

# **IMFS Performance Testing App**

**FEWS User Days, 5 November 2020**

# Who am I?

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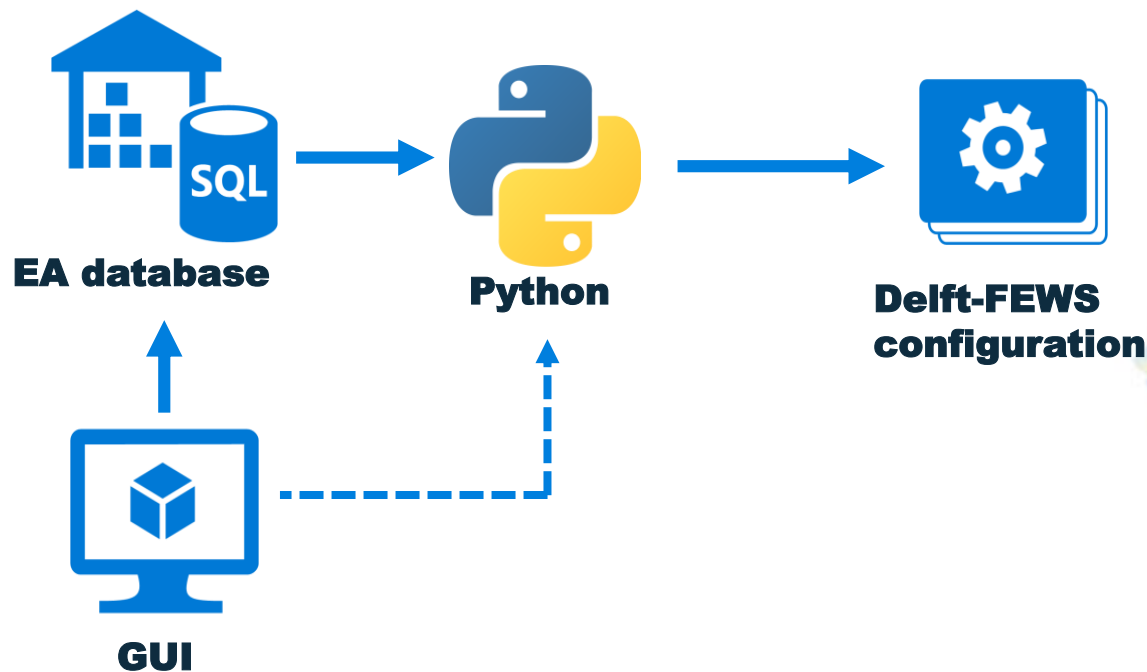
- Head of real time modelling at JBA
- Keen interest in model performance
- Working with Marc, Martijn and others on **I**ncident **M**anagement **F**orecasting **S**ystem for last 2 years
- IMFS role: Guiding developers, some PT development



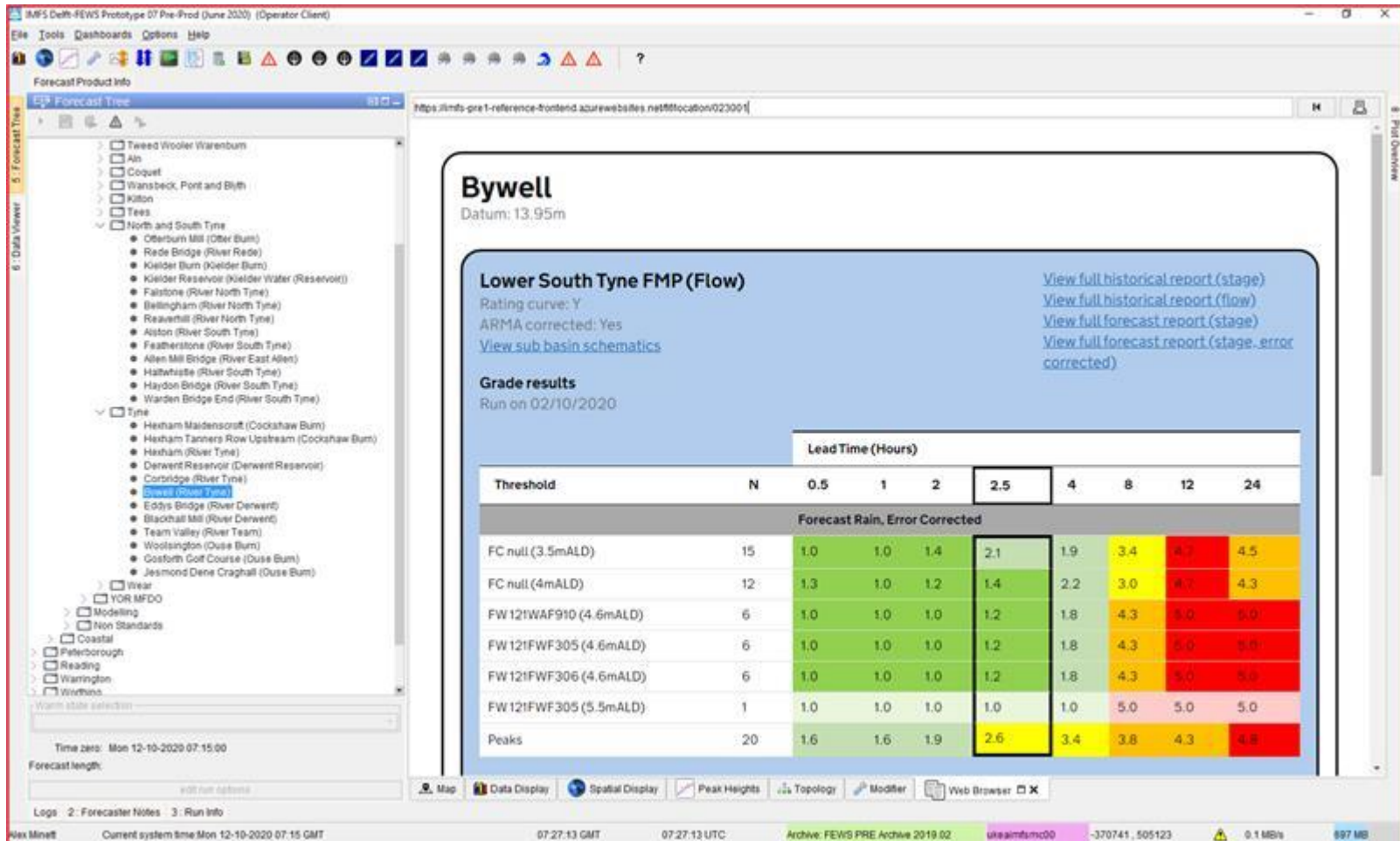
# Background

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- Incident **M**anagement **F**orecasting **S**ystem
- A national forecasting system for England
- Want the power of FEWS but with **ease of use**



# IMFS Client



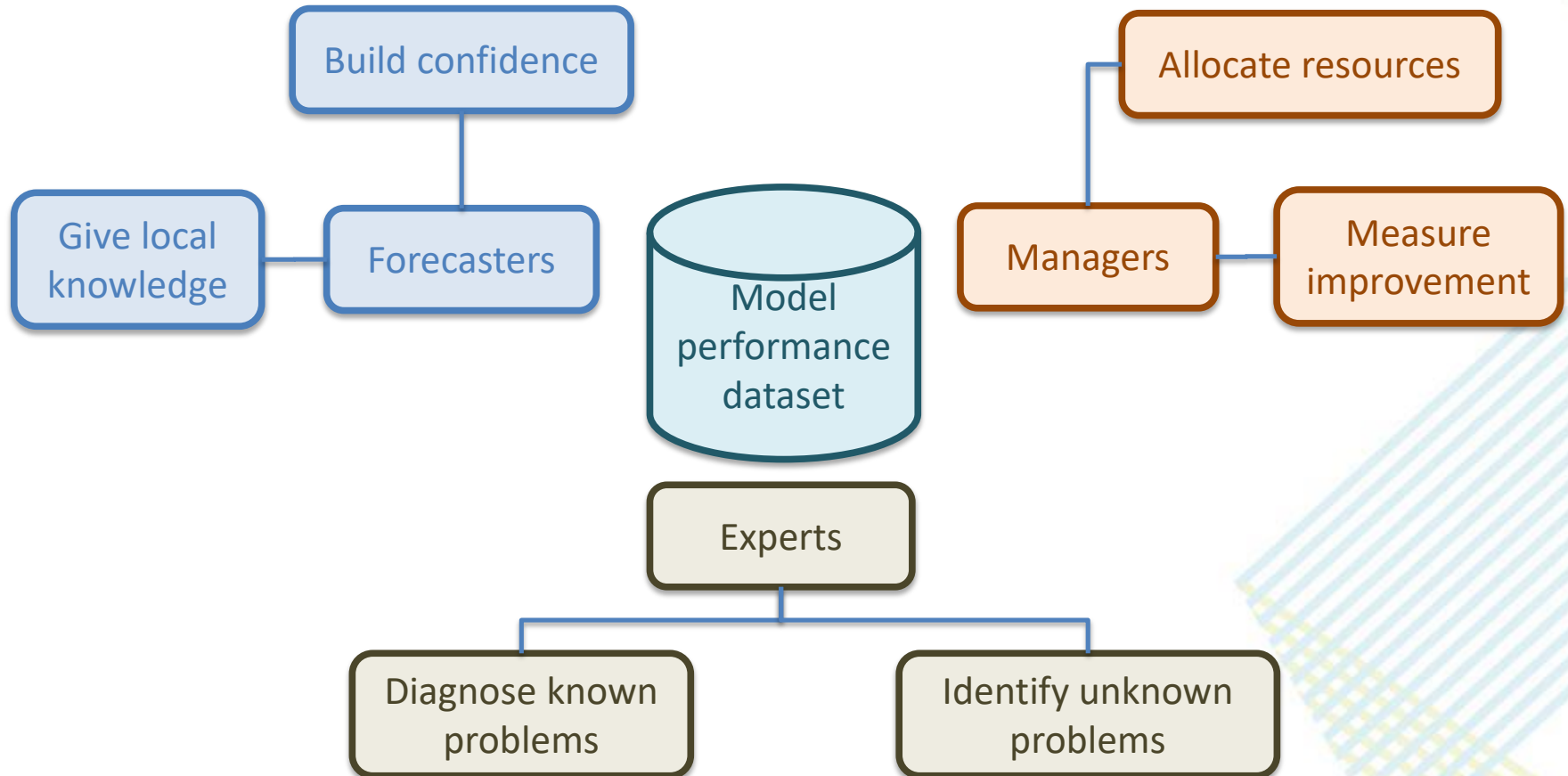
# Performance results

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- What *are* these performance results?
- Simulations of past events
  - Historical (like calibration results)
  - Real time (error correction, observed/forecast rain)

# What is the need?

# Model performance data



# How EA measures performance

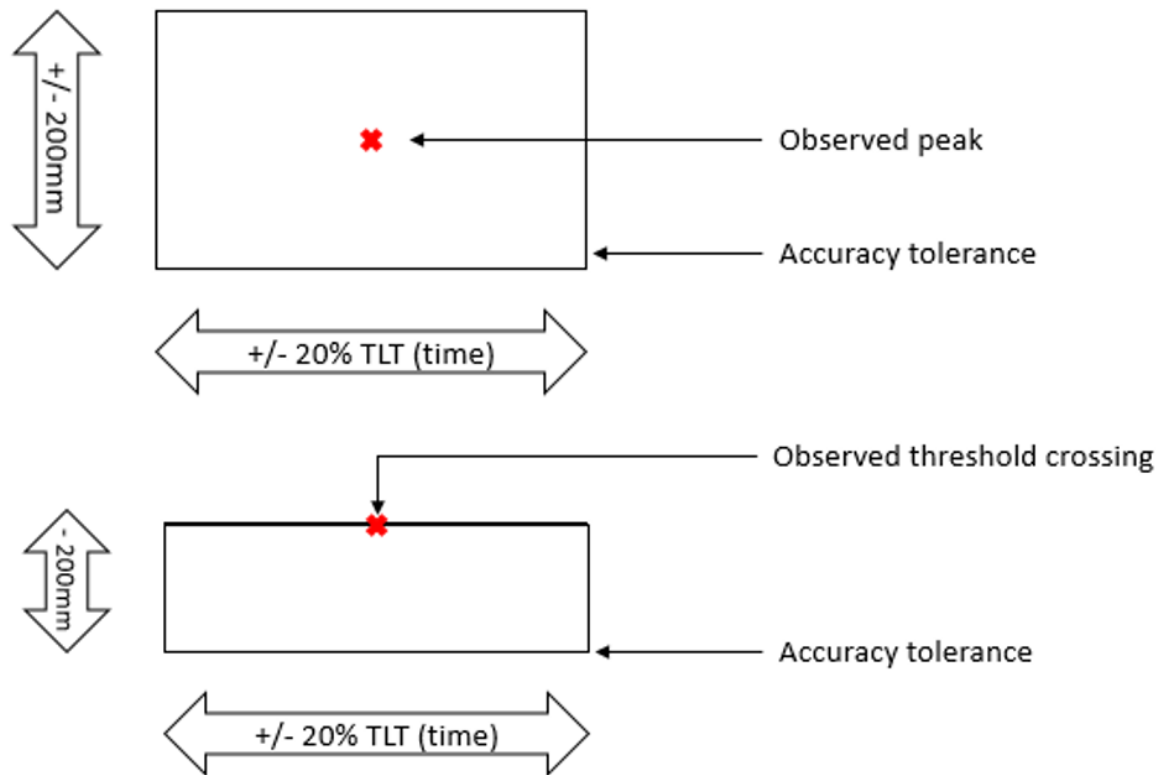


Figure 2. The proposed standard, showing forecast accuracy defined in terms of a time and level tolerance a) around an observed flood peak; b) along an observed threshold crossing.

# Peaks

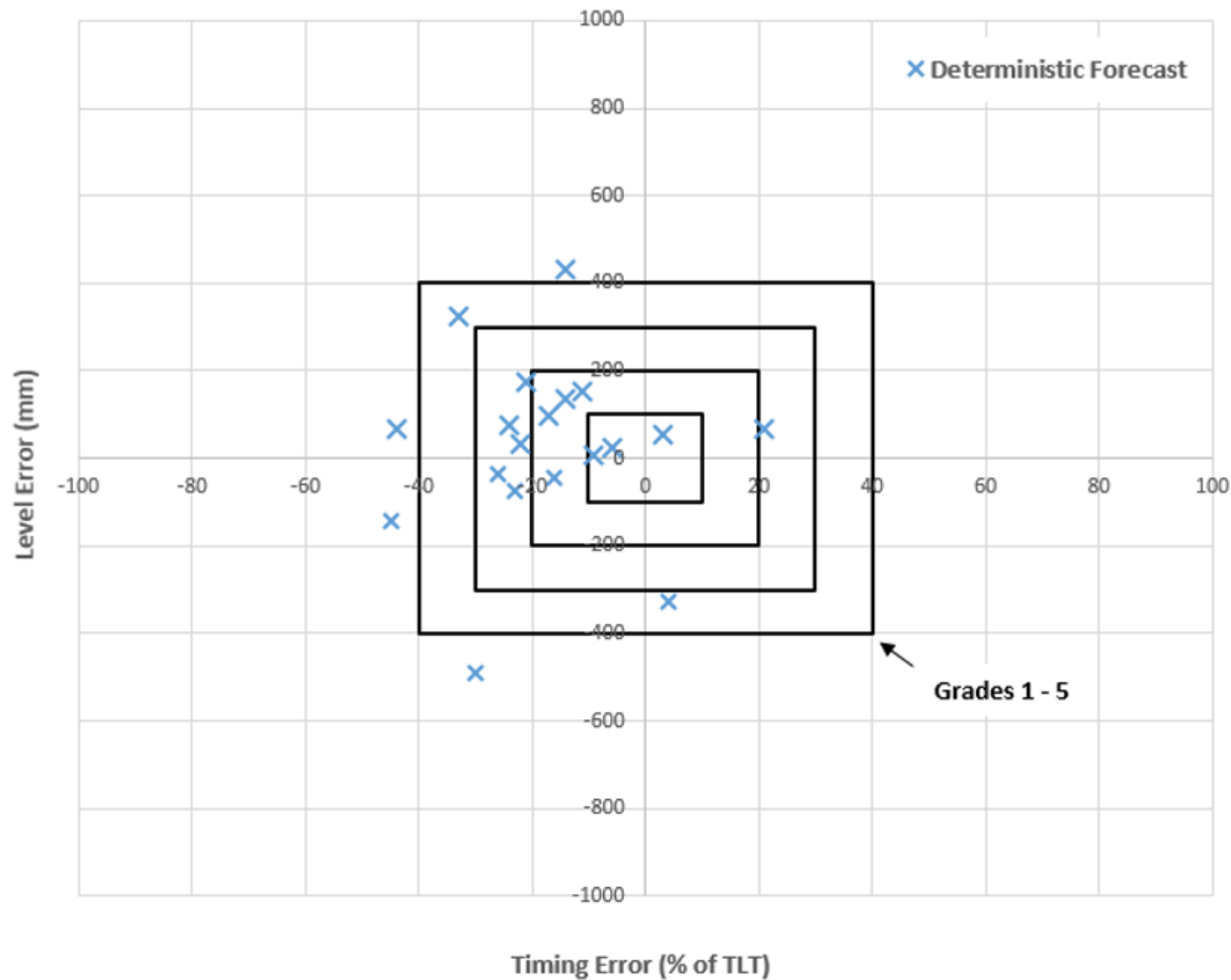
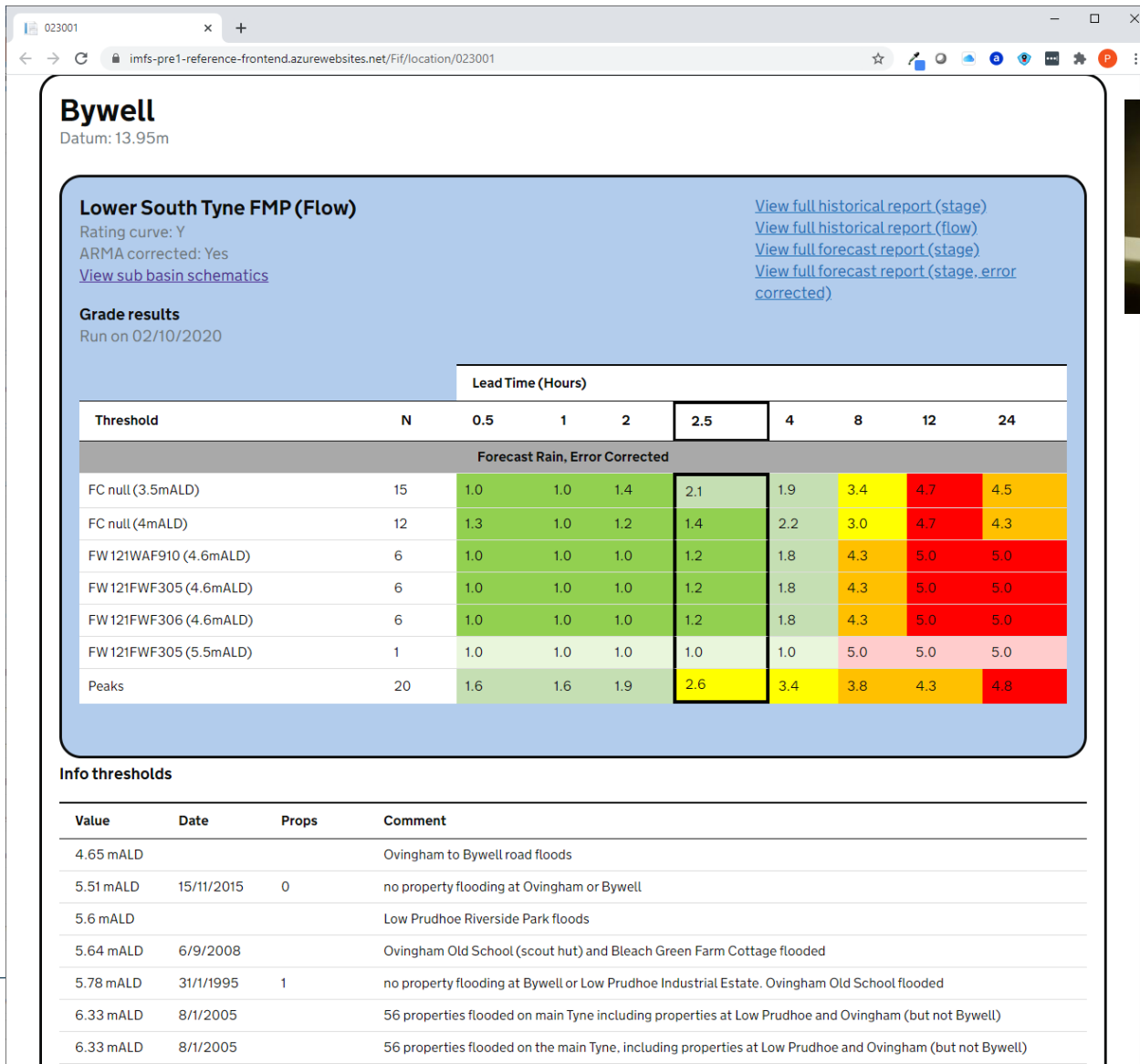


Figure 5 Grading and visualising the forecast against the standard – flood peaks

# Results in IMFS



3am test

# Performance dashboard

PT - Performance Testing mapping

imfs-pre1-perftest-frontend.azurewebsites.net/Map

Get data

10 entries Search:

Model Name	Location ID	Basin	Sub Basin	EA Area	Model	Scenario Name	Lead Time (mins)	Target Lead Time	Grade	Threshold	Target Area	OpsCode	Category	Published
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	2.1	3.5 mALD			FC	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	1.4	4 mALD			FC	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	1.2	4.6 mALD	121WAF910		FW	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	1.2	4.6 mALD	121FWF305		FW	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	1.2	4.6 mALD	121FWF306		FW	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	1	5.5 mALD	121FWF305		FW	07/10/2020
▶ 023001_FMP_Q	023001	Tyne	Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	150	Yes	2.6					07/10/2020
▶ 023003_FMP_Q	023003	Tyne	North Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	120	Yes	1.8	3 mALD			FC	07/10/2020
▶ 023003_FMP_Q	023003	Tyne	North Tyne	NHUDUT	ARMA	Forecast Rain, Error Corrected	120	Yes	1.5	3.1 mALD			FC	07/10/2020

5 November 2020

Target Lead Time

Performance Testing App

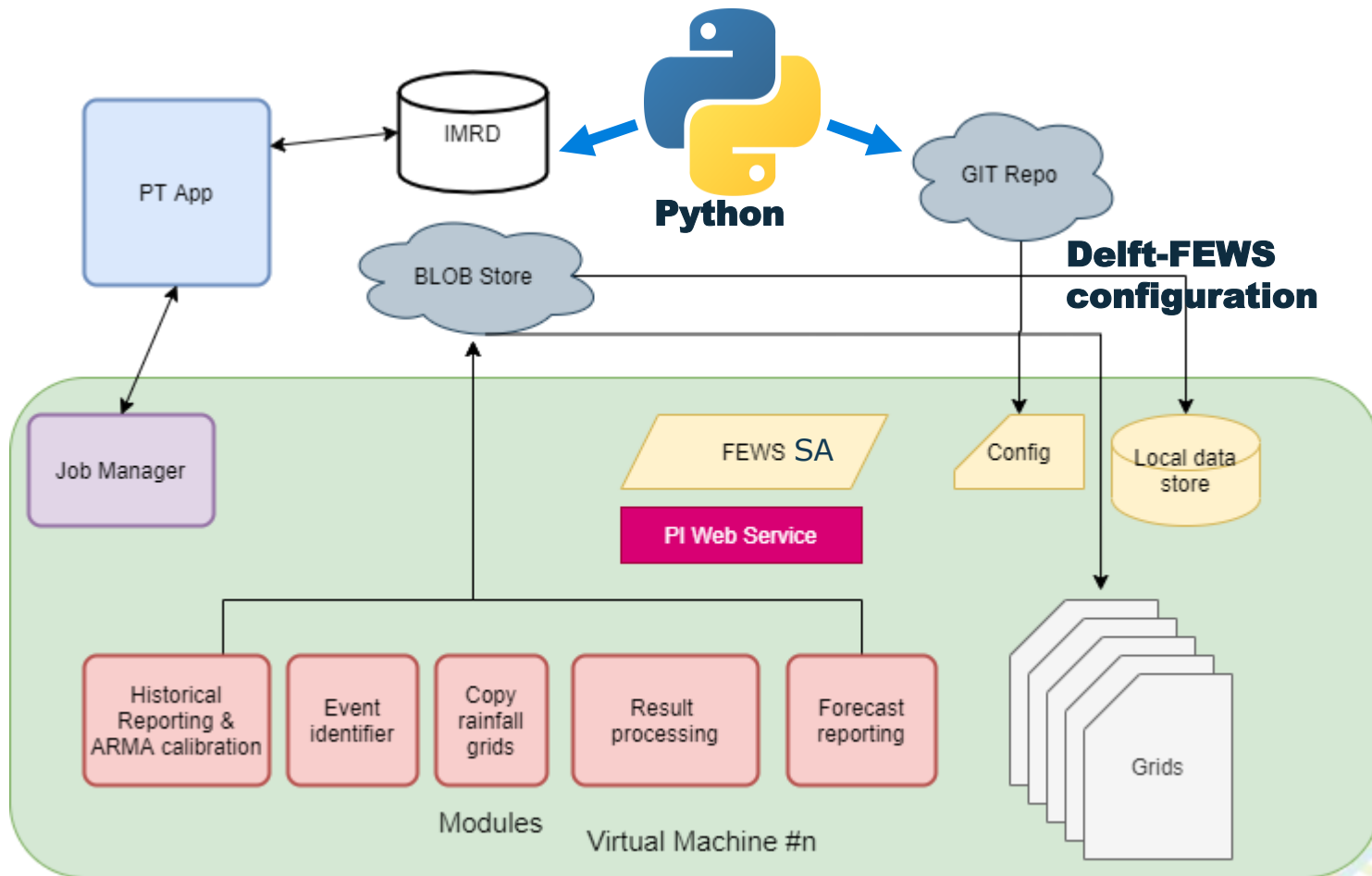
# What is the App and how does it work?

# Basic requirement

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- Run a long historical & visualise results
- Run MANY forecasts with different rainfall scenarios
- Analyse then visualise results

# How the App does it



# Select workflow

Check Run Coquet

Select a sub basin to generate a workflow. A workflow consists of the selected sub basin and all sub basins which feed it.

[Hide sub basins list](#)

10

 entries ☐ Show selected only [Clear filters](#) Search:

Sub basin	Centre	Basin	
<a href="#">Lower Coquet</a>	Leeds	Coquet	<input checked="" type="checkbox"/>
<a href="#">Upper Coquet</a>	Leeds	Coquet	<input type="checkbox"/>

Showing 1 to 2 of 2 entries 

Previous 1 Next

## Selected workflow

### Sub basins

Upper Coquet  
Lower Coquet

### Statistics

FMP 2  
PDM 11  
Estimated run time (per 13 seconds

2.16 mALD	12/8/2004	12-13 August 2004 - double peaked event, no recorded property flooding, but Riverside Road flooded
2.18 mALD	26/4/2012	0 flooding of Riverside Road but no property flooding
2.18 mALD	31/1/2004	0 flooding of Riverside Road, no property flooding
2.91 mALD	7/11/2000	0 no recorded property flooding

# Mission accomplished?

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- *Anyone* can now generate Performance results...

# Future?

# Future development

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- Make App generic (not dependent on IMRD)?
- Other Forecasting Agencies?

# Questions and discussion