THE GLOBAL FLOOD MONITORING SYSTEM OF THE COPERNICUS EMERGENCY MANAGEMENT SERVICE

Patrick Matgen, M. Chini, Y. Li, R. Pelich

R. Hostache, B. Bauer-Marschallinger, F. Roth, W. Wagner, M. Wieland , C. Chow, C. Krullikowski , S. Martinis, C. Reimer, C. Briese, M. Schwandner, P. Wolf, M. Seewald, M. Riffler, M. Kalas, A. Betterle, N. McCormick, P. Salamon

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THE COPERNICUS EMERGENCY MANAGEMENT SERVICE



- CEMS supports actors involved in the **management of natural or man-made disasters** by providing geospatial information to inform decision making.
- Operational since 2012
- Managed by the Joint Research Center of the European Commission
- Supports all phases of the disaster risk management cycle

EMS IN NUMBERS



https://emergency.copernicus.eu/

CO-DESIGNING THE GLOBAL FLOOD MONITORING SYSTEM

Need for a new component!

Current limitations of 🅢

- Emergency Management
- No constant automatic monitoring
- Requires user activation
- Activation requests often arrive late (missing flood peak)
- Currently not possible to map all floods (resource limitations)





The goal:





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CO-DESIGNING THE GLOBAL FLOOD MONITORING SYSTEM

Near real-time generation of:

- Observed water/flood extent
- Reference water mask
 - Seasonal/permanent based on historical Sentinel-1 time-series
- Ensemble uncertainty
- Advisory flags (snow, ice, frost, dry soil, wind)
- Exclusion layer (urban, dense vegetation, radar shadows, low backscatter)
- Impact information
- Sentinel-1 metadata footprint schedule

To be available < 8 hours after a Sentinel-1 data acquisition!



RESEARCH AND DEVELOPMENT

Challenge #1:

The retrieval algorithm needs to be

efficient and robust and achieve high classification accuracies in diverse landscapes and different acquisition conditions

Challenge #2:

Fast access to imagery and high performance computational resources to respond to needs of emergency responders and disaster risk financing sector.

OPERATIONAL SERVICE

https://www.globalfloods.eu/



OPERATIONAL SERVICE

https://www.globalfloods.eu/



https://dev.globalfloods.eu/glofas-forecasting/#close

PLANNED SERVICE EVOLUTIONS

Improve quality of products

- Reduction of over-detections due to fast growing vegetation
- Add new products
- Water depth
- Flood duration
- Flood frequency

Value adding activities

- Improved flood predictions
- Hazard and risk analyses



DATA ACCESS

For Product Visualization

https://www.globalfloods.eu/

For Product Download and configuration log in at https://gfm.portal.geoville.com/

One login for all components and functionalities

Set of APIs available to integrate all functionalities of the GFM into your stack of applications. Building solutions on Top of GFM



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