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# WEATHER

## Weather Extremes: Assessment of Impacts on Transport Systems and Hazards for European Regions

FP7, call TPT.2008.1, AG 233.783

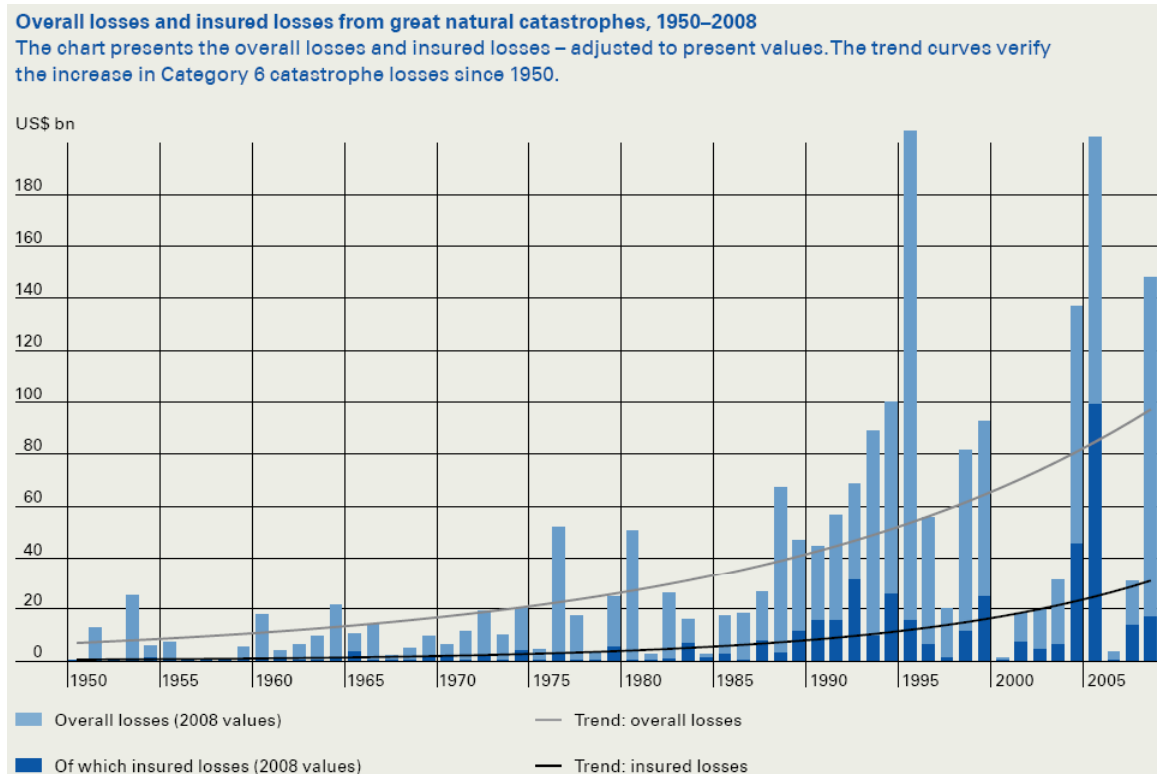
### Brief Project Overview

Kick-Off Workshop  
Karlsruhe, 17.11.2009

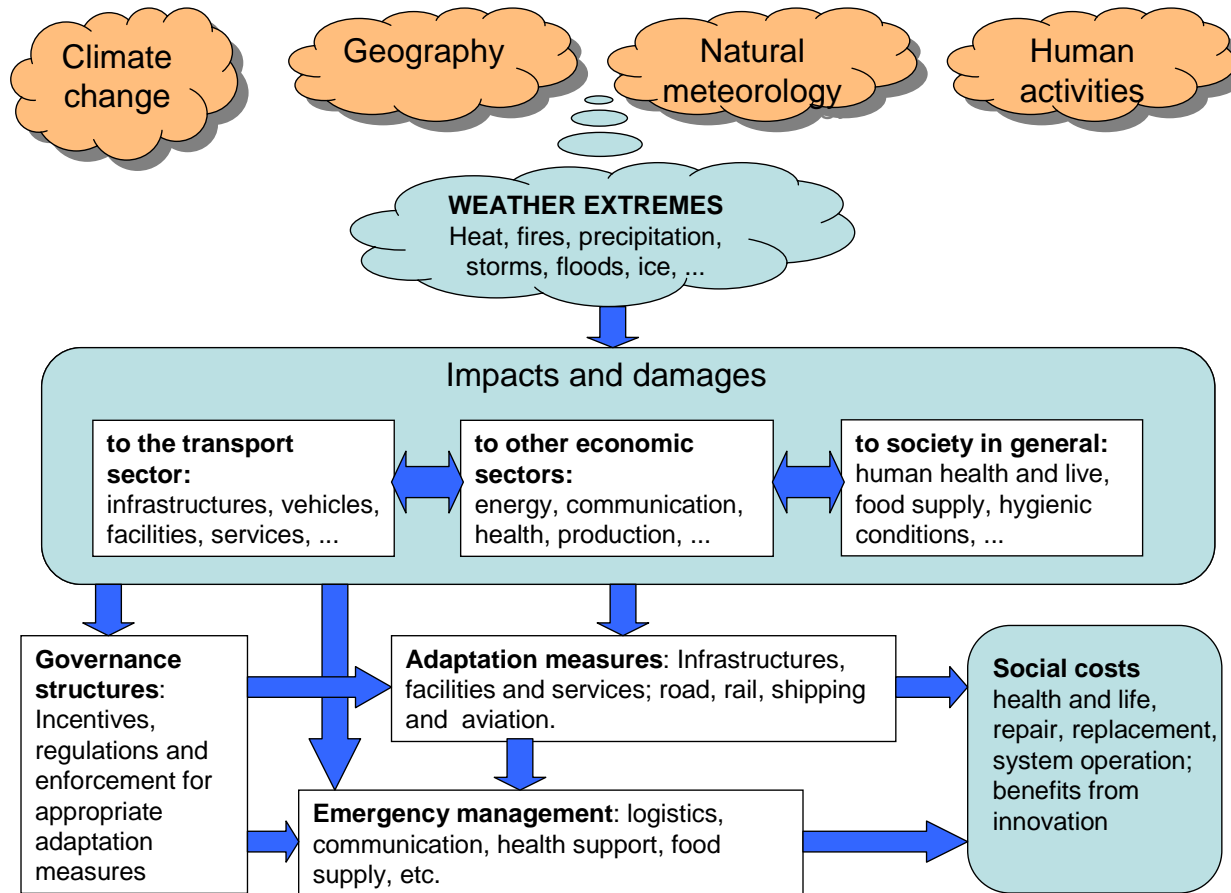
Claus Doll, Jonathan Köhler  
Fraunhofer-Institut System- und Innovationsforschung (ISI),

# Natural hazards and related costs

Overall and insured costs (Munjch Re 2009):



# Impact and reaction scheme



# WEATHER core objective

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The overall project goal is formulated to ...

**Determine the physical impacts and the economic costs of extreme weather events on transport systems and identify the costs and benefits of suitable adaptation and emergency management strategies.**

... 7 sub-objectives:

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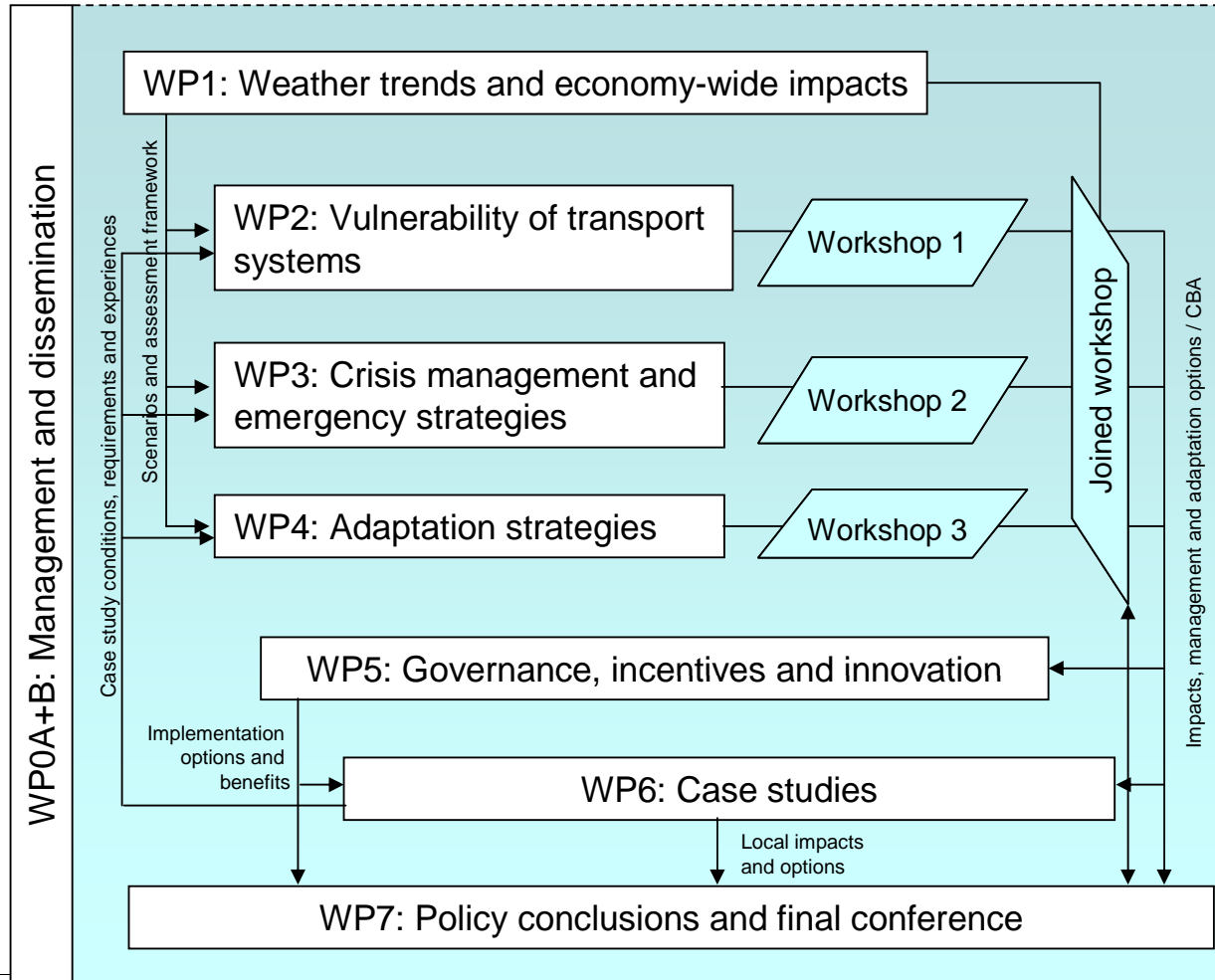
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# Instruments to achieve project objectives

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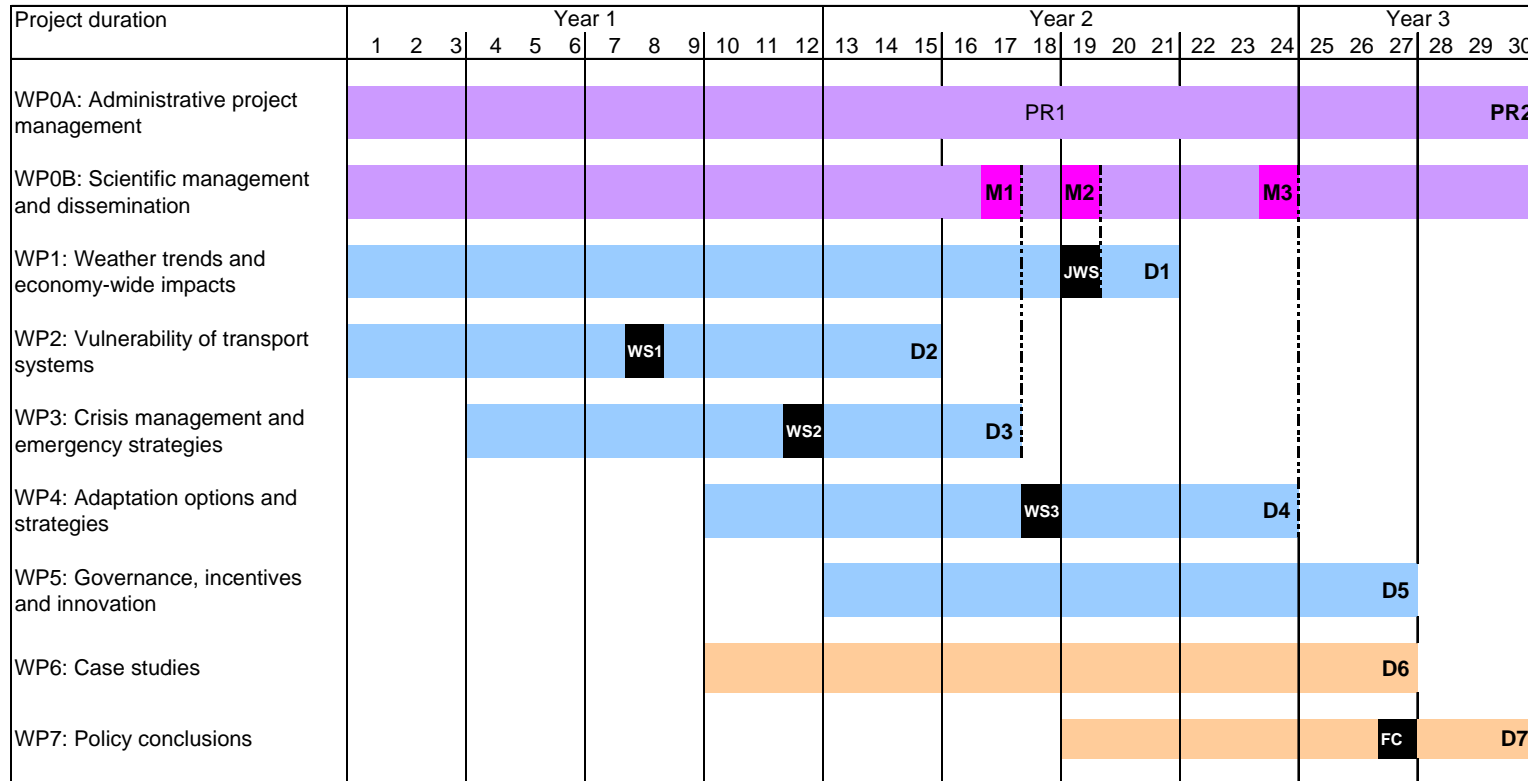
<b>Literature review</b>	→ state of the art, widening of scope
<b>Expert interviews</b>	→ Engineering, planning and implementation details
<b>Community networking</b>	→ Exchange with researchers worldwide
<b>Targeted workshops</b>	→ include practical issues and dissemination
<b>Global panel of experts</b>	→ experiences at EU borders, North America and Asia
<b>Statistical downscaling</b>	→ weather phenomena on a detailed regional level
<b>Model simulations</b>	→ economic dynamics, cascade effects (NEDyM, ASTRA)
<b>Accounting models</b>	→ business related costs in systems and life cycle context
<b>Integrated assessment</b>	→ wider impacts of hazards and measures (MCA, CBA)
<b>Case studies</b>	→ policy needs and requirements / applicability of results

# Work Package flow plan



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# Schedule of tasks and events



# Brief Work Package Introduction

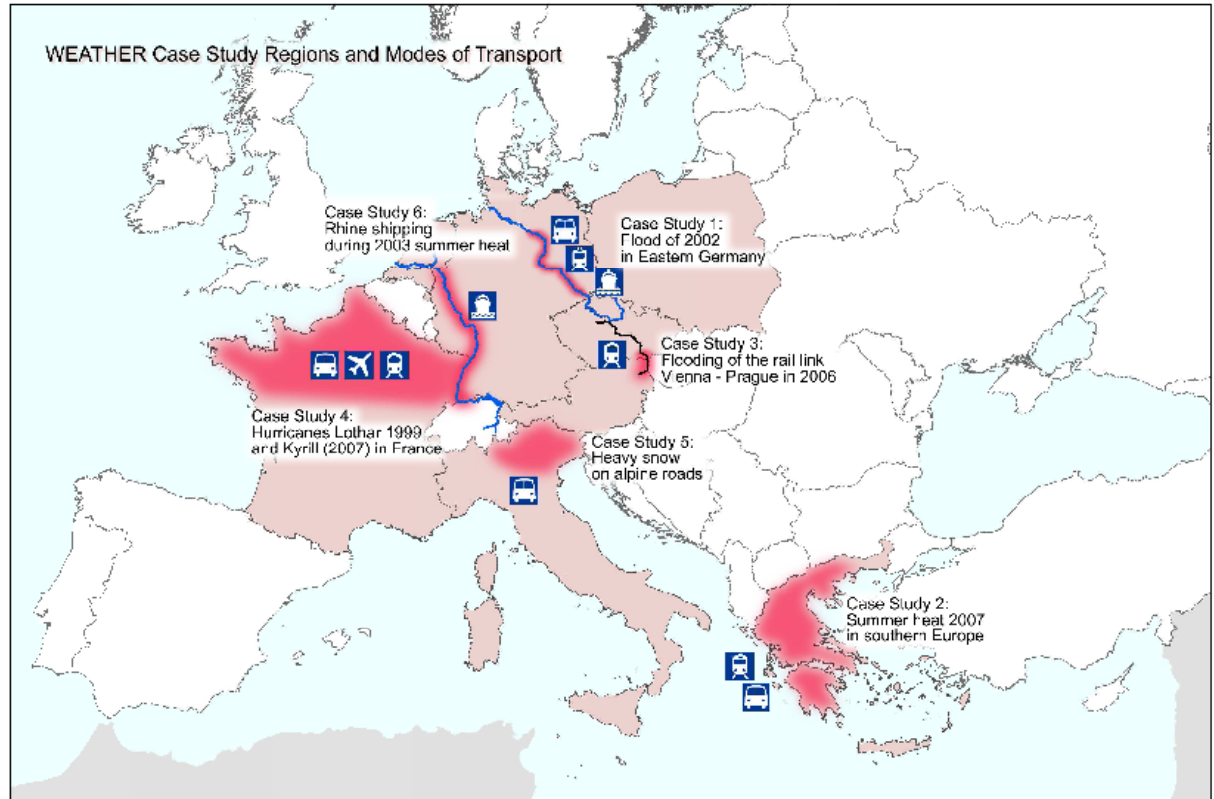
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WP1: Trends of weather extremes and economy-wide impacts	<ul style="list-style-type: none"><li>• better understand the drivers and the dynamics of extreme weather events at local level</li><li>• Provide weather scenarios for the case studies</li><li>• Establish a framework to measure the impacts of the severity and frequency of extreme events on transport and economy</li></ul>
WP2: Vulnerability of transport systems	<ul style="list-style-type: none"><li>• Identify the vulnerable elements of the transport sector with respect to different extreme weather events</li><li>• Quantify the entrepreneurial costs of extreme weathers for transport operators</li><li>• Estimate the social costs affecting transport users and public bodies</li></ul>
WP3: Crisis management and emergency strategies	<ul style="list-style-type: none"><li>• Work out efficient and innovative mechanisms of managing disastrous events while maintaining the service function of transport networks</li><li>• Quantify costs and benefits of efficient emergency management structures</li></ul>



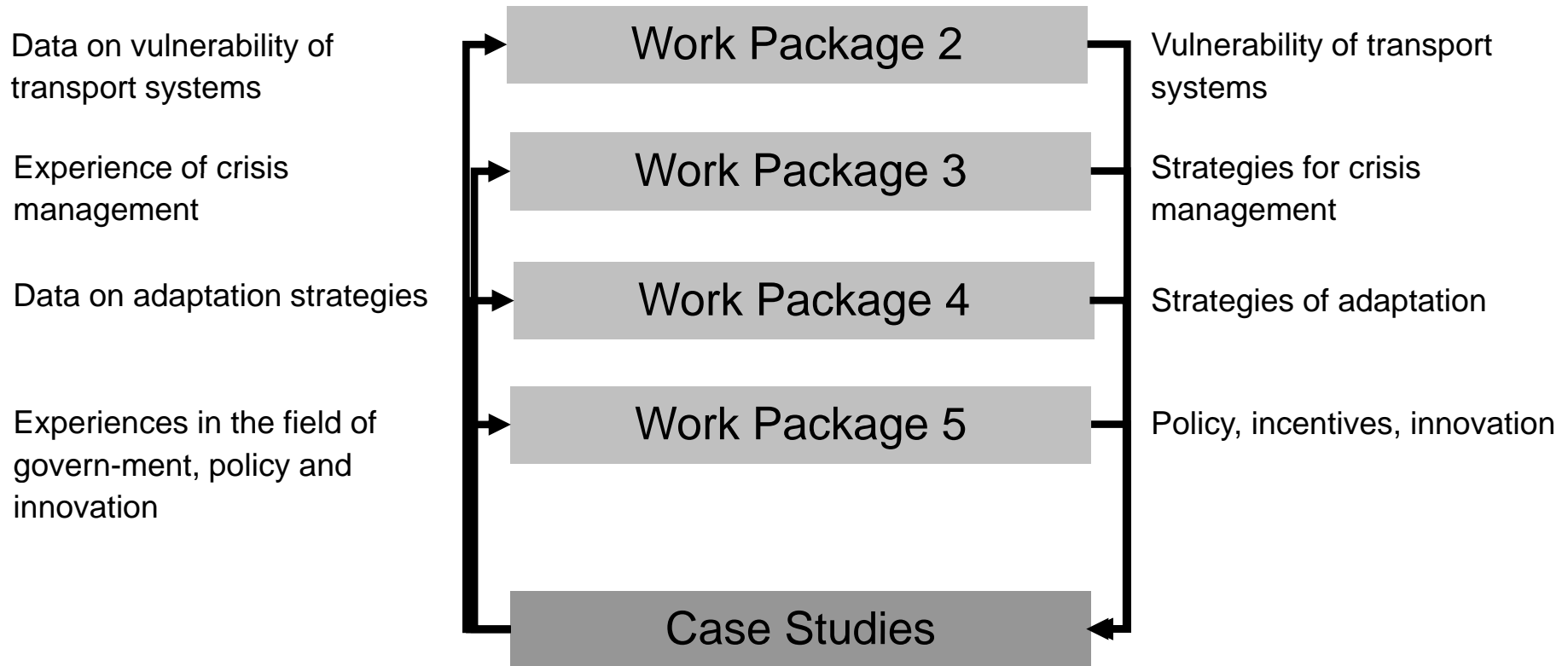
# Case studies, regions and modes

1. Flood of 2002 in Eastern Germany
2. Summer heat 2007 in southern Europe
3. of the rail link Vienna - Prague in 2006
4. Hurricanes Lothar 1999 and Kyrill (2007) in France
5. Heavy snow on alpine roads
6. Rhine shipping during 2003 summer heat



# Case Studies structure and objectives

WEATHER case studies feed into the analytical work of WP 2 to 5:



# The consortium – overview of competences

Partners have been selected to cover various areas, modal and sectoral competences and multiple disciplines.

Partner	Competences in cross-cutting issues				Modal competences			
	Climate analysis	Economic impacts.	Emer-gen-cy man.	Systemic risks	Roa d	Rail,P T	Shippi ng	Aviati on
Fraunh.-ISI	•	●		●	●	•	•	•
Fraunh.-IVI		•	●		•	●	•	
CERTH-HIT			●		•		●	
SMASH-CIRED	●	●		●				
UNIKARL	•	●	●					
ISIS		•			●	•	•	•
Herry		•	•	•	●	●	•	•
ARPA-ER	●		•		•			
NEA		•		•	•	●	●	