



# Flood depth estimation from GFM and global DEMs

## EO-derived flood maps and depth estimations

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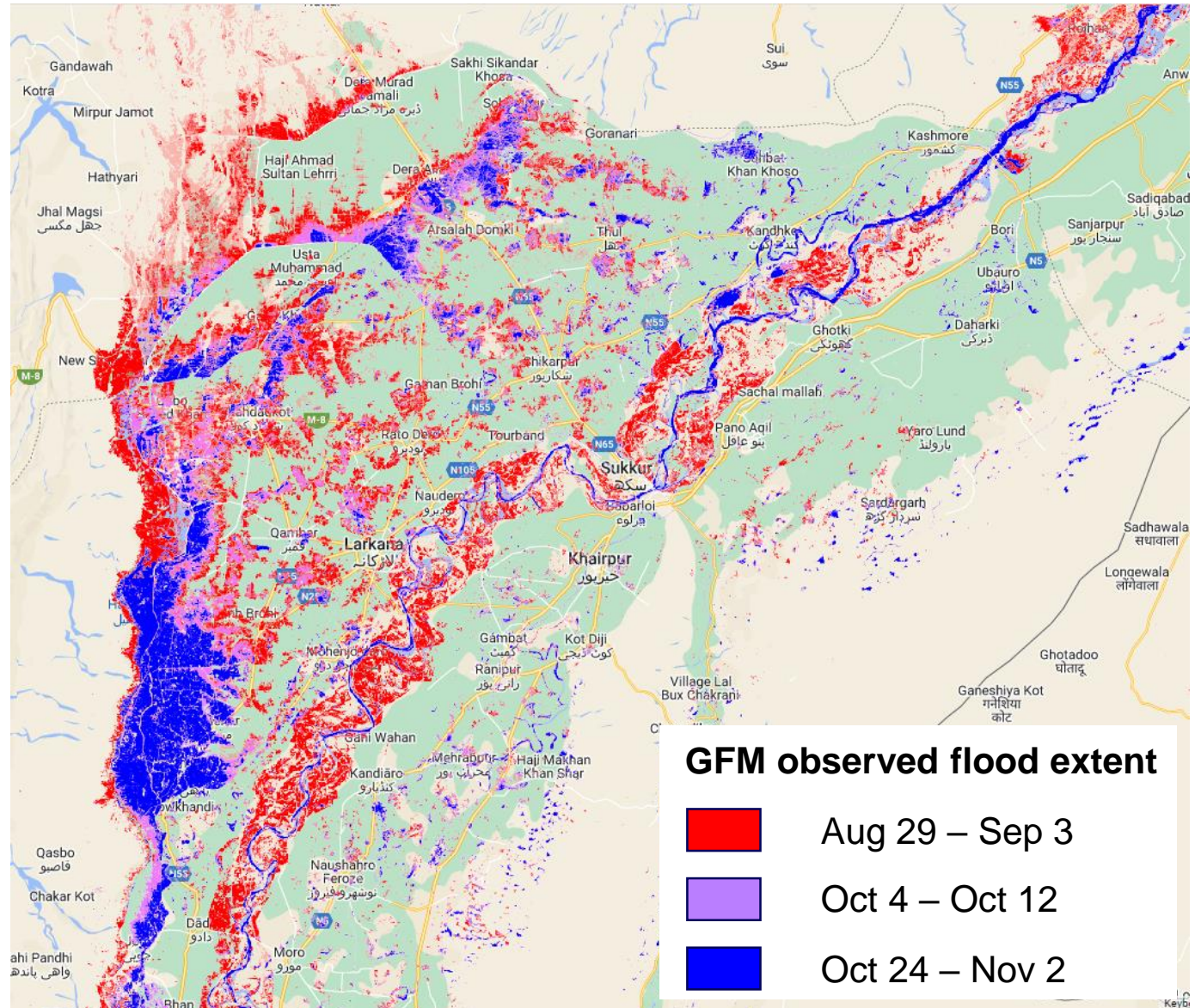
# Context

Several reasons for obtaining depths from EO-derived flood extent maps, but mainly:

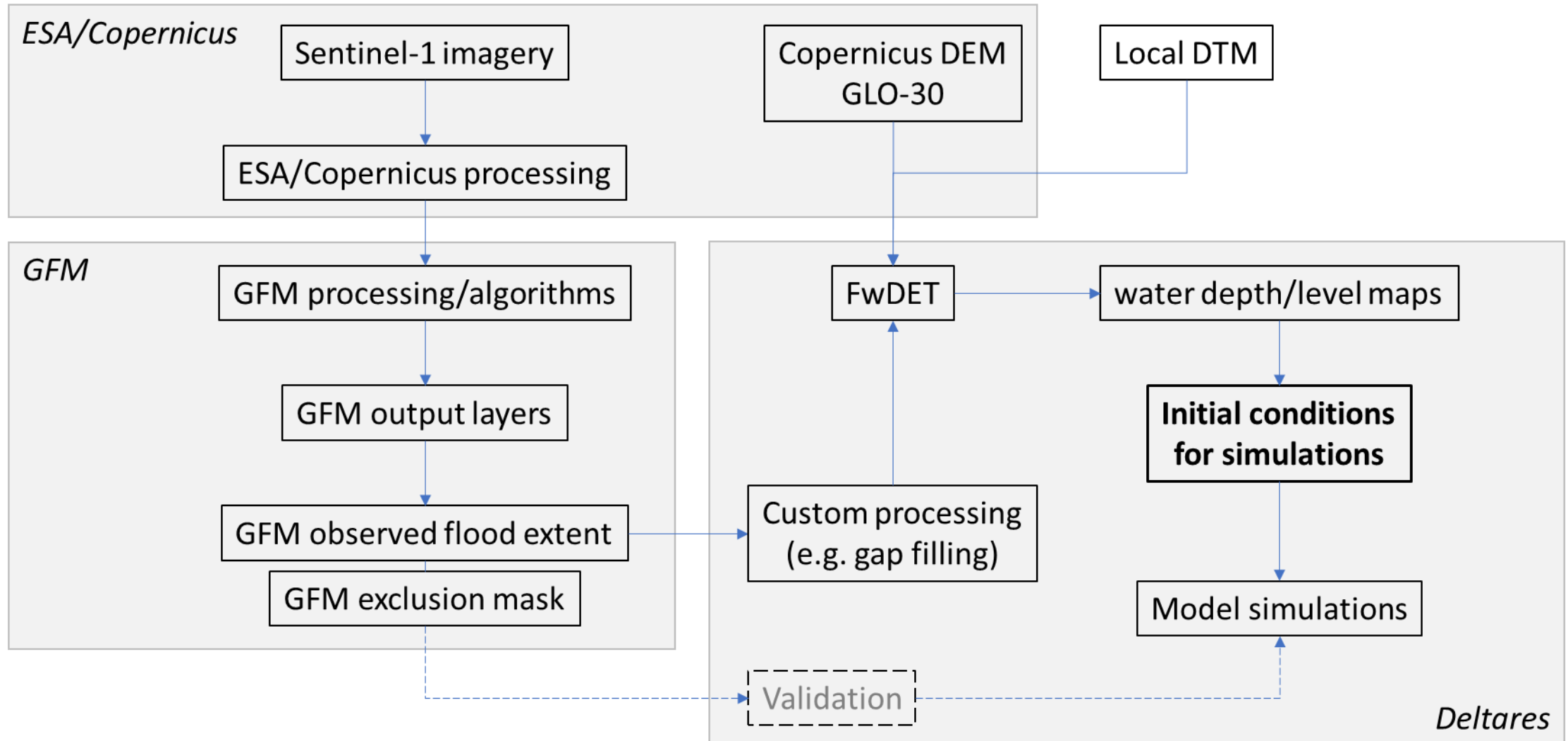
Substantially faster than numerical model simulations, especially when no model is available for the area

Use cases:

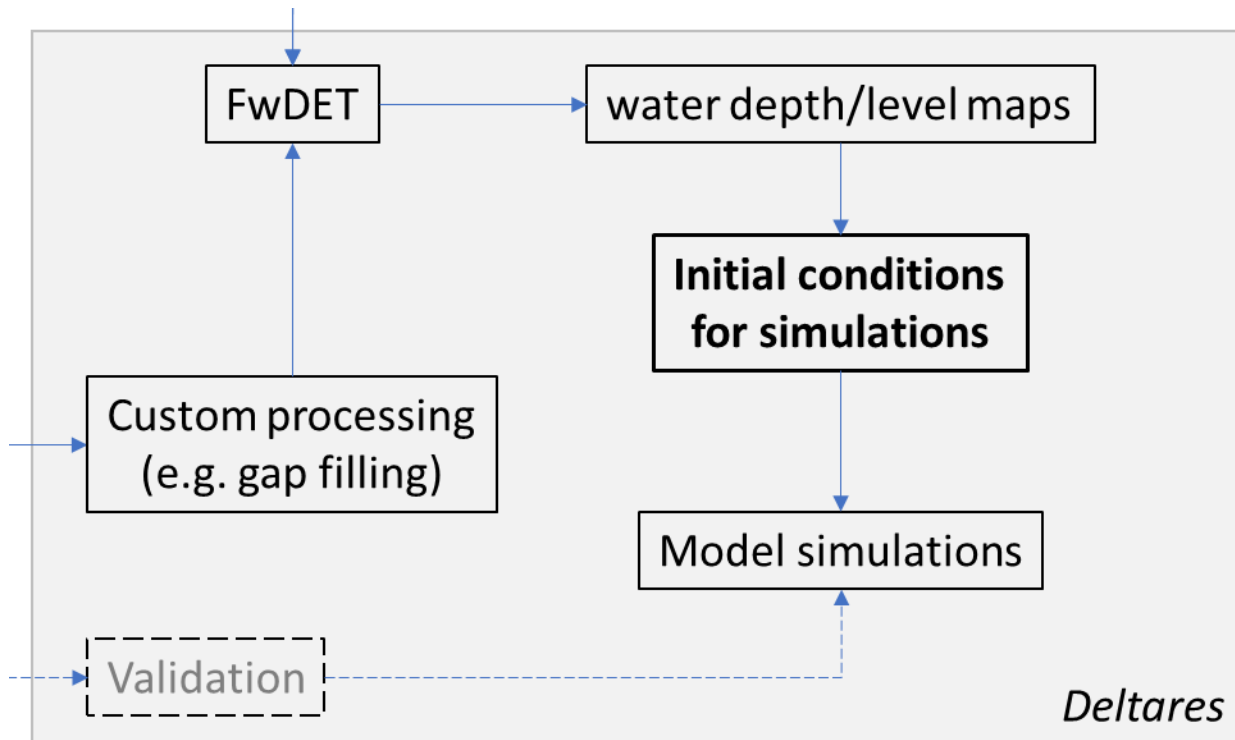
1. **Flood retreat modelling**  
*(as initial conditions)*
2. **Flood impact estimation**  
*(directly using EO data)*
3. **Flood response prioritization**  
*(directly using EO data, during event)*



# Workflow (1)



# Workflow (2)

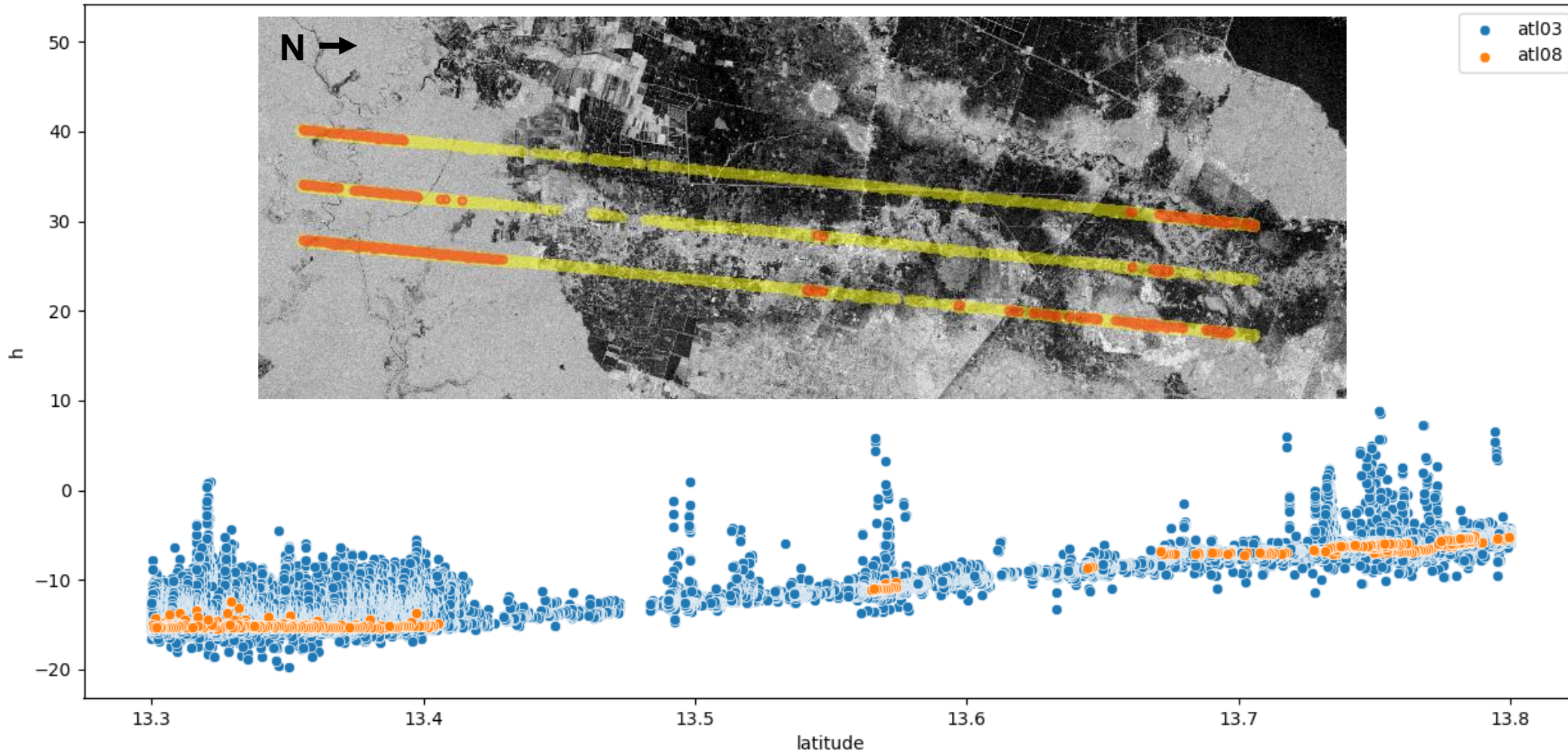


*FwDET = Flood water Depth Estimation Tool  
(Cohen et al. 2018;2019;2020;2021;2022)*

Custom (post-)processing of GFM:

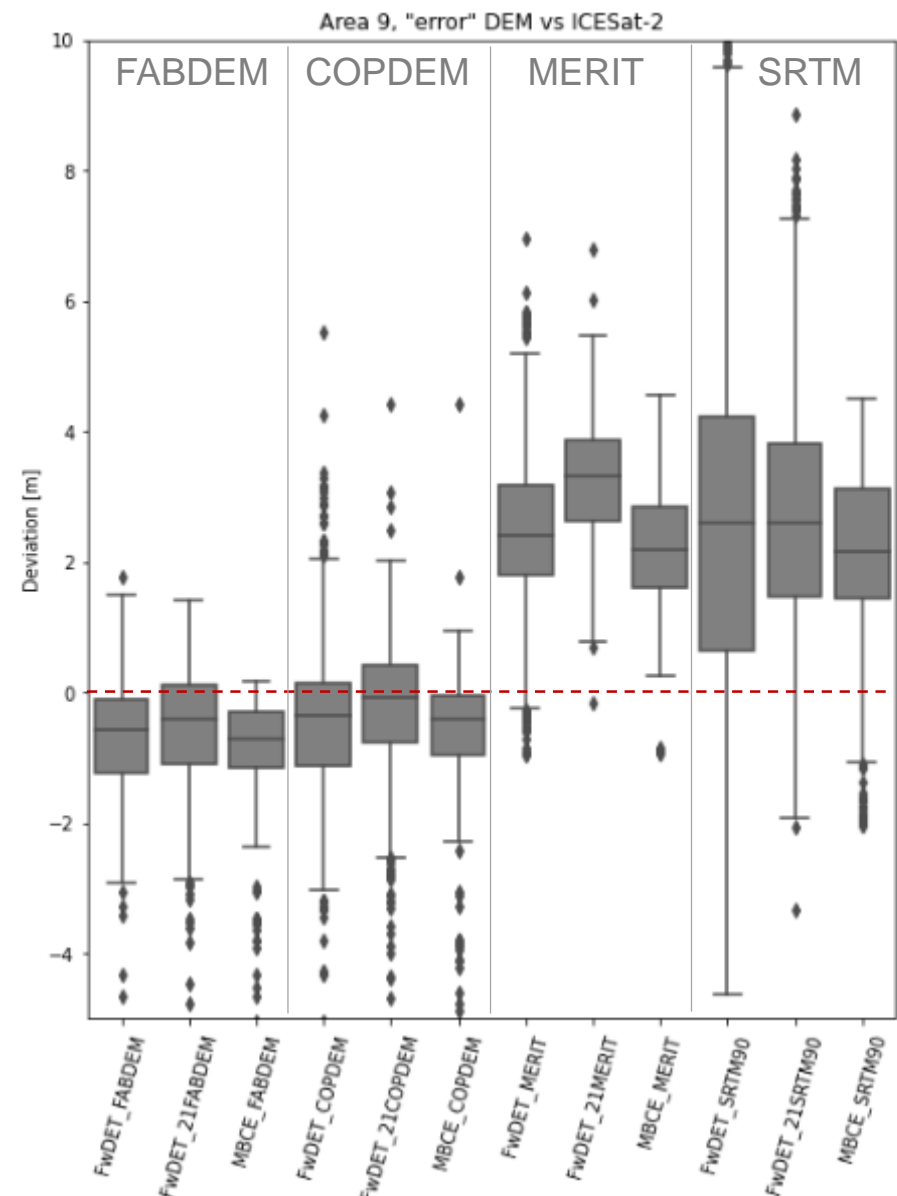
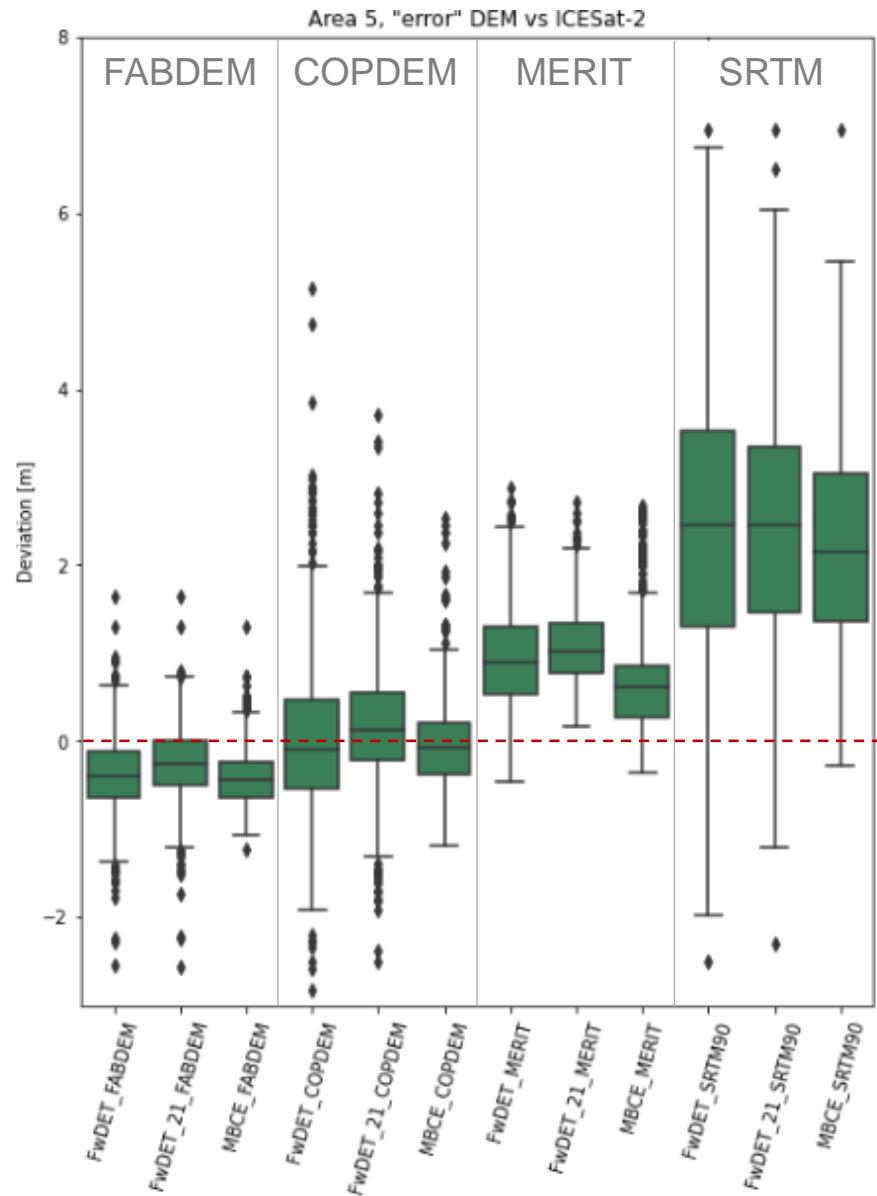
- Gap filling
  - false negatives
  - true negatives, but interfering with FwDET (e.g. bridges not present in DEM)
- DEM alignment
  - spatial alignment
  - account for changes in terrain since construction of DEM (e.g. meandering rivers)

# Results (1)



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# Results (2)



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