



Gestione del Rischio Idraulico per il bacino del
fiume Vipacco ed ulteriori bacini transfrontalieri
Upravljanje poplavne ogroženosti na porečju
reke Vipave in na ostalih čezmejnih porečjih

VISFRIM - Modelling activities in the Vipava catchment

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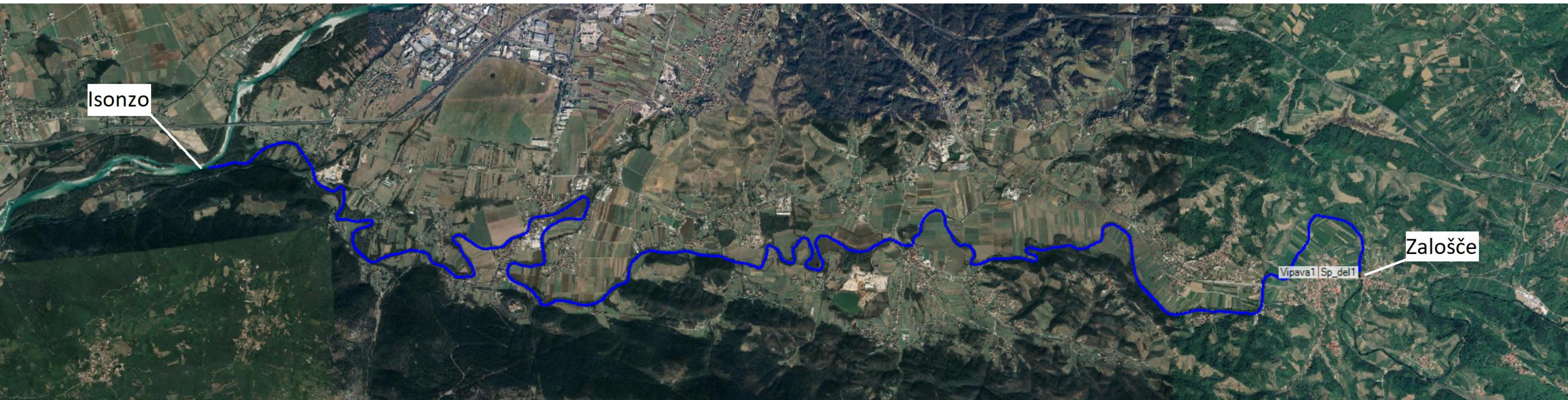
VISFRIM Final Conference
28.06.2022



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Modelling area

- Limits of the modelled area:
 - downstream: confluence with Soča/Isonzo
 - upstream: Zalošče
- Area less affected by karst phenomena

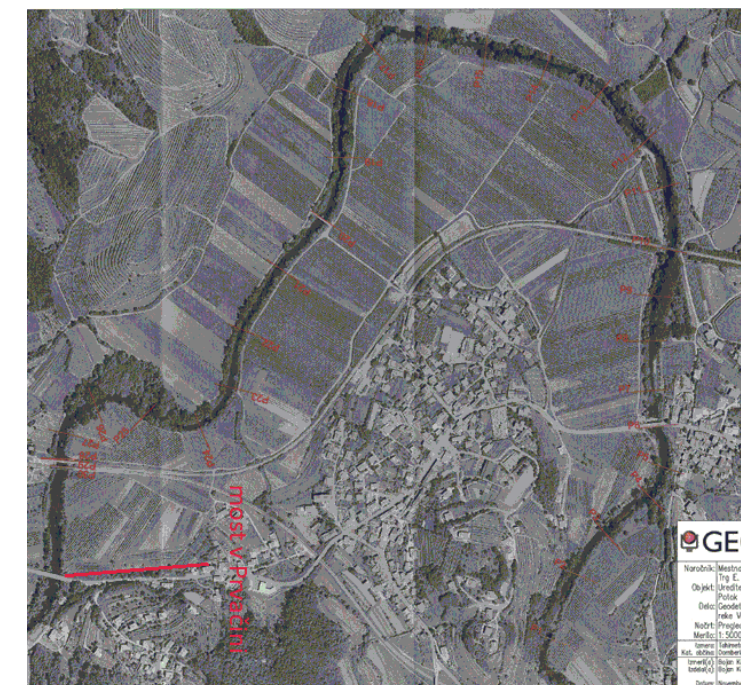
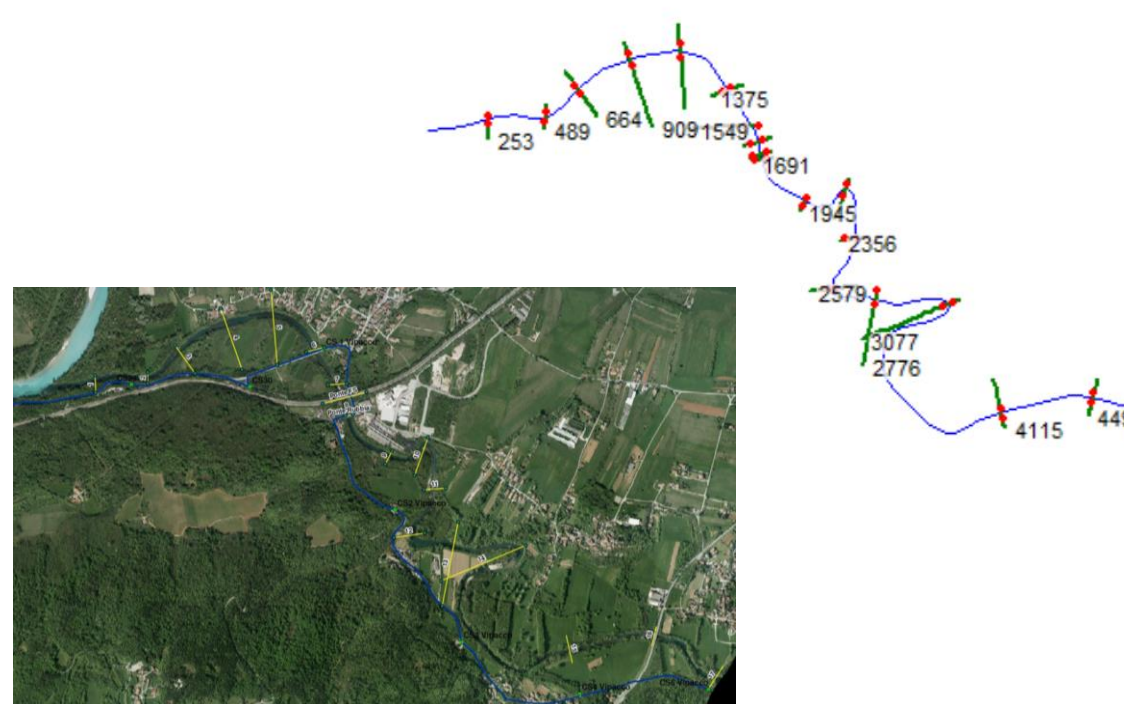
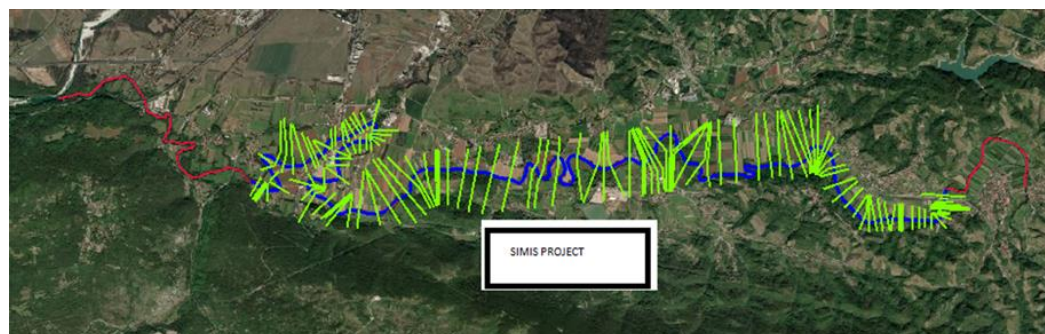




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Sources of data

- Cross sections from SIMIS project
- Topographical measurements of cross sections performed by FVG in VISFRIM
- Cross sections provided by DRSV (Miren area)
- DRSV added additional cross sections, bridges and investments

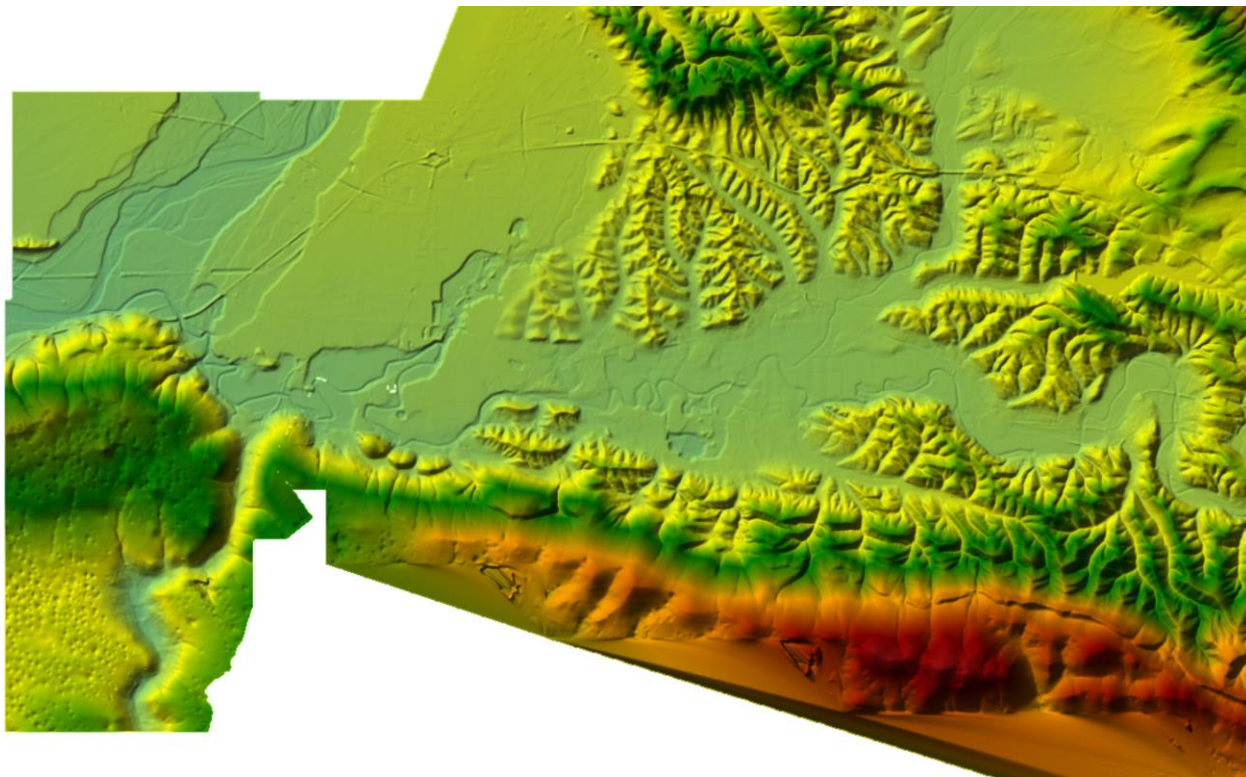




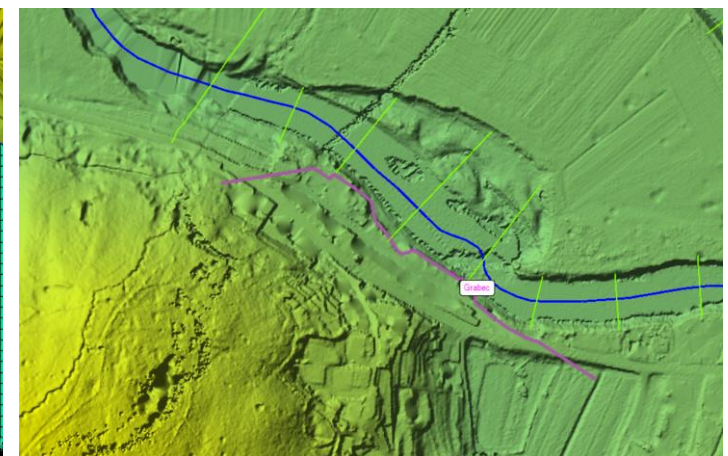
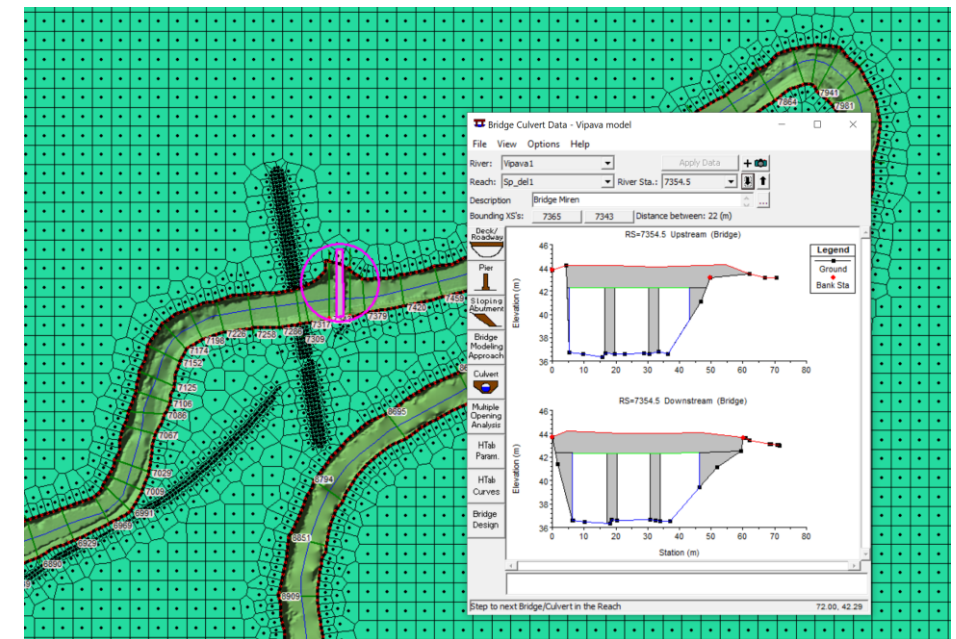
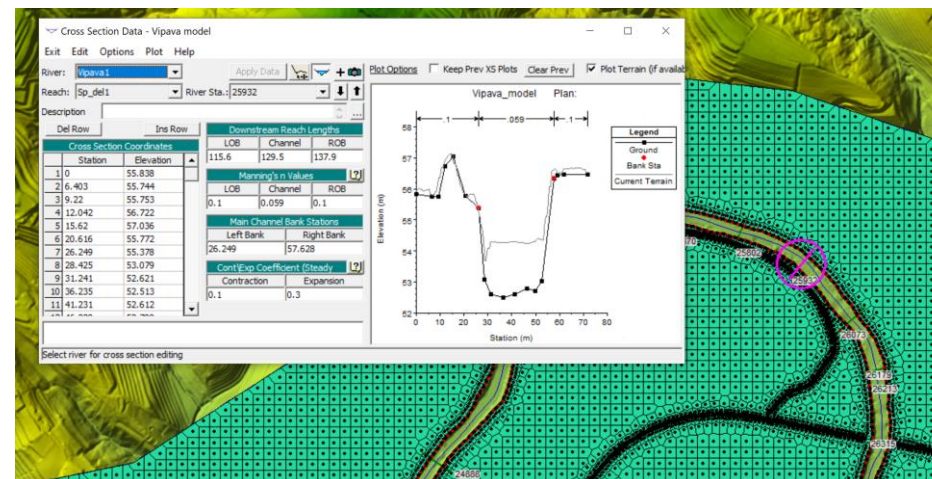
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Sources of data

Merged (Slovenian + Italian) LIDAR DTM



Cross sections, bridges and investments implementation

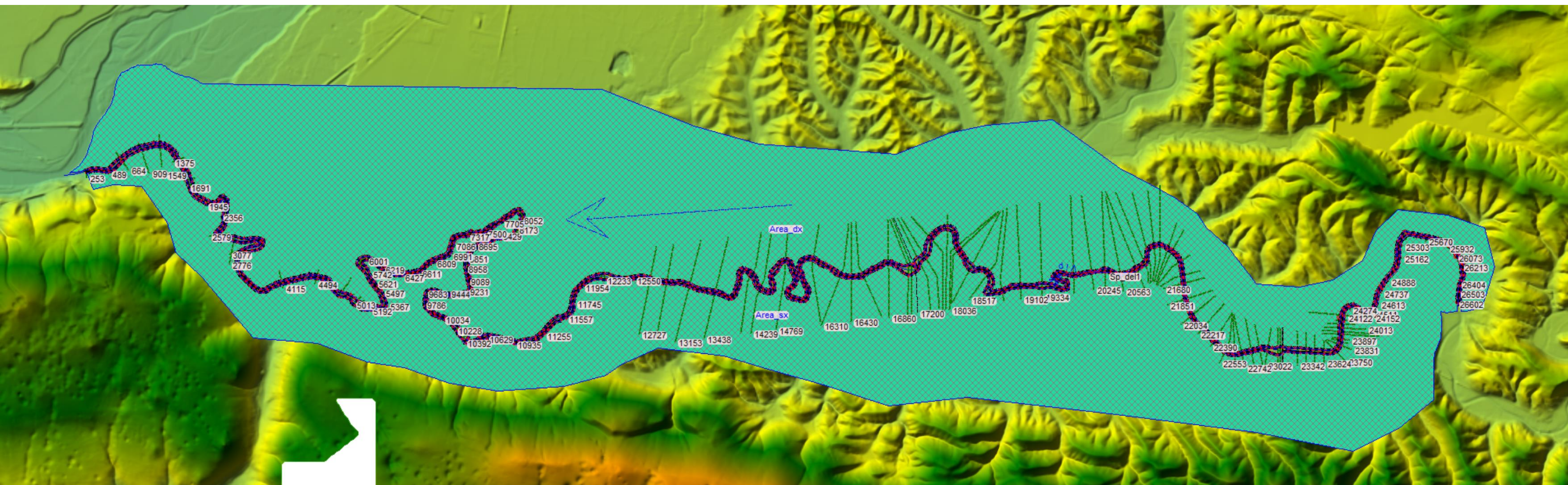




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Modelling activities

- 1D-2D model developed in HEC-RAS for unsteady flow simulations

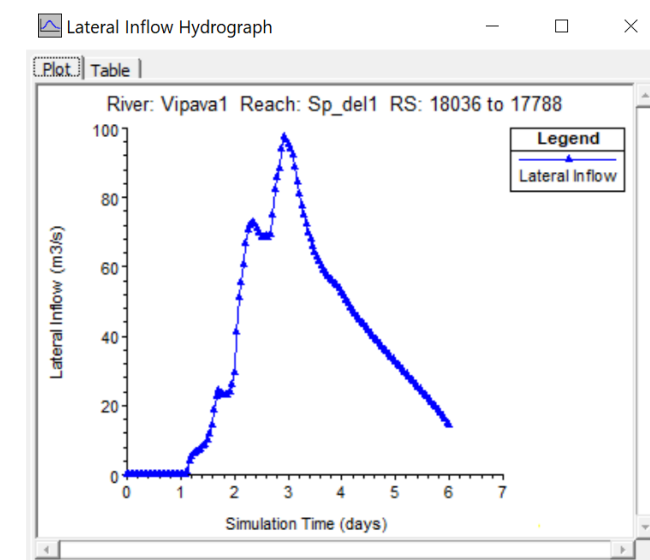
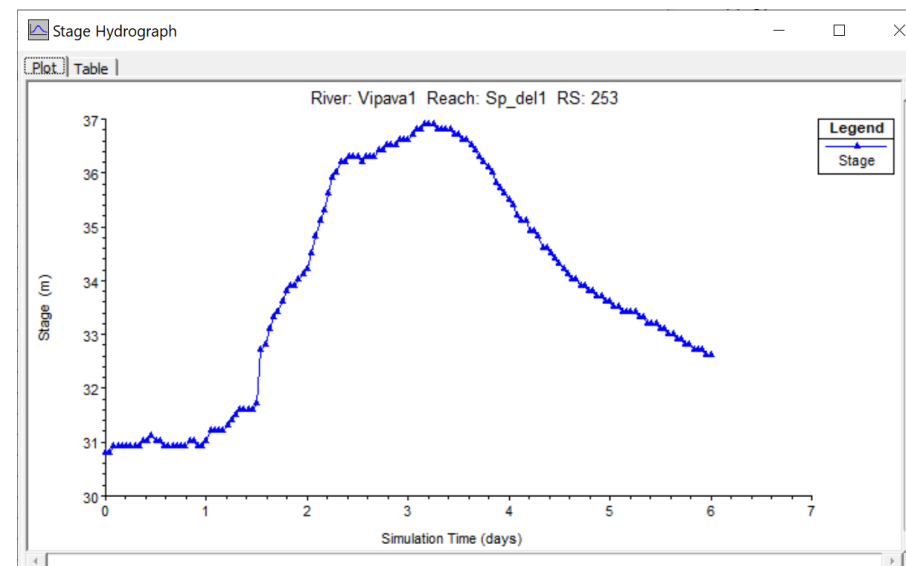
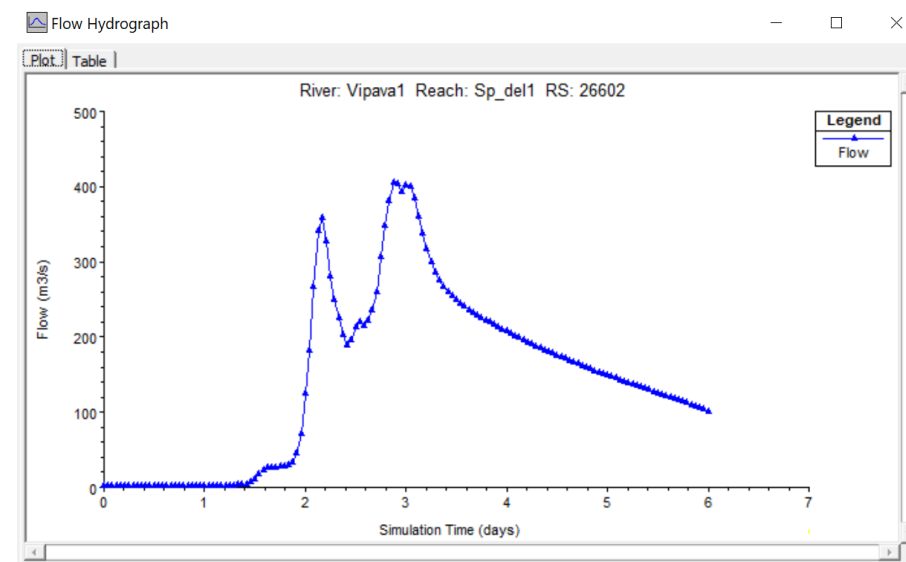




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Modelling activities

- First studied scenario: 2010 event (cca. 100 year return period Slovene synthetic flow hydrograph)
- DRSV provided 2010 event hydrographs from new implemented hydrology (inflow hydrograph for Vipava river and tributaries)
- AAWA provided downstream boundary condition at Soča/Isonzo river (water levels)

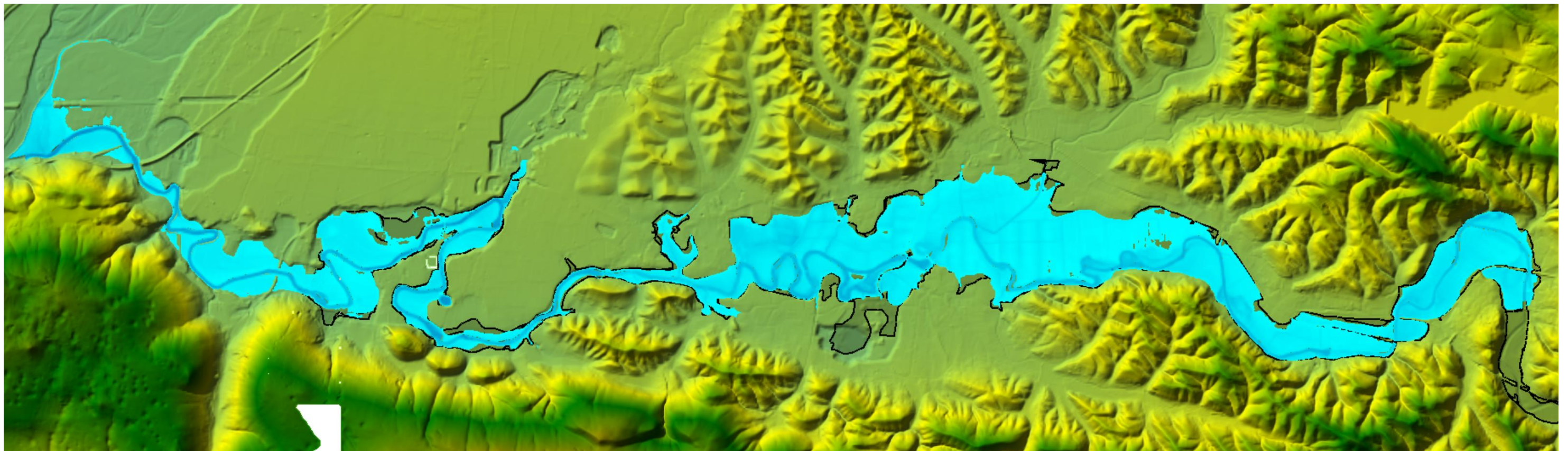




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Calibration

- Performed based on the recorded flood extents for 2010 event
- Performed based on measured water levels:
 - of the event in 1995 (along whole modelling reach)
 - at water gauging station in Dornberk and Miren also on other high water events



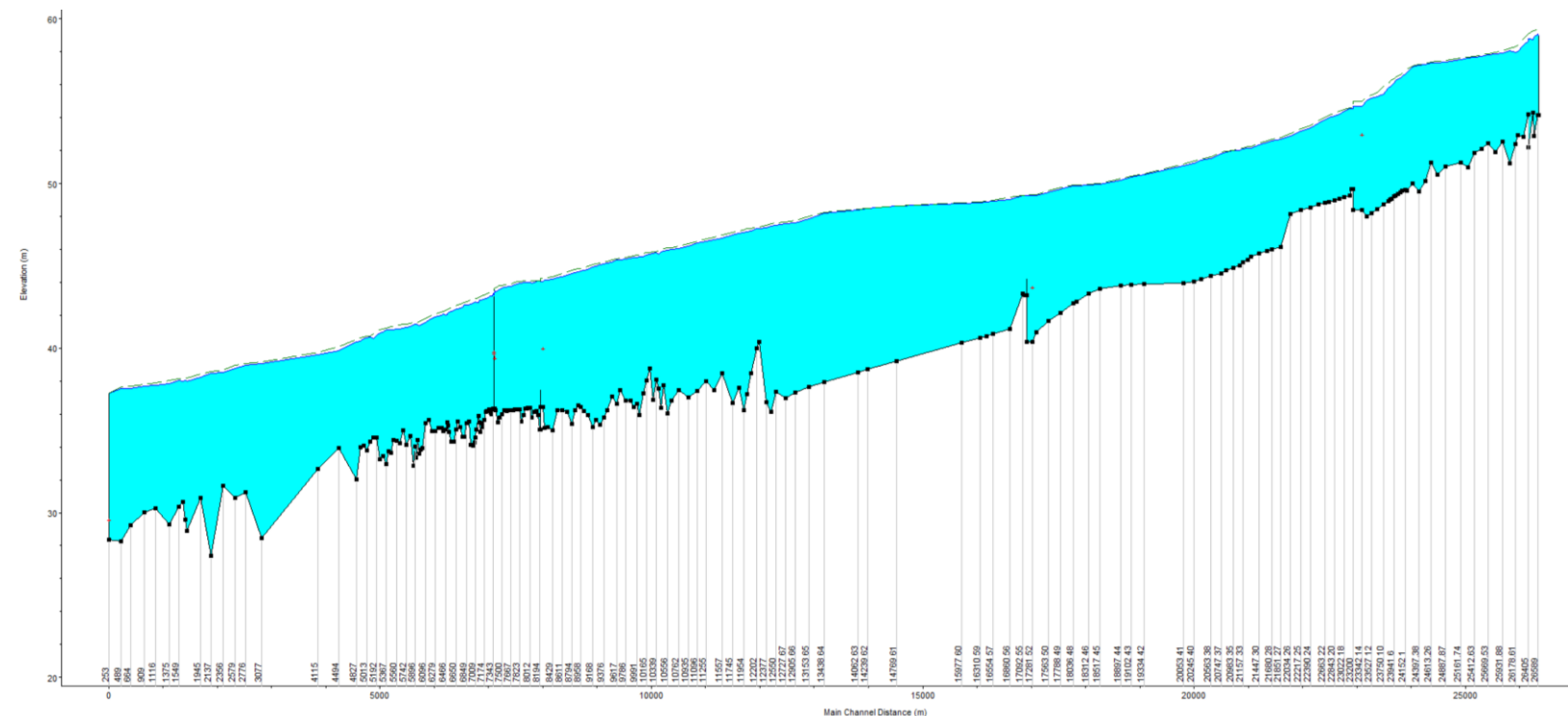
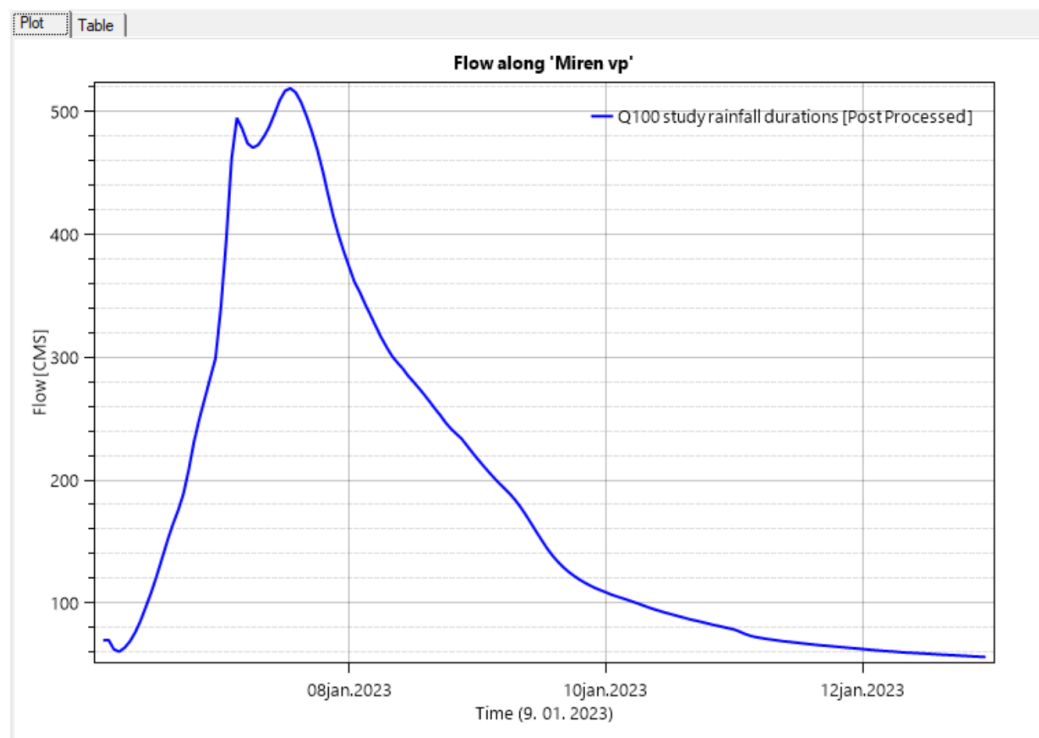


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Results

- Simulations of 100 year return period scenarios performed with inputs from the new Slovenian hydrology of Vipava
- Varying results due using different coincidence between Vipava/Vipacco river and tributaries

RASMapper Plot

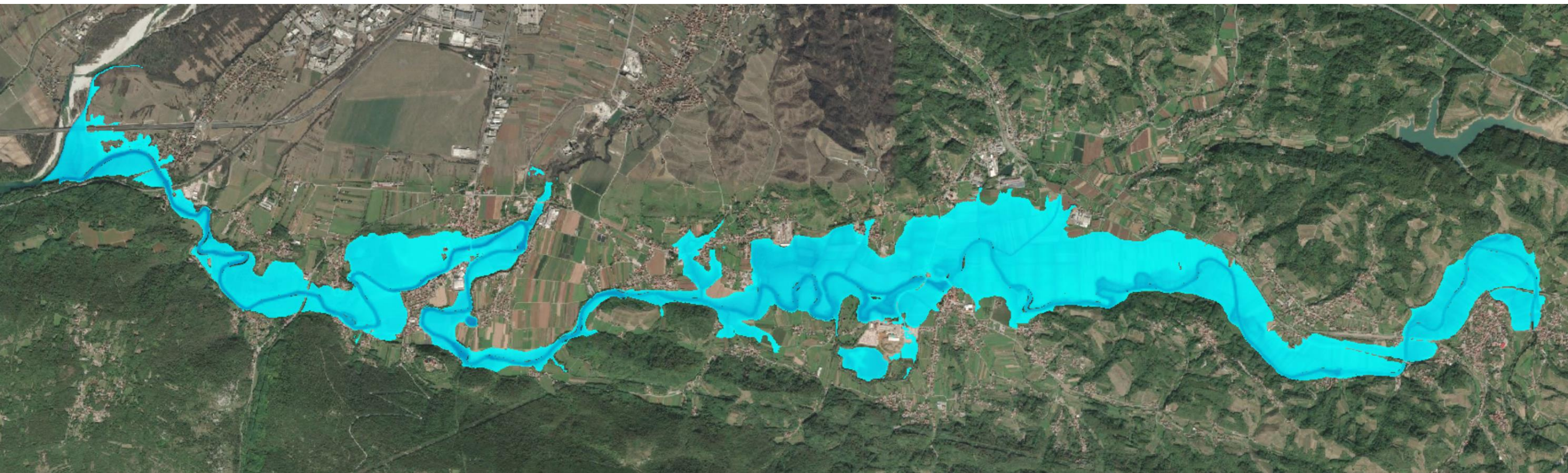




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Results

Flood hazard map Q_{100} - ante operam scenario

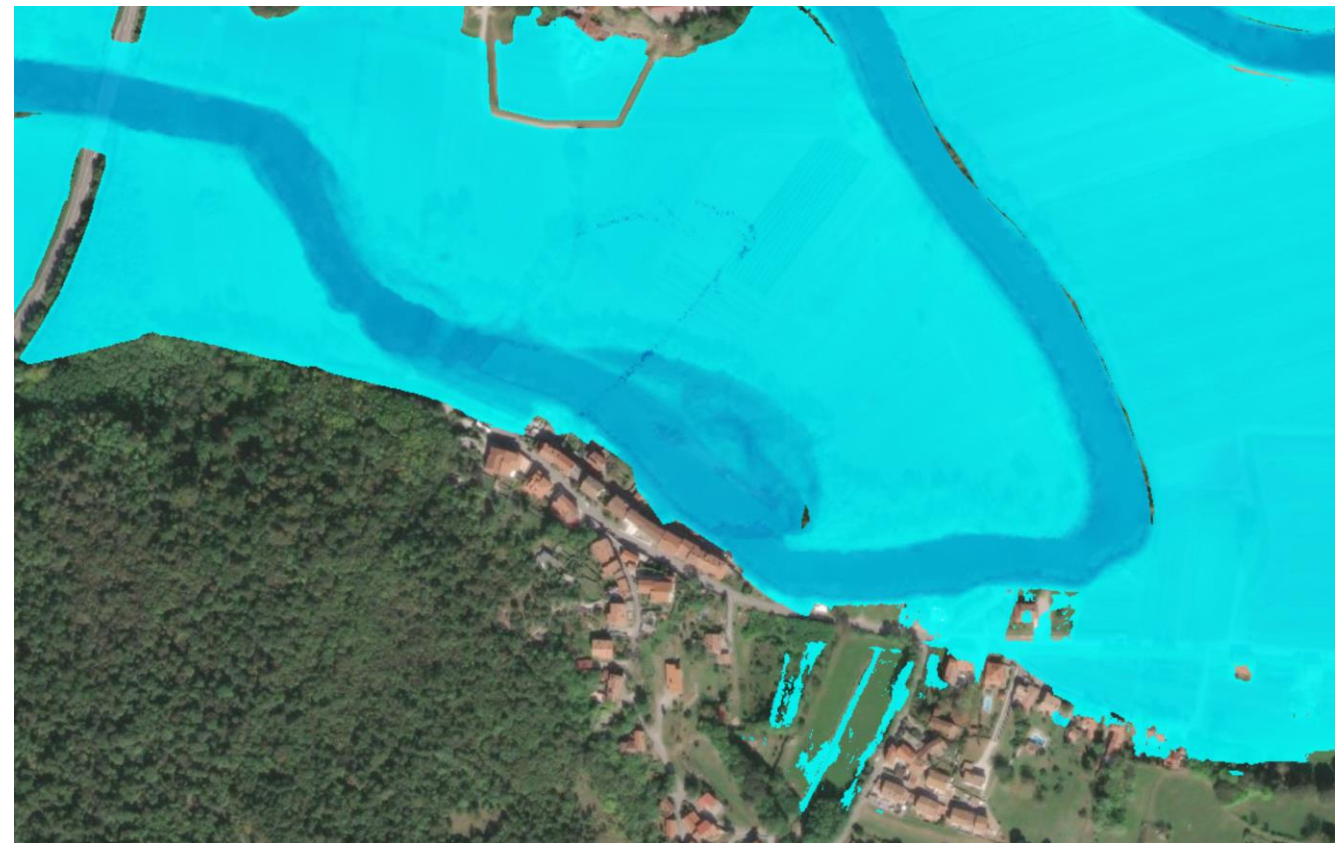




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Results

Flood hazard map Q_{100} - post operam scenario





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Agreed consensus

- 100 year return period discharge at the Italian-Slovenian border is in the range between 480 m³/s to 600 m³/s
- Uncertainty will be reduced in future with the greater number of hydrometric observations



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Cost benefit analysis - WP3.2

- Analysis were performed by AAWA
- Calculations via the software implemented in VISFRIM, on the basis of the velocity and water depth rasters provided by DRSV
- Estimated economical damage PRE-OPERAM: 94.480.398,07 €
- Estimated economical damage POST-OPERAM: 94.291.278,80 €

Interreg

ITALIA-SLOVENIJA



VISFRIM

Progetto strategico co-finanziato dal Fondo europeo di sviluppo regionale
Strateški projekt sofinancira Evropski sklad za regionalni razvoj



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Grazie per l'attenzione!

Hvala za pozornost!

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