environment Agency (meetings)**
- **Outside EU**
 - **Contacts with EPA in USA**
 - **Contacts with UNEP in Nairobi**

PEER Flagship Projects

- EU projects and networks with strong PEER participation
 - ALARM - Assessing Large scale Risks for biodiversity with tested Methods
 - ALTER-Net: A Long-Term Biodiversity, Ecosystem and Awareness Research Network
 - NOMIRACLE - Novel Methods for Integrated Risk Assessment of Cumulative Stressors in Europe
 - SENSOR - Sustainability Impact Assessment: Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions
- Networks with strong PEER participation
 - CONNECT Network (nature conservation)
 - Landscape Europe
 - EURAQUA

PEER Flagship Projects

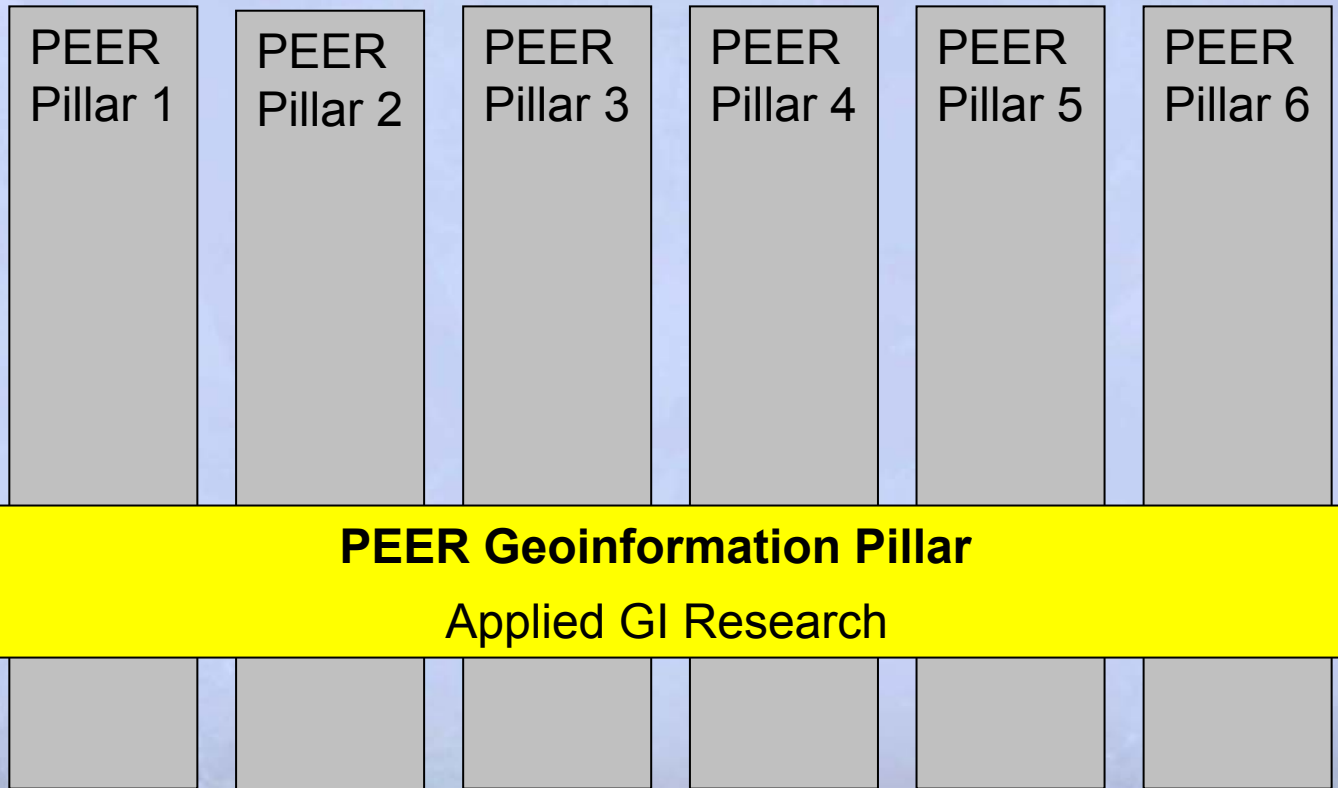
- METIER – METHods of Interdisciplinary Environmental Research (Marie Curie Series). Graduate training courses on

Period	Event	Host	Scientist in charge
Summer 2006	CS „ <i>Remote sensing & atmosphere</i> “	JRC-IES	Frank Dentener
Winter 2007	CS „ <i>Information management</i> “	Cemagref	Pierre Bazile
Spring 2007	CS „ <i>Remote sensing & land surface</i> “	CEH	Heiko Balzter
Autumn 2007	CS „ <i>Geo-visualization</i> “	WUR	Ron van Lammeren
Spring 2008	CS „ <i>Ecological modelling</i> “	UFZ	Karin Frank
Autumn 2008	CS „ <i>Remote sensing & hydrosphere</i> “	SYKE	Juha Kämäri
Spring 2009	CS „ <i>Scenario development & forecasting</i> “	NERI	Hanne Bach
Autumn 2009	Final Conference	JRC-IES	Frank Raes

PEER Pillar Structure

<i>Pillars</i>	<i>Coordinators</i>
Biodiversity and Nature Conservation and Network Connect	Allan Watt (Centre for Ecology and Hydrology) and Jurgen Tack (CONNECT)
Aquatic Ecosystems and Sustainable Water Management	Seppo Rekolainen (SIKE - Finish Environment Institute)
Contaminated Systems, Risk Assessment and Remediation Strategies	Hans Lokke (NERI - National Environmental Research Institute)
Global Change Impacts	Pavel Kabat (ALTERRA) and Tim Carter (SYKE)
Society, Natural Resources and Environmental Policy	Bernd Hansjurgens (UFZ - Centre for Environmental Research Leipzig - Halle)
Landscape Planning and Management and Network Landscape of Future	Dirk Wasser (ALTERRA)
Geoinformation (2005)	Monica Wachowicz (ALTERRA) Sylvain Labbé (Cemagref)

GI Pillar Organisation



GI Pillar Vision

Within the PEER Network

- Have intra-organizational impacts on the PEER network itself (e.g. sharing resources, exchange of tacit knowledge, changing practices, and cost savings).

Within EU to contribute to :

- Establish a forum for a scientific network through funding mechanisms such as NoEs, IP, Expert groups, virtual groups, and teaching modules.
- Raise awareness about the need of scientific research for supporting the role of geo-information in the new governance modes (e.g. e-government, e-policy).

Geo-Information Pillar objectives

- Establishment of a GI research agenda for the environment
- Joint proposals to calls and training actions
- Dissemination of information (web site, workshops, mobility)
- International scientific conference 2009/2010

ORGANISATION

**Coordinators : Sylvain Labbe (Cemagref) and
Monica Wachowicz (ALTERRA)**

Scientific Board

Alessandro Anonni (JRC)

Henning Sten Hansen (NERI)

Karsten Schulz (UFZ)

Yrjö Sucksdorff (SYKE)

Richard Wadsworth (CEH)

GI Pillar current activities

- Carry out a GI Research Inventory (projects, research topics, workshops)
- Dissemination of the first workshop outcomes
- Produce a research agenda
- Collaborate with the other pillars
- Invite associated members to join the GI Pillar
- Set up collaboration with other European networks (AGILE),

First positive results

- Coherent PEER lobbying activity towards the DG Research and DG Environment
- Bilateral visits between members of PEER
- Networking tools (web site, newsletter, board, etc.)
- Organisation of a workshop on “Geo-Information for the environment”, Montpellier, November 2005

Montpellier Seminar – 9 working sessions

Monitoring environmental resources and pressures

- 1. Environment and Health
- 2. Land cover and vegetation monitoring
- 3. Water Resources monitoring

Understanding and forecasting environmental dynamics

- 4. Environmental modelling (anthropic, biophysics)
- 5. Ecosystem and biodiversity modelling
- 6. Natural and man made hazards

Building spatial information systems for planning and decision support

- 7. Integrating multi-sources environmental (in-situ and remote)
- 8. Sustainable management of natural resources and ecosystems
- 9. Sustainable management of water in agriculture

Ecosystem and biodiversity modelling conclusions

Major challenges ahead

- Harmonization and exploitation of existing ecological observations
- Better integration of top-down modelling and bottom-up knowledge along with integration of remote sensing technologies and Geostatistics.
- The development of common European information systems that will improve a/o the accuracy of dynamic response models.

Natural and Man-made hazards conclusions

- Integration of data
 - Improved data (snow content in water, runoff, soil moisture...)
 - in-situ data (sensor web, observers)
 - space-borne sensors
 - Real-time access to data: space-borne, in-situ
- Model development
 - Modeling: advanced stochastic models
 - 'new' hazard models: dike failure
 - Feedback mechanisms: climate change / land use change / hazard change
 - Regional impact of local mitigation techniques
- Interaction with users: public, decision makers

“Integrating multi-source environmental (field and remote) observations into widely accessible knowledge”



OBSERVATIONS

- “raw” data
- measurements

image data
+
e.g. field data

INFORMATION
- derived “data”

land cover map
 (“image map”)

+
other
information



KNOWLEDGE

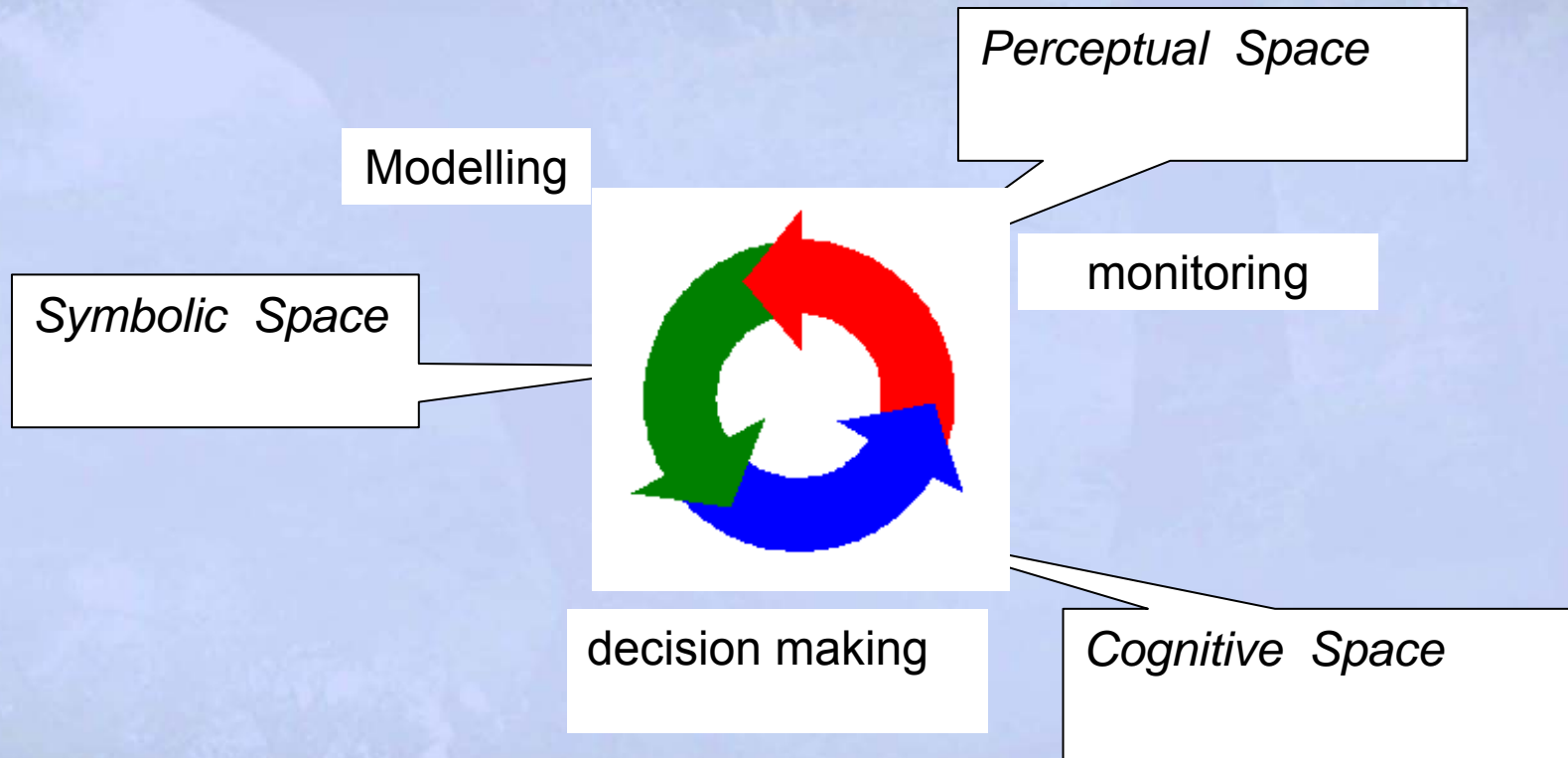
- theory ? wisdom ?
- EEA SofEnv. reports?

statistics
distribution patterns

e.g. relationships to
drivers

*remote
sensing as
“information
extraction”*

Toward a GIP research agenda



the Cassirer's three "space" progression in a learning process

Toward a research agenda

- *Research HUB 1 - Monitoring:*
- Context and objectives :
 - contribution to the GEOSS development of satellite-based (together with ground and airborne) monitoring systems relating to the management of the environment and security and their integration with ground-based, ship-borne and airborne components; support to the production and delivery of GMES data and services.
- Main environmental programmes identified :
 - Environment and Health
 - Land cover and vegetation monitoring
 - Water Resources monitoring
 - Climate Change

Toward a research agenda

- *Research HUB 2 - Modelling:*
- Context and objectives
 - geo-information contribution to modelling links between economy/environment/society including market based instruments, externalities, thresholds and developing the knowledge base and methodologies for sustainability impact assessment on key issues such as land use; social and economic tensions related to climate change.
- Main environmental programmes identified :
 - analysis of regional systems
 - climate research
 - air pollution modelling, water pollution modelling
 - modelling of natural resources, modelling of traffic systems
 - environmental risk management
 - Ecosystem and biodiversity modelling

Toward a research agenda

- *Research HUB 3 - Decision-making support:*
- Context and objectives
 - geo-information contribution to engage environmental decision makers with researchers to develop and communicate processes and information that help solve or avoid problems associated with environmental decisions.
- Main environmental programmes identified :
 - Integration from local to global E-Spatial Data Infrastructures
 - Sustainable management of natural resources, environment and ecosystems
 - Sustainable management of water in agriculture
 - Risk management

Next actions

- Hubs animation
 - Coordinators
 - Share information
 - GEO, GMES, DG ENV, DG Research, EAA,
 - Annual meeting (AGILE, EC-GIS)
 - Tools to share
 - WEB Content Management System
 - Newsletter
 - Publications
 - Call for Ideas/consortium/projects



PEER GEOINFORMATION PILLAR

To carry out their joint research, the PEER members have agreed to establish the following topic-oriented pillars in which PEER scientists work together :

Scientific issues

Societies experience major demographic, economic, technical, political and social evolutions which are accompanied by rapid changes in land cover and use, in access to resources and in the mutual pressures between man and its environment. Indeed the environment evolves in response to external natural (climate, biological fluxes...) and anthropic (land development, exploitation of resources, pollution...) pressures and according to their own biophysical processes.

Understanding the causes of these changes, controlling their impacts on societies and their natural environment, and, at the same time anticipating the resulting evolutions are the main challenges for environmental assessment. This requires developing knowledge on the environment, its functioning and the processes which affect it, to understand societal dynamics and their drivers, and to conceive modes of management, policies of sustainable development and frameworks for regulation. In such an approach, the spatial dimension of the environment and of the territories is fundamental and needs to be taken into account. This, at the same time, implies developing careful spatial and territorial approaches and controlling the spatial information from its acquisition and processing to its use, through its analysis, diffusion and appropriation.

Objective of the Geoinformation pillar

As the first cross-cutting methodological pillar of PEER, its first objective is to create permanent exchange between the research projects carried out in PEER institutes. It will also enable the sharing of knowledge and the design of common approaches, and will progressively create synergies and critical mass avoiding redundant work, thus contributing to the dynamic integration of the PEER institutes.

<http://www.peer-initiative.org>

Hot topics

The current web site has been improved to reflect the pillar activities, two new options :

[Read more...](#)

Events calendar

June 2006						
M	T	W	T	F	S	S
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2

This month

Newsletter

Subscription to the GIP newsletter

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PEER

The Geo-Information Pillar

<http://peer.teledetection.fr>

New members are welcome !