

The 2021 flood: what will change in the future?

climate

Flood hazard mapping

awareness that such events can take place

Hopefully more space for floodplains

flood can happen anytime

Extremes become more common

Dams operation

Awareness

New QH-relations

The 2021 flood: what will change in the future?

the role of small tributaries

I'm afraid nothing will change

Politics driven refocus on flood prevention, less on integrated river management.

Increased cross-border cooperation

how to measure discharge at such extreme situation?

Discharge statistics

Less homes in flood plains, I hope...

Automated warnings

Climate



The 2021 flood: what will change in the future?

for a short time: promotion of existing flood maps

More attention to the impact on the smaller rivers, more upstream

Forecast of such flood events

Collaboration

More budget for flood research

More intense transnational collaboration

Beter modelling tributaries

These events will be more frequent and more intense

Pluvial flooding is also relevant in the low countries



The 2021 flood: what will change in the future?

Assessment of design parameters

We will reach > 100 people in the Meuse symposium

Beter Floodrisk maps

improved hydrological modeling

Sediment management

How goed was de performance of the existing hydrological models?

How good were our rainfall measurements and forecasts?

Does regulations on precautionary land use get changed?

Modelling of the local erosion pits

The 2021 flood: what will change in the future?

What happened between rainfall and streamflow?

How can we measure rainfall and streamflow even during extreme events?

exchange platform for data, models and tools

How should we design our river systems for floods and droughts at the same time now that we experienced severe floods van happen in summer as well?

How to deal with (extreme) floods and droughts (nearly) simultaneously?

EU funding for a joint research programme

Bank erosion

Free exchange of measurements and models.

Which (research) questions with respect to the 2021 floods do you have?

How much sediment has been transported?
Where did it come from, where did it go?

Better precipitation forecasts are necessary
(even if this one was in the range)

Is this already climate change?

How to address the rainfall uncertainty?

What (longer) lasting impact is there on
riverine and riparian ecology?

What is the role of decision making (e.g. weirs,
Meuse works) compared to the natural
processes? Our models focus too much on the
natural processes only

Where did the moisture come from ?

How do land use change and ecosystem
adaptation impact the timing and magnitude
of the peaks at the transboundary scale of the
basin?

Which is the performance of our hydrological
modelling for simulating extreme events as
observed in July this year?

Which (research) questions with respect to the 2021 floods do you have?

How to deal with uncertainty in predictions that vary highly in time and space

How often can a flood like this happen?

Importance of gravel and sand layers for bed development.

What is the effect of operation of the structures on the discharge?

Are our models able to predict these extremes?

connection of tributaries with the Meuse, impact of floods (both ways)

What was modelled well and what not and why?

Effect climate change on discharge statistics and wave shape

how can we improve (predicted and observed) rainfall estimates?

Which (research) questions with respect to the 2021 floods do you have?

We need transnational high resolution datasets. How to get there?

How to create a healthy water system (store more water during heavy rain)

Have a look at hazards maps in the whole basin and calculate the impacts of such a flash flood anywhere in the basin

How to implement climate adaptation measures in different countries/regions than where the results will be felt (so how to 'ignore' borders)

Do we have to adjust the design criteria for the new weirs?

for moisture source, see the ENW report (in Dutch)

what are possible adaptation strategies at the scale of the basin?

What determined the forecast quality during the event?

How to better understand hydrological processes during these extreme event?

Which (research) questions with respect to the 2021 floods do you have?

Precipitation at high resolution k freely available)

High resolution space/temporal precipitation at high tempo

What are the questions for a international Meuse research agenda?

Ecology

Shared data!

Sediments and morphology

Sediment balance

cope with droughts and floods

Sediment balance

Water quality

How can we reach cross-border synergie?

Water abstraction

What are the questions for a international Meuse research agenda?

Uniform climate scenaros

discharge balance, watersafety issues

Data! And: opposing interests, e.g. in sediment, how is that dealt with?

Fish!

international cooperation

Plastics: macro, meso AND nano

Agreed: shared data!

International cooperation (without political issues)

It seems that Climate Change (MICCA) and sediments are already on the agenda. Maybe we could work on flood forecasting, PFAS, plastics at a basin-wide level

What are the questions for a international Meuse research agenda?

Combined models

Effects of Low flow on river fuctions

Drinkingwater

Rights for the river to be clean

Combined, river basin wide, precipitation and discharge statistics in a common database.

Informal, easy accesable exchange platform for various topics (parallel to the CIM)

Exchange in ideas and expertise about flood-safety levels. There is much divergence between countries.

What do we need (tools, models, organization, infrastructure)?



Who are the stakeholders?



Who funds the research?

regional government
taxes on stakeholders
science organisations
national government
water authorities
eu
national govts
vmm
deltares
regions
countries
europe
taxes
riwa
states
danubis
time
so again we
natural resource users
part will be voluntary
regional waterauthorities
water boards
deltaplan nl
demissionair kabinet
rws
water boards
national science foundati
interreg life
stakeholders
national governments



The famous engineers of the past - what would they do today?

not create the Lely profile

Regret their decisions

Build dams and dikes

Absolutely regret their decisions indeed!

Sociohydrology

Give more room to allow the river to inundate

Amazed that their constructions are still in use

Relocate assets currently at risk

build roads

The famous engineers of the past – what would they do today?

Reconsider their designs

Learn from the past

Resign or ask for better salaries, because of the risk of being sued

Use better models

Learn about ecology and nature-based solutions

Community science

Think from the perspective of the basin, rather than a location.

Take the rivers' DNA as a starting point for action

Build new Waterways



The famous engineers of the past - what would they do today?

Take more stakeholders or riverfunctions into account when designing

Sign up to Dam Removal Europe

Be hired by the Chinese

consider shorter life-time of infrastructure

Canal canal canal

Think about nature first

we're not protecting nature but nature is protecting us

Split river functions

Relocate villages

The famous engineers of the past – what would they do today?

Make flexible designs

Run Forest! Run!