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

UNDERSTANDING EXTREME SPANISH COASTAL FLOOD EVENTS

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**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.

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**SMARTeST Project**

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

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**Valencia Case Study**

Flood depths during Valencia’s 1957 event

the “cold drop” meteorological phenomenon

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**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

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**WHY IMPROVING FLOOD ESTIMATION?**

CLASSIC PURELY HYDROLOGICAL AIDS
FLOOD RISK MANAGEMENT REQUIREMENT
SMARTeST: “Complete flood risk mapping”
FLOOD RISK (RESILIENT) MANAGEMENT REQUIREMENT
* SMARTeST: “Integrated flood -resilience- risk management policy”

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**Coastal & Inland Floods**

- Hurricanes

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**Coastal Floods**

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

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**Immediate response**

1957 flood event (Valencia)

The Cold Drop Phenomenon

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1957 flood event (Valencia)

Tous dam failure, 1982

Jucar and Turia basins

Valencia city,
Turia and Jucar rivers.

Jucar Basin and its tributaries

1957 flood event (Valencia)

The “cold drop” meteorological phenomenon

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**Valencia floods (Valencia)**

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**Turia floods (Valencia)**

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**Tous dam failure, 1982**

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