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Environmental Hazards and Risk Management – Thematic Study of INTERREG and ESPON activities

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Foreword

The European territory experiences a wide range of natural hazards that can adversely influence regional development. This is also reflected in the work of ESPON and INTERREG regional cooperation programmes, which fund many projects working on related themes.

This report presents a first review of the work carried out by INTERREG and ESPON projects addressing environmental hazards and risk management. Based on this, it provides input for the discussion of possible future activities and cross-fertilisation between ESPON and INTERREG.

The study has been conducted within a cooperation of the INTERACT and the ESPON 2006 Programme. The study has been carried out by a research team composed by Philipp Schmidt-Thomé and Johannes Klein from the Geological Survey of Finland (GTK) and Kaisa Schmidt-Thomé from the Center for Urban and Regional Studies/Helsinki University of Technology (CURS/HUT), Finland.

The research team was supported by INTERREG, INTERACT and ESPON communities, which helped in finding data on relevant projects and gave valuable feedback to the interim report. The INTERACT Conference on “Environmental Hazards & Risk Management”, in Valencia, November 2005 offered a valuable platform for the research team to discuss the report with the interested parties.

All of this essential work on the analysis where INTERREG project activities are related to the hazard and risk patterns identified by the ESPON Hazards project (Schmidt-Thomé 2005), provides interesting input for the discussion on future risk related actions.

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Summary

The European territory experiences a wide range of natural hazards that can adversely influence regional development. The hazards project carried out under the ESPON 2006 programme (The Spatial Effects and Management of Natural and Technological Hazards in Europe - ESPON 1.3.1, "ESPON Hazards project") identified 11 natural hazards that can be considered the most relevant for spatial development. Using those as a base, this INTERACT-ESPON project has developed a database including INTERREG hazard and risk projects of all strands A, B, and C. The data has been has been plotted into maps and cross analysed with the spatial patterns of hazards identified in the ESPON Hazards project. The aim has been to identify such regional hazard patterns that might be of interest for future Objective 3 (the new INTERREG programmes for the next programming period).

This report summarises the main priorities of the INTERREG programmes as well as activities carried out in each strand in order to identify in which areas hazards and risks have played a role so far. The analysis shows that hazards and risks have not yet been seen as a major factor influencing the regional disparities and development potentials in Europe. A comparison of the INTERREG activities with the corresponding hazards and risks is also presented. Several maps support the analysis.

The ESPON Hazards project carried out a survey among European experts on planning and risks in order to define the relevance of hazards for regional development from a European perspective. This thematic study presents a cross-analysis of these survey results with the hazard foci of the INTERREG project. The comparison gives a European level overview to recommend which types of hazards and risks should be considered in future Objective 3.

The report points out that future hazard and risk related projects should not only focus on single hazards and their effects, but also strongly on vulnerability reduction, (e.g. a fire truck alone does not combat the problem of forest fires). The excellent research examples found in other EU project initiatives (e.g. the EFFIS project on forest fires) should be used to identify potential fields of application in INTERREG projects to develop cross-border and interregional strategies to reduce both the potential of hazards as well as potential impacts (risks). Regional decision-making and the involvement of local stakeholders are vital in this context. In general, future projects should not only concentrate on the effects of hazards and risks and on the possibilities to combat these locally and regionally, but strategies should reach towards the root causes of risks (e.g. land use), to involve decision makers that can derive mitigation plans. In addition, hazard interactions should be more respected, as well as the potential impacts of climate change.

In the field of technological hazards the main focus should lie on accident prevention and good (cross-border) coordination of disaster management. Here the sources of disasters can also be addressed by appropriate land use, i.e. the location of, e.g. chemical production plants in relation to settlements.

Introduction

In the discussion on the future Structural Funds, risk prevention has been mentioned as one potential objective. Environment and risk prevention is one of the key themes for EU cohesion policy after 2006 (European Commission 2004). The future Objective 3 programmes for the period 2007 to 2013 could therefore include measures on environmental risk factors relevant for spatial development. Environmental risks play a role in spatial development as disastrous events can cause both short and long-term environmental and socio-economic impacts.

Most of the geo-hazards, such as earthquakes and volcanic eruptions, cannot be controlled but appropriate planning can mitigate their effects by, e.g. adequate building codes or appropriate safety zones. Some meteorological hazards, such as storms and droughts are also not possible to control but adaptation can lessen potential harms, e.g. by lowering the potential impacts by appropriate settlement structures. Meteorological hazards that have natural causes but are strongly influenced by human activities and land use (forest fires, floods, landslides, etc.) can be managed to a greater extent by spatial planning, e.g. by forest management, natural flood prone area management, regulating building in hazardous zones, etc.

Since all of the technological hazards are man-made (i.e. oil spills, major accident hazards), the production, storage and transport of dangerous goods must be regulated properly, not only by planning, and appropriate disaster management in case of accidents are necessary. Technological hazards triggered by natural hazards (Natechs) are not especially considered here since the regulations concerning technological hazards should take these into account.

This report gives a first overview on INTERREG IIIA, B and C strand activities[1] on environmental risks (mainly natural hazards) and recommends areas in which future Objective 3 activities on hazards and risks could be appropriate. The baseline for these recommendations is the spatial distribution of natural hazards and resulting risks in Europe, derived from the results of the ESPON 1.3.1 project "The Spatial Effects and management of Natural and technological Hazards in Europe", further referred to as ESPON Hazards project (Schmidt-Thomé 2005). This project has assembled a first overview on the spatial distribution of hazards in the ESPON space, i.e. 25 EU Member States, Bulgaria and Romania (accession countries) and Norway and Switzerland (associated countries). The ESPON hazards project reported and displayed comparable hazard data on the 3rd level of the Nomenclature of Territorial Units for Statistics (NUTS), i.e. on NUTS 3 level.

As the ESPON Hazards project reported on European scale, it is well possible that all hazard potentials have not been addressed appropriately in all NUTS 3 regions. This thematic study thus displays areas in which Objective 3 future activities on hazards appear appropriate according to this overview. It is important to stress that this report does not intend to exclude or discourage any areas of carrying out hazard projects, as some regions can have relevant hazards locally, that would not appear on a European scaled map. The aim of this report is to highlight hazardous regions in order to stimulate more INTERREG activities on these potentially adverse effects for territorial development.

[1] It has not been possible to acquire information on all projects. Shortcomings relate to IIIA areas as well as more recently launched programmes involving new Member States and external countries. For detailed explanation see chapter 1.2.

1. Methodology

1.1 Terminology

This thematic study uses the following definitions for hazards, vulnerability and risks (adopted from the ESPON Hazards project):

Natural hazard: An extreme natural event (of the average environmental, meteorological, hydrological or other natural conditions) that is statistically rare at a particular place and time. A natural hazard can be a source of risk but does not necessarily imply potential degree or frequency of occurrence. A natural hazard produces risk only if exposures create the possibility of adverse consequences.

Technological hazard: A hazard of human (artificial) origin that can harm people, the environment or facilities. The emission from a technological hazard may leak out of a production facility, a deposit, stockpile, transport corridor, etc. through specific transmission media (water, air, soil).

Vulnerability: Vulnerability is the degree of fragility of a (natural or socio-economic) community or a (natural or socio economic) system towards hazards. It is a set of conditions and processes resulting from physical, social, economical and environmental factors, which increase the susceptibility of the impact and the consequences of hazards. Vulnerability is determined by the potential of a hazard, the resulting risk and the potential to react to and/or to withstand it, i.e. its adaptability, adaptive capacity and/or coping capacity.

Risk: A combination of the probability (or frequency) of occurrence of a hazard and the extent of the consequences of the impacts. A risk is a function of the exposure of assets and the perception of potential impacts as perceived by a community or system. In other words, risk is a function of the hazard and the vulnerability.

In the context of this thematic study it was not possible to apply these clear-cut definitions of hazards and risks to the categorisation of INTERREG projects. It was evident that the projects had used a range of differing definitions and expressions (which might also be due to the wording used in the priorities and measures of the INTERREG programmes) to address hazards and risk. It was decided to include all projects that are related to hazards (and risks related to these hazards) in the database and in the analysis of this present study in order to achieve the broadest possible overview.

1.2 Database

The identification of areas that are prone to certain hazards, hazard patterns or clusters was mainly based on the findings of the ESPON Hazards project, as it provided the most comprehensive collection of natural and technological hazards and risks in Europe. The INTERREG projects were classified according to those hazards that are spatially relevant, as identified in the ESPON Hazards project. The selected 11 natural hazards are: Avalanches, droughts, earthquakes, extreme temperatures, floods, forest fires, landslides, storm surges, tsunamis, volcanic eruptions, winter and tropical storms.

Even though the title of this thematic study does not specifically mention technological hazards, some information on this topic was added. The technological hazards identified by the ESPON Hazards project are very synthetic and thus difficult to relate to the INTERREG projects. Therefore all INTERREG projects dealing with phenomena of technological hazards and risk were grouped into one hazard category called "technological hazards".

The actual review of INTERREG projects was preceded by a comprehensive search for data on all activities launched under INTERREG (strands A, B and C). The ESPON Coordination Unit provided the data on INTERREG IIIA projects. The project team collected data on INTERREG IIIB and IIIC strand projects between August and December 2005. The approach was to identify as many as possible INTERREG risk and hazard related projects via the websites of the respective programme areas, and corresponding project websites.

Some of the programme area websites delivered excellent information, but many INTERREG websites are in a preliminary state presenting data on projects in different quality; some programme websites even display varying project lists in different languages. Therefore the project team

could not obtain complete and reliable information on all projects via the Internet. Additional information on projects was provided by both several INTERREG programmes and the INTERACT Qualification and Transfer Office and by the ESPON Coordination Unit; some projects were specifically searched for and some were provided by external sources. Compiling project information is obviously a major challenge in itself- several thousands of INTERREG projects have been initiated.

The total number of INTERREG (strand A, B and C) projects that were classified as natural/technological hazard or risk relevant is 144, taking into account information on 81 INTERREG programme areas (46 from IIIA, all 13 from IIIB and all 4 from IIIC)[2]. In many programme areas the necessary information on the projects has not been available so far[3].

In order to enable queries and comparisons on hazard activities in INTERREG III projects, a database was constructed under MS Access. The database contains information on the project's INTERREG strand, title, acronym, hazard (risk) type(s), geographical coverage (NUTS 3 level[4]), website and contact information (not for public access). Each project entry also contains a short description of the type of activity. The contents of the database are easily extractable to MS Excel in order to enable its usage for a broader audience. A list of all projects in the database is in the Annex.

It should be noted that all projects of the database could not be grouped according to a hazard type, as some deal with emergency responses or risk management in general. In the database this hazard focus is labelled as "not defined".

The participants of the INTERACT Conference on “Environmental Hazards & Risk Management”, in Valencia, November 2005 were asked to provide feedback on the first interim report of this thematic study. Valuable feedback was received, and some new projects could be added to the database. It was discussed that all activities dealing with processes that might lead to hazards (e.g. climate change) and projects that deal with processes that can be worsened by hazards (e.g. erosion); as well as activities that deal with other societal risks than those of natural hazards (e.g. gene manipulation, radiation, etc.) do not automatically belong to the scope of this study and the database, unless having clear hazard and risk components.

Many programme areas have launched projects that relate to risk management only partially or indirectly. However, several of such projects are very valuable as they have recognised important connections, for example between land use patterns and hazard prevention. Despite of this, it was decided to not include them in the database, as the outspoken focus of the project activities lies elsewhere than in hazard or risk prevention.

The final choice of selection was based on the project descriptions. Projects mentioning either a specific hazard or measures addressing several hazards (e.g. “risk management” or “civil protection”) were included in the database. In this report, these projects are referred to as “risk projects”.

1.3 Analysis

The identified hazard and risk management projects were first analysed according to hazard types, as presented in chapter 2.1. The chapter 2.2 in turn shows how the projects were reviewed according to programmes, reflecting also their relation to the priorities and measures of the corresponding strand.

Finally, the results of the ESPON Hazards project have been combined with the findings of the INTERREG project analysis in chapter 3, where hazard data and project areas are overlaid. The hazards identified in the ESPON Hazards project were categorised by NUTS 3 regions and respective countries. These were then overlaid with the actual INTERREG projects in order to identify areas that bear certain hazards but have not yet had relevant INTERREG projects. Chapter 4 then gives recommendations on future hazard related INTERREG activities.

[2] Some areas cannot provide information yet, as they are only issuing first calls for projects. So far 46 of the 64 IIIA areas have been checked for hazard projects.
[3] IIIA: The database has no entries from 18 programme areas. IIIB: ARCHIMED is only in an early phase of implementation. IIIC: Information on programme area South is most likely incomplete.
[4] The ESPON Coordination Unit supported the project work by compiling the area coverage of the projects. The main source for the data was once more the Internet. Some projects offered very detailed information on maps or descriptively, the coverage of other projects had to be estimated very roughly on the basis of the involved project partners.

2. Analysis of projects

The analysis of projects focuses on the 11 natural hazards identified as spatially relevant by the ESPON Hazards project. In total 112 INTERREG hazards projects have been included in the quantitative analysis presented in this chapter. The remaining 32 projects of the database deal with general risk assessment and are thus not addressed here. Since this thematic study focuses on natural hazards and not particularly on technological hazards, and also due to the fact that the rather synthetic assessment approach for technological hazards developed by the ESPON Hazards project does not coincide with actual topics of INTERREG projects on technological hazards, all INTERREG projects that deal with technological hazards are grouped into one single hazard category called "technological hazards".

Table 1: Amount of hazards addressed by INTERREG III projects (total sums are not equal to sums of projects in the database, as several projects address a series of hazards)

Hazard	INTERREG IIIA*	INTERREG IIIB	INTERREG IIIC
Avalaches	2	3	–
Droughts	-	9	1
Earthquakes	2	5	1
Extreme temperatures	-	5	-
Floods	13	40	3
Forest fires	2	4	1
Landslides	5	8	1
Storm surges	2	10	-
Technological hazards	17	12	2
Volcanic eruptions	-	3	-
Winter storms	1	6	-
Not defined	25	6	4

** Due to data restrictions, only the following 46 INTERREG IIIA programmes have been taken into account: Spain – Portugal, Italy – Slovenia, Ireland – Northern Ireland, France – Spain, South-East Finland – Russia, Sweden – Norway, Franco-British Programme, Italy – Switzerland, Euregio Karelia, Italy - France (Islands), Southern Finland - Estonia, Austria - Germany/Bavaria, Italy – Austria, EUREGIO - Euregio Rhine-Waal - euregio rhine-meuse-north, Ireland – Wales, Italy - France (ALCOTRA), Alpenrhein-Bodensee-Hochrhein, Oresund Region, France - Wallonia - Flanders, Adriatic New Neighbourhood Programme, Austria – Hungary, Upper Rhine Centre-South, France – Switzerland, Wallonia – Lorraine – Luxembourg, Kvarken – Mittskandia, Spain – Morocco, Euregio Meuse-Rhine, Brandenburg – Lubuskie, Austria – Slovenia, Ems Dollart region, Flanders - Netherlands, Greece – Bulgaria, Pamina, Austria – Slovakia, Sonderjylland –Schleswig, Austria – Czech Republic, Fyn – K.E.R.N., Storstrom – Ostholstein-Lübeck, Skargarden, Greece – Albania, Saarland-Mosel (Lorraine) - Western Palatinate, Germany-Luxembourg-German Speaking Community of Belgium/Walloon Region, Greece – Cyprus, Greece - Former Yugoslav Republic of Macedonia, Gibraltar – Morocco.*

2.1 Delphi Method

In order to determine the relevance of hazards for the European regional development, the ESPON Hazards project used the Delphi method as a tool to weight the relative importance of each hazard. European experts were asked to respond to a three-round survey that determined the relations between hazards concerning their potential effects on European spatial development. A comparison of the results of the Delphi round and the actual amount of hazards addressed in INTERREG projects reveals a similar prioritisation what comes to the importance of the hazards. It should be noted that the total number of hazards in the tables below exceeds the total amount of projects, as some projects address more than one hazard. Furthermore, to ease the comparison, the single technological hazards evaluated under the Delphi round are classified in one group in this study.

Table 2: Results of the Delphi method weighting of the ESPON Hazards project (Schmidt-Thomé 2005)

	Hazard	Average estimation
Natural hazards	Avalanches	2,3
	Droughts	7,5
	Earthquakes	11,1
	Extreme temperatures	3,6
	Floods	15,6
	Forest fires	11,4
	Landslides	6,0
	Storm surges	4,5
	Tsunamis	1,4
	Volcanic eruptions	2,8
	Winter storms	7,5
Technological hazards	Air traffic hazards	2,1
	Major accident hazards	8,4
	Nuclear power plants	7,8
	Oil handling, transport and storage	7,8
	Sum	100

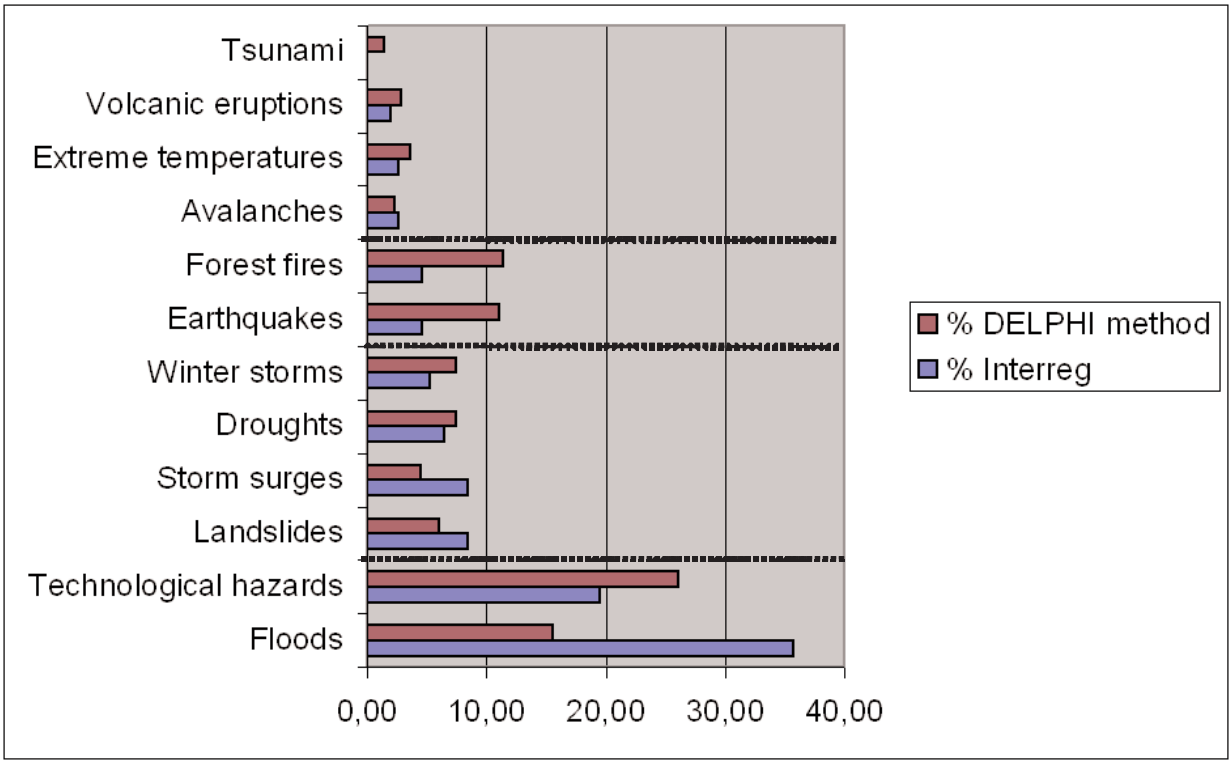


Figure 1
Distribution of projects studied in INTERREG projects and spatial relevance of hazards identified by the Delphi Method

Tables 1 and 2 and figure 1 reveal that the spatial relevance of hazards identified by the Delphi method used in the ESPON Hazards project is in general rather equivalent to the actual amount of hazards studied in INTERREG III projects. Four groups can be identified here. The first group includes hazards that, by experts, were considered to have a rather limited spatial relevance and that have also received little attention in INTERREG projects. These hazards were tsunamis, volcanic eruptions, extreme temperatures and avalanches. The second group includes forest fires and earthquakes. In the Delphi they were rated high what comes to spatial relevance but seem to be underrepresented in the project activities. The third group includes four hazards with intermediate spatial relevance in the Delphi. Two of them (winter storms and droughts) have initiated less projects than the Delphi rating would suggest, whereas the other two (storm surges and landslides) have been addressed more often than one would expect according to the Delphi. The fourth group with the top of the rank includes technological hazards and floods. Floods have been addressed in the projects significantly more often than their relevance rating by the experts would suggest. Technological hazards in turn seem to lack projects in relation to their relevance rating. Here comparison has some limitations as the category of technological hazards actually sums up several more detailed classes.

2.2 Programme areas

To evaluate how efficiently the various INTERREG strands have contributed to risk management, this INTERACT-ESPON study has followed a multi-level analysis. It has 1) reviewed the programme documents, 2) listed and studied the scope of launched projects, and 3) evaluated the achievements of some selected projects.

2.2.1 INTERREG IIIC

The INTERREG IIIC differs from A- and B-strands as the programme documents list no specific thematic priorities to choose from by the applicants. However, INTERREG IIIC has encouraged numerous actors to become engaged in risk projects or networks. Less than twenty operations[5]

[5] The word operation refers to individual projects, networks or regional framework operations (RFOs), not to the projects that the RFOs fund in turn.

can be seen to somehow deal with risks at least indirectly. They correspond to 6,4 % of all IIIC operations (as number of approved IIIC operations was 264 in August 2005). However, only nine operations can be categorised as actual "risk projects", having hazards or risk management as the main focus. This corresponds to 3% of all IIIC operations. It was decided to include only these IIIC projects in the database.

The programme areas South, East and West all have two to four risk projects. Only in the programme area North there are no activities related to hazards and risks. The types of hazards and risks addressed by the IIIC operations are mostly not fully specified. Some operations refer to risks or natural hazards in general, some give examples of hazards linked to the theme at hand. Among the nine "risk projects" the clearly specified themes include floods, droughts, forest fires and volcanic eruptions. Among the activities that are only indirectly risk-related the most references are made to floods.

A closer review of the IIIC operations reveals that nearly all natural hazard types could potentially be addressed by the launched actions (both direct and indirect risk projects, numbering 17). For example, the project NMF (Network Mountain Forests) touches upon avalanches and landslides, whereas the network AMICA (Adaptation and Mitigation – an Integrated Climate Policy Approach) is likely to deal with extreme temperatures and storms. Only earthquakes and tsunamis have no "home-base" in any operation. However, the theme of civil protection addressed by e.g. SIPROCI (Interregional response to natural and man-made catastrophes) is certainly very relevant to both of these hazards.

There are Italian partners in all but two of the nine "risk projects". France is also broadly represented, as well as Spain, Germany, Portugal and Greece. All risk projects have at least three nationalities represented in the group, mostly more. The most international partnership has been built by the network FLAPP (Flood Awareness and Prevention Policy in border areas): there are participants from 14 countries.

The FLAPP network as an example of an INTERREG IIIC operation

FLAPP stands for 'Flood Awareness and Prevention Policy in border areas'. Within the network the local and regional actors can transfer successful flood management approaches. Of special interest is to find sustainable solutions for cross-border cooperation. FLAPP, which was initiated by the Euregio Meuse-Rhine, builds on various earlier activities in international water management. It brings together a considerable share of European expertise in the field. Thus the manual of good practices in cross-border flood management, which will be produced by the network, is probably going to become a key reference in its field. At least in the networking activities a wide array of topics has been addressed, among others flood mapping, early warning systems, stakeholder awareness and the role of spatial planning in flood risk management. Recommendations for the development of relevant EU policies are also anticipated.

Table 3: INTERREG IIIB programme areas mentioning risk priority

INTERREG IIIB		
Programme	**Risk focus**	**Priority wording**
Alpine Space (FR, DE, IT, AT)	Prevention of natural disasters	Priority 3: Smart management of nature, landscapes and cultural heritage, promotion of the environment and the prevention of natural disasters.
North West Europe (UK, IE, FR, BE, NL, LU, DE)	Water resources, floods	Priority 3: Sustainable management of water resources and prevention of flood damage.
CADSES (DE, AT, IT, EL)	Water resources, floods	Priority 4: Environment protection, resource management and risk prevention.
MEDOCC (ES, FR, PT, IT)	Risk prevention, desertification	Priority 4: Valorisation of heritage and risk prevention.

2.2.2 INTERREG IIIB

Priorities and measures

In the case of INTERREG IIIB, 4 out of 13 programmes have clear indications of risk management in their priorities. The focus is either on general prevention of disasters (Alpine Space) or on water resources (floods in North West Europe and CADSES; droughts in Western Mediterranean (MEDOCC)).

A more detailed listing of the measures mentioned under each priority indicates the risk focus of each programme more clearly. This is the case especially in both the MEDOCC and CADSES Programmes. The list also shows that approximately half of the programmes touch upon hazards or risk management, when judged by the wordings of the measures. In other words, reviewed this way, also the programmes of the North Sea Area, Madeira - Azores - Canaries (MAC) and ARCHIMED are dedicated to the issue although the mere priorities do not indicate this.

The key foci of the measures in the reviewed programmes remain more or less the same as at priority level: a) Floods and coastal risks, b) droughts and desertification and c) risk management in general. Here, direct references are also made to forest fires and earthquakes, in ARCHIMED Programme.

Table 4: INTERREG IIIB areas with risk measures

INTERREG IIIB		
Programme	**Measure**	**Measure and wording**
Alpine Space	3.3	Cooperation in the field of natural risks.
North West Europe	3.2	Prevention of flood damage.
North Sea	4.3	Risk management strategies for coastal areas prone to disasters and natural threats and for the North Sea.
CADSES	4.2	Promoting risk management and prevention of disasters.
	4.3	Promoting integrated water management and prevention of floods.
MEDOCC	4.3	Environment protection, prevention and management of natural risks.
	4.4	Management of the water resources and combating dryness and desertification.
MAC	4.1	Preservation of natural resources and biodiversity; management of risks; civil protection; and waste management.
ARCHIMED	3.3	Management of natural hazards: Droughts, desertification, forest fires, earthquakes, etc.

Projects

The number of the direct "risk projects" launched under INTERREG IIIB is 72. Most (major) IIIB zones have risk projects. The ARCHIMED does not yet have any, neither the Indian Ocean nor Caribbean zones.

Some of the "risk projects" have been launched under other priorities and measures than those mentioned above (for example in the North Sea Programme also under measures 2.3, 3.4 and 4.1). This means on the one hand that the programmes have been permissive, and, on the other hand, that there has been a certain need for risk management projects among the regional actors.

The programme that has generated the most risk related projects is the one of North West Europe – altogether 15 projects. Rather productive have also been the programmes of CADSES (12 projects) and MEDOCC (10). These are followed by North Sea (9), Alpine Space (9) and Baltic Sea Region (7), as well as South West Europe (3), Madeira - Azores - Canaries (4), Atlantic Area (2) and Northern Periphery (1).

In North West Europe the wording of the Measure 3.2 (prevention of flood damage) has clearly guided the scope of activities. Nearly all risk projects are about floods, only some touch also on storm surges. This flood focus is certainly not a mere limitation as the high number of interrelated projects could support learning from each other – a certain common knowledge base is about to evolve here. If complemented with the lessons learnt in other programming areas, the understanding of flood management in an international context has a good base to build on, for example in future INTERREG programmes.

The programme area CADSES with 12 risk projects has also a slight flood orientation, or more widely, it has many studies related to hydro-meteorological risks, also in the context of the climate change. The MEDOCC area with 10 projects has addressed a wide scope of hazards. In addition to floods it addresses droughts, forest fires and landslides as well as technological hazards. The MEDOCC has also launched a project called RINAMED, which is solely about risk communication, raising awareness of how to better deal with natural hazards.

The nine projects of the North Sea area deal mostly with floods and storms (storm surges and winter storms), often in the context of coastal protection. Importantly, many of the projects have a strong connection to land use policies in wider catchment areas. This holds true also for many projects in the North West Europe.

In proportion to the number of the projects, the range of addressed hazards is the widest in the Alpine Space (9). These risk projects deal with floods, droughts, landslides, avalanches and earthquakes. The MAC Programme with three risk projects adds volcanic eruptions to the list of hazards addressed by IIIB.

The programmes that have "risk projects", although there were no explicit measures in the respective programme documents, form a somewhat peculiar group. Baltic Sea Region has launched as much as seven projects, e.g. on climate change induced risks and on hazardous waste. South West Europe addresses risks of oil processing and transport as well as floods and erosion of terrace landscapes, in three projects. The Atlantic Area has two projects on accidents in oil transport and shipping. In addition, the Northern Periphery, that had no "risk measures" in the programme, has launched one "risk project" that deals with extreme temperatures.

The Caribbean Area and Réunion have no "risk projects" but they have no "risk measures" either. These two programmes actually have few projects in the first place. ARCHIMED, which is still in a very early stage of implementation, has a measure pointing to several hazards but no related projects have been launched yet.

The hazard types studied in the ESPON Hazards project have nearly all been taken into account by at least one IIIB project. Of special interest have been floods; the least attractive has been volcanic eruptions. Only tsunamis have received no attention.

In sum, judging by the declared priorities of the different programmes, the engagement of INTERREG IIIB is limited. However, a closer examination of the programmes, at the level of the listed measures, indicates that there would be quite an amount of opportunities for actors in risk management to become active. Finally, the review of the approved actions reveals a surprisingly rich variety of risk related projects.

Project achievements

Within INTERREG IIIB a high number of projects have addressed floods. These projects have clearly contributed to something that could be called European expertise in transnational flood management. However, these lessons still need to be compiled to support future activities. An example of a theme that could be built on a rather well-studied base in the next programming phase, is flood mitigation through sensitive land use planning. Especially North West Europe has launched various projects related to this body of knowledge. A selection of these projects, coupled with examples from other programming areas, is presented in table 5. As this theme was already on the agenda of the INTERREG IIC, the achievements of IRMA programme (INTERREG Rhine-Meuse Activities, 1997-2003) should be considered here, too.

Clearly, some kind of a southern counterpart for the North-Western flood mitigation cluster is missing. The series of studies on droughts, desertification and forest fires should

Table 5: INTERREG IIIB flood mitigation project examples

Flood mitigation through sensitive land use decisions – project examples		
Focus	**Description**	**Acronym, Area**
Water retention measures	Supports integrated river catchment management, implying the active involvement of farmers, foresters, and residents, through preventative water retention measures. The efficiency of different measures will be assessed with GIS-based systems and flood scenarios.	WARELA, North West
Sustainable retention landscapes	The objective is to promote new sustainable landscapes in planning that combine water issues with nature conservation, agriculture, building and recreation. The construction of a retention basin, is intended as a pilot project to test theories, models and methods of public communication and decision-making processes and their monitoring.	FLOODSCAPE, North West
Forested retention areas	The objective is to develop and test strategies for the sustainable management of forested retention areas to prevent flood damage. Offers estimates of the economic and ecological impacts of creating water retention areas and raises awareness of the interest groups and political actors.	FOWARA, North West
Land use solutions, river restoration	Aims at improving spatial planning to promote multifunctional land use, restoring rivers to enhance water storage capacity, implementing new technologies to link groundwater and surface water management, and increase public awareness and support for innovative policy solutions.	J.A.F., North West
Damage potential reduction	Aims at improved safety of the valley populations through studies of the riverbeds and reduction of damage potential in the risk zones. Combination of technical solutions, prediction models and additional space for flood protection / retention. Involves stakeholders at an early stage.	River Basin Agenda, Alpine Space
Spatial planning options, retention	Brings together nearly all regional spatial planning authorities in the Elbe basin to improve flood prevention through long-term spatial planning. Also studies possibilities to retain rainwater by various land use options. Develops a transnational strategy for burden sharing incentives (compensation funds, negotiations).	ELLA, CADSES
Water storages and land use solutions	The project seeks to reduce flood risk in North Sea estuaries by combining Flood Control Areas, where water can be stored when water levels are high, with alternative sustainable land use. Activities include specific practical action at demonstration sites.	FRAME, North Sea

Table 6: INTERREG IIIB drought and desertification projects

Combating droughts and desertification		
Project	**Area**	**Focus**
SEDEMED	MEDOCC	The project is about droughts and desertification. The aim is to carry out hydrological analyses with various observation methods and to apply new indicators as well as point out good practises.
MedCypre	MEDOCC	The aim is to develop a method that uses cypress rows in preventing desertification and forest fires.
NO REGRET	North Sea	Investigates the current situation and analyses long-term scenarios in order to combat shortage of water of proper quality. Underlines transnational learning; despite the different aspects of water shortage and drought in each participating region, they share the challenges as far as regional actions are concerned.
ACCRETe	CADSES	Aims to raise awareness about the mutualism "agriculture – climate change" and to improve forecasting – and preventing systems of natural risks affecting agriculture.

grow in size and in depth to be able to take effect in regional practises. Innovative hydro-meteorological modelling alone is not yet enough if key stakeholders are not brought into the discussion.

Considering the devastation that forest fires have caused in the recent years, there is an obvious lack of INTERREG projects on forest fires. The projects such as Grinfomed+Medifire (in MEDOCC) and INCENDI (INTERREG IIIC South) thus meet high expectations what comes to transferable lessons. Especially long-term vulnerability reduction should be promoted, i.e. identifying key interconnections between land use planning and the forest fire risk.

Some kind of a project cluster has also evolved to support risk management in mountainous areas. The Alpine Space has a number of inter-connected projects, which can contribute to a common body of knowledge. These projects include e.g. DIS-ALP, Disaster Information System of Alpine Regions, SISMOVALP (see description below) and NAB, which is about natural space analysis for management of natural hazards. There are also interrelated projects in other programme areas, e.g. CADSES.

SISMOVALP: An example of a seismic hazard and alpine valley response analysis

The fast building expansion in the Alpine environment has burdened the valleys, where the deep-filled sediments house most major urban areas. At the same time, many seismological studies have shown that vibrations due to earthquakes are strongly amplified by these alpine-specific soil conditions. The SISMOVALP project questions whether the fast building expansion has been regulated by adequate levels of earthquake resistant design. The project builds a transnational database for seismic hazard studies. Representative alpine valleys shapes and earthquake scenarios are defined and the associated vibrations are calculated. Resulting analysis is compared with the level of protection currently pursued at a national or European scale. The conclusion will be disseminated to civil engineers and local authorities in the respective areas.

2.2.3 INTERREG IIIA

In the INTERREG IIIA strand, only 6 out of 53 programmes reviewed for ESPON Hazards project included a clear indication of risk management (see table 7)[6]. Often risks were mentioned in vague terms, in relation to environmental protection. The more deliberate cases focussed on forest fires and civil protection (Italy - France (Islands)) and flood-related risks (Mecklenburg - Vorpommern/Brandenburg - Western Pomerania and Euregio Meuse - Rhein).

Altogether 63 of the identified 3495 INTERREG IIIA projects were classified as "risk projects". As many as 22 INTERREG IIIA areas have grasped the opportunity to launch projects related to hazards and risk management, and 14 areas have more than one "risk project". Thus looking at the projects the picture appears more positive than what the overview on programme priorities would have suggested. However, it can also be noticed that most of the programmes that mention risk management among their priorities have so far not launched any projects which are considered "risk projects" according to the definition

Table 7: INTERREG IIIA areas with risk priorities

INTERREG IIIA		
Programme	**Risk focus**	**Priority wording**
(DE/PL) Saxony – Lower Silesia	Reducing pollution and risk	Priority 3: The environment. Plans for the quality of water, reduction of environmental pollution and risks, and protection of nature, the countryside and the climate will guarantee sustainable, overall development in the border area.
(DE/CZ) Saxony – Czech Republic	Reducing pollution and risk	Priority 3: Environmental development of the area. Plans for the quality of water, reduction of environmental pollution and risks, and protection of nature, the countryside and the climate will guarantee sustainable, overall development in the border area. Cross-border network systems will help make agriculture and forestry more competitive and take advantage of the effects of the common agricultural policy established on the agenda for 2000.
(DE/PL) Brandenburg – Lubuskie	Reducing pollution and risk	Priority 3: The environment. The essential aims of this priority are the reduction of environmental pollution and risks, in view of sustainable, environmentally friendly development in the border area, the protection of residential areas that are close to nature and to natural resources, elimination of abandoned industrial waste and cleansing of watercourses polluted through mining, and the construction of purification plants and waste water treatment systems.
(IT/FR) Italy – France (Islands)	Combating fires, civil protection	Priority 2: Environment, tourism and sustainable development: This priority involves three themes: protection and upgrading of the environment, development and promotion of tourism in the border area and sustainable economic development. Among the most important measures covered are cooperation in combating and preventing fires and civil protection, waste treatment and recycling, joint promotion and marketing in the tourism sector and services to SMEs in the field of innovation and technology transfer.
(DE/PL) Mecklenburg – Vorpommern/ Brandenburg – Western Pomerania	Catastrophe, disaster and high water protection	Priority 3: The environment. This priority contains measures for the protection of nature and the countryside. Care for the countryside will preserve the attraction of the region's cultural landscapes, secure resources and provide the basis for creating a cross-border catastrophe, disaster and high-water protection facility. Further objectives are the improvement of environmental consciousness and enhancement of the quality of the water in the interior and along the coast.
(DE/NL/BE) Euregio Meuse – Rhein	Floods	Priority 3: Promoting environmental improvement (including agriculture). Key actions concern the improvement of quality of life and the importance of agriculture. Special attention is being paid to overcoming the risks of flooding and the treatment of waste.

[6] A full review of all programme documents is not feasible as access to the documents is limited.

used in this study. This can have multiple reasons, one of which might be that the risk focus has been coupled with more general theme of environmental protection.

The character of INTERREG IIIA projects addressing hazards varies considerably, both as regards the focus of activities, the actions taken and the size of the projects. In some areas the IIIA projects seem to have been used to purchase some equipment that can potentially be used in preventing disasters in a cross-border context: Fire department vehicles, etc. As each of these often interconnected investments is considered as a project of its own, this group should be kept in mind when analysing the project list[7]. Namely, if one considers only the projects where local and regional actors get engaged in a broader set of cross-border hazard assessment and risk management activities, IIIA has initiated 41 projects in 17 areas, instead of 63 in 22 areas.

There are only few IIIA areas that have been active in multiple themes with various actors. Within the France – Spain Programme the launched actions deal with floods and earthquakes, whereas Southern Finland – Estonia addresses especially maritime safety and civil protection in several projects. The Franco-British Programme has activities in coastal protection and management of technological hazards. Also the area France – Wallonia – Flanders has more than just focus. It addresses floods in the cross-border context and tries to raise farmers' awareness of erosion problems.

Among the various hazard types the most attention in INTERREG IIIA has been received by technological hazards (17 projects). Floods were the second most addressed subject by IIIA projects. The picture is quite blurred though as the number of projects which are not directly linked with any hazard is high.

Safety and Security in the Oresund Region http://www.oresund-civilsafety.com/

An interesting cross-border "risk project" was carried out in the Oresund Region, where the Swedish and Danish authorities studied the possibilities of regional cooperation in civil protection. The opening of the bridge in 2000 was a booster for many kinds of new cooperation forms in the region, but also incidents such as storms and major traffic accidents had actualised a certain need for discussing cross-border civil protection. The existing ad hoc cooperation was found to function well, but new engagements required a better knowledge base about the current situation as well as future options.

The project gathered information about the existing arrangements, introduced GIS-methods to be used in case of serious accidents as well as in daily use of the emergency vehicles. It also addressed the problems of risk communication in the cross-border context. Interestingly the project also underlined the importance of joint physical planning in the region. Another key proposal is an 'Emergency Council for the Øresund Region', to act as the administrative body for the cooperation.

[7] Interconnected investment projects have been carried out e.g. in Brandenburg-Lubuskie with its various projects related to disaster control. Also in Ireland – Northern Ireland the programme has provided an opportunity to strengthen the marine safety procedures through series of investments.

3. ESPON-INTERREG analysis

The cross-tabulation (table 8) of the hazard related INTERREG activities according to countries gives the first indication of the regional importance and differentiation what comes to hazard and risk related projects in all INTERREG strands.

In two thirds of the ESPON space (EU 27+2; i.e. 25 EU Member States, Bulgaria, Romania, Norway and Switzerland), floods have attracted more attention than any other hazard. This group of countries is significant as it includes eight of the eleven countries which are the most active in risk projects (taking part at least in 15 risk projects). For instance, approximately two thirds of the projects with Austrian, Belgian, Dutch and German participation address floods. More specialised countries can be found only among the smaller ones with lower overall participation. All projects with partners from Luxembourg, for example, deal with floods.

In countries which do not have the main focus on floods, the key interest has been either on technological hazards (Finland, Norway, Estonia, Ireland, Spain, and Portugal) or storms (Denmark). What comes to the secondary focuses some interesting profiles can be seen, e.g. Italy is active in landslide studies, as 30% of all projects addressing landslides have at least one Italian partner (11 out of 37), and France in dealing with earthquakes (12%).

3.1 ESPON-INTERREG map analysis

The following section analyses the cross-tabulation (table 8) and the overlain hazard and INTERREG project maps. The analysis focuses on the INTERREG activities in comparison to the distribution and intensity of hazards. The aim is to obtain an overview on those areas that experience hazards and have been active in some kind of hazard and risk related INTERREG activities and to point areas that could be more active in hazard and risk related activities in a future INTERREG programme. It is not the aim to discourage any region from undertaking activities concerning any hazard, since the underlying hazard maps often consist of preliminary data sets that are harmonised for a European perspective. Locally relevant hazards (that might not be displayed in the maps) should in any case be discussed with the relevant INTERREG secretariats.

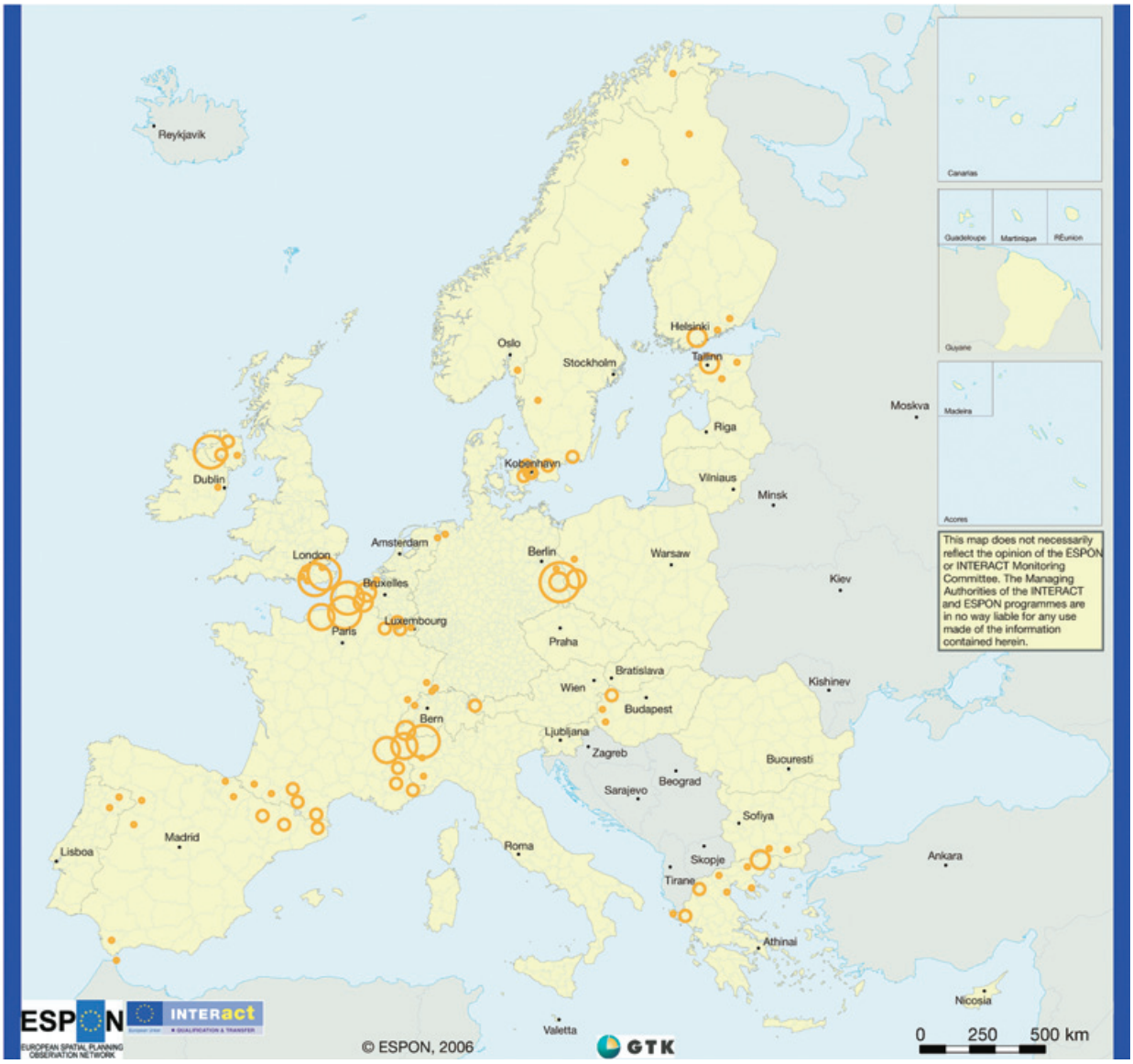
The section below displays hazards identified by the ESPON Hazards project with INTERREG projects identified in the present study. The INTERREG activities were derived from websites and questionnaires and are presented on NUTS 3 level. Since all INTERREG projects are not registered yet in a single database it is possible that some projects have not been included in the analysis. For the same reason it is also possible that in some cases certain regions have in fact not been involved in INTERREG projects, or that different regions than those displayed have actually participated.

In cases where many INTERREG activities in different strands have taken place several maps per strand and hazard were included. If only few activities per strand could be identified, the three INTERREG strand activities are represented in a single map. In cases where hazard activities were very scarce or very locally oriented, no maps have been included at all. However, the projects can be found in the attached database, which contains more information.

Table 8: Amount of hazards studied per country

	Avalanches	Droughts	Earthquakes	Extreme temperatures	Floods	Forest fires	Land slides	Storm surges	Technological hazards	Volcanic eruptions	Winter storms	Not defined
Austria	2	1		1	13		4		1			3
Belgium		3		1	13		1	5	3		3	1
Bulgaria												3
Croatia					1							1
Czech Republic		2			4							
Denmark		1			2			3	3		3	
Estonia		2		1	3	1	1	2	5		2	2
Finland		1		2	3	1	1	2	6		2	3
France	3	2	6	1	22	4	9	3	11	1		6
Germany	2	7	3	3	32	3	4	6	5		6	6
Greece		5	2		3	2	2	1	3			16
Hungary		1			4				1			4
Ireland		1			3			1	4			2
Italy	5	6	5	2	16	4	11	2	4	1		6
Latvia		1		1	1	1	1	1	1		1	1
Lithuania		2		1	3	1	1	1	3		1	1
Luxembourg					3							
Malta		1				1						
Netherlands		3		1	19			6	2		4	3
Norway				1	1			1	3		1	2
Poland		2		1	6	3	1	2	4		2	5
Portugal		3	2		3	3	2		4	2		2
Romania		3			3			1	1			
Russian Federation					2				2			1
Serbia and Montenegro		1			1							
Slovak Republic		2	1		3				1			1
Slovenia	2	1	3	1	5		3		1			1
Spain	1	4	3	1	7	4	3	1	9	3		4
Sweden		1		1	5	1	1	4	5		4	3
Switzerland	2	1	2	1	10		5					
United Kingdom		1		2	12			6	10		3	2

Note: In some cases only parts of countries are covered by INTERREG projects. The total sums are not equal to the database on projects, as several projects address a series of hazards.



Map 1
INTERREG IIIA projects related to hazard and risk management

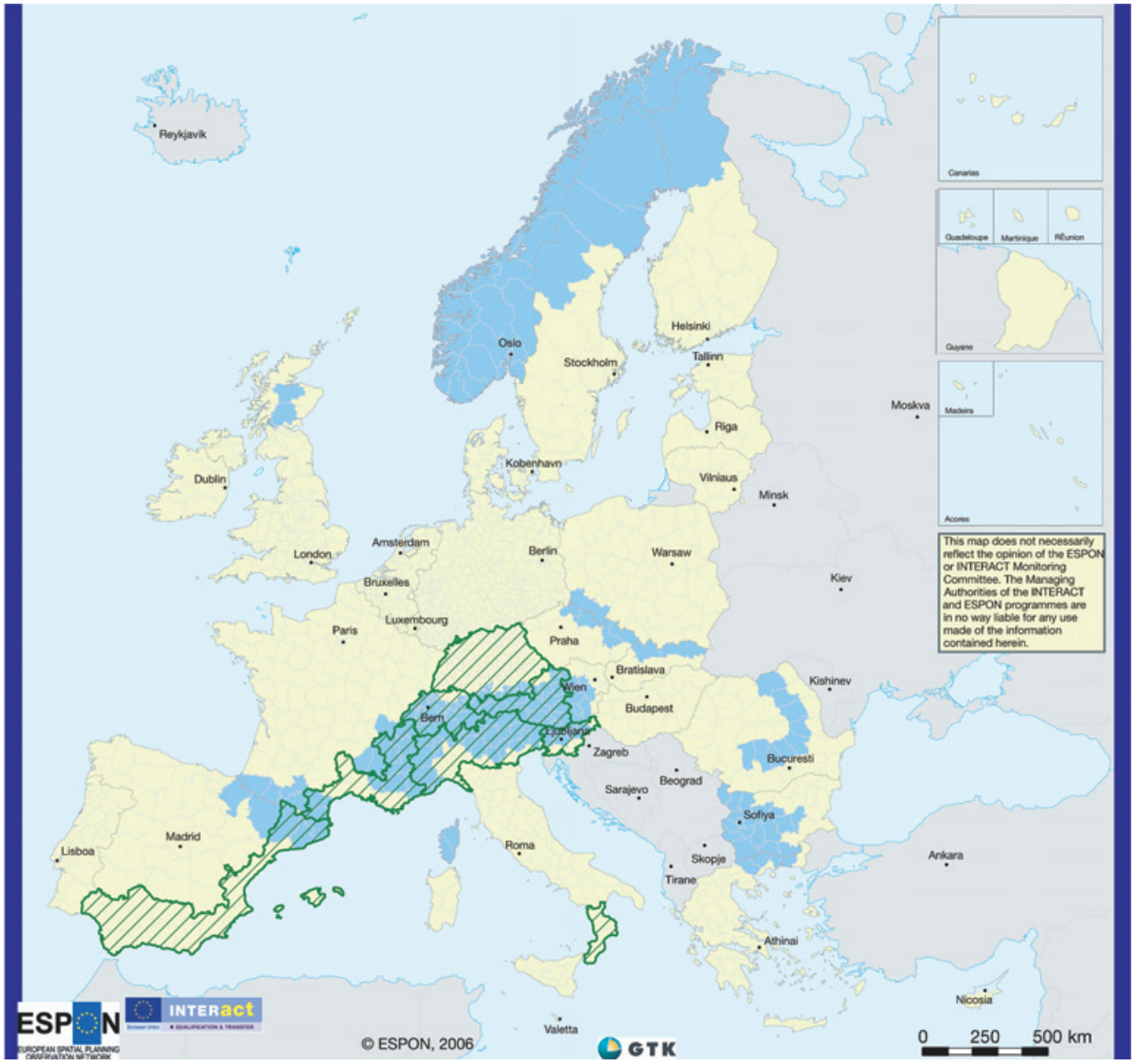
Origin of the Data: © EuroGeographics Association for the administrative boundaries
Hazard & risk projects © ESPON-INTERACT INTERREG III project database

Number of hazard & risk related INTERREG IIIA projects per NUTS3 area

1
2
3
4
5
6 - 7

Espon Space
Non Espon Space

Map 1 displays the entire sum of INTERREG IIIA projects related to hazards that could be identified on NUTS 3 level. The map shows that the highest amounts of hazard and risk related activities have been in the English Channel, the border regions of Ireland/United Kingdom and France/Italy. Several projects are found in the border regions of France/Spain, Greece/Bulgaria, Austria/Hungary and Finland/Estonia. Some border regions have had only some scattered activities (e.g. Portugal/Spain).



Map 2
Avalanche potential and avalanche related INTERREG IIIA and B projects

Avalanche related projects in INTERREG IIIA and B

Area with avalanche related projects

Avalanche hazard

Avalanches possible

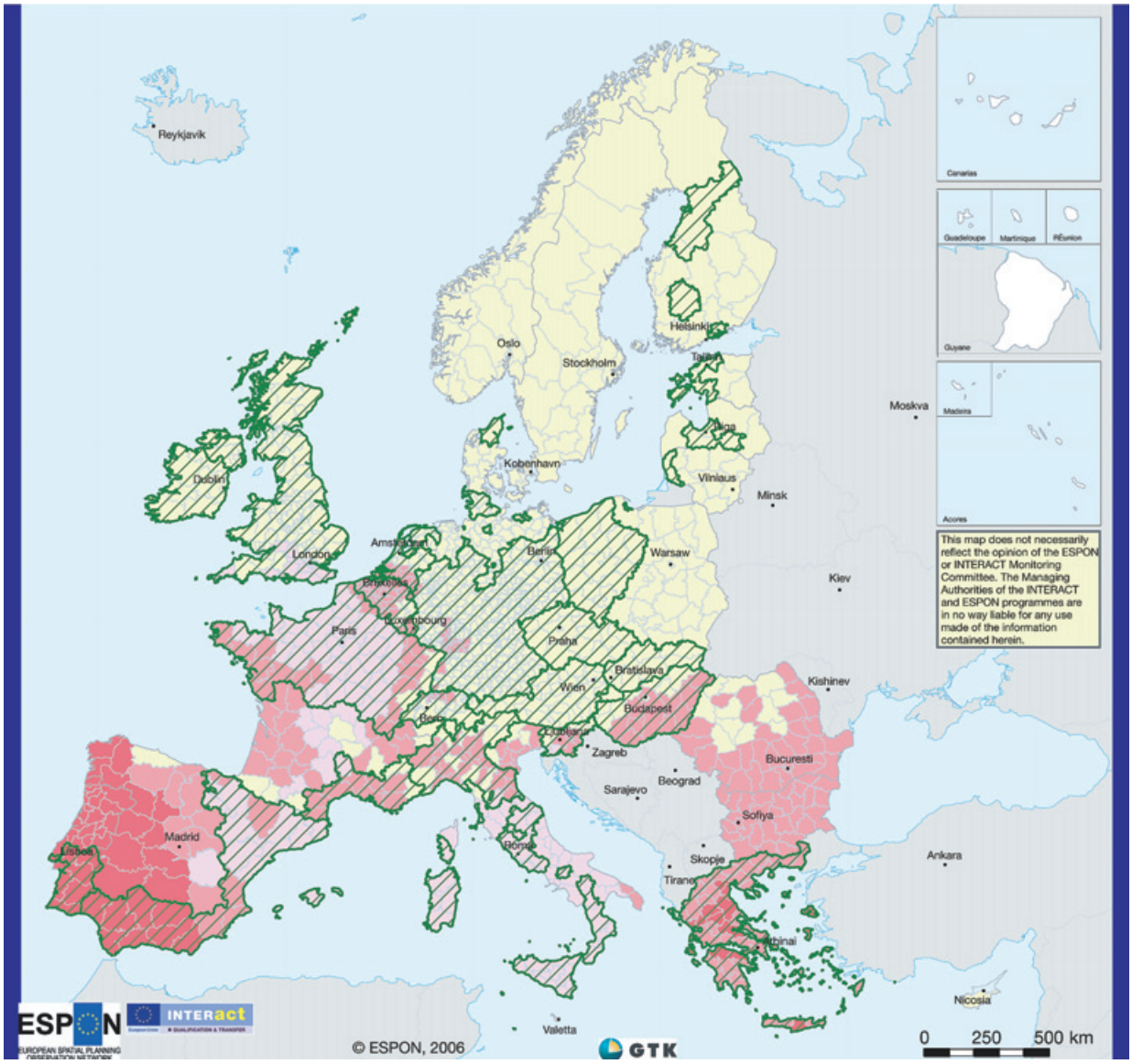
No avalanches

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
European Avalanche Services USGS GTOPO30 Avalanche related projects
© ESPON-INTERACT INTERREG III project data base

The map is based on the results of ESPON 1.3.1. Information in ESPON 1.3.1. was obtained from the European Avalanche Service (UK, Spain, France, Italy, Slovenia, Austria), from the USGS GTOPO30 digital elevation model and from questionaires.
The area of projects covers also regions without avalanche hazard, because many projects are dealing with more than one hazard.

Map 2 displays all INTERREG activities of the strands A and B related to avalanches (INTERREG IIIC had no avalanche activities so far). Obviously the Alps and parts of the Pyrenees have had project activities but nevertheless many areas, especially in the new Member States have not yet dealt with this issue, neither have the Nordic countries.



Map 3
Change of dry spell length affecting drought potential and drought related INTERREG IIIB and C projects

INTERREG IIIB and C projects related to droughts

Area with drought related projects

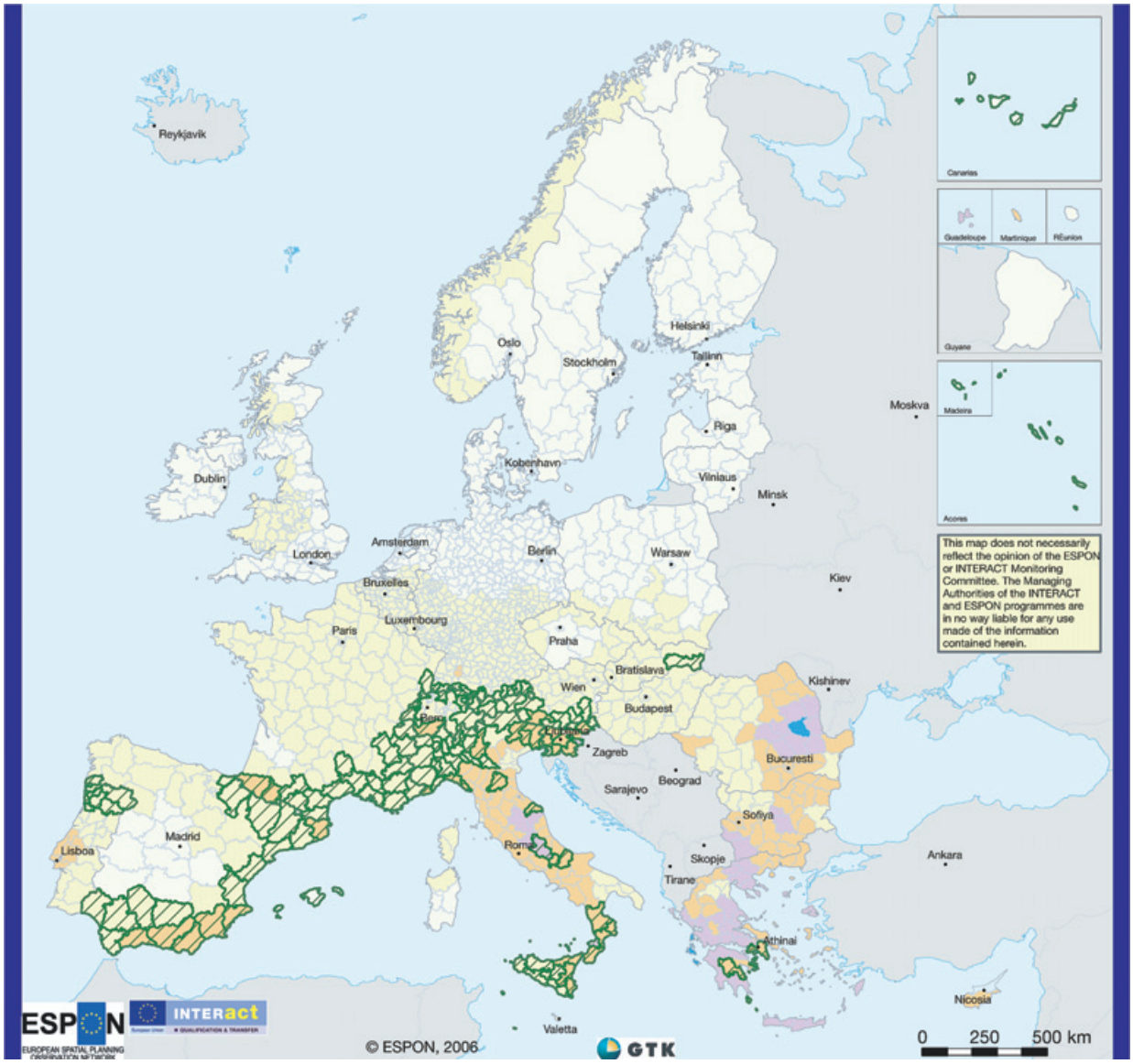
Change of dry spell length (climate change induced) affecting drought potential

- **No Data**
- **No impact on drought potential**
- **Very low impact on drought potential**
- **Low increasing impact on drought potential**
- **Moderate increasing impact on drought potential**
- **Non Espon space**

Origin of the Data: © EuroGeographics Association for the administrative boundaries
ARIDE final report (2001)
The Prudence project model database
Drought related projects
© ESPON-INTERACT
INTERREG III project database

The map is based on the results of ESPON 1.3.1. The map represents the connection between change of dry spell length (The Prudence project model database) and drought potential, based on precipitation deficit recordings 1904-1995.

The area covered by drought related INTERREG projects of all strands goes well beyond those areas that are identified as potentially experiencing the highest drought potential increase by climate change. On the other hand, many areas that are presumed to experience more droughts in the future did not yet have any related INTERREG activities (new Member States, central and northern part of the Iberian Peninsula, parts of France and Italy). Only Greece seems to have covered the drought aspect rather strongly.



Map 4
Earthquake hazard potential and earthquake related INTERREG IIIA, B and C projects

Earthquake related projects, INTERREG III A, B and C

Area with earthquake related projects

Earthquake hazard potential

Very low hazard

Low hazard

Moderate hazard

High hazard

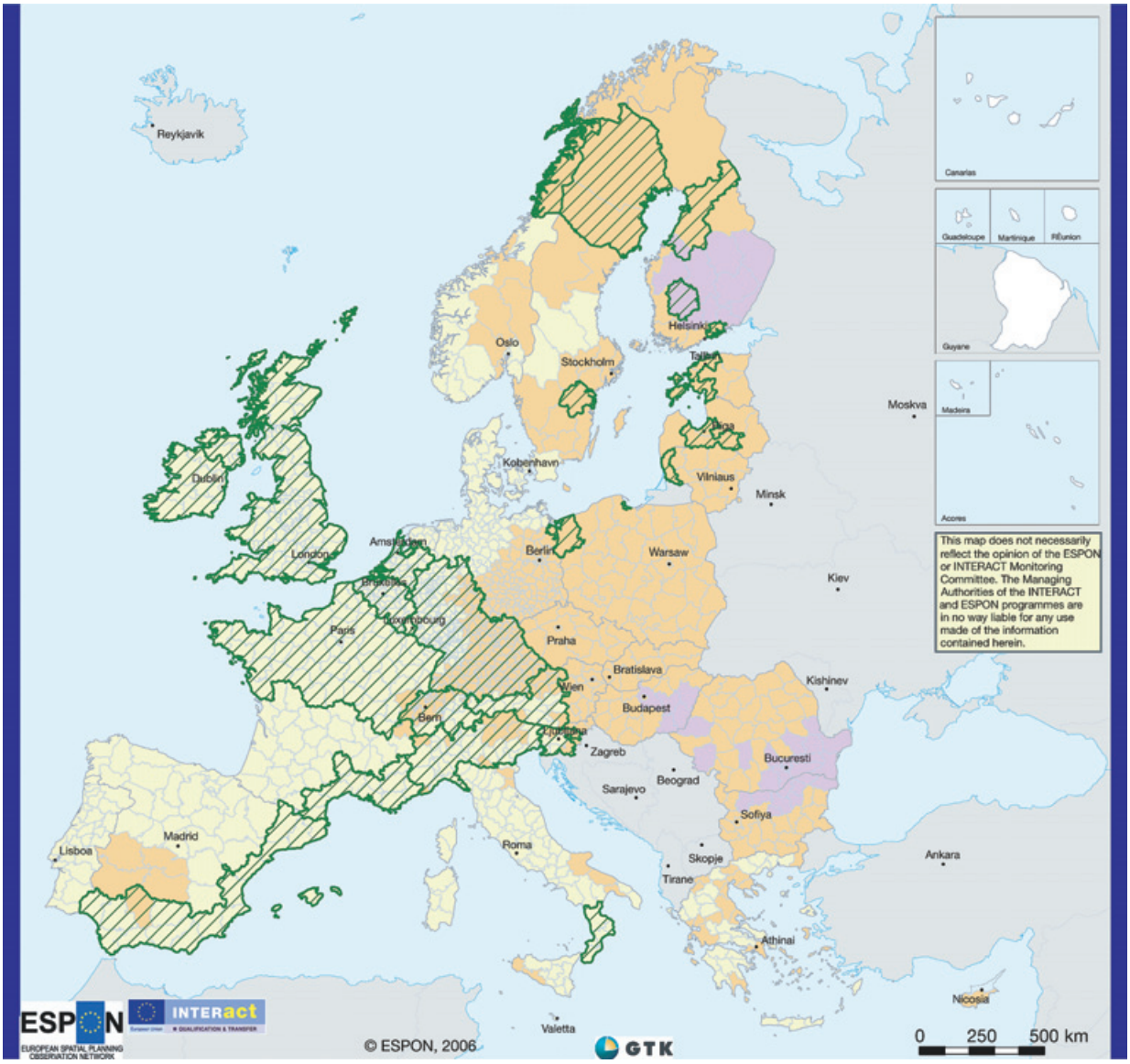
Very high hazard

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Pga data © Global Seismic Hazard Assessment Program
Earthquake related projects
© ESPON-INTERACT
INTERREG III project database

The map is based on the results of ESPON 1.3.1.
The hazard classification is based on the average value of the peak ground acceleration (pga)/acceleration of gravity (%) in a NUTS3 region

As displayed in map 4, some of the highest earthquake prone hazard areas have not had any projects related to seismic hazards so far (as displayed by the Peak ground acceleration related to NUTS 3 areas), even though this map displays INTERREG activities of all strands, A, B and C.



Map 5
Extreme temperature hazard and related INTERREG IIIB projects

INTERREG IIIB projects related to extreme temperatures

Area with projects related to extreme temperatures

Extreme temperature hazard

Low hazard

Moderate hazard

High hazard

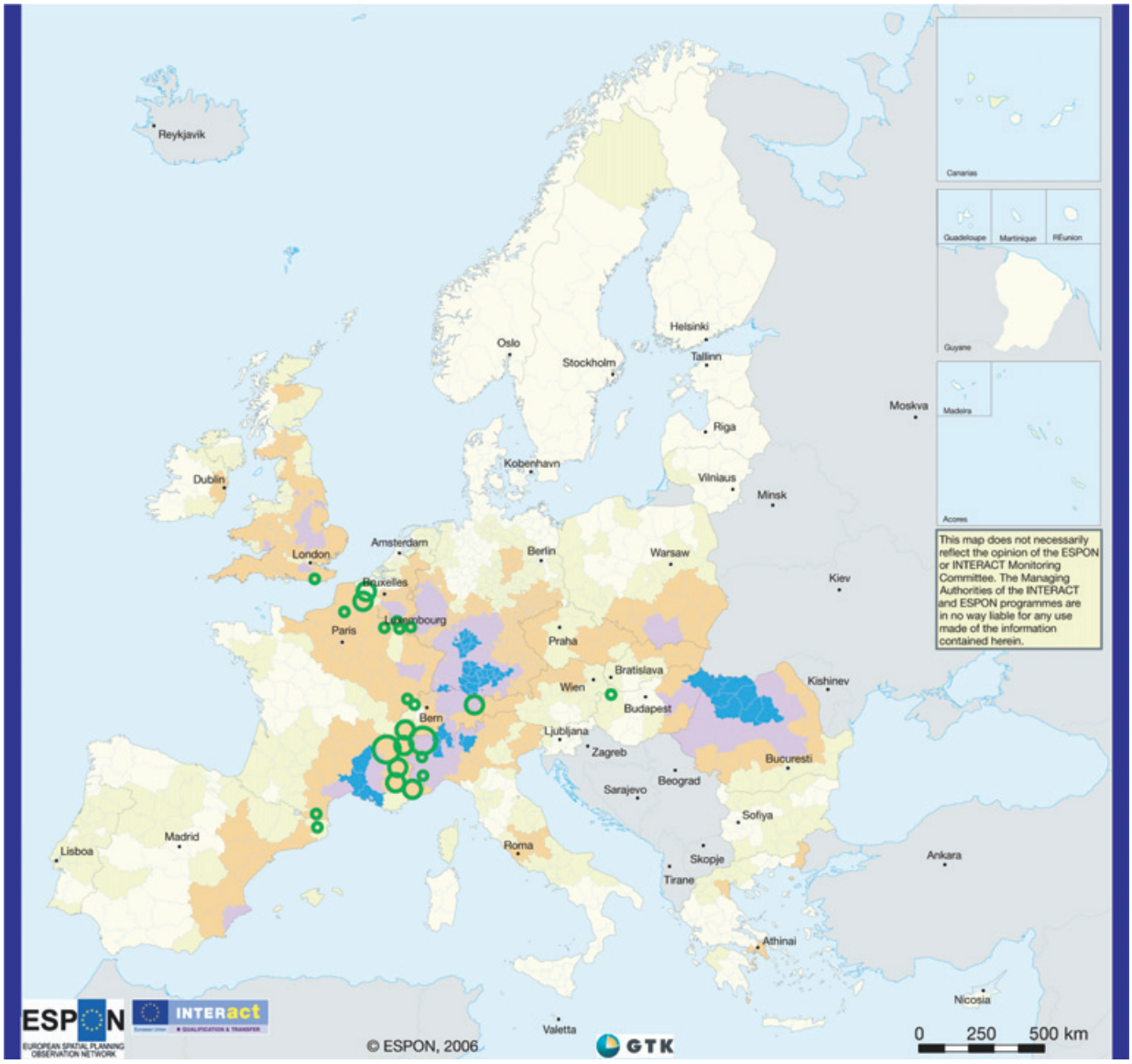
No data

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Rosby Centre RCAO model
Extreme temperatures related projects
© ESPON-INTERACT
INTERREG III project database

The map is based on the results of ESPON 1.3.1.
The map shows the mean of four indicators (hot days, heat waves, cold days and cold waves)

The extreme temperature hazard (map 5) has been addressed so far only by INTERREG IIIB projects. The project areas mainly cover central and western Europe. In other parts of Europe where the hazard intensity is actually higher (mainly eastern and northern but also parts of southern Europe) this hazard has been addressed only by scattered activities.



Map 6
Flood recurrence and INTERREG IIIA flood related projects on NUTS 3 level

Flood recurrence

- Very low
- Low
- Moderate
- High
- Very High
- Non Espon space

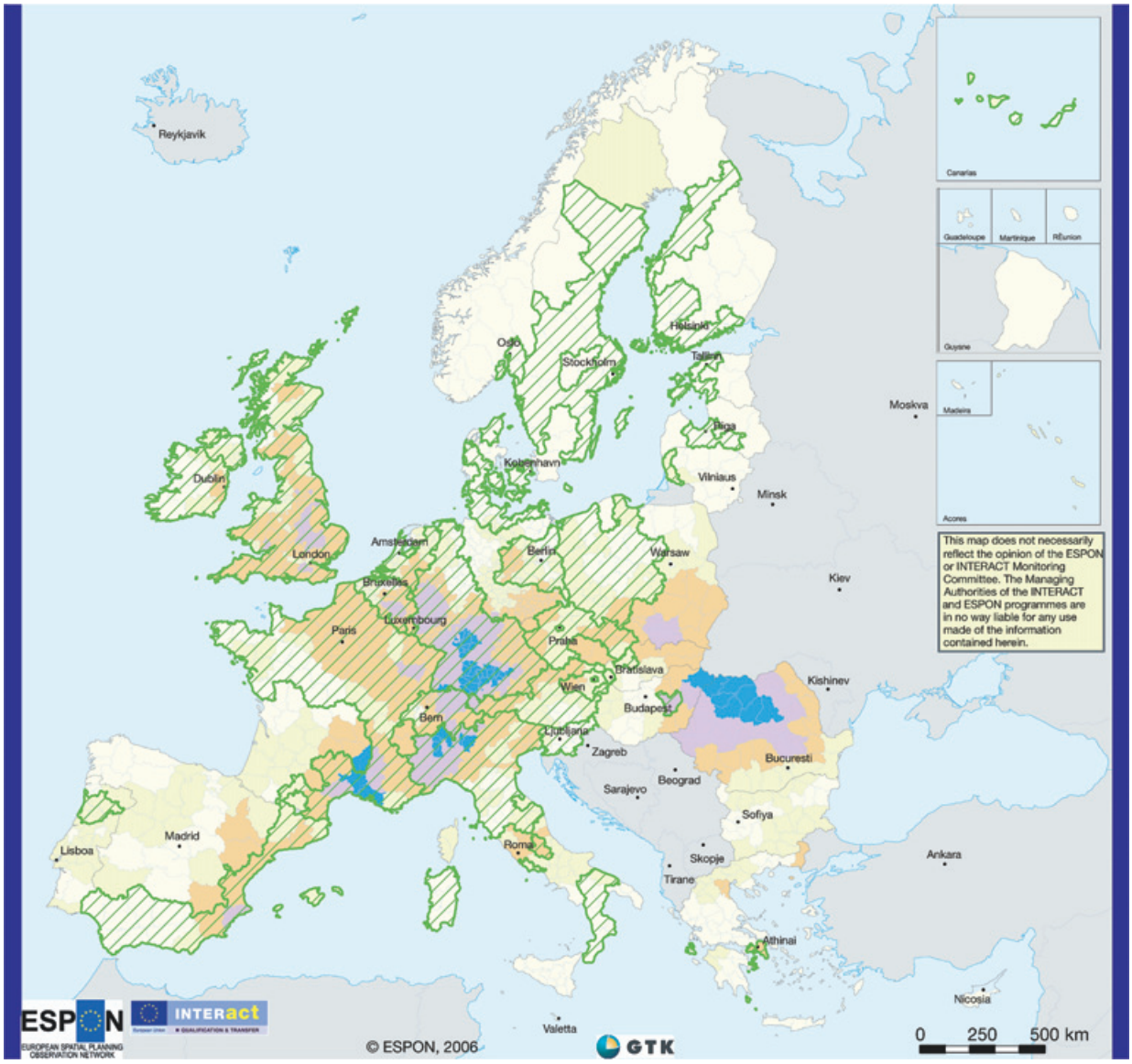
Flood related projects

- 1 INTERREG IIIA project/NUTS3
- 2 INTERREG IIIA projects/NUTS3
- 3 INTERREG IIIA projects/NUTS3

Origin of the Data:
© EuroGeographics Association for the administrative boundaries
Large flood areas © Dartmouth flood observatory
Flood areas © ESA - Earth Observation - Earth Online
Rhine Atlas 2001 IKRS-CIPR-ICBR
Flood related projects
© ESPON-INTERACT INTERREG III project database

The map is based on the results of ESPON 1.3.1. It displays the hazard recurrence based on average number of large flood events on NUTS3 regions 1987-2001. The first class "Very low hazard intensity" includes the regions without large flood events.

Map 6 shows that among the border regions the most IIIA projects on floods are located in the border area between Italy and France, as well as France/Belgium/Luxemburg.



Map 7
Flood recurrence and INTERREG IIIB flood related projects on NUTS 3 level

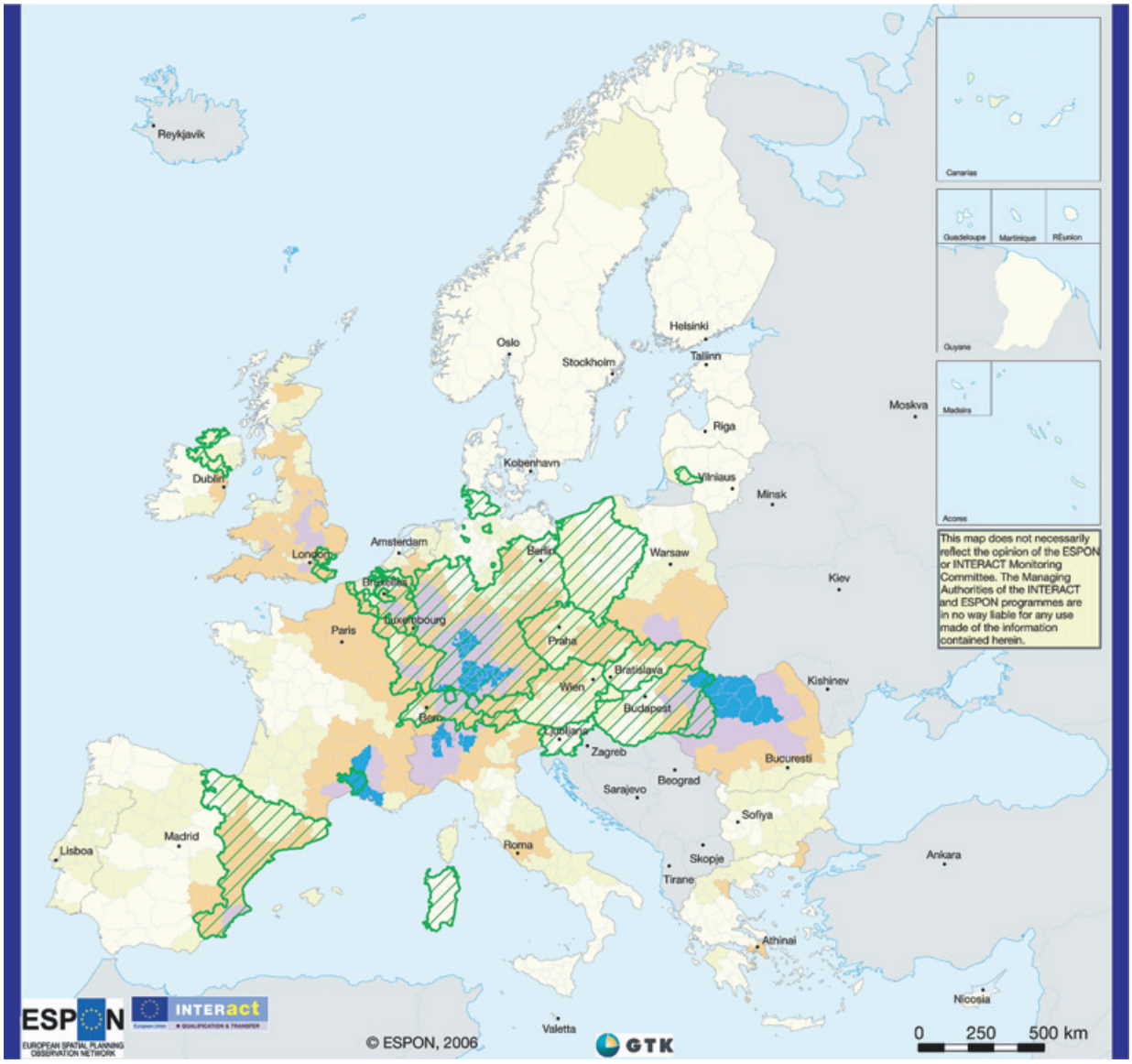
Flood recurrence
- Very low
- Low
- Moderate
- High
- Very High

INTERREG IIIB projects
- Areas with flood related projects
- Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Large flood areas © Dartmouth flood observatory
Flood areas © ESA - Earth Observation - Earth Online
Rhine Atlas 2001 IKRS-CIPR-ICBR
Flood related projects
© ESPON-INTERACT INTERREG III project data base

The map is based on the results of ESPON 1.3.1. It displays the hazard recurrence based on average number of large flood events on NUTS3 regions 1987-2001. The first class "Very low hazard intensity" includes the regions without large flood events.

Floods have been addressed in INTERREG IIIB projects to a very large extent (map 7). The areas with flood related projects cover most of Europe. The only areas that are highly flood prone and have not received attention by INTERREG IIIB activities so far are located in the eastern areas of the new Member States, as well as in Romania.
The INTERREG IIIC project area on floods (map 8) reveals that meanwhile the coverage of the flood projects is high in central Europe, it is here also extending further towards eastern Europe than in the INTERREG IIIA or IIIB activities. In sum, the high flood recurrence in many parts of the Pentagon has been addressed with quite a number of flood related projects. Especially the IIIA cross-border projects coincide quite neatly with the areas of high recurrence in Western Europe. In the east the most problematic areas have not yet got engaged in project activities. Only IIIC



Map 8
Flood recurrence and INTERREG IIIC flood related projects on NUTS 3 level

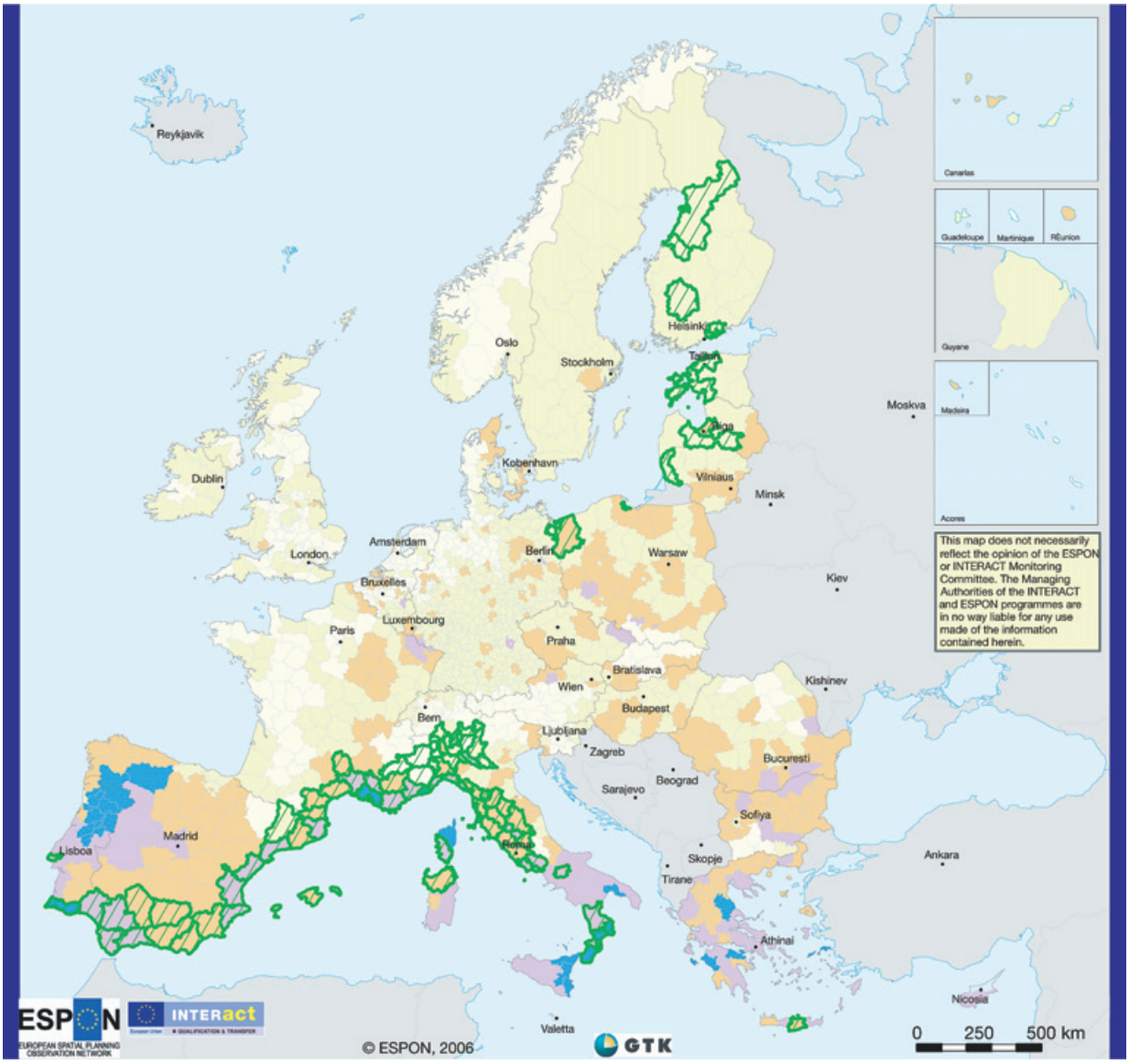
Flood recurrence
- Very low
- Low
- Moderate
- High
- Very High

INTERREG IIIC projects
- Area with flood related projects
- Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Large flood areas © Dartmouth flood observatory
Flood areas © ESA - Earth Observation - Earth Online
Rhine Atlas 2001 IKRS-CIPR-ICBR
Flood related projects
© ESPON-INTERACT INTERREG III project database

The map is based on the results of ESPON 1.3.1. It displays the hazard recurrence based on average number of large flood events on NUTS3 regions 1987-2001. The first class "Very low hazard intensity" includes the regions without large flood events.

reaches parts of the easternmost areas of very high flood risk (map 8). On the other hand, also numerous areas of very low flood risk at the European scale (e.g. in the Baltic Sea Region) have become partners in flood projects.



Map 9
Forest fire hazard and INTERREG IIIB projects

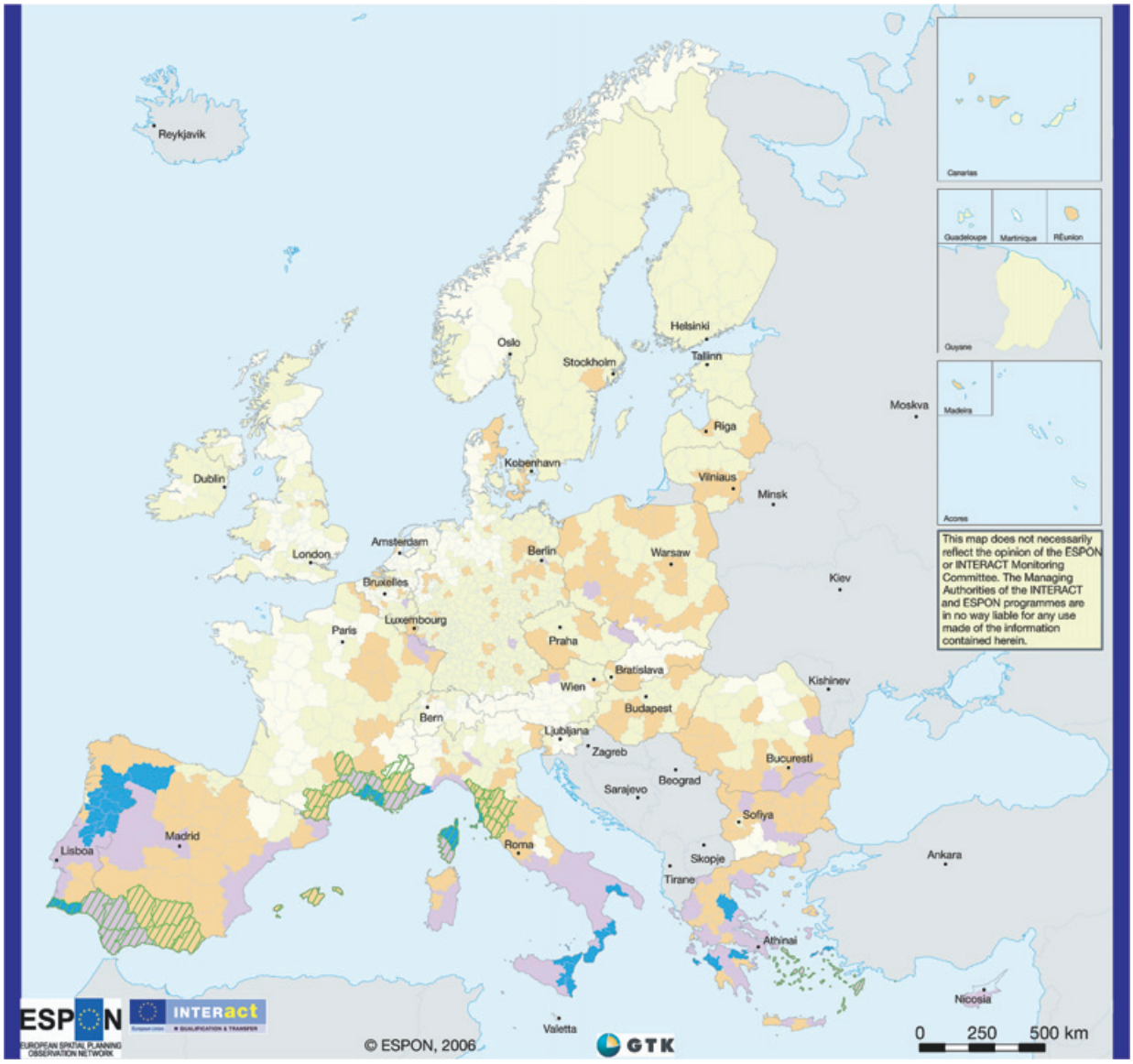
Forest fire hazard
- Very low
- Low
- Moderate
- High
- Very high

INTERREG IIIB projects
- Area with forest fire related projects
- Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Number of forest fires 1997 - 2003: ATSR world fire atlas
European Space Agency - ESA/ESRIN
Biogeographic regions: EEA
Forest fire projects
© ESPON-INTERACT INTERREG III project database

This map is based on the results of ESPON 1.3.1.
The classification of forest fire hazard is based on a combination of the numbers of observed fires per 1000 sq. km 1997-2003 (ATSR) and the map of biogeopraphic regions in Europe (EEA).

The areas with high forest fire hazards do not correspond very much with the related IIIB and IIIC projects (maps 9 and 10). There is no map representing INTERREG IIIA related forest fire projects, because there was only one project dealing directly with the forest fire hazard by setting up an automatic forest fire monitoring system at the German-Polish border. Greece has hardly any activities in this field, with the exception of some IIIA projects used to procure fire vehicles.



Map 10
Forest fire hazard addressed by an INTERREG IIIC project

Forest fire hazard

- Very low
- Low
- Moderate
- High
- Very high

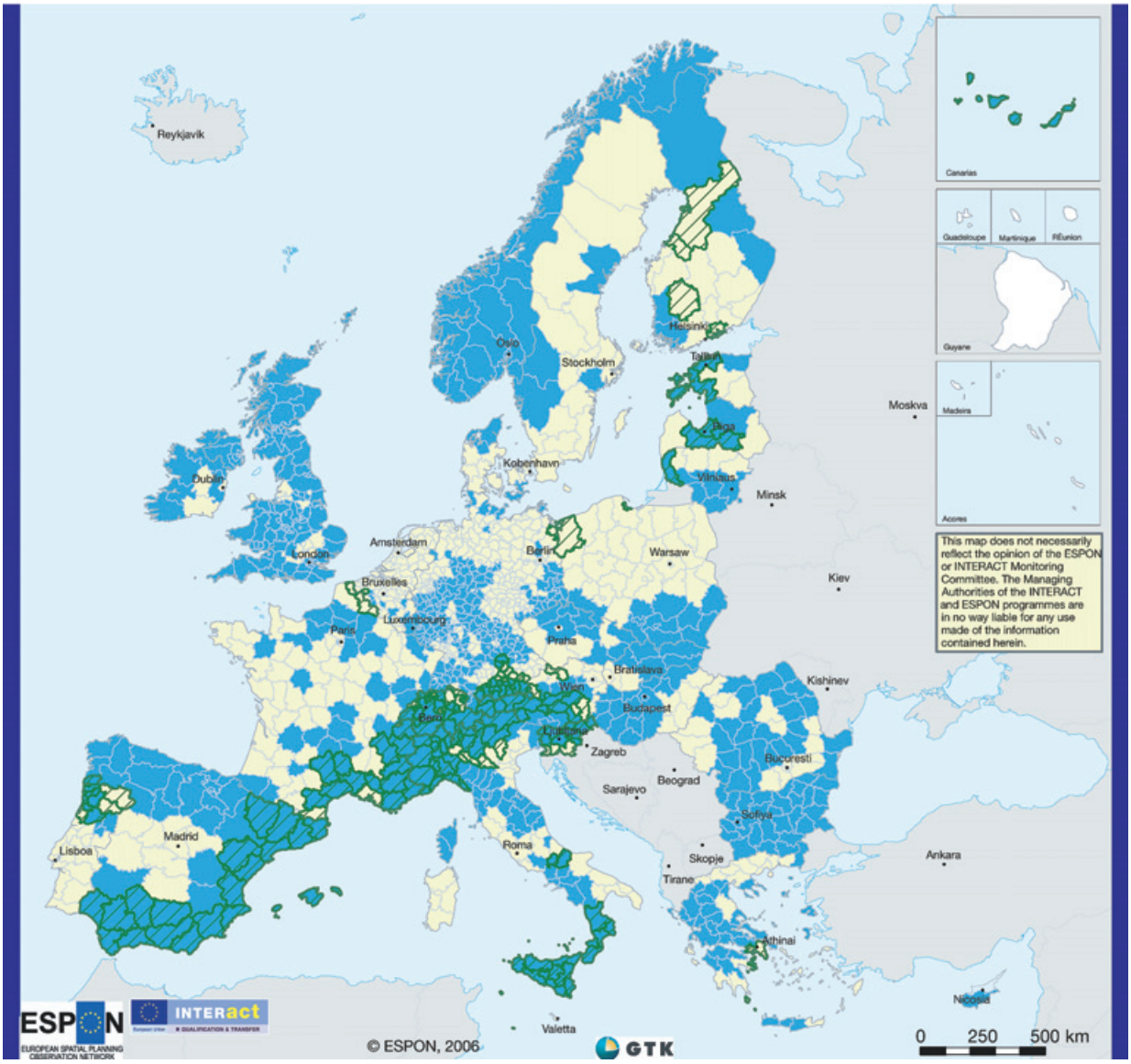
Forest fire related projects

- 1 INTERREG IIIC project/NUTS3
- Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Number of forest fires 1997 - 2003: ATSR world fire atlas
European Space Agency - ESA/ESRIN
Biogeographic regions: EEA
Forest fire projects
© ESPON-INTERACT INTERREG III project database

This map is based on the results of ESPON 1.3.1.
The classification of forest fire hazard is based on a combination of the numbers of observed fires per 1000 sq. km 1997-2003 (ATSR) and the map of biogeopraphic regions in Europe (EEA).

In INTERREG IIIB projects only the Western Mediterranean coastal area is addressed nearly entirely (map 9). A major lack of activities here can be found in central and northern Portugal and North western Spain. The coverage of the forest fire hazard in the Baltic Sea Region is addressed by one IIIB project aiming at developing adaptation strategies to climate change impacts (ASTRA). Map 10 displays one single project on forest fires (INCENDI).



Map 11
Landslide hazard and related INTERREG IIIA, B and C projects

INTERREG IIIA, B and C projects

Area with landslide related projects

Areas with landslide hazard

Low hazard

High Hazard

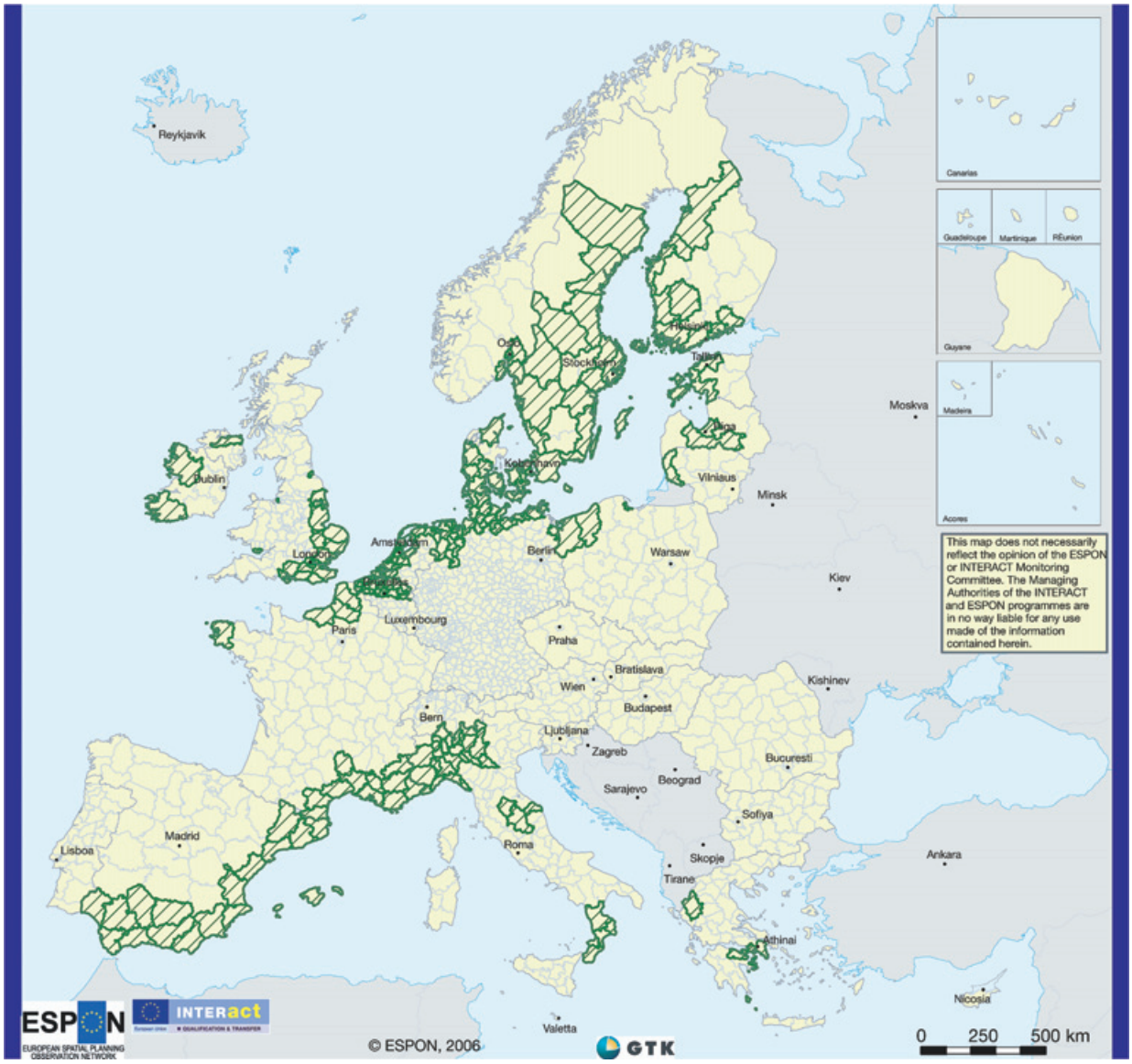
No Data

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Expert interviews
Landslide related related projects
© ESPON-INTERACT INTERREG III project database

The map is based on the results of ESPON 1.3.1. Areas with landslide hazards, based on national expert opinion of European Geological Surveys

The map on landslides (map 11) shows that the coverage of landslide related project fits rather well to the landslide prone areas among coastal zones of the western Mediterranean and the Alpine Region. Also some related project areas in the Baltic countries are located in landslide prone areas. However, many large landslide prone areas have not yet had any projects.



Map 12
INTERREG IIIA and B projects related to winter storms and storm surges

INTERREG IIIA and B projects

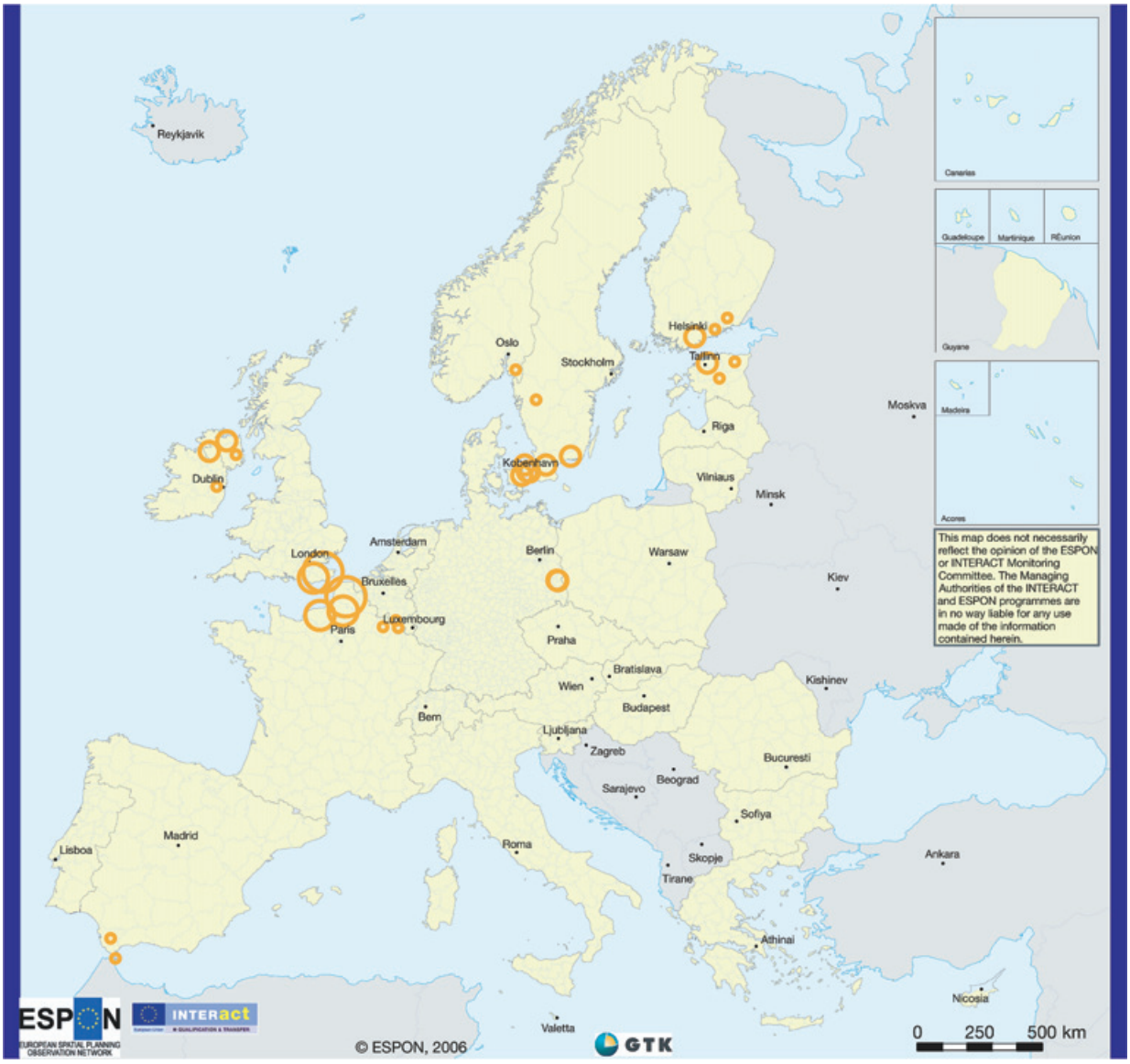
Area with projects related to storm surges and winter storms

Espon space

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
winter storm and storm surge related projects
© ESPON-INTERACT INTERREG III project database

The INTERREG activities on storms and storm surges (map 12) cover a much larger area than the highest storm surge and winter storm prone regions issued by the Munich Reinsurance Company (1998), which highlights the southern North Sea area and southern Baltic Sea coast. The coastal areas of the western Mediterranean also have several areas with project activities related to storms, even though Munich Re does not highlight these areas as specifically hazardous. This shows that hazards have to be evaluated on a regional and local scale to define the need and structure of related project activities.



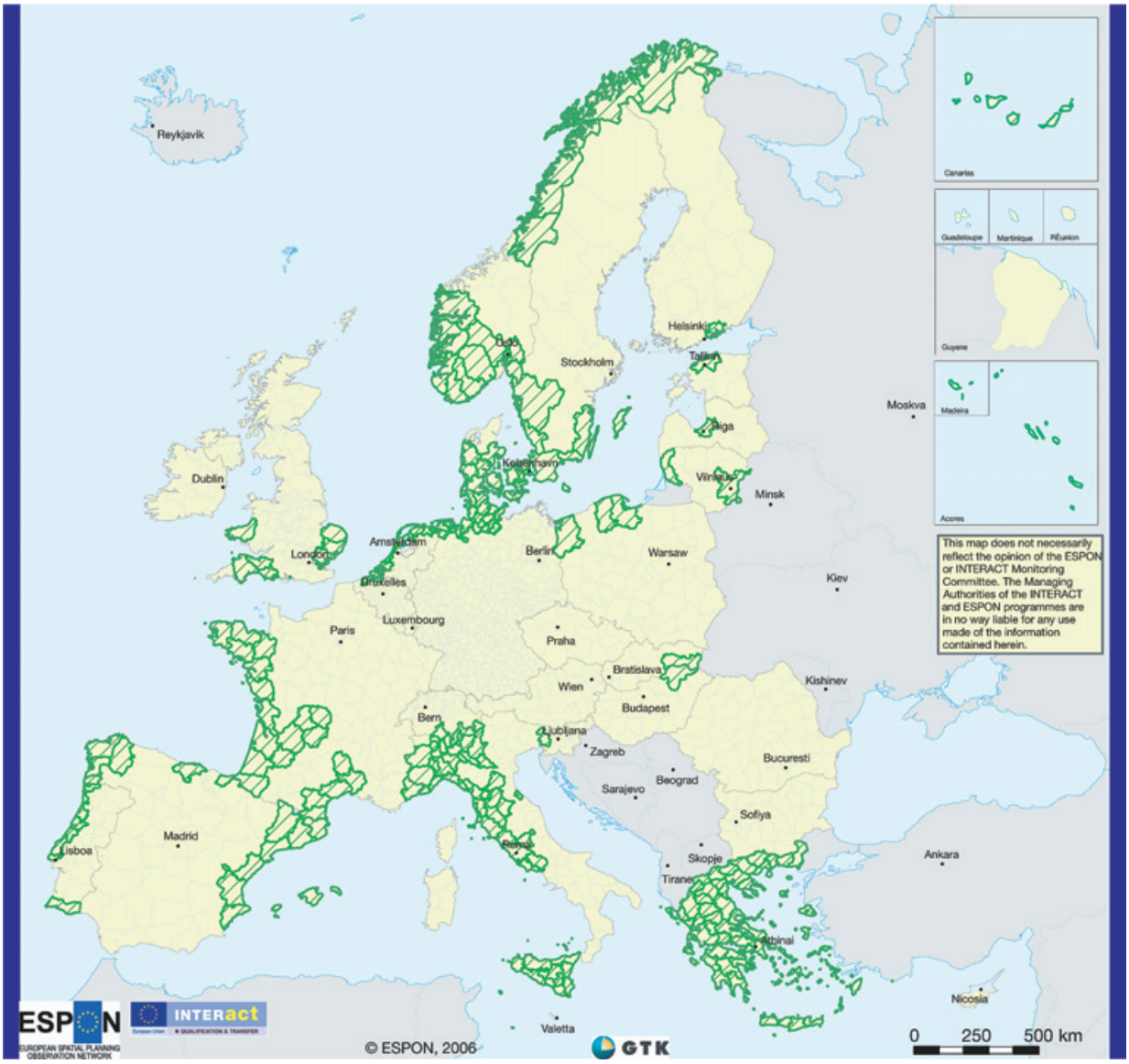
Map 13
INTERREG IIIA projects related to technological hazards

Projects related to tech. hazards

- **1 INTERREG IIIA project/NUTS3**
- **2 INTERREG IIIA projects/NUTS3**
- **3 INTERREG IIIA projects/NUTS3**
- **4 INTERREG IIIA projects/NUTS3**
- **Non Espon space**

Origin of the Data: © EuroGeographics Association for the administrative boundaries
techn. hazards projects
© ESPON-INTERACT INTERREG III project database

The map above shows that in central and northern Europe most of the cross-border cooperations (IIIA) related to risks and hazards have focussed on technological hazards (compare with map 1). In southern Europe, all of the hazards and risk related INTERREG IIIA projects have in turn been focusing on natural hazards, with the exception of a Spanish-Moroccan cooperation project.



Map 14
Technological hazards addressed in INTERREG IIIB projects

INTERREG IIIB projects

Area with techn. hazard related projects

Non Espon space

Origin of the Data: © EuroGeographics Association for the administrative boundaries
Techn. hazard projects
© ESPON-INTERACT INTERREG III project database

The map above shows that most of the INTERREG IIIB activities related to technological hazards have focussed on coastal zones. This implies that coastal pollution and other maritime safety features are of high concern for territorial development.

4. Conclusions and recommendations on future INTERREG environmental risk projects

So far only few INTERREG III programme area measures and priorities mention risk. Since natural and technological hazards, as well as resulting risk patterns, can influence regional development adversely, it is recommended that both risk patterns and vulnerability factors should be taken into account in order to reduce overall risk in future Objective 3 programmes.

Based on an analysis where INTERREG project activities are related to the hazard and risk patterns identified by the ESPON Hazards project (Schmidt-Thomé 2005), some general and large scale recommendations on future risk related actions are given below. These recommendations take the spatial relevance of hazards into account, as well as the activities that have so far been undertaken in INTERREG projects, i.e. there is a stronger highlight on areas that have had no or few INTERREG activities so far. It should nevertheless always be evaluated on regional or local levels, to what extent hazards and risk related projects could support regional development, both in areas that have not had projects yet and in areas that have already had several activities.

As mentioned above, these recommendations are based on a European-scale perspective. Other hazards than those identified here might be of great importance regionally and locally. These should be evaluated on programme area scale in order to define potential needs of actions.

4.1 Geohazards

Hazard sources and the potential extent of damage can be regionally better delimitated for most geohazards than for meteorological hazards. Landslides are confined to valleys and slopes, and here often the geology and climate determine certain areas of risk. Volcanic activities have mostly local to regional effects, but ash plumes can reach larger over-regional to global extents. Earthquakes appear, besides those caused by underground failures and explosions, in tectonically active areas. In this sense it is possible to delineate the immediate hazard and risk of geohazards to those areas were they mainly occur. Tsunamis are confined to coastal areas and can be triggered by all geohazards mentioned above.

Earthquakes are extremely dangerous and affect large areas of the eastern Mediterranean and Eastern Europe. In comparison to the relative importance of earthquakes revealed by the Delphi method (see chapter above), it would be strongly recommended to take this hazard more into account in future Objective 3 activities in these areas. Many very old settlement areas have always been located in earthquake prone areas and earthquakes have always affected the European civilisation. Old structures are difficult to protect, therefore future projects should focus on enforcing appropriate engineering of new structures to be earthquake proof, the development of disaster management plans and cooperation of regions in cases of disasters. Cross-border cooperation in case of disasters can be planned well before an earthquake strikes so that relief operations can start without delay. Future projects should focus especially on the eastern and central Mediterranean region as well as overseas territories.

Among the most widespread geohazards in European regions are **landslides.** Landslides are used here as a term that summarises all kinds of gravitational mass movements (rock falls, debris flows, etc.). Landslides can occur on very small spots that are not possible to display on regional level, so that it is to be defined by the relevant programme areas, where such hazards should be taken up in future Objective 3 programmes. In general it can be said that mountainous areas, in particular those with harsh climates favouring weathering processes, high precipitation rates and a high settlement pressure, are those that are most prone to landslides. Nevertheless, locally these conditions might be very different, according to the geology, morphology and land use. Since terrestrial landslides (rock falls, etc.) into lakes or the sea can trigger tsunamis, this hazard can also play a role in the development of some settlement areas, e.g. in Norway where this hazard combination is most imminent. The need for landslide projects has to be defined locally.

The most active **volcanoes** on the European continent are found in Italy. Volcanoes are of particular relevance also for distant EU areas of France, Portugal and Spain and should be taken into account here as potentially affecting settle-

ment development. Since the active volcanoes are known, regional and local settlement development plans should respect safety zones. A considerable problem arises from uncontrolled settlement in hazardous areas, which also puts rescue teams in unnecessary danger. Appropriate land use, evacuation plans and disaster management plans in active volcanic areas, in close cooperation with neighbouring regions, should enable sustainable development of potentially affected areas.

Tsunamis are theoretically possible in all coastal regions, even if they were located far away from seismically active zones. The danger of tsunamis in the Mediterranean is high. It should not be forgotten that most recent tsunami catastrophe in the Mediterranean caused over 75 000 casualties in 1908 in Italy, Messina. Even though this event occurred nearly 100 years ago, a geological perspective reveals that this hazard is still imminent as large parts of the Mediterranean area are tectonically active. Many distant EU areas also show a tsunami risk pattern. It could be of relevance to see if a tsunami warning system was feasible to install and how this could support regional development and decision-making.

Other georisks that were not identified by the ESPON Hazards project comprise factors of geochemistry. Various rock types and sediments have elevated contents of potentially harmful elements such as arsenic, fluoride, nickel, thallium or uranium. These elements pose health risks both on local scale (related to certain mineralisations), and also on regional scale as shown in the geochemical maps of Europe (Salminen 2005). For example, the concentration of fluoride in stream waters is high in the areas of certain granite types in alkaline volcanic rocks in Italy and in Scandinavia. Elevated concentrations of arsenic are found in large areas around ore potential areas of Portugal, France and Greece as well as in black shale areas of the Pyrenees. Here the risks are mostly linked to the quality of drinking water. In the case of radiating elements, indoor radon concentrations can be high in uranium rich regions.

In coastal regions soils and sediments may locally be extremely acid leading to significant financial loss due to dissolution of concrete foundations and drainage systems. Due to extreme acidity also harmful elements such as aluminium is released, leading to mass deaths of fish populations in rivers draining through acid soils. Acid soils are typically found in land areas where sulphide-rich sediments are exposed to oxidation due to artificial processes such as ditching and land reclamation. Such regions are especially found in Scandinavia where natural land uplift (glacial isostacy) steadily exposes sulphide-rich sediments in coastal areas.

4.2 Meteorological hazards

This chapter analyses meteorologically influenced hazards in alphabetical order taking into account relevant hazard interactions and climate change factors. Meteorological hazards often have a wider and fuzzier impact space than geohazards. Floods can affect large catchment areas (e.g. the entire lower Rhine area), storms can hit very large regions leading to both storm surges and inland damages, droughts can even affect the entire continent. However, it is seldom only the hazard itself that influences regional development. Only in combination with disadvantageous land use practices, infrastructure and settlement patterns they lead to catastrophic impacts. In the discussion of meteorological hazards vulnerability reduction should therefore play a very important role.

The latest results of climate change models should also be taken seriously into account. As an example of a close cooperation between scientists and decision-makers in the field of climate change related issues, the INTERREG IIIB BSR project on Sea Level Change Affecting the Spatial Development of the Baltic Sea Region (SEAREG) has had close cooperation with spatial planners and other stakeholders. The sea level change assessment carried out under this project revealed that even though planning mostly concerns time periods of 10-20 years, climate change perspectives of up to 100 years are very relevant for planning, especially when talking about long-term investments and sustainable development. The resulting scenarios of the SEAREG project have found their way into many discussions and partly also development strategies of regions and towns. The follow up project INTERREG IIIB of SEAREG: "Developing Policies & Adaptation Strategies to Climate Change in the Baltic Sea Region" (ASTRA) focuses on several impacts of climate change on natural hazards and analyses those in close cooperation with local and regional authorities in case study areas around the Baltic Sea.

The **avalanche** hazard is, just as the landslide hazard described above, very much confined to particular slopes and valleys. Since the avalanche hazard received an overall rather low rating of importance in the Delphi exercise of the ESPON Hazards project, and over 90% of the avalanche accidents with casualties are triggered by human activities in avalanche prone areas, the main focus of future projects with this hazard should concentrate on the safety issue in skiing and mountainous (snowy) hiking areas.

Droughts are a very important hazard that affects large territories in Europe. So far there have been only few projects dealing with this hazard in INTERREG projects and it is strongly recommended to focus more on the adverse impacts of drought on regional development. It should be taken into account that droughts affect not only agriculture but also other industries, when cooling waters from rivers cause energy production plants and other industries to run on lower efficiency or even shut down due to the lack of cooling water from, e.g. rivers or lakes. Since droughts are difficult to predict, only long-term hazard management, including the sustainable usage of water resources, can prove sustainable. Hazard interactions should be taken into account, as droughts can lead to an increase of the forest fire potential, and heat waves occurring mutually with droughts can increase both the drought and the forest fire hazard. Heat waves occurring at the same time with droughts can also lead to an additional stress in the energy supply, as the water needed for energy production might get too warm for cooling processes and the use of air conditioning systems causes an increasing demand on power production. It should also be taken into account, that the latest climate change scenarios see a potential for an increase of the drought potential in the Mediterranean area and parts of central Europe.

Extreme temperatures are also difficult to forecast on a mid to long-term basis and therefore the regions that are most prone to this hazard should take long-term precautions. In this category fall especially the areas highlighted in the ESPON Hazards project. An important approach can be the general life and working conditions in extreme cold climates in the Northern peripheral areas, and this also accounts for areas in Eastern Europe that experiences strong variations of very hot summers and very cold winters. Materials and installations must be able to resist the temperature variations, and energy support (heating and cooling systems) must be adaptable to extreme situations. In addition, many people suffer from extreme heat waves so that additional risks, e.g. for the health care systems, should be taken into account. Potential new projects could develop scenarios of, e.g. extreme temperatures during different periods of the year to determine the vulnerability of an area to those climatic extreme events. These scenarios can then accordingly lead to long term action and mitigation plans.

By far the highest amount of all INTERREG III projects on hazards has been focusing on the **flood** hazard. One reason for this may lie in the dramatic recent flood events across Europe, which have served as “focussing events” guiding policy-makers’ attention. In any case, this meteorological hazard, the impact of which is increased by the type and location of settlements and hydraulic engineering (e.g. straightening of rivers), etc., is one of the most mentioned in INTERREG priorities and measures. It should be evaluated on regional and local scales whether these projects have actually lead to a decrease of the flood potential and vulnerability. This should help to determine the need for more flood projects. In other words, the development of over-regional (cross-border/catchment wise) cooperation should be endorsed, with a clear focus on the development of flood retention areas and natural flood prone areas. These efforts will be conducted in relation to the implementation of the recent EU Flood Directive, which also links with the Water Framework Directive. An important aspect could also lie on climate change, as the flood patterns might change due to earlier snow melting in spring and increased precipitation, especially in central and northern Europe. Also extreme weather events appear likely to increase in the future. Since the flood potential is very high in central and eastern Europe, most of these regions should get better prepared for future extreme flood events, especially taking over-regional and cross-border policy development on river catchment management into account.

The hazard of **forest fires** has been addressed by INTERREG III projects far less than the relative importance indicated by the results of the Delphi method would imply. Forest fires are a natural hazard, but approximately 90% of these fires are caused by human activities. There are several forest fire research programmes under the EU Frameworks and also ongoing in large EU research institutions, but there should be a closer link to the actual implications of forest fires on regional development. It would

therefore be highly recommended to take up the forest fire hazard in future INTERREG programmes, especially in the Mediterranean area and parts of Central and Eastern Europe. Additionally, the potential interactions of forest fires with other hazards, such as droughts and extreme temperatures should be taken into account in terms of long term planning potentials concerning these interactions. The effect of climate change on these mentioned hazard interactions should also be respected.

Storm surges have so far been mostly dealt within North Sea areas with few exceptions. This pattern follows the one identified by the ESPON Hazards project. The possibility of forecasting storm surges has improved strongly in the 20th century and at the same time integrated coastal risk management has lowered the casualties of storm surges. Climate change models have so far not been able to develop any reliable forecasts on changes of wind/storm surge patterns. Nevertheless it is recommended to include hazard interactions of (winter) storms with (coastal) floods into future storm surge projects, such as already done by the INTERREG IIIB projects SEAREG and ASTRA, for example. These projects also include climate change models, a trend that is recommended to be broadened in future INTERREG activities.

There are no scenarios yet on the influence of climate change on **winter and tropical storms.** Since storms belong to the most important natural hazards on a global scale, also Europe could focus more on the financial effects of storms. In the case of storms the most appropriate mitigation from the regional development perspective could be to initiate a decrease in vulnerability, for example by focusing on the reduction of the consequences of the impacts and strengthening the coping capacity. In other words, the consequences of storms on the infrastructure and the other vital assets of regions should be taken into account. Also the interactions of winter storms with storm surges and floods can be addressed to a larger extent, especially in the North Sea and the Baltic Sea as well as cross-border cooperations to ensure timely early warning and relief operations.

4.3 Technological hazards

In the field of **technological hazards** the most intense focus should lie on accident prevention, e.g. by ensuring that EU and international safety procedures and recommendations are most strictly followed. Besides these, close cross-border cooperation in cases of disaster should be further ensured, especially in the case of monitoring and relief operations (e.g. oil spills). Early and appropriate disaster management is often a decisive factor in disaster control. Appropriate land use planning can help to ensure that, in case of accidents, disasters do not affect settlements, vital infrastructure or protected nature areas. Since technological hazards occur in many places in Europe, priority could lie on areas with a high population density and those with important and/or fragile ecosystems.

4.4 Cooperation potential of INTERREG and ESPON

A future Objective 3 programme could cooperate more tightly with ESPON. Since ESPON has developed data and maps on all kinds of topics regarding the regional potential of future terrestrial development covering the European Union Member States, plus Bulgaria, Norway, Romania and Switzerland (EU29), this information can be used by INTERREG to define future programme strategies. In addition, ESPON can support future Objective 3 projects by their large data sets and expertise in spatial and territorial issues, e.g. on Territorial Impact Assessment (TIA). ESPON on the other hand could benefit from cooperation with Objective 3 projects to test some of the ESPON methodologies in project areas and refine those accordingly, mainly in order to support the definition of new strategies and goals as well as policy making at any relevant geographical level.

A future Objective 3 programme could take into account the large amount of policy recommendations issued by ESPON projects. The ESPON programme 2006 has been developing an integrated picture on the potentials of territorial development in Europe, based on several indicators and typologies. These indicators and typologies can be a fruitful base for INTERREG to outline the content and orientation of future Objective 3 projects, for example by identifying territorial trends that either favour or pose an obstacle on sustainable regional development. The ESPON studies are of additional value because they cover the entire programme area (EU 27+2) and have all reported on regional (mainly NUTS 3) level. Those INTERREG areas currently outside of the ESPON space can observe which

trends are of importance to them. The ESPON database could be open to all INTERREG projects so that data sets can be shared which might lead to an additional transparency and comparability of results. In general it would be recommended for INTERREG to give more guidelines on the result reporting so that an inter-comparability would nourish future projects, avoid research on similar topics and ease evaluation of programmes and results. For example, it would be of an added value if all projects had to shortly describe how they have dealt with the measure they claimed to address in the application form.

The Delphi method could play an important role if certain trends, impacts, measures, etc. have to be compared over larger areas, in both defining goals and evaluating results.
ESPON could take up some ideas from the management of INTERREG activities. For example, at least for some of the measures of the programme calls for proposals could be issued instead of tendering of some pre-defined requirements. This way project teams would have more to say on how to structure research on certain issues or on how to solve particular questions/obstacles, etc. This would give another research perspective to ESPON, even if it would be only a small part of the entire programme. The strategy could be to hand over unsolved questions first to a research oriented project type and then take up the results and define the topics that are to be derived from these into ESPON standards.

5. References

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6. Annex: Table of INTERREG III projects (printed from the database)

title	acronym	www	character	countries	hazards	programme
Danube flood protection Vienna - Gyoer	–	www.portofgyor.hu	Hazard Assessment	Austria, Hungary	Floods	INTERREG IIIA Austria - Hungary
Pannoni fire-brigade authority center - establishment of a planning game and a training hall with simultaneous interpreting, as well as two exercise resounding	–	http://www.lfv-bgld.at	Rescue Service Preparedness	Austria, Hungary	Not defined	INTERREG IIIA Austria - Hungary
Prestudy: Cross boarding analysis of disasters	–	http://interreg.z.lst.se/ www.o.lst.se	Risk Management	Norway, Sweden	Technological hazards	INTERREG IIIA Sweden - Norway
Emergency measures/fire protection	–	–	Rescue Service Preparedness	Germany, Netherlands	Not defined	INTERREG IIIA Ems-Dollart Region
Development concept alpine Rhine	–	–	Risk Management	Austria	Floods	INTERREG IIIA Alpenrhein-Bodensee-Hochrhein
Schadenspotenziale/ Sonderrisiken in the alpine Rhine Valley	–	–	Hazard Assessment	Austria	Floods	INTERREG IIIA Alpenrhein-Bodensee-Hochrhein
Public work future alpine Rhine	–	–	Risk Management	Austria	Floods	INTERREG IIIA Alpenrhein-Bodensee-Hochrhein
Transnational co-operation and training in the disaster control	–	–	Risk Management	Germany, Poland	Not defined	INTERREG IIIA Brandenburg - Lubuskie
Network information communi-cation within the range fire-brigade, emergency service, disaster control			Rescue Service Preparedness	Germany, Poland	Forest fires	INTERREG IIIA Brandenburg - Lubuskie
Container to be used in case of train accidents	–	–	Risk Management	Germany, Poland	Technological hazards	INTERREG IIIA Brandenburg - Lubuskie
Roll-off container for dangerous goods	–	–	Risk Management	Germany, Poland	Technological hazards	INTERREG IIIA Brandenburg - Lubuskie
Creation of exercise modules for grenzueberschr. Disaster control	–	–	Rescue Service Preparedness	Germany, Poland	Not defined	INTERREG IIIA Brandenburg - Lubuskie
Acquisition of a Fire Brigade vehicle LF 16-12	–	–	Rescue Service Preparedness	Germany, Poland	Not defined	INTERREG IIIA Brandenburg - Lubuskie
Extension of the automatic forest fire monitoring	–	–	Risk Management	Germany, Poland	Forest fires	INTERREG IIIA Brandenburg - Lubuskie
Around and development of a training facility for disaster control	–	–	Rescue Service Preparedness	Germany, Poland	Not defined	INTERREG IIIA Brandenburg - Lubuskie
Development of methodological tools for the detection and the study of the spreading of large cave-ins	–	–	Hazard Assessment	France, Italy	Landslides	INTERREG IIIA Italy - France (Alcotra)

title	acronym	www	character	countries	hazards	programme
Hydrological risks in the mountains: parades and surveillance.	Risk Ydrogeo	–	Risk Management	France, Italy	Floods	INTERREG IIIA Italy - France (Alcotra)
Creation of the Centre for natural hazards in the mountains of the COTRAO	PRINAT	http://www.grenoble.cemagref.fr/etna/projets_cours/rech_europe/prinat.htm	Hazard Assessment	France, Italy	Avalanches, Floods, Landslides	INTERREG IIIA Italy - France (Alcotra)
Natural hazards social management-Historic memory of natural catast-rophes and the response of social and administrative actors	–	–	Risk Management	France, Italy	Avalanches, Floods, Landslides	INTERREG IIIA Italy - France (Alcotra)
The Vessel Traffic Management System VTMS (Reference: 017982)	–	–	Risk Management	Ireland, United Kingdom	Technological hazards	INTERREG IIIA Ireland – Northern Ireland
Coastal infrastructure and safety improvement programme (Reference: 019018)	–	–	Risk Management	Ireland, United Kingdom	Technological hazards	INTERREG IIIA Ireland – Northern Ireland
Provision of marine safety equipment at Londonderry Port (Reference: 018867)	–	–	Risk Management	Ireland, United Kingdom	Technological hazards	INTERREG IIIA Ireland – Northern Ireland
Ambulance Training/Emergency Planning Room (ReferenceL 023570)	–	–	Rescue Service Preparedness	Ireland, United Kingdom	Not defined	INTERREG IIIA Ireland – Northern Ireland
EMART - A CAWT Response to CBRN (Reference: 023603)	–	–	Rescue Service Preparedness	Ireland, United Kingdom	Not defined	INTERREG IIIA Ireland – Northern Ireland
Seismic Microzonage of the area of the Southern Higher Rhine	–	–	Hazard Assessment	France, Germany, Switzerland	Earthquakes	INTERREG IIIA Upper Rhine Centre-South
Guide of technical and operative performances of the alert systems, coordination and fast intervention before situations of emergency (civil defence) in the basic scope of trans-fronteriza cooperation Castile and North Leon-Region of Portugal	–	–	Risk Management	Portugal, Spain	Not defined	INTERREG IIIA Spain - Portugal
Information system for the Prevention of Shipwrecks in the Straits	–	–	Risk Management	Spain	Technological hazards	INTERREG IIIA Spain - Morocco
Civil Safety in the Øresund Region (Phase 2)	–	http://www.oresund-civilsafety.com/	Risk Management	Denmark, Sweden	Storm surges, Technological hazards, Winter storms	INTERREG IIIA Oresund Region
Civil Safety in the Øresund Region	–	http://www.oresund-civilsafety.com/	Risk Management	Denmark, Sweden	Technological hazards	INTERREG IIIA Oresund Region

title	acronym	www	character	countries	hazards	programme
Procurement of a tracked (with tracks instead of wheels), hinged, multi-purpose fire department vehicle which will be at the disposal of the Department of Kastoria of the Region of Western Macedonia (MIS 89061)	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Albania
Procurement of a tracked (with tracks instead of wheels), hinged, multi-purpose fire department vehicle which will be at the disposal of the Department of Thesprotia of the Region of Epirus (MIS 89345)	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Albania
Procurement of water-bearing fire department vehicles which will be at the disposal of the Department of Kastoria of the Region of Western Macedonia (MIS 89343)	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Albania
Procurement of 3 water-bearing fire department vehicles which will be at the disposal of the Department of Kerkyra (Corfu) of the Ionian Islands of Macedonia (MIS 89365)	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Albania
Procurement of 6 water-bearing fire department vehicles which will be at the disposal of the departments of Ioannina and Thesprotia of the Region of Epirus (MIS 89353)	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Albania
Procurement of a special, hinged, tracked (instead of wheels), multi-purpose fire department vehicle	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Former Yugoslav Republic of Macedonia
Procurement of special, hinged, tracked (instead of wheels), multi-purpose fire department vehicles	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Former Yugoslav Republic of Macedonia
Procurement of five (5) water-bearing fire department vehicles	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Former Yugoslav Republic of Macedonia
Procurement of water-bearing fire department vehicles	–	www.interreg.gr/gr	Rescue Service Preparedness	Greece	Not defined	INTERREG IIIA Greece - Former Yugoslav Republic of Macedonia
Procurement of two water-bearing fire department vehicles (date of issue of decision 29/07/03)	–	www.interreg.gr/gr	Rescue Service Preparedness	Bulgaria, Greece	Not defined	INTERREG IIIA Greece - Bulgaria

title	acronym	www	character	countries	hazards	programme
Procurement of a special, hinged, tracked (instead of wheels), multi-purpose fire department vehicle (Date of issue of decision 29/07/03)	–	–	Rescue Service Preparedness	Bulgaria, Greece	Not defined	INTERREG IIIA Greece - Bulgaria
Procurement of a fire extinguishing, surveillance and emergency aid helicopter (date of issue of decision 29/07/03)	–	–	Rescue Service Preparedness	Bulgaria, Greece	Not defined	INTERREG IIIA Greece - Bulgaria
Prevention of risks related to floods: establishment of a French-Swiss hydro meteorological radar	–	–	Hazard Assessment	France, Switzerland	Floods	INTERREG IIIA France - Switzerland
Cross-border water workshop	–	–	Hazard Assessment	France, Spain	Floods	INTERREG IIIA France - Spain
Shared and harmonised cross-border information on seismic risk	–	–	Risk Management	France, Spain	Earthquakes	INTERREG IIIA France - Spain
Emergency Pyrenees Security	–	–	Risk Management	France, Spain	Not defined	INTERREG IIIA France - Spain
Common rescue action in the region of Barents	–	–	Rescue Service Preparedness	Finland, Norway, Sweden	Not defined	INTERREG IIIA North
Strategy for equipping the lifeboat organisations in Finland and Estonia	–	–	Rescue Service Preparedness	Estonia, Finland	Not defined	INTERREG IIIA Southern Finland - Estonia
Development of risk indicator for the vessel traffic crossing the Gulf of Finland	–	–	Hazard Assessment	Estonia, Finland	Technological hazards	INTERREG IIIA Southern Finland - Estonia
Improving the marine safety between Helsinki and Tallinn	–	–	Risk Management	Estonia, Finland	Technological hazards	INTERREG IIIA Southern Finland - Estonia
Models of Gulf of Finland in operative oil repression and marine rescue operations	–	–	Risk Management	Estonia, Finland	Technological hazards	INTERREG IIIA Southern Finland - Estonia
Study and application of a shared management system of dangerous and toxic waste of SMEs and VSEs (very small enterprises)	–	–	Risk Management	Belgium, France	Technological hazards	INTERREG IIIA Wallonia - Lorraine - Luxembourg
Joint Port Security Plans for Ghent and Zeeland Seaports	–	–	Risk Management	Belgium, Netherlands	Not defined	INTERREG IIIA Flanders - Netherlands
Flood prevention in the river basins of the Chiers, the Messancy and the Ton	–	–	Hazard Assessment	Belgium, France, Luxembourg	Floods	INTERREG IIIA Wallonia - Lorraine - Luxembourg

title	acronym	www	character	countries	hazards	programme
Beaches at Risk	–	–	Risk Management	France, United Kingdom	Storm surges	INTERREG IIIA Franco-British
Impacts of pollutants on the environment	–	–	Hazard Assessment	France, United Kingdom	Technological hazards	INTERREG IIIA Franco-British
SURDOV	SURDOV	–	Risk Management	France, United Kingdom	Technological hazards	INTERREG IIIA Franco-British
Sustainable management of contained sediments (estuary watch)	–	–	Hazard Assessment	France, United Kingdom	Technological hazards	INTERREG IIIA Franco-British
FLOOD 1 - Role of groundwater in flooding events	FLOOD 1	–	Hazard Assessment	France, United Kingdom	Floods	INTERREG IIIA Franco-British
Energy and Air Pollutants: Production, Transport and Impacts	–	–	Hazard Assessment	France, United Kingdom	Technological hazards	INTERREG IIIA Franco-British
Measures against erosion and awareness raising of farmers	–	–	Risk Management	Belgium, France	Landslides	INTERREG IIIA France - Wallonia - Flanders
Taming the waters of the basin of the Lys river	–	–	Risk Management	Belgium, France	Floods	INTERREG IIIA France - Wallonia - Flanders
Northern Radar: a new cross-border precipitation radar to better safeguard property and people against flooding hazards	Northern Radar	–	Risk Management	Belgium, France	Floods	INTERREG IIIA France - Wallonia - Flanders
Programme de coopération pour la gestion du risque incendie dans les territoires du bassin méditerranéen/ Cooperation programme on management of the forest fire risk in the Mediterranean basin	INCENDI	–	Risk Management	France, Greece, Italy, Portugal, Spain	Forest fires	INTERREG IIIC South
Actions pilote de prévention des risques d'inondation dans des zones fortement urbanisées / Pilot actions in decreasing inundation risks in heavily urbanised areas	INUNDA	–	Risk Management	Belgium, France, Italy, Portugal, Spain	Floods	INTERREG IIIC South
A catastrophe RESponse and reCovery transport and logistics decision sUpport systEm	RESCUE	http://production.mie.uth.gr/rescue/rescue.html	Risk Management	Greece, Hungary, Italy	Not defined	INTERREG IIIC East
Interregional response to natural and man-made catastrophes	SIPROCI	http://www.siproci.net	Risk Management	Austria, Finland, Germany, Ireland, Italy, Poland	Technological hazards	INTERREG IIIC East

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Flood Awareness and Prevention Policy in border areas	FLAPP	http://www.flapp.org	Risk Management	Belgium, Czech Republic, Estonia, Germany, Greece, Hungary, Ireland, Lithuania, Netherlands, Portugal, Romania, Serbia and Montenegro, Slovak Republic, Spain	Droughts, Floods	INTERREG IIIC West
Adaptation and Mitigation - an Integrated Climate Policy Approach	AMICA	no project site, but for contacts see http://www.klima-buendnis.org/start.htm for project description: http://www.comune.venezia.it/ineuropae-nelmondo/projects/2152amica.asp	Risk Management	Austria, France, Germany, Italy, Netherlands	Not defined	INTERREG IIIC West
Integrated Management of risks and environment	IMAPS	–	Risk Management	France	Not defined	INTERREG IIIC West
Sea Level Change Affecting the spatial development of the Baltic Sea Region	SEAREG	www.gtk.fi/project/seareg	Hazard Assessment	Estonia, Finland, Germany, Poland, Sweden	Floods, Storm surges, Winter storms	INTERREG IIIB Baltic Sea Region
Baltic Haz Control: Development and institutional implementation of a transnational monitoring system for hazardous waste streams in the Baltic Sea Region	BSR Haz Control	–	Risk Management	Estonia, Finland, Germany, Latvia, Lithuania, Norway	Technological hazards	INTERREG IIIB Baltic Sea Region
Developing Policies & Adaptation Strategies to Climate Change in the Baltic Sea Region	ASTRA	–	Risk Management	Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden	Droughts, Extreme temperatures, Floods, Forest fires, Land-slides, Storm surges, Winter storms	INTERREG IIIB Baltic Sea Region
Développement d'outils méthodologiques pour la détection et la propagation des éboulements de masse	ROCK-SLIDETEC	http://www.crealp.ch/fr/contenu/ireg3/rockslidetec.asp	Hazard Assessment	France, Italy, Switzerland	Landslides	INTERREG IIIA Italy - France (Alcotra)
Seismic hazard and alpine valley response analysis	SISMOVALP	http://www-lgit.obs.ujf-grenoble.fr/sismovalp/	Risk Management	France, Germany, Italy, Slovenia, Switzerland	Earthquakes	INTERREG IIIB Alpine Space

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Optimisation of the hydro meteorogical forecast tools	Hydroptimet	http://hydroptimet.medocc.org/tiki-index.php?page=Projet+HYDROPTIMET	Hazard Assessment	France, Italy, Spain Switzerland	Floods	INTERREG IIIB Western Mediterranean (MEDOCC)
Baltic Eutrophication Regional NETwork - Integrated Management of Catchments	BERNET-CATCH	–	Risk Management	Denmark, Finland, Germany, Poland, Russian Federation, Sweden	Floods	INTERREG IIIB Baltic Sea Region
Programme for Civil Protection in the Baltic Sea Region	EUROBALTIC	http://www.nordregio.se/1214eurobalt.htm	Risk Management	Estonia, Finland, Latvia, Lithuania, Norway, Poland, Russian Federation, Sweden	Not defined	INTERREG IIIB Baltic Sea Region
Maritime Safety and the Environment in the South Baltic Sea Region	Baltic MaSTER	http://www.sydsam.se/balticmaster.asp	Risk Management	Denmark, Estonia, Finland, Germany, Lithuania, Poland, Russian Federation, Sweden	Technological hazards	INTERREG IIIB Baltic Sea Region
EUROBALTIC Civil Protection Project II	Eurobaltic II	–	Risk Management	Sweden	Not defined	INTERREG IIIB Baltic Sea Region
„Konzeption zur raumordnerischen Hochwasservorsorge im Einzugs-gebiet der Oder	ODERREGIO	www.oderregio.org	Risk Management	Czech Republic, Germany, Poland	Floods	INTERREG IIIB CADSES
Integrated Management of Wetlands (follow up)	WETLANDS II	www.wetlandsmanage-ment.org	Risk Management	Germany, Italy	Floods	INTERREG IIIB CADSES
Sustainable Use and Management of Alluvial Plains in Dyked River Areas	SUMAD	www.sumad.org	Risk Management	Austria, Germany, Hungary	Floods	INTERREG IIIB CADSES
DRAVA RIVER BASIN PROJECT (DRBP)	DRBP	www.drava-river-basin.net	Risk Management	Austria, Croatia, Hungary	Not defined	INTERREG IIIB CADSES
CADSEALAND	CAD-SEALAND	http://www.cad-sealand.net/	Risk Management	Greece, Italy, Romania	Storm surges	INTERREG IIIB CADSES
ELBE - LABE Preventive flood management measures by transnational spatial planning	ELLA	www.ella-interreg.org	Risk Management	Austria, Czech Republic, Germany, Hungary	Floods	INTERREG IIIC CADSES
System Integrated for Security Management Activities to safeguard and protect historic centres from risks. "Citizen as the first rescuer"	S.I.S.M.A.	http://www.cadses.net/en/projects/apprpro.html?projectId=1006	Risk Management	Greece, Italy, Slovak Republic, Slovenia	Earthquakes	INTERREG IIIB CADSES

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RISK-Advanced Weather forecasting system to Advice on Risk Events and management	RISK AWARE	http://www.cadses.net/en/projects/apprpro.html?projectId=1007	Hazard Assessment	Austria, Croatia, Germany, Italy, Poland	Floods	INTERREG IIIB CADSES
Agriculture and Climate Changes: how to Reduce human Effects and Threats	ACCRETe	http://www.cadses.net/en/projects/apprpro.html?projectId=1008	Risk Management	Czech Republic, Germany, Greece, Italy, Romania, Slovenia	Droughts	INTERREG IIIB CADSES
Red Code - Regional Disaster Common Defence	Red Code	http://www.cadses.net/en/projects/apprpro.html?projectId=1009	Risk Management	Greece, Hungary, Italy, Slovak Republic, Slovenia	Not defined, Technological hazards	INTERREG IIIB CADSES
Development of stoRmwater Operational Practices Guideline	RainDROP	http://www.cadses.net/en/projects/apprpro.html?projectId=1016	Risk Management	Czech Republic, Germany, Greece, Slovak Republic	Floods	INTERREG IIIB CADSES
Hydrological cycle of the CADSES regions	HYDROCARE	http://www.cadses.net/en/projects/apprpro.html?projectId=1017	Hazard Assessment	Germany, Greece, Italy, Poland, Romania, Slovak Republic	Droughts, Floods	INTERREG IIIB CADSES
Strategies and Actions for Flood Emergency Risk Management	SAFER	http://www.eu-safer.de/	Risk Management	Germany, Ireland, Switzerland, United Kingdom	Floods	INTERREG IIIB North West Europe
Sustainable Sediment Management of Alpine Reservoirs considering ecological and economical aspects	ALPRESERV	http://www.alpreserv.org	Risk Management	Austria, Germany, Italy, Slovenia, Switzerland	Floods	INTERREG IIIB Alpine Space
Terraced landscapes of the alpine arc	ALPTER	http://www.alpter.net	Hazard Assessment	Austria, France, Italy, Slovenia, Switzerland	Landslides	INTERREG IIIB Alpine Space
Disaster Information System of ALPine regions	DIS-ALP	http://www.dis-alp.org	Risk Management	Austria, Germany, Italy, Slovenia, Switzerland	Avalanches, Floods, Landslides	INTERREG IIIB Alpine Space
Alpine Integrated GPS Network: Real-Time Monitoring and Master Model for Continental Deformation and Earthquake Hazard	ALPS-GPSQUA-KENET	http://www.alps-gps.units.it/	Hazard Assessment	France, Germany, Italy, Slovenia	Earthquakes	INTERREG IIIB Alpine Space
Mitigation of hydro-geological risk in Alpine catchments	CatchRisk	http://www.catchrisk.org	Risk Management	Austria, Germany, Italy, Switzerland	Droughts, Floods, Landslides	INTERREG IIIB Alpine Space

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Natural space analysis for alpine mountain areas for a cooperative development of a preventive safety and risk management system for natural hazards	NAB	http://www.tirol.gv.at/nab	Risk Management	Austria, Germany, Italy, Slovenia, Switzerland	Floods, Landslides	INTERREG IIIB Alpine Space
River Basin Agenda AlpineSpace	River Basin Agenda	http://www.flussraum-agenda.de	Risk Management	Austria, France, Italy, Slovenia, Switzerland	Floods	INTERREG IIIB Alpine Space
Safety at Sea	S@S	www.safetyatsea.se	Risk Management	Belgium, Netherlands, Norway, Sweden, United Kingdom	Technological hazards	INTERREG IIIB North Sea Region
Sustainable Coastal Risk Management in 2050	SAFECOAST	–	Risk Management	Belgium, Denmark, Germany, Netherlands, United Kingdom	Floods, Storm surges, Winter storms	INTERREG IIIB North Sea Region
Flood Plain Land Use Optimising Workable Sustainability	FLOWS	www.flows.nu	Risk Management	Germany, Netherlands, Norway, Sweden, United Kingdom	Floods, Storm surges, Winter storms	INTERREG IIIB North Sea Region
Planning for Urban-rural River Environments, North Sea Region	PURE North Sea	www.pure-northsea.com	Risk Management	Netherlands, Sweden, United Kingdom	Floods	INTERREG IIIB North Sea Region
NO REGRET: Finding the right measures to avoid water shortage	NO REGRET	–	Risk Management	Belgium, Denmark, Germany, Netherlands	Droughts	INTERREG IIIB North Sea Region
COMbined Functions in COASTal Defence Zones	COMCOAST	–	Risk Management	Belgium, Germany, Netherlands	Floods, Storm surges, Winter storms	INTERREG IIIB North Sea Region
Common Strategies to reduce the risk of storm floods in coastal lowlands	COMRISK	www.comrisk.org	Risk Management	Belgium, Denmark, Germany, Netherlands, United Kingdom	Storm surges, Winter storms	INTERREG IIIB North Sea Region
European Solutions by Co-operation and Planning in Emergencies (for coastal flooding)	ESCAPE	–	Risk Management	Belgium, Netherlands, United Kingdom	Storm surges	INTERREG IIIB North Sea Region
Flood Risk Management in Estuaries: Sustainable New Land Use in Flood Control Areas	FRaME	www.frameproject.org	Risk Management	Belgium, Netherlands, United Kingdom	Floods	INTERREG IIIB North Sea Region
Joint Approach for Managing Flooding	J.A.F.	–	Risk Management	Germany, Netherlands, United Kingdom	Floods	INTERREG IIIB North West Europe
Extreme Floods and Flood Protection along the Rhine	FAR	–	Risk Management	Germany, Netherlands	Floods	INTERREG IIIB North West Europe
Creating New Landscapes for Flood Risk Management	Floodscape	www.floodscape.net	Risk Management	Belgium, Germany, Netherlands, United Kingdom	Floods	INTERREG IIIB North West Europe

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From Collective Testing to a Trans-national Analysis of the International River Basin District of the Scheldt as a Basis for a Transnational Integrated Water Management for a Cleaner and Safer Scheldt	SCALDIT	–	Risk Management	Belgium, France, Netherlands	Floods	INTERREG IIIB North West Europe
Problems in the Realisation of Forested Water Retention Areas : Natural and Social Scientific Studies in the River Rhine Catchment	FOWARA	–	Risk Management	France, Germany, Netherlands	Floods	INTERREG IIIB North West Europe
Water Retention by Land Use	WARELA	www.warela.de	Risk Management	France, Germany, Luxembourg, Switzerland	Floods	INTERREG IIIB North West Europe
Sustainable Development of Flood Plains	SDF	www.SDFproject.nl	Risk Management	Germany, Netherlands	Floods	INTERREG IIIB North West Europe
Nature-Oriented Flood Damage Prevention	NOFDP	–	Risk Management	Germany, Netherlands	Floods	INTERREG IIIB North West Europe
Sustainable Water Management in Urban Space	Urban Water	–	Risk Management	France, Germany, Netherlands, United Kingdom	Floods	INTERREG IIIB North West Europe
Transnational Internet Map Information System on Flooding	TIMIS	www.timisflood.net	Hazard Assessment	France, Germany, Luxembourg	Floods	INTERREG IIIB North West Europe
NOAH	NOAH	–	Risk Management	Germany, Netherlands	Floods	INTERREG IIIB North West Europe
SAND	SAND	–	Risk Management	France, Germany, Netherlands	Floods	INTERREG IIIB North West Europe
European Spatial Planning: Adapting to Climate Events	ESPACE	www.espace-project.org	Risk Management	Belgium, Germany, Netherlands, United Kingdom	Droughts, Extreme temperatures, Floods	INTERREG IIIB North West Europe
Creating a Sustainable Framework for ICZM	COREPOINT	–	Risk Management	Belgium, France, Ireland, Netherlands, United Kingdom	Floods, Storm surges	INTERREG IIIB North West Europe
Reduciendo el Riesgo Sismovol-cánico en Azores y Canarias: Desarrollo e Implementación de un Sistema para la Protección Civil basado en la Detección de Señales Percursoras de Erupciones Volcánica	ALERTA	http://www.iter.es/I18NLayer.areasiter/es/medioambiente/riesgo/alerta/	Risk Management	Portugal, Spain	Earthquakes, Volcanic eruptions	INTERREG IIIB Canaries - Madeira - Acores

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Reduciendo el Riesgo Sismo-volcánico en Azores y Canarias: Desarrollo e Implementación de un Sistema de Alerta para la Protección Civil basado en la Detección de Señales Precursoras de Erupciones Volcánicas	ALERTA II	http://www.iter.es/I18NLayer.areasiter/es/medioambiente/riesgo/alerta/	Risk Management	Portugal, Spain	Volcanic eruptions	INTERREG IIIB Canaries - Madeira - Acores
Plan de Contingencia de Contaminación Marina de la Región Macaronésica	PLACON	–	Risk Management	Portugal, Spain	Technological hazards	INTERREG IIIB Canaries - Madeira - Acores
Red Integrada de Monotorización, Alerta y Gestión de Riesgos de Vertidos Contaminantes e Incidentes Catastróficos en la Zona Marítima Macaronésica	ALERMAC	http://www.fundacionpuertos.com/00000/paginas/html/default.htm	Hazard Assessment	Portugal, Spain	Technological hazards	INTERREG IIIB Canaries - Madeira - Acores
Extreme Weather Conditions Programme	EWCP	http://www.ewcp.org/	Risk Management	Finland, Norway, United Kingdom	Extreme temperatures	INTERREG IIIB Northern Periphery
Puertos limpios	Ports Net	http://www.gencat.net/mediamb/sosten/portsnets/portsnets.htm	Risk Management	France, Portugal, Spain	Technological hazards	INTERREG IIIB South-West Europe
Programa de intervención Post-Prestige	Post Prestige	–	Risk Management	France, Spain	Technological hazards	INTERREG IIIB South-West Europe
Recuperación de paisajes con terrazas y prevención de riesgos naturales	TERRISC	http://www.interreg-sudoe.org/castellano/proyectos/www.conselldemallorca.net/mediambient/terrisc	Hazard Assessment	France, Portugal, Spain	Floods, Landslides	INTERREG IIIB South-West Europe
Patrimoine et prévention des risques naturels / Heritage and prevention of "natural risks"	NOÉ	http://noe-interreg3c.net/public/	Risk Management	France, Greece, Italy, Portugal	Earthquakes, Landslides, Not defined	INTERREG IIIC South
Attention to Warning And Readiness in Emergencies	AWARE	–	Risk Management	Belgium, Lithuania, Netherlands, Romania, Russian Federation, United Kingdom	Floods, Technological hazards	INTERREG IIIC West

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Application des méthodologies de prévisions hydrométéorologiques orientées aux risques environnementaux / Application of hydrometeorological methdologies in evaluating environmental risks	AMPHORE	http://amphore.medocc.org/tikiindex.php	Hazard Assessment	France, Italy, Spain	Floods	INTERREG IIIB Western Mediterranean (MEDOCC)
Développement d´actions pour le marketing et la gestion post-événement / Development of post-event actions in marketing and management	DAMAGE	–	Risk Management	France, Greece, Italy, Spain	Not defined, Technological hazards	INTERREG IIIB Western Mediterranean (MEDOCC)
Common strategy for the Estern Mediterranean in predicting and preventing major forest fires	Grinfomed+ Medifire	–	Risk Management	France, Italy, Portugal, Spain	Forest fires	INTERREG IIIB Western Mediterranean (MEDOCC)
Use of cypress in Mediterranean rural economy, environment and landscape protection: natural risks prevention and management	MedCypre	www.cypmed.cupressus.org	Risk Management	France, Greece, Italy, Malta, Portugal, Spain	Droughts, Forest fires	INTERREG IIIB Western Mediterranean (MEDOCC)
Qualité dans le territoire / Territorial quality	QUATER	–	Risk Management	France, Italy, Spain	Not defined	INTERREG IIIB Western Mediterranean Programme (MEDOCC)
Common strategy for Western Mediterranean in communicating natural hazards and risks	RINAMED	http://www.rinamed.net	Risk Management	France, Italy, Spain	Avalanches, Droughts, Earthquakes, Extreme temperatures, Floods, Forest fires, Landslides, Storm surges, Volcanic eruptions	INTERREG IIIB Western Mediterranean (MEDOCC)
Méthodologie pour la gestion des risques d´éboulement et des mouvements du sol avec scénarios de politique d´assurance / Methodology for management of landslide and soil drift risks	RISCMASS	–	Risk Management	Greece, Italy, Spain	Landslides	INTERREG IIIB Western Mediterranean (MEDOCC)
Sécheresse et Désertification dans le Bassin Méditerranéen / Droughts and desertification in the Mediterranean basin	SEDEMED	http://www.uirsicilia.it/	Hazard Assessment	Greece, Italy, Portugal, Spain	Droughts	INTERREG IIIB Western Mediterranean (MEDOCC)

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Interregional and transnational approach in maritime safety and protection of the environment in Western Mediterranean	SECURMED	–	Risk Management	France, Greece, Italy, Spain	Technological hazards	INTERREG IIIB Western Mediterranean (MEDOCC)
Mitigation of natural risks through improved forecasting of extreme meteorological events	Meteorisk	www.meteorisk.com	Hazard Assessment, Risk Management and Rescue Serv	Austria, Germany, Italy, Slovenia, Switzerland	Avalanches, Extreme temperatures, Floods	INTERREG IIIB Alpine Space
Reinforcement of the technical means and ways to deal with the consequences of the pollution caused by the sinking of the Prestige	PRESTIGE	www.meteorisk.com	Risk Management	France, Spain	Technological hazards	INTERREG IIIB Atlantic Area
Emergency response to coastal oil, chemical and inert pollution from shipping	EROCIPS	http://www.erocips.org/	Risk Management	France, Portugal, Spain, United Kingdom	Technological hazards	INTERREG IIIB Atlantic Area

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