Interreg
Danube Transnational Programme
JOINTISZA

Introduction of the selected pilot basin model

1st Stakeholders Workshop

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DANUBE REGION strategy

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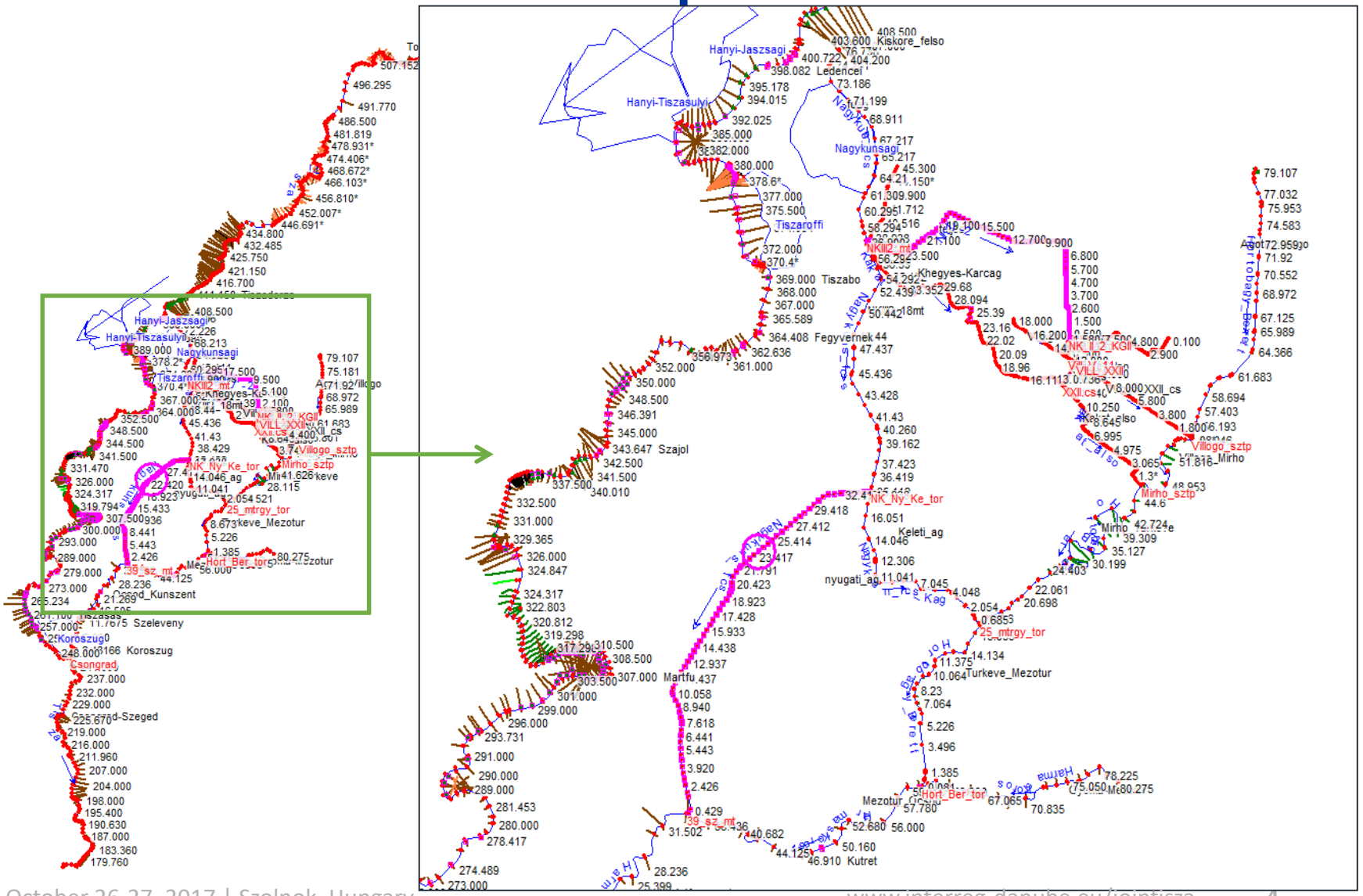
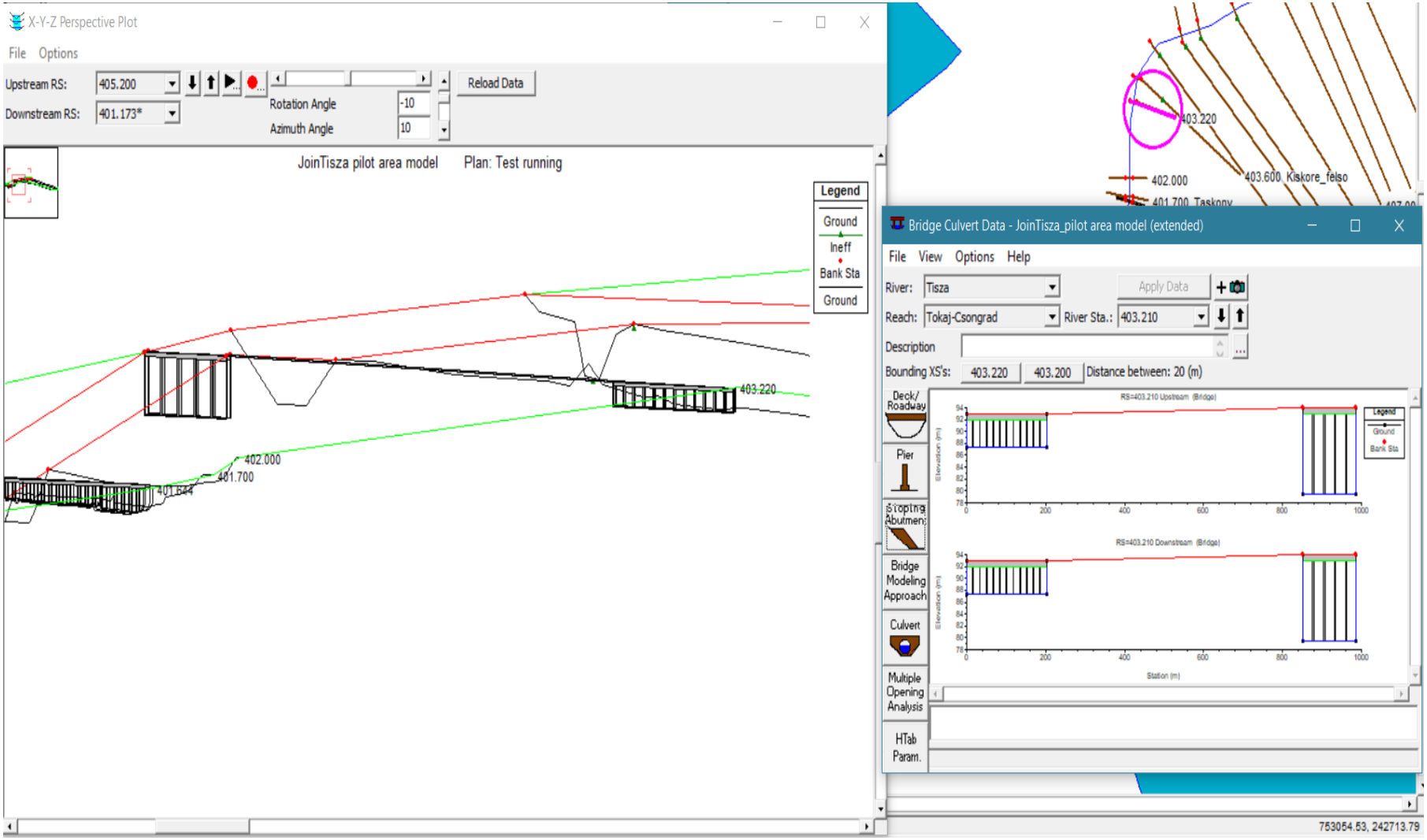
Why HEC-RAS 1D?

- We have experience making 1D hydraulic model for water management purpose
- It is good for modeling complex systems → running fast, and easy to handle
- We have data for making scenarios

Introduction of the pilot area model

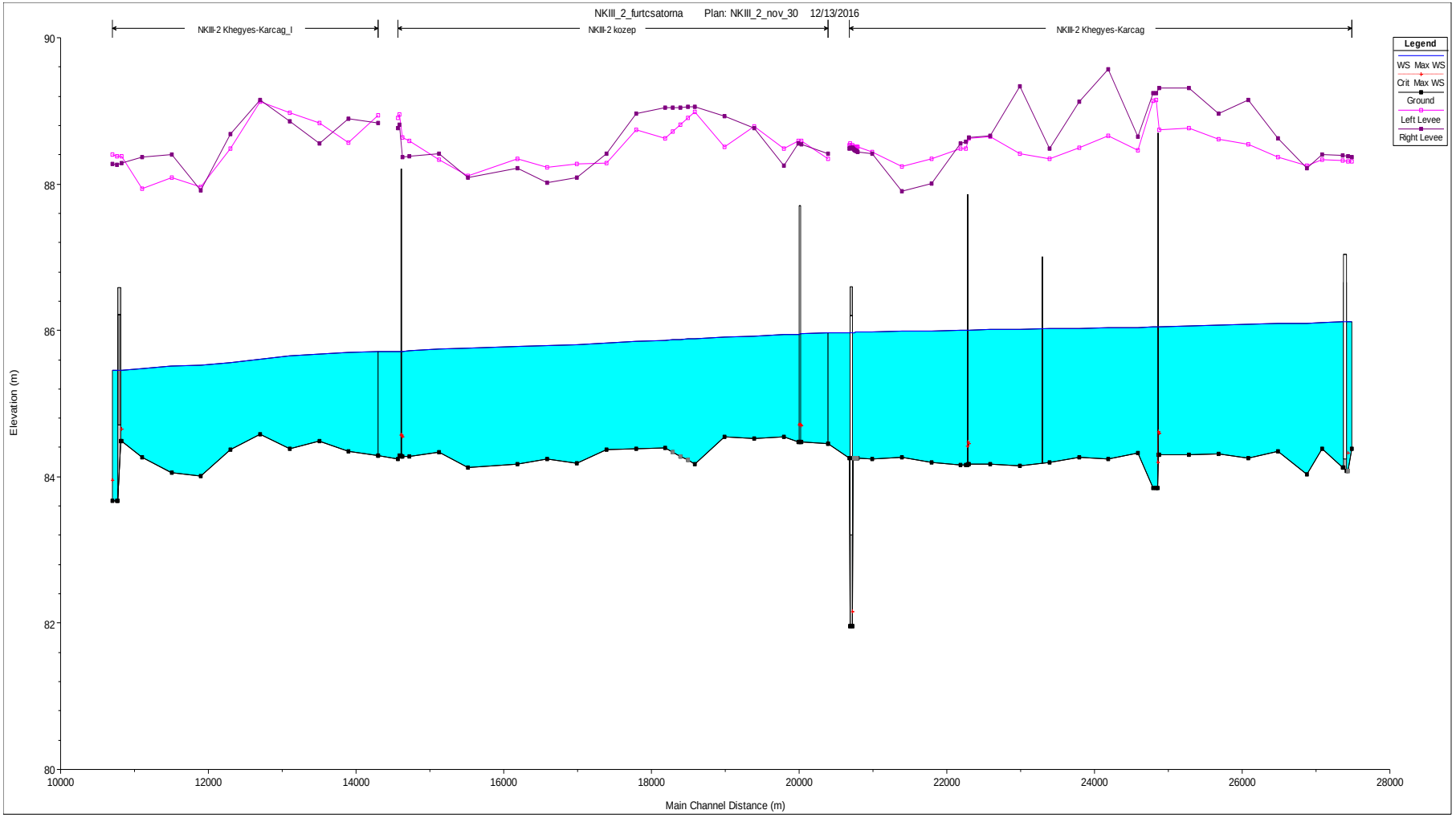


Kisköre Dam in the pilot basin model



Kisköre Dam in reality

Longitudinal profile of the NK-III-2. irrigation channel

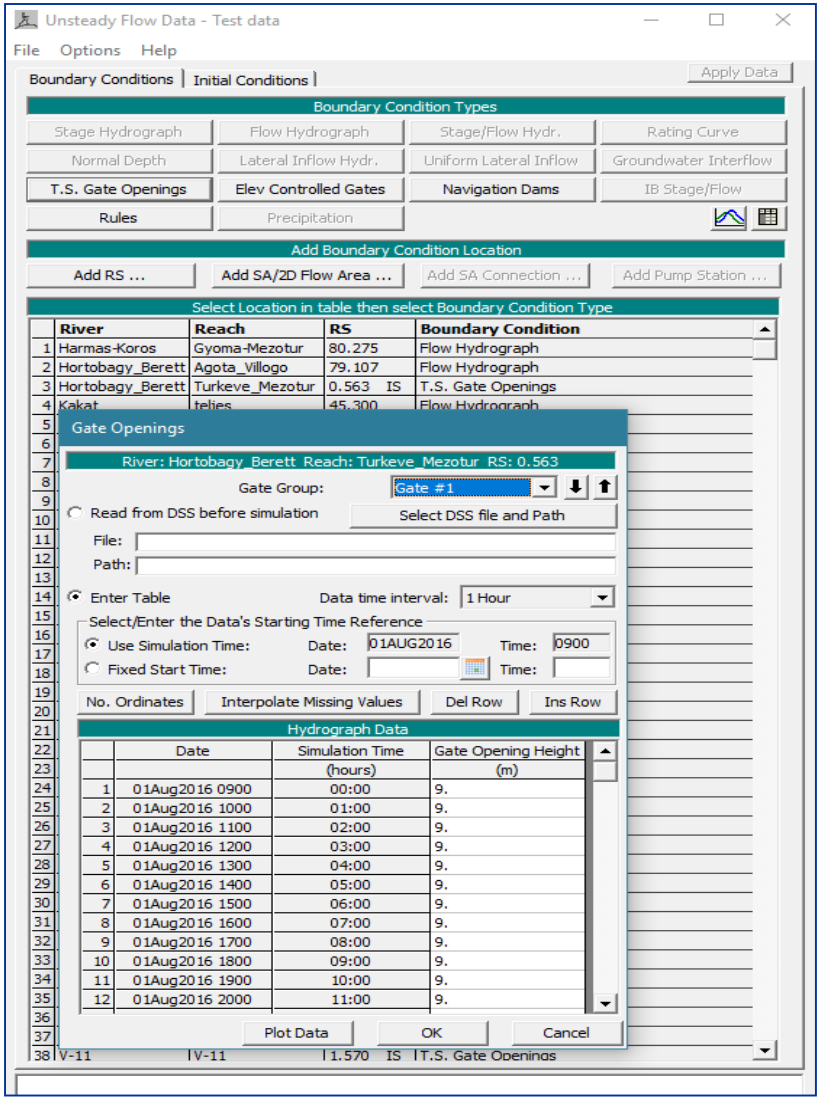


Model inputs and parameters

- Flow timeseries
  - **At Tokaj (Tisza), at Gyoma (Hármas-Körös), at Ágota (Hortobágy-Berettyó)**
- Stage timeseries
  - **At Szeged (Tisza)**
- Operation of gates, dams, pump stations
- We used last year's summer data for testing and calibration

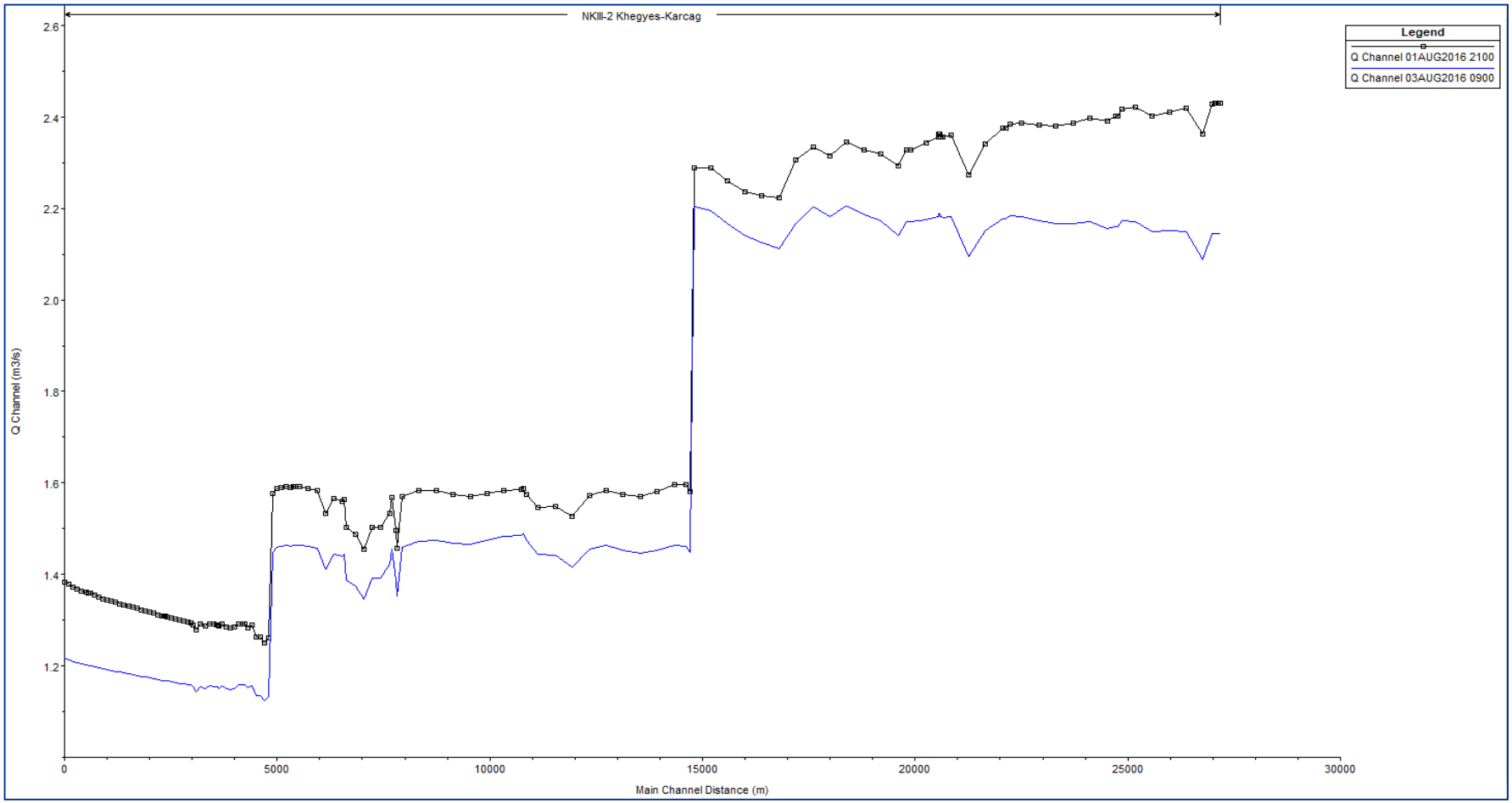
Water management purpose

- Operation of locks, pumping stations can be modeled
- Water extractions can be installed as well



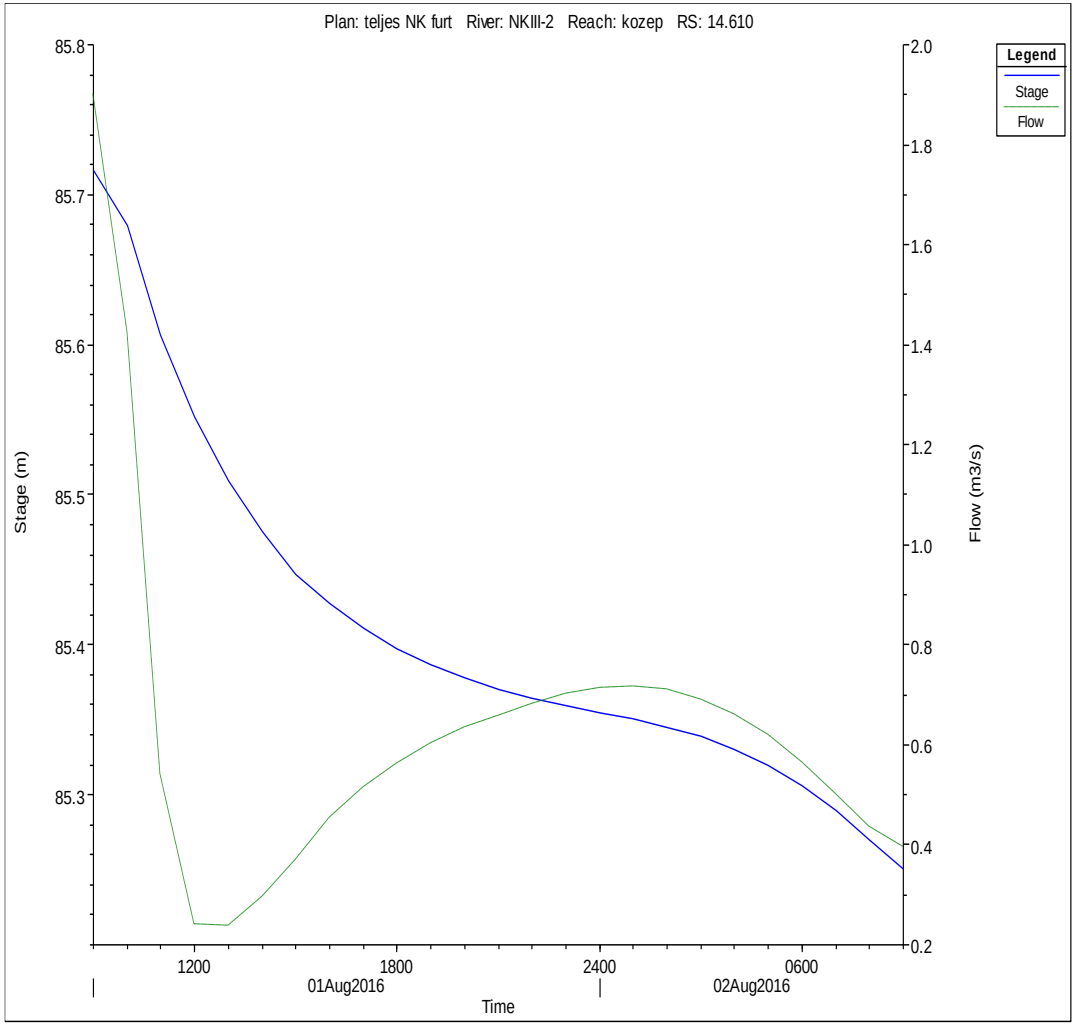
Water management purpose

- At a longitudinal profile, the distribution of the discharge can be shown:

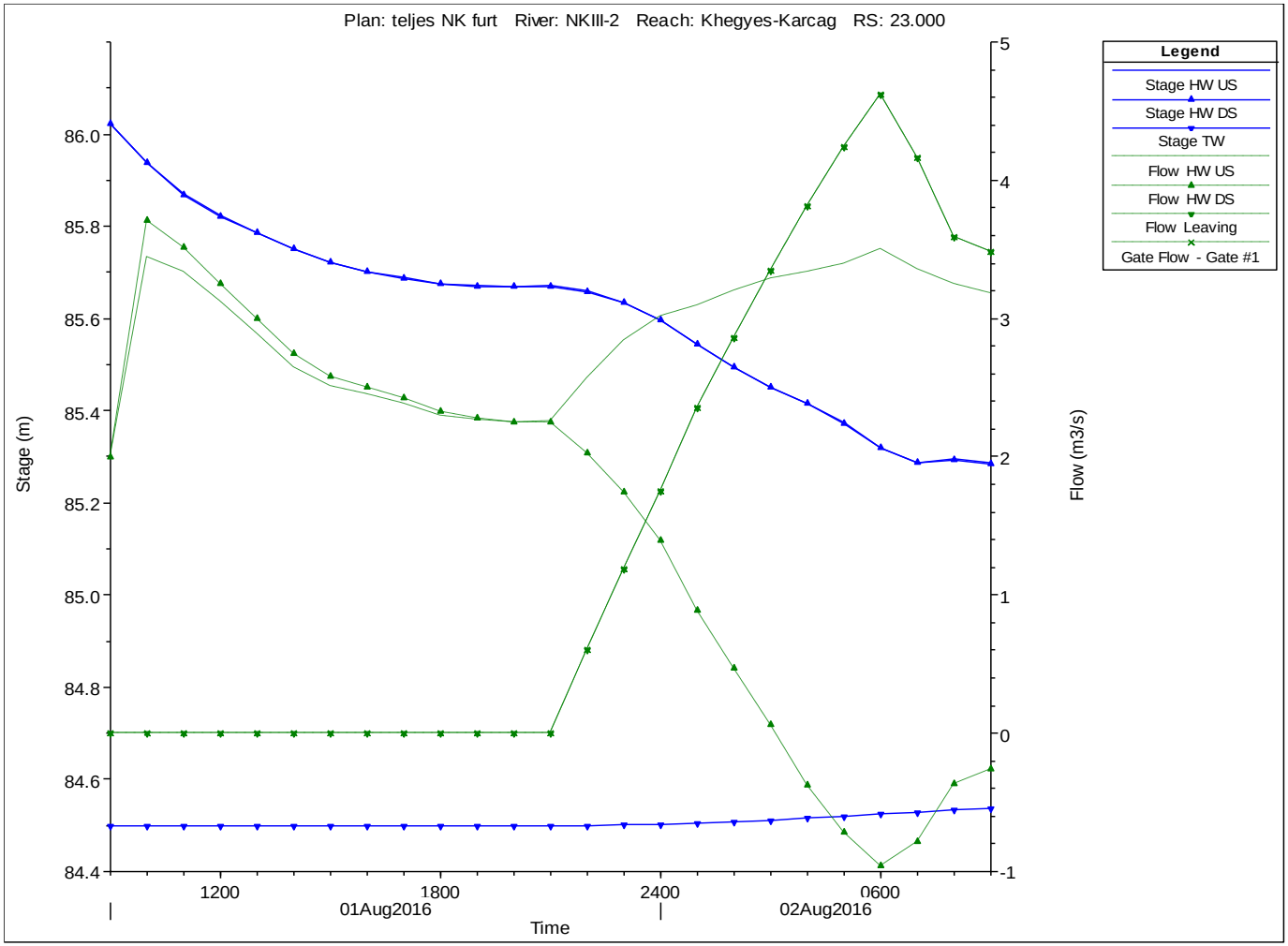


Water management purpose

- We are able to make **flow** [m^3/s] and/or **stage** [mBf.] timeseries at any cross-sections in the model.
- It is good for water management calculations



Water management purpose



We can visualize how much water go through a gate in the model

We also have **flow** & **stage** time series there

Summary

- HEC-RAS 1D is suitable for fast, simple modeling of complex water systems
- Quantifying the water resources in the pilot area can be done with a well-built 1D model
- By adjusting the operation of the locks, pumping stations, we are able to distribute water in different ways

What is next for the model?

- Improving the model
  - **Modeling extreme drought periods**
  - **How we can manage / store the water sources**
  - **Groundwater impacts**
- Making climate change scenarios
- We are also here to listen your opinion, advice

Thank you for your attention!

Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River | Ministry of Water and Forests, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Republic of Serbia Ministry of Agriculture and Environmental Protection – Water Directorate | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine