From daily to crisis activities :

Observing drivers' behavior during flash flooding

HyMeX

HYdrological cycle in Mediterranean EXperiment

RESEARCH QUESTION & METHODS

In flash flood events, more drowning deaths occur in cars than anywhere else:

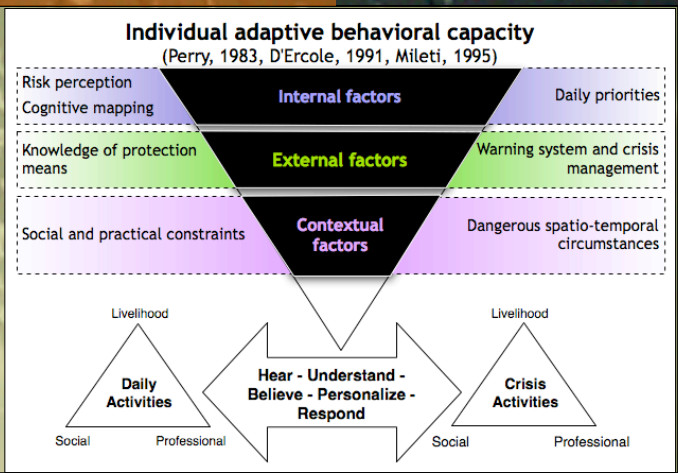
- 40% of the fatalities in Europe
- Up to 76% in USA (Texas)

Inappropriate behaviors have been suspected

➥ **Why people decide to travel in flash flood conditions?**

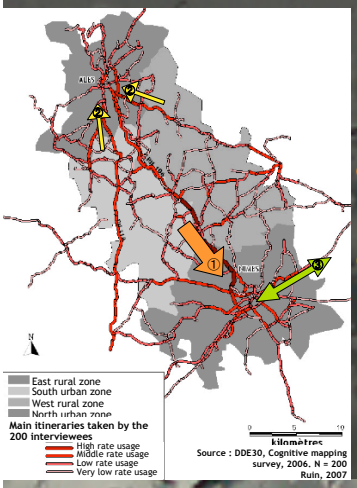
① People's unwillingness to change their daily routines

② Discrepancy between individual space-time representations and actual flash flood phenomenon characteristics



FIRST OUTCOMES

A strong relationship between spatial risk perception and travel patterns



Using variables as spatial perception of risk, length and exposure of usual itineraries, travel purpose and frequency, 3 out to 6 types of mobility is to be considered at risk around the RN106.

① **Highly risky commuting** (30%)
- frequent and highly hazardous travels
- weak perception of risk on roads

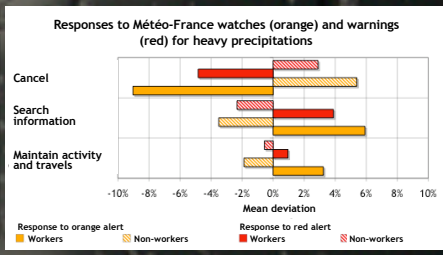
② **At-risk mobility of rural retired** (20%)
- frequent but little hazardous travels
- weak perception of risk on roads

③ **Inter-state mobility fairly risky** (10%)
- unfrequent & fairly hazardous travels
- weak perception of risk on roads

Daily priorities bear upon crisis behavioral patterns

In reaction to warnings, 50% of the parents would pick up their children from school even if it is strictly forbidden by officials.

Workers and mainly managers and well educated professionals would hardly cancel their communting in response to Météo-France warnings for heavy precipitations.



OBSERVATION STRATEGY

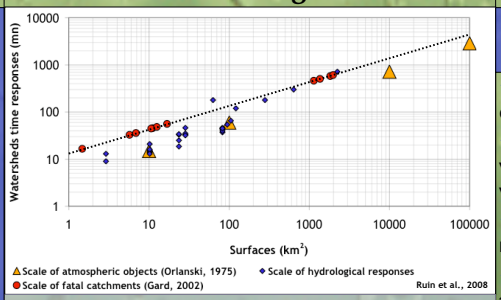
LOP
Evolution of vulnerability and adaptive capacity indicators

Survey the evolution of risk perception
- use of cognitive mapping

Monitor adaptation of travel's patterns to environmental conditions

Methods:
- observe driver's behaviors with traffic cameras
- quantify itinerary adaptation with car counting
- qualify travel behavior with travel logs

EOP
Coupled physical and social post-flood investigations



Analyzing hydro-meteorological and social circumstances of loss of life in Flash flood events: Is human vulnerability dependant on catchments sizes?

SOP
Observe drivers' behavior on flooded roads

Identify environmental and personal factors influencing drivers' behaviors

✓Prevention campaigns and barriers/signs efficiency?

✓Influence of environmental cues (visibility, rainfall, water depth, water flow…), weather forecast, watches and warnings?

✓Influence of local knowledge and cognitive mapping?

✓Influence of personal traits?

✓Influence of travel purposes?

http://70.253.207.10/view/index.shtml (webcam)

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