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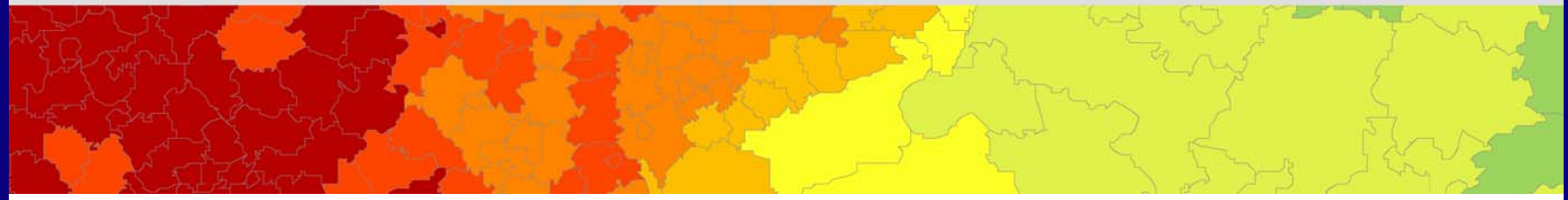

MONTESPON Seminar
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Quality of the environment, natural heritage and natural hazards in European Mountain regions – evidences from ESPON projects

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Structure of Intervention

- **short description of project aims**

1.3.2 **Territorial trends of the Management of the Natural Heritage**

Lead Partner: Royal Haskoning, Netherlands

2.4.1 **Territorial Trends and Policy Impacts in the Field of EU Environmental Policy**

Lead Partner: Geological Survey of Finland

1.3.1 **Spatial effects of natural and technological hazards**

Lead Partner: Geological Survey of Finland

- **presentation of selected results**
- **conclusions – situation and trends**

1.3.2 Territorial trends of the Management of the Natural Heritage

- **Survey of the territorial trends of the management of the Natural Heritage**

- **Key results:**

➢ Identification of territorial trends as a threat or challenge to the nature

➢ Natural heritage of Europe

➢ Management of the natural areas

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Identification of territorial trends as a threat or challenge to the nature

- Agricultural intensification and extensification
- Forestry for the wood production
- Increase of the surface of urbanised land
- Growing tourism

2.4.1 Territorial Trends and Policy Impacts in the Field of EU Environmental Policy

- **Preparation for the improvement of knowledge on environmental issues and trends; EU Environmental policy in relation to the development of the European territory**

- **Key results:**
  - Identification of Territorial trends
  - Proposal for a Territorial impact assessment
  - Future Applied research recommendation

1.3.1 Spatial effects of natural and technological hazards

- **Survey of the spatial patterns of natural and technological hazards (NUTS3)**

- **Key results:**
  - Individual hazards recurrence maps
  - Integrated hazard map (high/low hazardous areas in Europe)
  - Risk maps

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Natural hazards in European NUTS II regions

- spatial filter screens risks according to their spatial character
- the occurrence of spatially relevant hazards is limited to a certain disaster area that is regularly or irregularly prone to hazards
- Spatially non-relevant hazards can occur more or less anywhere

Natural and technological hazards	Indicators
Avalanches	Areas that have reported landslide/avalanche potential (derived from several sources)
Drought potential (based on recorded rainfall scarcity)	Amount of observed droughts 1904 –1995
Earthquakes	Peak ground acceleration
Extreme temperatures	Hot days Heat waves (7-day maximum temperature) Cold days Cold waves (7-day minimum temperature)
Floods	Large river flood event recurrence (1987 – 2002)
Forest fires	Observed forest fires per 1000 km² (1997 – 2003); Biogeographic regions
Landslides	Questionnaire, expert opinion of geological surveys of Europe
Storm surges	Approximate probability of storm surges
Tsunamis	Areas that have experienced tsunamis, areas in close vicinity to tectonically active zones
Volcanic eruptions	Known volcanic eruptions within the last 10 000 years
Winter and tropical storms	Approximate probability of winter/tropical storms
Technological hazards	**Indicators**
Air traffic hazards	Civil commercial airports, amount of passengers per year
Major accident hazards	Number of chemical production plants per km² per NUTS3 region
Nuclear power plants	Location of nuclear power plants, distance from nuclear power plants, based on fallout experience of the Chernobyl accident
Oil production, processing, storage and transportation	Sum of refineries, oil harbours and pipelines per NUTS3 region

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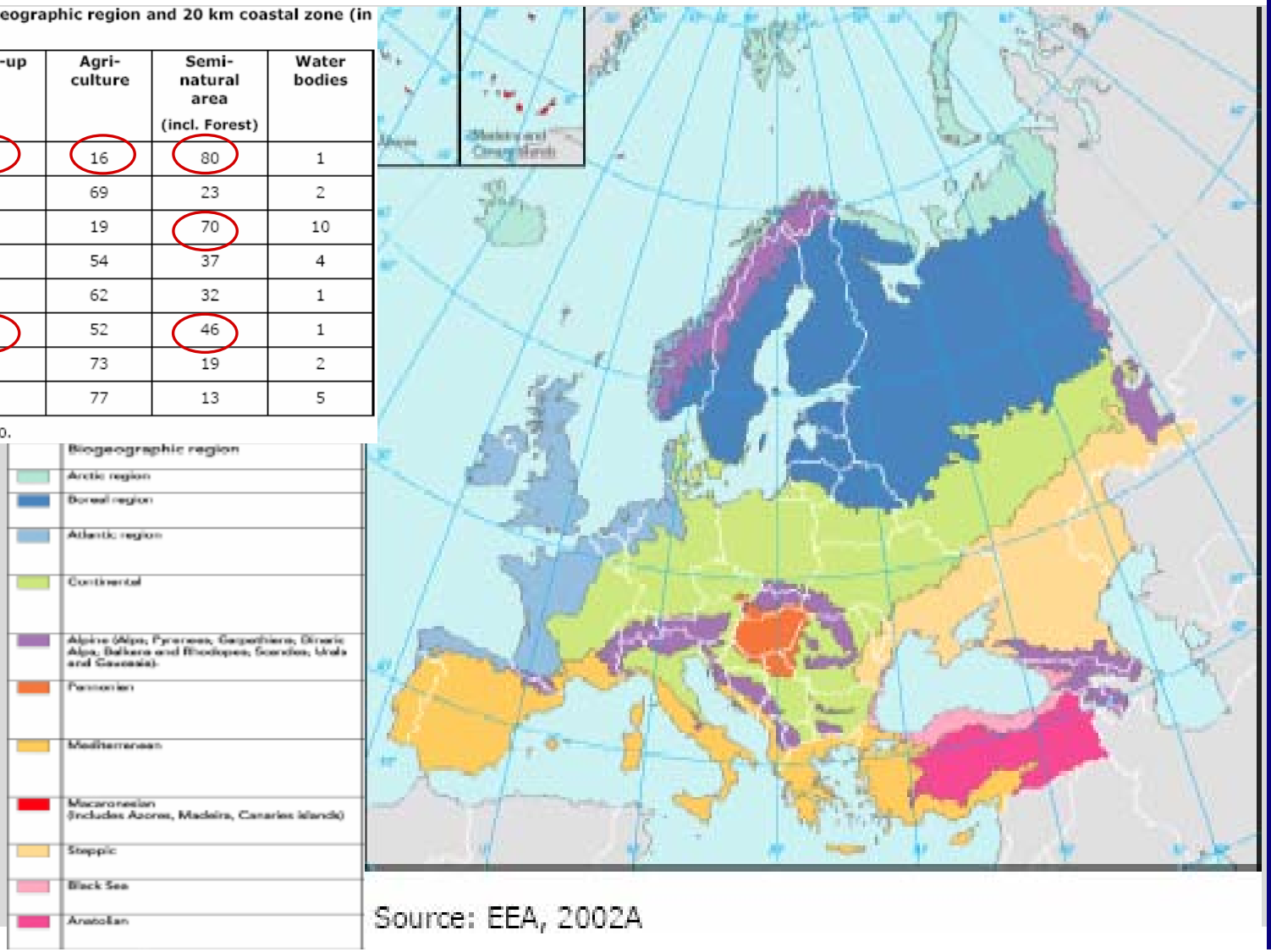
- conclusion – situation and trends

Land cover for European bio – geographic regions

Land cover for each bio geographic region and 20 km coastal zone (in percentages)

	Built-up	Agri-culture	Semi-natural area (incl. Forest)	Water bodies
Alpine region	2	16	80	1
Atlantic region	6	69	23	2
Boreal region	1	19	70	10
Coastal region	5	54	37	4
Continental region	5	62	32	1
Mediterranean	1	52	46	1
Pannonian region	6	73	19	2
Steppic region	5	77	13	5

Source: CORINE land cover 1990.



Source: EEA, 2002A

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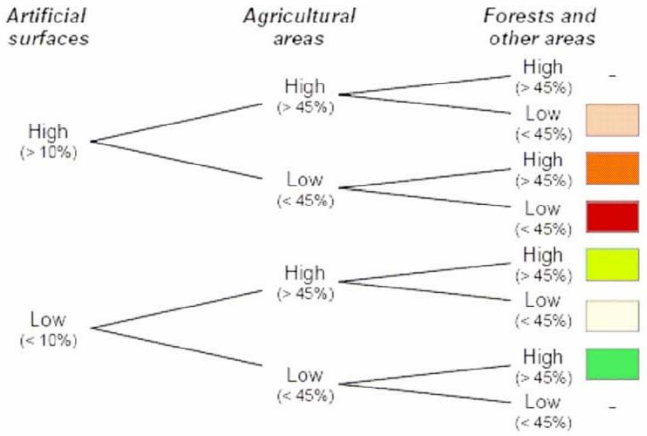
Land use composition of NUTS – 3 units

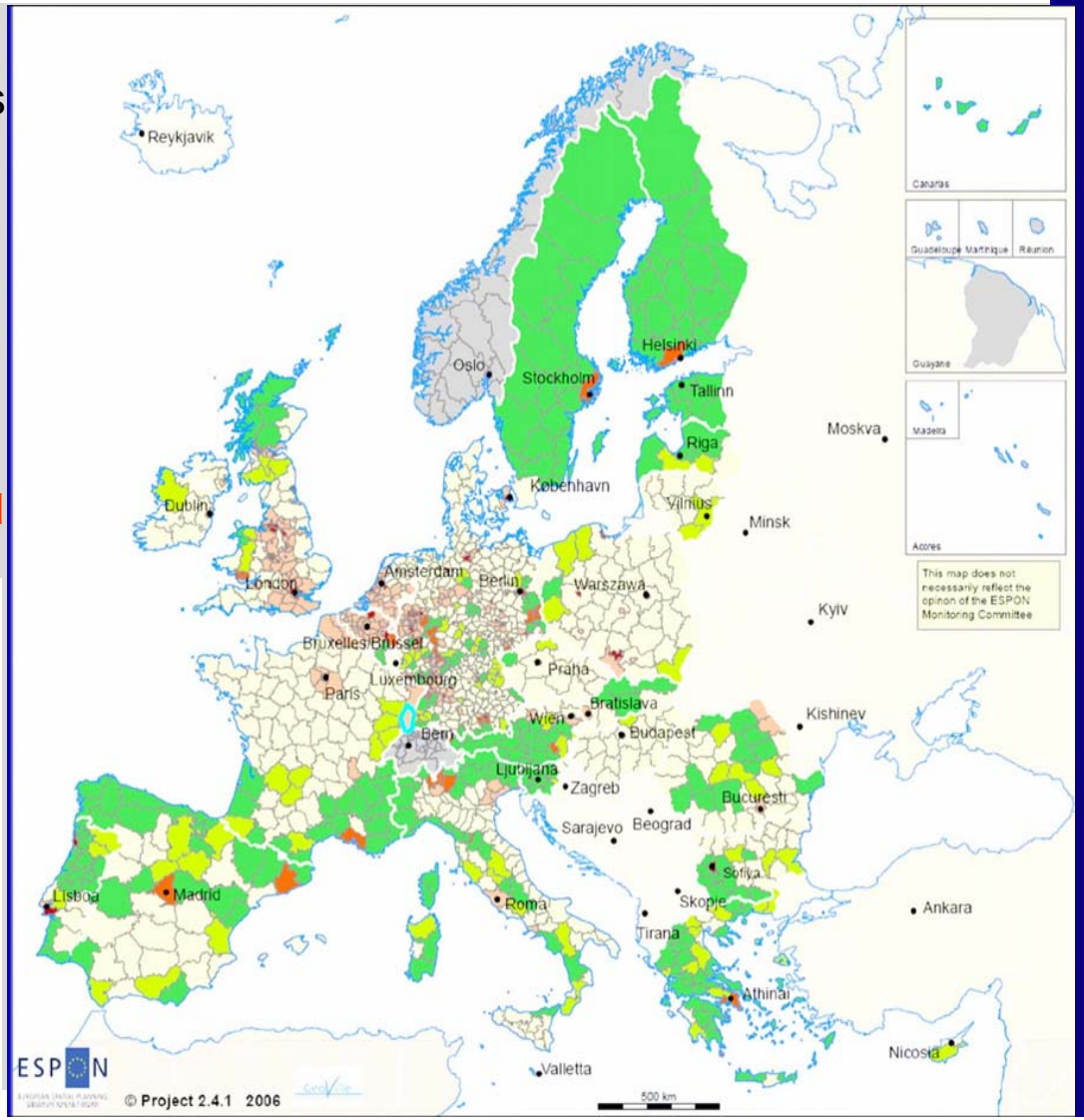
A few large and several smaller regions of urban agglomerations

•EU territory is predominantly shaped by agriculture, forests and other semi-natural areas

•High share of semi-natural areas in mountainous regions >> rich natural heritage, valuable cultural landscapes and rich biodiversity

Land use composition of NUTS-3 units

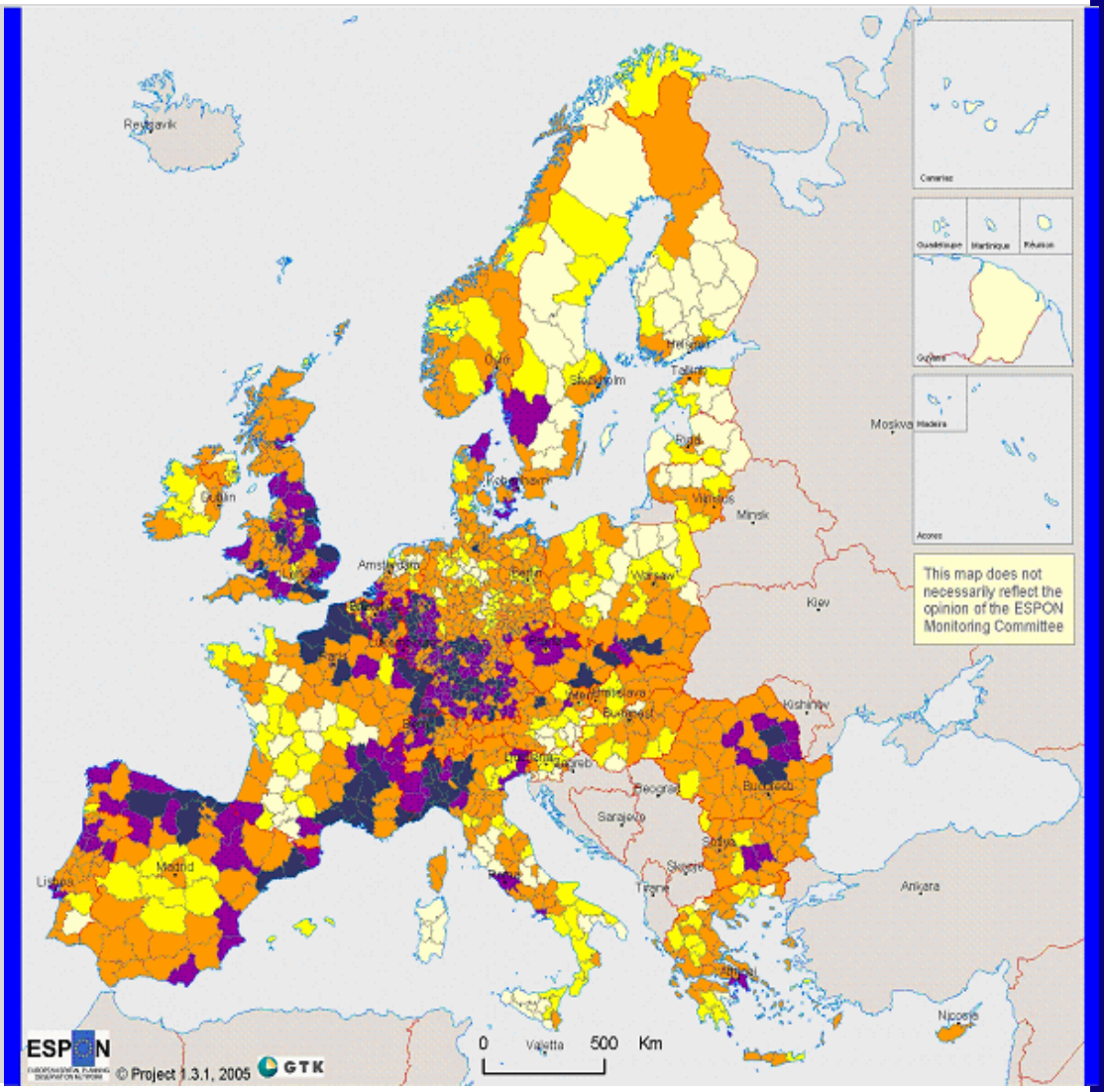




Agregated hazard map

- Aggregated hazard typology is based on 15 hazard indicators
- Regions with high hazard exposure are found in almost all parts of Europe

Hazard exposure in mountainous areas highest largely due to flooding and land slides



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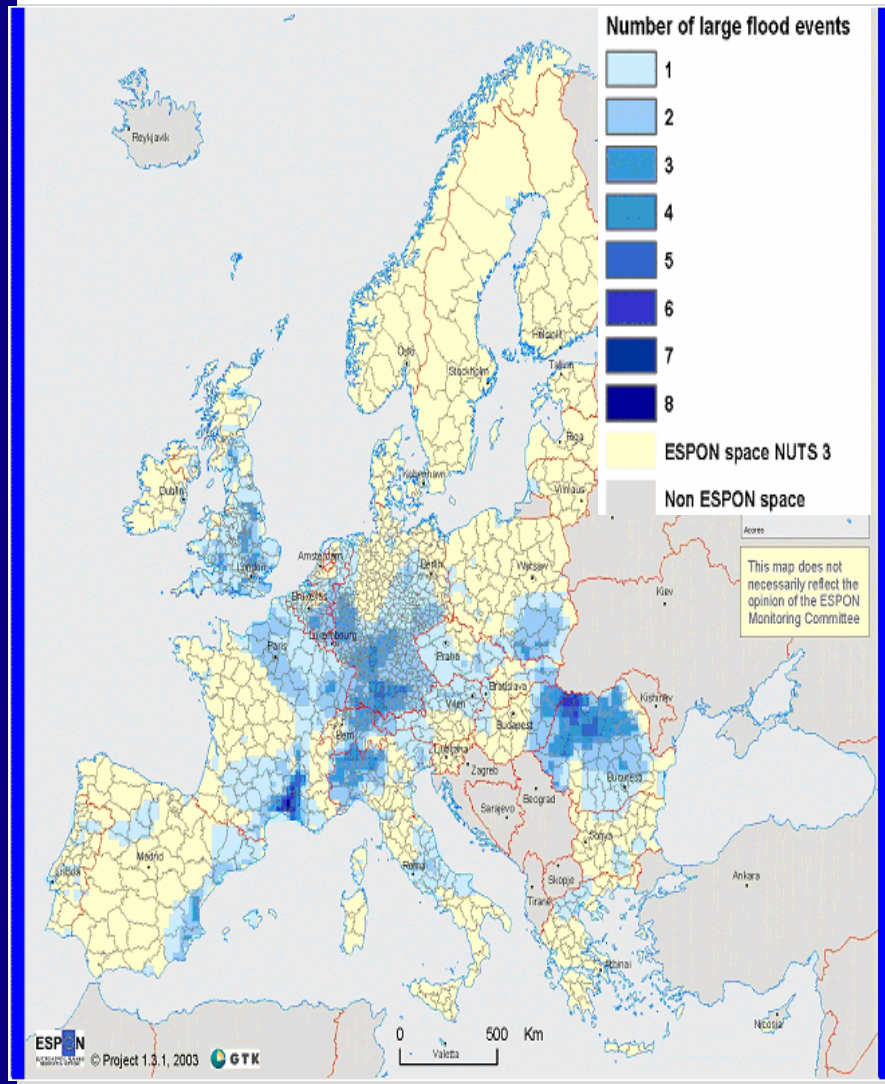
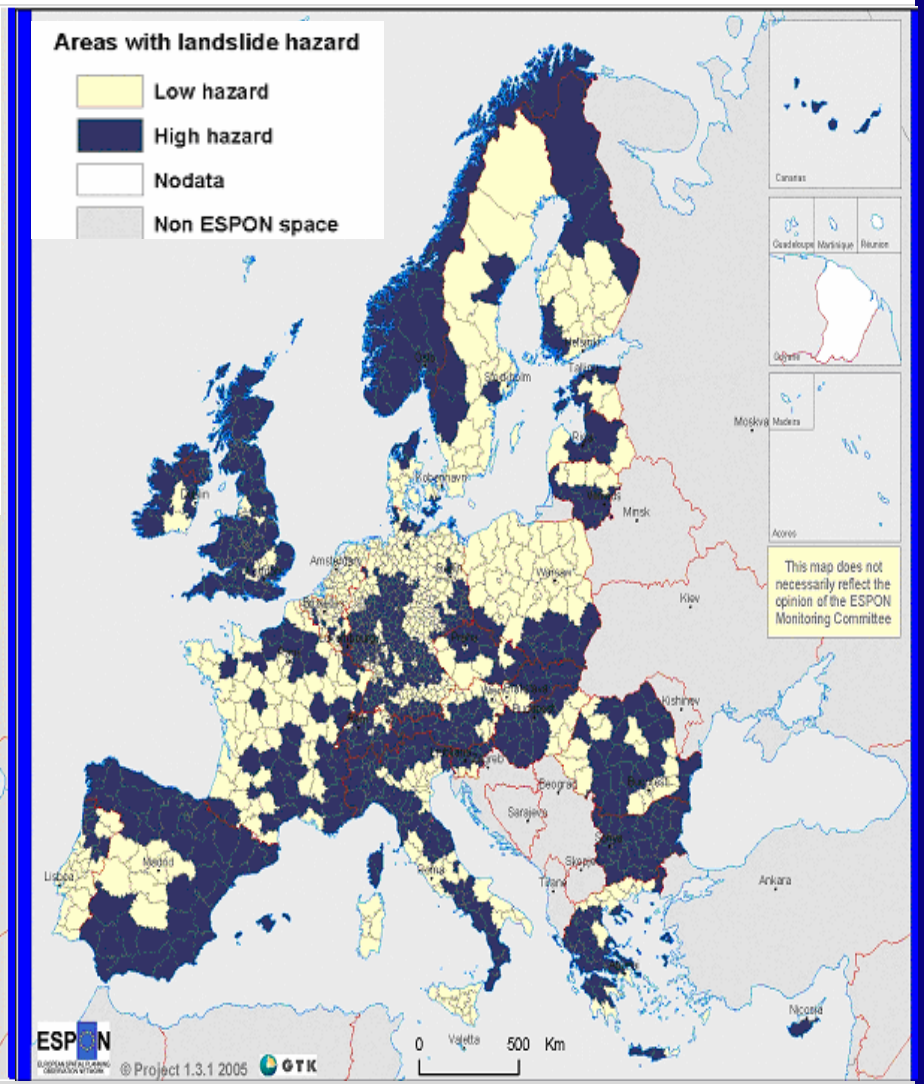
flood and landslides





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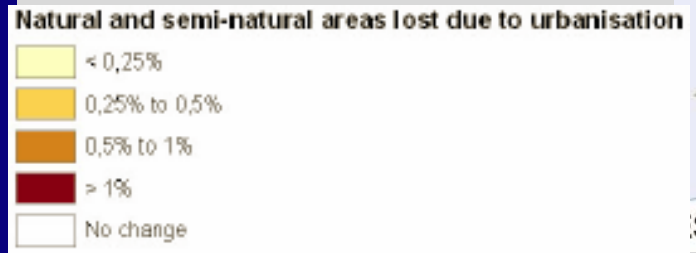
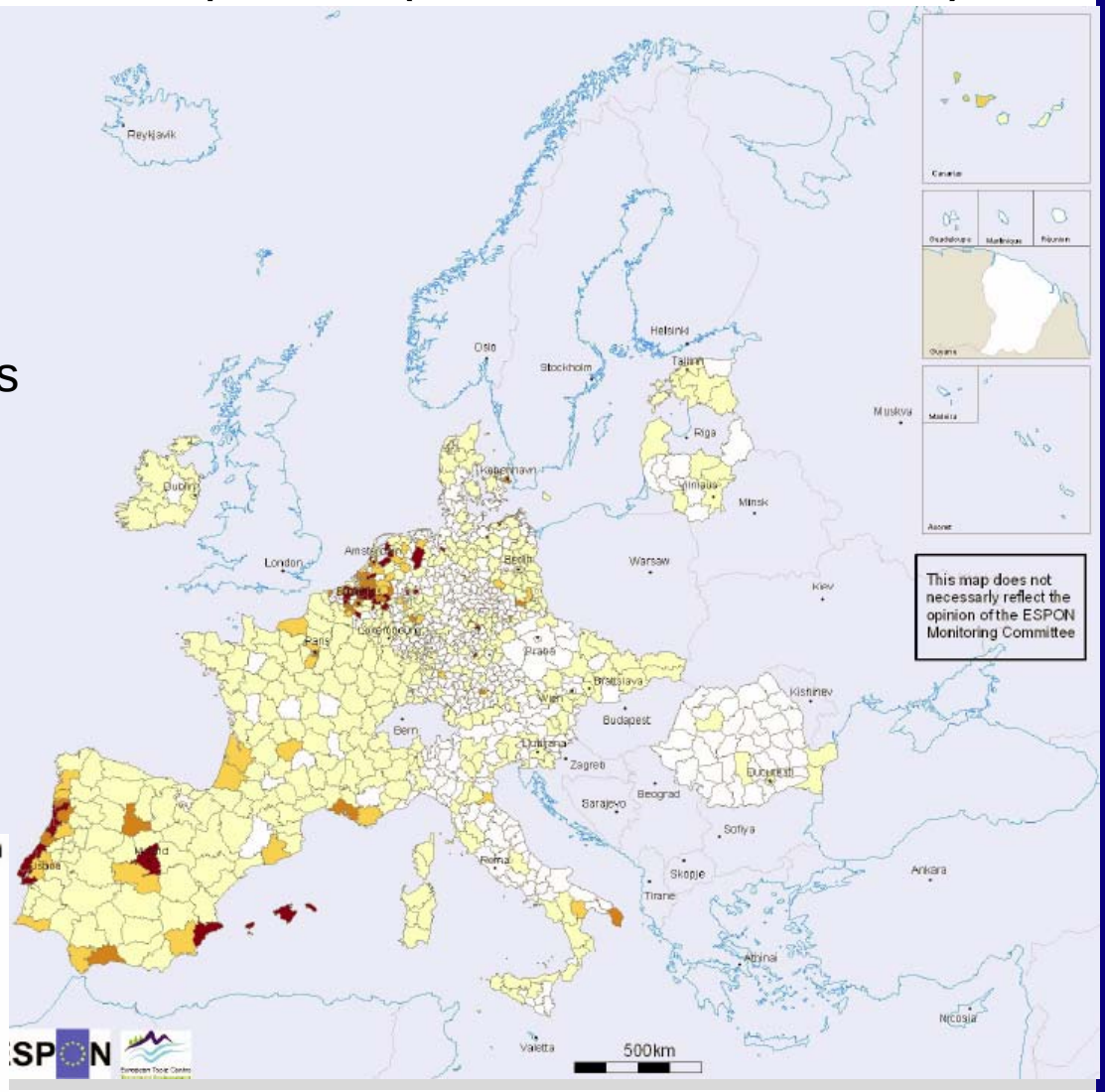
Percantage of natural and semi natural areas lost due to urban and transport development (Corine 1990 – 2000)

- Main decrease in Iberian peninsula, Mediterranean coast
- The pressure of tourism activities is noticeable
- Most of new development on former agricultural areas

Can rather "good picture" of mountainous areas change due to tourism activities and transport development in the future??





Urban growth and population development 1990 - 2000

- Regions of population decrease in all MS
- Urban growth mostly due to industrial development and housing

No special patterns for mountainous areas

Sustainability of land consumption

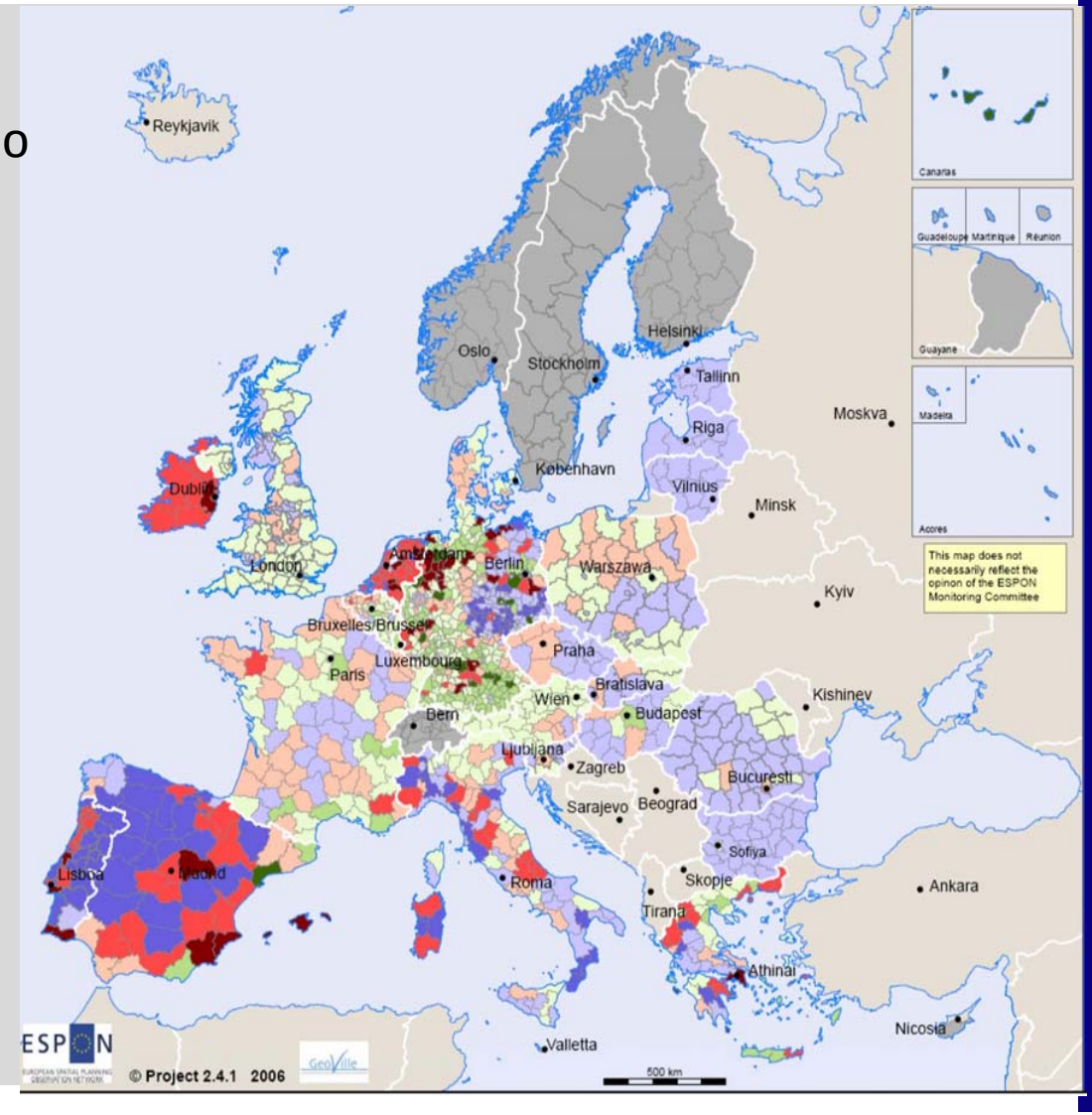
Increase of population density				
	Population	+	Urban area	+
	Population	++	Urban area	+
	Population	++	Urban area	++
Decrease of population density				
	Population	+	Urban area	+
	Population	+	Urban area	++
	Population	++	Urban area	++
	Population	-	Urban area	+
	Population	--	Urban area	++
	CORINE data not available			

-- Decrease 10 % and more

- Decrease to below 10 %

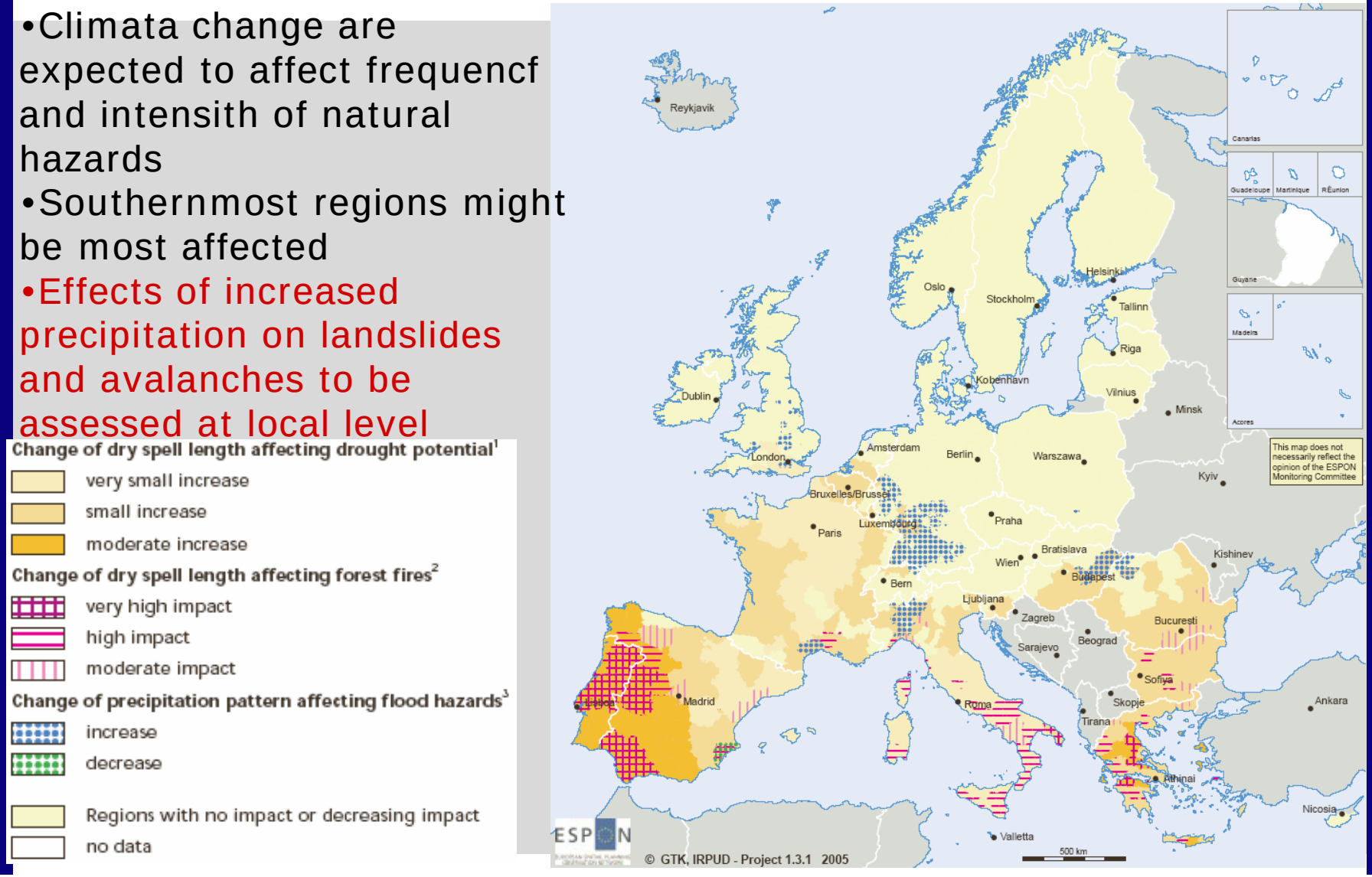
+ Increase to below 10 %

++ Increase 10 % and more



Impacts of changes in precipitation on floods, droughts and forest fires

- Climata change are expected to affect frequencf and intensith of natural hazards
- Southernmost regions might be most affected
- Effects of increased precipitation on landslides and avalanches to be assessed at local level



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Thank you very much for your attention!