

Transboundary water issues in a macro-regional context: the Danube basin

Joint Stakeholder Conference – Protecting the Environment
European Union Strategy for the Danube Region
Budapest, 11-12 September, 2013

The contribution of science to the operative flood management

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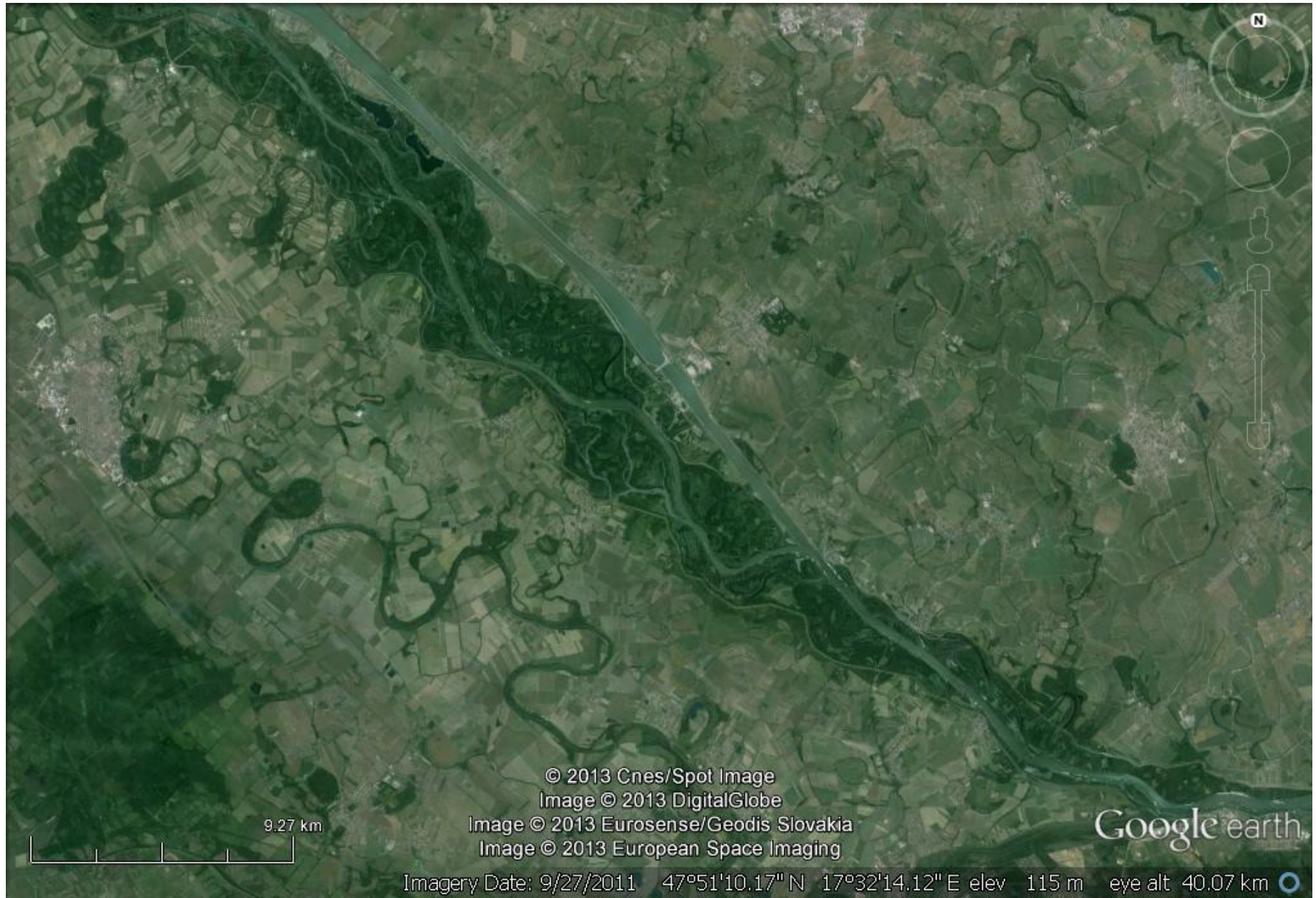


Content

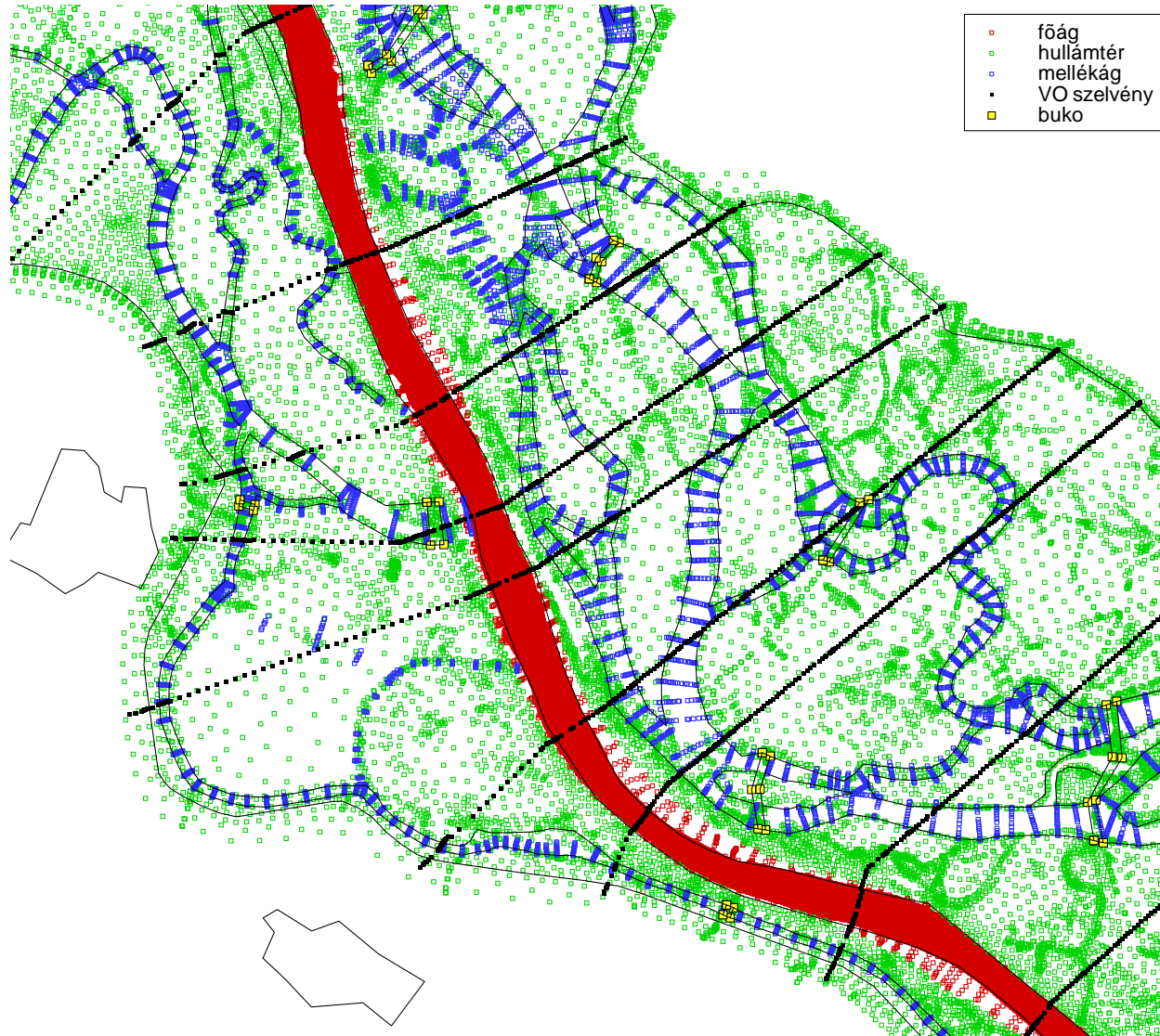
1. Introduction
2. Selected examples on scientific contribution to the flood management in the course of the Danube flood last June
 - Conceiving the plan for high precision discharge and water level measurements, coordinating and participating in its implementation
 - Providing data for forecasting in particular interest of the space-time evolution of flood peaking, essential in defence activities
 - Improving knowledge on flood conveyance capacity of critical river reaches
3. Real-time contribution to disaster management and evacuation actions
4. Contribution to industrial disaster management preparedness

Planning and coordination of high precision discharge measurements

Example: Szigetköz secondary branch system



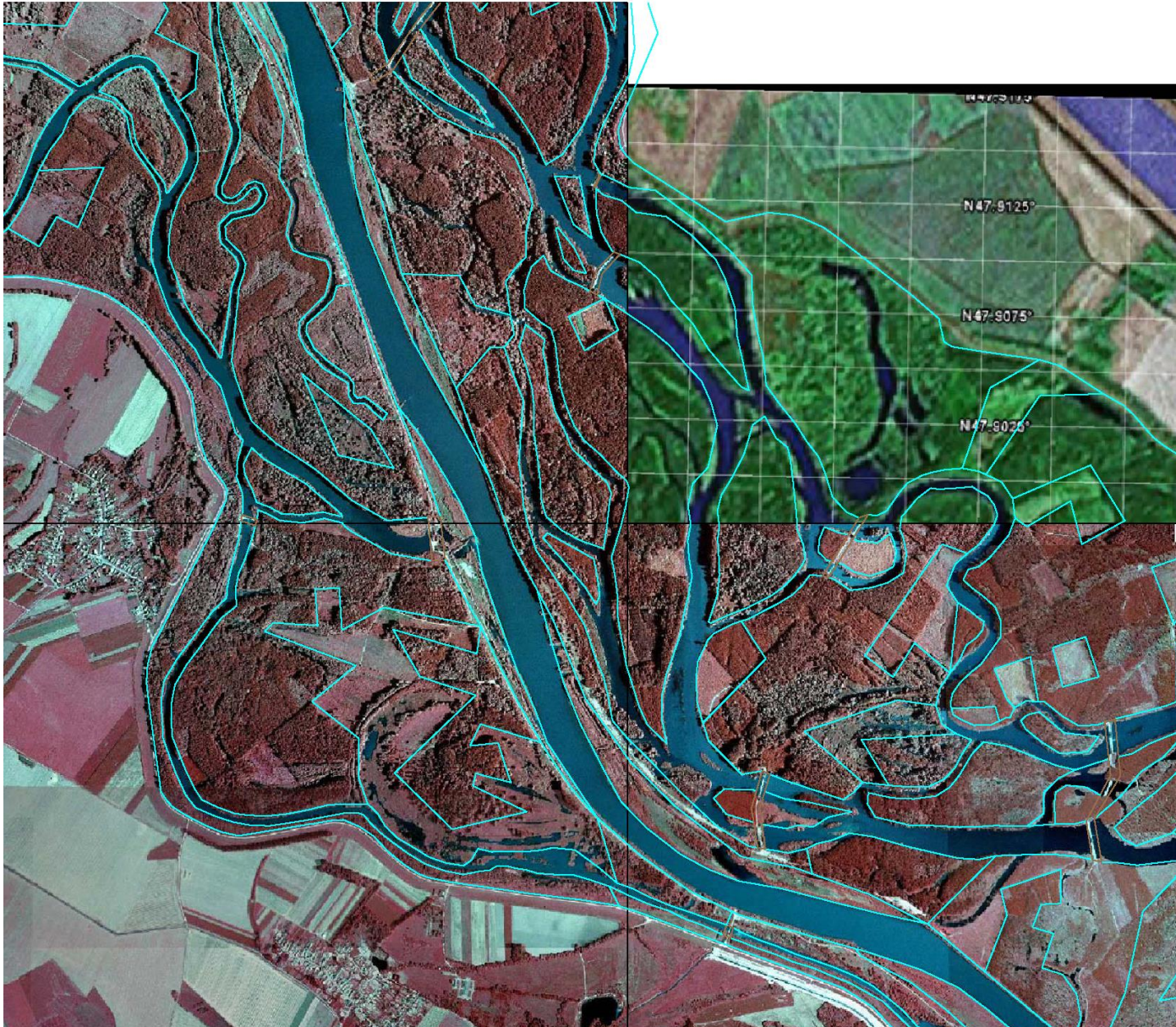
Past 2D flow modelling to help to understand the flood behaviour in the system



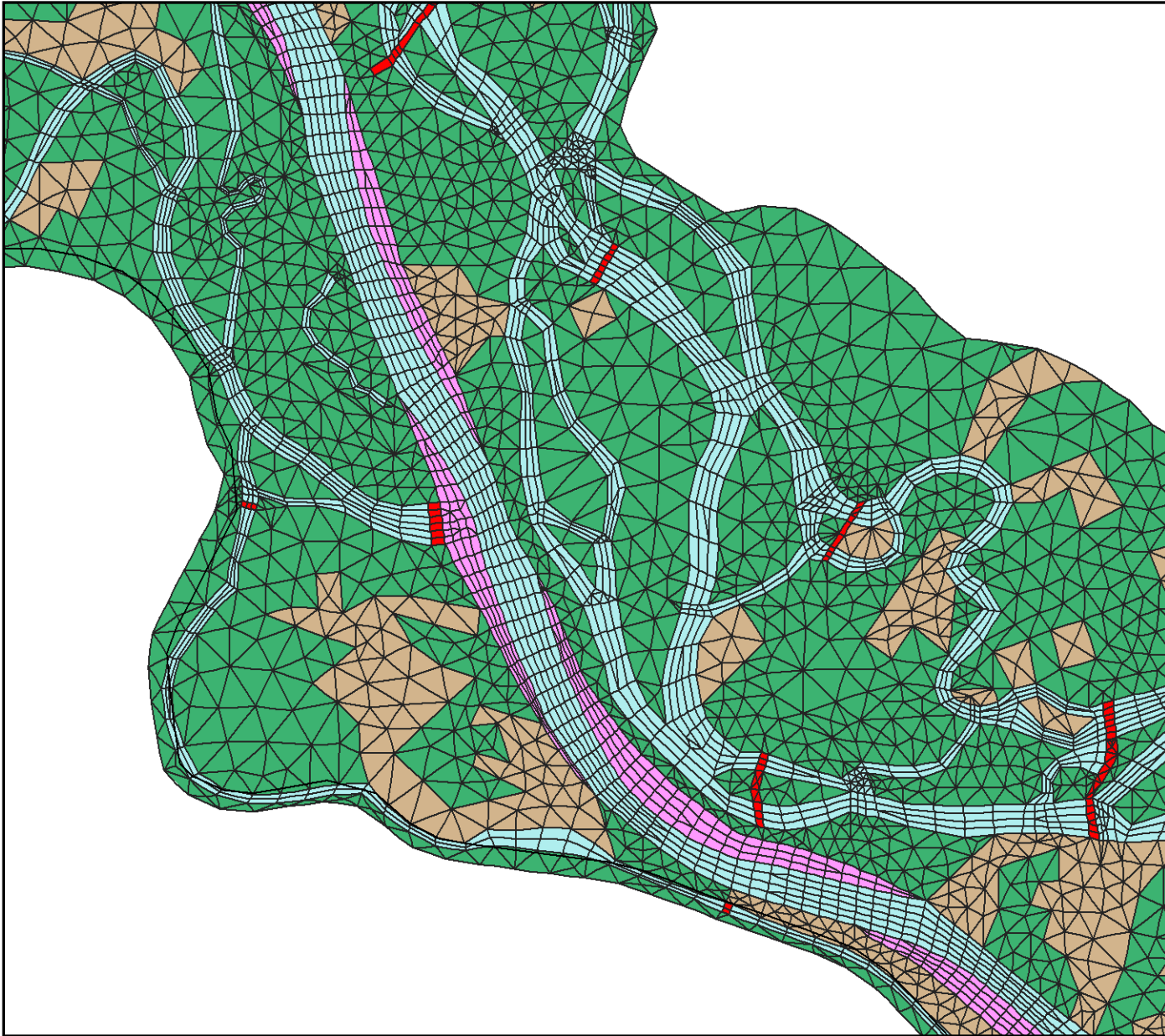
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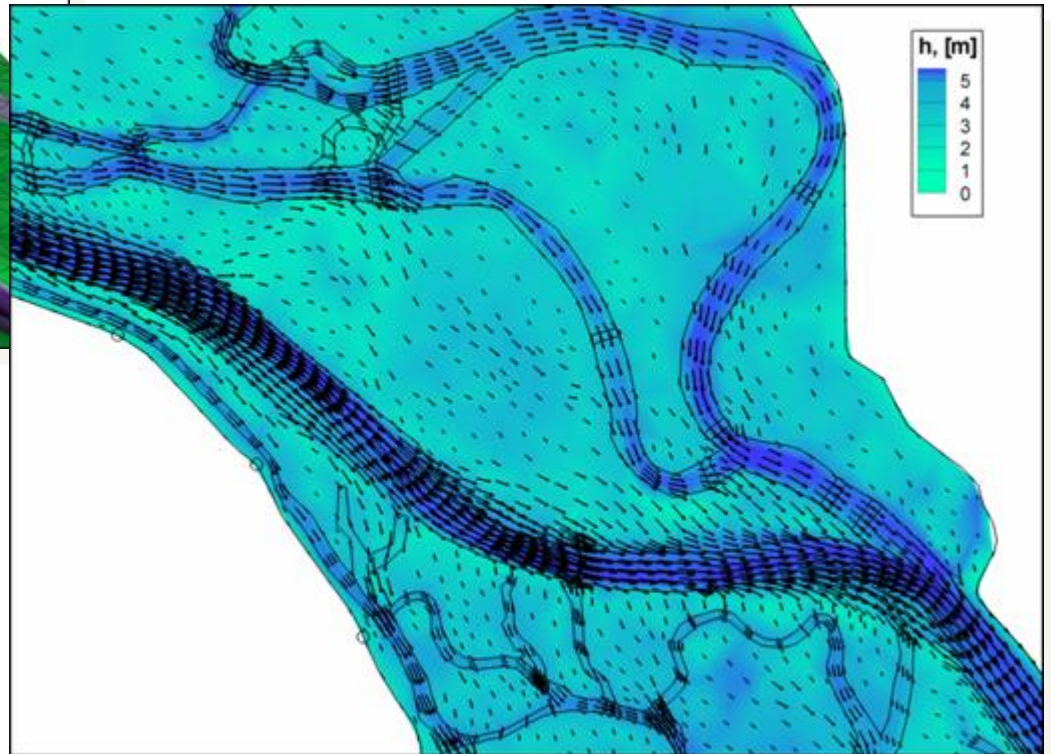
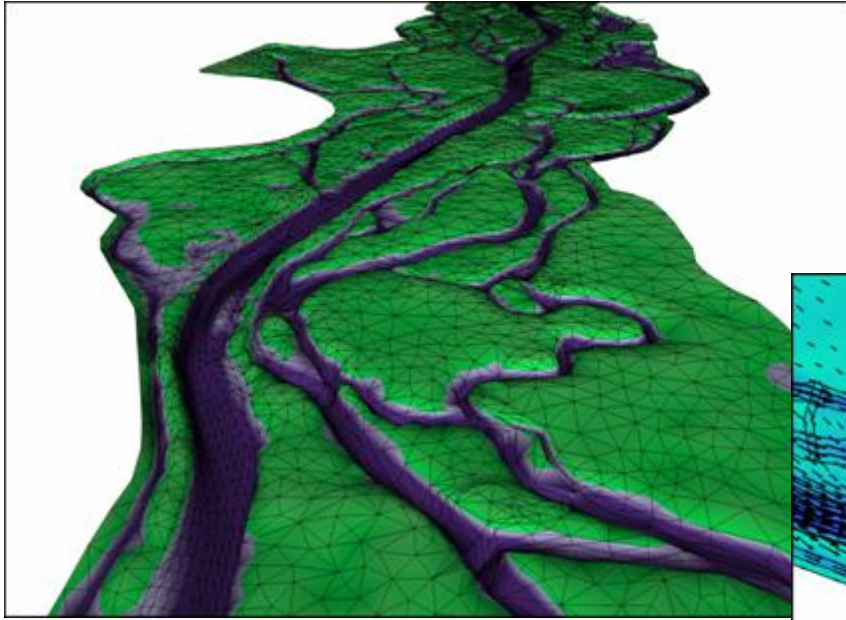
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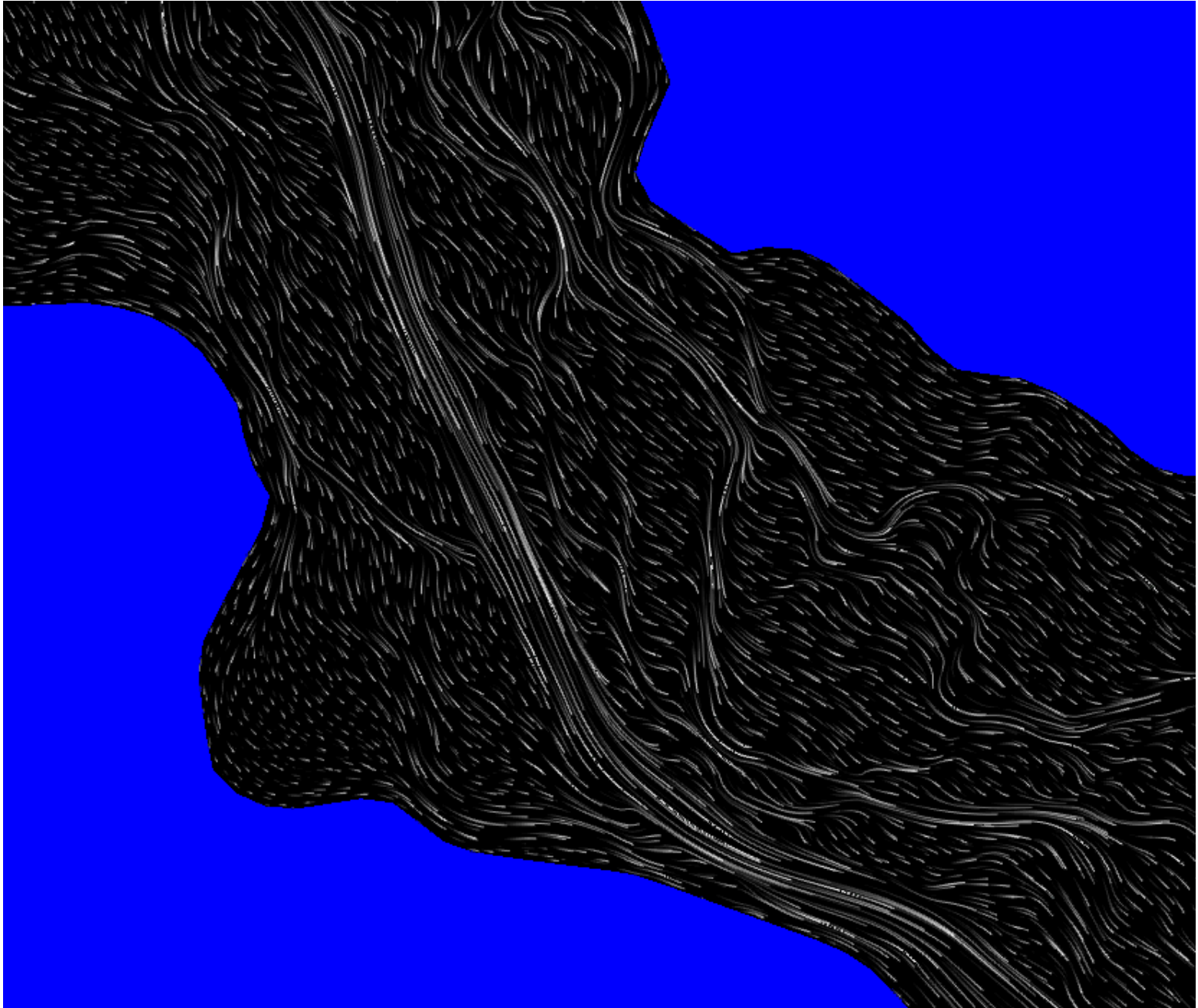
Past 2D flow modelling to help to understand the flood behaviour in the system



Past 2D flow modelling to help to understand the flood behaviour in the system



Past 2D flow modelling to help to understand the flood behaviour in the system



SZIGETKÖZ REVITALIZATION 2D SURFACE WATER MODELLING

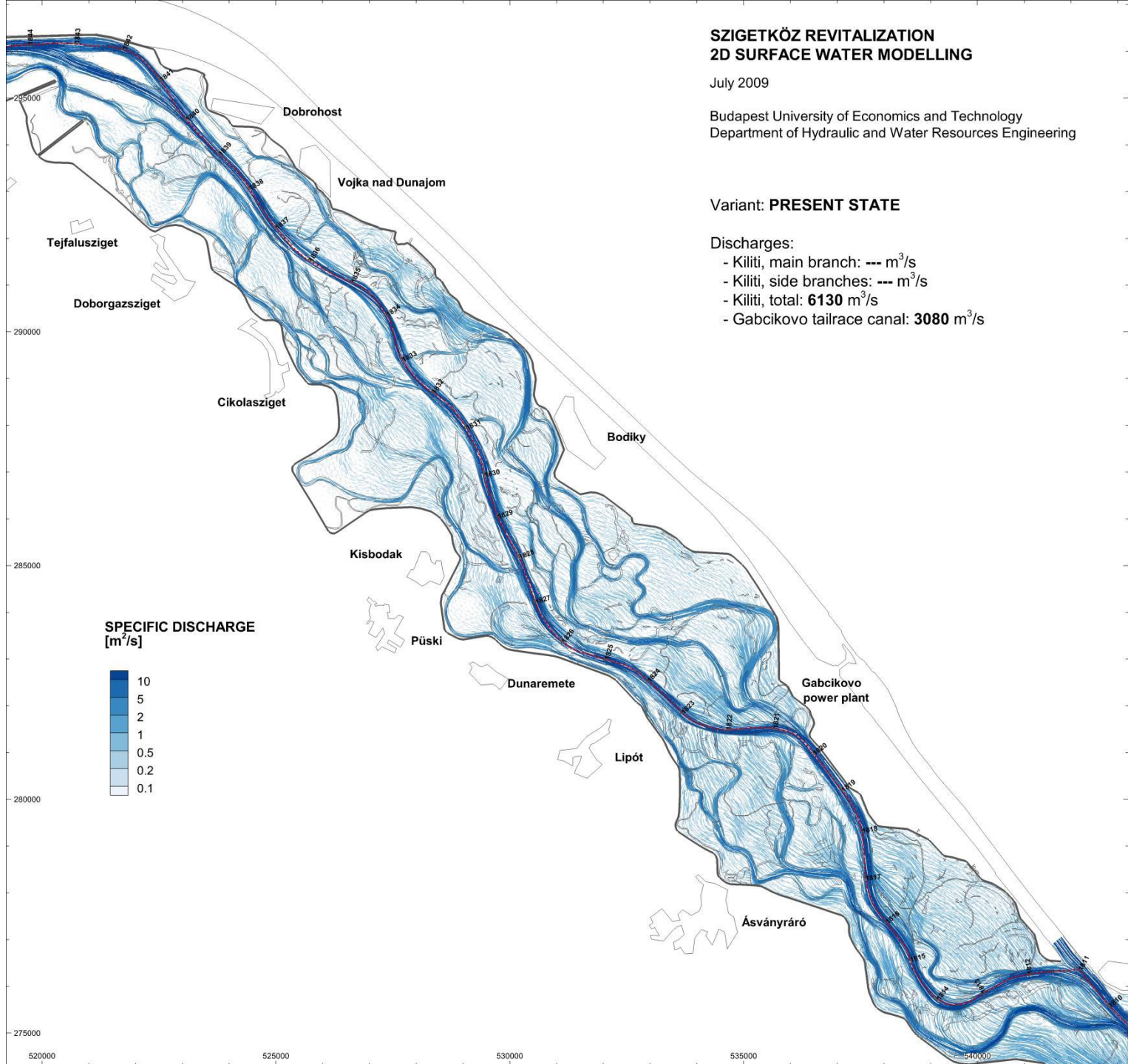
July 2009

Budapest University of Economics and Technology
Department of Hydraulic and Water Resources Engineering

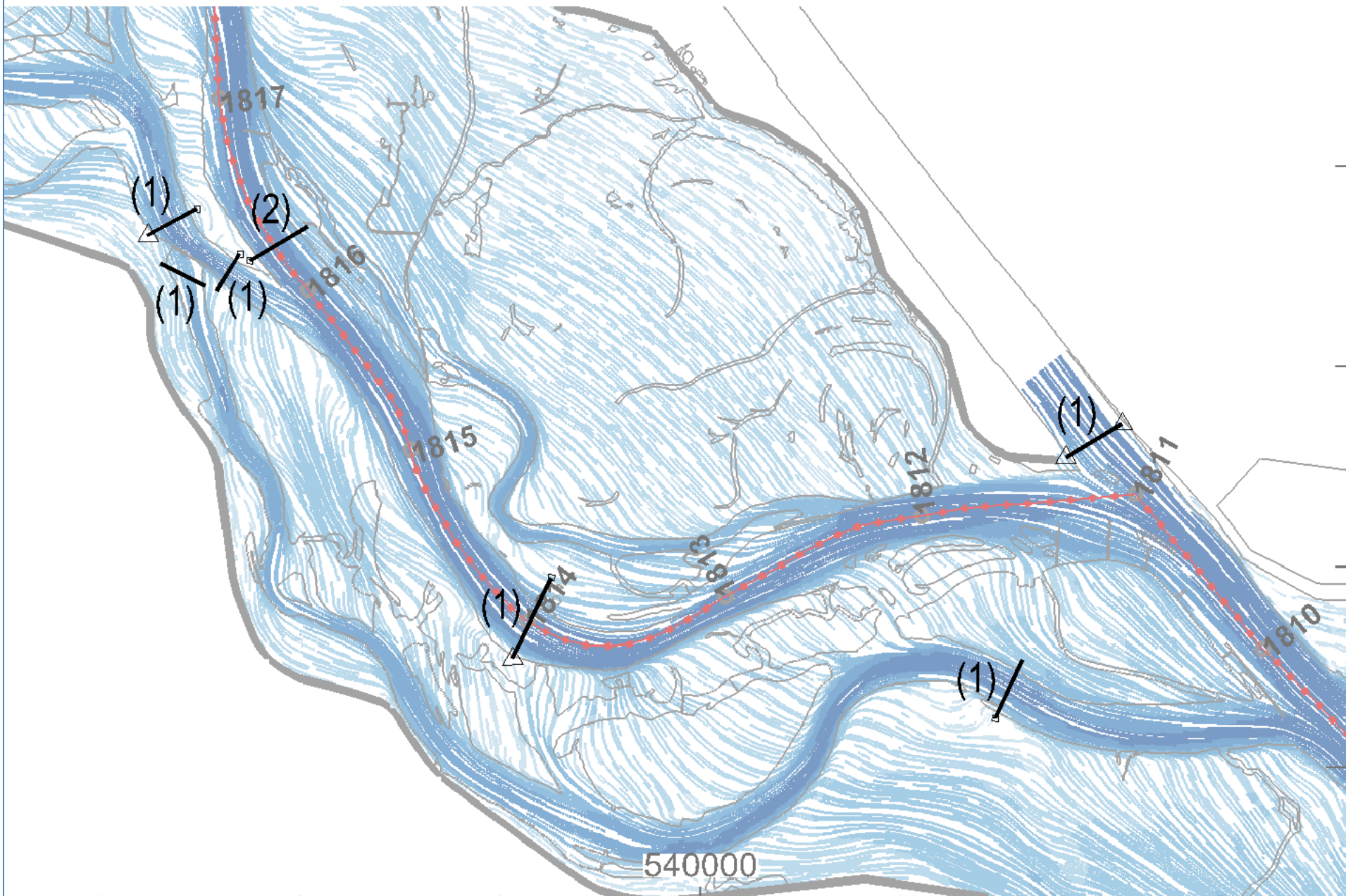
Variant: **PRESENT STATE**

Discharges:

- Kiliti, main branch: --- m^3/s
- Kiliti, side branches: --- m^3/s
- Kiliti, total: **6130 m^3/s**
- Gabčíkovo tailrace canal: **3080 m^3/s**



Detailed plan to capture the conveyance capacity distribution at the peaking

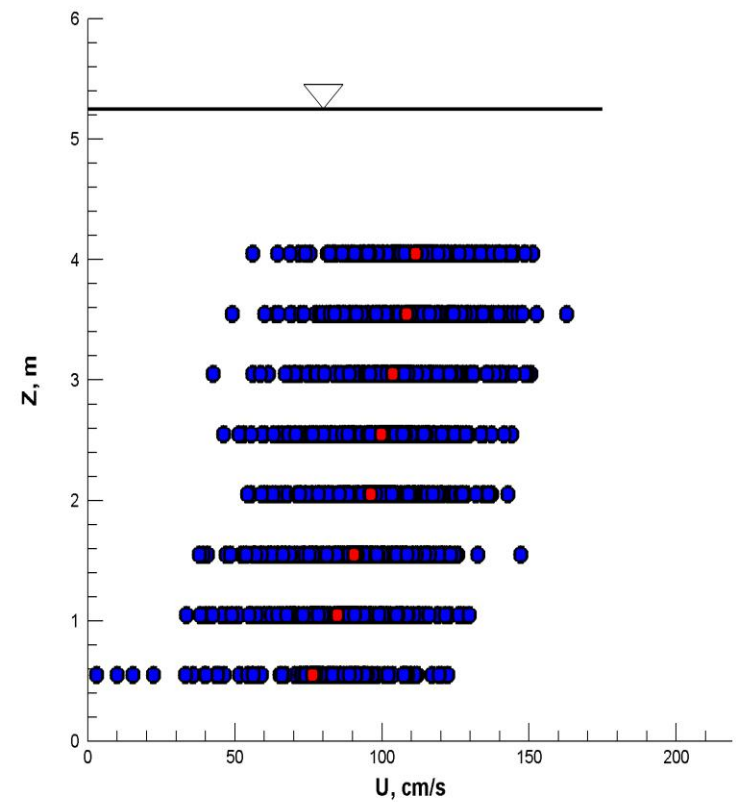
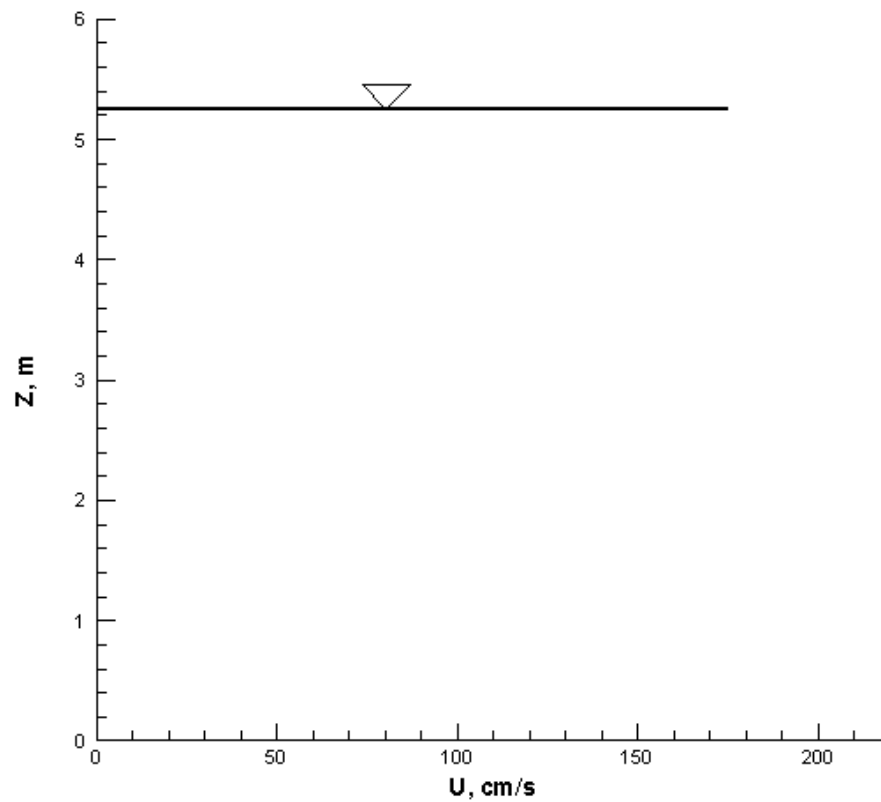


Detailed plan to capture the conveyance capacity distribution at the peaking

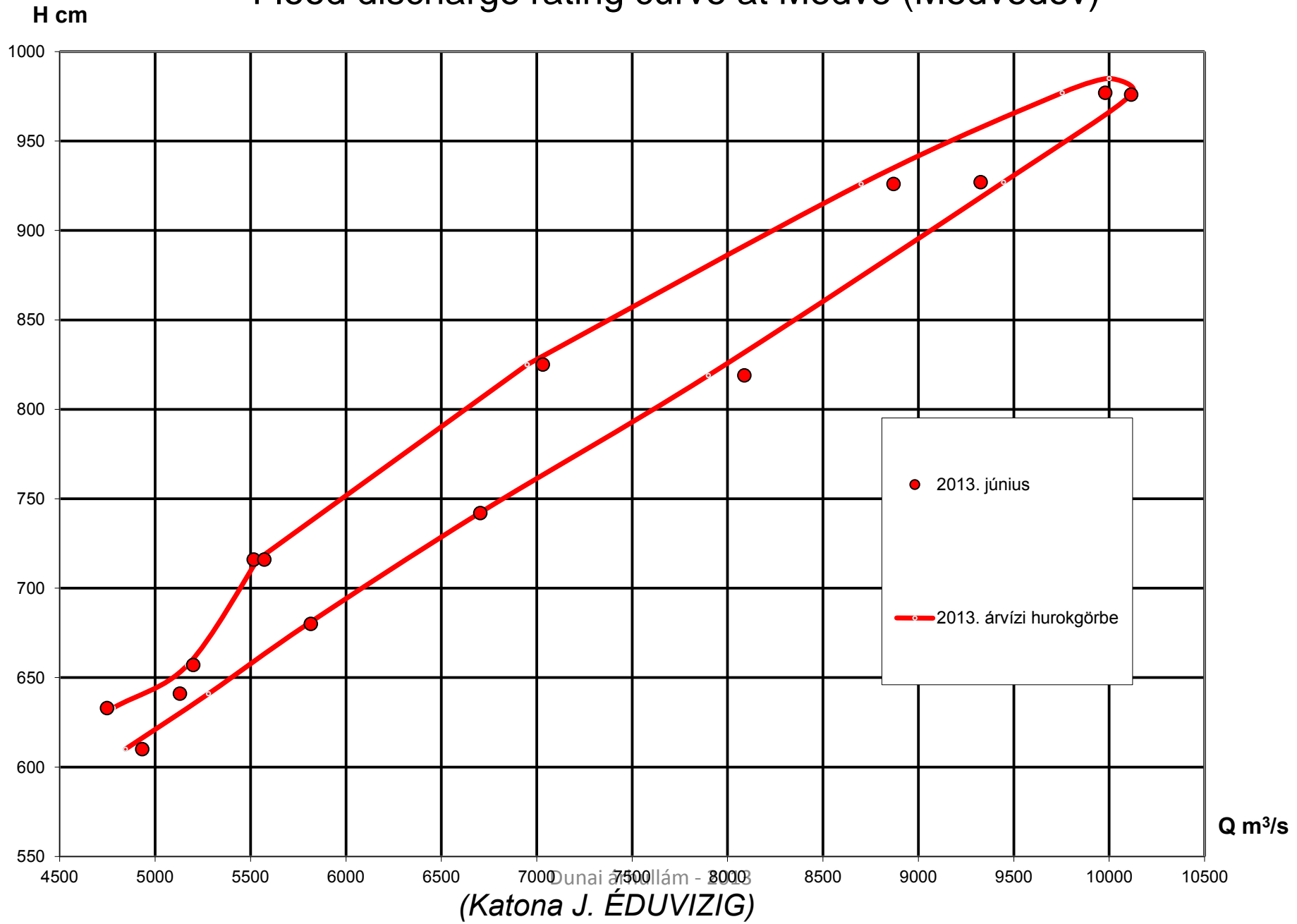


ADCP to measure velocity distribution

Discharge obtained by cross-sectional integration



Flood discharge rating curve at Medve (Medvedov)



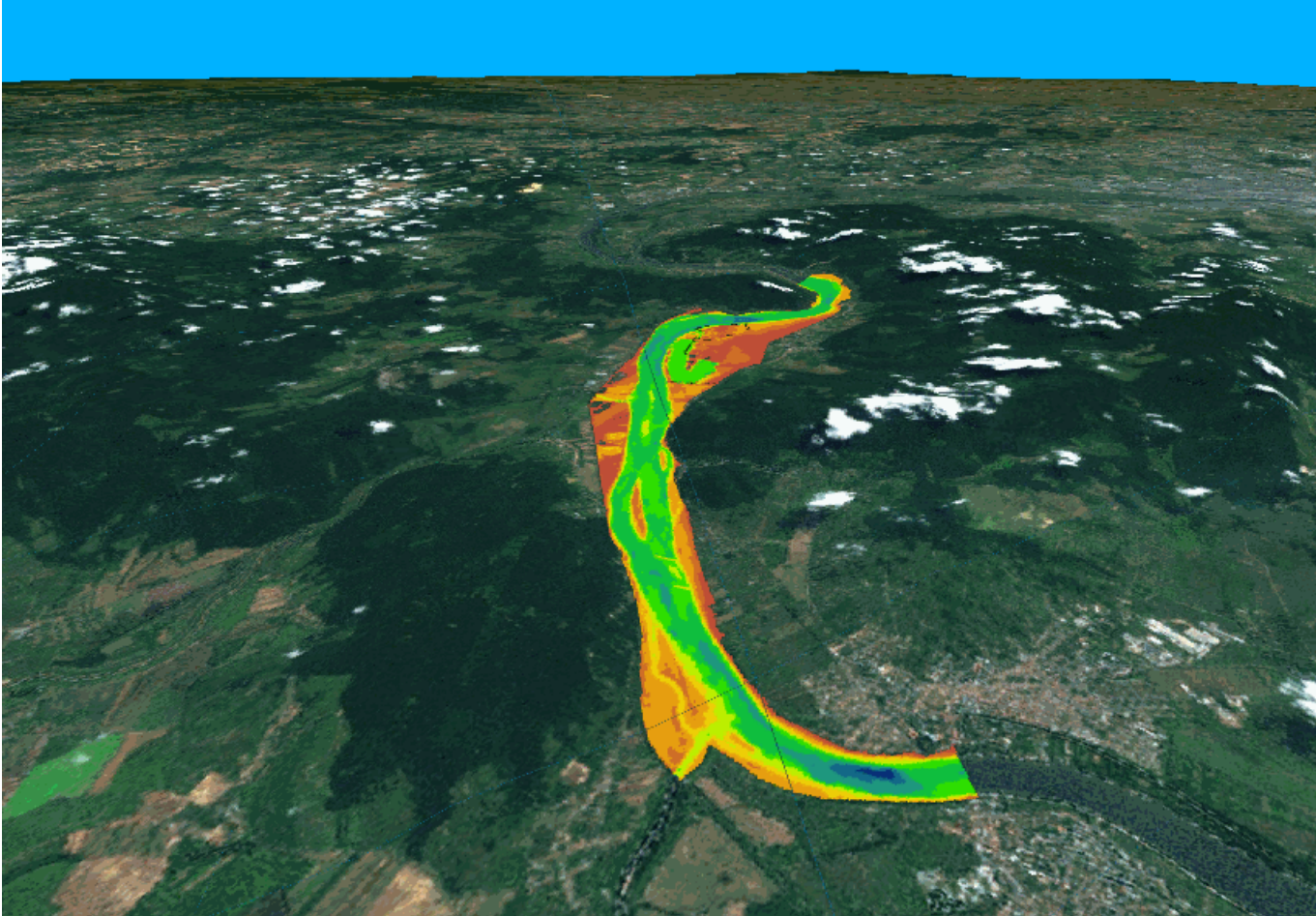
Planning and coordination of high precision discharge measurements

Example: Danube Bend



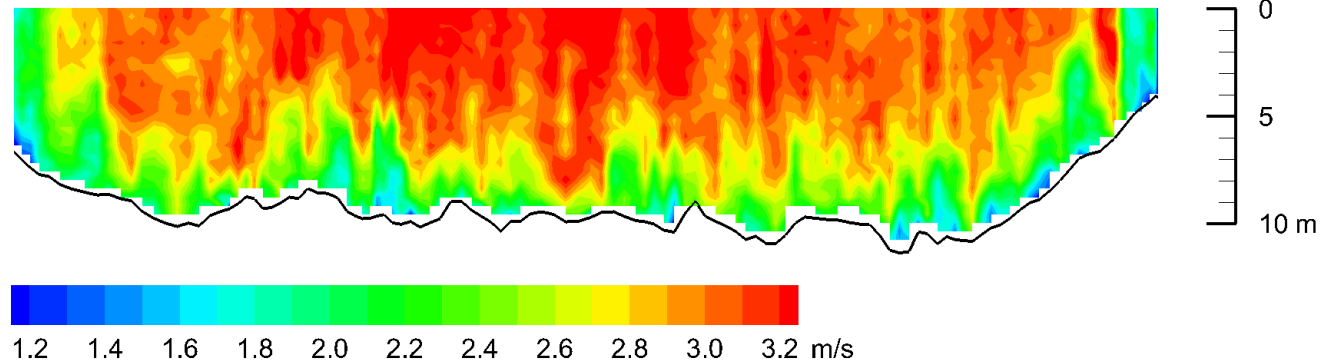
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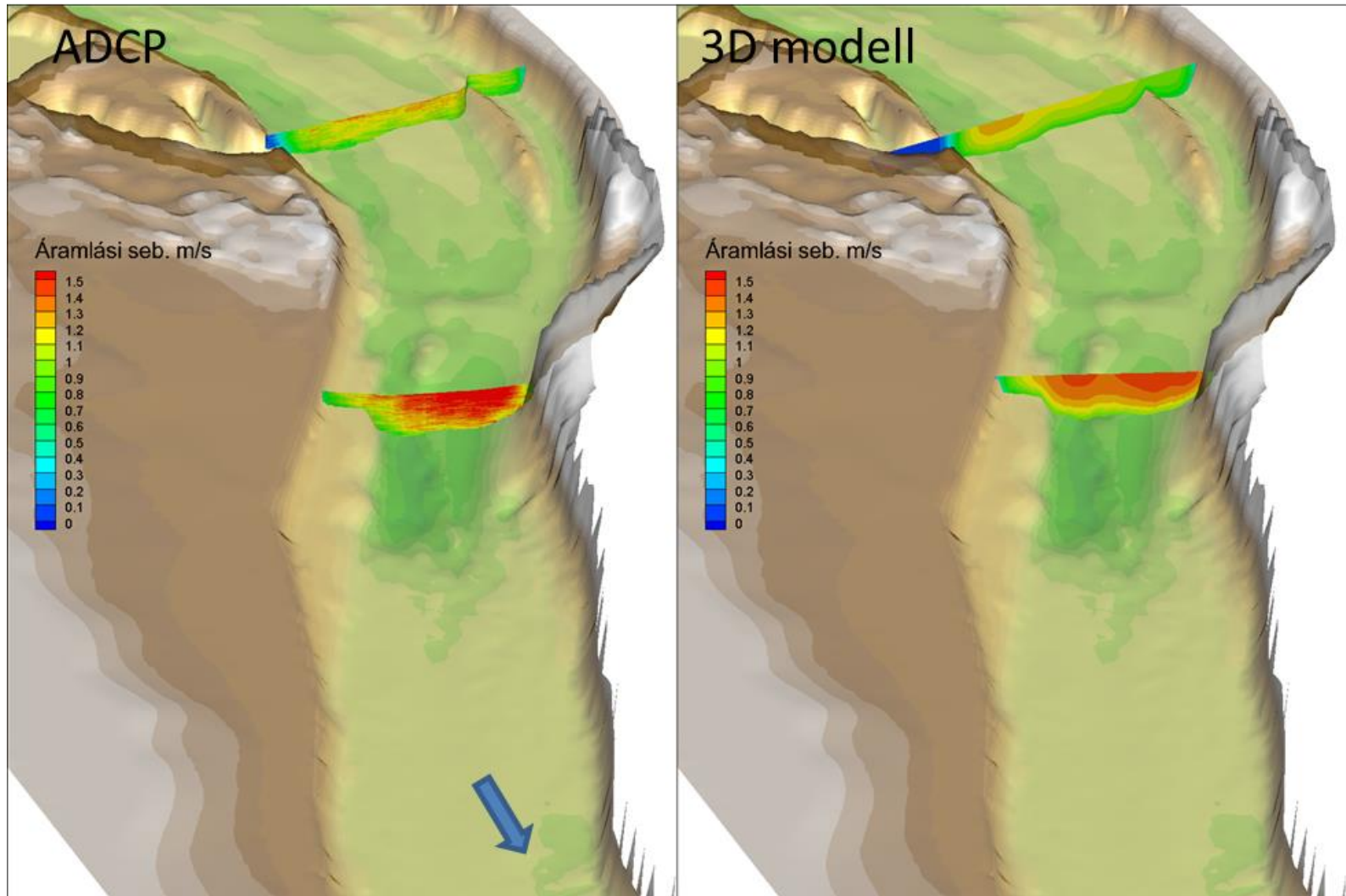


Planning and coordination of high precision discharge measurements

Example: Danube Bend



ADCP data used for improving real-time forecast as well as 1-, 2- and 3D flow model calibration





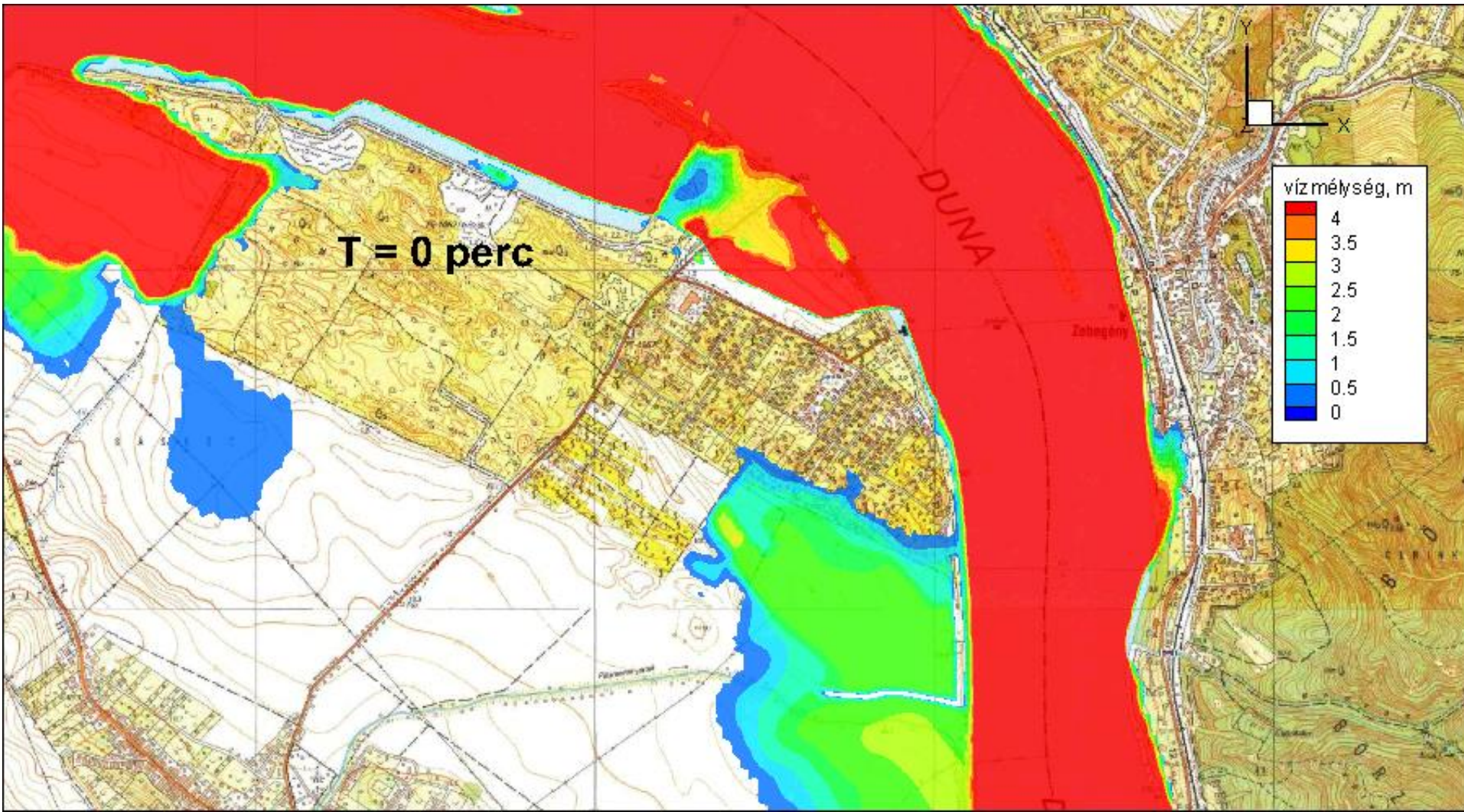
Real-time contribution to disaster management and evacuation activities

Hypotetic dam-break induced inundation modelling at Pilismarót



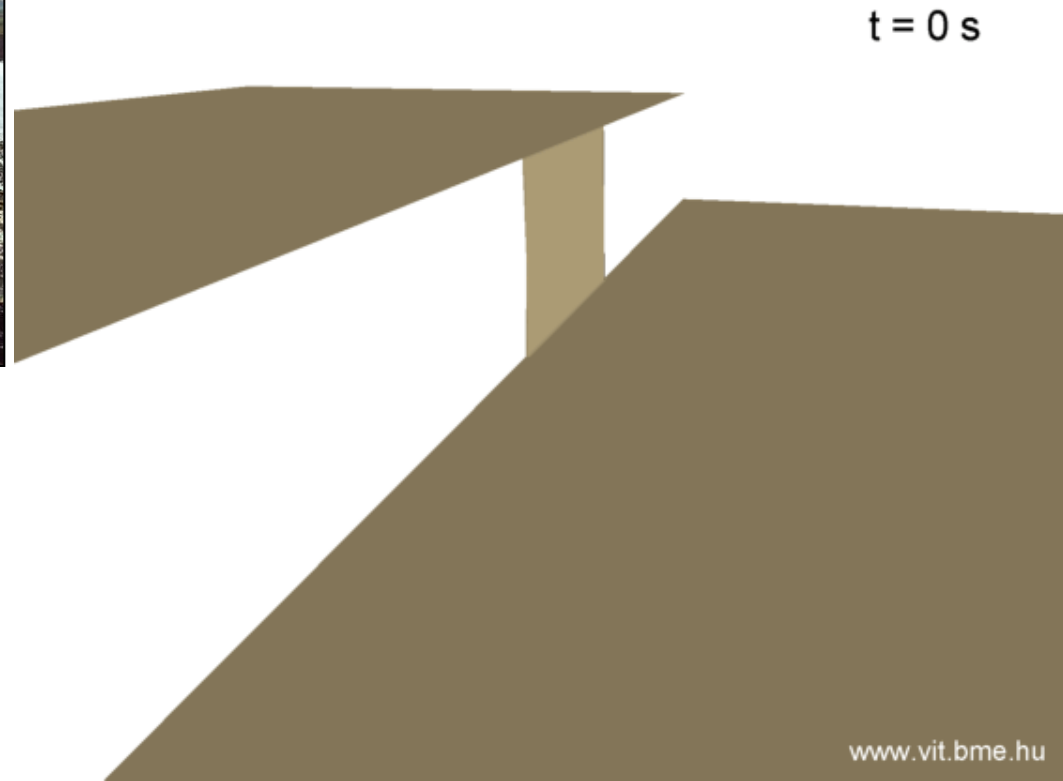
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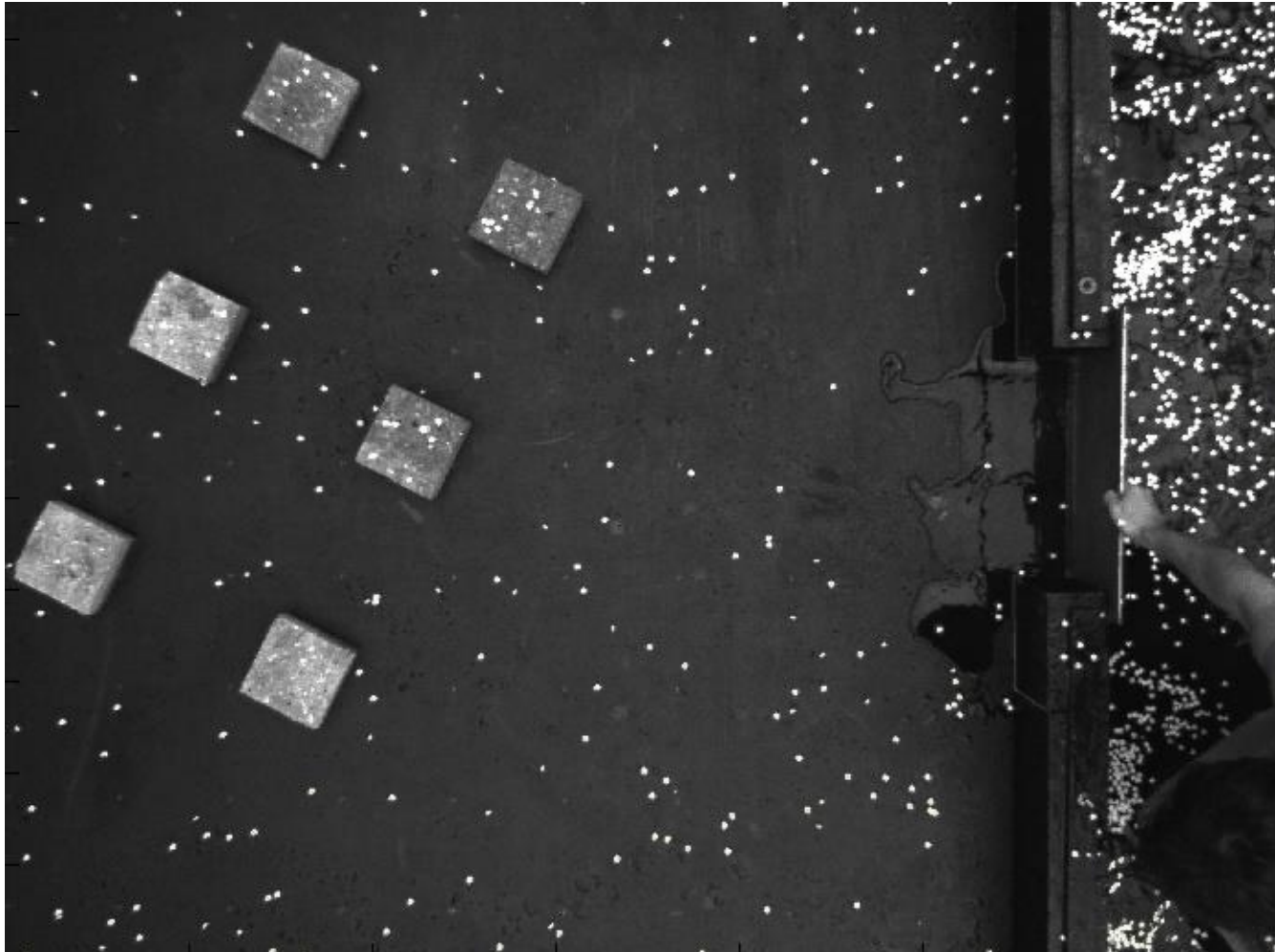
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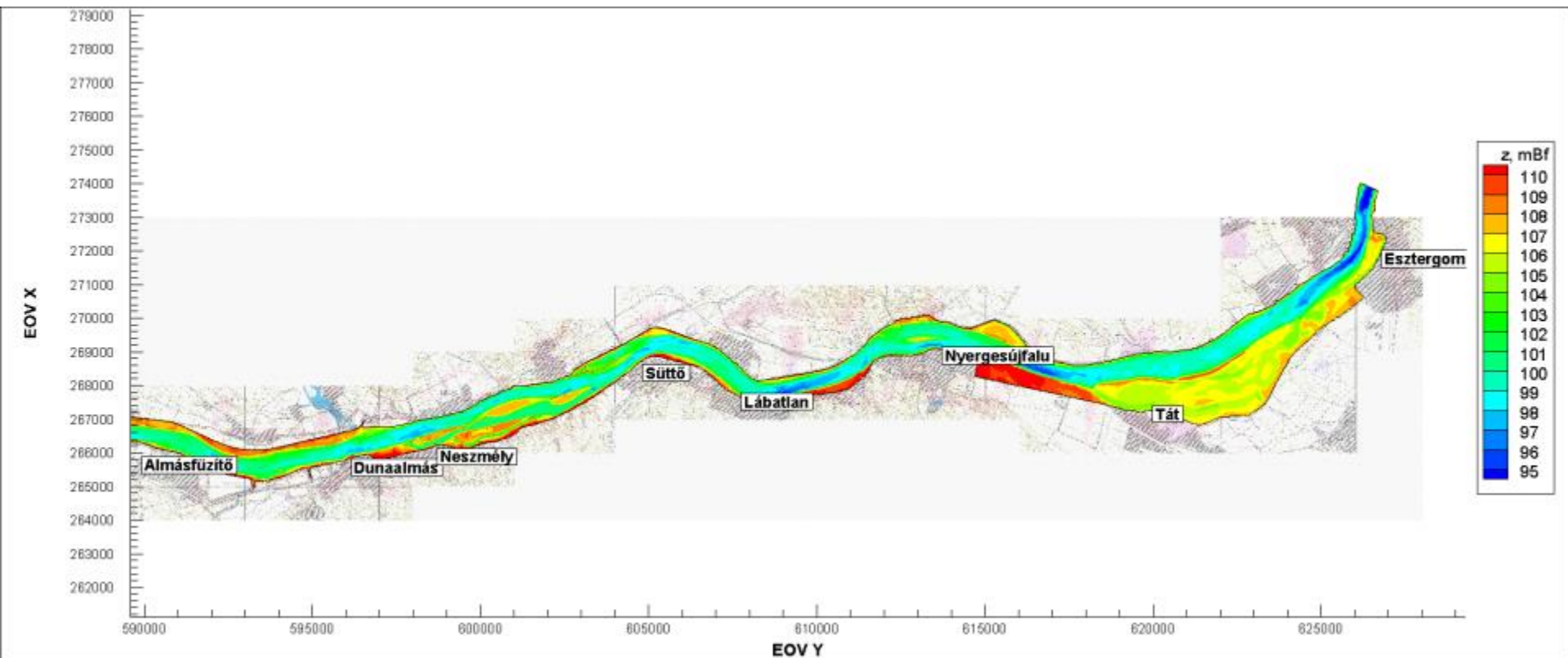
Last example: Contribution to industrial disaster management preparedness

A past red mud deposit next to the river



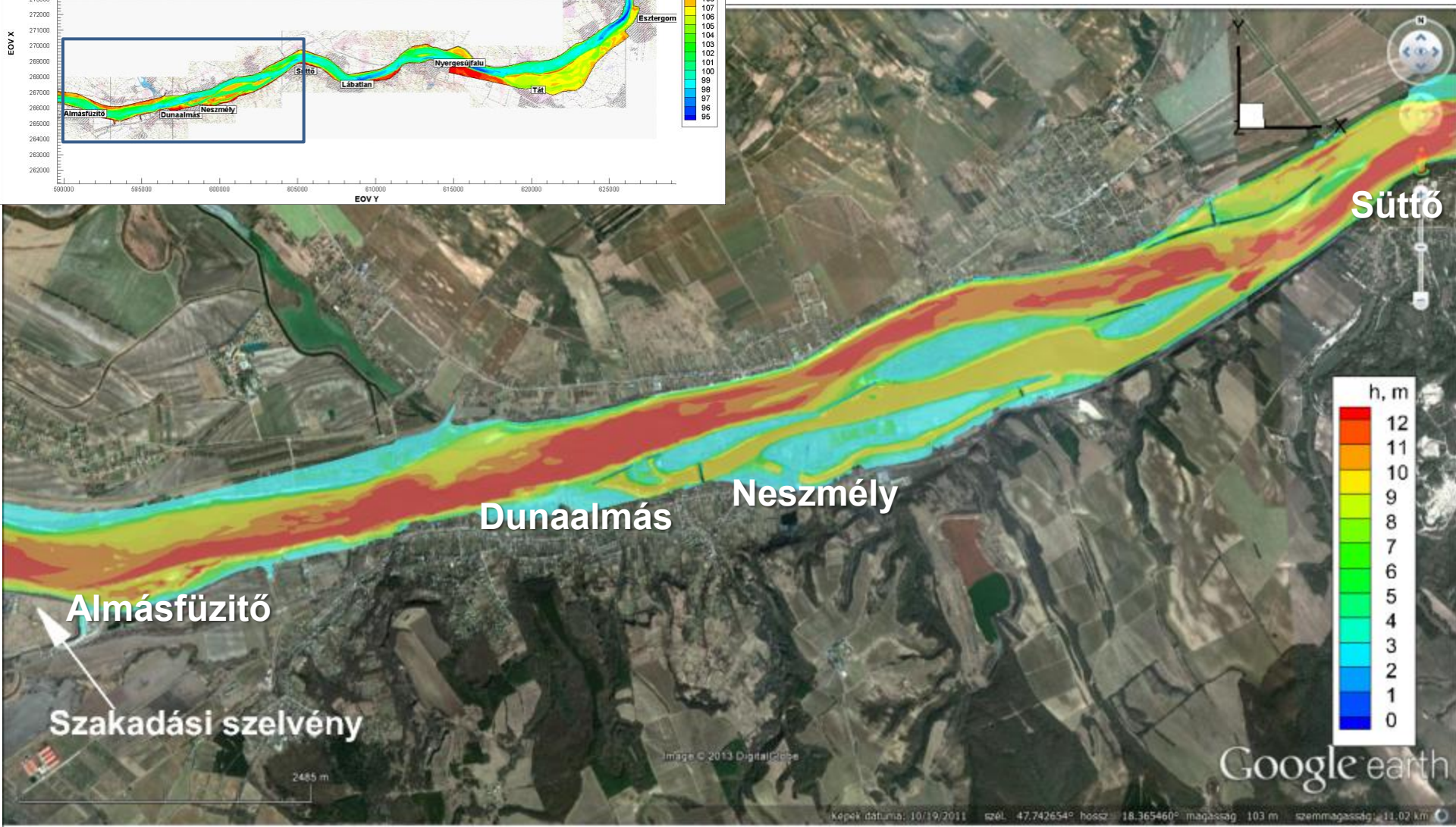
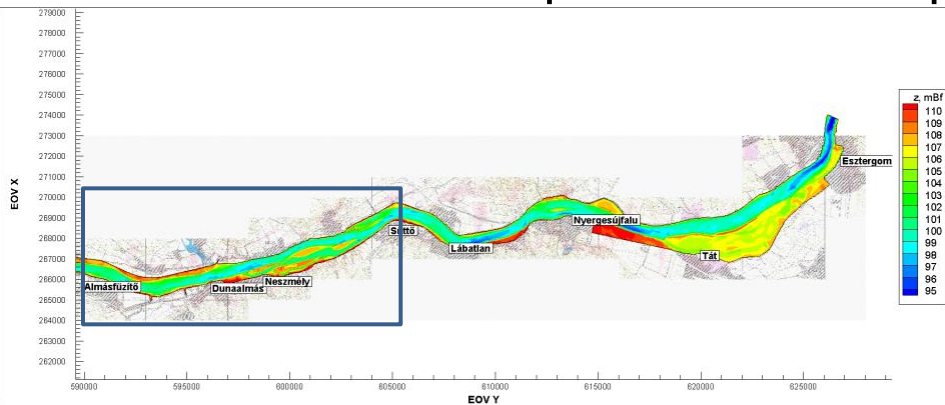
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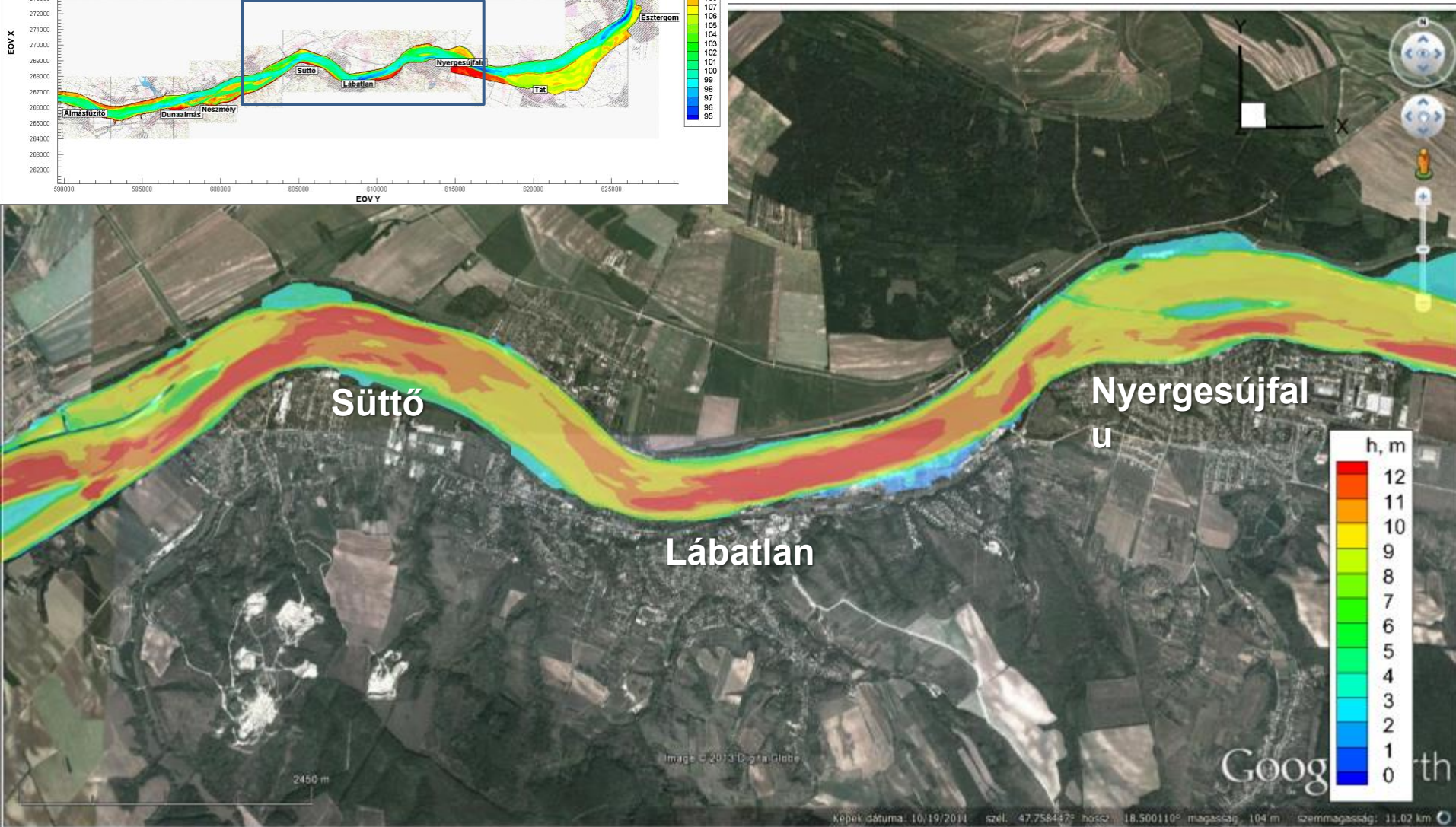
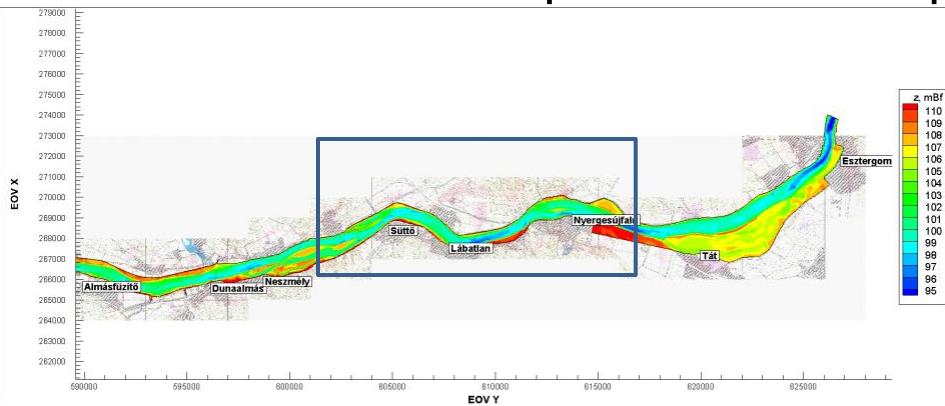
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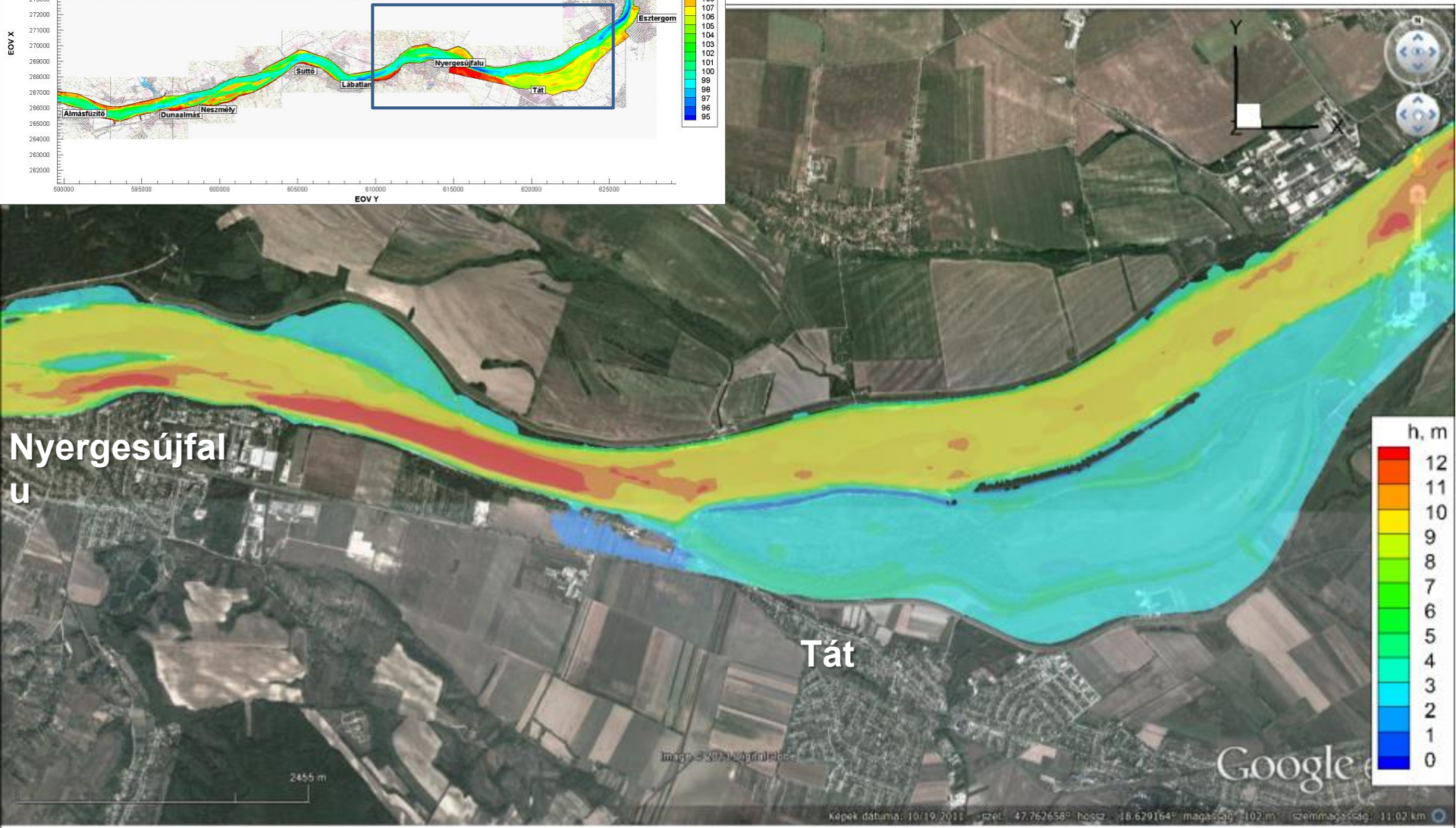
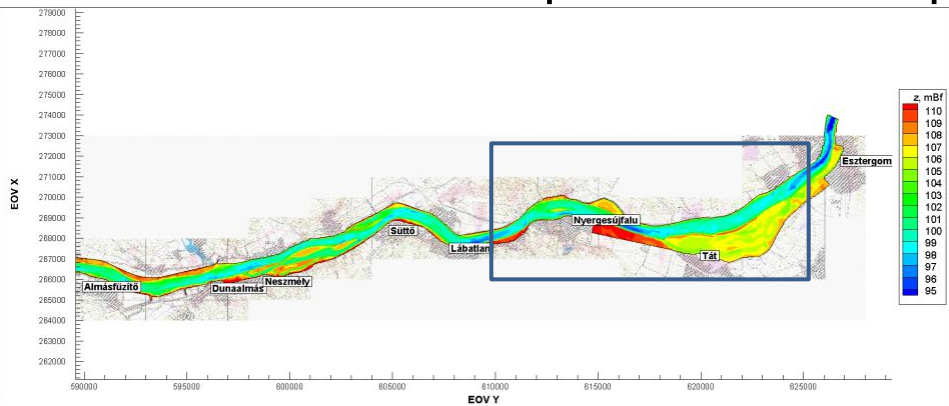
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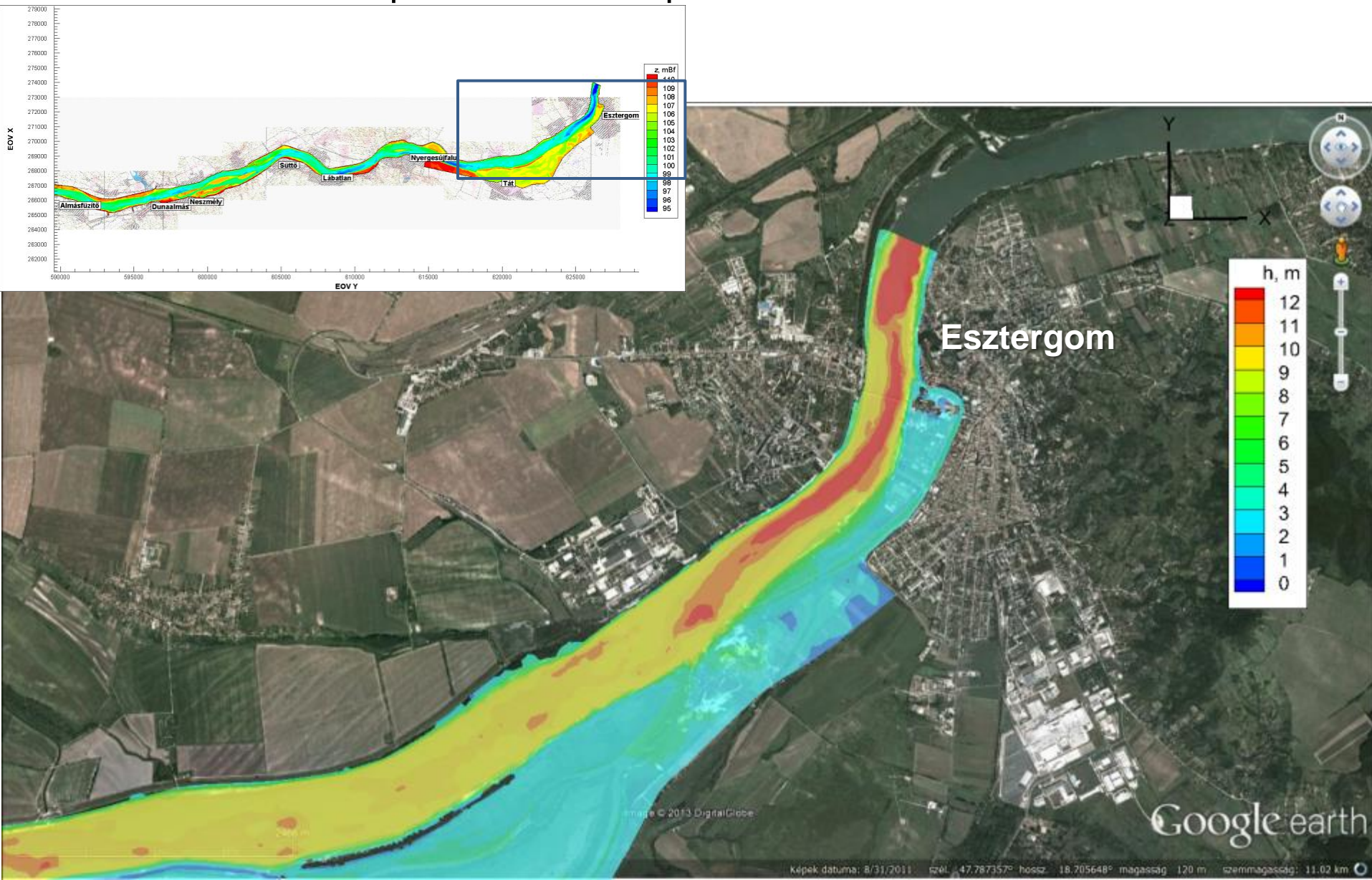
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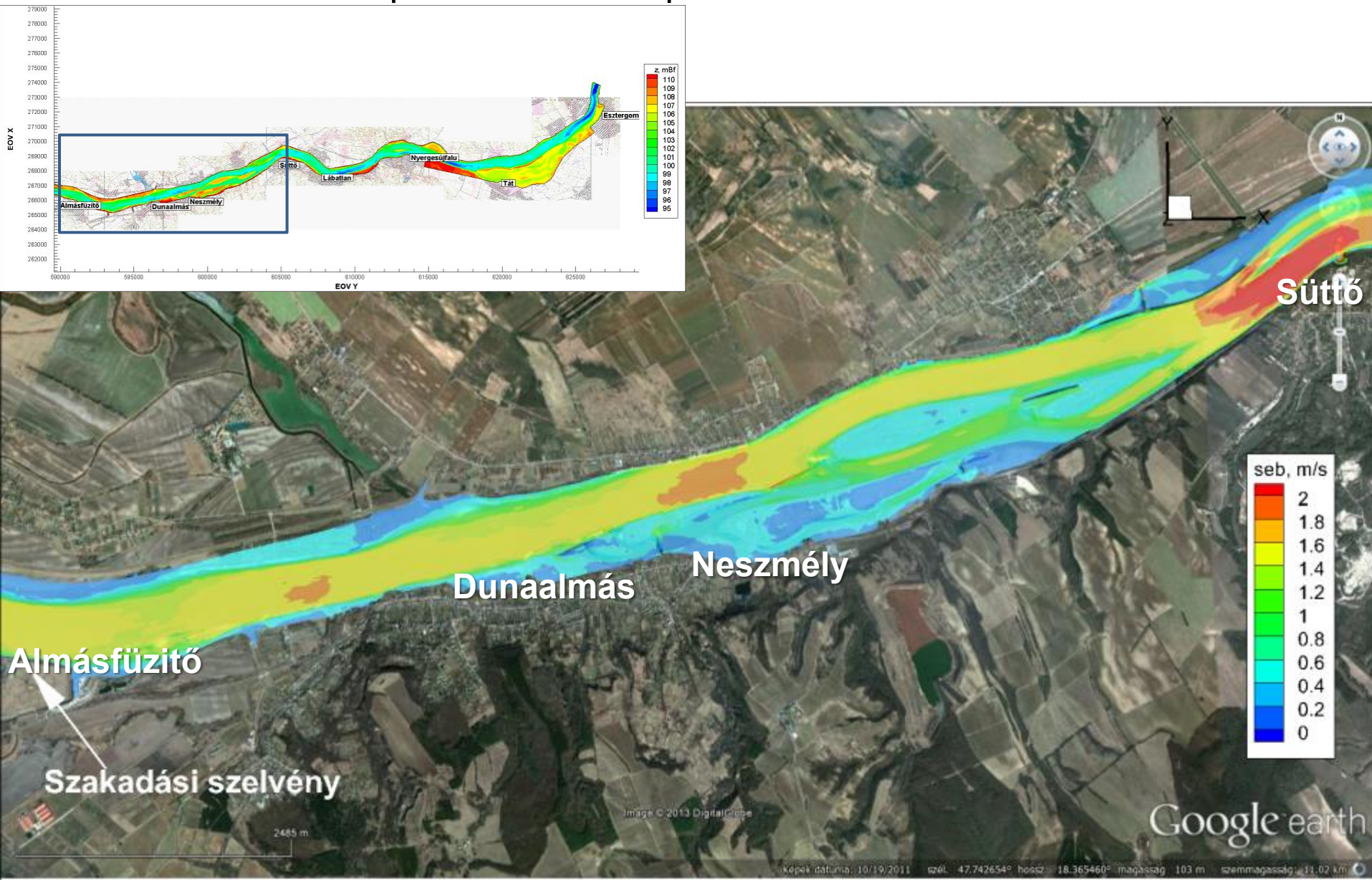
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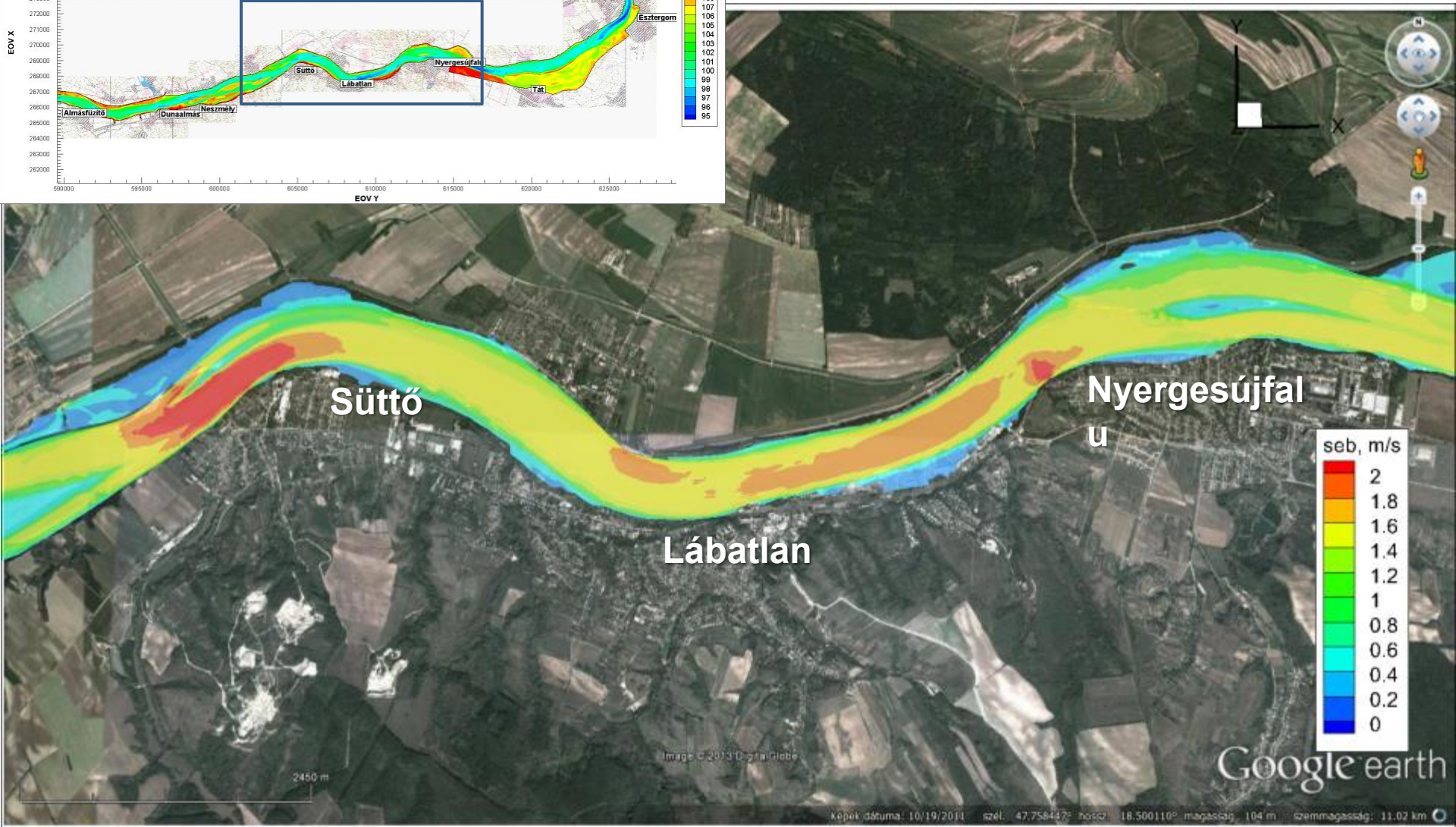
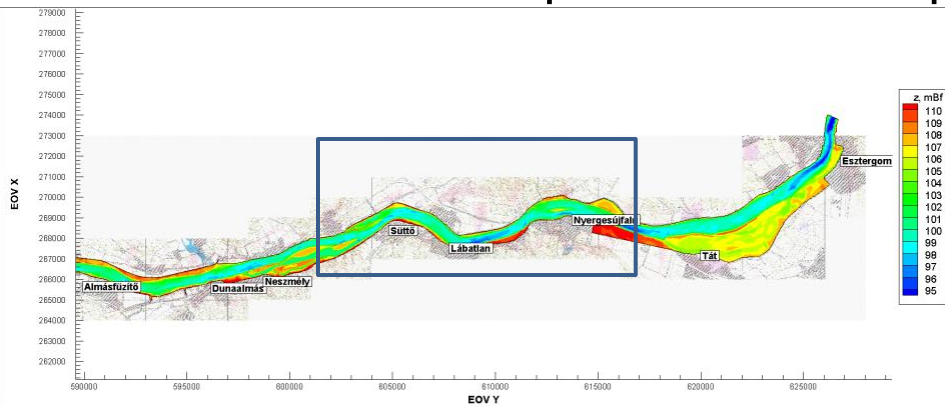
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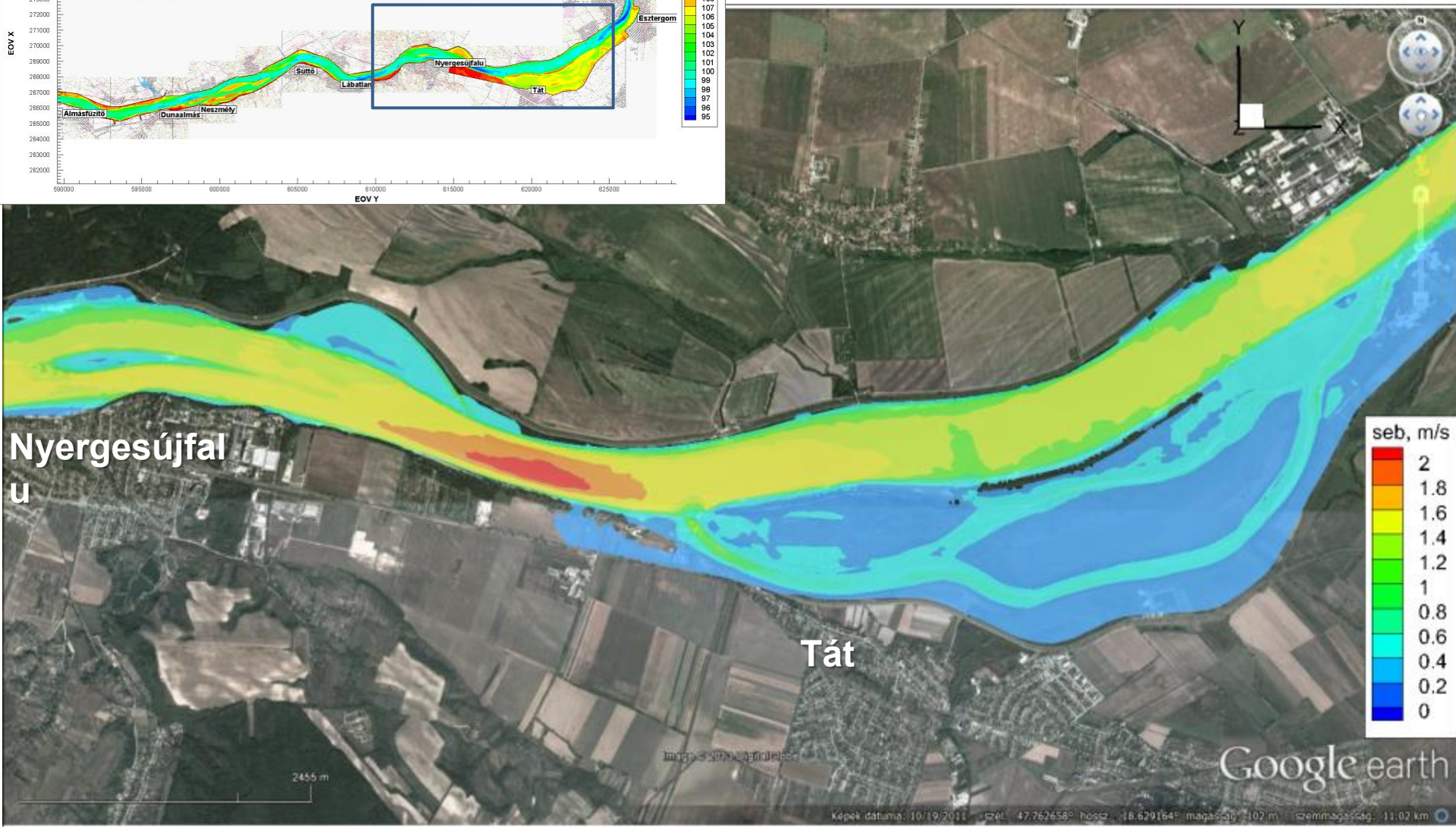
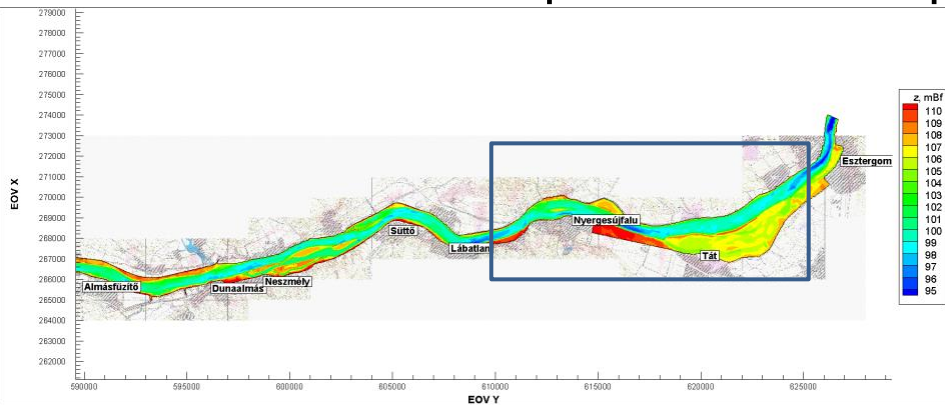
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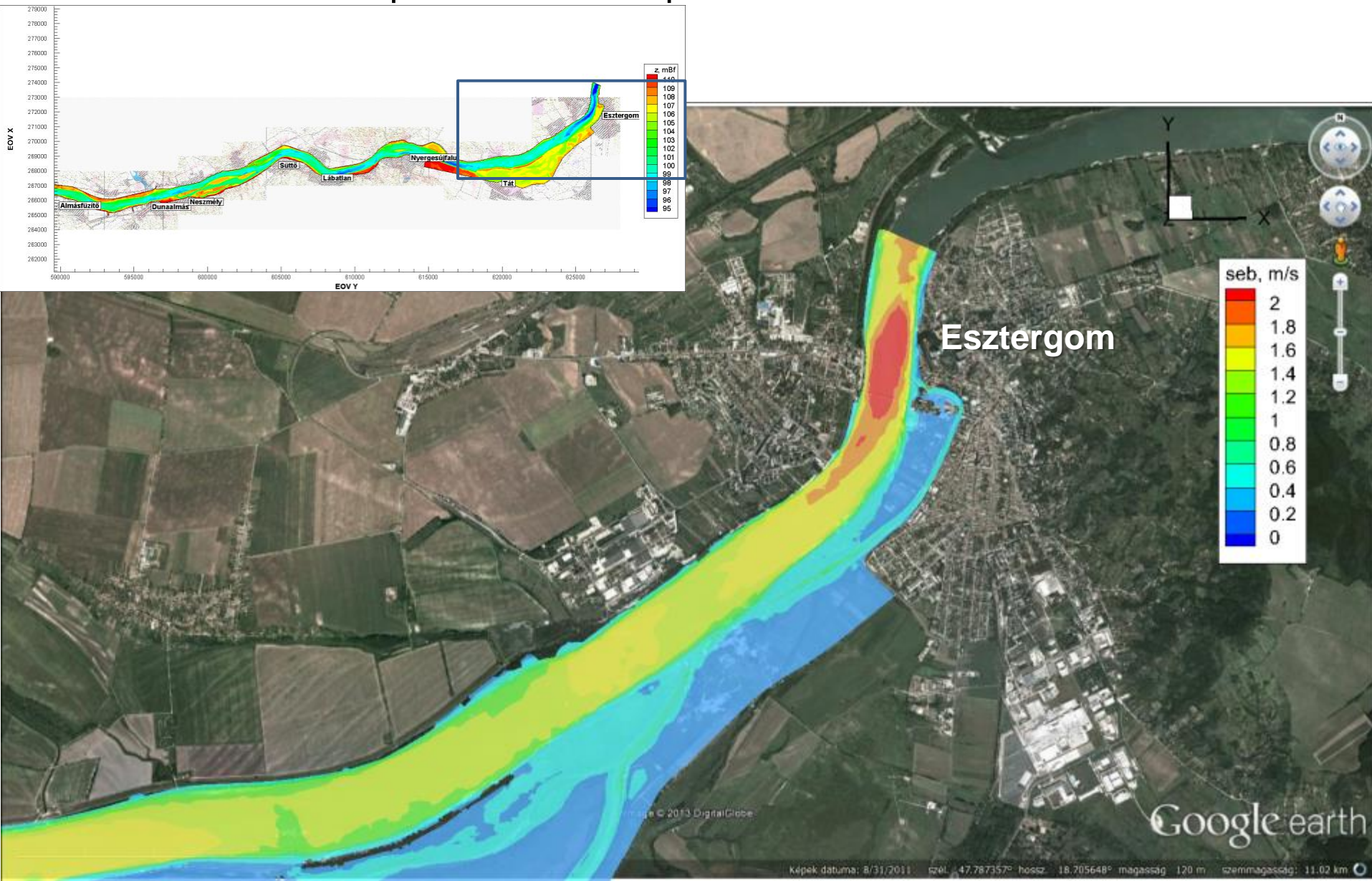
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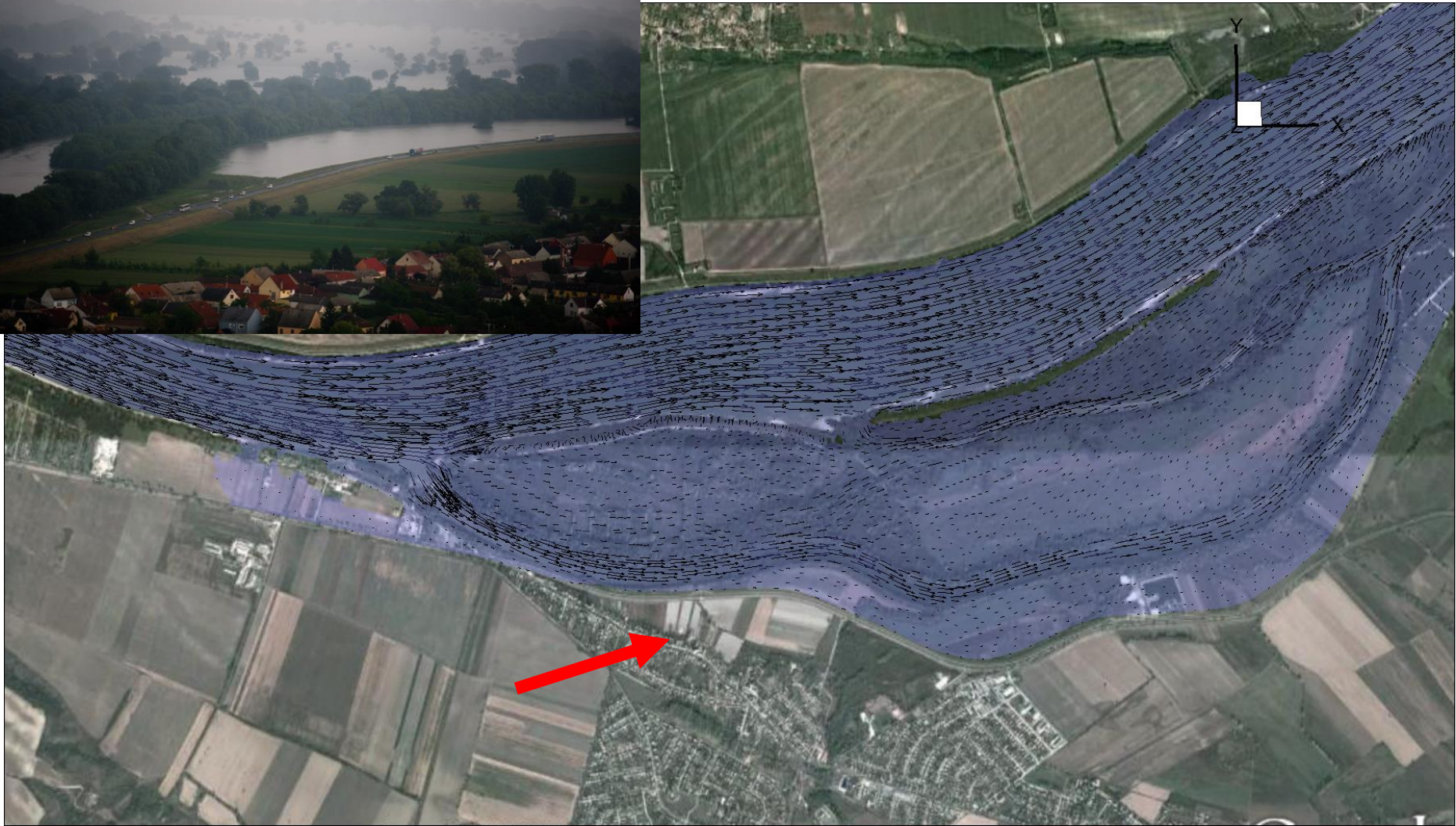


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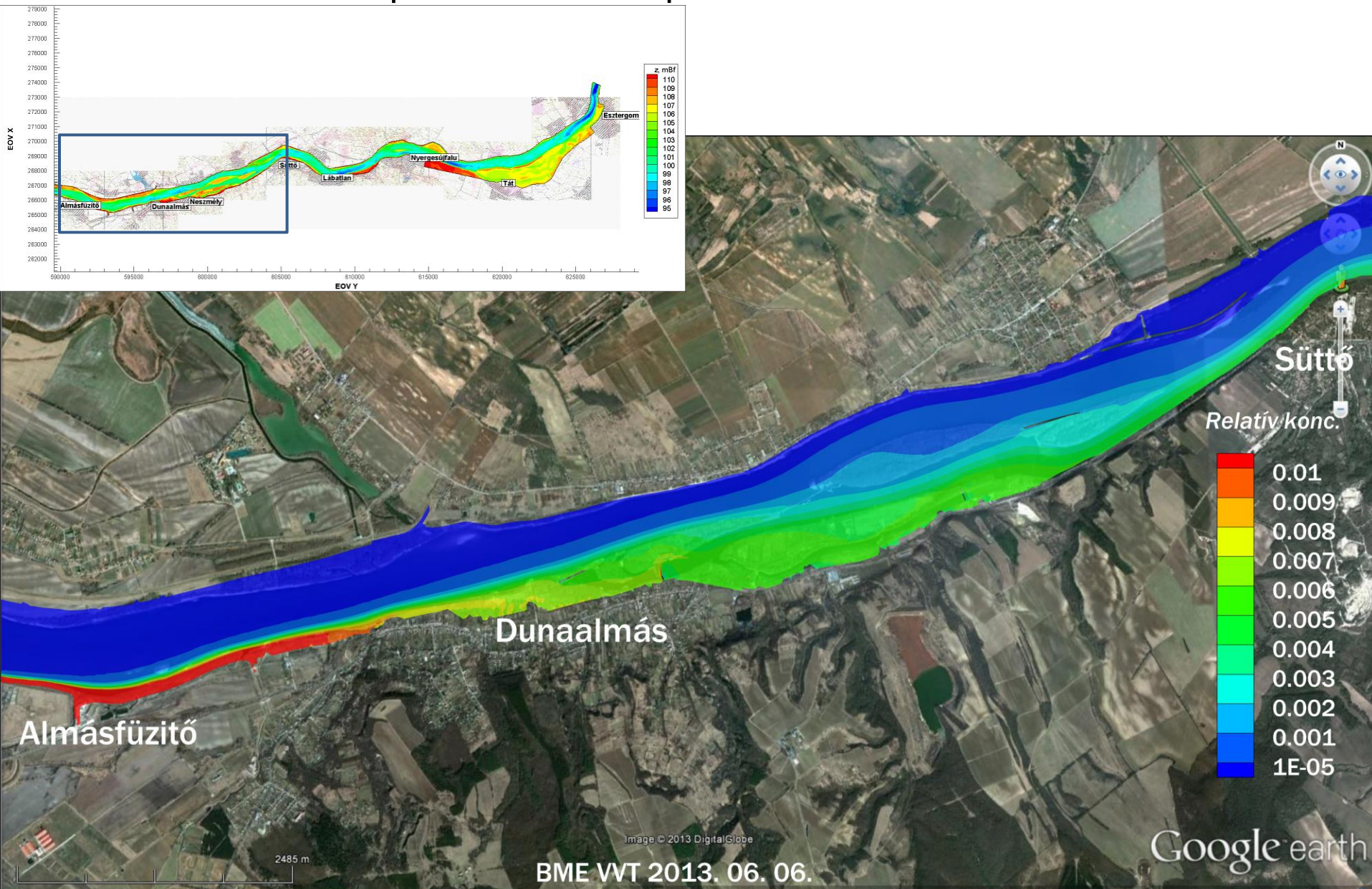
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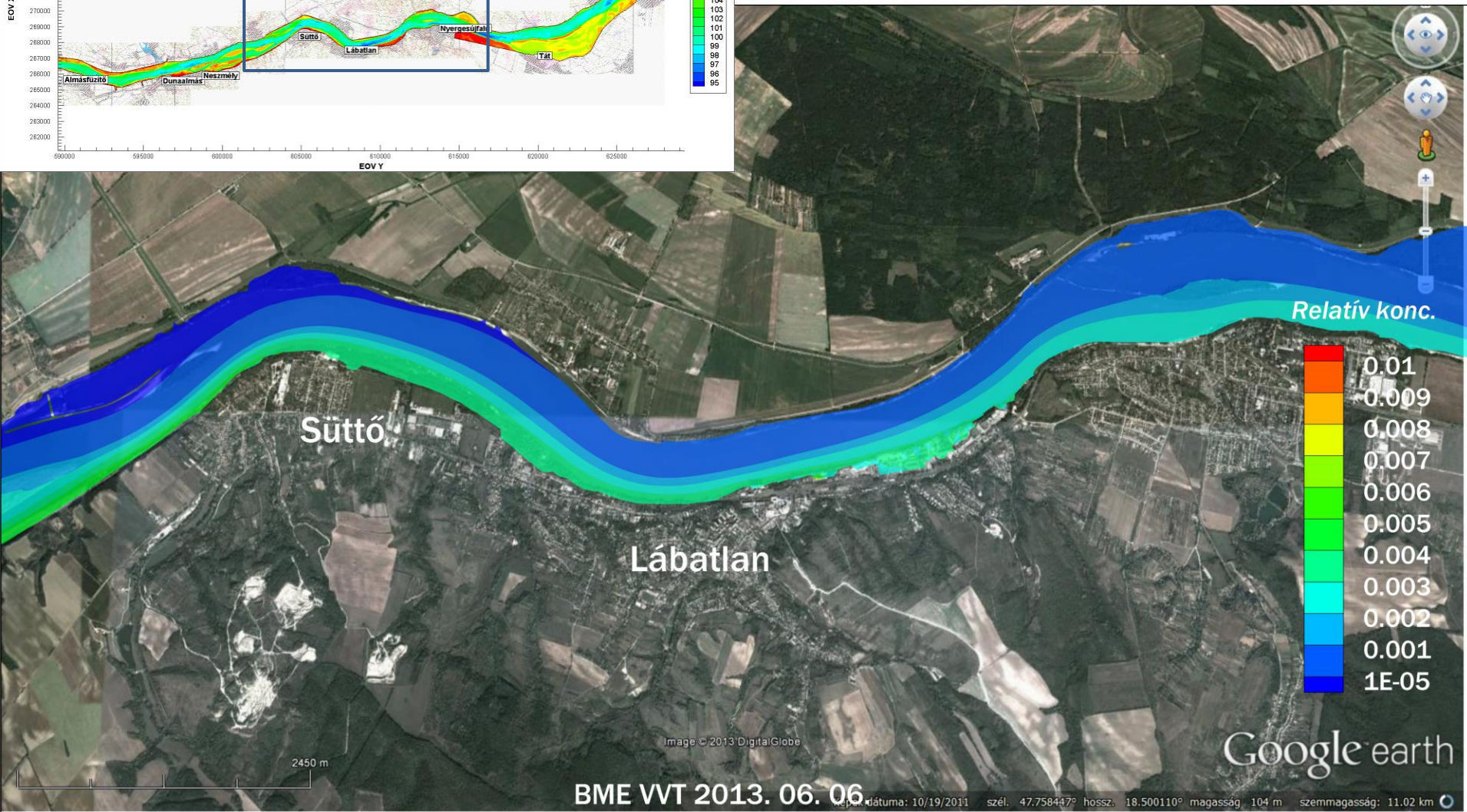
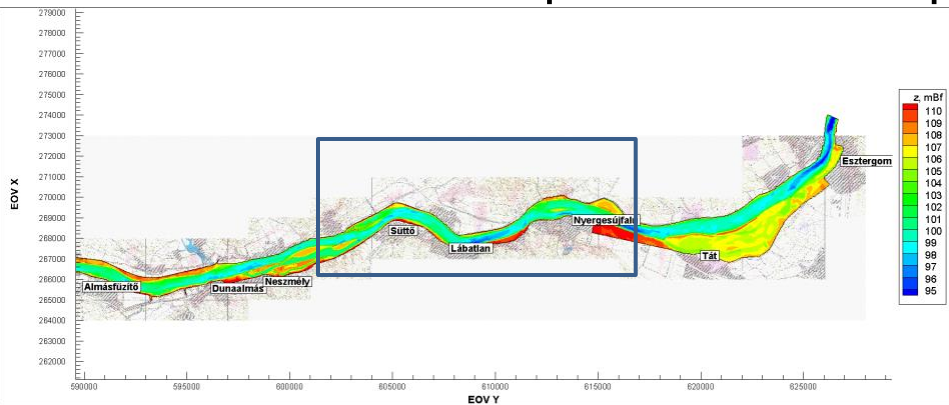
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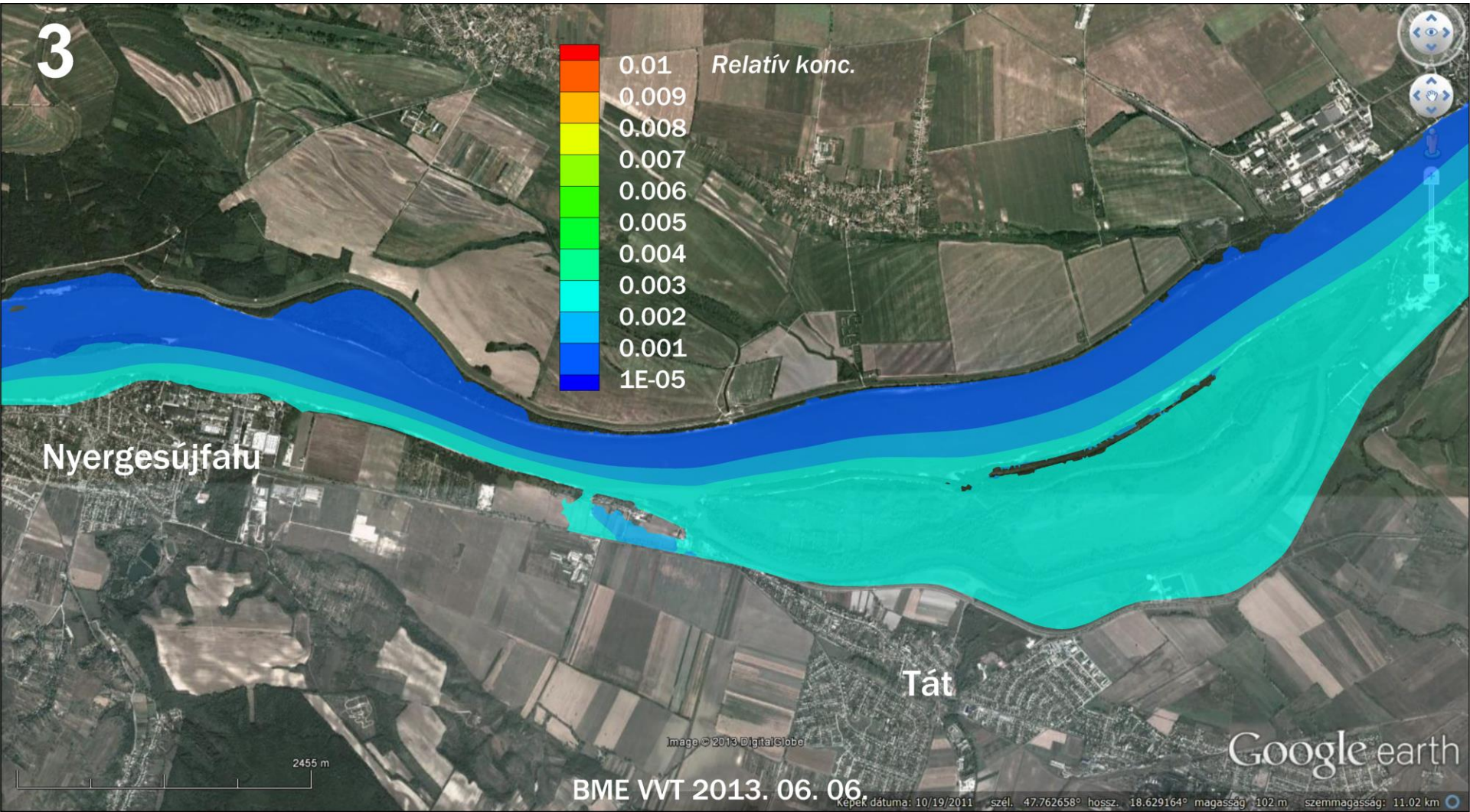
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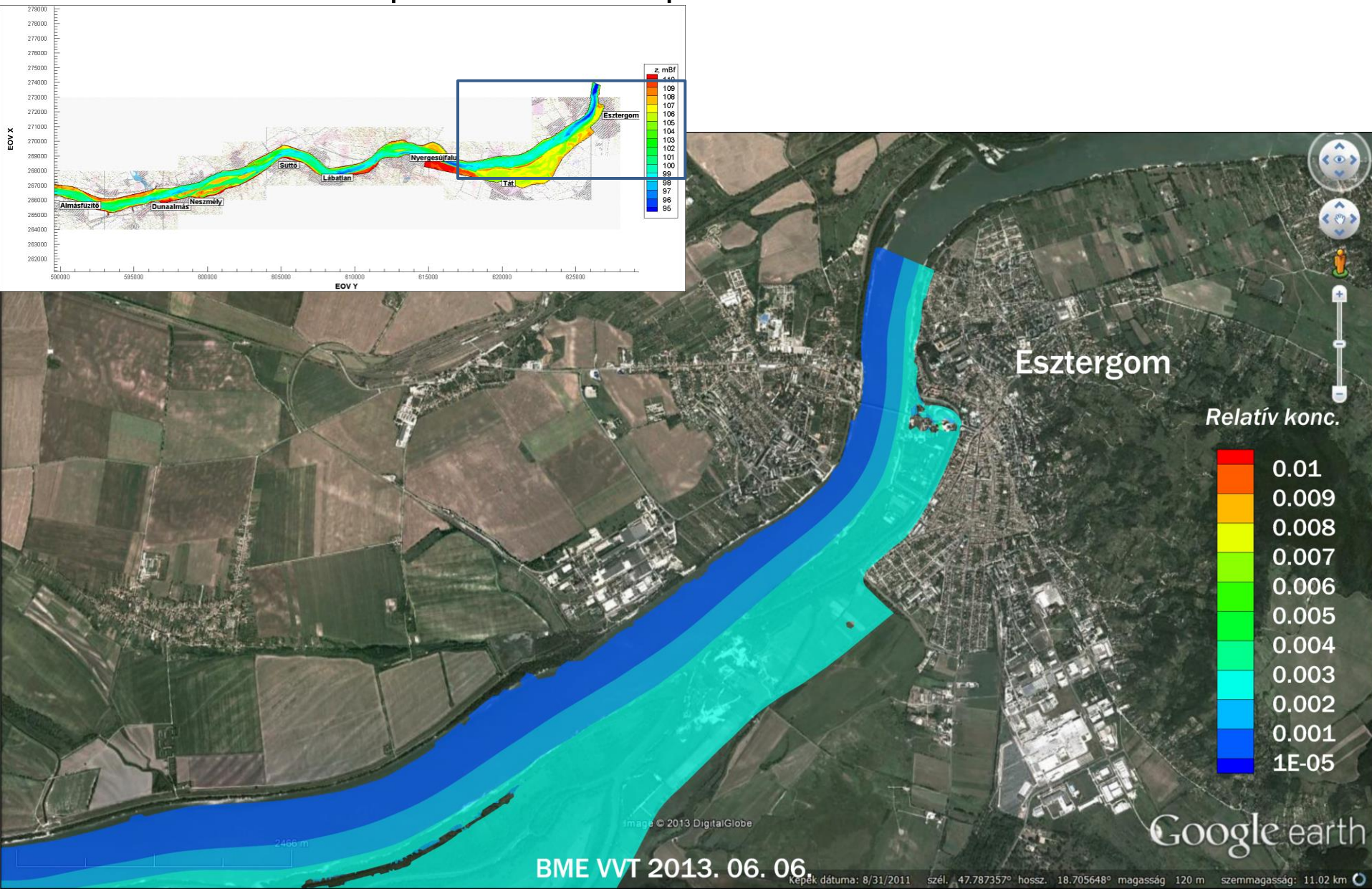
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