



WBalMo Elbe / module Czechia - application fields and first results

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1. Contents

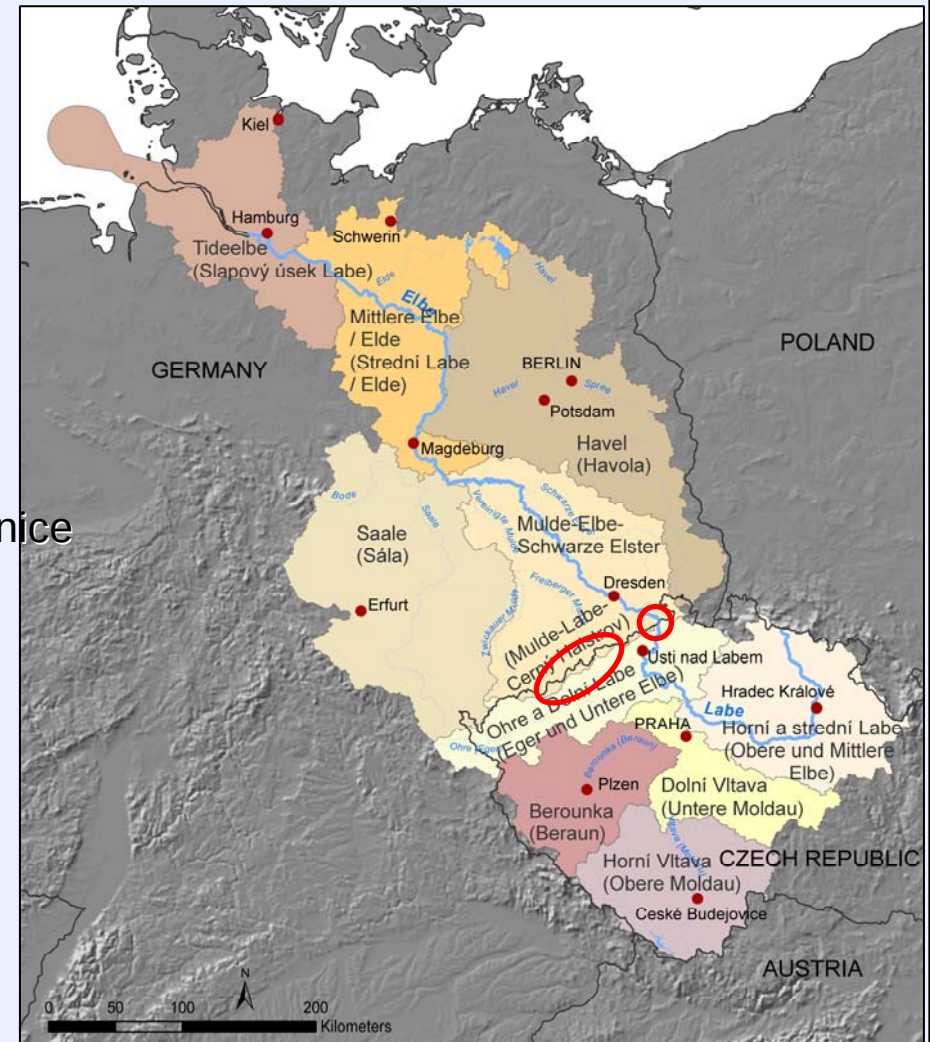


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2. Relevance for the Overall Model



- GLOWA-ELBE II sub-project *Surface Water Availability*: investigation of changes in the water availability in the whole Elbe River Basin under global change scenarios
- Czech Republic covers one third of the Elbe River Basin roughly
- Inflow to Germany at different locations:
 - Main stream of river Labe
=> Decin / Labe
 - Sub-basin of the river Mulde
=> downstream reservoir Přisečnice / Přisečnice
=> downstream reservoir Flaje / Flajský potok
- Effects of climate change and reservoir management in the Czech Republic will in all probability have an influence on inflow to Germany



3. Input Data and Information



Basis for Data and Information

“Agreement of co-operation” between GLOWA-ELBE II and the Czech River Basin Authorities

Data and information delivered:

- reservoirs to be included in the model (name, location, controllable storage, active storage, water surface area, etc.) => reservoirs with capacity equal or larger than 1 mill. m³
- water users, i.e. withdrawals and discharges (name, location, reference number of permit, monthly or yearly values for the last years, etc.) => quantity equal or larger than 0.01 m³/s
- management of water resources facilities - e.g. water transfers between river reaches or reservoirs (name, location of intake and of orifice, capacity, etc.)

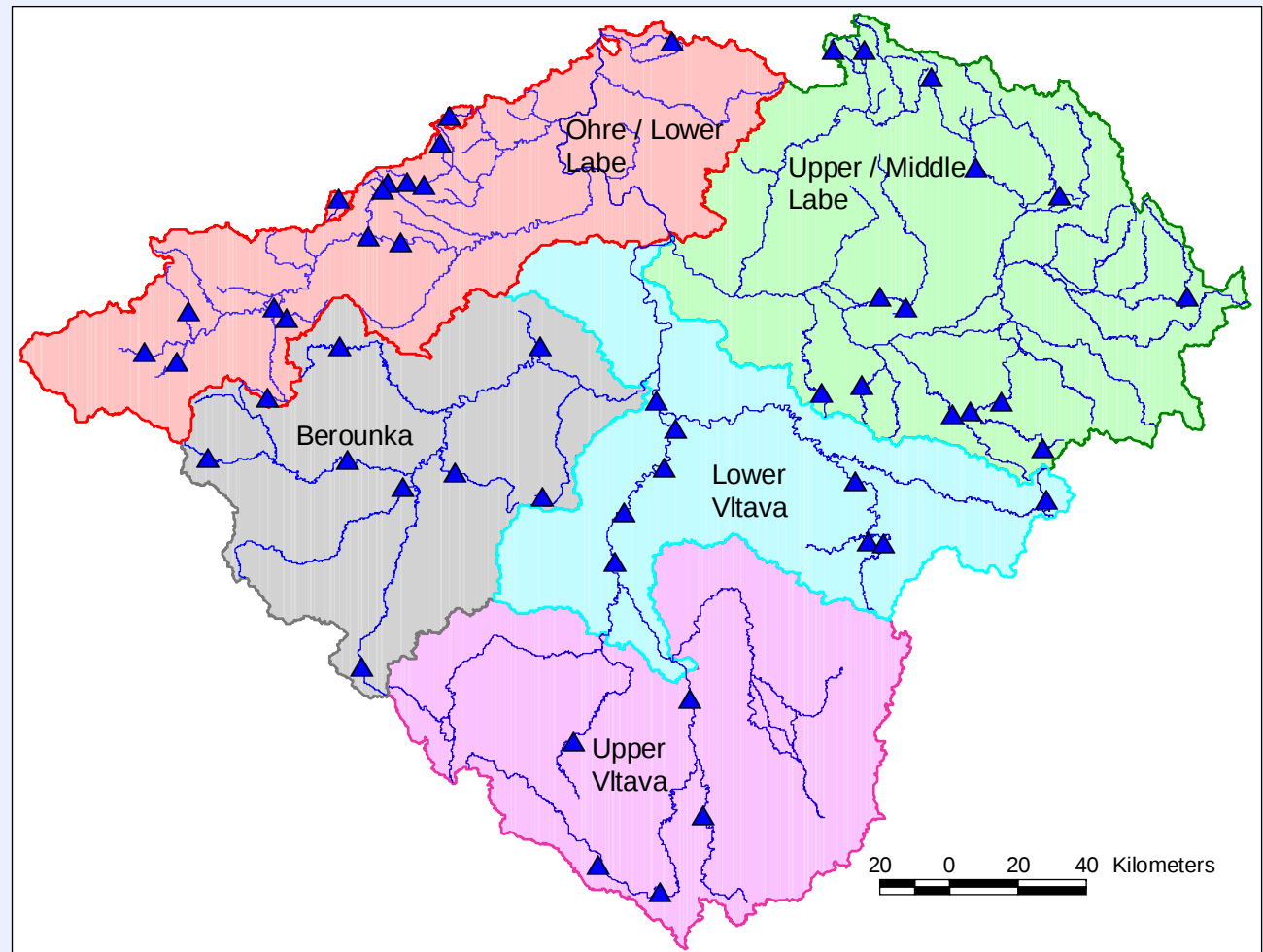
4. Development of Modules



Structure of the Modules

... is according to the river basin districts (Povodis) in the Czech Republic

- Upper Vltava,
- Lower Vltava,
- Berounka,
- Upper and Middle Labe,
- Ohre and Lower Labe.



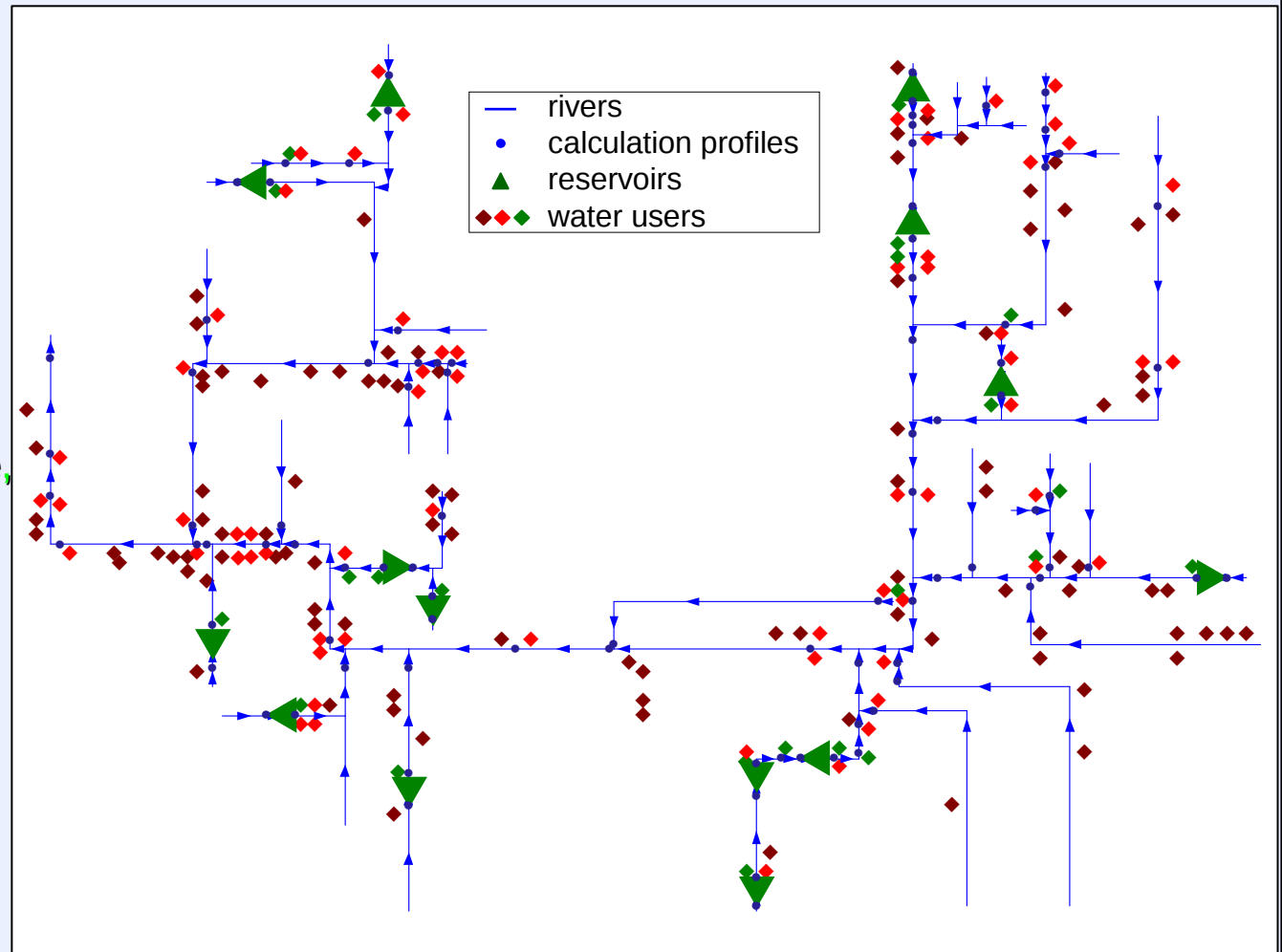
4. Development of Modules



Development of Modules

...on the example of the module Upper and Middle Labe

- Upper Vltava,
- Lower Vltava,
- Berounka,
- **Upper and Middle Labe,**
- Ohre and Lower Labe.



Results

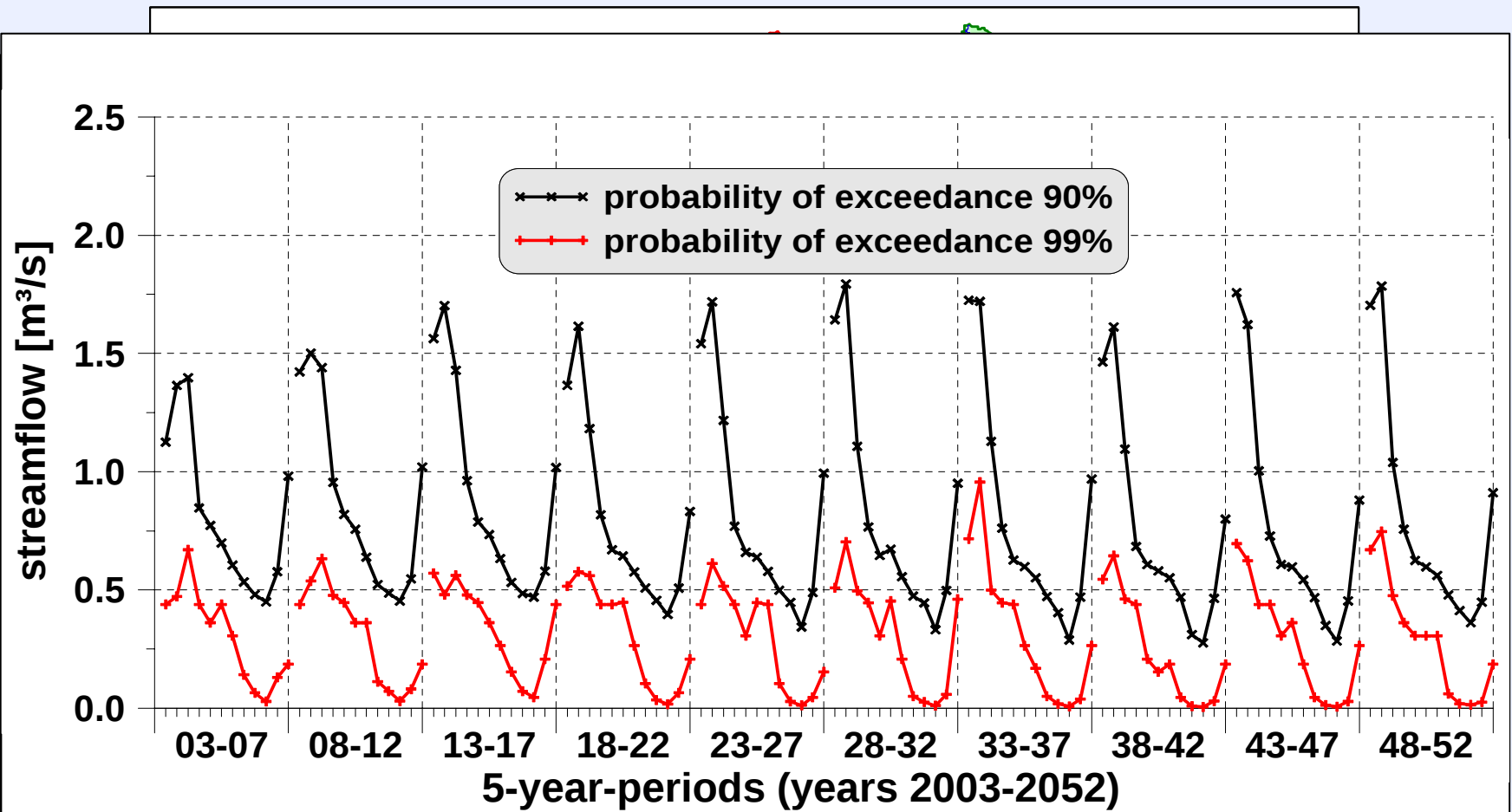
...for different fields/sectors and locations as example for possible kinds of analysis:

- Effects of climate change on natural streamflows
- Effects of climate change on regulated (managed) streamflows
- Effects of climate change for different water users
- Effects of climate change on filling of reservoirs

5. First Results



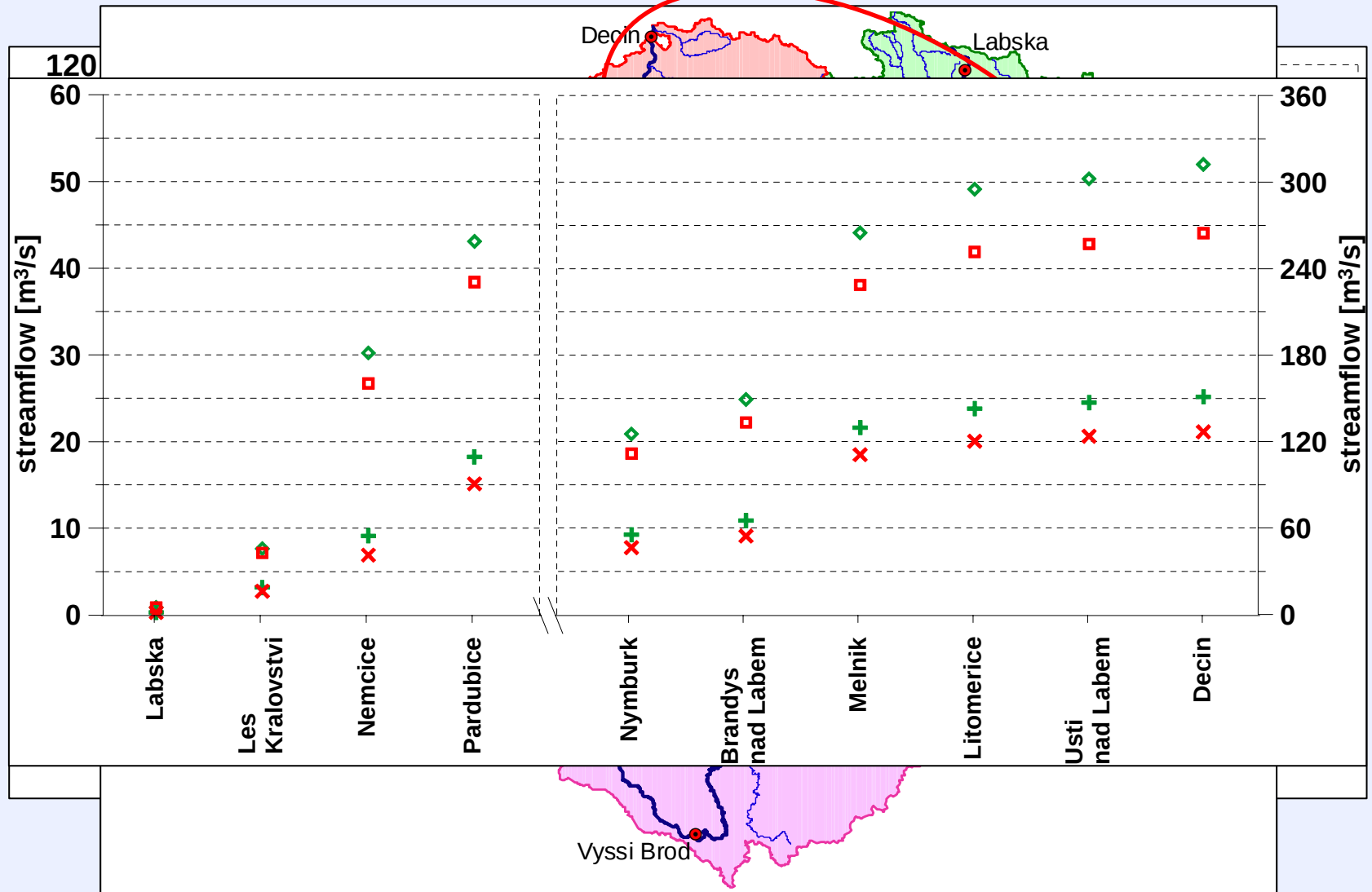
Effects of climate change on natural streamflows



5. First Results



Effects of climate change on regulated (managed) streamflows



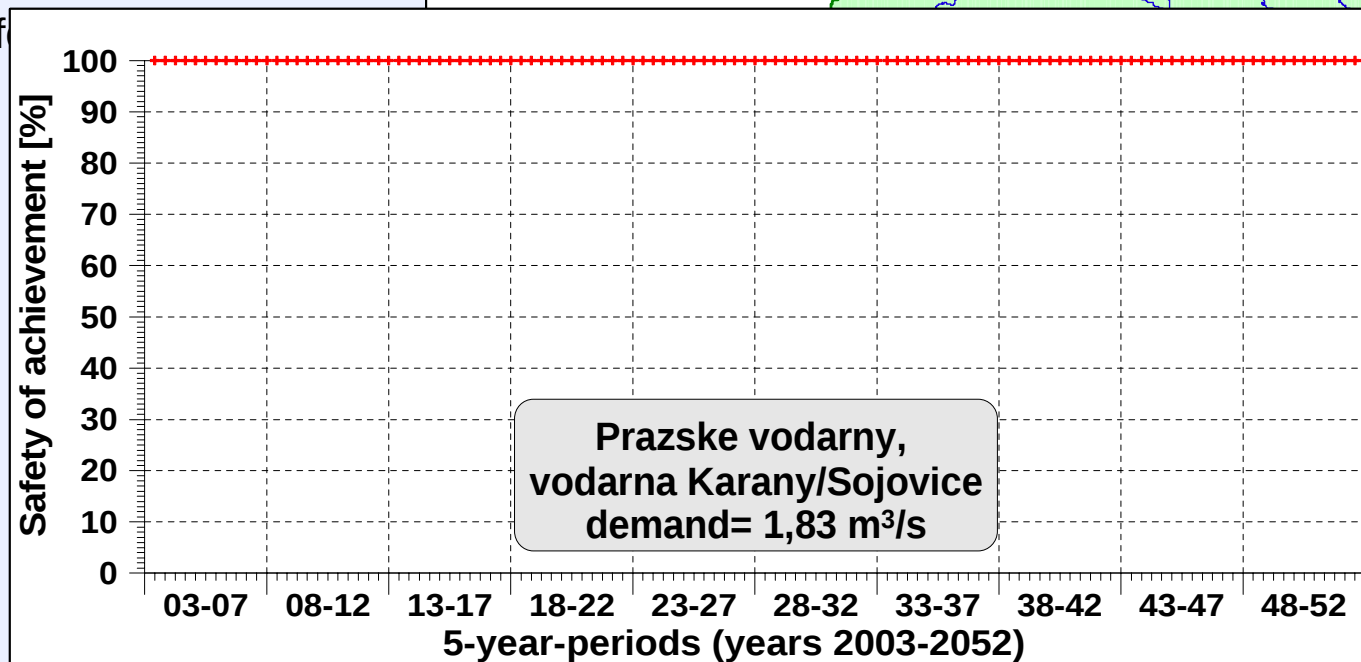
5. First Results



Safety of drinking water provision for the city of Prague

Drinking water for the city of Prague

- Withdrawal directly from the
- Transfer from the area between
- Transf

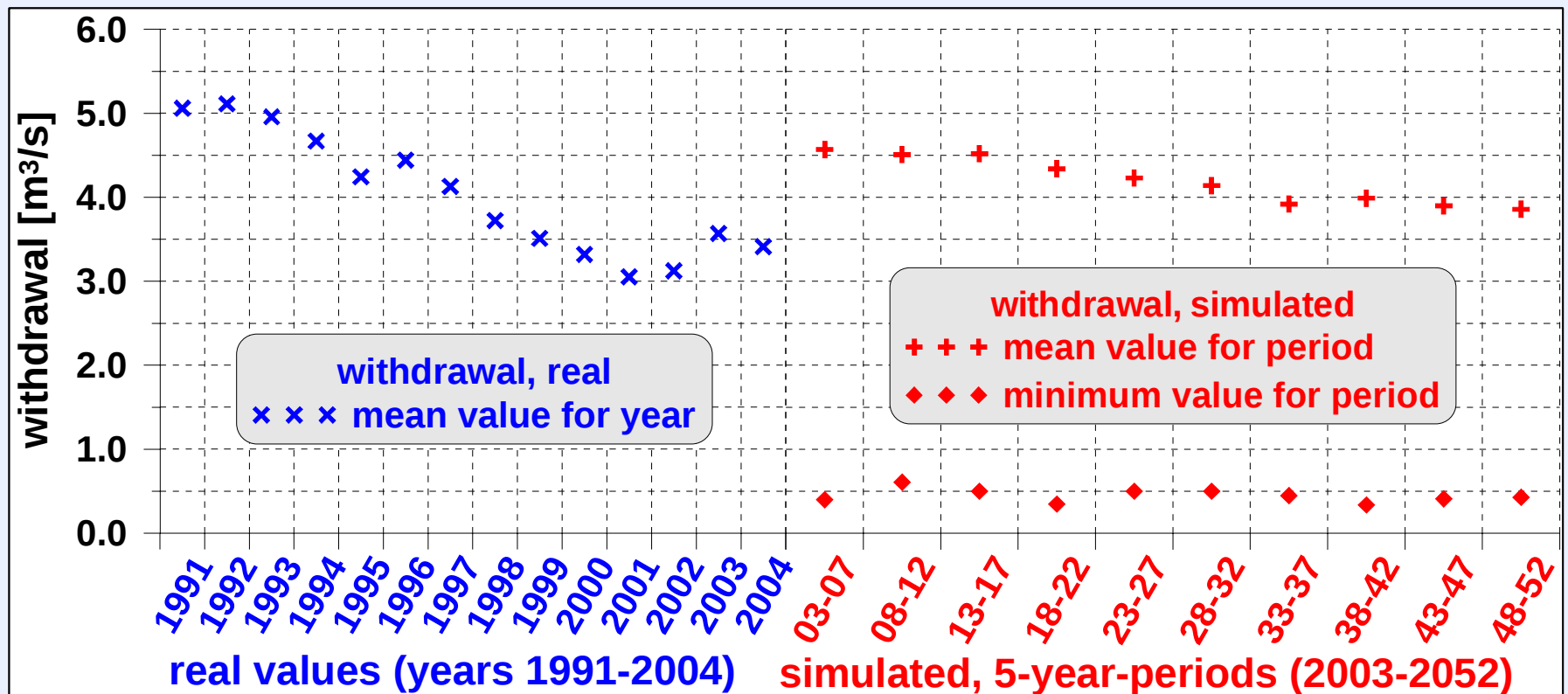


5. First Results



Reservoir Svihov (Zelivka)

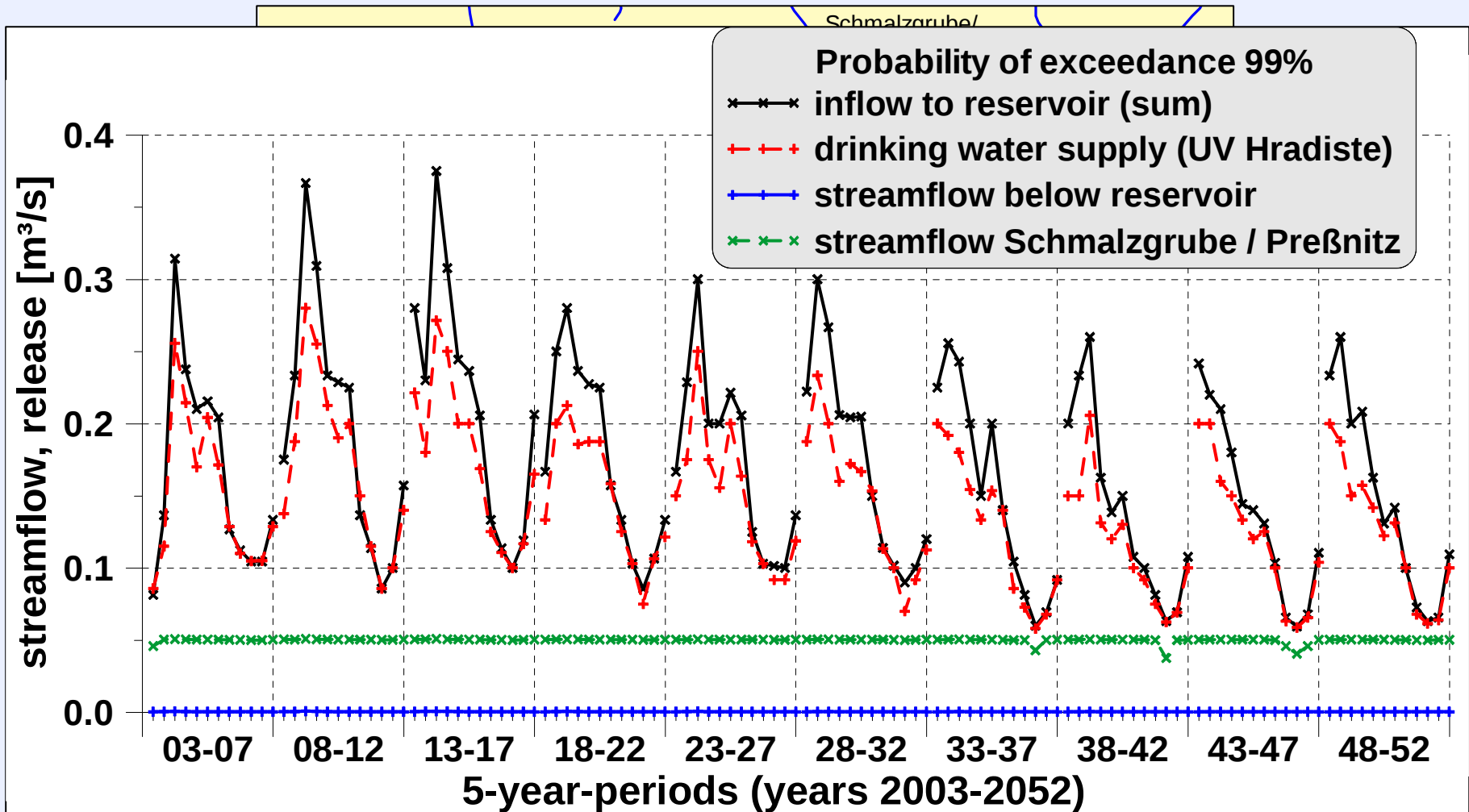
Comparison of real values for withdrawal (years 1991 - 2004) with simulated values for all ten periods (years 2003 - 2052).



5. First Results



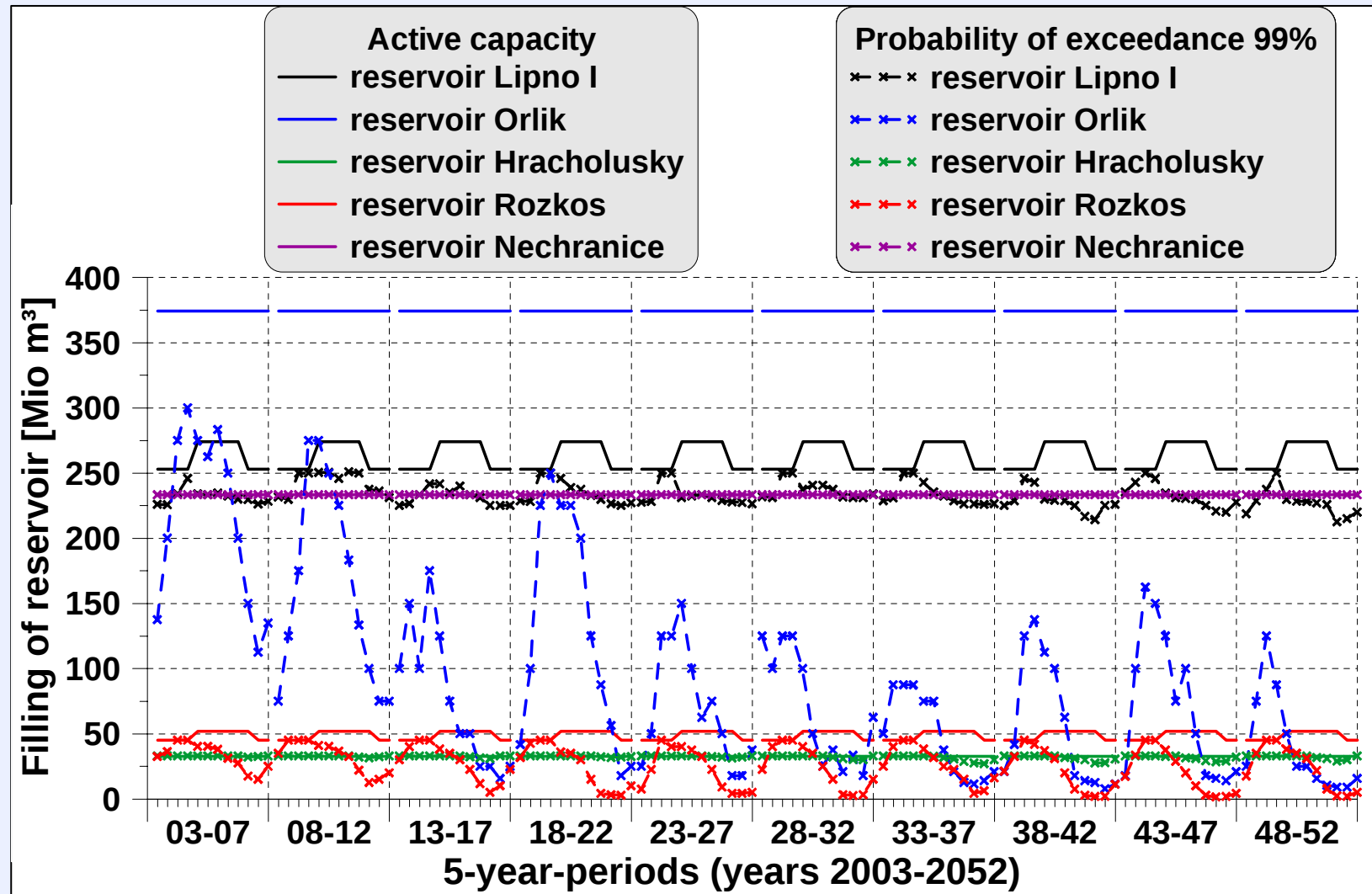
Inflow to Germany downstream reservoir Přisečnice (at Schmalzgrube / Preßnitz) –
modules for the rivers Ohre and Mulde



5. First Results



Filling of Reservoirs



6. Conclusion and Outlook



Conclusions:

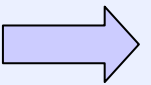
- Climate change will affect water availability in the Czech part of the Elbe River Basin
- Affects will be different at different locations and within seasons (e.g. rising streamflows during winter and falling streamflows during summer and autumn)
- Streamflows during low flow episodes will fall generally
- Drinking water provision from reservoirs is sector most affected, for other water users water can be provided with high safety
- Under extreme dry conditions the water level in some reservoirs will fall significantly while other reservoirs are unaffected
- Adapted/changed management of reservoirs might compensate for some of the effects of climate change

Outlook:

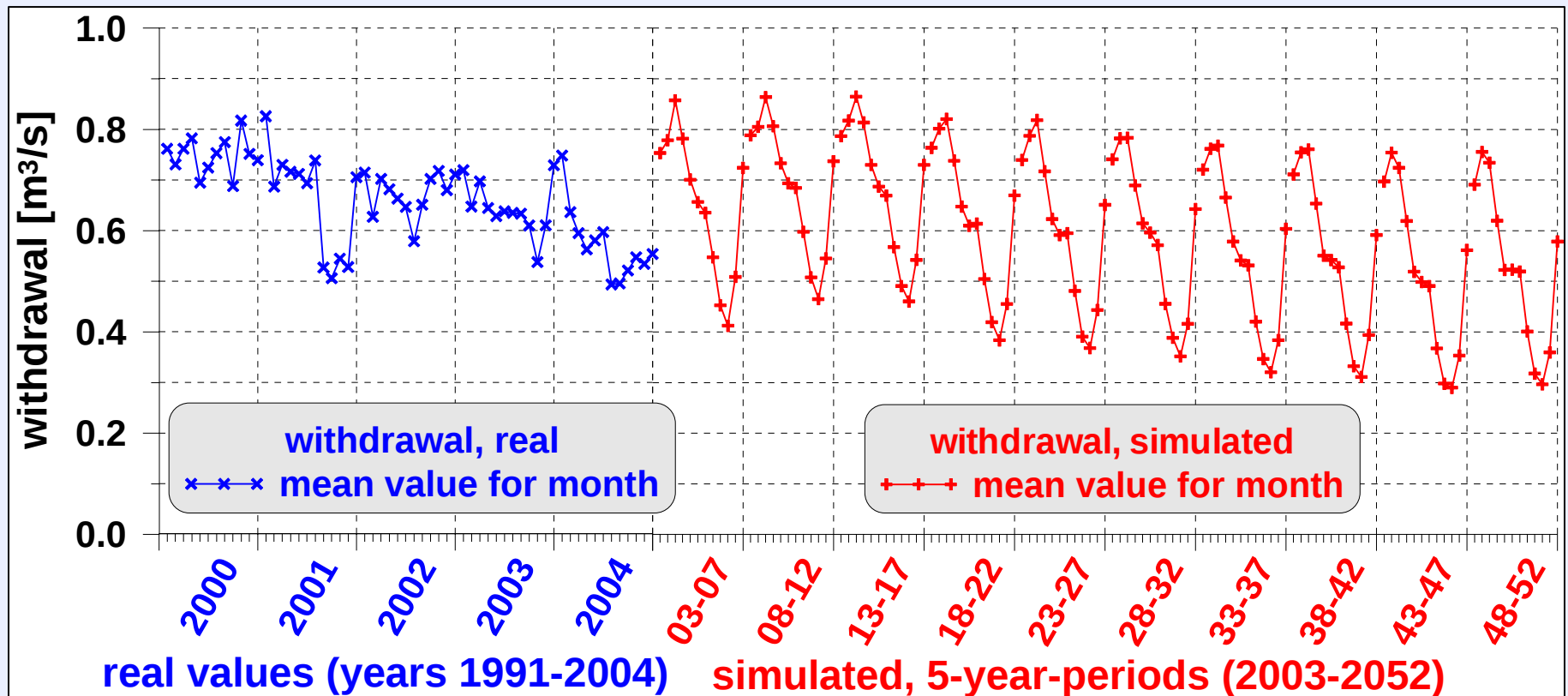
- Analysis of results in consultation of Povodis (e.g. for 4th Status Report)
- Inclusion of changing water demand for large water users (e.g. power stations) and calculation of effects



Thank You
for your attention!



Reservoir Prisecnice: DWS, comparison of real values with simulated values



Filling of reservoirs

