



# Mission Impossible?

## Using global flood risk assessments for local decision-making

Tuesday 14.00-15.30  
ICC Capital Suite  
East wing, level 3  
Room C

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**In Europe flood risk info & warnings save hundreds of lives and avoid billions of disaster losses per year**

**The potential for similar benefits for developing and less developed countries is estimated between 4 and 71 billion USD per year.**

Source: World Bank 2012 / Image: [www.actionaid.org](http://www.actionaid.org)

# Efficient flood risk management requires:

- 
- Awareness about the risk of flooding
  - Appropriate legal & administrative frameworks
  - Economic investments
  - Expertise knowledge
  - Data

Image: Rainer Kremser-Schmid/flickr

# Efficient flood risk management requires:

- Awareness about the risk of flooding
- Appropriate legal & administrative arrangements
- Economic investment
- Expertise knowledge
- Data

**Unfortunately, some or all factors are still missing in many regions around the world**



Image: Moby@flickr



# Global/ large scale flood risk models could:

- Fill the gap/ be complementary
- Foster knowledge transfer & exchange
- Improve data sharing

Image: UNEP-GRID

**Deltares**

Enabling Delta Life



 **IVM** Institute for  
Environmental Studies



**European  
Commission**

# Using large scale flood risk models to improve local flood risk management: The Balkan Floods 2014

- 14-18 May heaviest rain measured since weather recordings
- Over 1.6 million people were affected



# Large scale flood info for local flood management:



## The Balkan Floods 2014

European Flood Awareness System (continental scale flood early warning system) provided warnings with lead times of more than 3-4 days

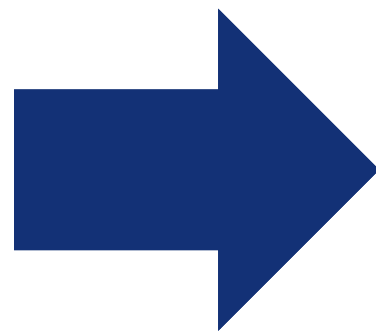
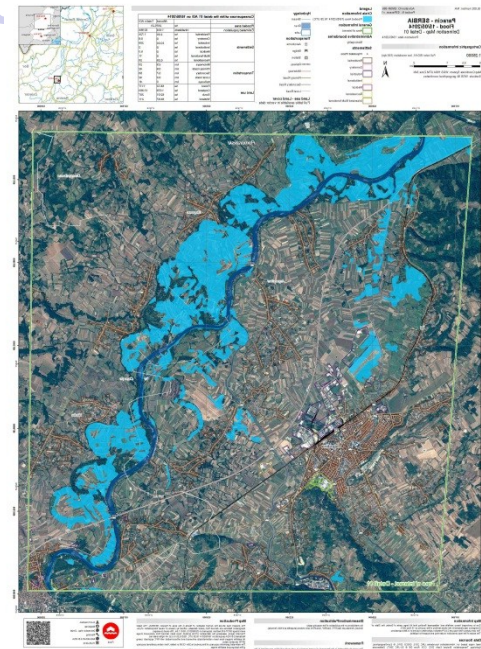


# Large scale flood info for local flood management:

## The Balkan Floods 2014



European Flood Awareness System (coastal flood early warning system) provided times of more than 3-4 days



Pre-tasking of satellites for rapid mapping of flooded areas for local emergency management

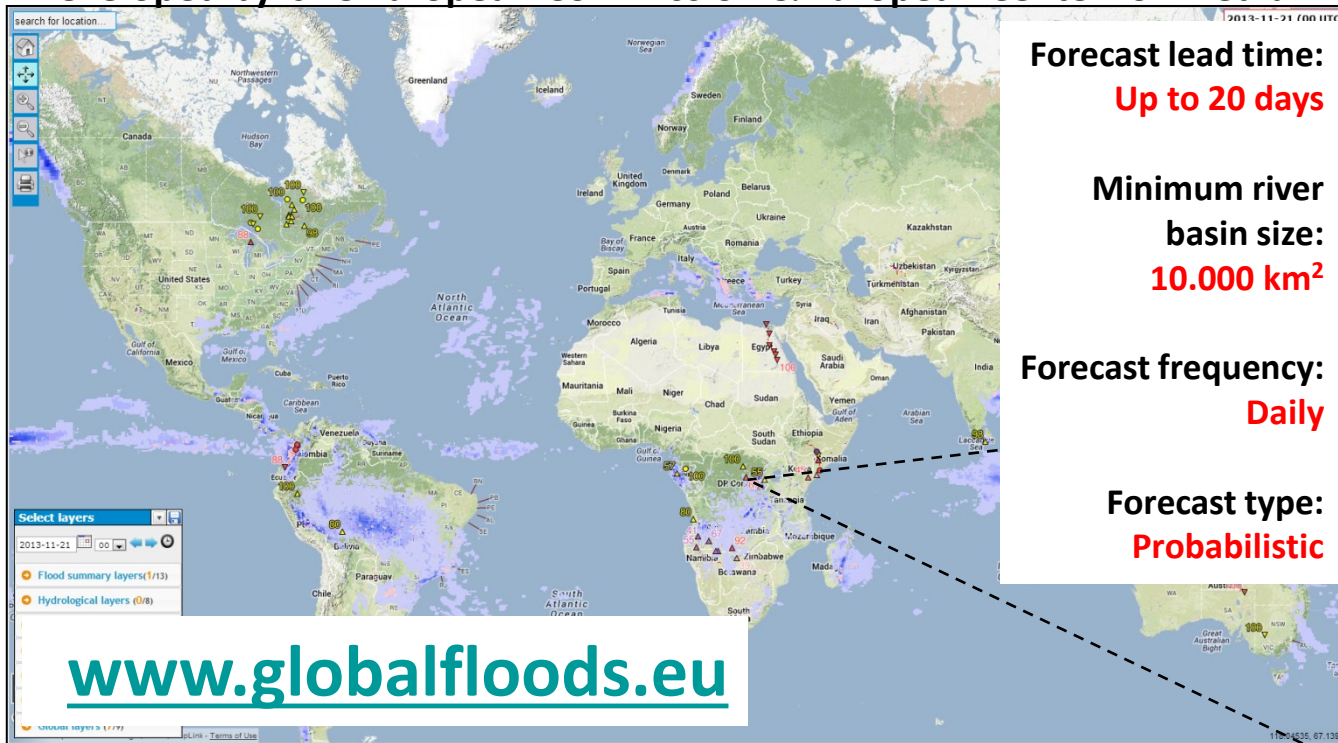




# Global flood risk management tools become more and more available.

## Example: Global Flood Awareness System (GloFAS)

Developed by: JRC European Commission & European Center for Medium Range Weather Forecasting

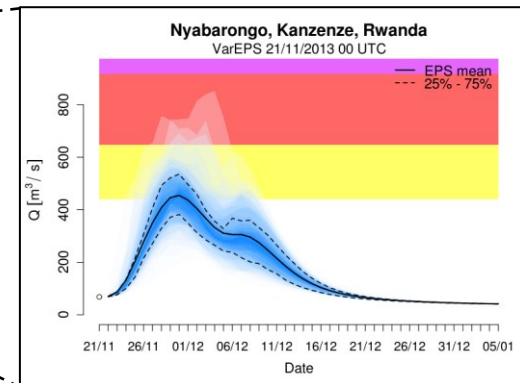


Forecast lead time:  
**Up to 20 days**

Minimum river basin size:  
**10.000 km<sup>2</sup>**

Forecast frequency:  
**Daily**

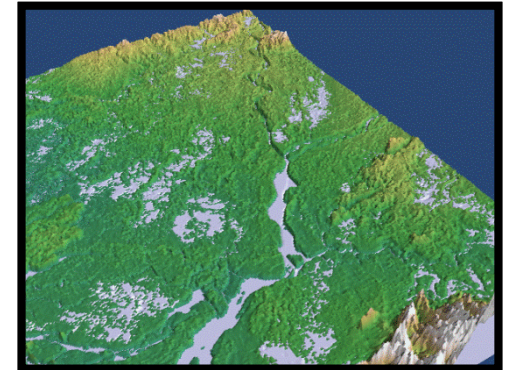
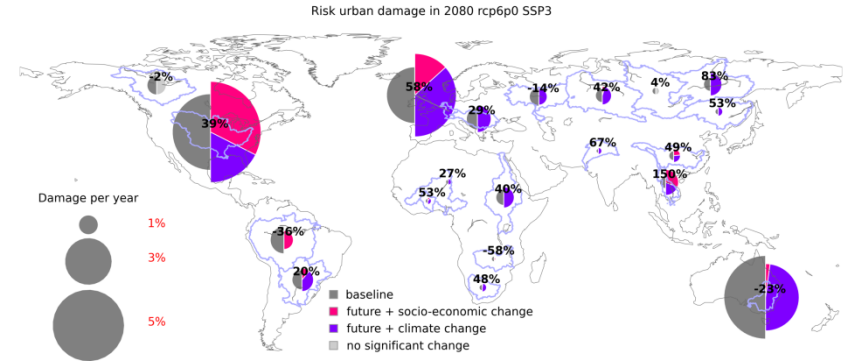
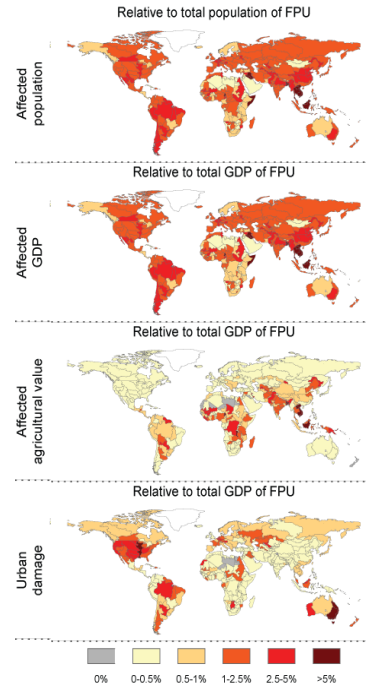
Forecast type:  
**Probabilistic**



# Global flood risk management tools

## examples:

### Users



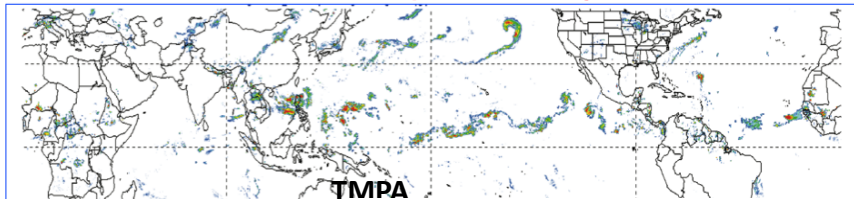
## GLOFRIS

*Global Flood Risk Assessment Tool: current & future risk at 1 km resolution*

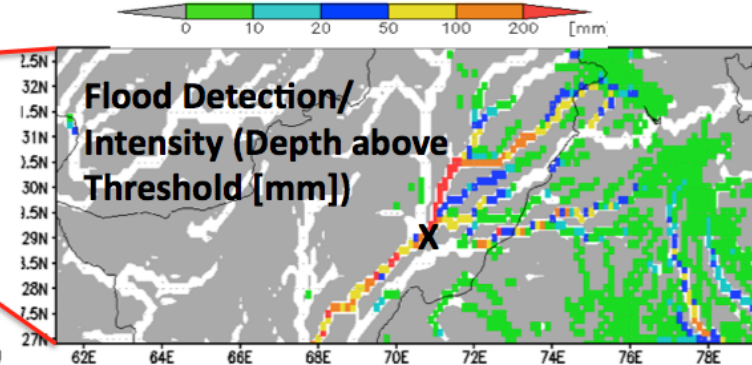
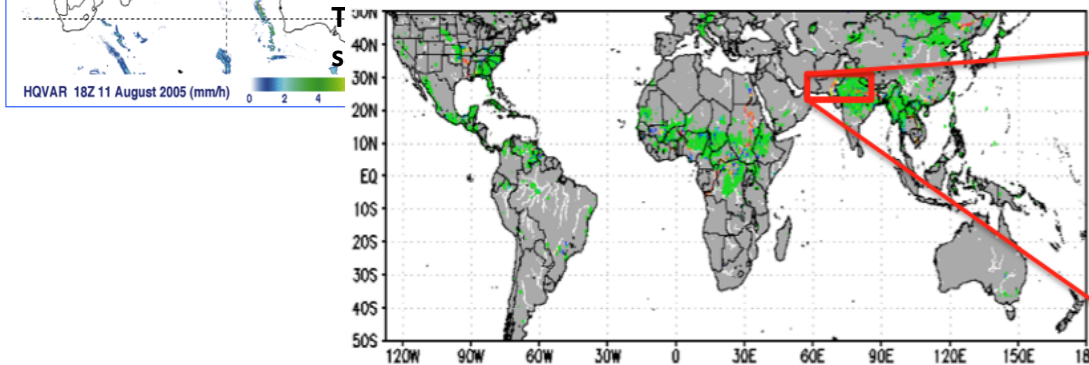
Developed by: IVM-VU University Amsterdam, Deltares, Utrecht University & Netherlands Environmental Assessment Agency (PBL)



# Global flood risk management tools examples:



<http://flood.umd.edu/>



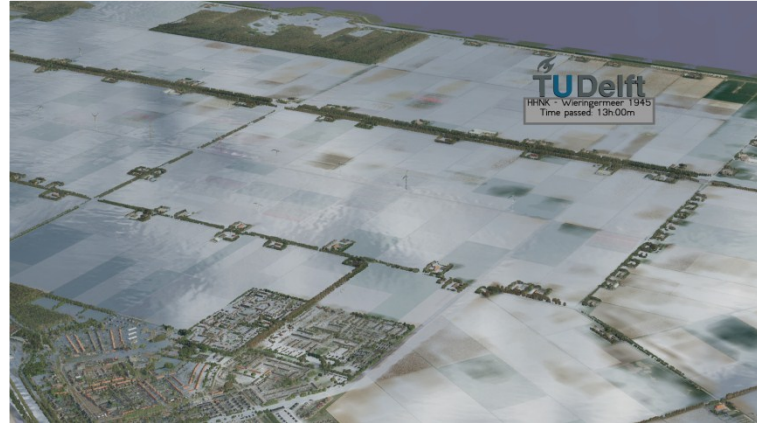
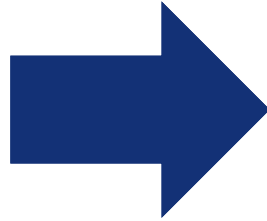
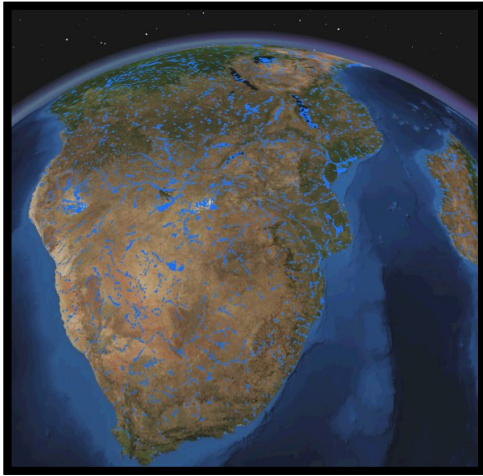
## Global Flood Monitoring System (GFMS)

*A Real-time System Using Satellite (and NWP Model) Rainfall and a Hydrological Model*

Developed by: Earth System Science Interdisciplinary Center, University of Maryland, College Park, MD

# Many more global risk models available...

## ... but many questions remain!



Low-res global

high-res local

### All global models have limits. Do we communicate them properly?

# ... but many questions remain!

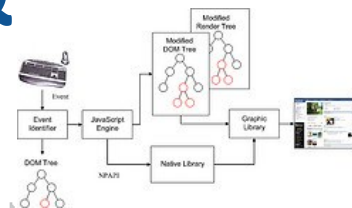
## How do we link global flood risk models with local measures?



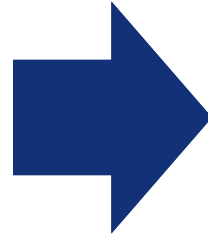
## How do we make sure knowledge transfer takes place?



## How do we make sure that data & models are interoperable?



# From Global



# To local



## So is it really a “Mission Impossible”?



... and no. He is not in our session panel!

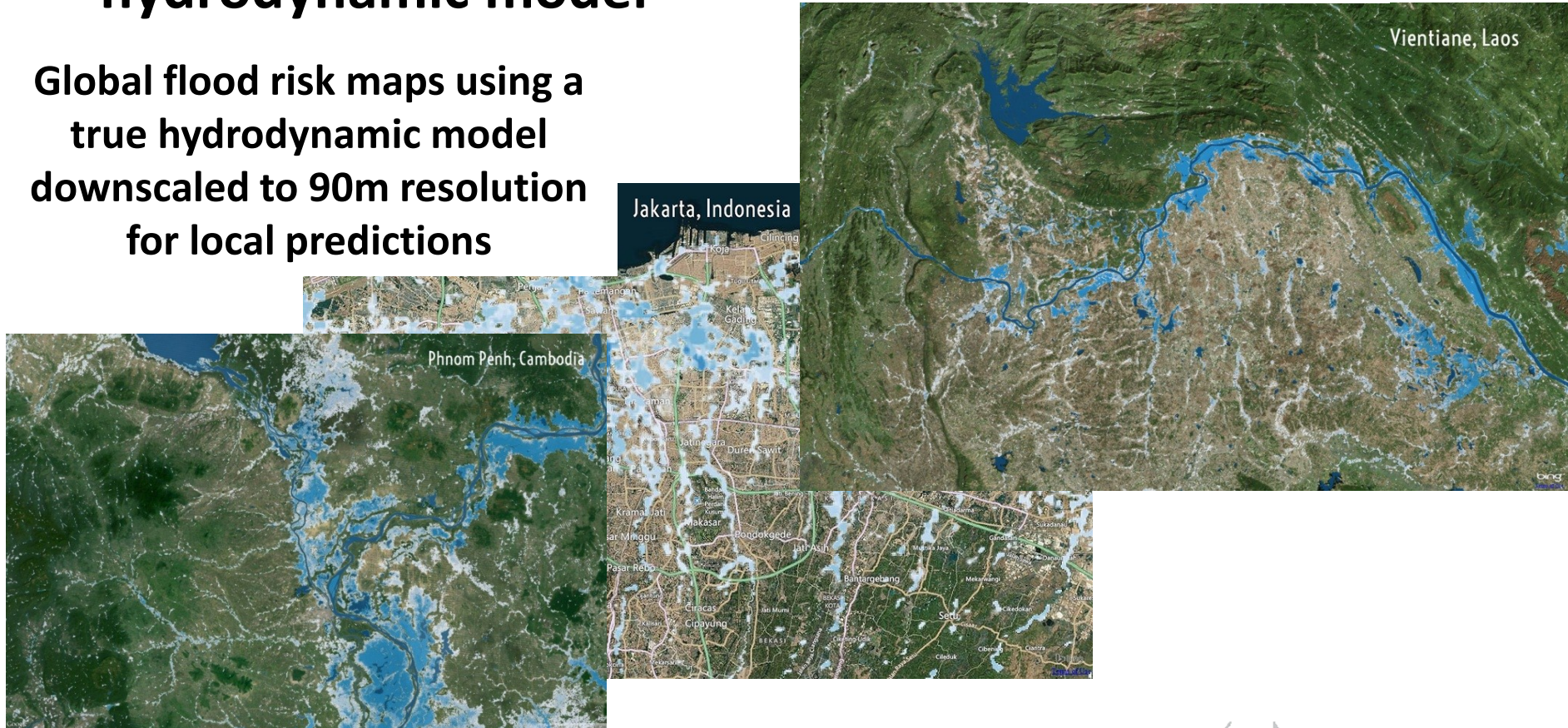
# Our panelists:

## A global 1km resolution hydrodynamic model

Global flood risk maps using a true hydrodynamic model downscaled to 90m resolution for local predictions



# Paul Bates



# Our panelists:



**Tom de Groeve**  
Joint Research Center  
European Commission

# G F P

global flood partnership

## The Global Floods Partnership:

- Building a framework for global flood risk assessment and real-time flood mitigation and response



# Our panelists:



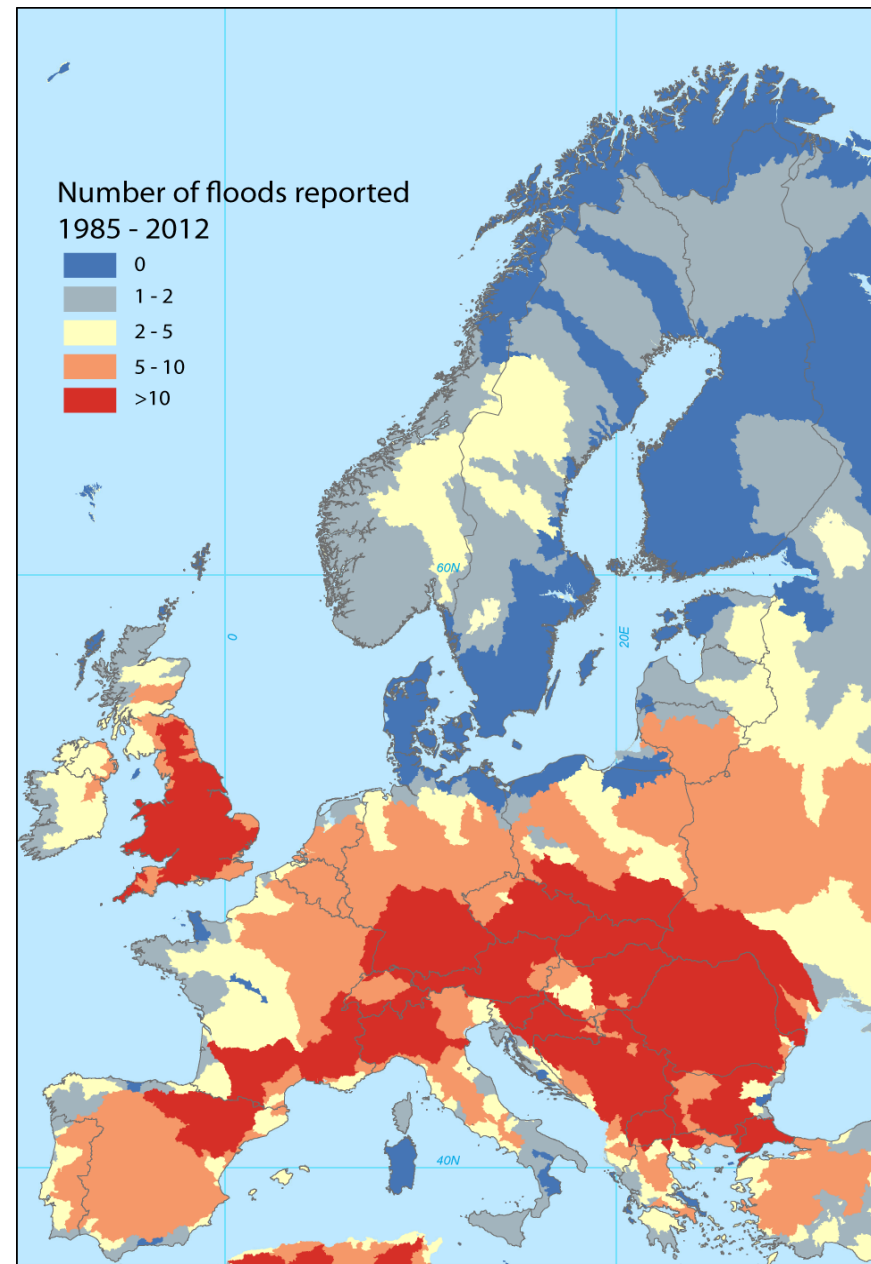
**Brenden Jongman**

**Institute for Environmental  
Studies**

**VU University of Amsterdam**

## Increasing stress on disaster risk finance due to large floods



**How can we finance and reduce risks of  
large floods?**



# Our panelists:



RED CROSS/RED CRESCENT  
**CLIMATE CENTRE**

 International Federation  
of Red Cross and Red Crescent Societies  
The Netherlands  **Red Cross**

**Maarten van Aalst**

Director

Red Cross/Red Crescent Climate Centre

## From data to decisions

### Forecast-based finance:

providing incentives  
for systematic early action  
based on risk information  
across space and time



# Our panelists:



**Alanna Simpson**

**Global Facility for Disaster  
Reduction and Recovery**

**The World Bank Group**

- In a context of rapidly growing flood risk, global flood modeling provides a mechanism for dialogue through rapid and initial quantification of risk
- Recognize and communicate the limits of global flood risk models
- Need better data: location of existing flood protections, DEMs etc.



