

THE AIZM FLOOD MODEL

-

ACCURACY AND PERSPECTIVE IN THE GEOMORPHOLOGICAL RESEARCH

Martin Caletka

Monika Šulc Michalková

Martin Koli



AIZM model...

- 1. WHAT IS IT?**
- 2. HOW DOES IT WORK?**
- 3. ON THE ACCURACY...**
- 4. PERSPECTIVE OF USING...**

WHAT IS IT?

- A SIMPLE TOOLSET BASED ON **CHAINING OF ArcGIS TOOLS** (MODEL BUILDER)
- APROXIMATION OF FLOOD **WATER LEVELS** (IN AREAS WHERE HYDRAULIC OUTPUTS MAY BE UNAVAILABLE)
- „A VIEWER“ RATHER THAN „A MODEL“
- NO INTENTION OF SUBSTITUTING THE HYDRAULIC MODELS

HOW DOES IT WORK?

INPUT DATA:

Hladina záplavy pomocou automatických priečných profilov s inundáciou mimo...

- Stred analyzovanej oblasti
CENTRAL POINT
- Nazov oblasti
NAME
- Tabulka s hĺbkami vody
TABLE OF DEPTHS
- Stĺpec s hĺbkami (optional)
COLUMN WITH DEPTHS

Field	Null Value

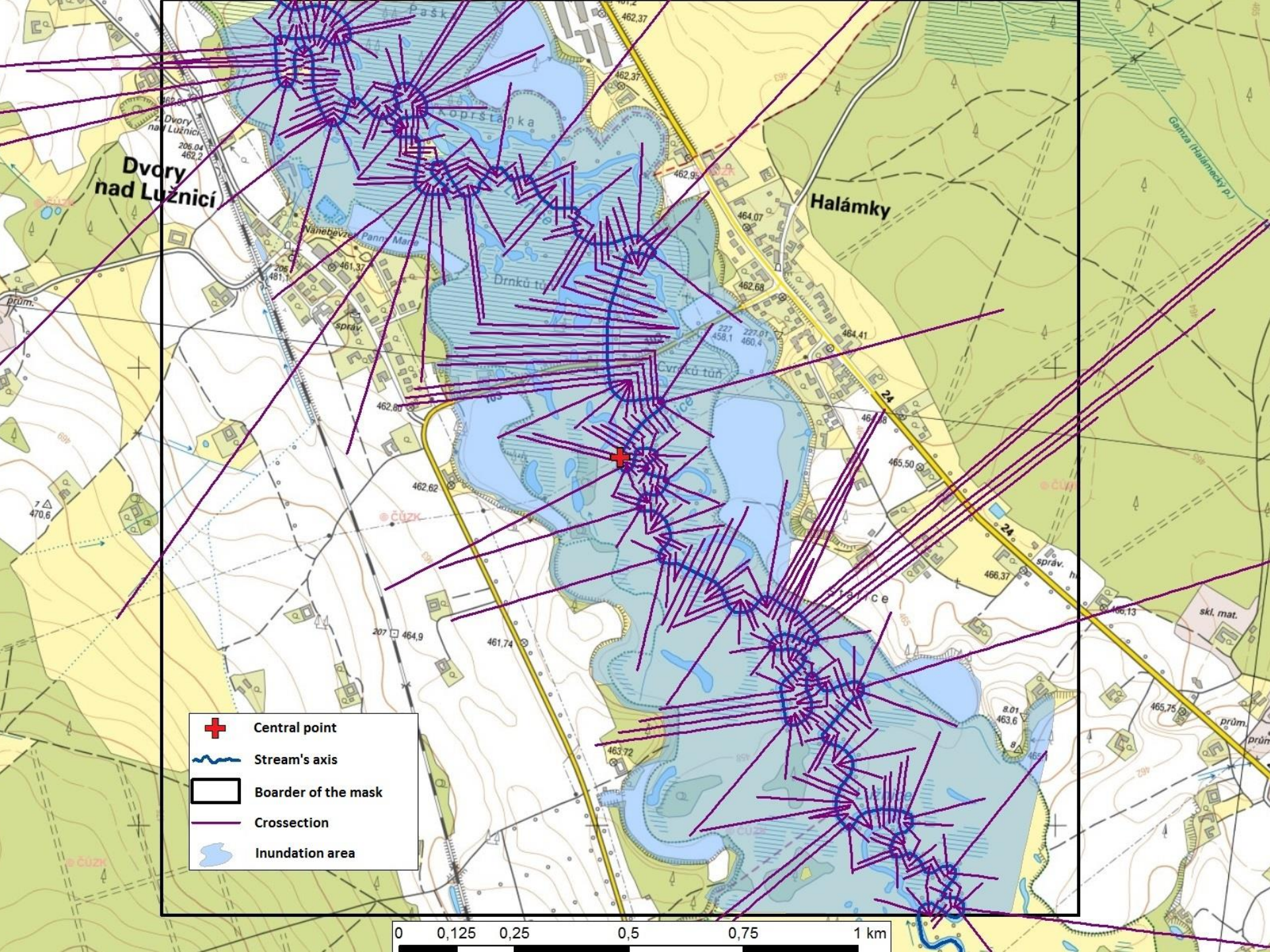
- Riečna sieť
RIVER NETWORK
- Digitalny model nadmorských vysok
DMR – RASTER / TIN
- Cielovy adresar
TARGET FOLDER
- Maximalna dĺžka hrany TINu
SIZE OF MASK 2000






Hladina záplavy pomocou automatických priečných profilov s inundáciou mimo toku

Nástroj vygeneruje rastrové a vektorové triedy prvkov s indikatívnymi rozsahmi záplavy a hĺbkami. Nástroj si sám vygeneruje sieť priečných profilov na segmenty toku, ktoré použije pri výpočtoch.

Štruktúra výstupov

Výstupy ukladá do zvoleného cieľového adresára. V cieľovom adresári sú podadresáre v názve s predponou, ktorá označuje analýzu z rastrového digitálneho modelu nadmorských výšok a textovým reťazcom, ktorý označuje názov alej.



-  Central point
-  Stream's axis
-  Border of the mask
-  Crossection
-  Inundation area

0 0,125 0,25 0,5 0,75 1 km

ON THE ACCURACY...

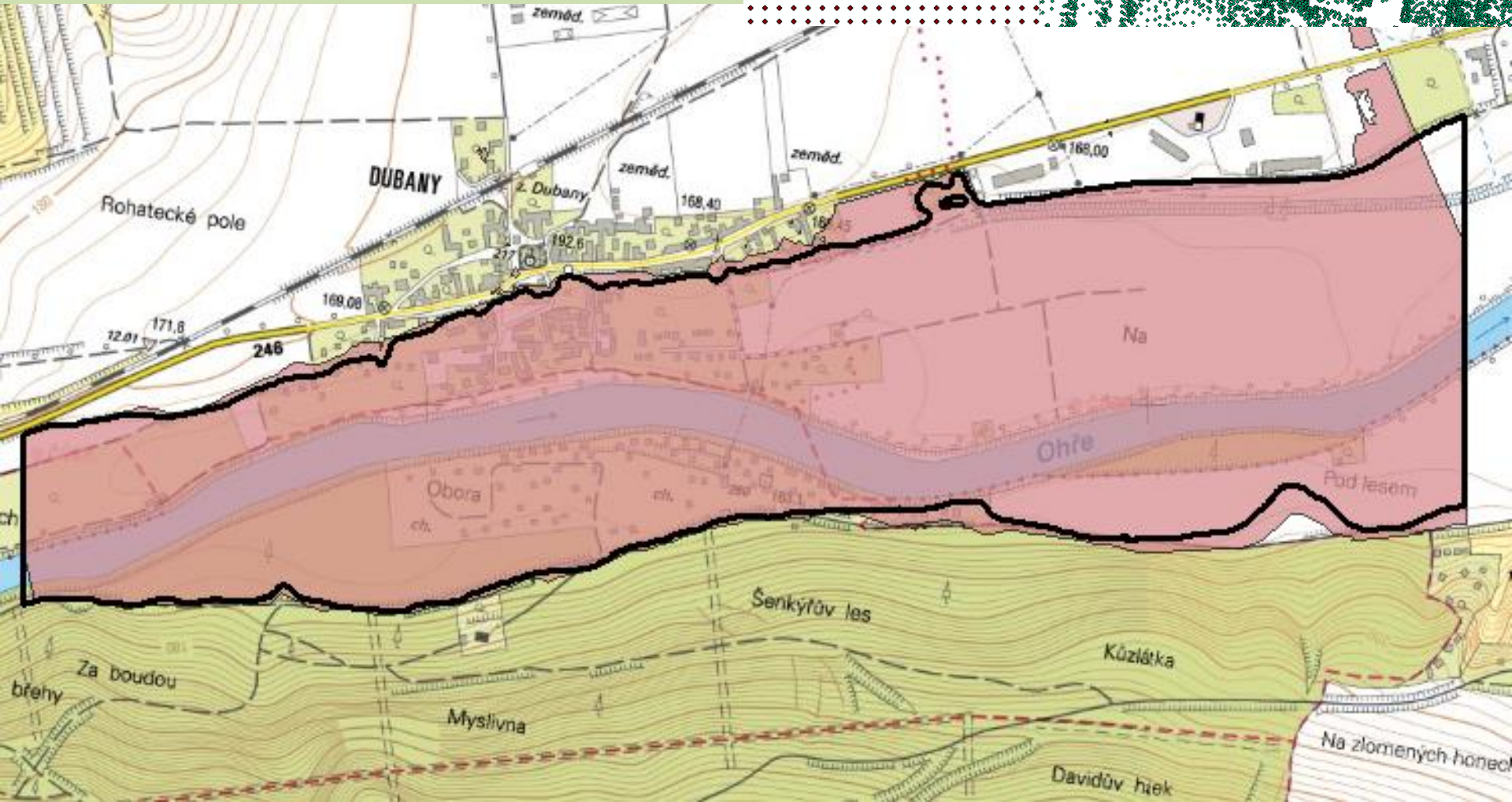
ARE WE ALLOWED TO BE SURE ABOUT
THE RELEVANCE OF THE MODEL OUTPUTS?



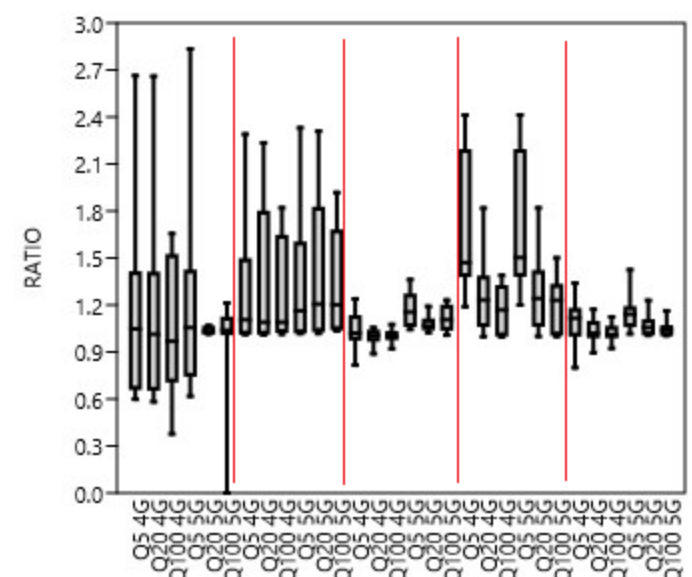
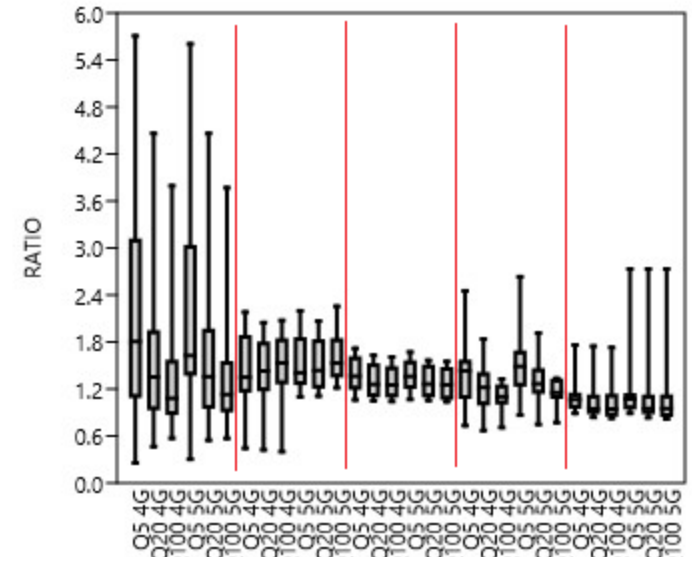
COMPARISON WITH THE OUTPUTS
OF THE HYDRAULIC MODELS... IS NEEDED

Directive 2007/60/ES on the assessment
and management of flood risks

Q_5, Q_{20}, Q_{100} DMR 4G, DMR 5G

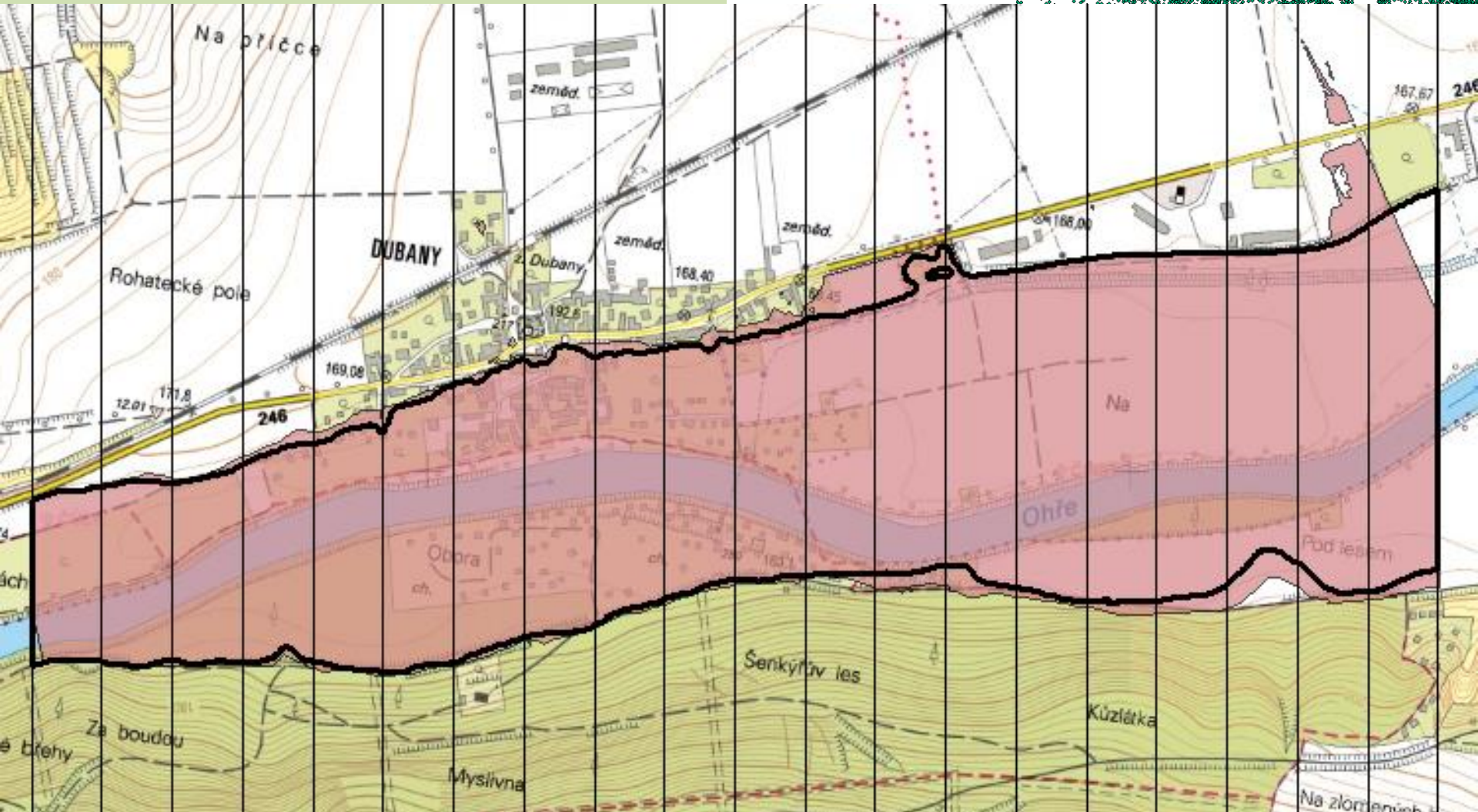
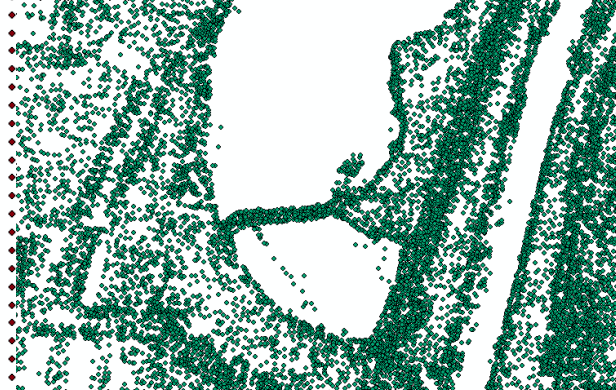
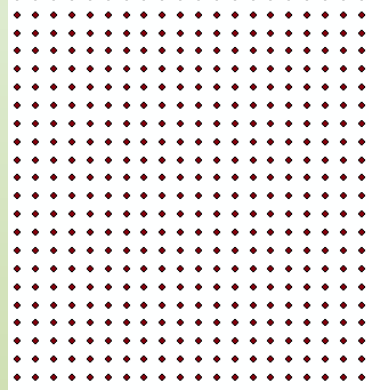


- **30 RIVER SECTIONS**
- **RIVER SECTIONS SORTED OUT INTO 6 CATEGORIES**
 1. Straight channel
 2. Small meanders
 3. Large meanders
 4. Confluence =
 5. Confluence ≠
 6. Bifurcation
- **INUNDATION CUT INTO 20 SEGMENTS – RATIOS...**



Q_5, Q_{20}, Q_{100}

DMR 4G, DMR 5G



PERSPECTIVE OF USING ?

- A RELEVANT EXTENT OF FLOOD IS REQUIRED IN A SHORT TIME
- DENDROGEOMORPHOLOGY
- (FLASH) FLOOD MODELLING IN SMALL CATCHMENTS

FURTHER IMPROVEMENT IS NEEDED...

THANK YOU FOR YOUR ATTENTION



Martin Caletka
martin.caletka@mail.muni.cz