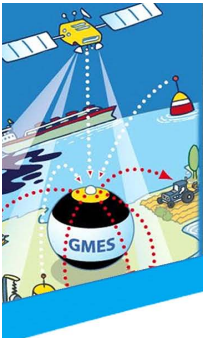




# PARALLELISM BETWEEN THE MOSEL AND TISZA RIVERS? - A similar Initiative from Europe / the GMES context -

- The cross-border challenge
- EU model case Mosel – GI project record
- The management framework
- GI for the implementation of the Water Framework Directive
- GI for the management of floods
- Tisza & Mosel – cross fertilisation

Dr. Wolfgang Steinborn  
EU Commission DG-ENTR  
GMES Bureau (Secretary to  
the Land Monitoring Service)  
Brussels



EUROPEAN COMMISSION  
GMES Bureau

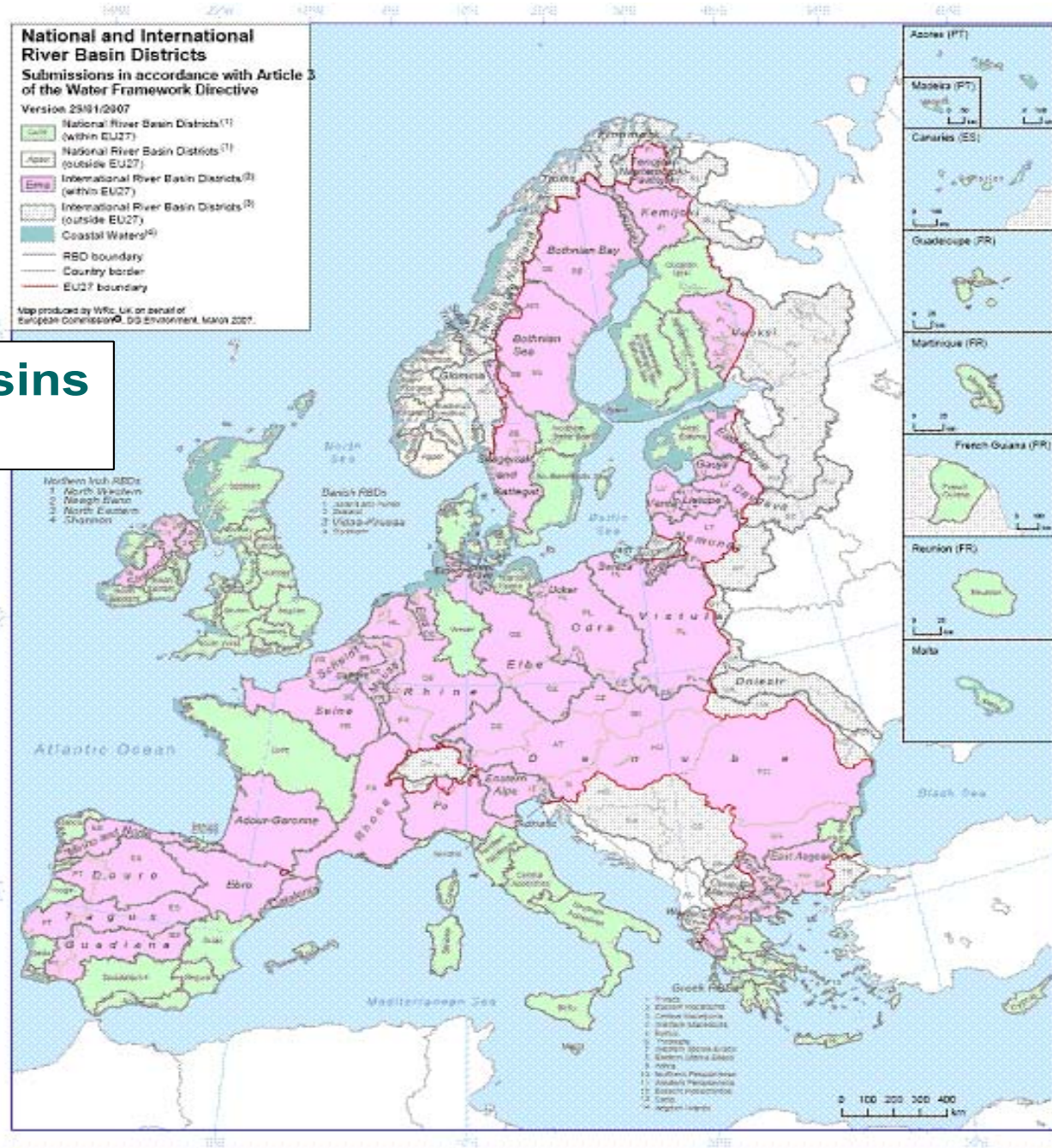
**National and International River Basin Districts**  
Submissions in accordance with Article 3 of the Water Framework Directive  
Version 25/01/2007

- National River Basin Districts<sup>(1)</sup> (within EU27)
- National River Basin Districts<sup>(1)</sup> (outside EU27)
- International River Basin Districts<sup>(2)</sup> (within EU27)
- International River Basin Districts<sup>(2)</sup> (outside EU27)
- Coastal Waters<sup>(3)</sup>

— RBD boundary  
— Country border  
— EU27 boundary

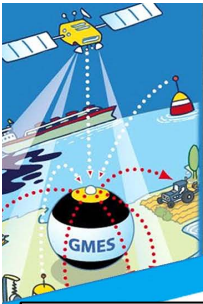
Map produced by WRC, Ltd on behalf of European Commission, DG Environment, March 2007.

**Most European river basins are trans-boundary**



**Workshop on the IHLET Tisza River Development Program: A Cross-Border SDI Approach - "From Local to Global", European Parliament, Brussels Wolfgang Steinborn, EC-ENTR, 20-22 June 2007**

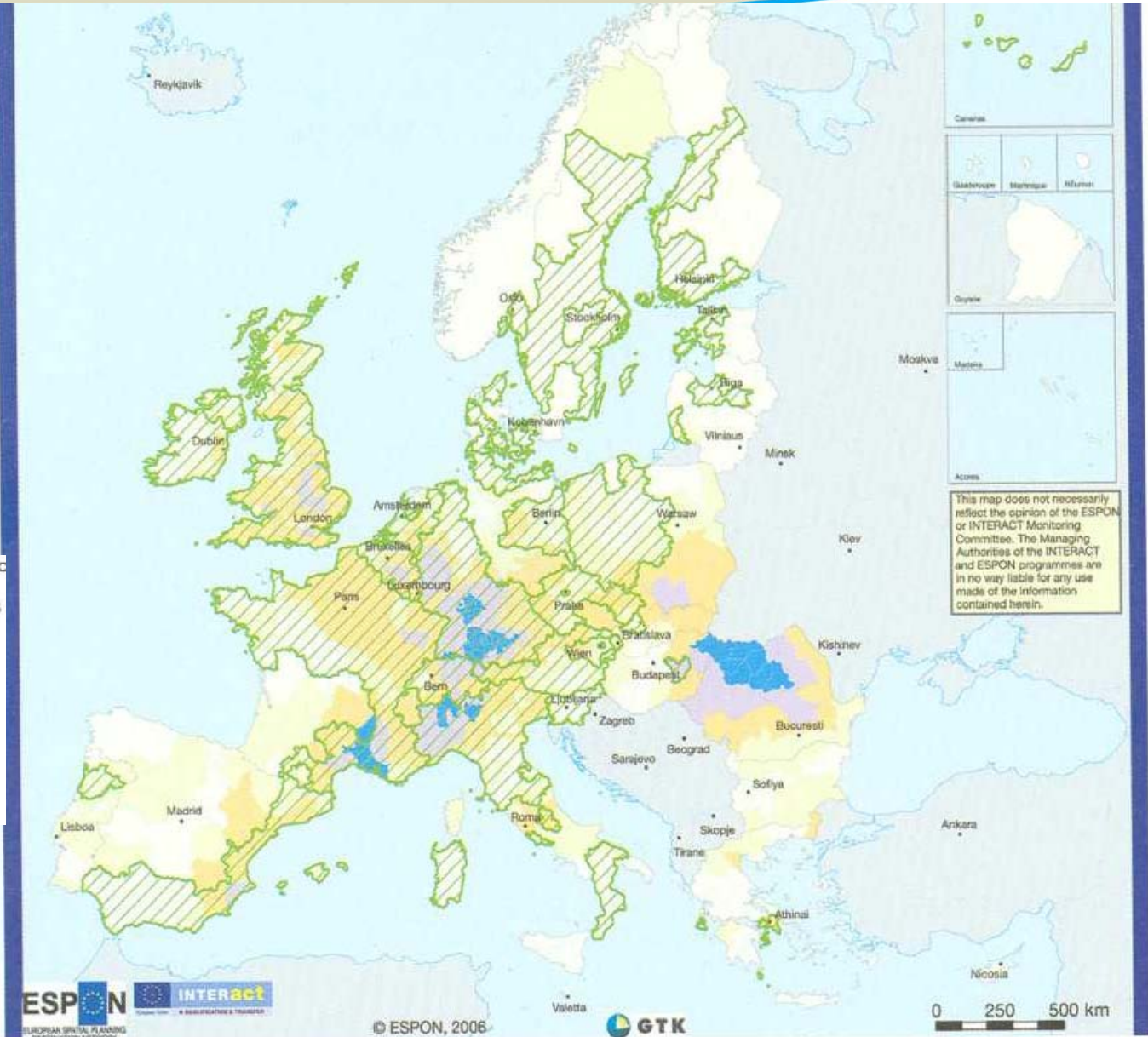




# Flood recurrence and INTERREG IIIB flood related projects on NUTS3 level



Source: ESPON-INTERACT study on environmental hazards and risk management (2006), page 26



This map does not necessarily reflect the opinion of the ESPON or INTERACT Monitoring Committee. The Managing Authorities of the INTERACT and ESPON programmes are in no way liable for any use made of the information contained herein.

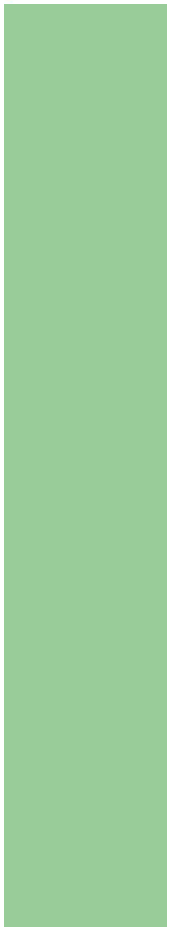
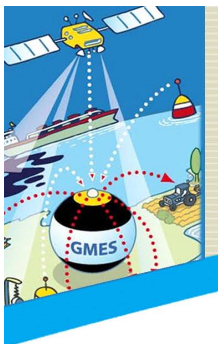




## GI Projects on the Mosel

Name / Objectives	Funding framework	Run-time	Clients / Partners	Website
<b>ECON-GI</b> (Economic Approaches Unlocking Geographic Information in the Public Sector in Saar-Lor-Lux): Bringing together, processing and making accessible the different geo meta data bases for the user community in Saar-Lor-Lux through a bi-lingual portal	eContent	2001 – 2002	Saarbrücken University with engineering offices on behalf of mapping agencies in <ul style="list-style-type: none"> <li>• Saarland</li> <li>• Rheinland-Pfalz</li> <li>• Lorraine</li> <li>• Wallonia</li> <li>• Luxembourg</li> </ul>	<a href="http://www.uni-saarland.de/projekte/econ-gi/egi-e.htm">http://www.uni-saarland.de/projekte/econ-gi/egi-e.htm</a>
<b>Interactive Hazard Map Mosel:</b> Basis data for planning and regulation of land use and information for the general public. Hazard stages (CH model) are expressed by water depth and flow velocity and the probability of its occurrence.	IRMA (Interreg Rhine-Maas programme)	2000-2002	<i>Lead:</i> Ernst Basler & Partner / CH <i>Clients:</i> Min. of the Interior <ul style="list-style-type: none"> <li>• Luxembourg</li> <li>• Rheinland-Pfalz</li> </ul>	<a href="http://www.gismosel.lu/">http://www.gismosel.lu/</a> <a href="http://www.gefahrenatlas-mosel.de/">http://www.gefahrenatlas-mosel.de/</a>
<b>INFERNO</b> (Integration of remote sensing data in operational water balance and flood forecast modelling): Improvement of spatial input parameters to be integrated in the operational water balance model LARSIM (Large Area Runoff Simulation Model) and the flood forecast model FGMOD. Use of remote sensing to measure soil moisture and snow cover.	Earth observation application programme of DLR (German Aerospace Centre)	2000 - 2004	<i>Lead:</i> Vista / Munich <i>Clients:</i> Floods simulation and alert centres for Mosel and Neckar	<a href="http://www.vista-geo.de/enq/projects/inferno.htm">http://www.vista-geo.de/enq/projects/inferno.htm</a>
<b>TIMIS flood</b> (Transnational Internet Map Information System on flooding): Model for a uniform EU policy for flood protection. Creation of a transnational flood information system for the whole international river basin of the Mosel. On one single platform will be available in 2008: <ul style="list-style-type: none"> <li>• Hazard and Risk Maps for an area of approx. 22'500 km<sup>2</sup> (&gt;90 rivers, &gt;3'000 km length)</li> <li>• Forecast and Warning for an area of 55'000 km<sup>2</sup></li> </ul>	INTERREG IIIB	2004-2008	Ministries & agencies for civil protection and environment in <ul style="list-style-type: none"> <li>• Luxembourg (Lead Partner)</li> <li>• Rheinland-Pfalz</li> <li>• Lorraine,</li> <li>• Alsace</li> <li>• Baden-Württemberg</li> </ul>	<a href="http://www.timisflood.net/en/">http://www.timisflood.net/en/</a>
<b>Geoland</b> Actual and uniform land-use/land-cover inputs for water quality models to implement the Water Framework Directive; as part of a Pan-European Land Monitoring Service with ~60 consortium partners	GMES (FP6/FP7, ESA)	2005-???	<i>Tech. execution:</i> Europe-wide consortium lead by Infoterra, <i>Client:</i> International Commission for the Protection of Mosel & Saar (FR, BE, LU, DE)	<a href="http://www.gmes-geoland.info/">http://www.gmes-geoland.info/</a> <a href="http://www.gmes-geoland.info/com/promo/GSE-Land_Info_WaterQuality.pdf">http://www.gmes-geoland.info/com/promo/GSE-Land_Info_WaterQuality.pdf</a>





**The Rhine :**  
an international river basin district  
(WFD, art 3.3)

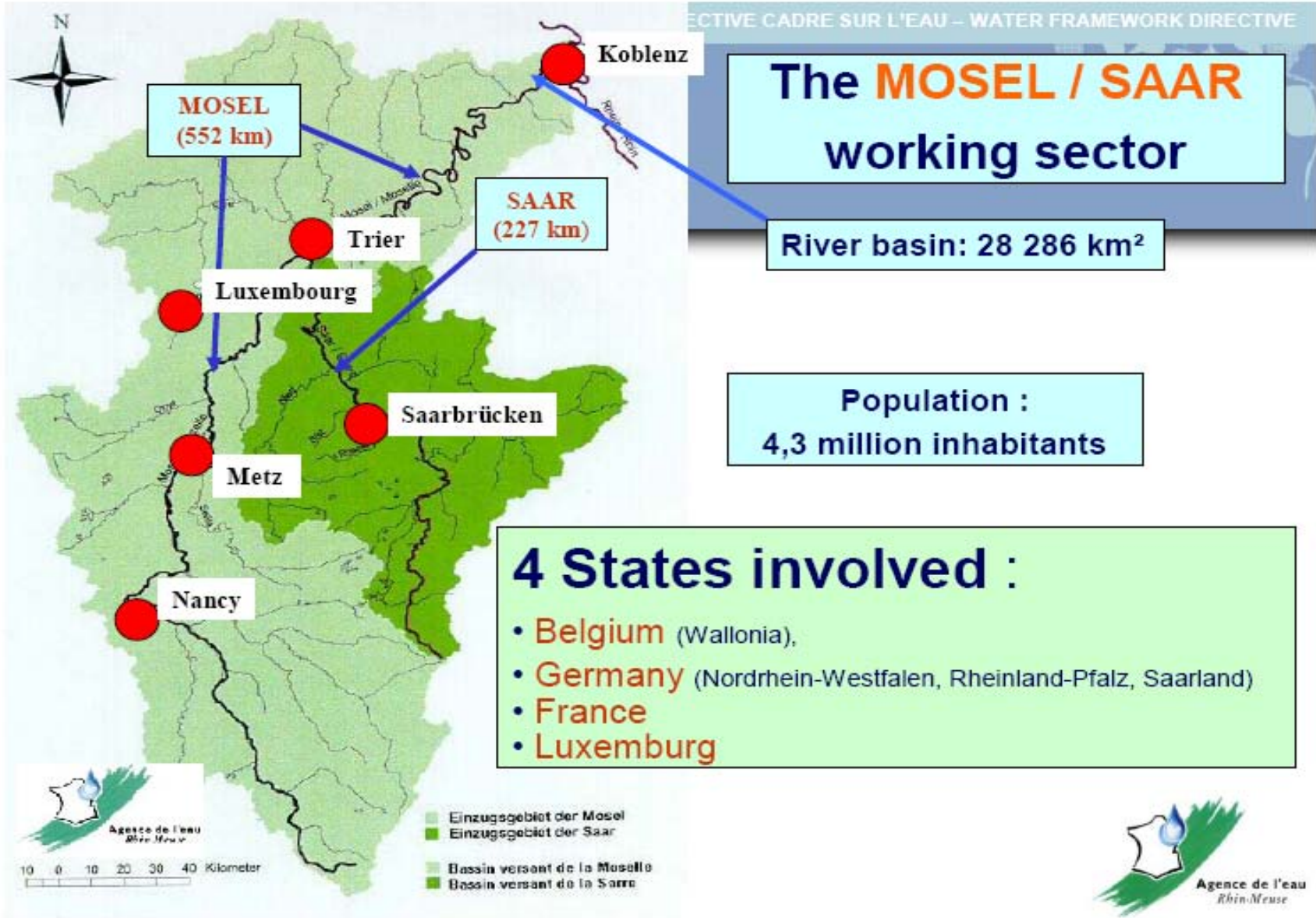
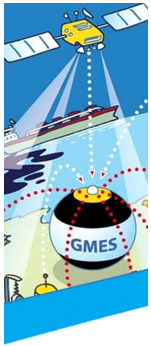
185 000 km<sup>2</sup>  
50 millions inhabitants

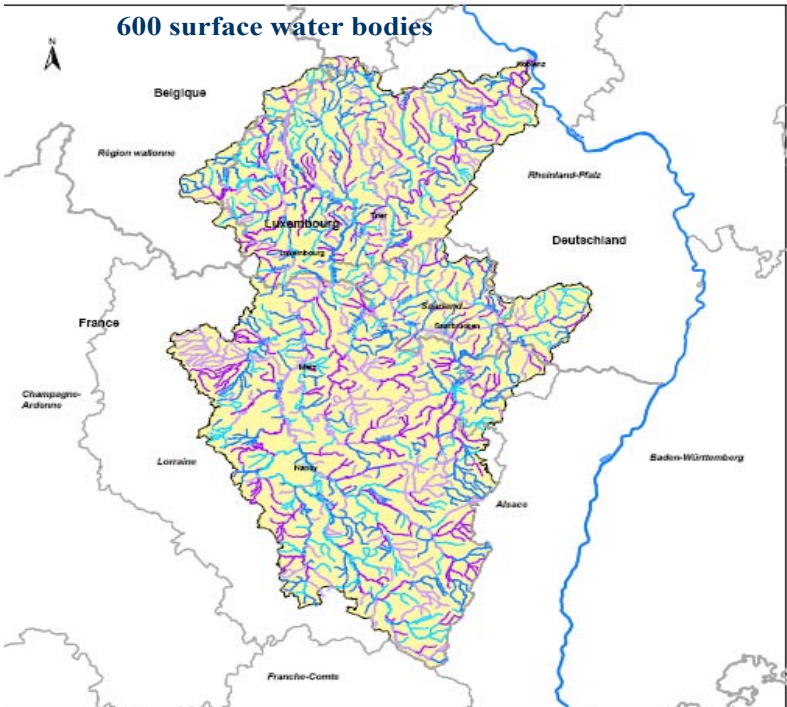


- 9 States involved**
- Austria
  - Belgium
  - France
  - Germany
  - Italy
  - Liechtenstein
  - Luxemburg
  - Switzerland
  - The Netherlands

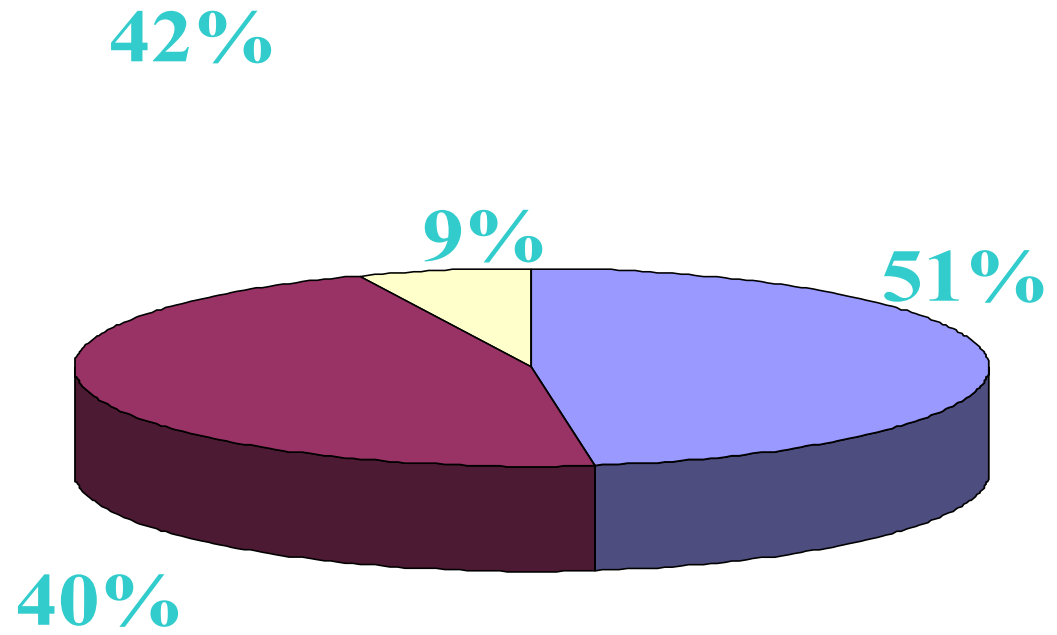
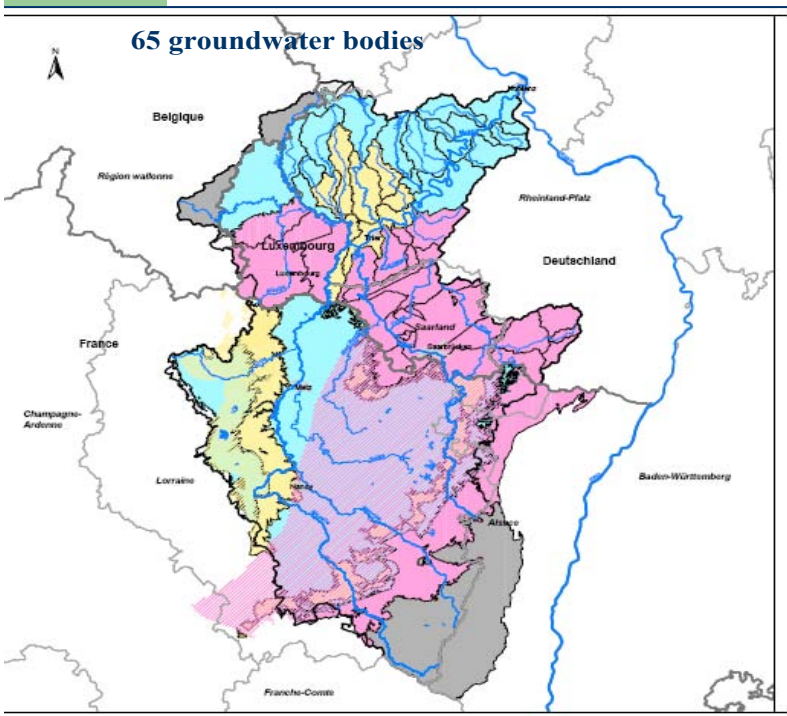
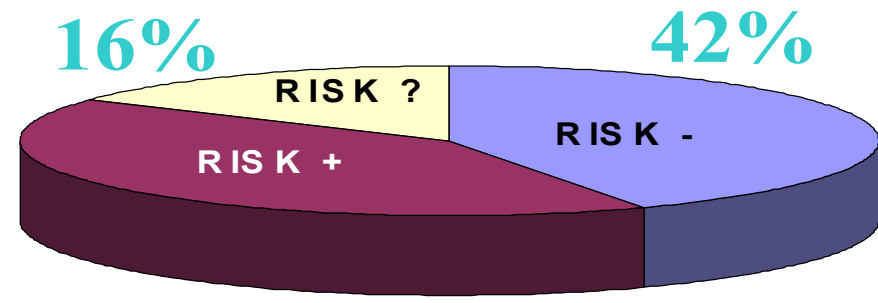
9 working sectors ...

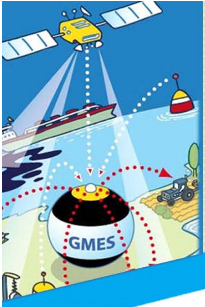






**The International Commission for the Protection of Mosel & Saar, existing since 50 years, is in charge of the WFD**





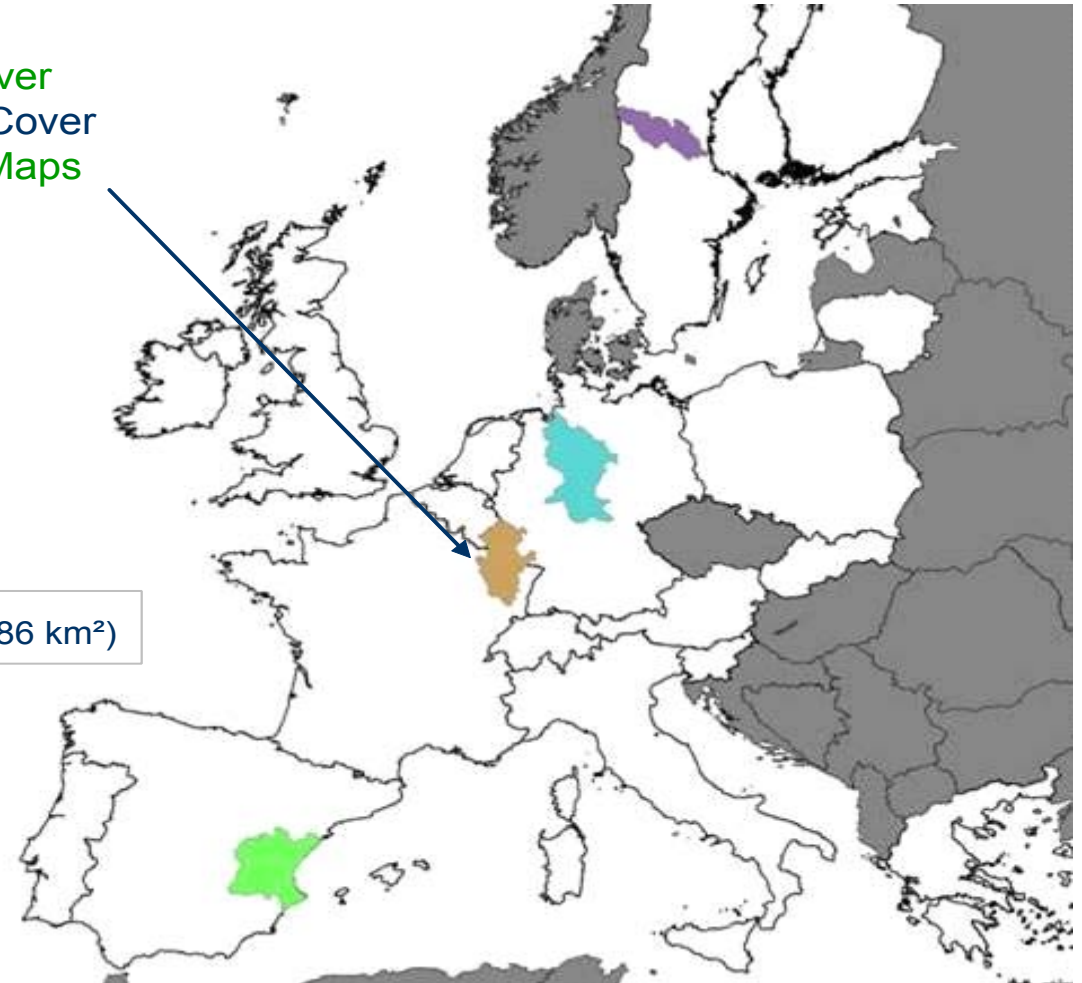
## GMES Products Delivered for Moselle / Sarre

### Mapping:

- M2.1 Regional Land Cover
- M2.5 Agricultural Land Cover
- M3.1 Arable Acreages Maps

### Downstream:

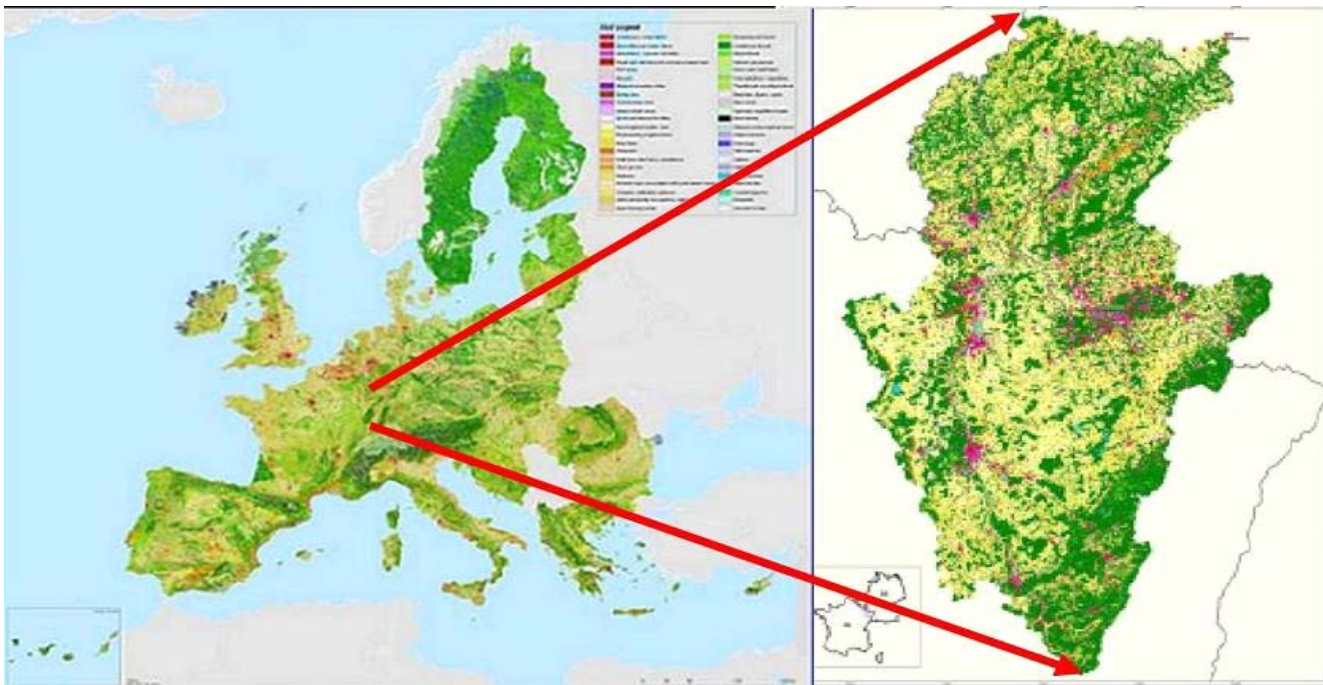
- WQ1.7 NPP Service
- WQ1.8 NOPOLU
- WQ1.9 PEGASE
- WQ2.1 Pesticides



Moselle-Sarre (28.286 km<sup>2</sup>)

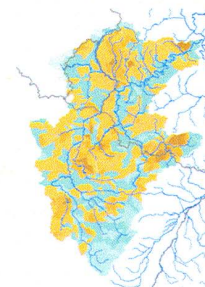




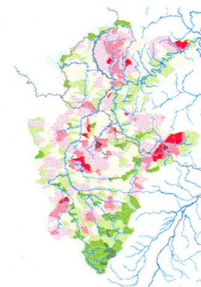


**GMES Products help achieving the WFD objectives by 2015**

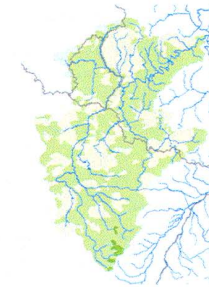
**Nutrients - Nitrate & Phosphorus**



Nitrates input intensity from diffuse sources (sub-basin vs. whole basin)



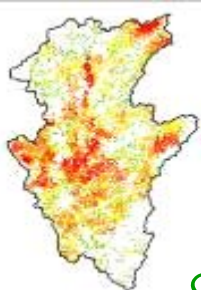
Nitrates classified in absolute concentrations [mg / l]



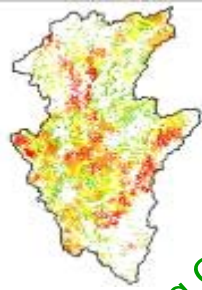
Nitrates grading of commodities (7 classes in accordance with WFD)

Diverse possibilities of assessing intensity and impact of nitrate and phosphorus entry into a cross-border river basin's water bodies  
© GSE Land Consortium & IKSMS

**Arable Acreages Maps**



Winter Crops



Spring Crops



Summer Crops

**Technical Specifications:**

<b>Thematic layers</b>	Nitrogen, phosphorus and plant protection substances
<b>Geometric resolution/scale</b>	Water bodies, < 10 km <sup>2</sup> up to >1,000 km <sup>2</sup>
<b>Minimum mapping unit</b>	Water bodies, < 10 km <sup>2</sup> up to >1,000 km <sup>2</sup>
<b>Maximum working scale</b>	1: 10,000
<b>Update frequency</b>	On user request
<b>Format of delivery</b>	On user request, ESRI shapes, doc, tables
<b>Type of data delivered</b>	Statistics, maps, reports





EUROPEAN  
COMMISSION  
GMES Bureau

## Flood Management





# Data layers of the Transboundary GisAtlas Mosel

**Layers**

- Landesgrenze
- Gemeinden
- Sonderbauwerke
  - Brücke
  - Brücke und Wehr
  - Damm und Brücke
  - Staumauer
  - Wehr
- Hochwasserschutzbauten
- Querprofile
  - offen
  - geschlossen
  - keine Angabe
- Basiskarte 1:25'000 / 1:20'000
- Fluss
  - Mulden und Polder
  - Wassertiefe HQ 200
  - Wassertiefe HQ 50
  - Wassertiefe HQ 100
  - Gefährdung
    - Fluss
    - erheblich
    - mittel
    - gering
    - Restgefährdung
- Überschwemmungsgebiet 50
- Überschwemmungsgebiet 100
- Überschwemmungsgebiet 200
- Überschwemmungsgebiet Extrem
- Wassertiefe HQ extrem
- Fließgeschwindigkeit HQ 50
- Fließgeschwindigkeit HQ 100
- Fließgeschwindigkeit HQ 200
- Fließgeschwindigkeit HQ Extrem
- Intensität HQ 50
- Intensität HQ 100
- Intensität HQ 200
- Überschwemmungsdauer HQ 50
- Überschwemmungsdauer HQ 100
- Überschwemmungsdauer HQ 200
- Überschwemmungsdauer HQ Extrem

**Selected Attributes of Querprofil**

FLUSS	PROFILNUMM	PROFILGEOT	WSP_AUFNAH	HQ50	HQ100	HQ200	HQEXTREM
alzette	63496	10	279.82001	281.493	281.77	282.15	282.15

Record: 1 Show: All Selected Records (1 out of 6229 Selected.)

GisAtlas.mxd - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Draw

Drawing      Arial 10 B I U

- Brücke und Wehr
- Damm und Brücke
- Staumauer
- Wehr
- Hochwasserschutzbauten
- HWSchutzbauten
- Querprofile
- <all other values>
- offen
- geschlossen
- keine Angabe
- Fluss
  - Fluss
- Mulden und Polder
- Polder
- Gefährdung
  - Fluss
  - erheblich
  - mittel
  - gering
  - Restgefährdung
- Überschwemmungsgebiet 50
- Überschwemmungsgebiet 100
- Überschwemmungsgebiet 200
- Überschwemmungsgebiet Extr
- Wassertiefe HQ 50
- Wassertiefe HQ 100
- Wassertiefe HQ 200
- Wassertiefe HQ extrem
- Fließgeschwindigkeit HQ 50
- Fließgeschwindigkeit HQ 100
- Fließgeschwindigkeit HQ 200
- Fließgeschwindigkeit HQ Extr
- Intensität HQ 50
- Intensität HQ 100
- Intensität HQ 200
- Überschwemmungsdauer HQ 5
- Scheitelwasserstand
- 1 Tag
- 2 Tage
- 5 Tage
- 10 Tage
- Überschwemmungsdauer HQ 1
- Überschwemmungsdauer HQ 2
- Überschwemmungsdauer HQ E
- Basiskarte 1:100'000
- Ik15\_p.tif
- Basiskarte 1:25'000 / 1:20'000
- Landnutzung
- Relief
- Ikonos
- DHM

### Wasserlinie-Diagramm

## DHM mit Wasserlinien

Von: 2°53'148" / 5°50'9"126  
Bis: 2°53'6"431 / 5°50'9"415

- HQ extrem
- HQ 200
- HQ 100
- HQ 50
- DHM

mNN

Profilbreite in m

Y-Achse: max.   
min.

X-Masstab: ca. 1:

Y-Masstab: ca. 1:

Profil spiegeln

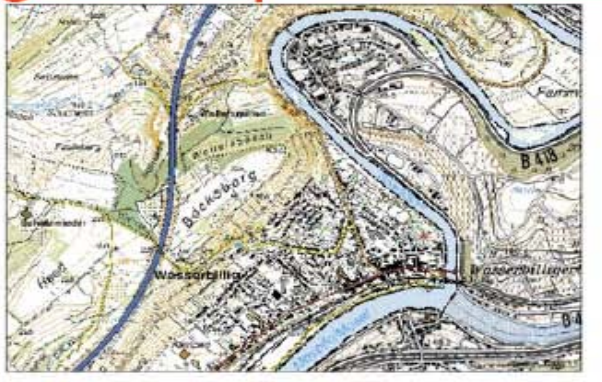
Display Source

2535137.74 5509571.71 Meter:

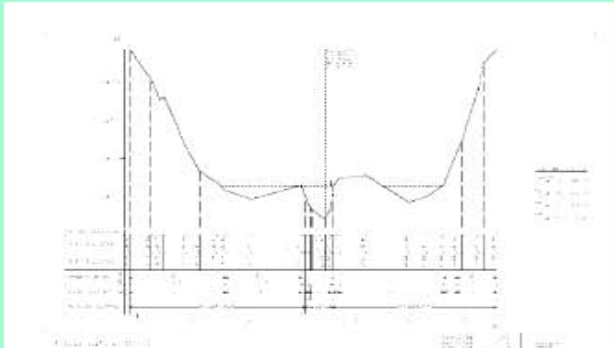
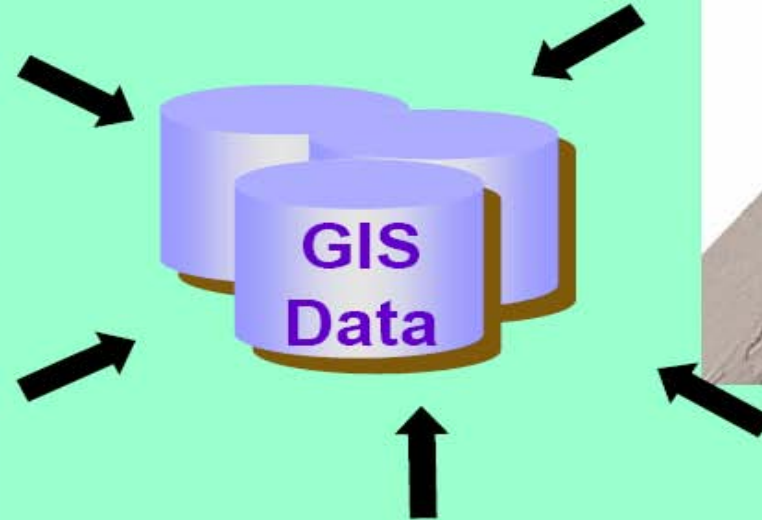
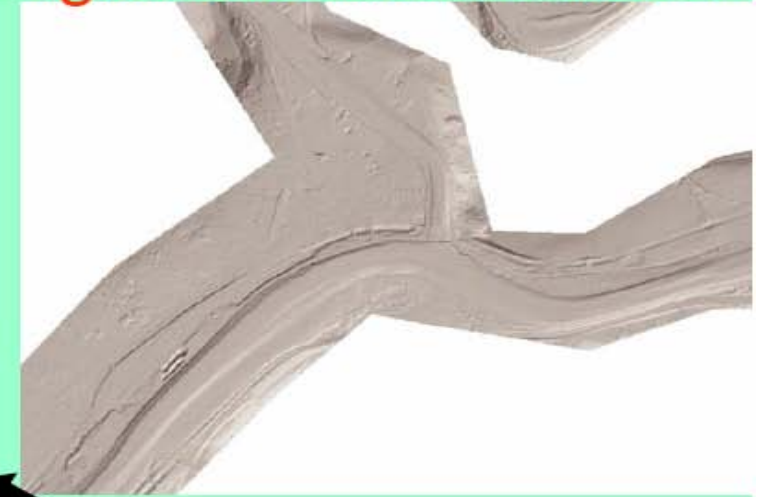


# Data collection for the Transboundary GisAtlas Mosel

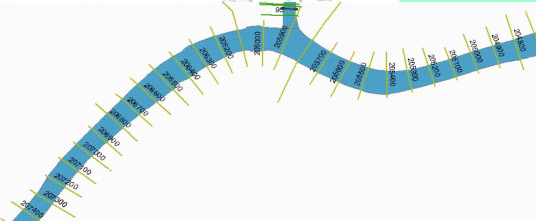
## Digital maps



## Digital elevation model



## Profiles



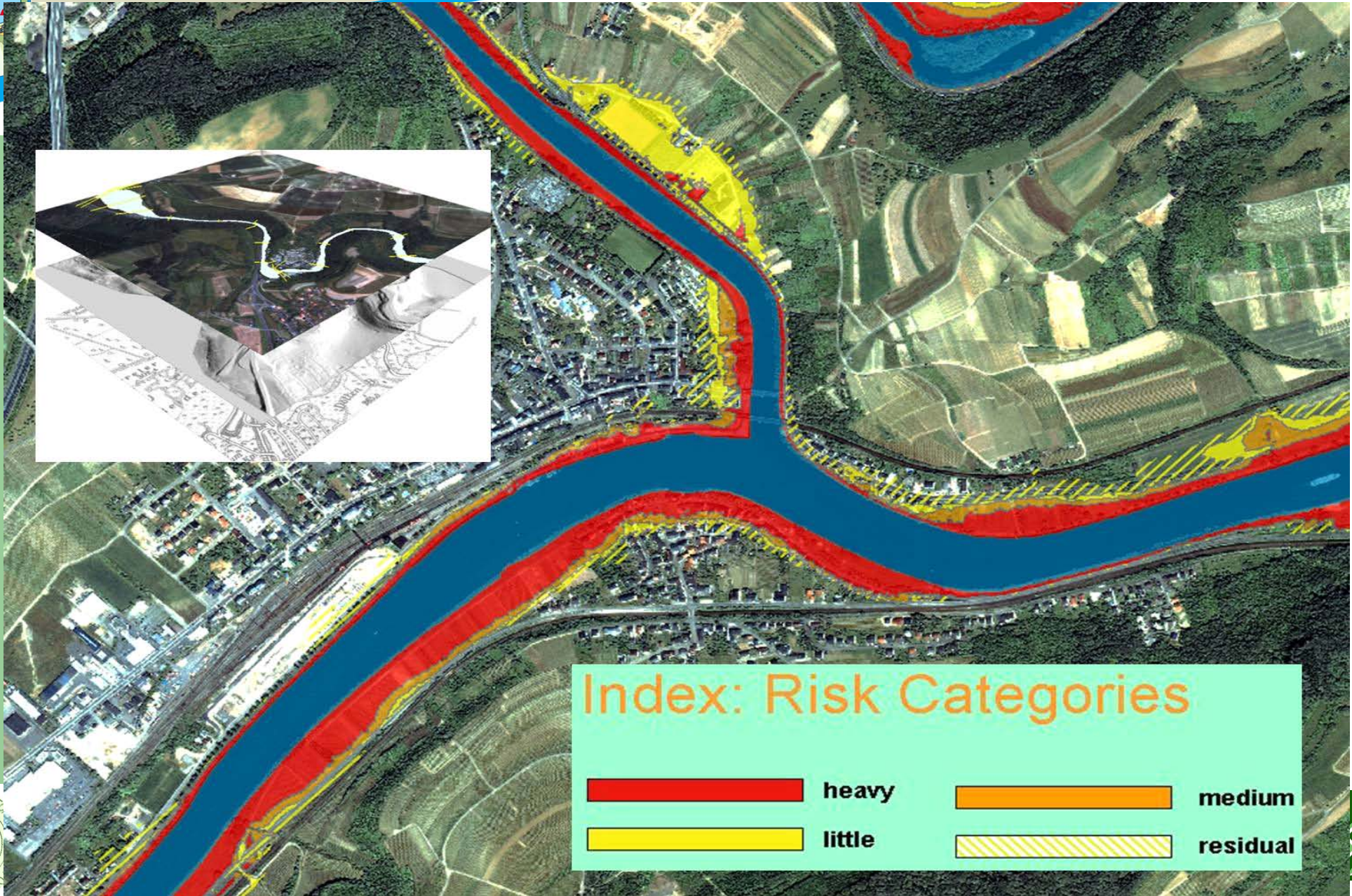
## Buildings



## Satellite images



# Information generation of the Transboundary GisAtlas Mosel



Index: Risk Categories

	heavy		medium
	little		residual

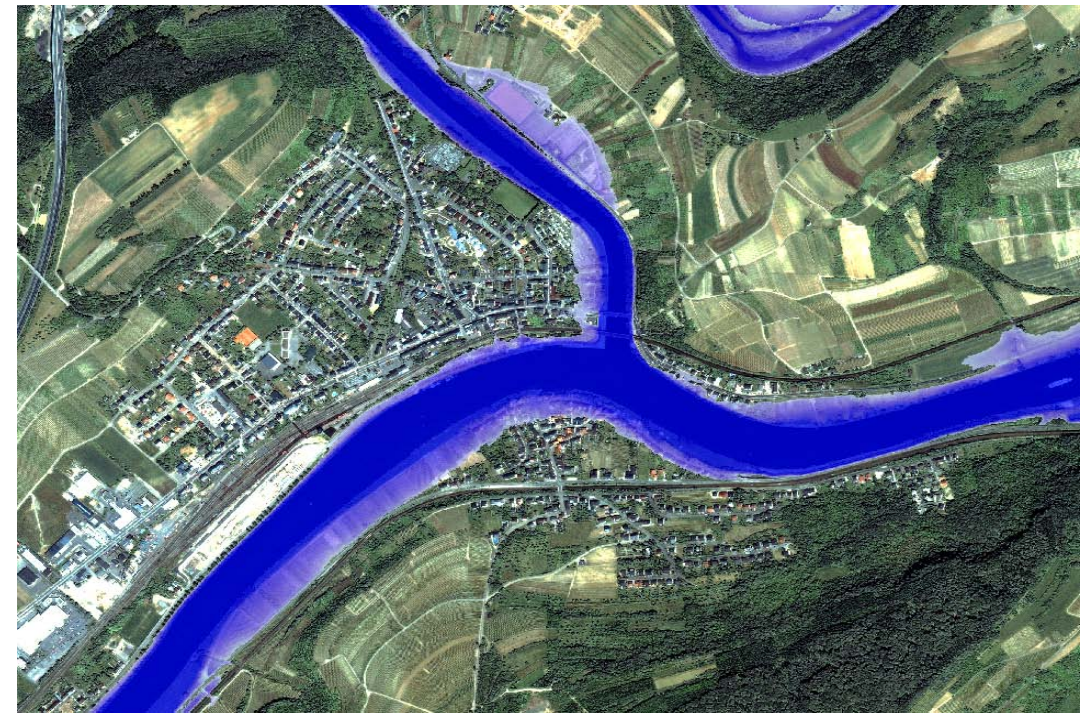
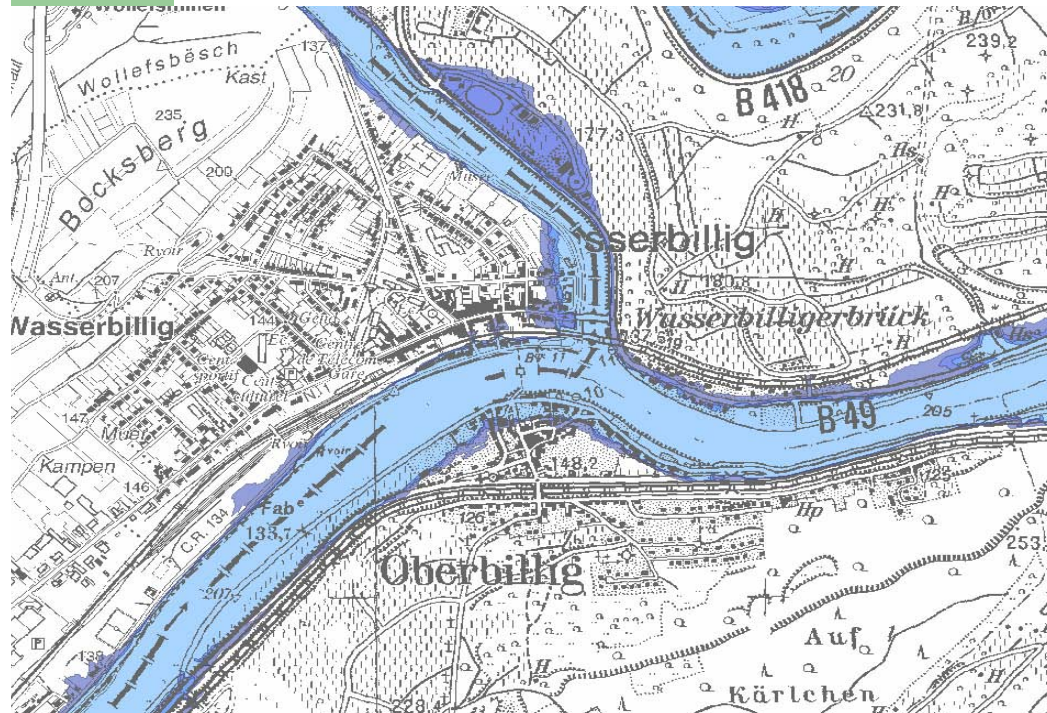




## Where satellites can help

Topographic maps for  
geographic reference

Satellite data for actuality and  
cross-border compatibility





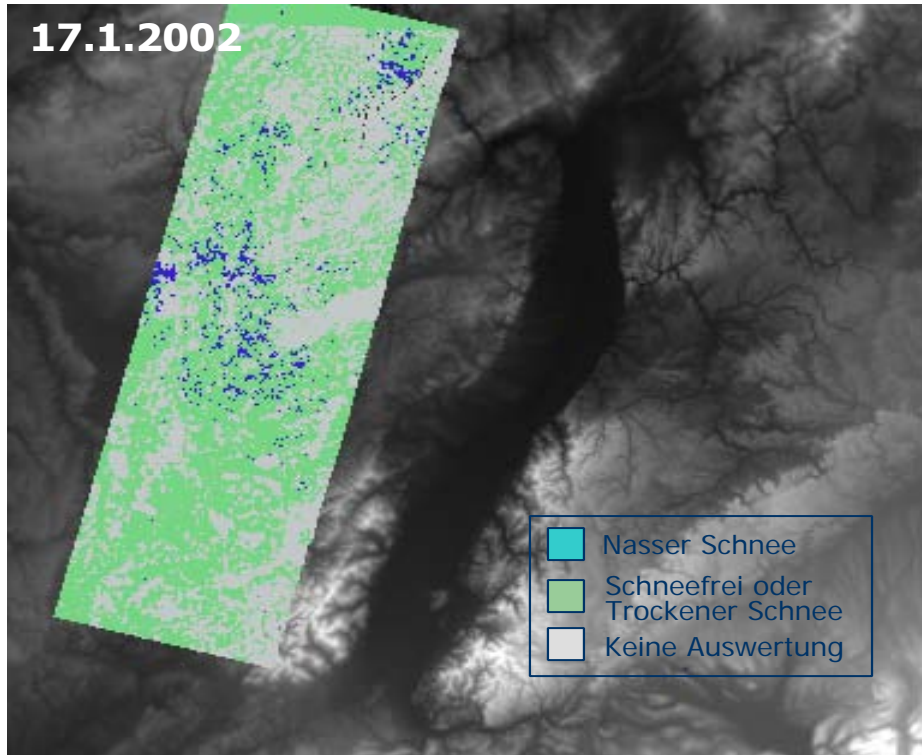
# Where satellites can help

## Forecast improvement

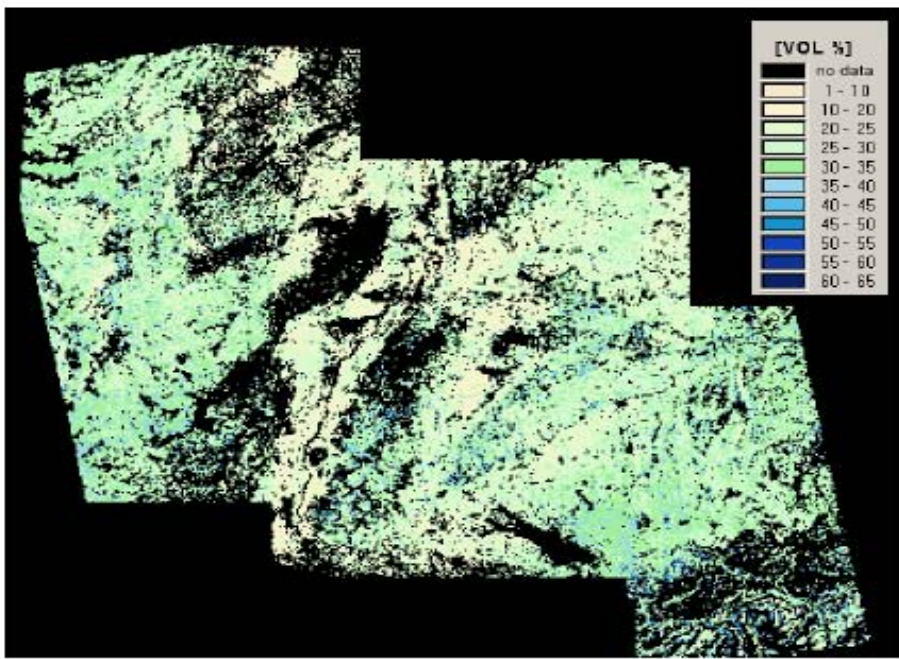
Goal: increase the forecast period from 12h (1998) to 24h (2005)



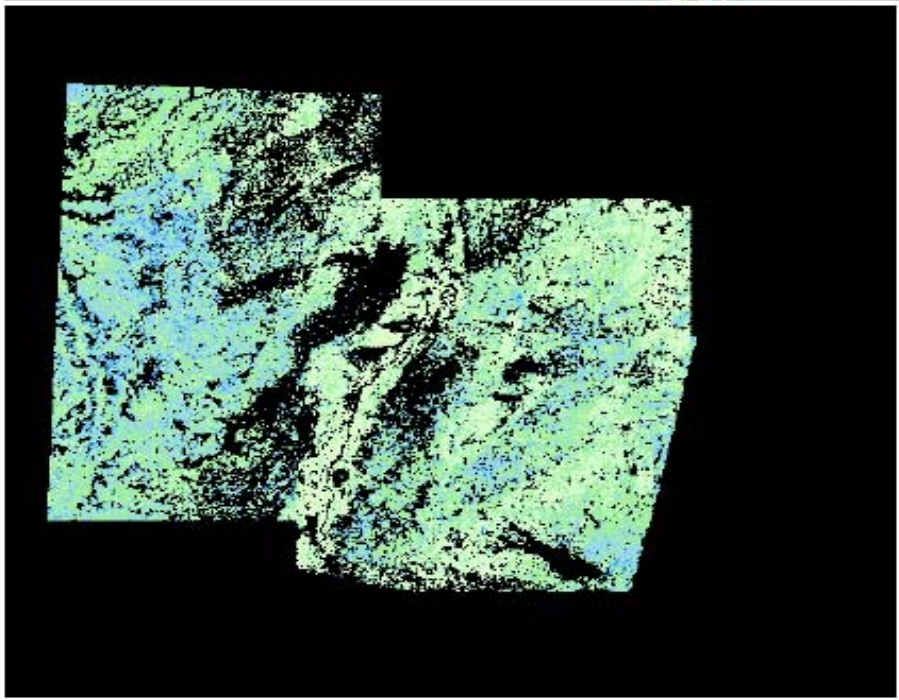
17.1.2002



## ASAR - Near Real Time Bodenfeuchte-Produkte



Bodenfeuchte  
28. Juli 2004  
24:00



Bodenfeuchte  
13. Aug 2004  
12:00







GMES Bureau

# Application example: Insurance industry

The screenshot shows a GIS application window titled "ZÜRS - [BRD]". The main map area displays a street network with a red line highlighting a specific street. To the right, an "Adressliste" window is open, showing search criteria and a list of addresses.

**Adressliste Search Criteria:**

PLZ	Ort	Straße	Haus Nr.
	Koblenz	Florinspflengasse	1

**Adressliste Lists:**

PLZ	Ort	Straßen
560.	Koblenz	Florinspflengasse
19406	Kobrow	Flößergasse
824.	Kochel	Foosstr.
19217	Köchelerort	Follmannstr.
83739	Köck	Forststr.
39649	Köckle	Frankenstr.
02923	Kodersdorf	Frenz-Leuninger-Str.
95189	Koditz	Frenz-Weis-Str.
07426	Ködtzberg	Friedrich-Ebert-Ring
95351	Ködnitz	Friedrich-Gerlach-Str.
07557	Köfeln	Friedrich-Mohr-Str.
93090	Köfering	Friedrich-Syrup-Str.
		Friedrich-Wilhelm-Str.
		Friedrichstr.
		Friesenstr.
		Fritz-Ludwig-Str.
		Fritz-Michel-Str.
		Fritz-von-Urnau-Str.
		Fritz-Zimmer-Str.
		Frcbelstr.
		Frcchauptuhl
		Fuhrweg

**Ortsteile List:**

Ortsteile
Alle Ortsteile
Altstadt
Arenberg
Arzheim
Asterstein
Bubenheim
Ehrenbreitstein
Ehningube

**Map Coordinates:** N: 50°21'29" O: 7°35'37" / GK [ H: 5681055 R: 3401135 ]

**Scale:** 400 m (1 : 6480)

**Taskbar:** Start | Explorer - Heinz | Microsoft Word - Dokum... | ZÜRS - [BRD] | Adressenliste Städtische... | Inbox - Netscape-Ordner | Verlassen | 11:10



## Application example: Search & Rescue exercise



### Luxembourg is getting ready for EULUX 2007!

A week to go before 1200 people meet in Luxembourg for a major emergency management exercise. Of these, about 400 are members of intervention teams from 8 different countries. They will rescue some 400 victims foreseen by the different scenarios of the exercise. 110 observers will follow the work of the rescue teams very close and up to 50 specially invited guests from the four organizing and the four participating States will visit the exercise.

Belgium, France, Germany and Luxembourg are equivalent partners in the organisation of this exercise and each of these countries have already done a great deal of work. As the exercise is held in Luxembourg, some of the more practical work however has to be made by the Luxembourgish rescue services. During the last weeks, a huge number of voluntary helpers have therefore been extremely active and the results of their work become visible by now. But there is still a lot to do before the first foreign teams arrive in Luxembourg on the 6<sup>th</sup> June...



The material ordered for EULUX 2007 is arriving...



Briefings for the voluntary helpers are being given...



Area maps are being prepared by voluntary helpers



## Tisza & Mosel – mutual fertilisation

### Tisza:

- the GI management concept from local to global:
  - Local: large scale local data
  - Nation: aggregated data for the ntl. share of the area
  - Centre: aggregated data for the whole area  
(question: full data flow between these levels?)

- the fund raising mechanism of RETC

Model for the GMES Governance?

### Mosel:

- the composition of the database
- the assimilation of spatial data to various models  
(flood, water quality)
- established cross-border coordination of water  
authorities incl. full data exchange/access

Model for IHLET?

☞ Tisza River Development Programme and GMES should work closely together

