

## MÉRA and Real-time Flood Forecasting: Application to River Suir at Clonmel

Dr Jan Verkade, M.A., M.Sc. co-authors: Chanoknun Wannasin (WUR), Mark Hayes (OPW)

Thursday, May 17, 2018

### **Brief introduction: Jan Verkade**

- Hydrologist; expert in real-time hydrological forecasting
- Member of the Rijkswaterstaat River Forecasting Service
- Guest researcher, lecturer at Delft University of Technology
- Author of PhD dissertation "Estimating real-time predictive hydrological uncertainty" (2015)
- Research interests:
  - real-time hydrological forecasting
  - uncertainty analyses; probabilistic forecasting
  - forecast verification
  - forecast <u>use</u>



Deltares: the Dutch National R&D Institute for Water Management and Geotechnical Engineering

# Deltares

11111 44

## Summary of this presentation

 MÉRA data was successfully used to calibrate a new, distributed hydrological model for the operational flood forecasting system for River Suir at Clonmel















### jical forecast produced?









### Suir AFFS (Operator Client)

### File Tools Options Help



ra\_deltares\_rdp

Current system time: 17-05-2018 09:30 WEST

141 MB

Ы ×

### WFLOW\_HBV: data preparations



Deltares

## WFLOW\_HBV: model setup

**Catchment delineation** 

• Runoff routing creation

14 sub-

catchments



Routing orders

Deltares

WAGENINGEN

UNIVERSITY & RESEARCH

Deltares

2

Enabling Delta Life









### **Selected results**



### **Selected results**



### **Conclusions and way forward**

- New, distributed wFlow rainfall-to-runoff model was calibrated to satisfaction
- MÉRA tremendously useful to augment existing ground measurements
- Calibration results good enough for the model to be included in the Suir operational flood forecasting system (which now runs three models)
- While we did not verify MÉRA against ground truth, the streamflow records indicate presence of skill in the reanalysis

Way forward:

- further explore calibration by sub-basin
- include data-assimilation













### Thank you for your attention!

Jan Verkade jan.verkade@deltares.nl, +31 6 5161 6107, @janverkade, @antsiur

