Confluence 2019

iCASP

Integrated Catchment Solutions Programme

Enhanced Surface Water Flood Forecasts

Steve Wragg – Flood Risk Manager
City of York Council

JBA consulting

Environment Agency

YorkshireWater

FLOODFORECASTINGCENTRE
a working partnership between Environment Agency | Met Office

CITY OF YORK COUNCIL

UNIVERSITY OF LEEDS

National Centre for Atmospheric Science
NATURAL ENVIRONMENT RESEARCH COUNCIL

Met Office

Leeds CITY COUNCIL

NERC SCIENCE OF THE ENVIRONMENT

Surface Water Flooding

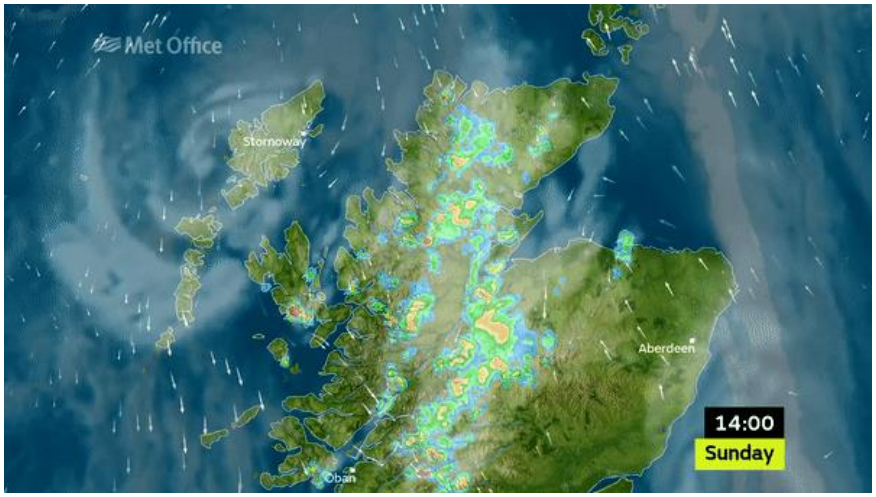
- Heavy rainfall creates a flood before it reaches a major watercourse
- Associated with overwhelming of urban drainage systems
- Often due to heavy convective showers during summer

Section 19 Flood Investigation Report, South East Leeds 8th & 10th August 2014

Why are heavy showers difficult to forecast?

Frontal rainfall

Heavy showers



https://www.metoffice.gov.uk/learning/precipitation/rain/rain-and-showers

- Produced by long-lived warm and cold fronts
- **Fairly easy to forecast**

- Produced by a range of atmospheric instabilities
- **The highest rainfall accumulations are very localised and uncertain**

Aim of iCASP forecasting project

Test the feasibility of combining the latest:

A) probabilistic rainfall forecasting +

B) high-resolution surface water modelling

to create **useful, localised, real-time, high-resolution** Surface Water Flood forecasts

- Task 1: Review current SWF forecast and response process
- Task 2: Develop enhanced SWF forecast products
- **Task 3: Test products through user workshop**

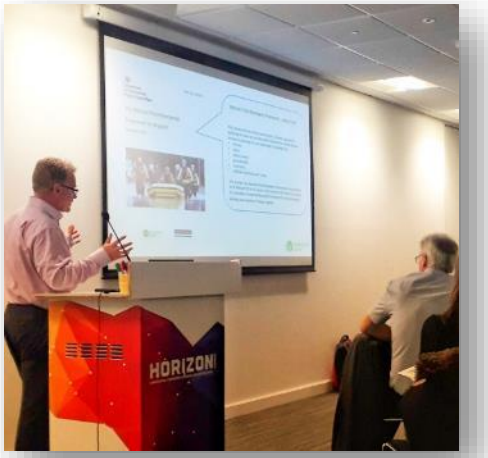
90% of project completed

User Workshop

38 scientists, practitioners and stakeholders across 16 organisations [April 30, Leeds]

- 8 Lead Local Flood Authorities (Flood Risk Managers & Emergency Planners)
- Local Flood Action Group
- Yorkshire Ambulance Service
- Flood Forecasting Centre & Met Office Civil Contingencies

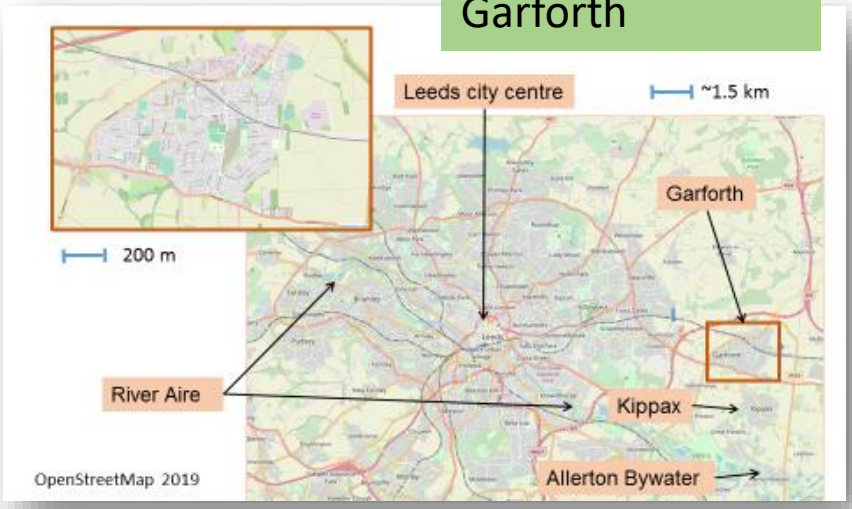
Aim - Explore the potential of new, 'enhanced' localised probabilistic forecasts

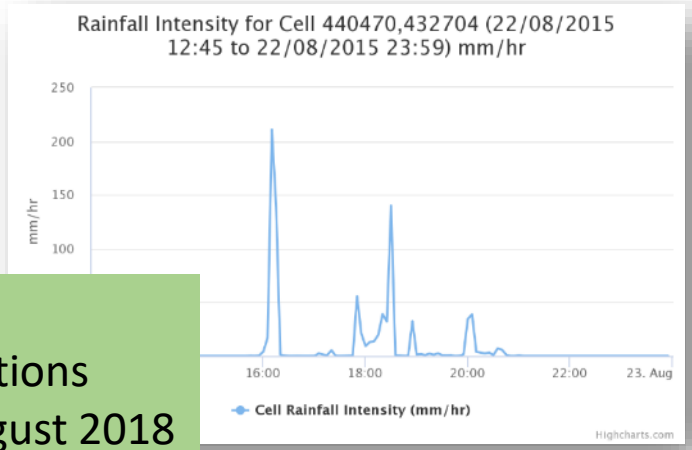


Exercise "Augustus"

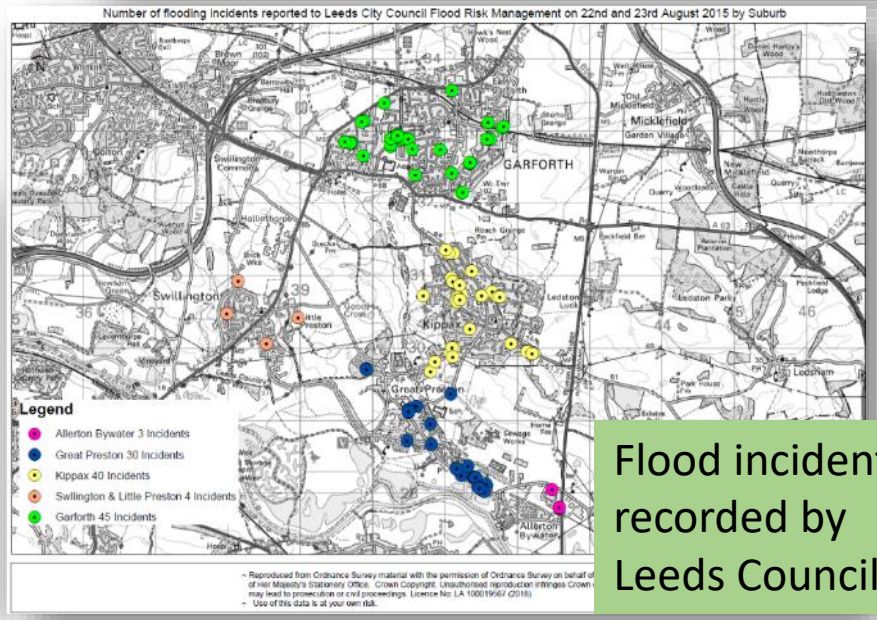
- Rreal event in Garforth on August 22nd 2015
- JBA Exercise Management System – JEMS
- August 21st (AM) - August 22nd (PM)

Location of Garforth





Rainfall observations 22nd August 2018



Flood incidents recorded by Leeds Council

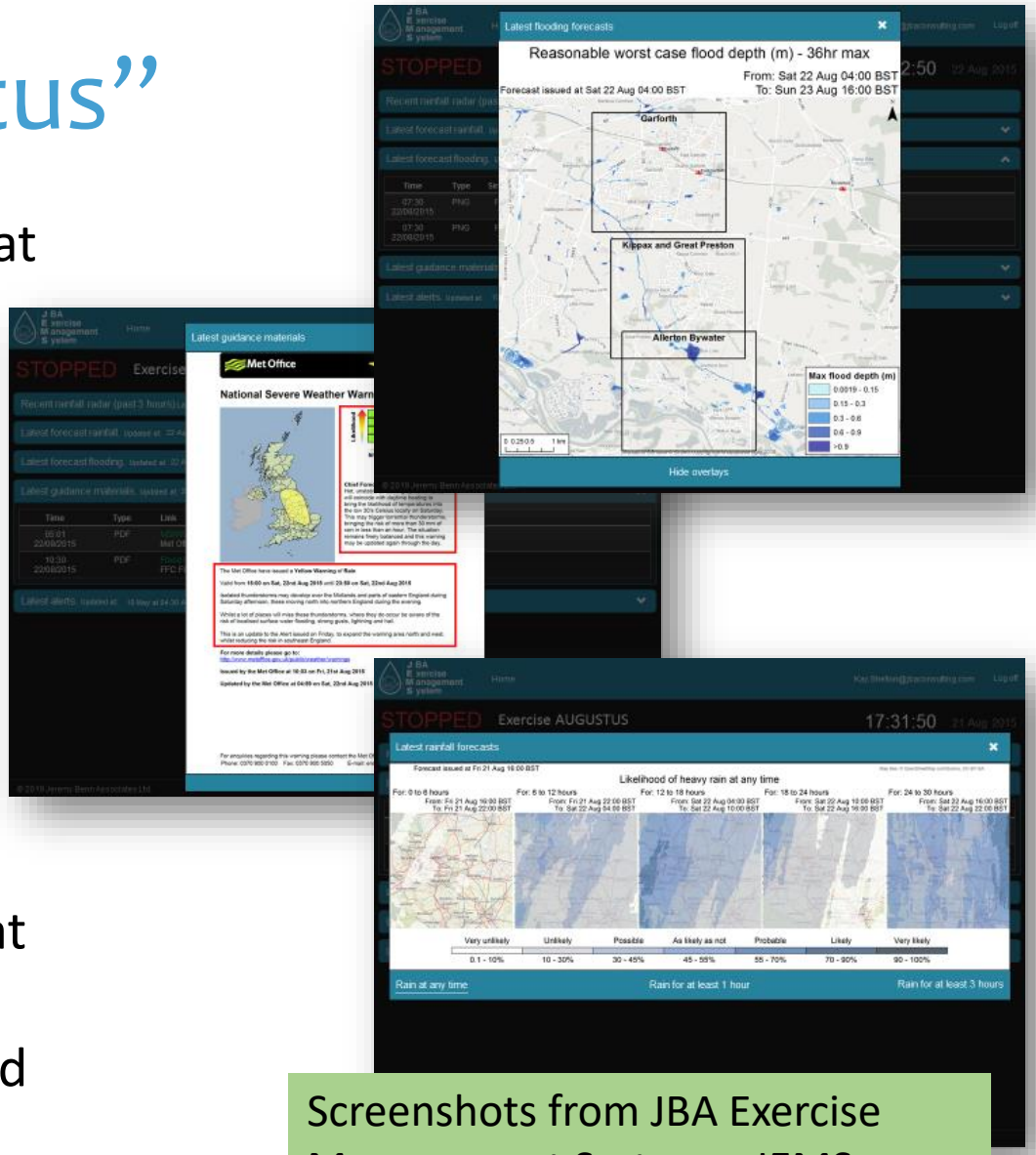
Exercise “Augustus”

Participants shown ‘injects’ that were:

A) Available at the time e.g. FFC’s Flood Guidance Statement, radar etc.
B) New enhanced forecasts

After each ‘inject’:

- **What action** should occur at this point and why?
- **Who** should be involved and why?



Screenshots from JBA Exercise Management System – JEMS

Post-exercise de-brief

1. Did the new info **make a difference to your decisions**?
2. Are there **communication challenges** relating the new info?
3. How could the new info be **integrated into existing processes**?

Workshop report with recommendations to follow soon!

iCASP

Project Team

University of Leeds:

- Cathryn Birch – Institute for Climate and Atmospheric Science (ICAS)
- Alan Blyth – National Centre for Atmospheric Science (NCAS)
- Mark Trigg – Civil Engineering
- Andrea Taylor – Sustainable Research Institute (SRI)

iCASP Impact Translation Fellows (ITFs):

- Ben Rabb
- Steven Boeing

Partners:

- Rob Lamb, Neil Hunter & Kay Shelton (JBA)
- Simon Hildon & Sue Manson (EA)
- Adrian Hines (UK Met Office) & Charlie Pilling (Flood Forecasting Centre)
- Steve Wragg (City of York Council)
- Ian Hope & Jan Cassidy (Leeds City Council)
- Simon Armistead & Henry Dixon (Yorkshire Water)

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