

# *The French national information system on soils*

**Ifen (French Institute for the environment)**

**Focal point**

- **NFP : Jacques Thorette**
- **PCP-NRC: Véronique Antoni**

**EIONET Partners (NRC) :**

- **INRA (French National Institute for Agricultural Research)**
- **Ademe (French Environment and Energy Management Agency)**
- *. . . looking for another partners*



# The actors of the soils in France

	<b>Concerned Organizations</b>	<b>Followed object</b>	<b>Actors of knowledge</b>	<b>Threats concerned</b>
<b>Soil Inventories</b>	<ul style="list-style-type: none"> <li>▪Gis Sol (Ministries Ecology &amp; Agriculture, INRA, Ademe, IRD)</li> </ul>	<ul style="list-style-type: none"> <li>▪Exhaustive soil mapping</li> <li>▪State of soils</li> </ul>	<ul style="list-style-type: none"> <li>▪INRA</li> <li>▪IRD (overseas territories)</li> </ul>	Loss of functionalities
<b>Polluted soils</b>	<ul style="list-style-type: none"> <li>▪BRGM</li> <li>▪Ademe</li> <li>▪Cleaning up actors and consultants</li> </ul>	<ul style="list-style-type: none"> <li>▪Brown fields</li> <li>▪Ancient industrial and service activity sites</li> </ul>	<ul style="list-style-type: none"> <li>▪BRGM</li> <li>▪Ademe</li> <li>▪Ministry of ecology</li> <li>▪Cleaning up actors and consultants</li> </ul>	Local contamination
<b>Urban soils</b>	Town and country planning (local authorities, etc.)	<ul style="list-style-type: none"> <li>▪Brown fields</li> <li>▪Urban sprawl</li> </ul>	<ul style="list-style-type: none"> <li>▪Gis Sol (Ministries Ecology &amp; Agriculture, INRA, Ademe, IRD)</li> <li>▪BRGM</li> </ul>	<ul style="list-style-type: none"> <li>▪Local contamination</li> <li>▪Erosion (mudflows)</li> <li>▪Soil sealing</li> </ul>
<b>Agricultural soils</b>	<ul style="list-style-type: none"> <li>▪Farmers' organizations</li> <li>▪Research and engineering consulting</li> </ul>	<ul style="list-style-type: none"> <li>▪Conservation of the agricultural potential of soils</li> </ul>		<ul style="list-style-type: none"> <li>▪Water Erosion</li> <li>▪Diffuse contamination</li> <li>▪Compaction</li> <li>▪Floods and landslides</li> <li>▪Salinisation</li> </ul>

# Erosion: affects 20% of the territory

## Pressures

Urbanisation  
Soil sealing



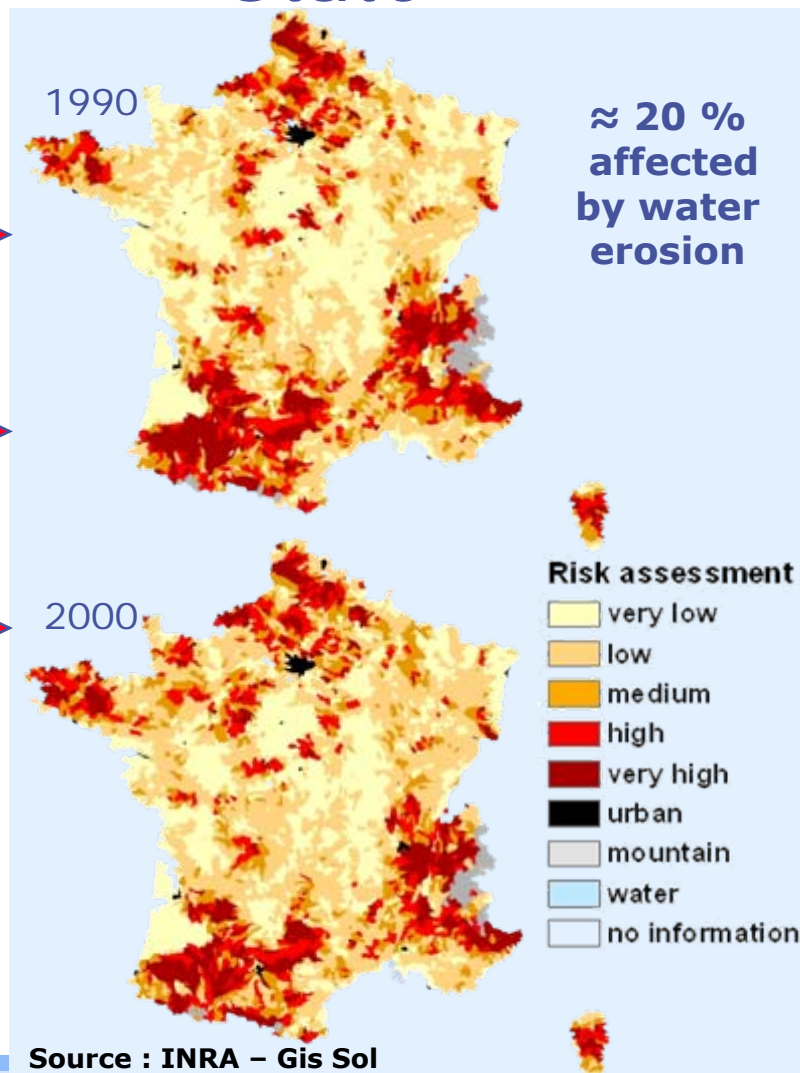
Road and  
railway  
infrastructures



Agriculture



## State



## Response

Decree of application - **law of the 30th July 2003**:

- measures to fight erosion
- guidelines for an erosion risk zoning (under the responsibility of the prefects)

Publications:

- **methodological guide** for a departmental zoning of soil erosion risk (BRGM for the Ministry of ecology)
- **Recommendations** of the *Committee of Orientation for respectful Husbandries of the Environment (CORPEN)*

Public awareness and practical application:

- Local farmers' organization
- Documents of **regional land planning** (SCOT, ...)

# Diffuse contamination

## Pressure

Road infrastructures

Agriculture

- Mineral fertilizer
- Agricultural or urban spreading
- Pesticides

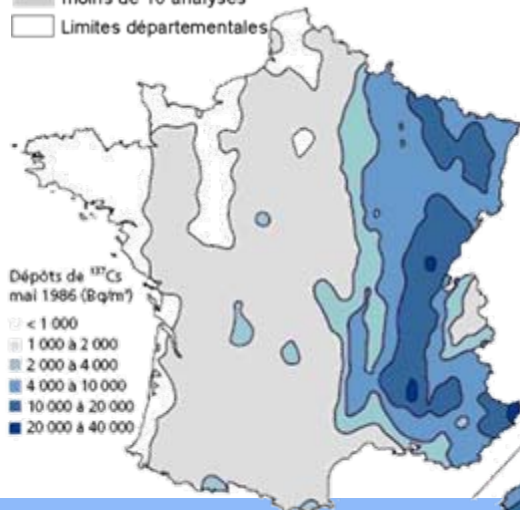
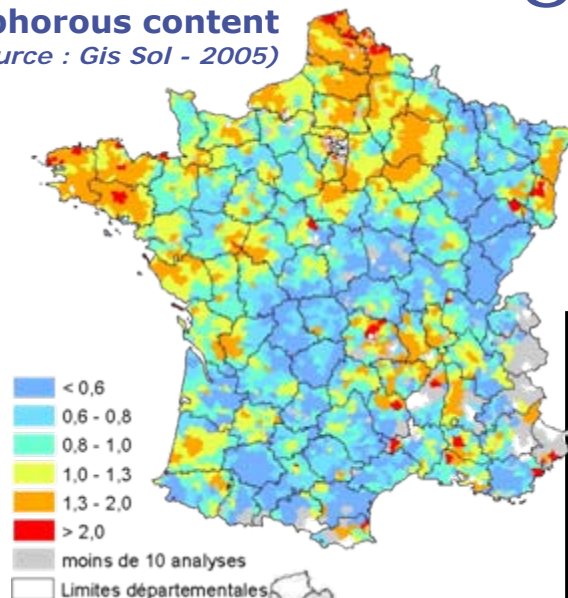
Atmospheric

Deposits (acid rainfalls, volcanic ash, etc.)

Etc.

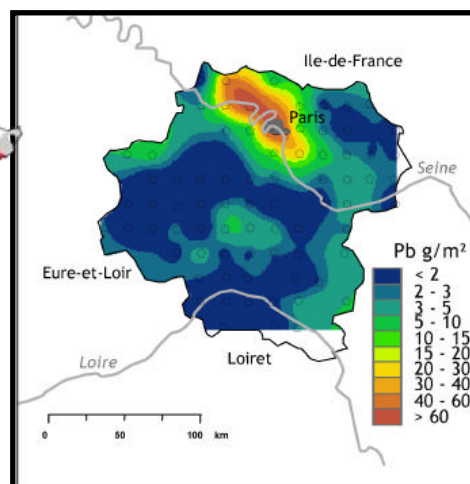


**Soil-test database**  
**Phosphorous content**  
(Source : Gis Sol - 2005)



## State

**Soil quality monitoring network (RMQS):**  
**Lead deposits due to human activities**  
(Source : Gis Sol -2005)



**Artificial radioactivity:**  
**Evolution of the <sup>137</sup>Cs content in French soils**  
(Source: IRSN)

## Response

**Law on water**

Regulation on spreading  
Incentive measures (Ferti-Mieux, etc.)

• **Recommendations** of the *Committee of Orientation for respectful Husbandries of the Environment (CORPEN)*

**Public information:**  
<http://indiquasol.gissol.fr>

**Recommendations** of the farmers organizations

# Local contamination

## Pressure

## State

## Response

<http://basol.environnement.gouv.fr/>



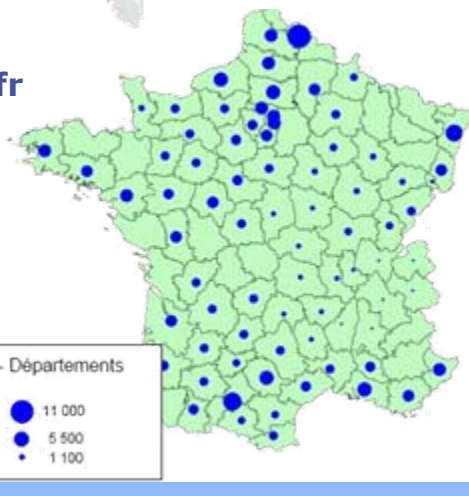
**3900  
contaminated  
sites**

**BASOL  
database**

<http://basias.brgm.fr>

**180.000  
potential  
polluted sites**

**BASIAS  
database**



France - Départements



Management of the polluted soils: regulation frame

- **Mining code**
- **Code of the environment**

>> Authorities action: survey or remediation

>> Orphan sites (Ademe: 50 actions in progress)

### **Public information:**

Web portal on polluted soils

<http://www.sitespollues.ecologie.gouv.fr>

Mining activities



Industrial activities



# Soil sealing

## Floods and landslides

### Pressure

#### •Soil sealing

Urban sprawl

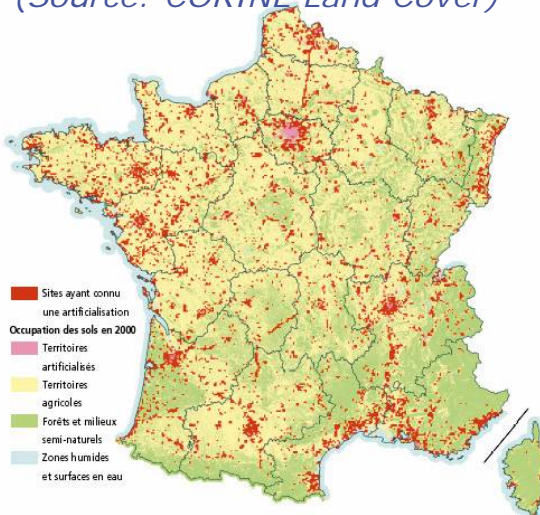
Transportation  
Infrastructures

Etc.



### State

Artificialisation (1990-2000)  
(Source: CORINE Land Cover)



### Response

**SRU Law on solidarity and urban renewal** December 13th 2000: regional land planning tools to manage urbanism at a local scale:

- PLU
- SCOT

#### •Floods and landslides

Urbanisation

Soil sealing

Forest clearing

Tourist  
infrastructures



Database on landslides  
<http://www.bdmvt.net>



- The **Law on the prevention of industrial and natural risks** (July 30th 2003):
  - oPublic information improvement (<http://www.bdmvt.net>)
  - oPPRI: flood hazard prevention scheme
- Regional land planning tools** (PLU, SCOT)
- The law on water** (January 3rd 1992):
  - oSDAGE (Water management master plan)
  - oCLE (Local Commission on water: public authorities (50%), local authorities (25%), citizens (25%))
- The law on the restoration of terrain in mountains**: State responsible for 342 000 ha < > other area : local authorities

## Pressure

### ■ Salinisation

- Irrigation,
- Overexploitation subsoil aquifers



## Response

Regional land planning tools

Recommendations of the farmers organizations

### ■ Soil compaction

- Agriculture
- Forestry Development
- Overgrazing
- Tourist activities



**Recommendations** of the farmers and forestry organizations:

- To restrict the load of the agricultural machinery
- To better manage the operation dates
- Use of control traffic
- Etc.

monitoring programme on soil  
(measurement of bulk density)



**ifen**  
INSTITUT FRANÇAIS  
DE L'ENVIRONNEMENT

# Communication on soils

## □ National communication

- **Ifen** (<http://www.ifen.fr/acces-thematique/sol.html>)
  - Chapter « soil and subsoil » in the ***Situation report On the environment*** (every 4 years)
  - Ifen synthesis publications on soils: erosion, sewage sludge spreading, ...
  - Heading ***Essential data*** on the Ifen website

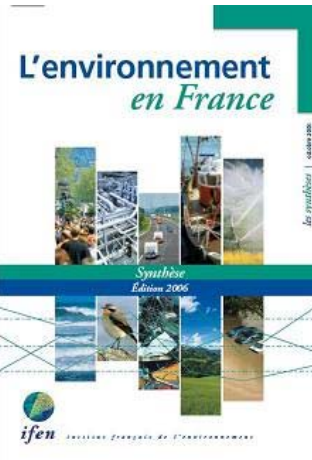
## □ **Gis Sol** (<http://www.gissol.fr/>)

- **The Gis Sol letter** (3 times a year)
- The Gis Sol thematic publications
- **Seminaries** regrouping users and administrators of the Gis Sol programmes (every year)
- **Data Consultation online:**

- Indicators of the soil quality database: <http://indiquasol.orleans.inra.fr/>
- Soil-test national database: <http://bdat.orleans.inra.fr/>

## □ European reporting

- **EEA:** Local contamination (once a year)
- **Eurostat/OCDE:** Land use and Erosion (every 2 years)







# The Group of Scientific Interest GIS SOL

- Created in 2001
- A group of several institutions:
  - Financial support:
    - Ministries of agriculture and environment
    - ADEME
  - Coordination and realisation:
    - INRA: Infosol Unit
    - IFEN
    - IRD
- Actions based on a network of regional partners



## Missions of the GIS Sol

- To coordinate the soil inventory and monitoring programmes
- To elaborate an information system on soils of France
- To unify the methods of collection, management, analysis and valorisation of data
- To achieve data valorisation and diffusion

# The programmes of the GIS SOL

## Survey

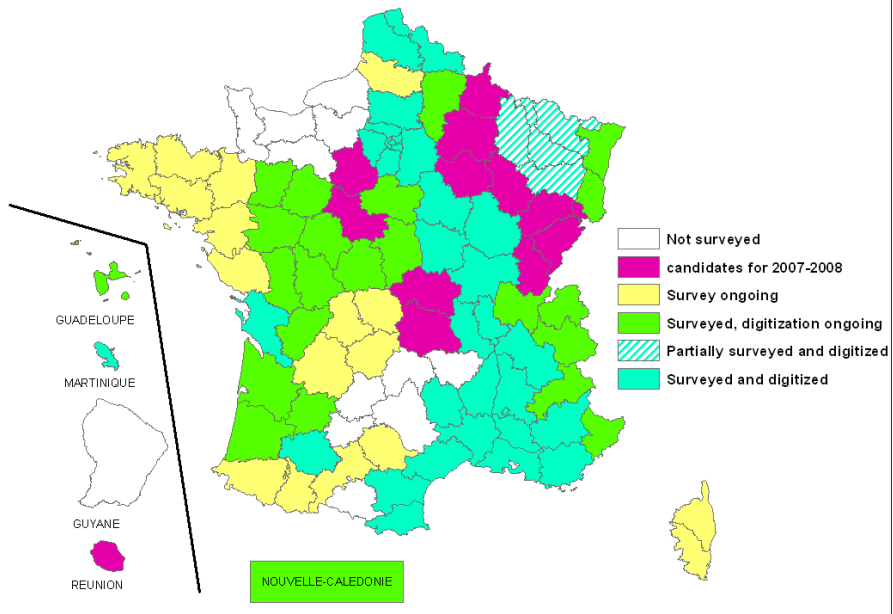
IGCS multi-scale  
Europe (1:1M)

## Data Bases

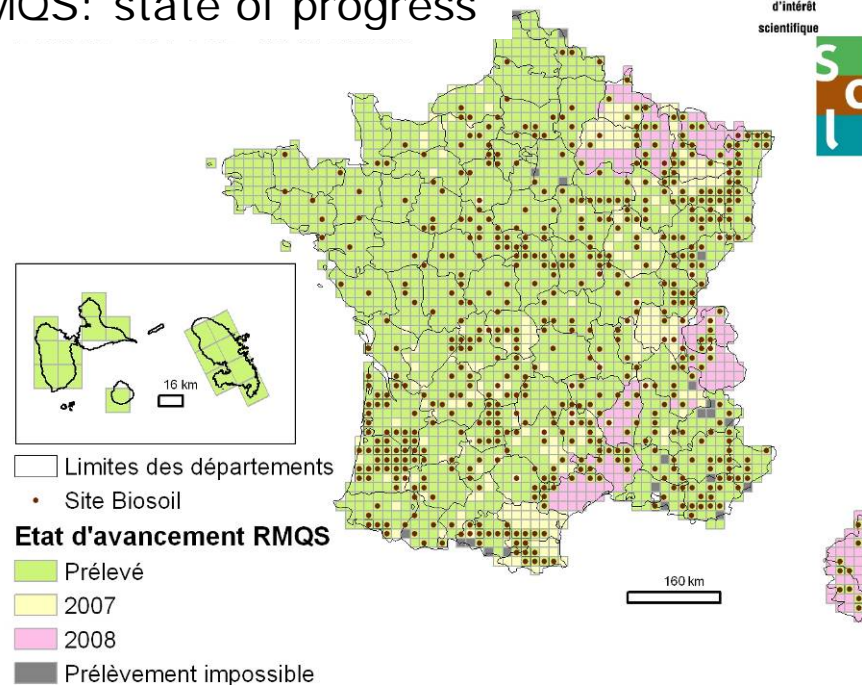
## Monitoring

RMQS, BDAT  
BIOSOIL

Regional Soil Survey 1:250 000



RMQS: state of progress



## Information & Communication

## Conclusion...

- The French Soil Information system has been improved the ten last years in France, but **soils remain a quite neglected topic in environment.**

### ... and perspectives

- **There is still a lot to do:**
  - **To complete the Information system** and to develop assessment methodologies,
  - **To make the stakeholders more aware** of the importance of soil in all the environment and sustainable development concerns → soil as a core topic
  - To give the ability to a **larger public to access the information** (data and knowledge) on soil,
  - **To develop applications** from soil data,
  - **To contribute to the future framework directive** on soil,
  - To maintain skill and **to develop training on soil sciences.**

Thank you for your attention.



[veronique.antoni@ifen.ecologie.gouv.fr](mailto:veronique.antoni@ifen.ecologie.gouv.fr)

[Christine.Le-Bas@orleans.inra.fr](mailto:Christine.Le-Bas@orleans.inra.fr)