UNIVERSITY OF TWENTE.

CHANGES

Risk=HVA

CHANGES MID TERM MEETING DORTMUND 29 NOVEMBER 2012

COORDINATORS REPORT

SEVENTH FRAMEWORK PROGRAMME

MARIE CURIE ACTIONS

ITC FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

MID TERM MEETING: PROGRAMME

- 08:30 – 09.30: Objectives and achievements of the CHANGES project. Part I: Coordinators report
- 09:30 – 12.30: Objectives and achievements of the CHANGES project. Part II: WP reports
- 12:40 – 13:40: Lunch
- 13:40 – 14:20: Objectives and achievements of the CHANGES project. Part II: WP reports
- 14:20 – 15.00: Meeting between the ESRs and the commission's representatives
- 15:00 – 15.45: Round Table– Strengths and weaknesses of the project. Recommendation by the Commission's representatives
- 15.45-16:00: Break: End of the mid-term meeting
- 16:00 – 17:00: Steering Committee Meeting

INTRODUCTION OF EXTERNAL PARTICIPANTS

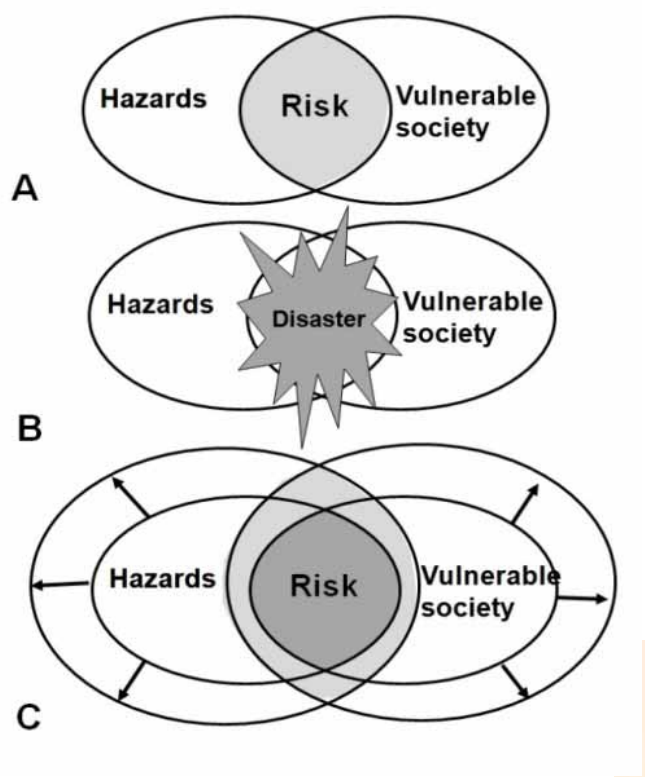
- EC, Research Executive Agency (REA) representatives:
  - SILVIA ABAD, Project Adviser, European Commission
  - Cathy SOUTO ENRIQUEZ
- External expert:
  - Jean-Louis Marchal (Doctor in Agricultural sciences) www.inforstat.be
- External advisory committee (not present but submitted report):
  - Prof. David Petley (Durham University, UK)
  - Dr. Suzanne Lacasse (NGI, Norway)

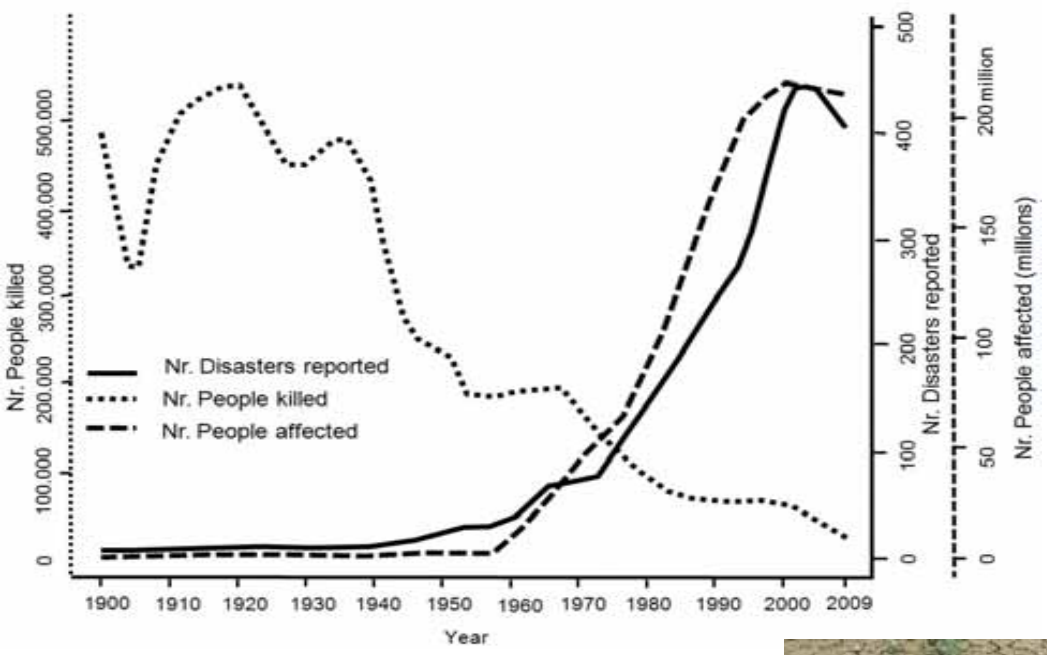
PART I: COORDINATORS REPORT

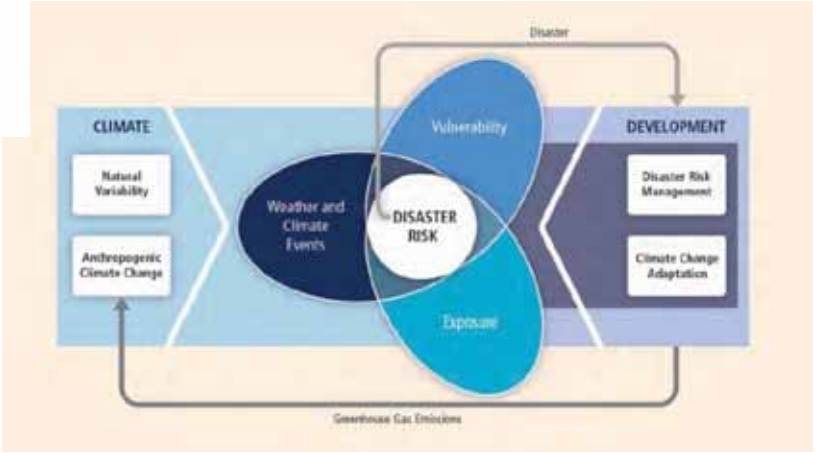
- Scientific activities
  - Reasons for carrying out the research
  - Research objectives of the joint work
  - Scientific highlights of the work so far
- Networking activities
  - Methodological approach and work plan
  - Collaboration among the network participants – Involvement and interaction among the recruited researchers
  - Connections to other research initiatives
- Training and Transfer of Knowledge activities
  - Training and ToK Programme of the project
  - Summary of recruitment, use of budget and projection until the end of the project
  - Management aspects

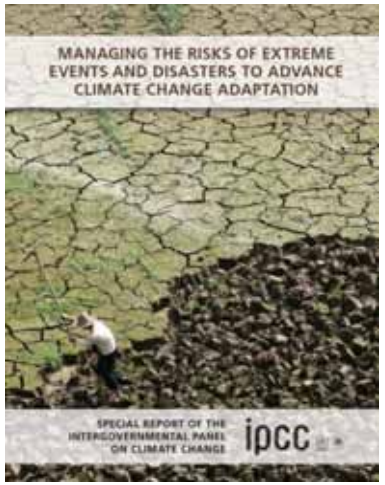
Part 1: reasons for carrying out this research:

Increasing trends in disasters, hazards, vulnerability and risk









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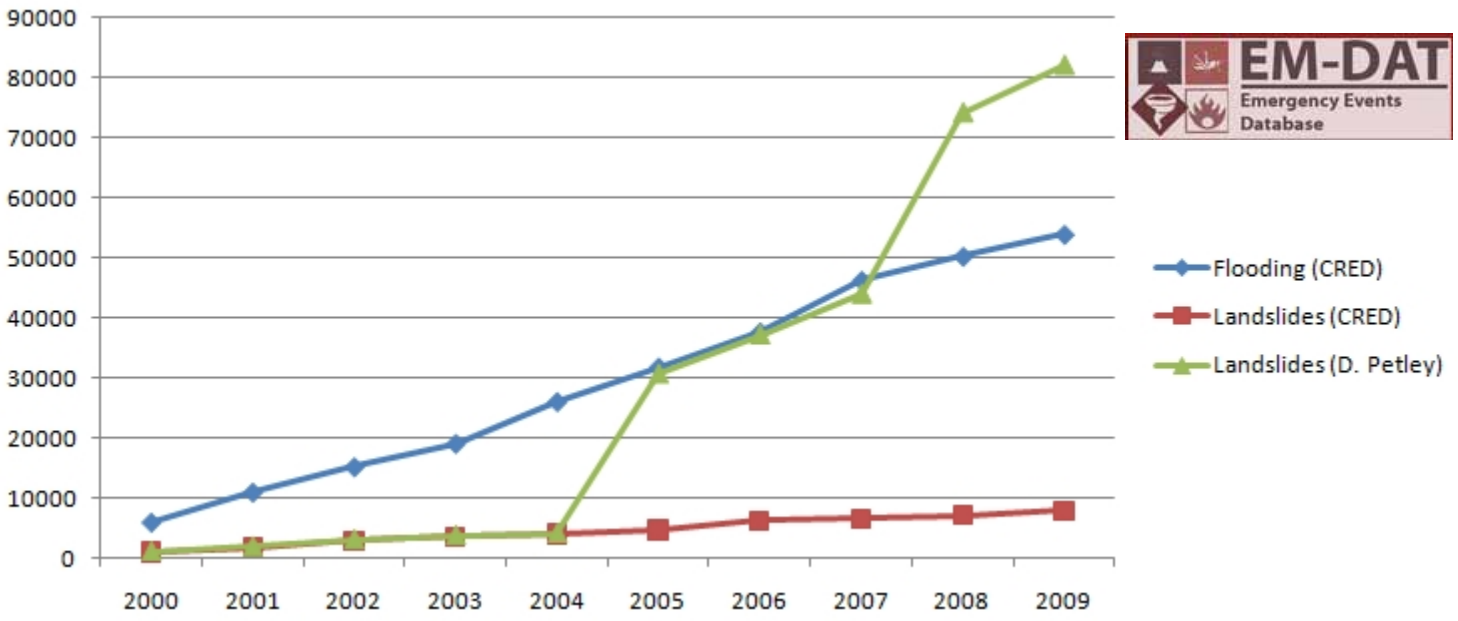
Comparing historical data on floods and landslides fatalities



Other disasters 2000-2009 (CRED database)

Earthquake: 453,626 River flood: 54,012

Storm: 172,220 Volcano: 237

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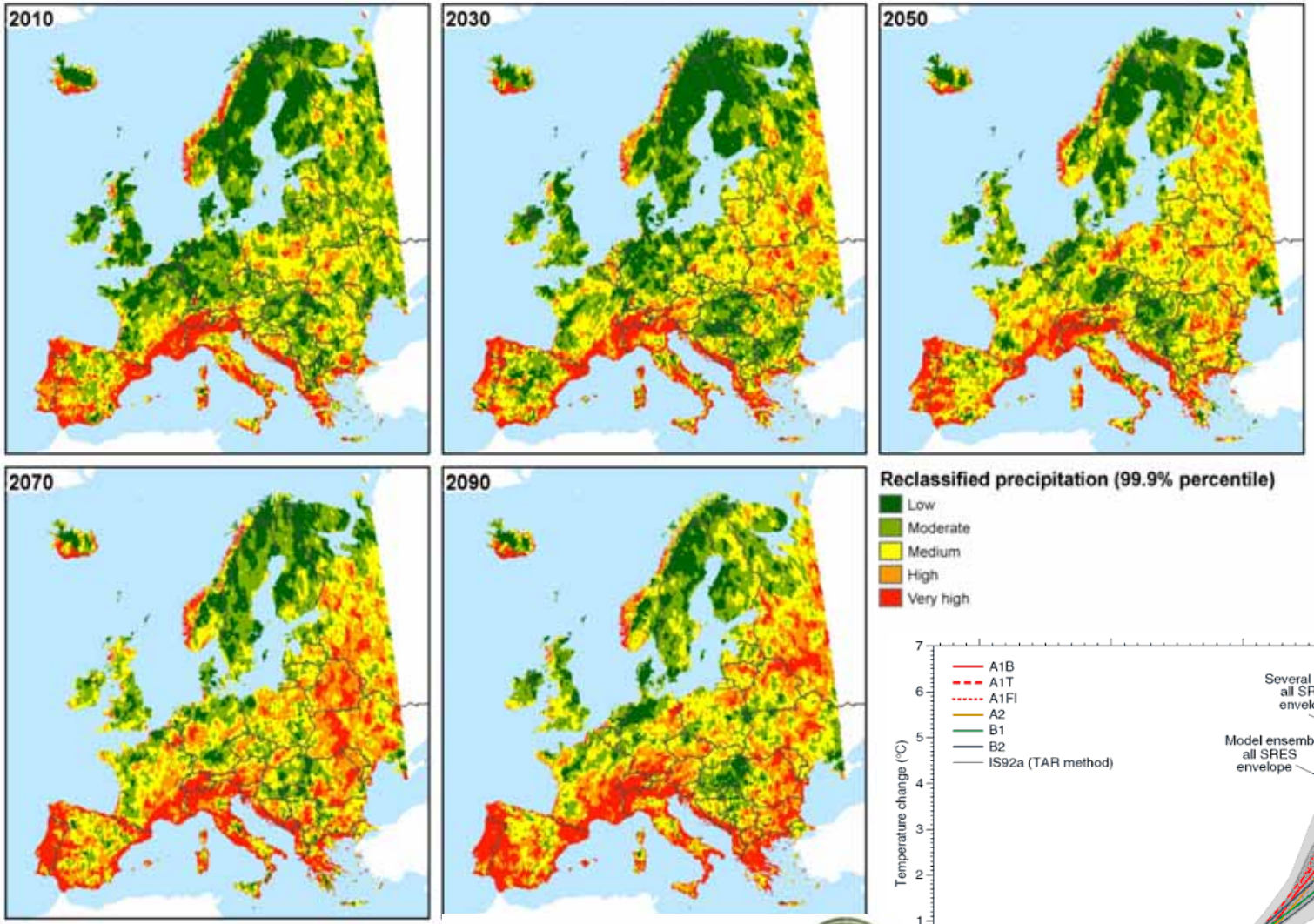
BACKGROUND

- The European Commission has identified the need for adaptations in risk management as a consequence to climate and environmental changes in several documents
- risk management measures such as disaster preparedness programmes, land-use planning, regulatory zoning and early warning systems are considered essential
- spatial planning is only one of many aspects in risk management and that it is, in general, not involved in risk assessment
- multi-risk assessment approaches are not used in planning practice: risk indicators are hardly used and vulnerability indicators are not at all used
- scientific advances in hazard and risk assessment and demands of stakeholders/end-users are still not well connected

WHAT IS AVAILABLE AT EUROPEAN SCALE:
CLIMATE SCENARIOS



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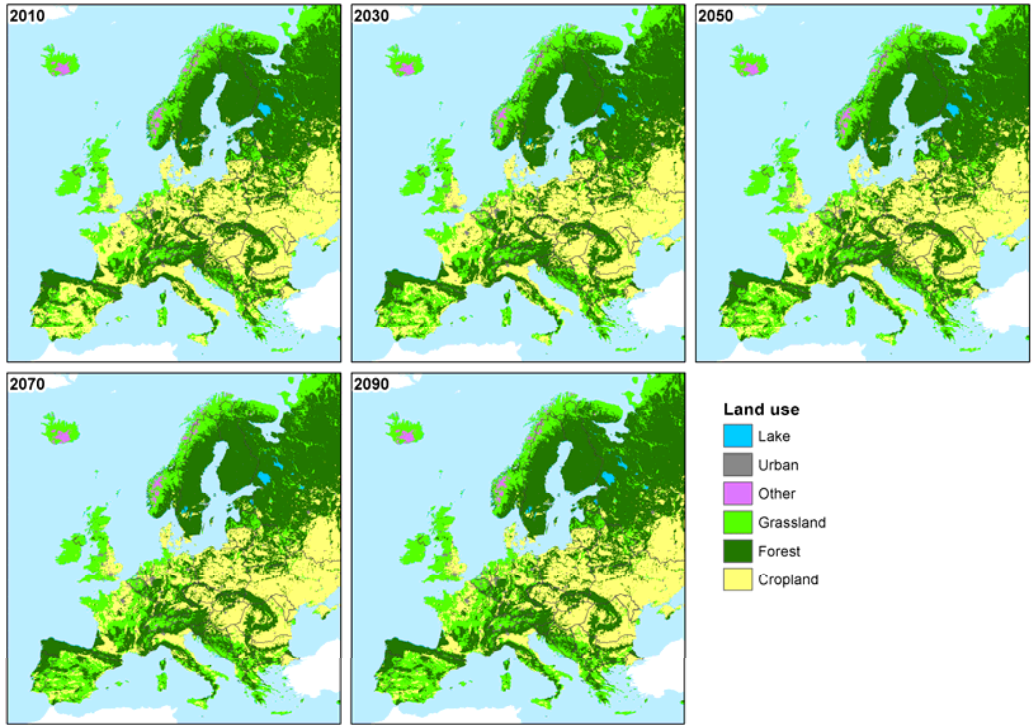
SafeLand

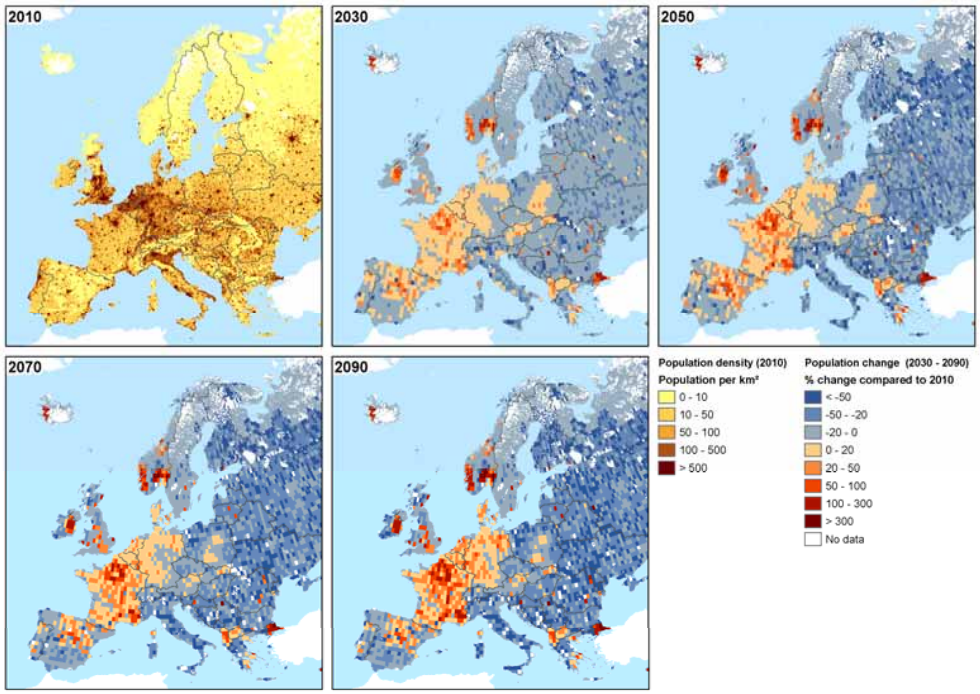
WHAT IS AVAILABLE AT EUROPEAN SCALE:
LAND-USE CHANGE SCENARIOS



SafeLand

The data give a percentage of land cover for 6 classes, e.g. 6 different maps. To achieve one grid for land cover in Europe, the class with the highest percentage in each grid cell was selected to represent the grid cell in the calculations. For example if the grid cell would show (10% cropland, 10% forest, 30% grassland, 0% urban, 10% other, 40% water), the grid cell would be represented as water in the further analysis

WHAT IS AVAILABLE AT EUROPEAN SCALE:
POPULATION CHANGE SCENARIOS

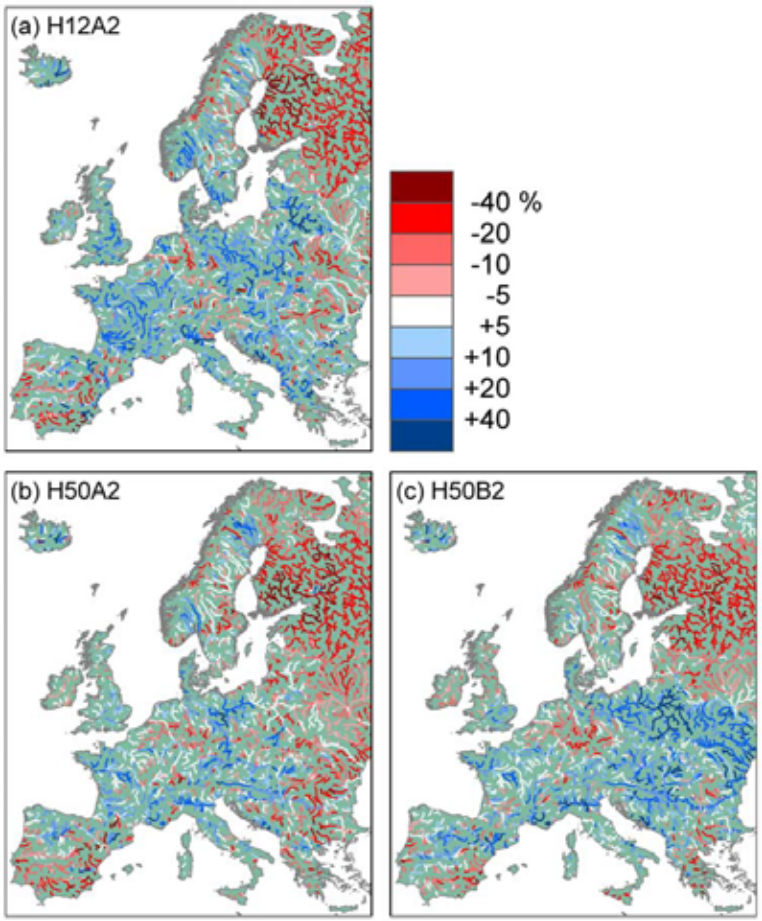


SafeLand

This dataset was developed by The International Institute for Applied Systems Analysis (IIASA) based on the A2 scenario of the IPCC assessment report.
the IISASA-FAO AWZ model is used to estimate the development of the global population (Tubiello and Fischer, 2007). The basis is the global population for the year 2000 which is then adjusted with climate and socio-economic forcing of the AWZ model.

WHAT IS AVAILABLE AT EUROPEAN SCALE:
CHANGES IN 100-YEAR DISCHARGE LEVEL

Dankers and Feyen, 2008

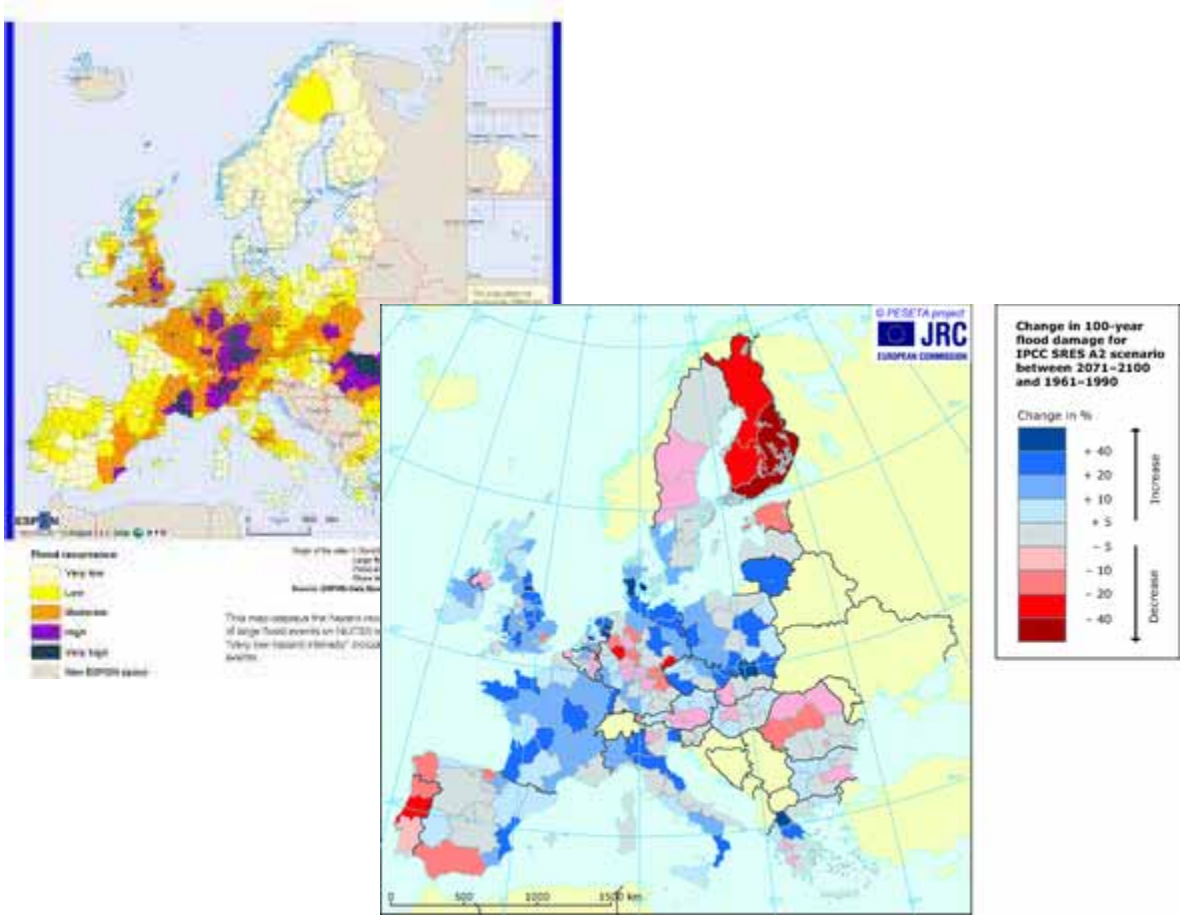


- Increase in magnitude and frequency of extreme precipitation events may lead to more intense and frequent river flooding
- Decrease in flood hazards in NE due to lower spring melt peak (warmer winters and shorter snow season)
- Effect of resolution is as large as greenhouse gas scenario

WHAT IS AVAILABLE AT EUROPEAN SCALE:
CHANGES IN HYDRO-METEOROLOGICAL HAZARDS

Changes in landslide hazard, 2010-2090

Changes in Flood hazard



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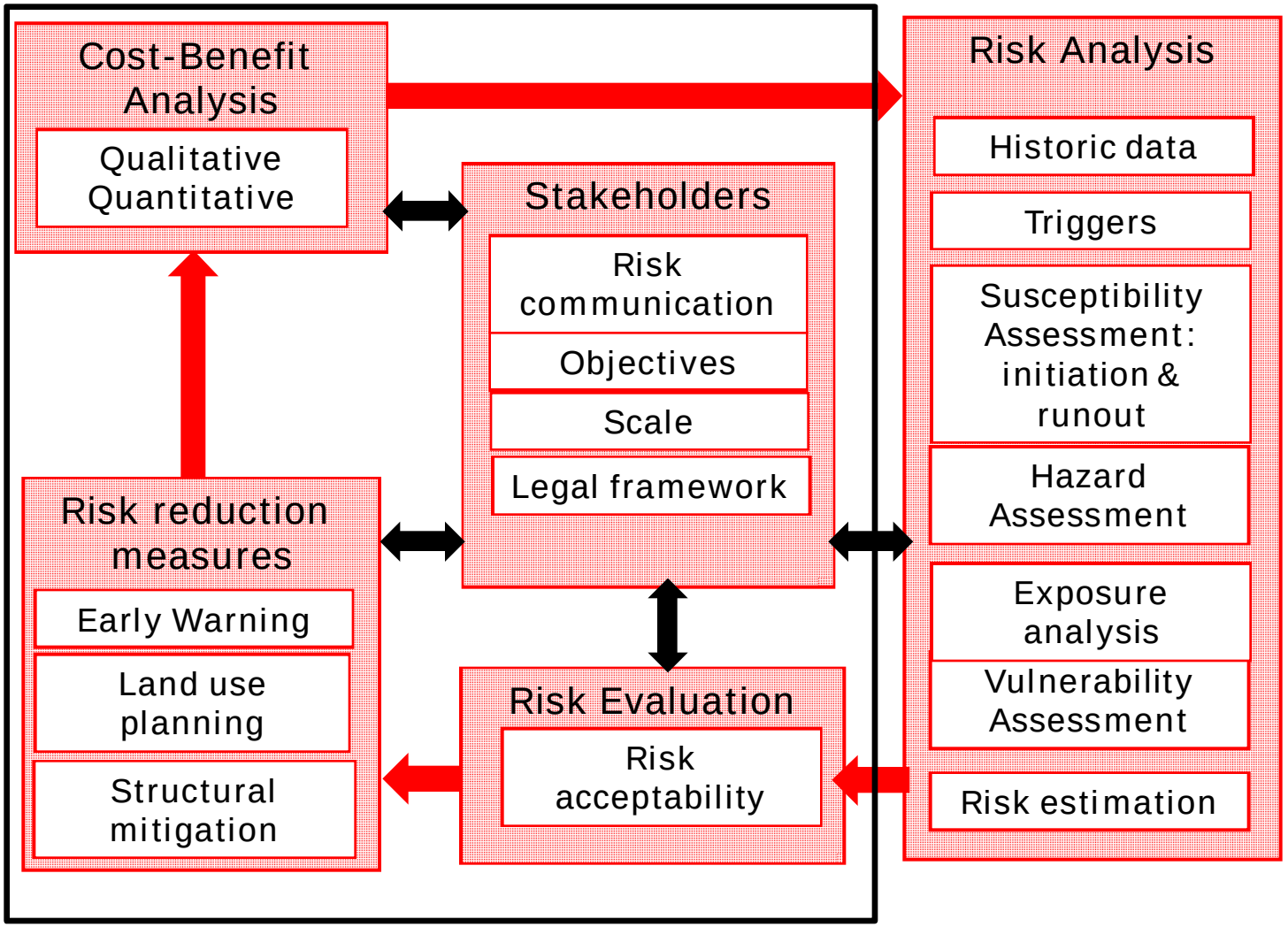
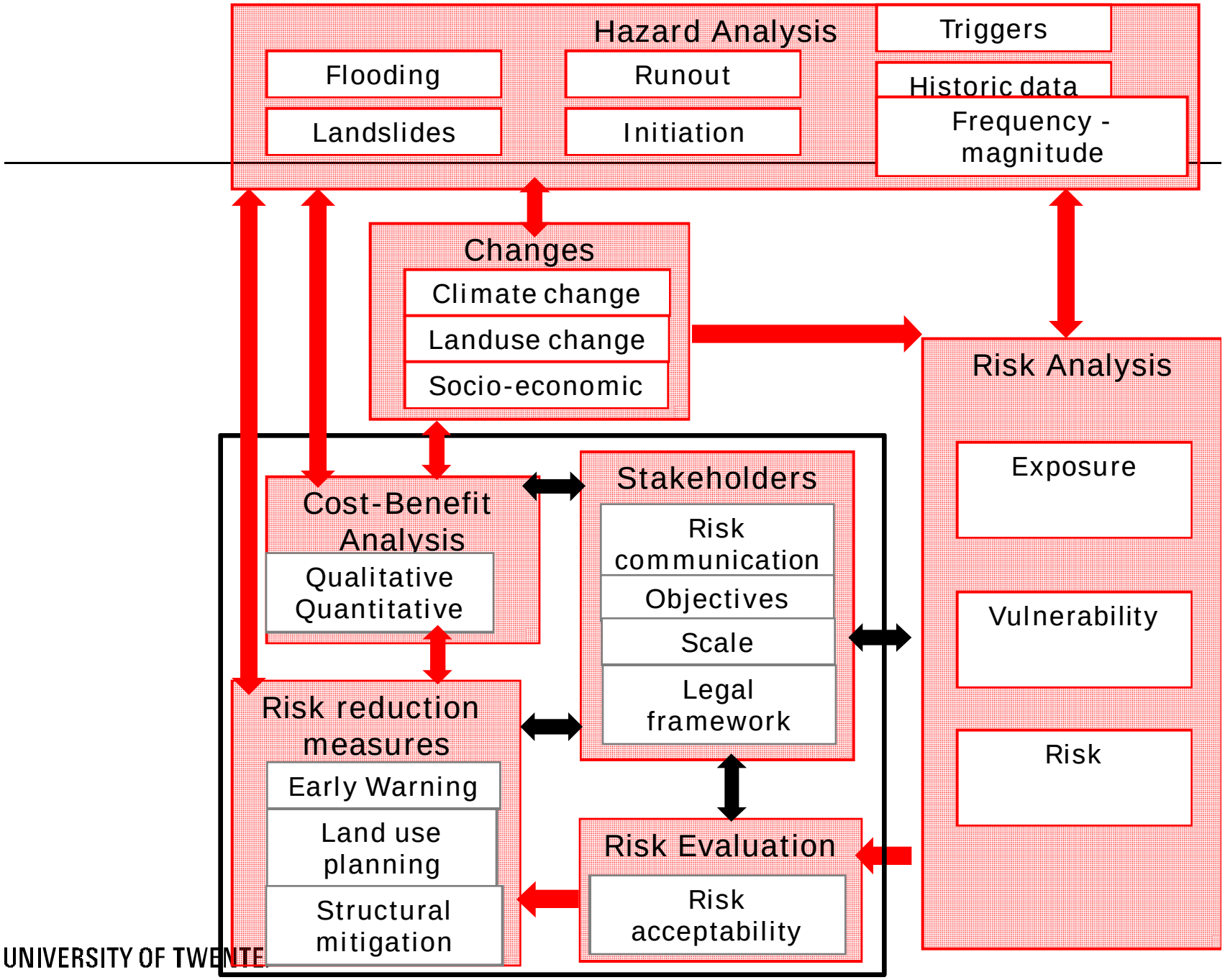
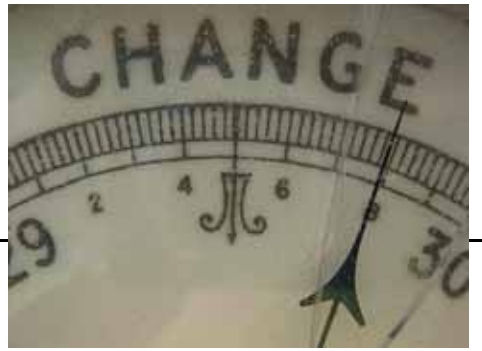
UT HOW TO TRANSLATE THE RESULTS TO A LOCAL SCALE?
CHANGES IN HYDRO-METEOROLOGICAL HAZARDS & RISKS?




Hazard Analysis
Flooding
Landslides
Runout
Initiation
Triggers
Historic data
Frequency - magnitude
Changes
Climate change
Landuse change
Socio-economic
Risk Analysis
Exposure
Vulnerability
Risk
Cost-Benefit Analysis
Qualitative
Quantitative
Stakeholders
Risk communication
Objectives
Scale
Legal framework
Risk reduction measures
Early Warning
Land use planning
Structural mitigation
Risk Evaluation
Risk acceptability

OBJECTIVES OF CHANGES



- To **provide high-level training, teaching and research in the field of hazard and risk management in a changing environmental context** to a group of 12 Early Stage Researchers, of which at least 50% are females, which will be hired by the 11 participating partners before month 8 of the project, and 3 Experienced Researchers.

- To develop an innovative **methodological framework combined with modelling tools for probabilistic multi-hazard risk assessment** taking into account changes in hazard scenarios and exposed elements at risk **and for increasing risk awareness.** The project will incorporate **risk governance strategies**

OBJECTIVES OF CHANGES

- To strengthen and expand collaboration between the teams through the **organization of a Collaborative Multi-disciplinary Research and Training Programme (CRTP)** associating state-of-the-art experimental, methodological and computational advances to ensure Europe's leadership in this area

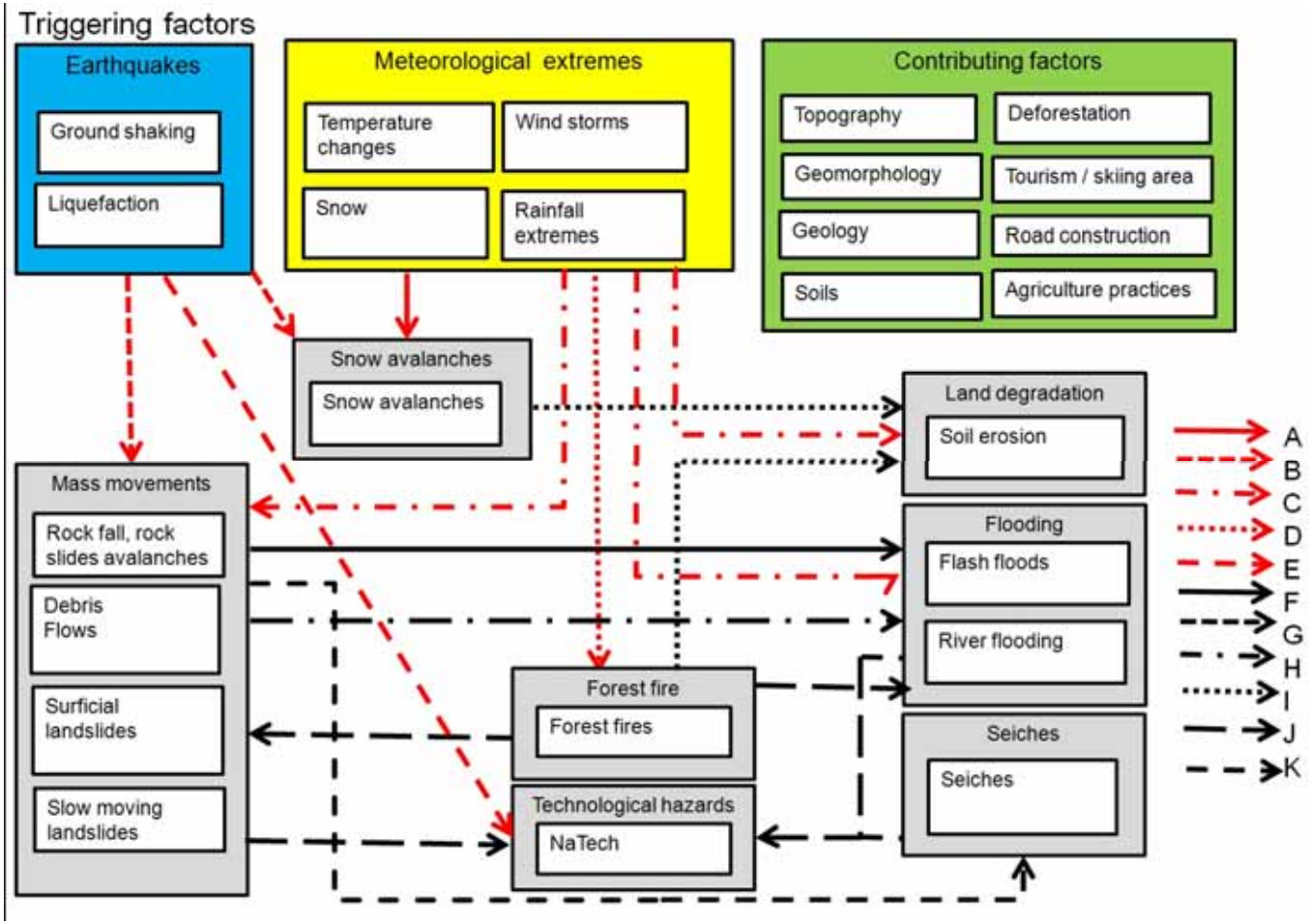
- To **reduce the fragmentation of the research on hydro-geomorphic processes** by using the complementary expertise of 11 excellent European academic teams in the fields of Geography, Geomorphology, (Engineering-) Geology, Land use planning, Social sciences, Geo-information and Computer Science, combined with 5 leading and innovative private companies, and 1 Civil Defence organisation

KEY COMPONENTS OF THE CHANGES PROJECT

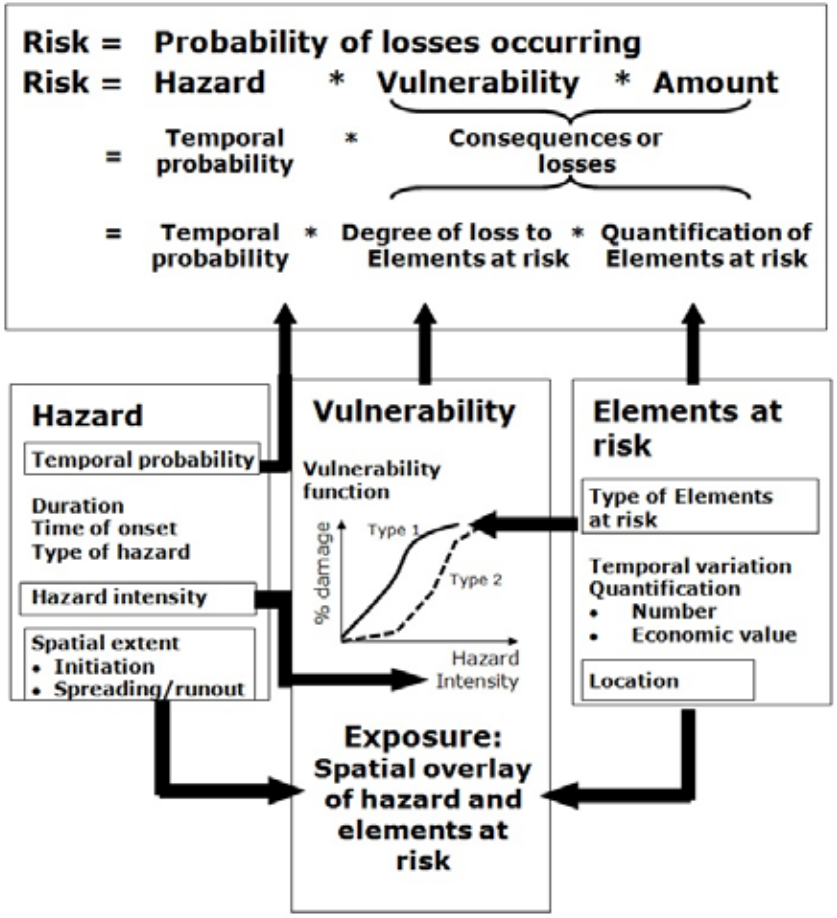
- **Changing risk** : what are the changes expected in risk levels due to:
  - Climate change
  - Land use change
  - Socioeconomic changes

- **Multi-hazard risk**: the probability of occurrence of potential damaging phenomena of different types and their interactions within a given area and a given time period
  - Cause - effect relationships (concatenated hazards)
  - 'multi-risk' index may be often significantly higher than the simple aggregation of single risk indexes calculated considering each source as independent from the others

MULTI-HAZARD RISK ASSESSMENT

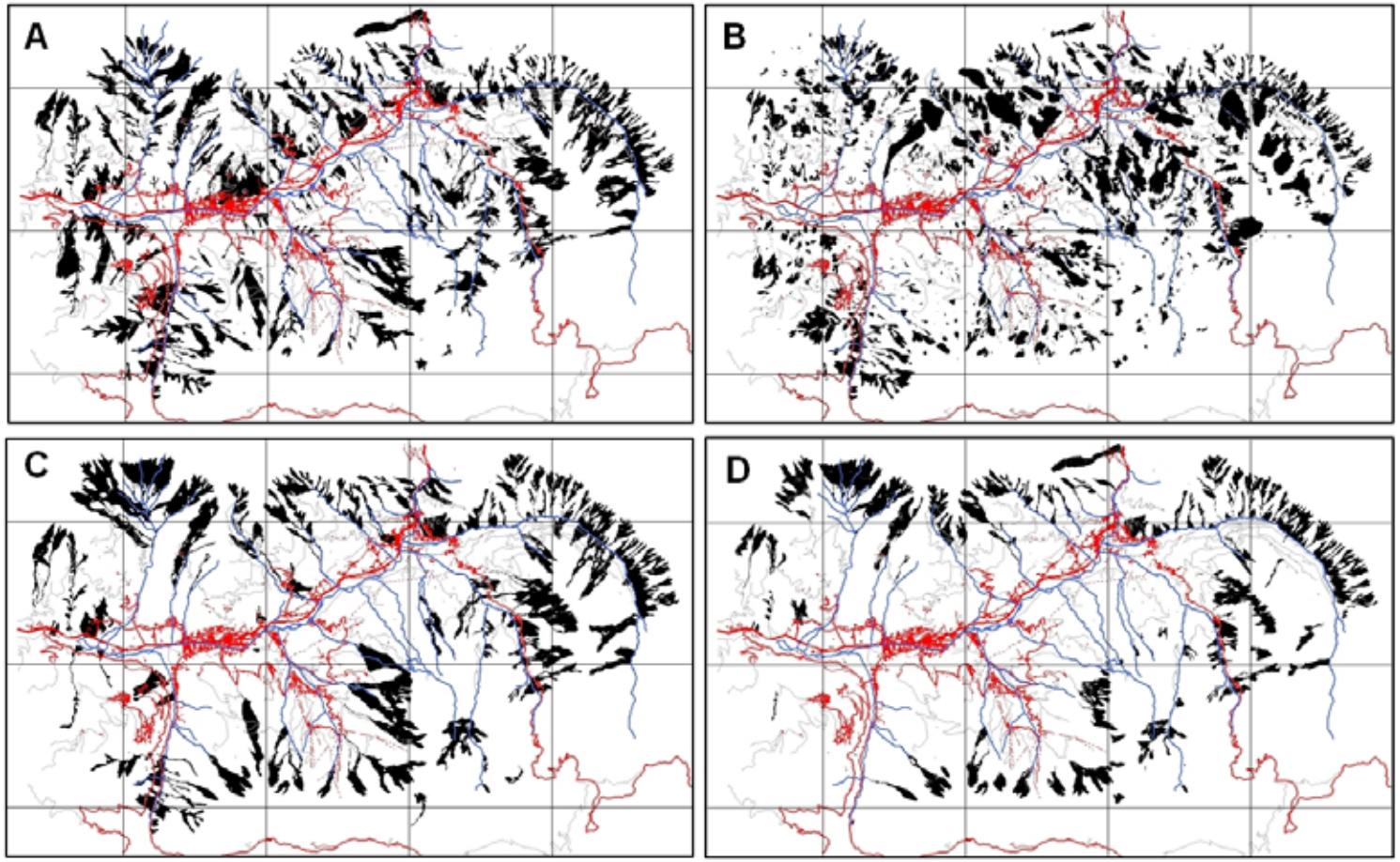


RISK CONCEPT

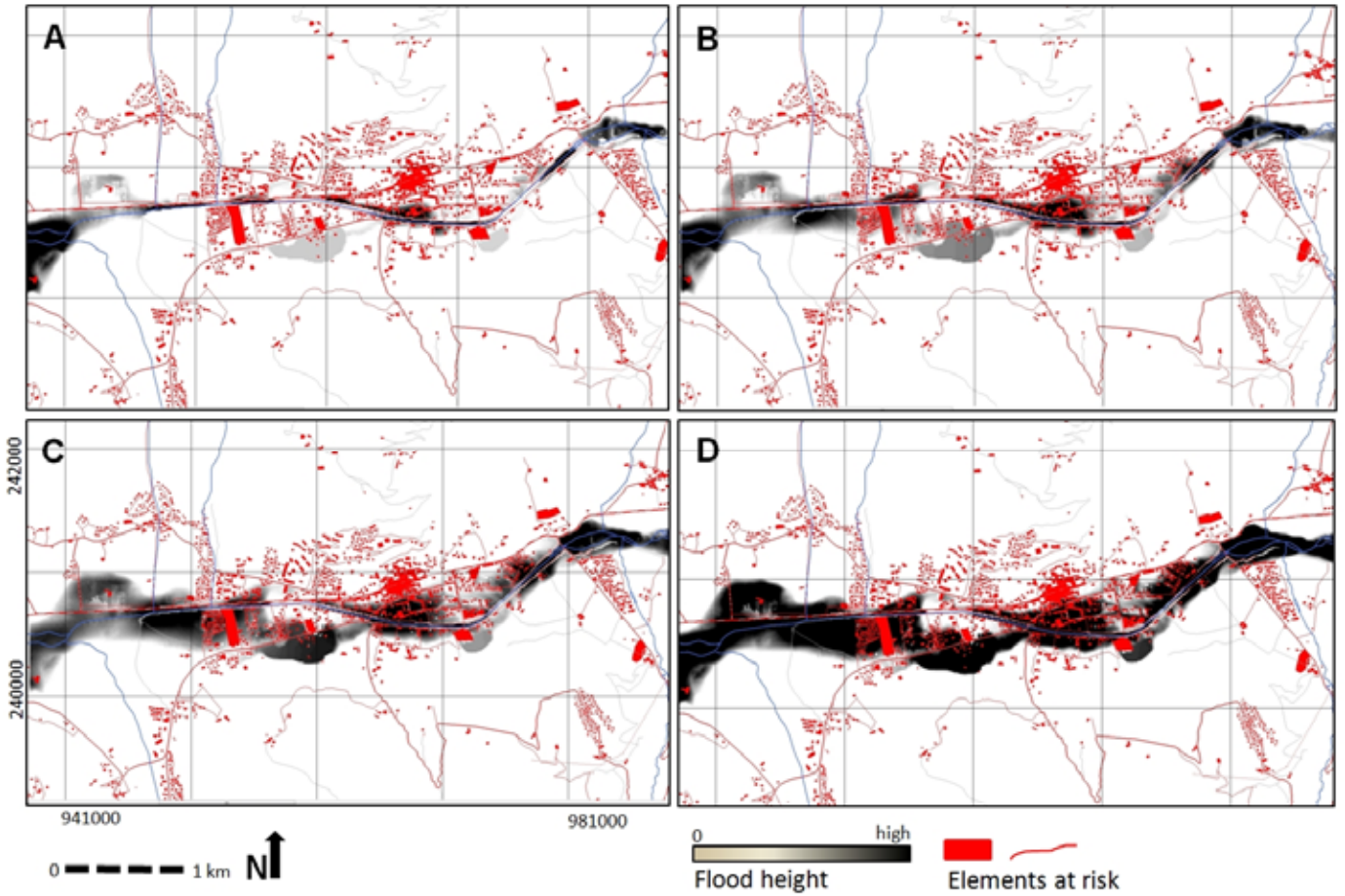


HAZARD MODELING:MASS MOVEMENTS

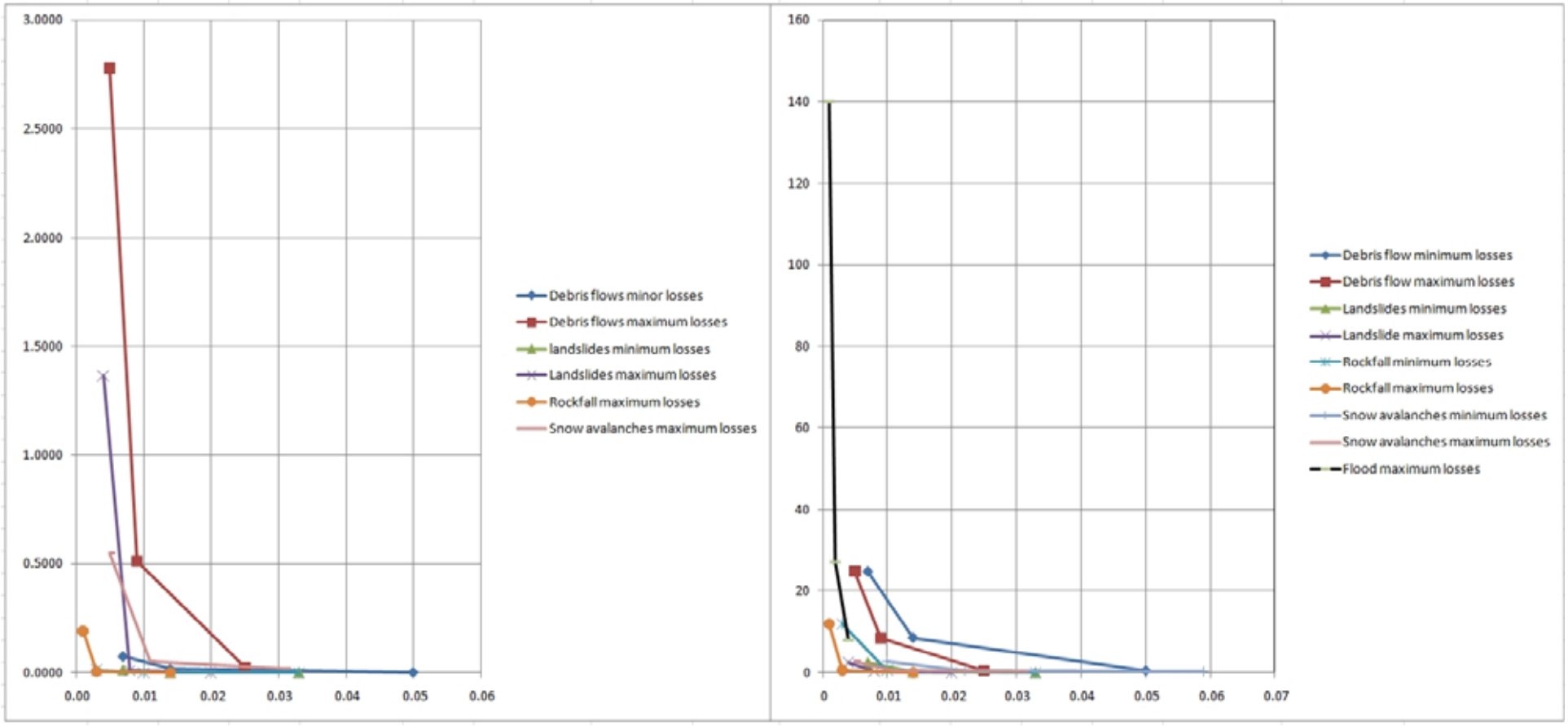
DEBRIS FLOWS,LANDSLIDES,ROCKFALL,SNOW AVALANCHES



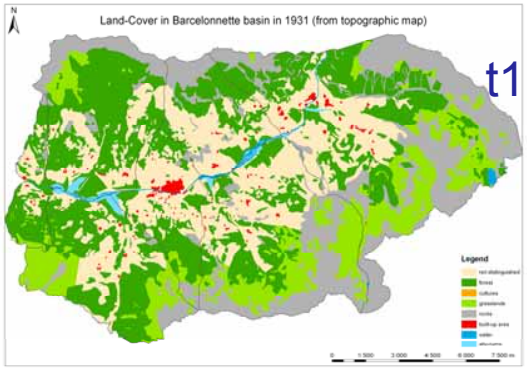
HAZARD MODELLING: FLOODS



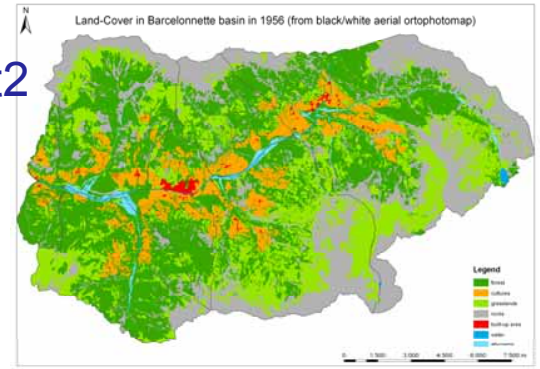
RISK CURVES


3.0000
2.5000
2.0000
1.5000
1.0000
0.5000
0.0000
0.00
0.01
0.02
0.03
0.04
0.05
0.06
Debris flows minor losses
Debris flows maximum losses
landslides minimum losses
Landslides maximum losses
Rockfall maximum losses
Snow avalanches maximum losses
160
140
120
100
80
60
40
20
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
Debris flow minimum losses
Debris flow maximum losses
Landslides minimum losses
Landslide maximum losses
Rockfall minimum losses
Rockfall maximum losses
Snow avalanches minimum losses
Snow avalanches maximum losses
Flood maximum losses

MODELLING THE EFFECT OF CHANGES

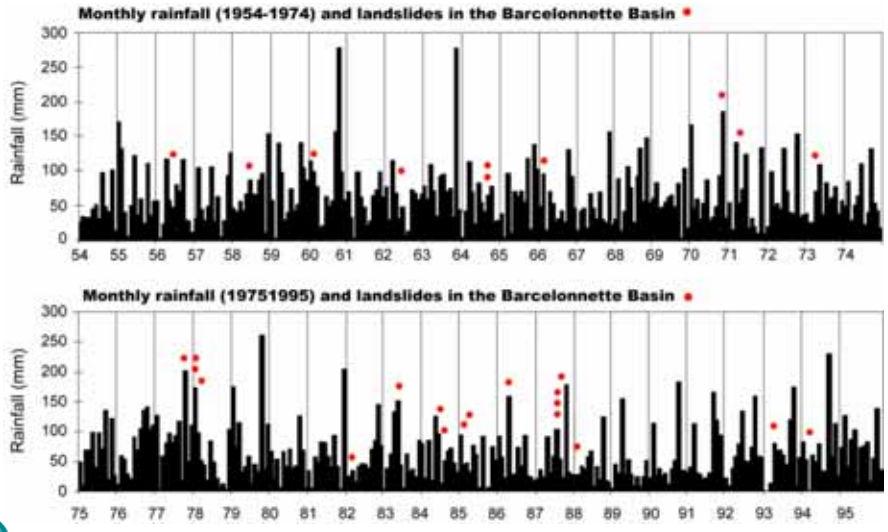


t1 → t2



t2 → t3

t3 → t (future)??



…→ t (future) ??

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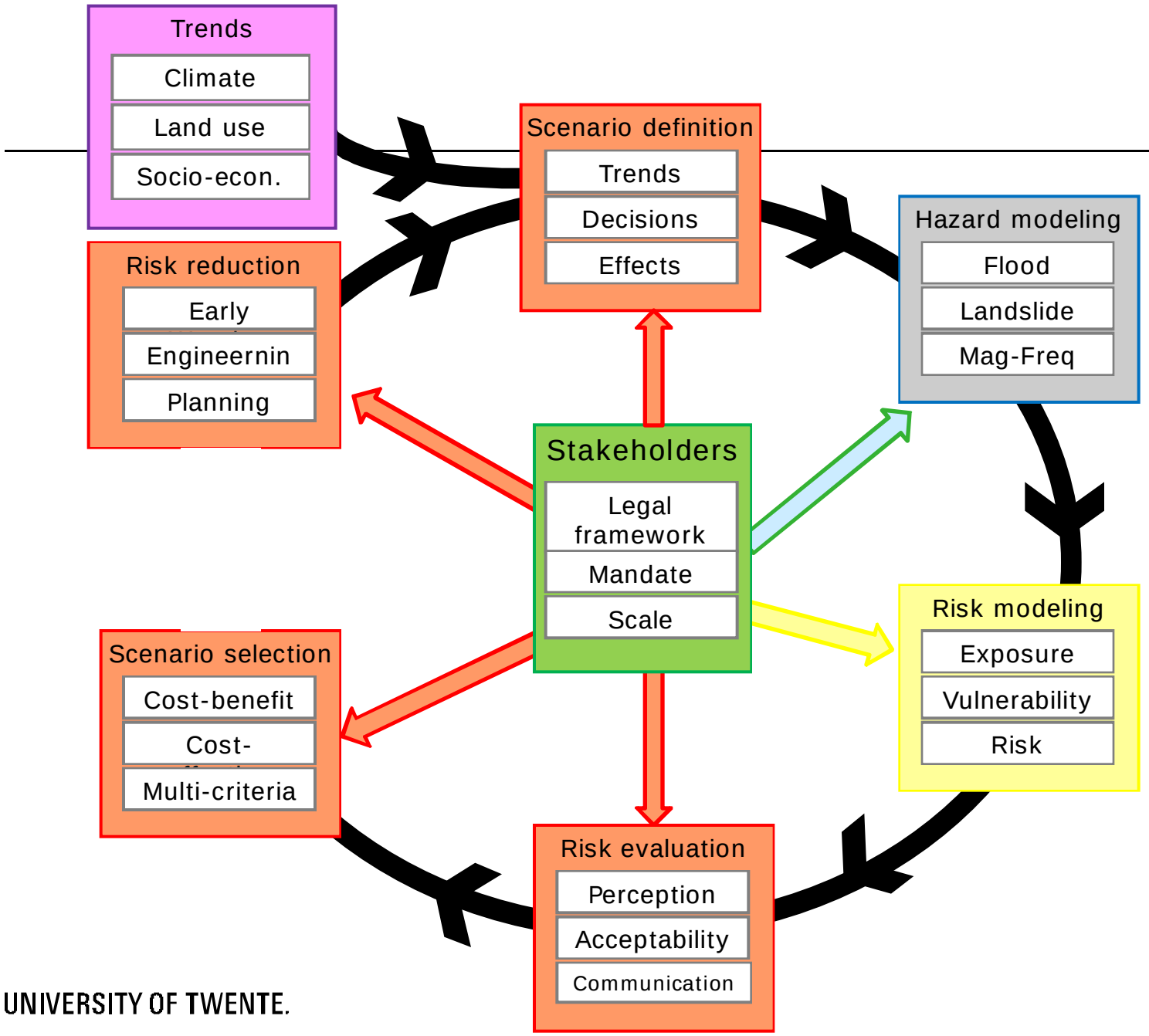

Trends
Climate
Land use
Socio-econ.
Scenario definition
Trends
Decisions
Effects
Hazard modeling
Flood
Landslide
Mag-Freq
Risk reduction
Early
Engineernin
Planning
Stakeholders
Legal framework
Mandate
Scale
Risk modeling
Exposure
Vulnerability
Risk
Scenario selection
Cost-benefit
Cost-
Multi-criteria
Risk evaluation
Perception
Acceptability
Communication

KEY COMPONENTS CHANGES PROJECT

- **Developing a risk assessment and management platform**:
  - Flooding & Mass movements
  - Open source, Web-based
  - analyze the effects of different scenarios related to environmental changes in relation to planning
- **Adapting risk management strategies to future changes:** analyze the optimal instruments and tools for risk management, covering the whole disaster cycle and considering the complexity of changing environments.
  - Use of risk information in Strategic Environmental Assessment and spatial planning, cost-benefit analysis for the planning of risk reduction measures, and emergency management.
  - Development of an internet-based Decision Support System for change-proof planning..

MAIN CHALLENGES IN CHANGES

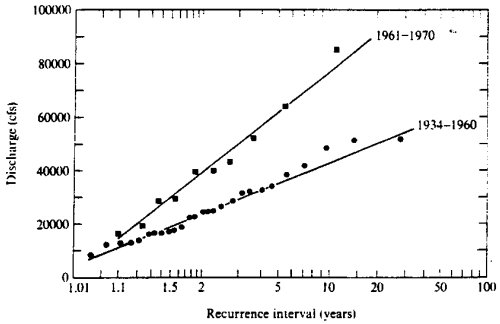
CURRENT PROBLEMS

- How to model **temporal probability of trigger**ing events at the local level for different hazard types
- How to model **initiation of hazard** (hydrological modeling used both for flooding and mass movements)
- How to model **multi-hazards: interaction** of hydro-meteorological events (same trigger, cascading hazards, concatenated hazards)
- How to **model uncertainties** in all components that contribute to risk (temporal probability, spatial probability, intensity probability, vulnerability, costs etc..)
- How to **model risk for multi-hazards** at the local level, including direct and indirect losses (individual risk, societal risk, economic risk)
- How to link **non-quantifiable aspects of vulnerability** (indicators for social, economic and environmental vulnerability)

MAIN CHALLENGES IN CHANGES

MODELLING CHANGES IN MULTI-HAZARD RISK ASSESSMENT

- How to **model changes in temporal probability** of triggering events at the local level
- How to model **changes in land use** (both as input factors as well as elements at risk), also as interaction with climate change and planning decisions
- How to model **changes in uncertainties in all components** that contribute to risk (temporal probability, spatial probability, intensity probability, vulnerability, costs etc..)
- How to select **relevant scenarios** (climate change, land use change, risk reduction scenarios).
- How to **build a decision support system** that incorporates scenarios.



SCIENTIFIC PROGRESS MADE

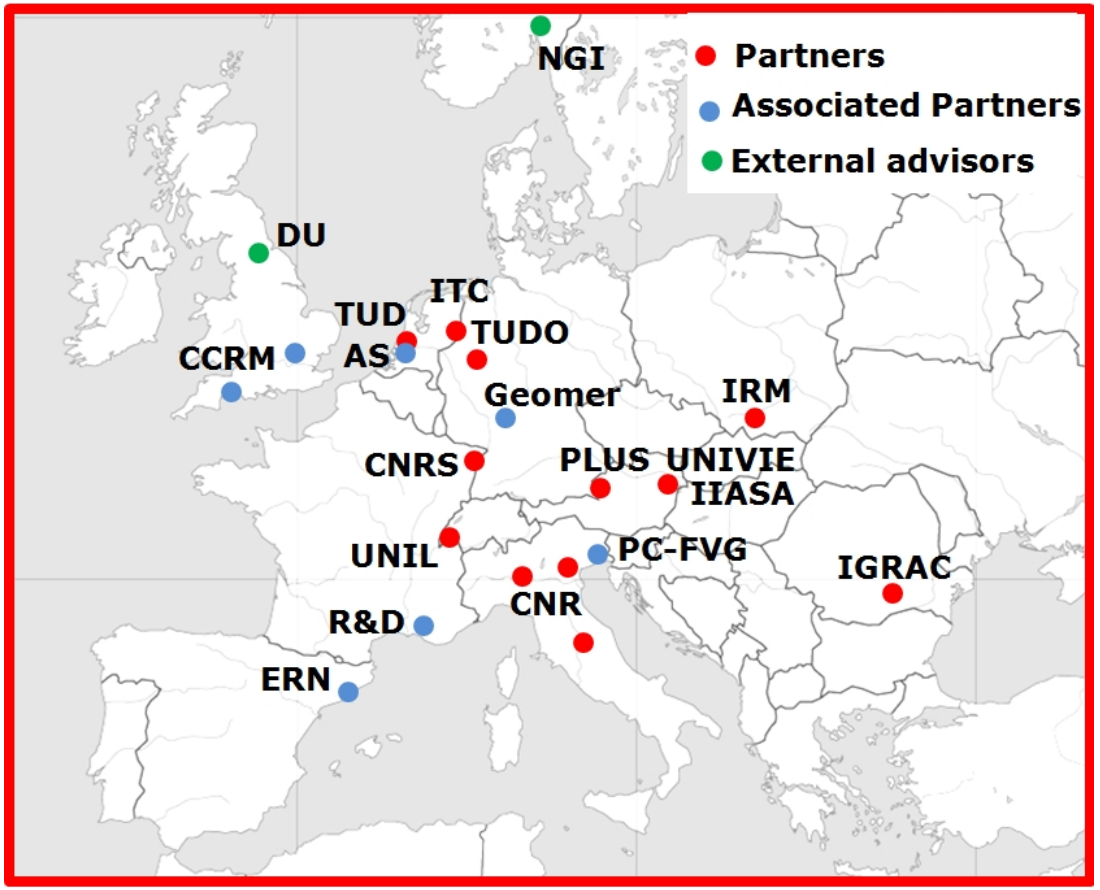
- 12 ESRs have made extensive research proposals
- 7 ESRs have also presented their proposals in Young Researchers Forum, July 2012 in Salzburg
- Publictions have been written for conferences
- First ISI manuscripts have been submitted

PART I: COORDINATORS REPORT

- Scientific activities
  - Reasons for carrying out the research
  - Research objectives of the joint work
  - Scientific highlights of the work so far
- Networking activities
  - Methodological approach and work plan
  - Collaboration among the network participants – Involvement and interaction among the recruited researchers
  - Connections to other research initiatives
- Training and Transfer of Knowledge activities
  - Training and ToK Programme of the project
  - Summary of recruitment, use of budget and projection until the end of the project
  - Management aspects

NETWORK PARTICIPANTS

- Partners
- Associated partners
- ESRs
- ER
- External advisors



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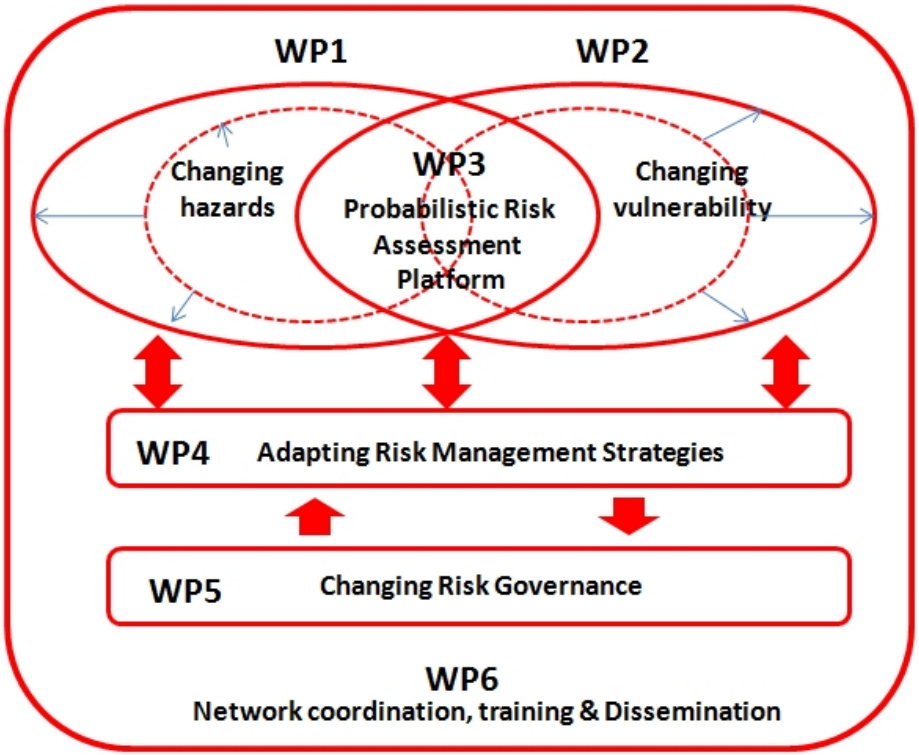
WORK PACKAGES

- **Seven work packages**
- **Can be seen as building blocks**
- **Should be carried out by integrating the work of the ESRs from all WPs**



WP	Work package title	Coordinating partner	Person-months ERS/ER
WP1	Modelling changes in hydro-meteorological multi-hazards	CNRS	108
WP2	Evaluating changes in exposed elements at risk and their vulnerability	UNIVIE	72
WP3	Development of a probabilistic risk assessment platform	CNR	96
WP4	Adapting risk management strategies to future changes	TUDO	132
WP5	Establishing the risk governance framework	TUD	96
WP6	Network training and dissemination	ITC	0
WP7	Network management	ITC	0

WORKPLAN

- The Description of Work has a detailed description of the workplan, in terms of:
  - Workpackages, Deliverables, Milestone
- The Consortium Agreement also has a detailed annex with description of activities for each partner
- The web-site has a section for the network partners with all relevant information

Basic project information

Proposal	Download
Description of Work	Download
Contract	Download
Consortium Agreement	Consortium Agreement Annex 1: DOW Annex 2: EC contribution per partner Annex 3: Financial provisions Annex 4: Project tasks and budget per partner Annex 5: Foreground Annex 6: Background Annex 7: Background excluded
Project logo and templates	Download project powerpoint template Download project logo Download Marie Curie logo
Project presentations	Download project presentation January 2012

Deliverables up to Month 24

RP	D#	Deliverable title	WP nr	PM	N	L	Date From start	Responsible partner	Description
1	6.1	Project website	6	0	O	PU	M+1	ITC and others	Project website online with overall information on the CHANGES project and Wiki.
1	7.4	Kick-off meeting	7	0	R	RE	M+1	ITC	Minutes of the kick-off meeting.
1	6.3a	Conference presentation	6	0	E	PU	M+4	ITC , UNIVIE CNRS	Presentation of CHANGES at EGU
1	7.1	Recruitment	7	0	O	CO	M+7	ITC and others	Recruitment of ESRs completed.
1	6.5a	PS course 1	6	2	E	PU	M+9	ITC	Proceedings Professional skills course: Research skills
1	6.5b	PS course 2	6	2	E	PU	M+9	UNIVIE	Proceedings Professional skills course : Research ethics
1	6.6a	TS course 1	6	2	E	PU	M+9	CNR	Proceedings technical skills course: Probabilistic risk
1	1.1	Inventory of approaches	1	8	R	PU	M+12	CNRS, ITC, PLUS	Inventory of approaches and case studies on the analysis of changes in risk from single or multiple hazards. Report.
1	7.5a	Activity report	7	6	R	RE	M+12	ITC	Periodic activity report – Year 1 (research activity, local and network-integrated training activity, network-integrated activity regarding finances, management, dissemination plan ,publications, recruitment, follow-up questionnaires)
1	7.8a	Audit	7	0	O	RE	M+13	ITC	Audit Certificate
2	7.2	Training plans	7	36	R	RE	M+13	All partners	Training plans of ESRs including the PhD proposals and Career Development Plans
2	6.3b	Conference presentation	6	24	P	PU	M+16	IRM	Abstract book & posters of Special Session at EGU
2	2.1	Inventory of vulnerability	2	8	R	PU	M+16	IIASA UNIVIE	Assessment of the current vulnerability situation based on historical developments
2	6.7a	workshop 1	6	3	E	PU	M+18	TUD	Proceedings Risk governance topical workshop
2	6.5c	PS course 3	6	2	E	PU	M+18	R&D	Proceedings Professional skills course : Valorisation
2	3.1	Inventory of software tools	3	6	R	PU	M+18	PLUS, CNR	Inventory of existing software tools for probabilistic risk assessment, and their applicability in a European context. Report.
2	6.6b	TS course 2	6	2	E	PU	M+21	IIASA	Proceedings technical skills course : Monitoring env change
2	6.5e	PS course 5	6	2	E	PU	M+21	TUDO	Proceedings Professional skills course : Grant proposals
2	7.1	Recruitment	7	0	O	CO	M+22	PLUS, ITC, TUDO	Recruitment of ERs completed
2	4.1	Inventory of risk strategies	4	8	R	PU	M+24	TUDO	Inventory of risk management strategies in Europe focusing on land use planning and emergency preparedness. Report.
2	7.6	Mid-term Report	7	4	R	RE	M+24	ITC	Mid term review Report – Year 2 (research activity, local and network-integrated training activity, network-integrated activity regarding finances, management, publications, dissemination plan, recruitment, follow-up questionnaires)
2	7.8	Audit	7	0	O	RE	M+24	ITC	Audit Certificate
3	6.6c	TS course 3	6	2	E	PU	M+24	PLUS	Proceedings technical skills course : Web-GIS and SDI
3	6.7c	Workshop 3	6	3	E	PU	M+24	IGRAC	Proceedings Topical Workshop: Modelling hazards (See table B.6)

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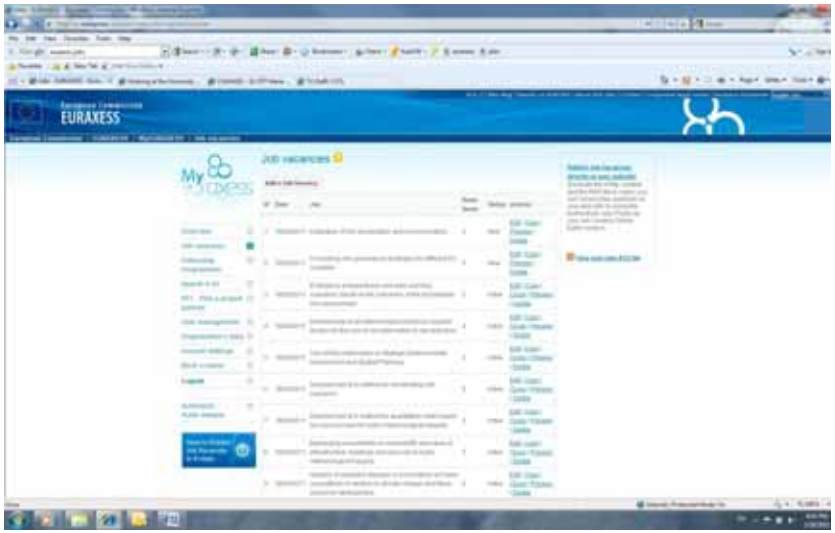
DELIVERABLES BEFORE MIDTERM: REPORTS

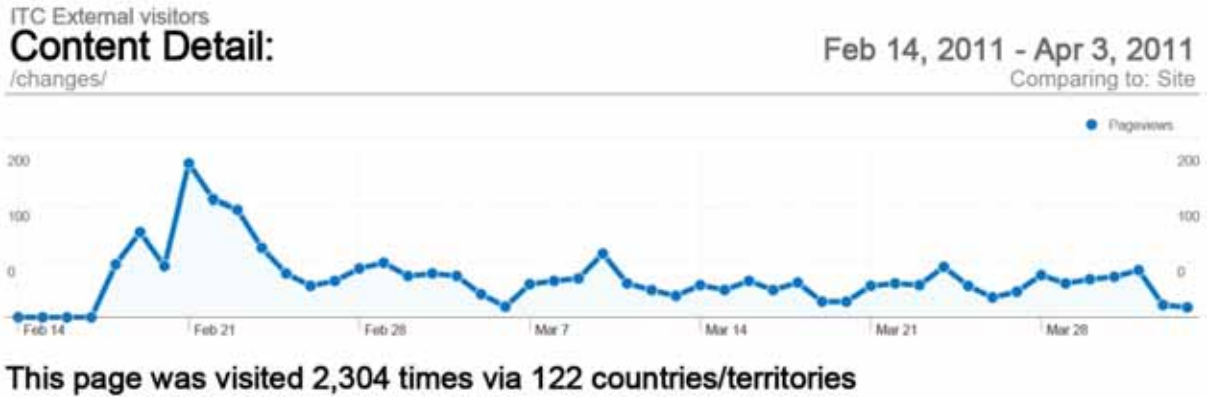
- M+12 (January 2012):Inventory of approaches and case studies on the analysis of changes in risk from single or multiple hazards. Report (CNRS, PLUS, ITC)
- M+16 (April 2012): Assessment of the current vulnerability situation based on historical developments (UNIVIE, IIASA)
- M+18 (June 2012): Inventory of existing software tools for probabilistic risk assessment, and their applicability in a European context. Report (PLUS, CNR)
- M+24 (December 2012): Inventory of risk management strategies in Europe focusing on land use planning and emergency preparedness. Report. (TUDO, CNR, R&D, AS)

ADVERTIZING ESR POSITIONS

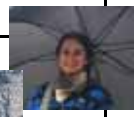
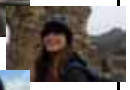
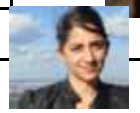
- The 12 ESR positions were widely advertized using Euroaxess, and other job-sites (e.g. Earthworks) as well as through the websites of the partners, and the project website. The table below list the number of views for the various positions from the Euroaxess platform. In total over 800 candidates applied for the 12 positions.



ESR	Euraxess: Number of times read
01	240
02	244
03	191
04	236
05	164
06	176
07	164
08	140
09	213
10	69
11	83
12	82



ESRS SELECTED

Position	Host	Name	Gender	Country	Start date	Secondments	Photo
ESR01	ITC	Thea Turkington	F	New Zealand	1 Dec 2011	CCRM and PLUS	
ESR02	Z-GIS	Korbinian Breinl	M	Germany	10 Oct 2011	ITC and Geomer.	
ESR03	CNRS	Romy Schlögel	F	Belgium	2 Nov 2011	CNR and IGRAC	
ESR04	IIASA	Ziga Malek	M	Slovenia	1 Aug 2011	CCRM , ITC and PC-FVG.	
ESR05	UNIVIE	Roxana Liliana Ciurean	F	Romania	1 Jan 2012	UNIL and R&D	
ESR06	CNR	Haydar Hussin	M	Netherlands	15 Sep 2011	ITC and ERN	
ESR07	IGRAC	Veronica Zumpano	F	Italy	15 Oct. 2011	UNVIE and Geomer	
ESR08	IRM	Kathrin Prenger-Berninghoff	F	Germany	1 Sep 2011	TUDO and R&D	
ESR09	UNIL	Zar Chi Aye	F	Myanmar	1 Sept 2011	ERN and AS	
ESR10	CNR	Vivian Juliette Cortes Arevalo	F	Colombia	1 Oct 2011	TUD and AS	
ESR11	TUDO	Teresa Sprague	F	USA	1 Oct 2011	IRM and IIASA	
ESR12	TUD	Marie Charrière	F	Swiss	1 Oct 2011	CNRS and PC-FVG	

Overview of ESR and exchanges

Nr.	Title of the position - ESRs	Partners and months	
		Hosting	Second ment
ESR-01	Translation of the results of climate change models to expected changes in triggering conditions of hydro-meteorological hazards	ITC (26)	CCRM (5) PLUS (5)
ESR-02	Development and application of probabilistic models for flood hazard assessment at regional and local scales.	PLUS (26)	ITC (5) GEOMER (5)
ESR-03	Development and application of probabilistic models for mass movement hazard assessment at regional and local scales.	CNRS (26)	CNR (5) IGRAC (5)
ESR-04	Analysis of expected changes in ecosystems and land use patterns in relation to climate change and future economic development.	IIASA (26)	CCRM (5) PC-FVG (5)
ESR-05	Expressing uncertainties in vulnerability and value of infrastructure, buildings and land use to hydro-meteorological hazards	UNIVIE (26)	UNIL (5) R&D (5)
ESR-06	Design of a tool for probabilistic risk assessment of hydro-meteorological hazards	CNR (26)	ITC (5) ERN (5)
ESR-07	Development of a method for constructing risk scenarios and risk maps with associated uncertainties	IGRAC (26)	UNIVIE (5) GEOMER (5)
ESR-08	Use of risk information in Strategic Environmental Assessment and spatial planning	IRM (26)	TUDO (5) R&D (5)
ESR-09	Development of an internet-based Decision Support System for the use of risk information in risk reduction	UNIL (26)	ERN (5) AS (5)
ESR-10	Emergency preparedness and early warning scenarios based on the outcomes of the probabilistic risk assessment	CNR (26)	TUD (5) AS (5)
ESR-11	Comparing risk governance strategies for different EU countries,	TUDO (26)	IRM (5) IIASA (5)
ESR-12	Risk communication with a focus on risk visualisation tools.	TUD (26)	CNRS (5) PC-FVG (5)

ESR01 Thea Turkington	27/02/2012	02/03/2012	Salzburg, Vienna Austria	Solidify collaboration for secondment (PLUS), met with researchers at ZAMG for potential collaboration
	16/04/2012	18/04/2012	Barcelonnette	Field visit, Stakeholder meeting
	28/06/2012	06/07/2012	Salzburg, Austria	To attendance a course and conference (PLUS)
	01/10/2012	16/11/2012	Salzburg	Collaboration with ESR02 (PLUS)
	07/2013	10/2013	CCRM, UK	Coaching on the different downscaling techniques
	01/2014	03/2014	Salzburg,	To assess 'usability' of results, collaboration with ESR02 on a paper (PLUS)
ESR02 Korbinian Breinl	12 Dec 2011	15 Dec	CNRS	Discussion of PhD topic and overlaps/collaboration with ESR03
	2 Mar 2012	12 Mar	Bristol University, JBA Trust, UK	Discussion of supervision and topic
	13 Apr 2012	19 Apr	Barcelonnette	Stakeholder Meeting with CNRS
	9 Jul 2012	10 Sep	Geomer	Development of weather generator, review of hydrological/hydraulic models
	1 Feb 2012	27 Apr	ITC	Setting up hydraulic and hydrological model, further development of statistical models, collaboration with ESR01 on including climate component in hydrology
ESR03 Romy Schlögel	04/13 07/13	05/13 08/13	CNR	Statistical multivariate models Field validation of InSAR analysis and preparation of data for hazard assessment
ESR04 Ziga Malek	16.1.2012	27.1.2012	ITC Enschede	Discussing the land use modelling research approach
	22.3.2012	22.3.2012	Zürich	Discussing land use modelling approaches with dr. Mark Rounsevell, University of Edinburgh
	18.6.2012	21.6.2012	ITC Enschede	Discussion on land use/ cover mapping approaches
	16.7.2012	20.7.2012	IGAR Bucharest	Discussion on land use/cover change trajectories in Romania in relation to socio-economic conditions
	Beginning of 2013		ITC Enschede	Planned visit to ITC
ESR05 Roxana Liliana Ciurean	20.03.2012	25.03.2012	IGAR, Buzău, Romania	Field work, data collection, stakeholders meeting; joint work with ESR07
	4.07.2012	5.08.2012	IGAR, Buzău, Romania	Field work, data collection, stakeholders meeting; joint work with ESR04, ESR07
	5.11.2012	16.11.2012	UNIL, Lausanne, Switzerland	Testing vulnerability/uncertainty assessment models; testing the implementation of the elements at risk database; joint work with ESR09
	February 2013	March 2013	R&D, Pau, France	Testing vulnerability/uncertainty assessment models; joint work with ESR08
ESR06 Haydar Hussin	12/12/2011	[illegible]	[illegible]	[illegible] and discussions with the Civil Protection Agency of the FVG region
	28/02/2012	[illegible]	[illegible]	[illegible] discussions
	03/05/2012	19/05/2012	ITC, Enschede, Netherlands	Ph.D. proposal discussions and preliminary presentation with the thesis promoter and supervisor
	12/08/2012	26/09/2012	ITC, Enschede, Netherlands	Supervision and discussion on statistical approaches for probabilistic risk assessment
	30/11/2012	[illegible]	[illegible]	Landslide susceptibility mapping
	13/01/2013	[illegible]	[illegible]	Landslide Run-out modeling
	04/03/2013	[illegible]	[illegible]	Elements at risk mapping and vulnerability assessment
ESR07 Veronica Zumpano	22/04/2012	07/05/2012	Vienna, Austria Univie	Developing the research proposal. Designing of the geo-DB for the El.at Risk for Buzau County
	10/06/2012	[illegible]	Heidelberg Germany Geomer	Designing of the geo DB for the El.at Risk for Buzau County
	19/11/2012	25/[illegible]	[illegible]	Supervising on the ongoing work
	07/01/2013	[illegible]	[illegible]	Starting to develop a method for risk scenarios
	01/03/2013	[illegible]	Heidelberg,Germany Geomer	Starting to develop a method for risk scenarios
	01/10/2013	31/10/2013	Vienna, austria Univie	Modeling uncertainty in risk scenarios
	01/11/2013	[illegible]	[illegible]	Modeling uncertainty in risk scenarios
	01/06/2013	[illegible]	[illegible]	[illegible]
	01/07/2013	[illegible]	[illegible]	[illegible]
ESR08 Kathrin Prenger-Berninghoff	29.02.2012	29.02.2012	Delft, Netherlands	WP5 Discussion (Marie (ESR-12), Tess (ESR-11), Kathrin (ESR-08), Stefan Greiving (TUDO), Thom Bogaard (TUD), Erik Mostert (TUD), Sandra Junier (TUD))
	31.03.2012	[illegible]	[illegible]	Stakeholder meetings and fieldsite visits
	16.04.2012	[illegible]	[illegible]	Stakeholder meetings and fieldsite visits
	11.06.2012	15.06.2012	Wieprzówka catchment, Poland	Stakeholder meetings and fieldsite visits
	17.09.2012	19.09.2012	Buzău County, Romania	Stakeholder meetings and fieldsite visits
	14.01.2013	31.0[illegible]	[illegible]	1st Secondment
	04.03.2013	08.03.2013	Krakow, Poland	Supervising Bachelor group student project at TUDO for 'Good' Governance and the Floods Directive Implementation in Poland
	04.2013	05.2013	FVG Region, Italy	primary fieldwork Italy (exact date TBD)
	07.2013	09.2013	Krakow, Poland	primary fieldwork Poland (exact date TBD)
	07.2013	[illegible]	Buzău County, Romania	Primary fieldwork Romania (exact date TBD)
ESR09 Zar Chi Aye	11.12.2011	[illegible]	ICRN, Barcelona, Spain	Initial visit for secondment and topic discussions in general
	09.02.2012	09.02.2012	AS, Delft, The Netherlands	Initial visit for secondment and topic discussions in general
	31.03.2012	04.04.2012	Friuli-Venezia-Giulia region, Italy	Initial field visits and stakeholder meetings
	11.06.2012	14.06.2012	Wieprzówka catchment, Poland	Initial field visits and stakeholder meetings
	04.07.2012	07.07.2012	Buzău County, Romania	Initial field visits and stakeholder meetings
	04.02.2013	01.03.2013	AS, Delft, The Netherlands	Short secondment visit (exact date to be confirmed)
ESR10 Vivian Juliette Cortes Arevalo	06.02.2012	10.02.2012	TUD	Discussion and secondment planning
	09.02.2012	09.02.2012	Alert Solutions	Secondment planning
	05.07.2012	07.07.2012	IGRAC	Stakheholder meeting
			PC-FVG Italy	Discussion and planning secondment
	29.10.2012	29.10.2012	PC-FVG Italy	Discussion and planning secondment
ESR11 Teresa Sprague	29.02.2012	29.02.2012	Delft, Netherlands	WP5 Discussion (Marie (ESR-12), Tess (ESR-11), Kathrin (ESR-08), Stefan Greiving (TUDO), Thom Bogaard (TUD), Erik Mostert (TUD), Sandra Junier (TUD))
	31.03.2012	04.04.2012	Friuli-Venezia-Giulia region, Italy	Stakeholder meetings and fieldsite visits following observational protocol
	16.04.2012	20.04.2012	Barcelonette, France	Stakeholder meetings and fieldsite visits following observational protocol
	11.07.2012	15.07.2012	Wieprzówka catchment, Poland	Stakeholder meetings and fieldsite visits following observational protocol
	17.09.2012	19.09.2012	Buzău County, Romania	Stakeholder meetings and fieldsite visits following observational protocol
	01.11.2012	31.01.2012	IIASA, Austria	1st Secondment
	04.03.2013	08.03.2013	Krakow, Poland	Supervising Bachelor group student project at TUDO for 'Good' Governance and the Floods Directive Implementation in Poland
	07.2013	09.2013	Krakow, Poland	2nd Secondment, primary fieldwork Poland (exact date TBD)
	02.2013	05.2013	Barcelonette, France	Primary fieldwork France (exact date TBD)
	02.2013	05.2013	Friuli-Venezia-Giulia region, Italy	Primary fieldwork Italy (exact date TBD)
	07.2013	09.2013	Buzău County, Romania	Primary fieldwork Romania (exact date TBD)
ESR12 Marie Charrière	12.09.11	15.09.12	CNRS-strasbourg (Barcelonnette)	Field work
	16.04.12	19.04.12	CNRS-strasbourg (Barcelonnette)	Field work
	30.06.12	07.07.12	CNRS-strasbourg (Barcelonnette)	Field work
	02.10.12	12.10.12	CNRS-strasbourg (Barcelonnette)	Field work
	Spring 2013	1 month	CNRS-strasbourg (Barcelonnette)	Field work
	Winter 2013	1 month	CNRS-strasbourg (Barcelonnette)	Field work
	Beginning 2013	1 month	CNR-Padova	Working on Italian case study
	2014	1 month	TUDO	Working on interpretation of results

Networking activities: many more than originally planned
Differences with DoW:
-Problems with involving some of the associated partners
- Some other visits fit better in the research plan

SUPERVISORY TEAMS

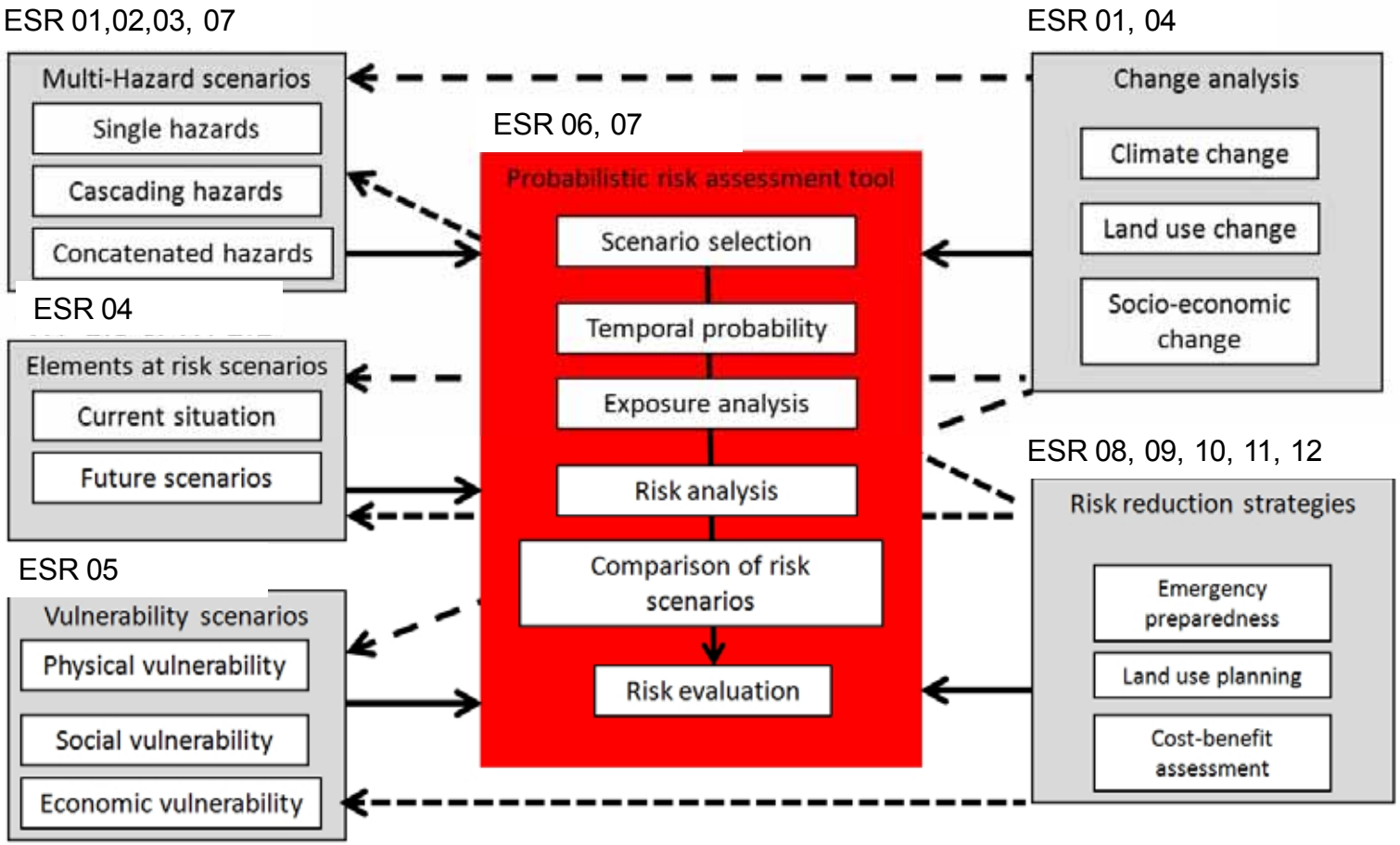
ESR	Name	Supervisors	Contributing partners to the research
ESR01	Thea Turkington	Dr. Victor Jetten (ITC) Dr. Cees van Westen (ITC) Dr. Janneke Ettema (ITC)	Dr. Stefan Kienberger (PLUS), Dr. Steven Harrison (CCRM), Dr. Peter Zeil (PLUS)
ESR02	Korbinian Breinl	Prof. Josef Strobl (PLUS) Dr. Stefan Kienberger (PLUS) Dr. Rob Lamb (JBA Trust)	Dr. Dinand Alkema (ITC), Dr. Stefan Jäger (Geomer), Prof. Paul Bates (Bristol University), Dr. Markus Stowasser (Allianz SE Reinsurance)
ESR03	Romy Schlögel	Dr. Jean-Philippe Malet (CNRS) Dr. Cécile Doubre (CNRS) Dr. Fréderic Masson (CNRS)	Dr. Paola Reichenbach (CNR), Dr. Mihai Micu (IGRAC)
ESR04	Ziga Malek	Prof. Dr. Thomas Glade (UniVie) Dr. Anthony Patt (IIASA) Dr. Dagmar Schröter (IIASA)	Dr. Kees de Bie (ITC)
ESR05	Roxana Liliana Ciurean	Prof. Thomas Glade (UNIVIE) Prof. Michel Jaboyedoff (UNIL) Dr. Eric Leroi (R&D)	Dr. Cees van Westen (ITC)
ESR06	Haydar Hussin	Prof. Victor Jetten (Promoter, ITC) Dr. Paola Reichenbach (Co-Promoter and daily supervisor, CNR-IRPI) Dr. Cees van Westen (Co-promoter and supervisor, ITC)	Dr. David Rossiter (statistics, ITC), Prof. Albert Stein (statistics, ITC), Dr. Simone Sterlacchini (landslide susceptibility and vulnerability, CNR-IDPA), Dr. Jean-Philippe Malet (landslide run-out modeling, CNRS), Dr. Alexandre Remaitre (landslide, run-out modeling, CNRS)
ESR07	Veronica Zumpano	Prof. Dan Balteanu (IGRAC)	Prof. Thomas Glade (UNIVIE), Dr. Stefan Jager (GEOMER)
ESR08	Kathrin Prenger-Berninghoff	Mr. Wiktor Glowacki (IRM) Prof. Dr.-Ing Stefan Greiving	
ESR09	Zar Chi Aye	Prof. M. Jaboyedoff,	Dr. Simone Sterlacchini, Dr. Simone Frigerio, Dr. Ulan Turdukulov (ITC), Dr. Javier Morales (ITC)
ESR10	Vivian Juliette Cortes Arevalo	D. Alessandro Pasuto Dr. Simone Sterlacchini Dr. Thom Bogaard	
ESR11	Teresa Sprague	Prof. Dr.-Ing Stefan Greiving Prof. Dr.-Ing Sabine Baumgart (PhD advisor) PD Dr.-Ing. Jörn Birkmann (PhD external advisor)	
ESR12	Marie Charrière	Dr. Thom Bogaard (TUDelft) Dr. Erik Mostert (TUDelft) Prof. Nick van de Giesen (TUDelft)	Sandra Junier (TUDelft), Sisi Zlatanova (TUDelft), Dr. Jean-Philippe Malet (CNRS-Strasbourg), Dr. Simone Frigerio and Dr. Alessandro Pasuto (IRPI), Prof. Dr. Stefan Grieving (TUDO)

RESEARCH PROPOSALS

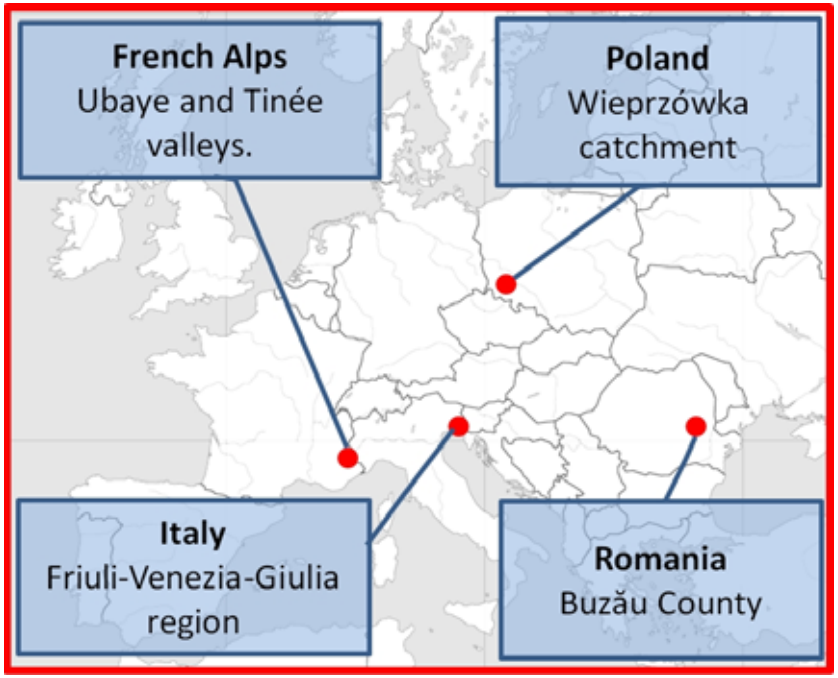
- All ESRs developed extensive research proposals which were presented to the network partners on several occasions.
- The Young Researchers' Forum 2012, offered PhD students a unique possibility to present, discuss, receive feedback, and exchange comments and views on their doctoral research proposals and research in general. The forum consisted of PhD students from CHANGES, experienced researchers including keynote speakers from the GI_Forum, faculty members of the GIScience Doctoral College at the University of Salzburg, Doctorate School in Global Change Science and Policy (ChangeS), and other external PhD or MSc students participating.
- All proposals are available on the CHANGES website




RELATION BETWEEN RESEARCH THEMES



STUDY AREAS


French Alps
Ubaye and Tinée valleys.
Poland
Wieprzówka catchment
Italy
Friuli-Venezia-Giulia region
Romania
Buzău County

FIRST ATTEMPT

	FRANCE	ITALY	ROMANIA	POLAND
CLIMATE CHANGES	THEA	THEA	THEA	THEA
LANDUSE CHANGES		ZIGA	ZIGA	
FLOOD HAZARD	KORB.	KORB		
LANDSLIDE HAZARD	ROMY		ROMY	
VULNERABILITY FLOOD LANDSLIDE		ROXANA	ROXANA	ROXANA (?)
TOOL PRA	HAYDAR	HAYDAR	HAYDAR(?)	
RISK MAPS AND SCENARIOS		VERONICA	VERONICA	
S.E.A. AND SPATIAL PLANNING	KATRIN	KATRIN	KATRIN (?)	KATRIN
INTERNET BASED D.S.S.			ZAR CHI	ZAR CHI
EARLY WARNING SYSTEM		JULIETTE		
COMPERISON RISK GOVERNANCE	TESS	TESS	TESS	TESS
RISK VISUALIZATION TOOL	MARIE	MARIE	MARIE (?)	MARIE (?)

CONNECTIONS WITH OTHER RESEARCH ACTIVITIES

- **Mountain Risks**

  This was an earlier FP6 Marie Curie ITN.

- **SafeLand**

  Living with landslide risk in Europe: Assessment, effects of global change, and risk management strategies. EU FP7 project.

- **KULTURisk**

  This FP7 project aims at developing a culture of risk prevention by evaluating the benefits of different risk prevention initiatives.

- **CHANGINGRISK**

  Project between CNRS, UNIVIE and University of Zaragoza

- **Move project**

- **InCREO**

  EU FP7 project with EADS Astrium, Geomer & ITC

CHANGES IN THE NEWS

YouTube

CHANGES documentary

geoNL001 Abonneren 1 video

http://www.youtube.com/watch?v=t40bmLTkN30

'ALLÉES Exemplaire de sylvie.arnaud [Email:sylvie.arnaud@9online.fr - IP:78.115.59.206]

ELONNETTE

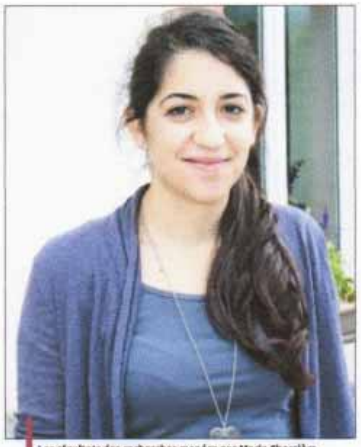
L'Ubaye, terrain d'études pour Marie Charrière, doctorante

Elle étudie l'impact sur le public de la communication sur les risques naturels

Séolane, le centre d'accueil pour chercheurs en sciences de la terre, en risques naturels et en biodiversité, développé par Barcelonnette dans les anciennes casernes du quartier Craplet, accueille tout au long de l'année de nombreux chercheurs. Marie Charrière, native de Suisse, fait partie de ces scientifiques venus profiter de ces installations et du formidable terrain de recherches qu'offre la vallée de l'Ubaye.

Dans le cadre d'un programme européen qui facilite la mobilité de jeunes chercheurs et de leurs formations, cette jeune Suisse étudie, avec douze jeunes doctorants répartis à travers l'Europe, l'impact socio-économique et environnement des changements climatiques. *"Nous nous intéressons à la distribution spatiale et temporale des aléas hydro-métérologiques comme les glissements de terrain, les coulées de boue, les lave torrentielles..."* explique-t-elle.

Elle étudie si la sensibilisation à un risque naturel change les comportements



Les résultats des recherches menées par Marie Charrière pourraient beaucoup apporter au plan d'évacuation établi pour le glissement de la Valette. /PHOTO S.A.

l'évaluation des moyens de com- *l'augmentation de la sensibilisa-*

La préparation à une crise change-t-elle le comportement de la population ?

augmente l'efficacité de la sensibilisation du grand public".

Elle a commencé à travailler sur le sujet de la communication du risque depuis une année et va désormais orienter ses recherches en direction de deux groupes d'intérêt à savoir les enfants et les vacanciers de la vallée. *"J'ai choisi l'Ubaye car beaucoup de données techniques y ont été collectées sur les risques naturels"* explique Marie Charrière qui après avoir pris attache auprès des élus et le service de la Restauration des terrains de montagne notamment va poursuivre ses recherches auprès des écoliers de la vallée. *"Je vais intervenir dans certaines écoles de la vallée et mesurer à l'aide de tests l'impact de la communication sur les risques naturels"*, indique la jeune femme qui mène ses recherches en lien avec Jean-Philippe Malet, chercheur au CNRS, à l'École et Observatoire des Sciences de la Terre et l'Institut de Physique du

BARCELONNETTE

L'Ubaye auscultée par des chercheurs

Ils ont partagé le résultat de leurs études sur les risques naturels de cette zone

L'historique des recherches scientifiques menées depuis plus de vingt ans sur les aléas naturels observés sur le territoire, comme les inondations et crues torrentielles, les coulées de boue, les glissements de terrain et les séismes prouve que la vallée de l'Ubaye est une zone à risques particulière.

"Par le passé, ces recherches ont essentiellement concerné une meilleure connaissance des processus physiques et des conditions d'occurrence des dangers. Ce n'est que depuis quelques années que des estimations de risque sont proposées avec le développement de méthodologies d'analyse quantitative et de modèles numériques, indique Jean-Philippe Malet, chercheur à l'Institut de Physique du Globe de l'Université de Strasbourg. *C'est dans ce cadre que plusieurs jeunes chercheurs doctorants, accompagnés de leurs directeurs de thèse, ont séjourné dans la vallée au centre Seolane, développé dans une partie des anciennes casernes du quartier Craplet, pour initier des collaborations avec les acteurs de la gestion du risque".*

Ils collaborent à la prévention des risques

Deux projets de recherches européens ont en effet commencé en 2011 : le projet KULTURisk qui vise au développement d'une culture du risque en démontrant les avantages d'une programmation coordonnée des mesures de prévention, et le projet CHANGES dont l'objectif est la réalisation de cartes d'aléas et de risques en prenant en compte de possibles impacts du changement du climat et de l'occupation du sol à échéance 2100. Dans les deux cas, la vallée de l'Ubaye est étudiée en tant qu'exemple représentatif de gouvernance et de choix de mesures de protection, à la fois pour la planification du territoire et pour la gestion de situations de crise.

Les études réalisées en Ubaye par ces jeunes chercheurs internationaux apporteront des éléments importants pour la gestion et la protection des risques naturels. /PHOTO S.A.

De nouveaux outils seront testés

Les jeunes doctorants qu'il accompagnait avec d'autres chercheurs ont visité certains dangers reconnus comme le glissement de La Valette, le cône torrentiel de Faucon-de-Barcelonnette et la plaine d'inondation de l'Ubaye entre Jausiers et Les Thuiles. Ils ont ensuite présenté leurs objectifs de recherche aux différents acteurs des politiques de prévention.

Des échanges fructueux ont eu lieu, et des programmes de travail concrets sont en cours d'élaboration, notamment en ce qui concerne les simulations de hauteurs d'eau par débordement de l'Ubaye, l'identification des secteurs susceptibles aux glissements de terrain, la mise en place des plans communaux de sauvegarde, l'étude des

Qui sont

Sylvie ARNAUD

Projekt zarządzania kryzysowego omowiony z doktorantami

sobota, 16, czerwiec 2012 08:45 Ireneusz Kowalczyk

Wizyta doktorantow w Starostwie Powiatowym w Wadowicach

Zadania w zakresie zarządzania kryzysowego w Powiecie Wadowickim stały się przedmiotem międzynarodowego spotkania. Doktoranci z Krakowa, ale i także z Lozanny i Dortmundu, biorący udział w projekcie: "Zmienne Zagrożenia Hydrologiczno-meteorologiczne Analizowane przez Nową Generację Europejskich Naukowców" gościli w Starostwie Powiatowym w Wadowicach w dniu 14 czerwca 2012 roku.

Celem tego spotkania było zapoznanie doktorantów z realizowanymi zadaniami w zakresie zarządzania kryzysowego w starostwie powiatowym. Zadania te przedstawił Jerzy Śniegowski - Kierownik Wydziału Zarządzania Kryzysowego i Spraw Obronnych.

CHANGES BROCHURE WAS MADE IN VARIOUS LANGUAGES

STAKEHOLDER MEETINGS WERE

MADE IN EACH OF THE TEST SITES

CHANGES

Risk=HVA

Schimbări ale riscurilor hidro-meteorologice analizate de o nouă generație de tineri cercetători europeni

(Changing Hydro-meteorological Risks – as Analyzed by a New Generation of European Scientists)

Cambiamenti nei rischi idro-meteorologici analizzati da una nuova generazione di ricercatori europei

(Changing Hydro-meteorological Risks – as Analyzed by a New Generation of European Scientists)

Marie Curie Initial Training Network – Gen 2011 to Dic 2014.

Changing Hydro-meteorological Risks – as Analyzed by a New Generation of European Scientists

A Marie Curie Initial Training Network
January 2011 to December 2014

SEVENTH FRAMEWORK PROGRAMME

MARIE CURIE ACTIONS

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PART I: COORDINATORS REPORT

- Scientific activities
  - Reasons for carrying out the research
  - Research objectives of the joint work
  - Scientific highlights of the work so far
- Networking activities
  - Methodological approach and work plan
  - Collaboration among the network participants – Involvement and interaction among the recruited researchers
  - Connections to other research initiatives
- Training and Transfer of Knowledge activities
  - Training and ToK Programme of the project
  - Summary of recruitment, use of budget and projection until the end of the project
  - Management aspects

COURSES AND WORKSHOPS

Professional skills course

	Name	Time/Place
PS-01	**Research work plan development and scientific writing**	M+9,Poland
PS-02	**Research ethics**	M+12,Netherlands
PS-03	**Valorisation of scientific results**	March 2012, Italy
PS-04	**Dissemination of scientific results to the public**	July 2012 Austria
PS-05	**Writing research grant proposals**	September 2012 Romania
PS-06	**Project management**	M+43 Switzerland

Technical skills course

	Name	Time
TS-01	**Probabilistic risk assessment**	M+9 Poland
TS-02	**Monitoring and prediction of environmental changes.**	September 2012 Romania
TS-03	**Web-GIS and Spatial Data Infrastructure**	M+24 Dordtmund
TS-04	**Tools for risk Management**	M+28 Austria (&EGU)
TS-05	**Use of risk information in Spatial Planning**	M+33 Italy

Topical workshops

	Name	Time
WS-01	**Risk governance implications of changing risks**	March 2012 Italy
WS-02	**Environmental changes**	M+30 France
WS-03	**Modelling changes in hazard and risk**	M+24 Dordtmund
WS-04	**Changes in Risk Management**	M+33 Italy
WS-05	**Web-based platform**	M+43 Switzerland

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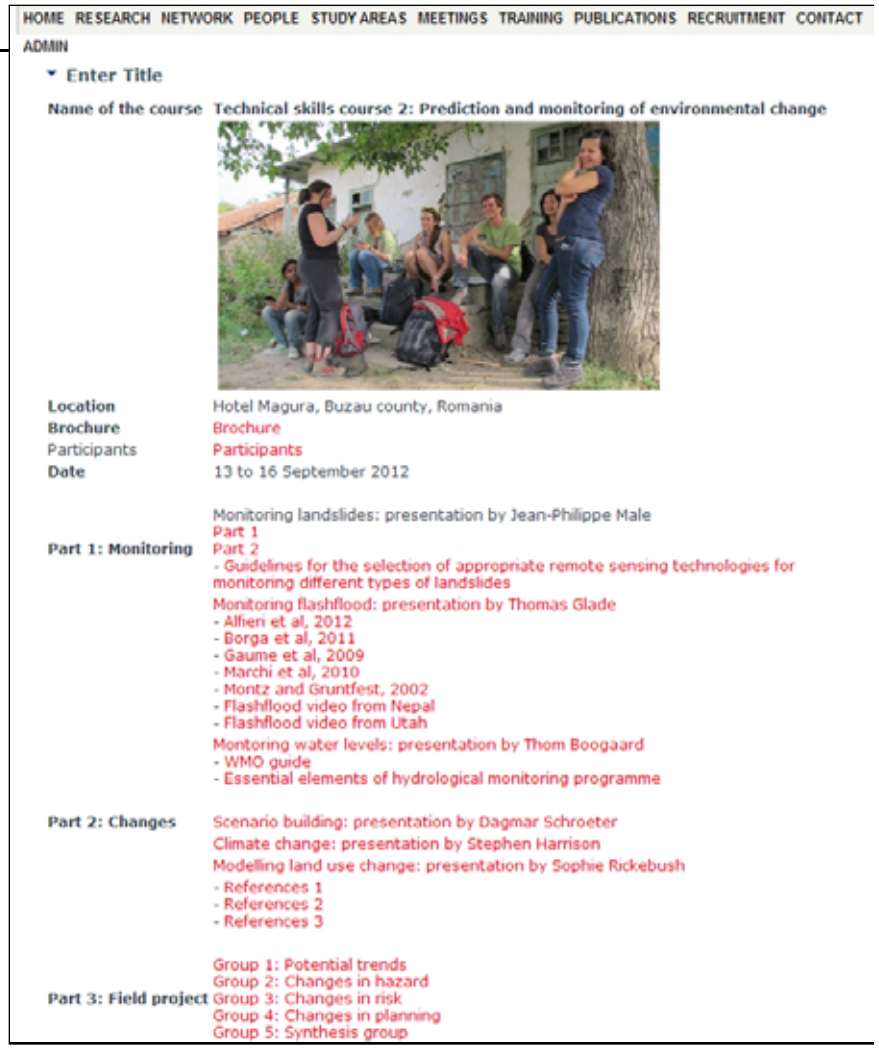
TRAINING COURSES

- Training courses were given as indicated in the DoW
- Additional training courses were also offered (e.g. in ITC and in UNIVIE)
- Training courses also included field projects.
- All materials presented in the training courses is available on the project website.



Flood height - Nehoiu river (2004-2005)

RECRUITMENT OF 3 ER

ER-01	Development of web-based tool for probabilistic risk assessment	PLUS (12)	CNRS (6) ERN (6)	3	M+22	M+48
ER-02	Development of web-based decision support tool for risk management	ITC (12)	UNIVIE (6) GEOMER (3) R&D (3)	4	M+22	M+48
ER-03	Development of a web-based risk communication and visualisation tool	TUDO (12)	TUD (6) AS (6)	5	M+22	M+48

Proposed procedure:
-Make job description & present in March meeting in Italy
-Announcing April-May
-Selection before July, Salzburg meeting
-Start ultimately by 1 October 2012
-DELAY

Proposed background:
-Geoinformatics
-Programming
-Web-GIS

ER HIRING WAS A MAJOR PROBLEM

- ER01: no applicants
- ER02: 38 applicants, 8 suitable candidates, this week interviews with 3 candidates
- ER03: 1 suitable applicant (from NL). Probable change in host: 2 years TUDO.

- Two candidates were selected for positions ER02 and ER03.
- However as no certainty could be obtained from Marie Curie officers on the mismatch with requirements, we couldn't hire them
- We are now reconsidering how to recruit the Ers
- The requirements with respect to years of experience are too strict.

PUBLICATIONS

- Presentations at International Conferences
- Abstract book & posters of Special Session at EGU or GI Forum…
- At least 22 joint scientific publications in ISI journals.
- Co-authorship between ESRs and research groups is considered very important

- So far: 48 ISI publications, but only 2 directly from ESRs
- Conference papers: 54, of which 17 from ESRs
- Book chapters: 6 of which 1 from ESR.

MANAGEMENT ASPECTS

- Change of EC officer: from Maria Silvia Giannoni to Silvia Abad
- Change of Project manager: from Sabine Maresch to Marleen Noomen
- Project coordinator (Cees van Westen), Deputy coordinator (Dinand Alkema)
- WP leaders
- Steering committee , with representatives of ESRs (Tess Sprague) and associated partners (Stefan Jager)
  - Regular meetings
  - Minutes on website
- External advisory committee

Steering Committee Meetings

Kick-off meeting : January 2011 Enschede	Download
April 2011, Vienna	Download
September 2011, Poland	Download
March 2012, Padova, Italy	Download
September 2012, Buzau, Romania	Download

WEBSITE

www.changes-itn.eu