



PROGRAMME OF  
THE EUROPEAN UNION



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# What's next for CEMS GloFAS and GFM?

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# Global Flood Monitoring

## GFM archive:

- ongoing with GFM v3.0.0 – estimated release Q2 2024

## GFM Access:

- STAC – SpatioTemporal Asset Catalog
- GFM STAC collection currently being built (STAC browser and STAC API URL)

## GFM Annual Product and Service Quality Assessment Report 2023:

- estimated release Q2 2024
- GFM Annual Product and Service Quality Assessment Report 2022 available on the [GFM Wiki](#)

## Sentinel-1C and Sentinel-1D integration:

- for Sentinel-1C integration foreseen as soon as launched (same for S-1D)



ENSEMBLE\_FLOOD\_20220930T011735\_VV\_AS020M\_E021N027T3



Collection

**Global Flood Monitoring**

The Global Flood Monitoring (GFM) product is a new component of the EU's Copernicus Emergency Management Service (CEMS) that provides continuous monitoring of floods worldwide, by processing and analysing in 1/1/2015, 12:00:00 AM UTC until present

Metadata

General		Projection
GSD	20 m	WKT2
Time of Data	9/30/2022, 1:17:35 AM UTC	PROJCS["Azimuthal", GEOCS["WGS84"], DATUM["WGS84"], Spheroid["Spheroid"], AUTHORITY["EPSG"], PRSSEM[""], UTM[""], UTM[""], AUTHORITY["EPSG"], PROJECTION[""], PARAMETER[""], PARAMETER[""], PARAMETER[""], PARAMETER[""], UTM[""], AUTHORITY["EPSG"], AUTHORITY[""]]
Equi7Tile	AS020M_E021N027T3	
Blocksize	X: 512 Y: 512	
Constellation	sentinel-1n	



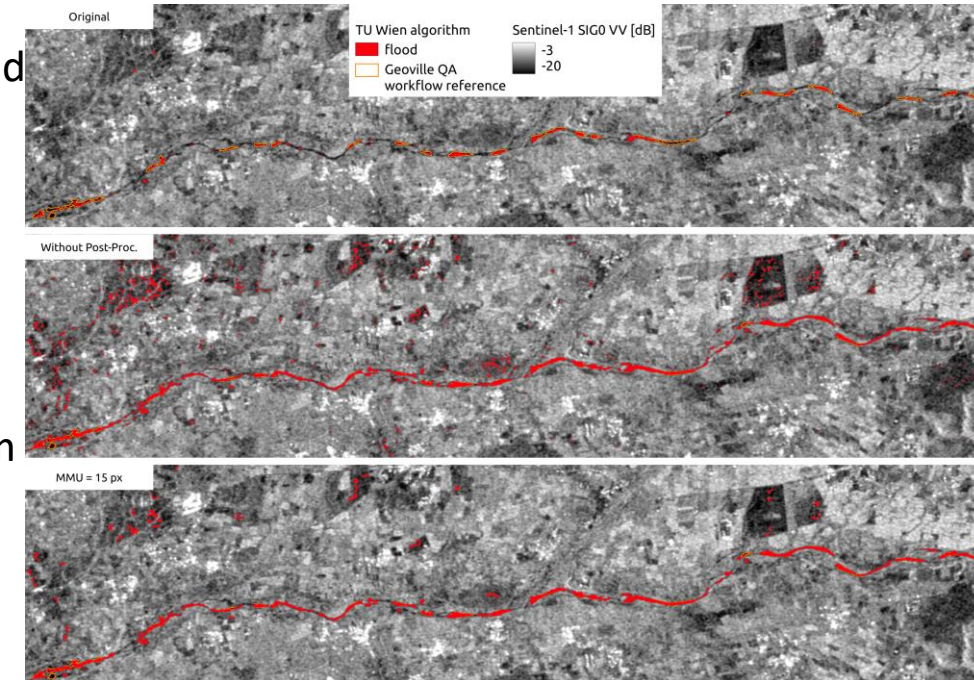




# Global Flood Monitoring

## GFM version 4.0.0

- (single) Sentinel-1 scenes carry speckle and noise – GFM applies post-processing to reduce scattered false positives on individual algorithm level and on ensemble level – can lead to underestimation of flood extent
- **re-evaluate and further develop current post-processing approach(es) & integration in ensemble**
- **Identification of novel post-processing methods** for each individual algorithm
- **Testing** at global level with a wide range of test cases
- **Estimated release:** Q1 2025





# Global Flood Awareness System

➤ **Minor update:** GloFAS v4.1 – improved visualization seasonal predictions,.....

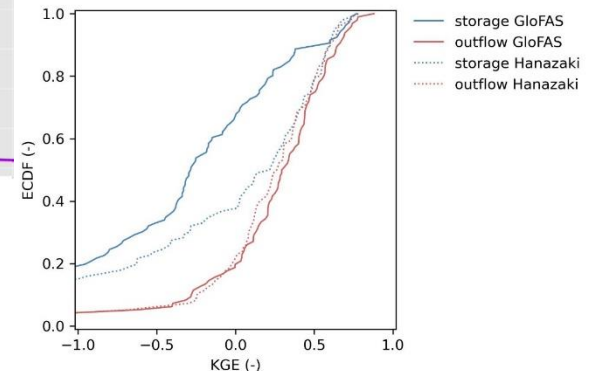
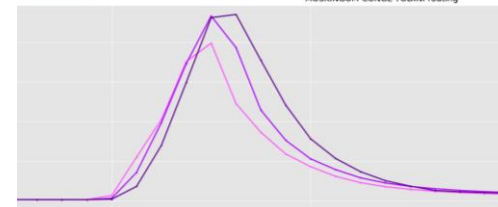
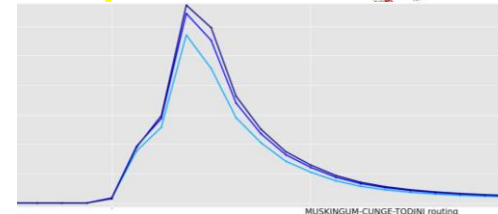
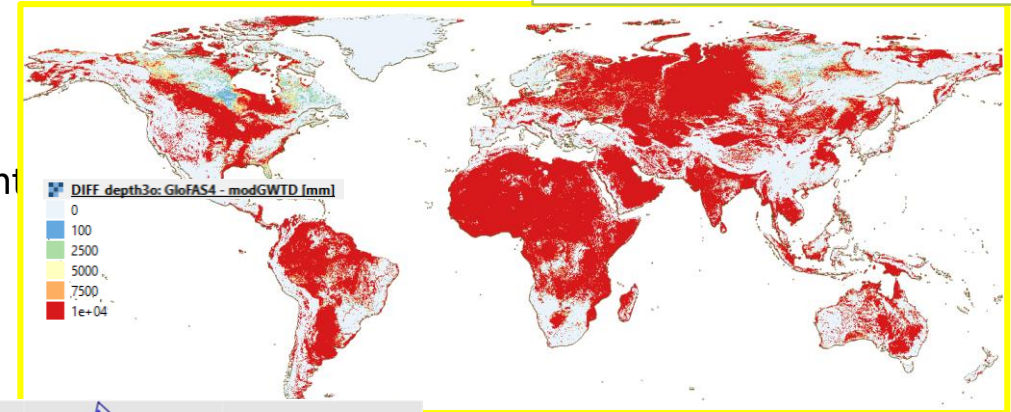
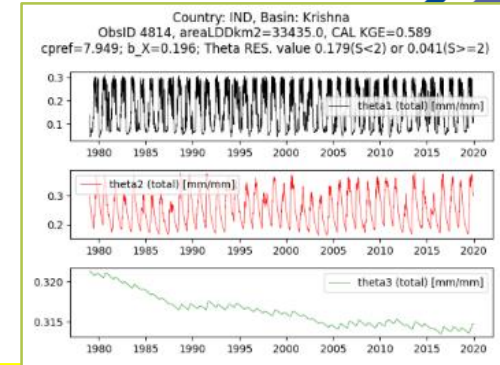
➤ **Major update:** GloFAS v5.0

➤ **Changes to OS-LISFLOOD:**

- Combined kinematic wave and Muskingum-Cunge-Todini (improvement in mild sloping rivers)
- Testing of improved reservoir routine based on different approaches published in recent scientific literature
- Improved model initialization
- Transmission loss/river bed infiltration (relevant in particular for arid/semi-arid areas)

➤ **Changes to static maps:**

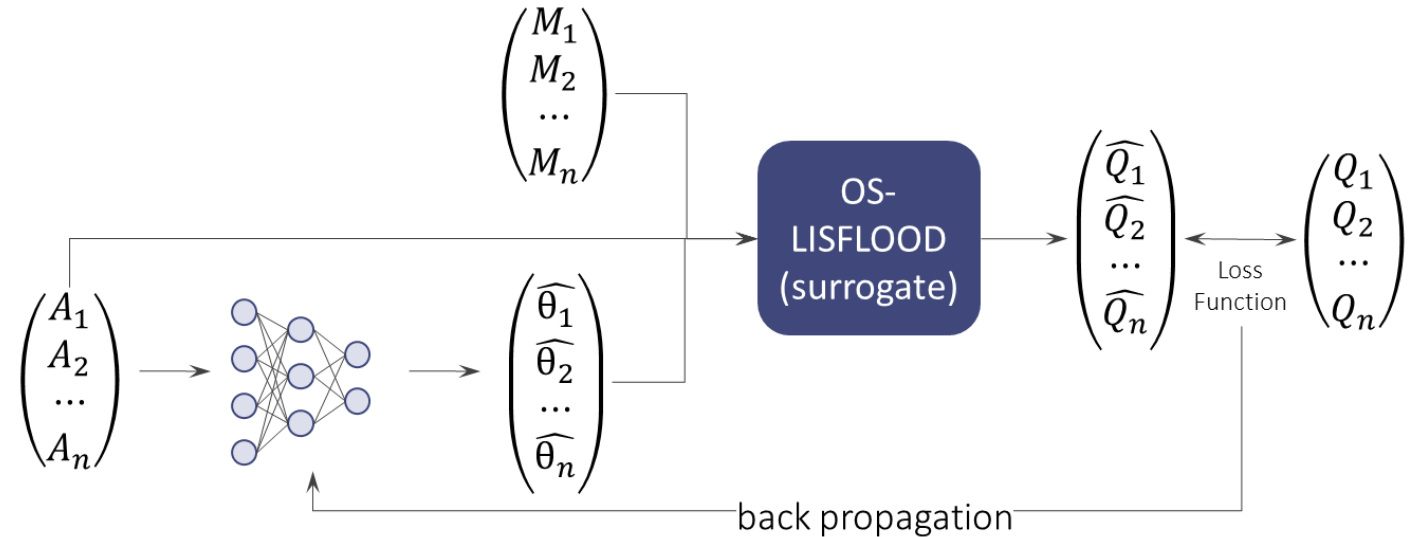
- Updated soil depths and soil parameters
- Increase number of reservoirs





# Global Flood Awareness System

- **Major update:** GloFAS v5.0
- **Calibration and regionalization:**
  - More observed discharge observations
  - ML-based parameter learning
    - Leverage on learning from all catchments instead of traditional catchment-by-catchment calibration
    - More generalizable model parameters
    - Improved transferability to ungauged catchments
- **Tentative release of GloFAS v5.0:** Q3 2025



$M$ : meteorological inputs  
 $A$ : static attributes  
 $\theta$ : model parameters  
 $Q$ : observed/simulated discharge





flooded  
area

# The Copernicus Emergency Management Service

## Annual Conference

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# May 2024



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# Thank you



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