FLOODsite task 19
Frameworks for flood event management

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Task 17 scope of work

- Review flood Decision Support Systems
- Methodological Framework
- Implementation of prototype DSSs
- Application to pilots:
  - Thames Estuary (UK)
  - Schelde estuary (NL)
  - Nice (F)
Review of existing DSSs

- Limited number of DSSs for flood event management, more for long term flood risk management
- All have some GIS features, some GIS based
- Most use pre-cooked model results
User requirements

- Present results of flood scenarios
- Flood hazard at vulnerable locations
- People and objects at risk
- Safe havens and exit routes
- Coordination of all event response personnel
- Storage of other relevant site-specific data
- User-friendly in terms of presentation of results
Exposure module

- Fluvial / tidal water levels
- Breach locations and growth
- Flood characteristics (depth, velocity, extent)

Vulnerability module

- People
- Livestock
- Property and utilities
- Transport network

Relation between flood characteristics and damage for different receptors

Consequence module

- Damage to inhabitants (affected people, exposed people, casualties)
- Damage to livestock, property and utilities (expressed in the value lost)

Risk module

- Expected damage for a forecasted water level summed over the different breach locations expressed in euros or number of people harmed

Provision of Information to Decision Makers
Thames pilot - FLINTOF

INcident Tactical and Operational Framework:
- Management of spatial-temporal data
- Present results of external flood models
- Calculation of flood risk to people
- Assessment of the road network
- Display typical evacuation times
- Present probability of building collapse
- Information for the appraisal of different emergency management interventions
Schelde Pilot

Select a scenario

Click an item from the list

Get spatial information

Get textual information

Display results

Select different scenario

Select different item

User interaction

* Maps: ArcGIS shapes, grids
** Documents: PDF, HTML, Word, Excel, Web-addresses (URL)
ESS screen
ESS result map
FLINTOF

FLood INcident Tactical and Operational Framework

FLINTOF
FLINTOF scenario

- Flood event
  - plus
  - Example: 1 in 100 year flood

- Day of the week
  - plus
  - Example: Weekend (e.g. Sunday)

- Time of day
  - plus
  - Example: Night, assume 90% of people at home

- Emergency intervention
  - plus
  - Example: Three safe havens set up
FLINTOF hazard map
FLINTOF evacuation time
Urban flash flood pilot

Use of results of 2D flood model to support preparation of urban flood event management plans

Applied to Nice and an anonymous city in France
Flood hazard mapping
Support of evacuation planning
Conclusions and recommendations

- End-users support development of DSSs specific for flood event management
- Current prototypes should be further developed to become operational tools
- A dynamic link with an evacuation model improves evacuation planning
- Groundwater and flow through buildings should be incorporated into 2D flood models for evacuation planning