Data-driven decisions for flood risk management

Data for Policy: 7th September 2017
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What is ensemble?

*Working together for digitally inspired integrated environmental science*

- Digital technology to explore grand challenges in environmental science
- Cross cutting themes:
  - Managing complexity & uncertainty
  - Raising abstraction
  - Developing a software architecture for deploying cloud technologies
What is ensemble?

- Interdisciplinary team
- Industrial, governmental & community partners
- Sprint methodology
5.2 million people in the UK affected by flooding

- Increase in frequency of inland flooding
- Increased likelihood of more severe weather events
- Some places repeatedly affected by flooding in recent years

- Complexity & uncertainty
- Lack of trust
Flood sprint

Holistic approach to flood sprint
• Flood Scenario Library
• Flooding Data Walk
• Communication & engagement at Manchester Science Festival

Image: ©Ensemble 2017
Flood Scenario Library
Underlying ontologies

Diagram:
- Hazard
  - is-a
  - hasDefence
- River
  - has
    - River Velocity
    - River Load
    - River level
- Dyke
  - hasDefence
- Property
  - isAdjacent
Examples of scenario queries

- If the Department of Transport has a budget to spend on flood mitigation where should it be spent?
- What is the exposure of insurers who insure properties within 100m of a named river?
- What is the risk of a flood with an Annual Exceedance Probability of 1% affecting my home within the life of my 30 year mortgage?
Flooding Data Walk
Wearable maps
Flood Data Walk
Using gauge data to model events
JBA Augmented Reality Sandbox

Images: ©JBA Trust 2017
Flood Snake & Ladders

We lived in a caravan for about 11 months

Images: ©Maggie Mort 2017
Flood preparation
Flood Story Dice

Image: ©Claire Dean 2017
Thank you

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