NH5.7/NP4.5/OS2.7.

UNDERSTANDING EXTREME SPANISH COASTAL FLOOD EVENTS

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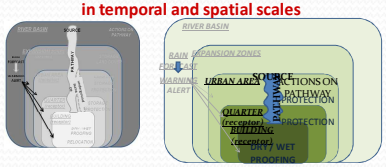
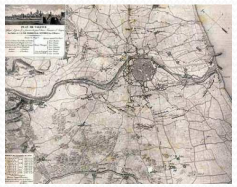
SMARTeST Project

From flood management systems to flood resilient systems: integration of flood resilient technologies in temporal and spatial scales

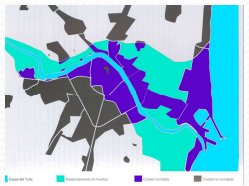


Valencia Case Study

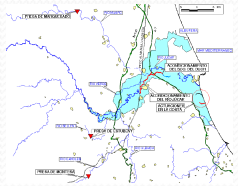
Flood depths during Valencia's 1957 event

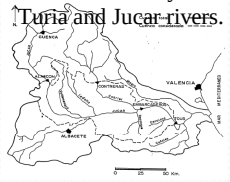


Valencia city.
Turia and Jucar rivers.

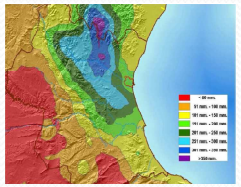


Turia floods (Valencia)





Jucar Basin
and its tributaries



Júcar and Turia basins

Tous dam failure, 1982

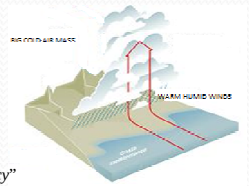
1957 flood event
(Valencia)

1957 flood event
(Valencia)

The Cold Drop Phenomenon

WHY IMPROVING FLOOD ESTIMATION ?

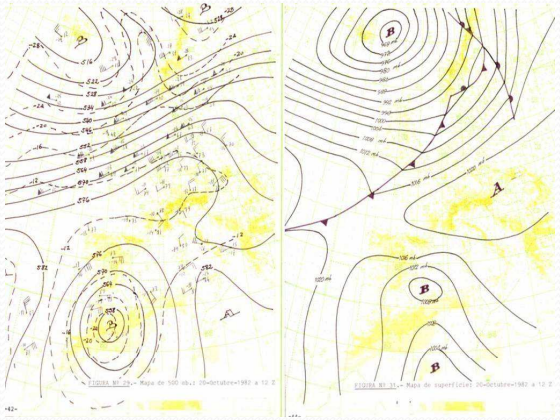
CLASSIC PURELY HYDROLOGICAL AIMS
FLOOD RISK MANAGEMENT REQUIREMENT
SMARTeST: :"Complete flood risk mapping"
FLOOD RISK (RESILIENT) MANAGEM. REQUIREMENT
**SMARTeST: "Integrated flood -resilience- risk management policy"*



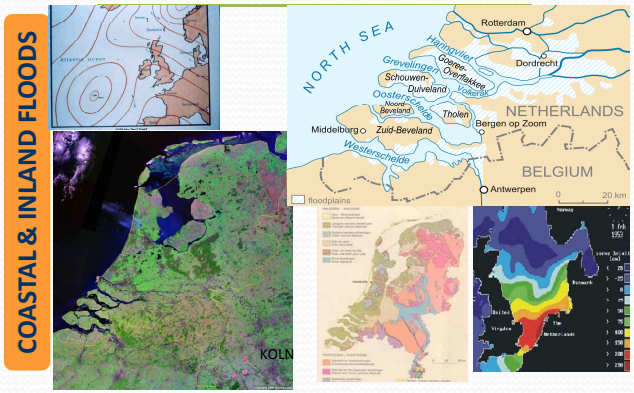
CONCLUSIONS

- Sea level may produce or not direct sea-water flood but always restrict inland evacuation.
- Rains are main factor for pluvial (flash), fluvial and even groundwater floods, that generally combine, especially in coastal zones.
- Storm sea level rise and next & far inland rains are parts of the same climate thermal-mechanic event
- Most of flood events are deeply characterized by maritime climate conditions, hence to observe the hydrologic phenomena in a holistic way.

the "cold drop" meteorological phenomenon



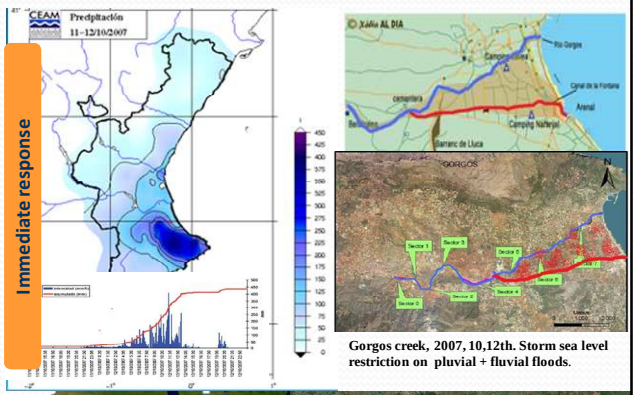
COASTAL & INLAND FLOODS



Ebro river

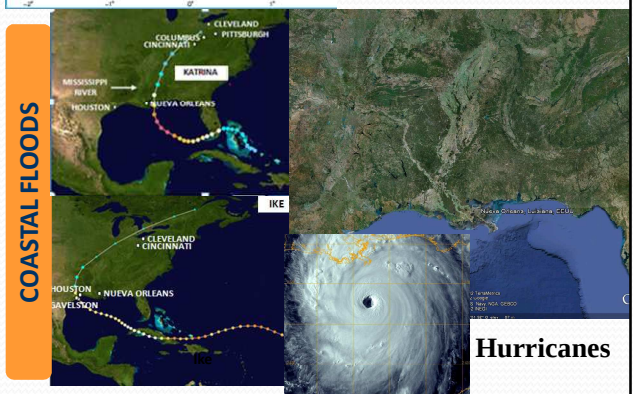
EBRO RIVER BASIN
-Oceanic climates: Cantabrian and Mediterranean
-Sources: Direct Rains (Autumn) and Thaw (Spring)
*Rains: Cantabrian and Bizcay & Lion cold drops
*Thaws: Cantabrian and Pyrenees snow heights
-Paths: Cantabrian and Pyrenees Ridges

Immediate response



Gorgos creek, 2007, 10,12th. Storm sea level restriction on pluvial + fluvial floods.

COASTAL FLOODS



Hurricanes