Data Assimilation for the REsilient City (DARE)
Project Advisory Board Meeting February 2017
Sarah L Dance
Welcome!

• Housekeeping
• Introductions
Advisory Board Terms of reference

• meet annually over project lifetime (until August 2021)
• provide independent advice on project implementation
• help connect the programme more closely to end users and wider international scientific networks
• comment on executive summary documents outlining significant findings and/or shifts in direction
Data Assimilation for the REsilient City (DARE)

Digital Technology for LWEC Fellowship

Sarah L Dance
Vulnerable city
DEFRA London Climate Change Risk Assessment (2012)

• Flooding
• Heat stress
• Water availability

But not just London!

Solutions from maths and digital technology

8th August 2015 night time ASTER TIR image for Greater London
Vision: Revolution in model predictive skill

- Observations
- Model state
- Data Assimilation
- Updated state and parameters
- Improved Forecast
New ideas

• New application of data assimilation to floods
• New observations of flood extent
• New observations of temperature
• New mathematics
  – combine data assimilation and control theory
  – inflow estimation
  – multiscale measures of natural variability
DARE programme

WP1: DA for urban flood inundation modelling

WP2: Understanding natural variability of urban observations

WP3: Technology Translation and Knowledge Exchange

WP4: DT/LWEC network
11.00 Arrival and Coffee

11.30 Welcome and Introduction – Sarah Dance
   Agree board terms of reference
12.00 Research Plans
   A tool for urban flood delineation using Synthetic Aperture Radar Data – David Mason
   Flood inundation data assimilation and big data - Sanita Vetra-Carvalho
   Discussion

1245 Lunch (in 1L36)

1330 Research Plans
   Understanding natural variability of urban meteorological observations – Joanne Waller
   Discussion
1400 Technology Translation, Knowledge Exchange and DT/LWEC Network – Sarah Dance
1430 Discussion
1500 Close
Technology translation

• SAR urban flood delineator demonstrator
  – IEA Professional Software Developer
  – Demonstration software
  – Business case brochure (cost and benefits)
  – Visits to potential customers

• Urban weather market reports: needs and opportunities
  – IEA KE Officer
  – How can weather data be used more effectively in transport, public health, buildings and energy sectors
Inspiring a new community

- Cross-cutting topics
- Events that are “useful”
- Concrete outcomes
- Space to get to know each other
- Pilot project “enabling” fund
- Bridge to industry
- Junior and senior researchers
Network activities

• Website (blog etc) http://blogs.reading.ac.uk/dare/

• Webinars

• Training courses (3 x 3 day, £75k total)
  – Data assimilation
  – “Advanced data science”
  – What other topics would be useful?
  – 3 day or 1 day courses?

• Industry study group (£90k total, 2-3 5 day groups)

• Pilot projects – 6 x £25k funds

• Researchers site visits?
Proposed cross-cutting workshops (4 x 3 days £100k total)

- Flood hazard and decision making – from digital technology for better flood prediction to delivering effective warnings to users

- Sustainable infrastructure and flooding – including natural solutions for flood mitigation

- Urban weather and health – digital solutions for better urban weather forecasts and decision tools

- Further ideas?

- First workshop late 2017/early 2018
Impact, Public Engagement, and Policy

• Project partners
• Institute for Environmental Analytics

• Industry study groups
• Public engagement events
• Pilot projects

• Policy-makers (e.g., National Flood Resilience Review, EFRA Select Committee)

• Research roadmaps for EPRSC/RCUK
• Programme grants