

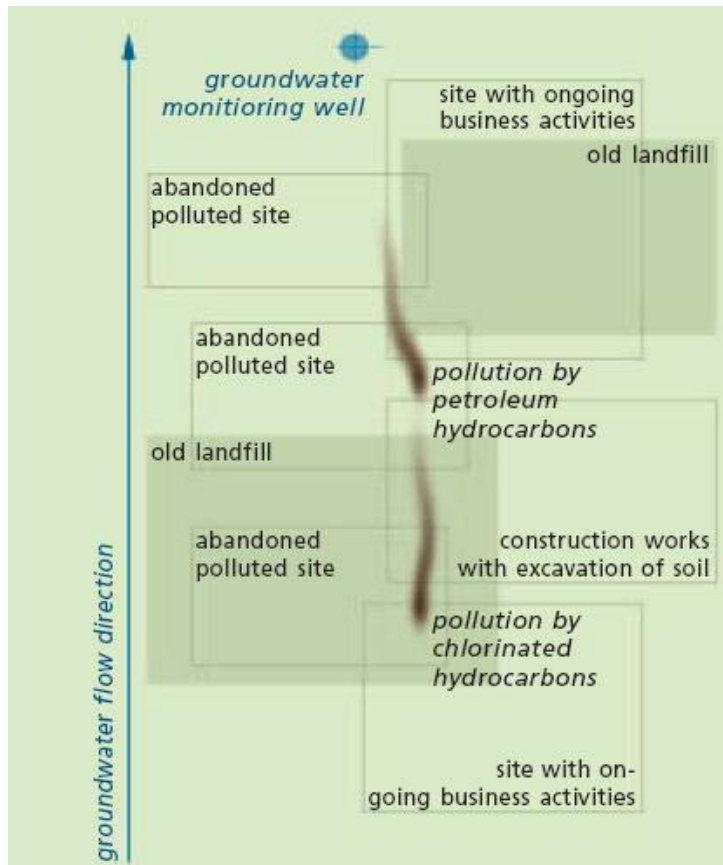


Integrated investigation and management of groundwater contamination - **project MAGIC**

Application in Polish test site, Upper Silesia Region

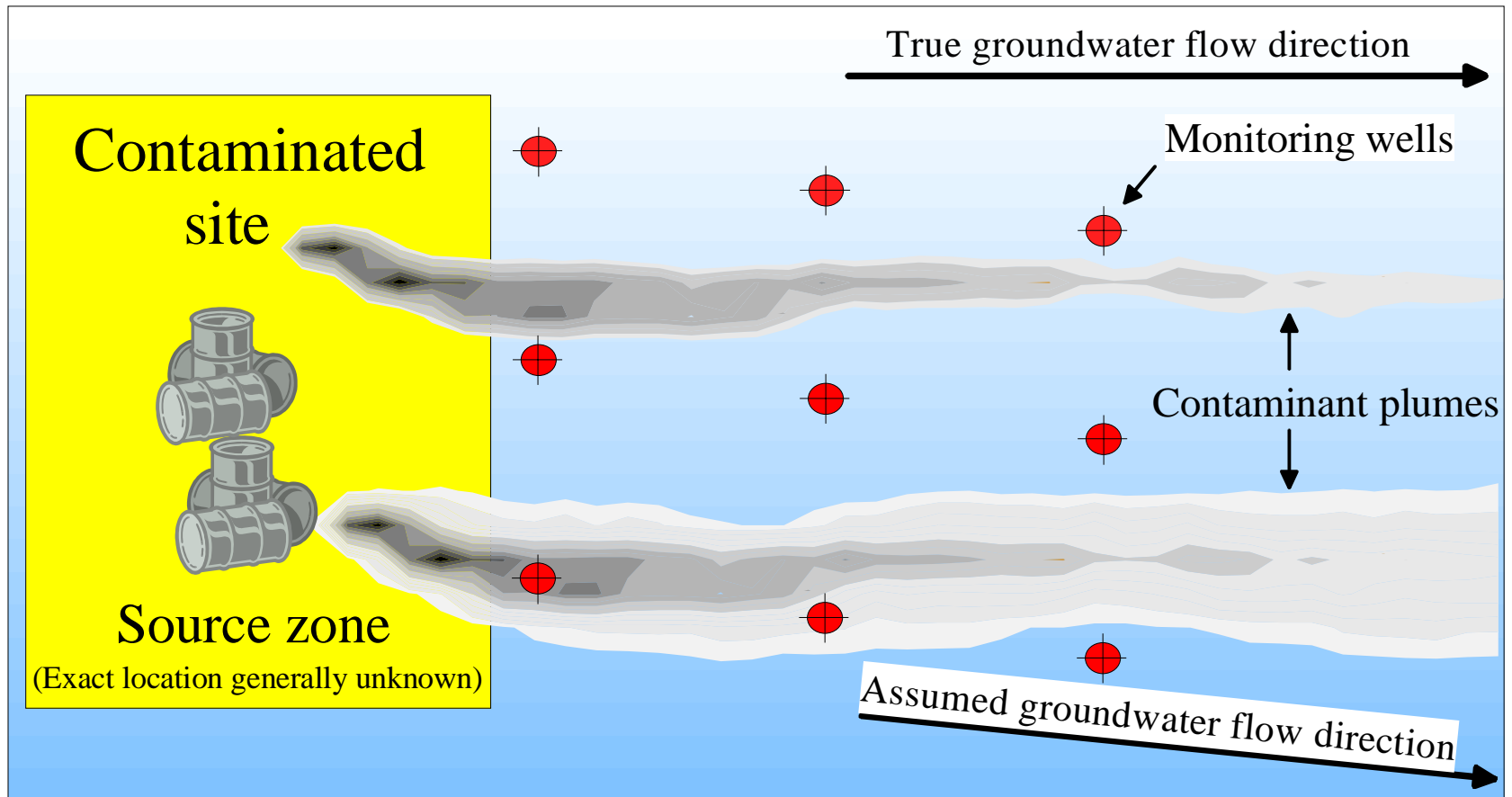
Grzegorz Gzyl - Central Mining Institute, Poland

Large industrial areas

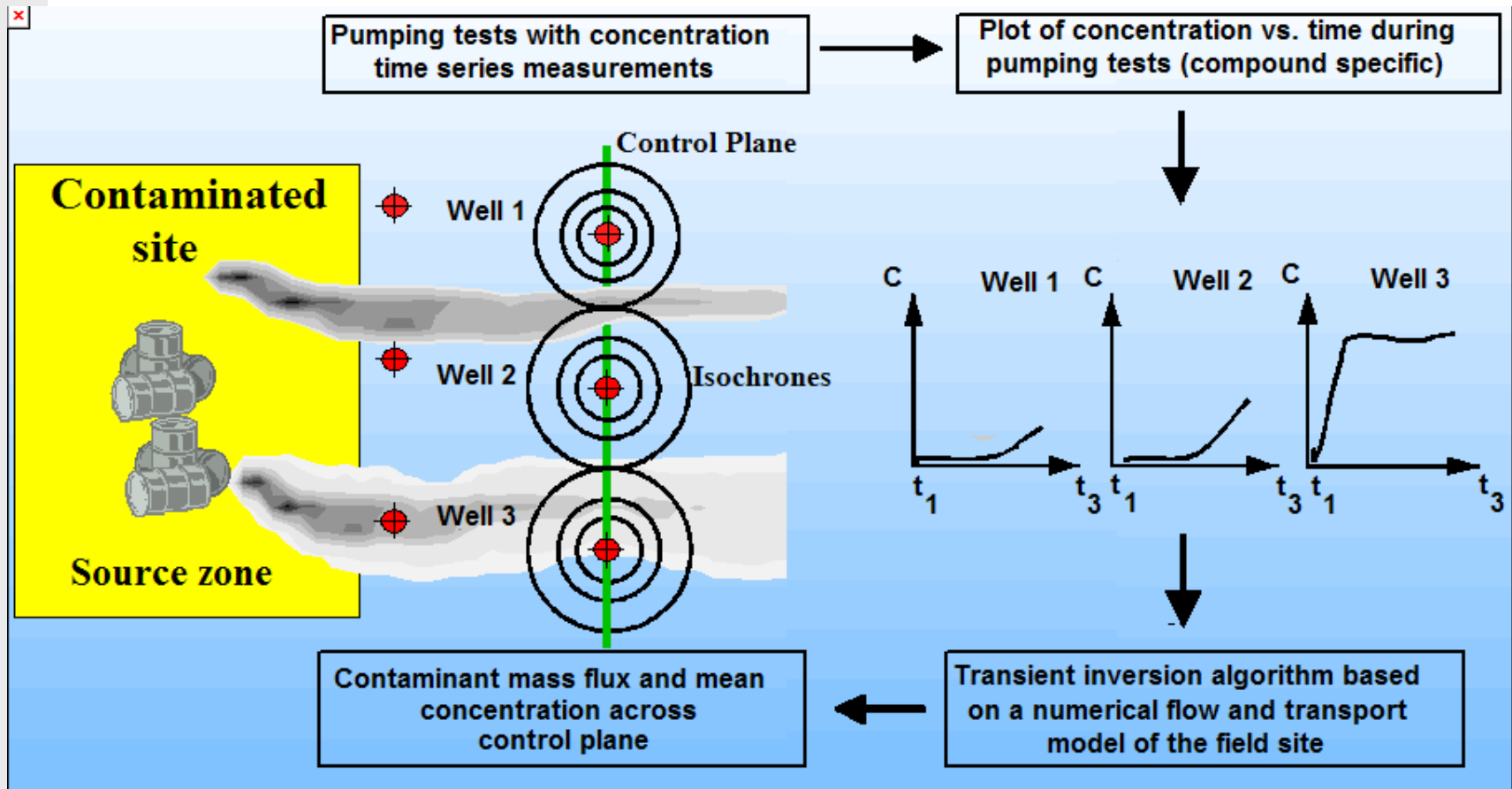


- Complex contamination and ownership pattern
- Problems with identification of the polluter

Classical groundwater monitoring



Integral approach – immision pumping tests

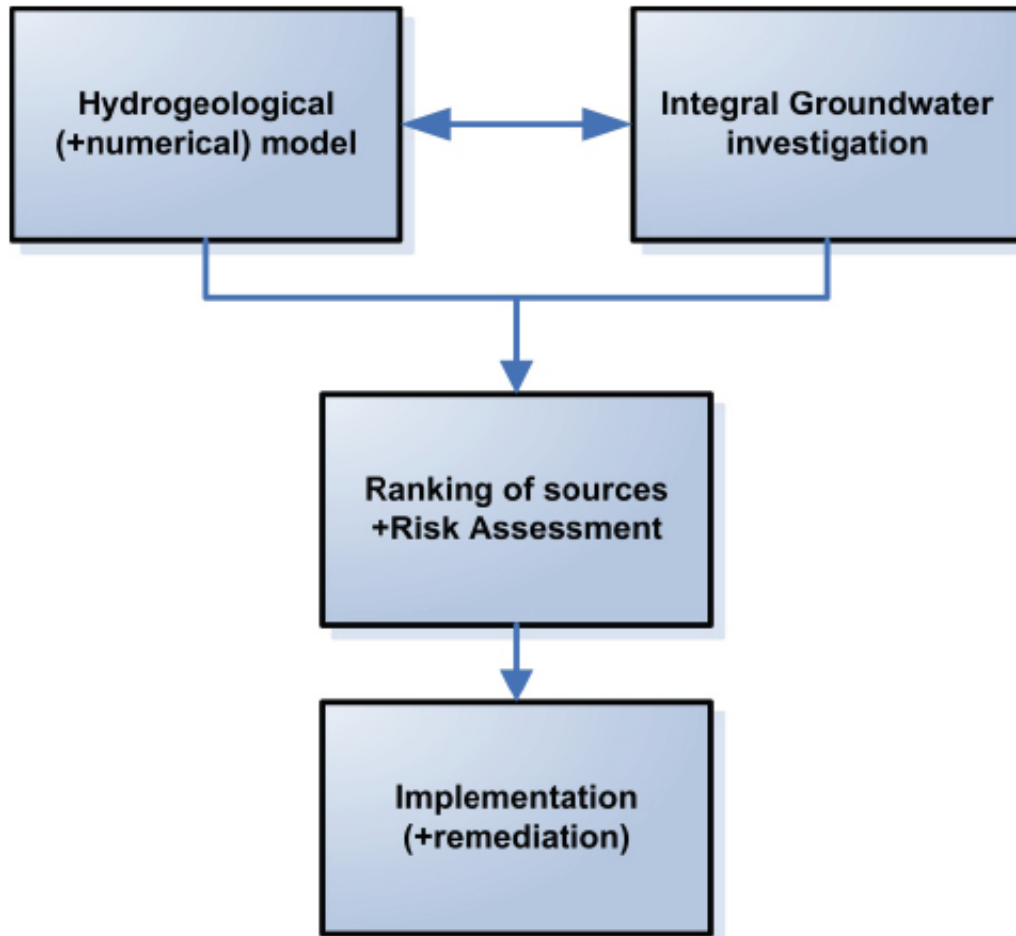


(Ptak and Teutsch, 2000)

MAGIC project aims

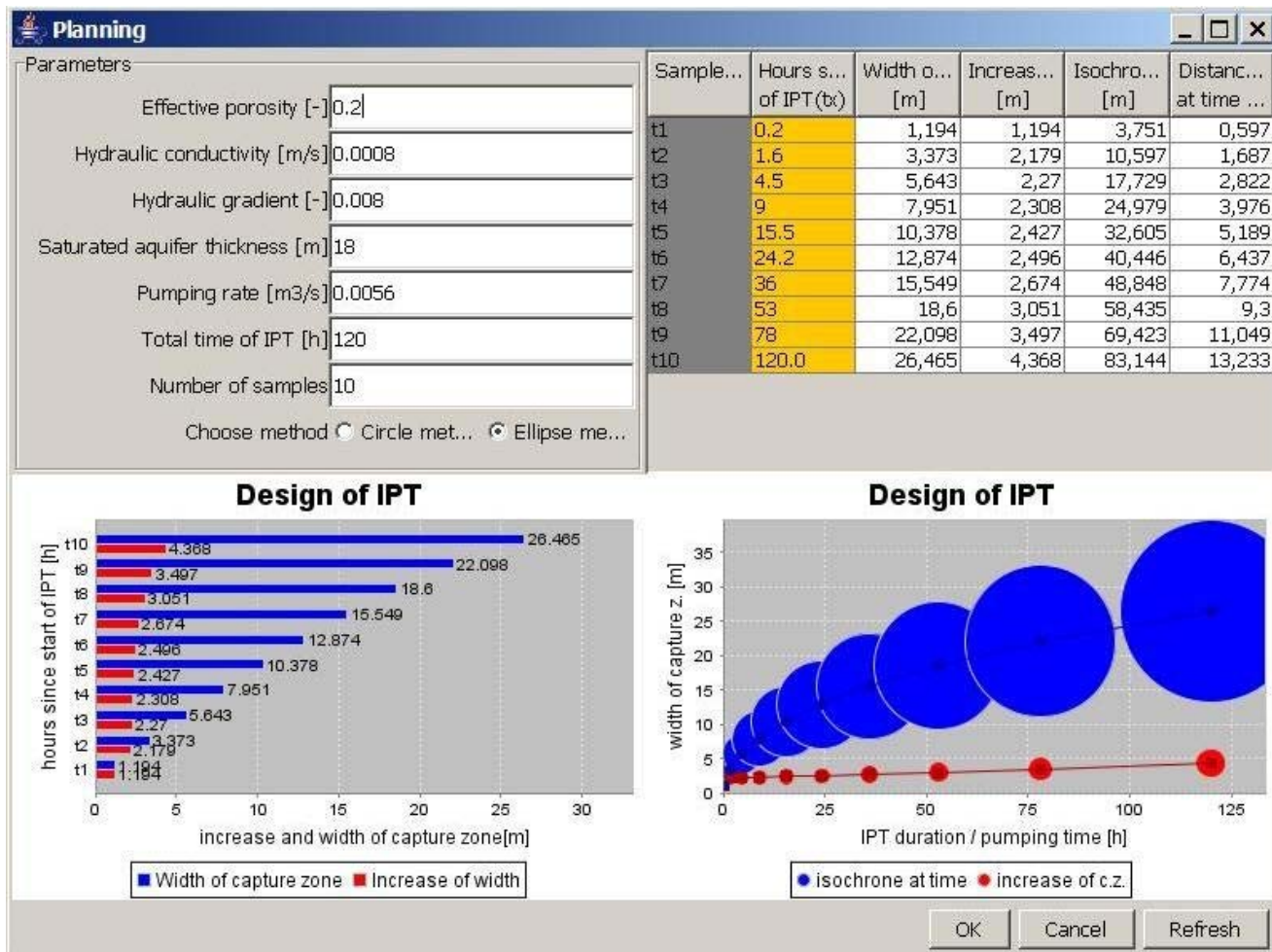
- Perspective aim:
Clean groundwater at industrial areas
- Specific aim:
Promoting innovative, cost-effective approach to abatement of the groundwater contamination

MAGIC project approach:

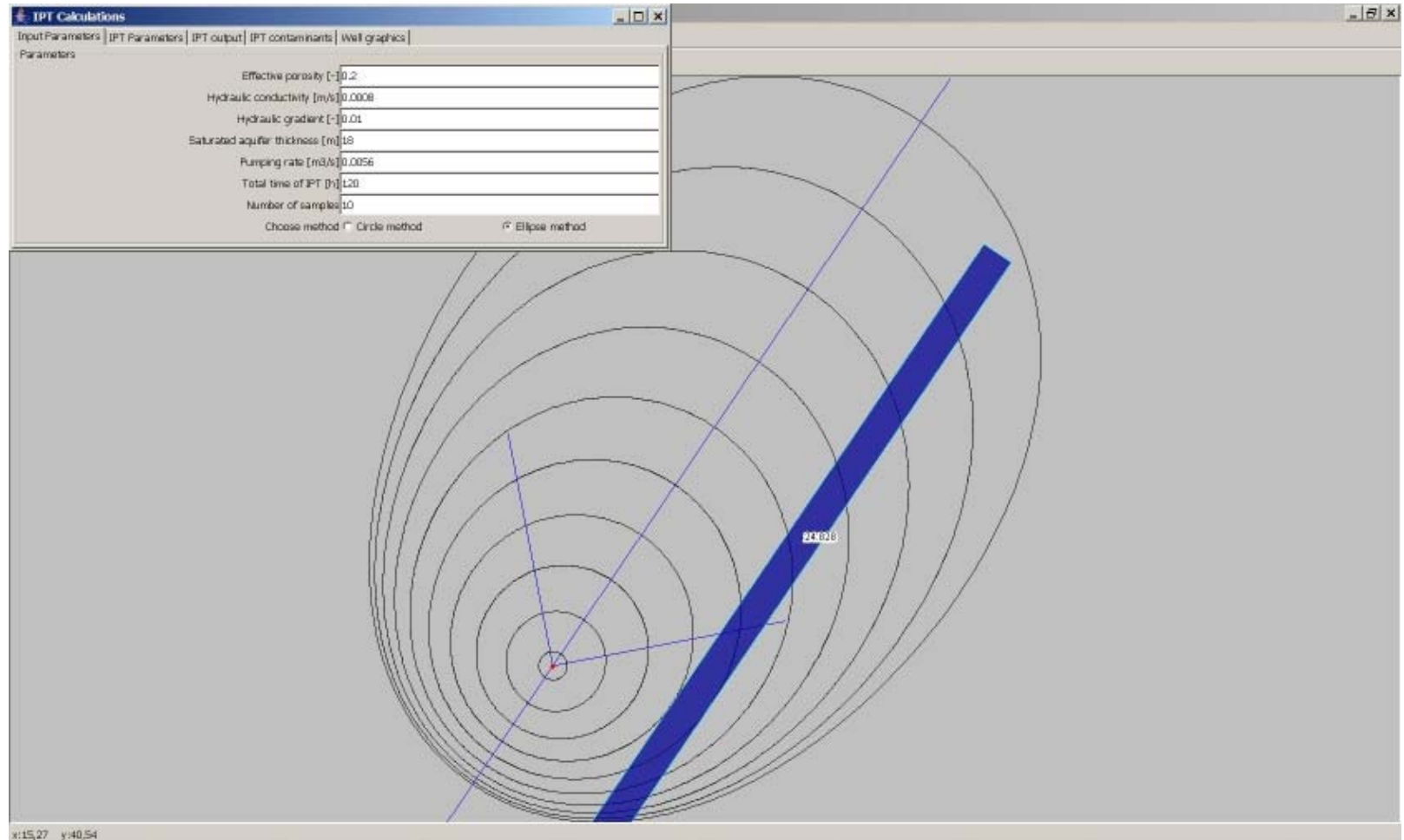


- Identification of most important hot-spots
- Hierarchization on the base of the impact on groundwater contamination
- Feasibility studies for cost-effective abatement of groundwater pollution

Planning of Integral Pumping Tests using MAGIC software tool



Visualization of IPT results with MAGIC software tool



MAGIC pilot projects

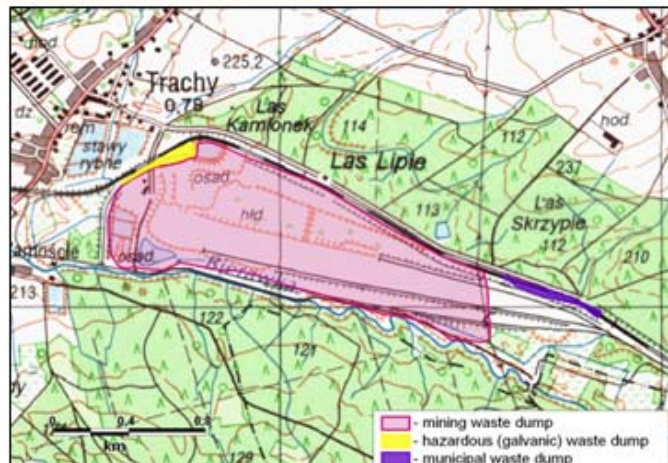
The goal of pilot projects is to implement innovative MAGIC approach at 4 test sites:

- Landfil area Trachy (County of Gliwice), Poland
- Postindustrial area – ex gasworks site in Olsztyn, Poland
- Feuerbach Valley, Stuttgart, Germany
- Ex chemical coking plant Vitkovice in Ostrava, Czech Republic

MAGIC Project Partners

- PP1 (LP)– Central Mining Institute (GIG), Katowice, Poland – Lead Partner
- PP2 – Institute for Ecology of Industrial Areas (IETU), Katowice, Poland
- PP3 – Capital City of Stuttgart, Germany
- PP4 – Institute of Public Health, Ostrava, Czech Republic
- PP5 – Polish Geological Institute, Warszawa, Poland
- PP6 – City of Olsztyn, Poland

Trachy, waste dumps „Smolnica”



- The westernmost edge of Upper Silesian Coal Basin, Poland
- Large rural area with 3 waste dumps: mining (the largest), municipal and post-galvanic
- Site borders with natural landscape park
- Groundwater is polluted with sulphates, chlorides and metals

The meander of Łyna river, Olsztyn



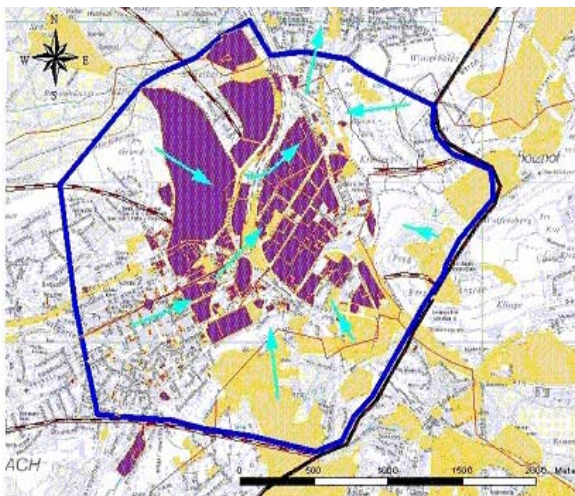
- Post-industrial area planned for revitalisation and future re-use
- Very near to historical city center, in vicinity of greenlands
- Groundwater contamination with petroleum hydrocarbons

Ostrava - Vitkovice



- Post industrial area of former coking plant, in the city center
- Groundwater contamination with petroleum hydrocarbons
- Presence of dense, non-aqueous liquid phase

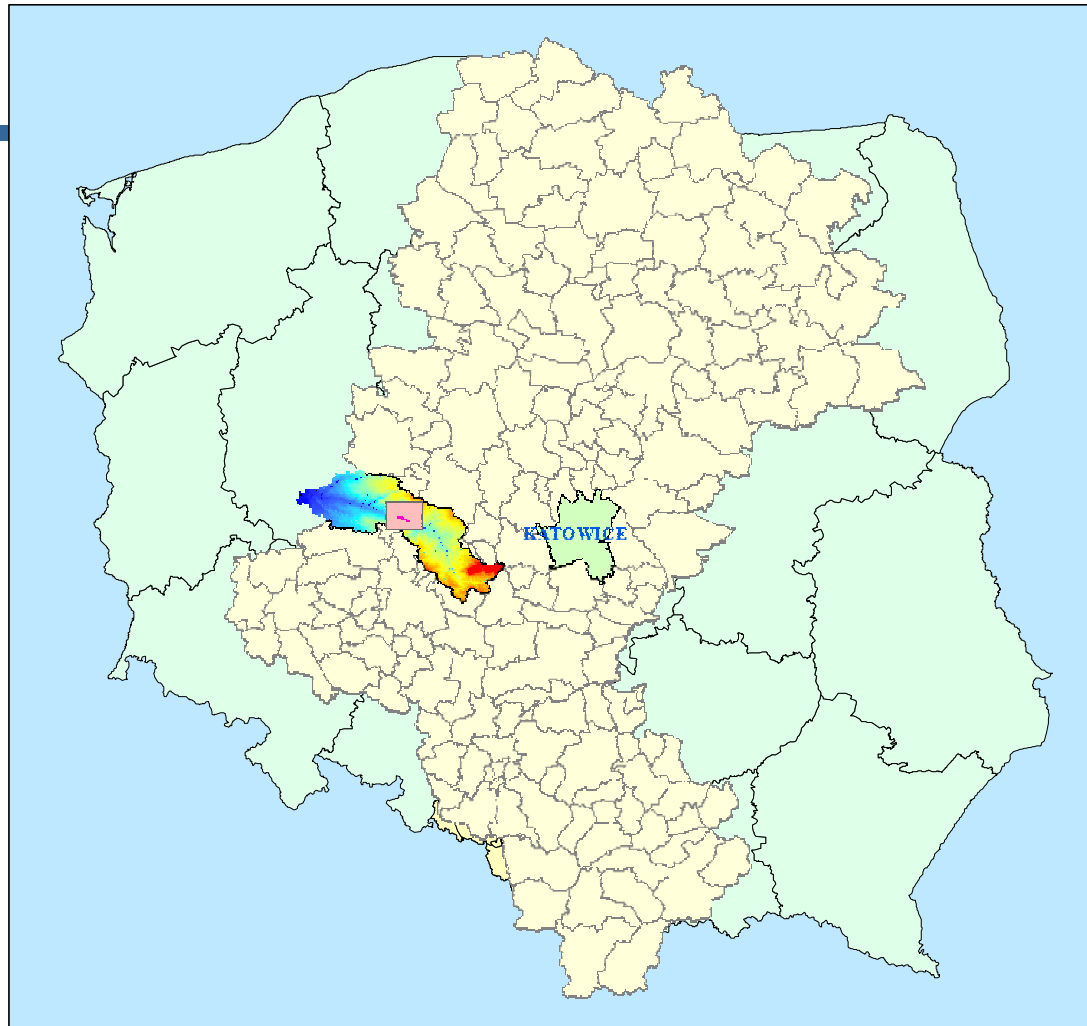
Stuttgart, Feuerbach valley



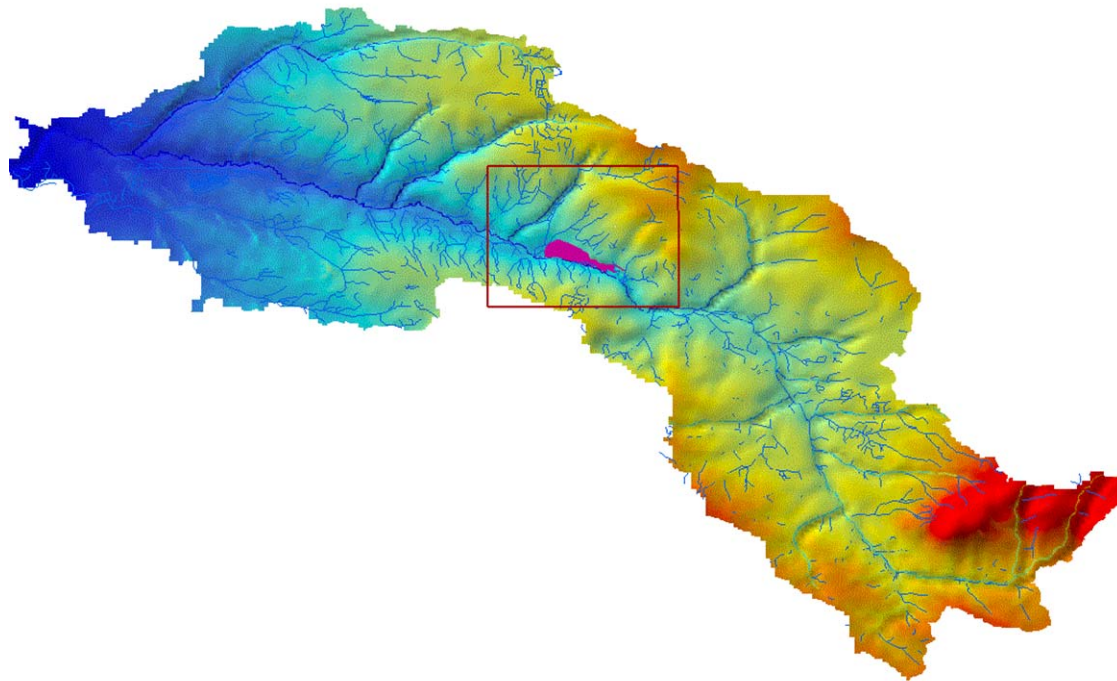
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- Industrial quarter of the city with dense infrastructure
- Over 200 potential sources of groundwater contamination with chlorinated hydrocarbons

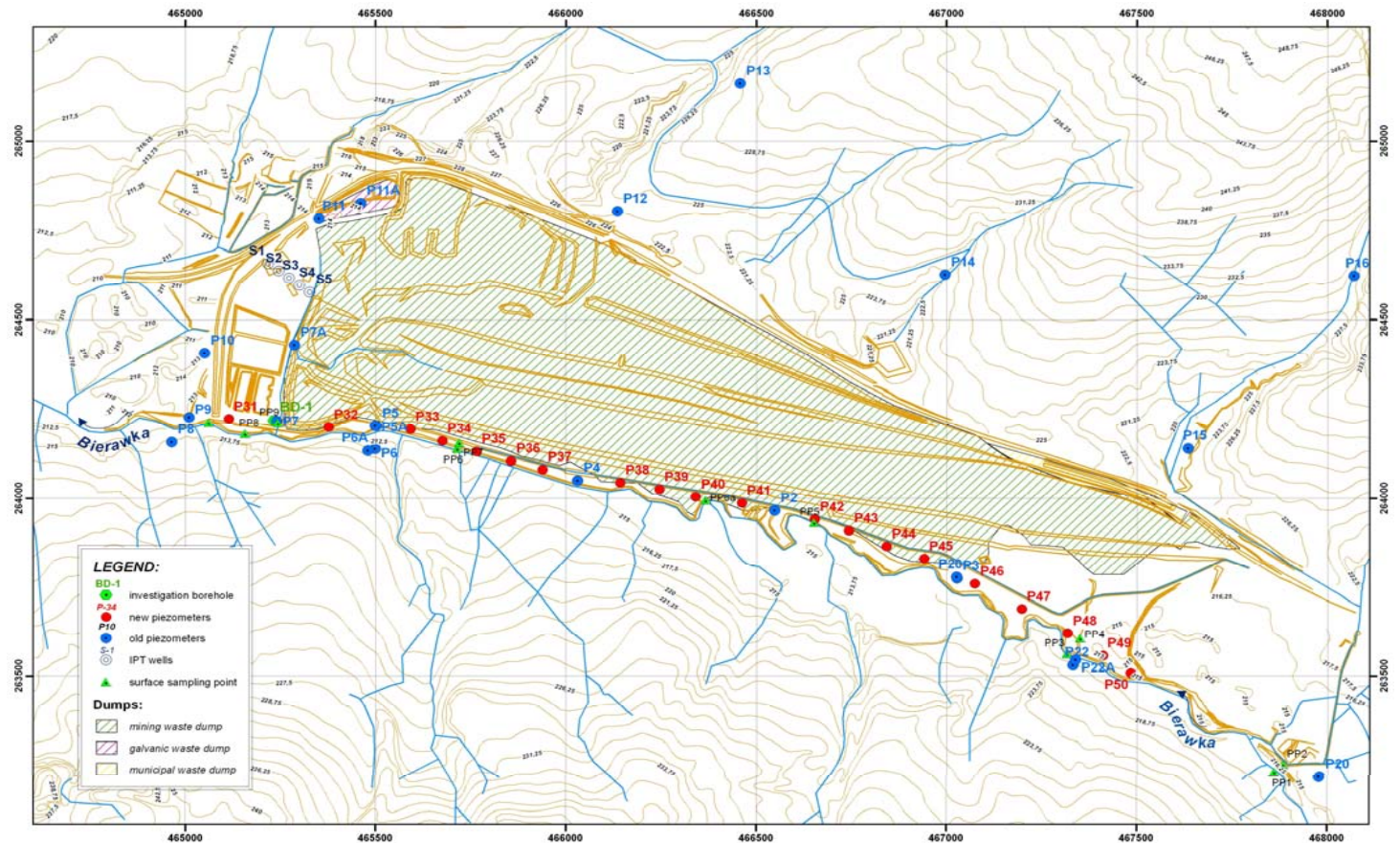
Geographical setting of test site



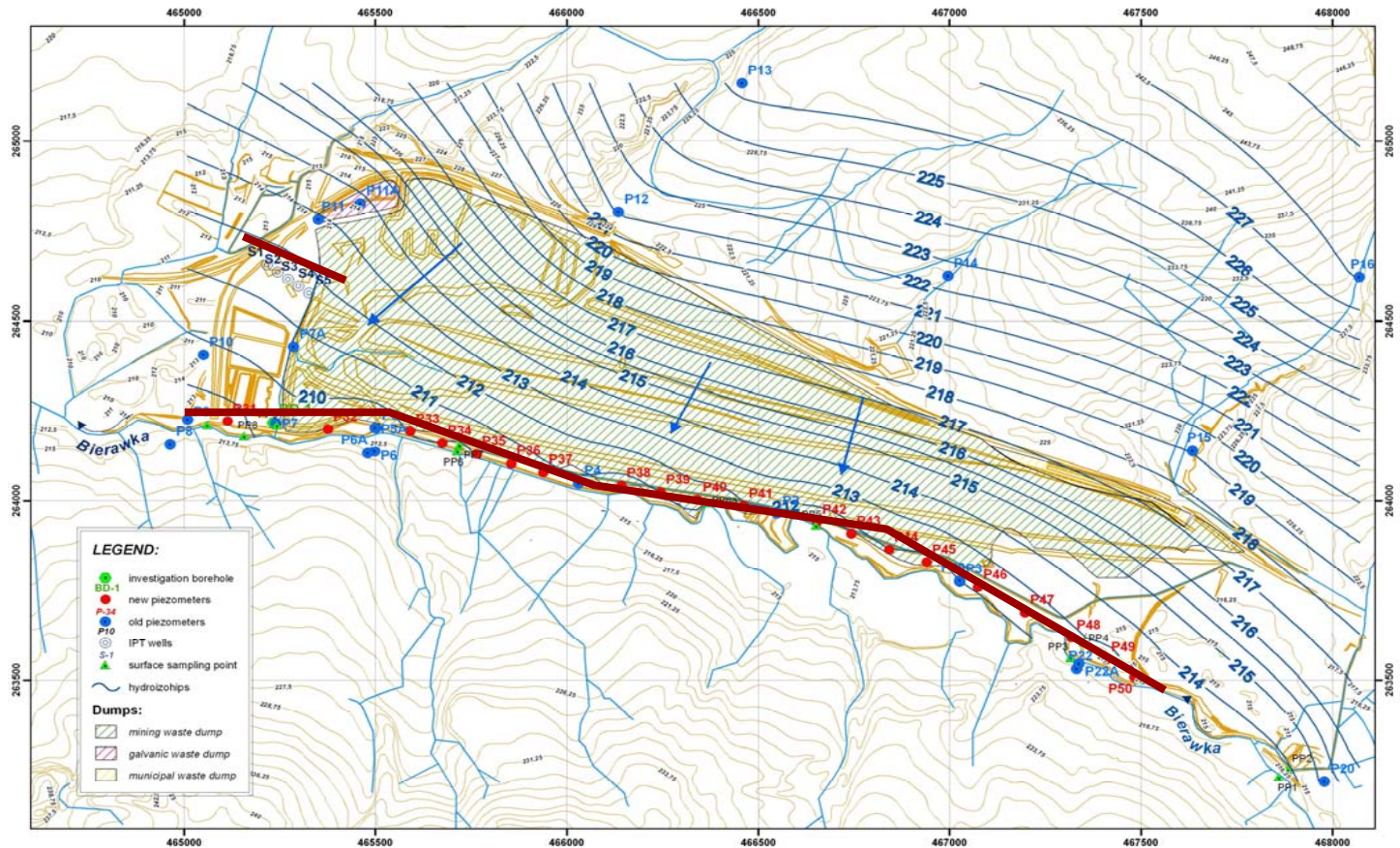
Bierawka river watershed



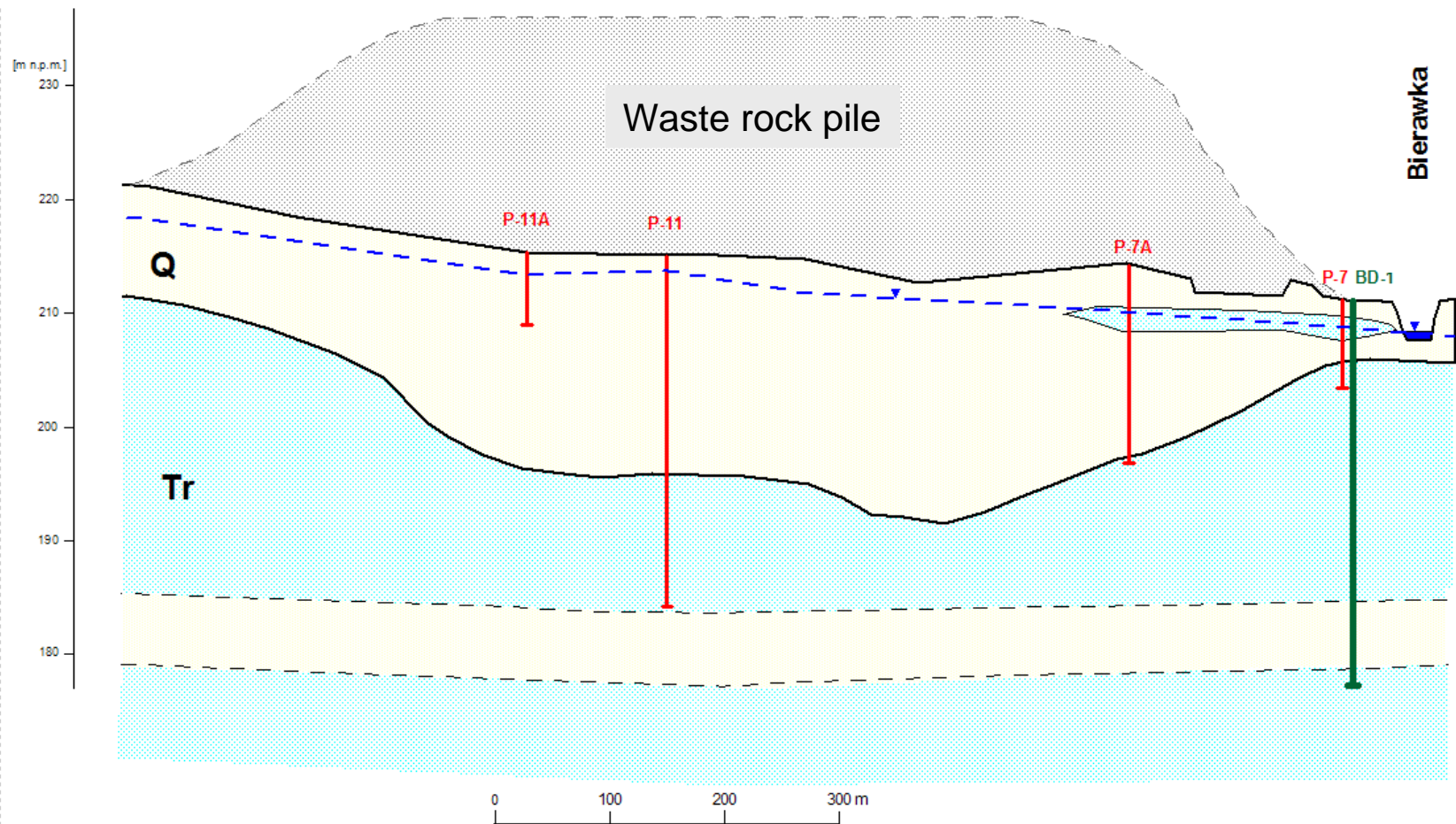
Existing and recently drilled boreholes



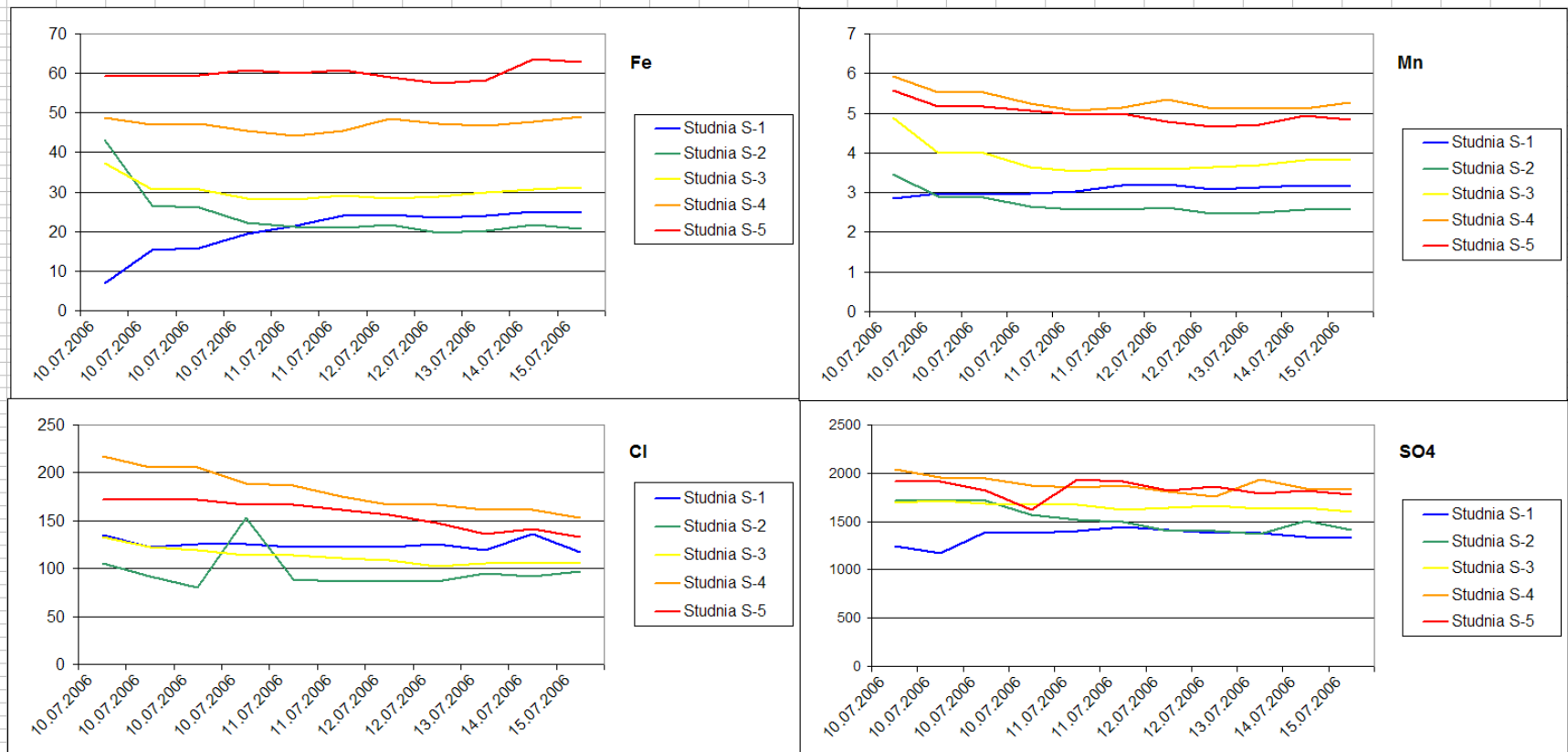
Groundwater table and defined control planes



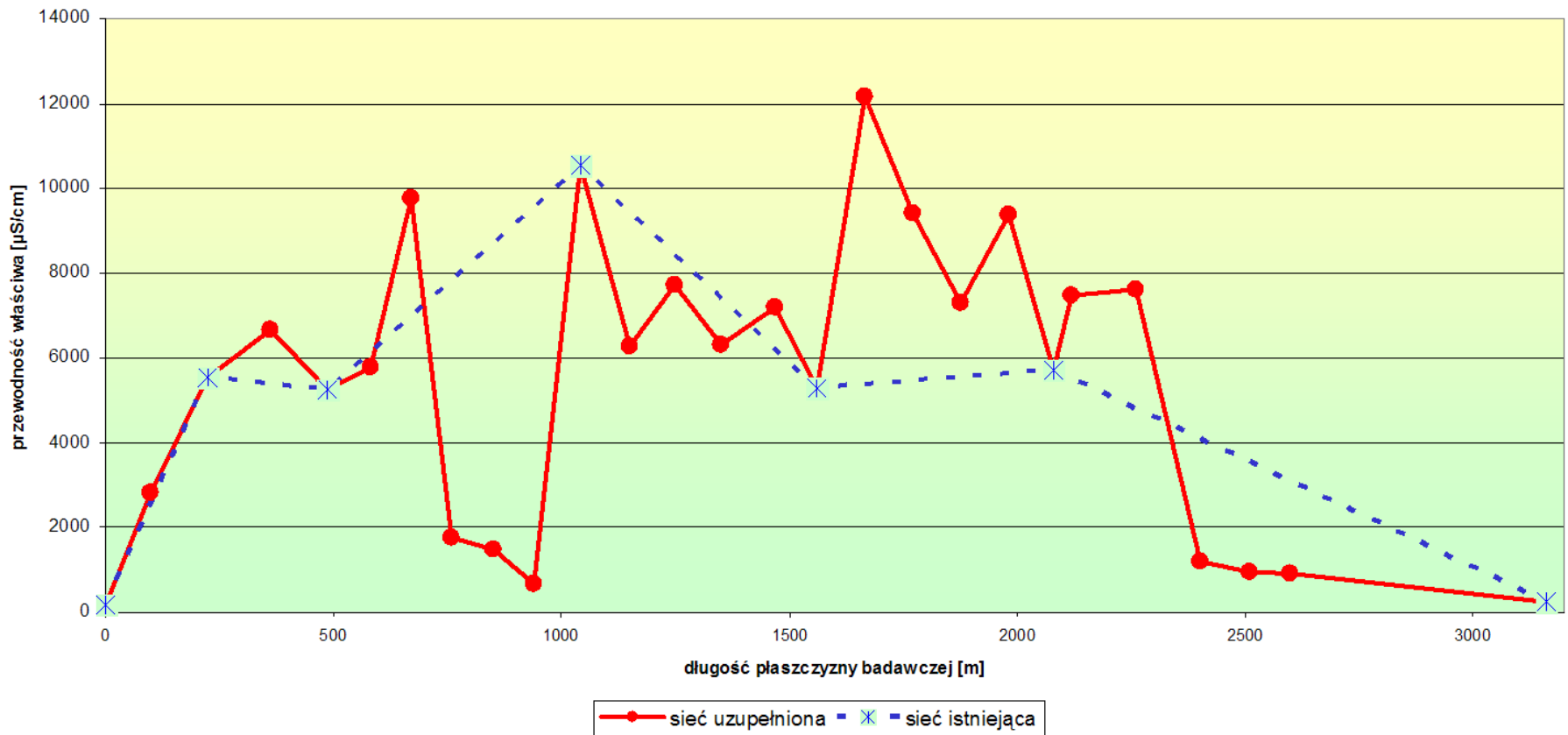
Hydrogeological cross-section



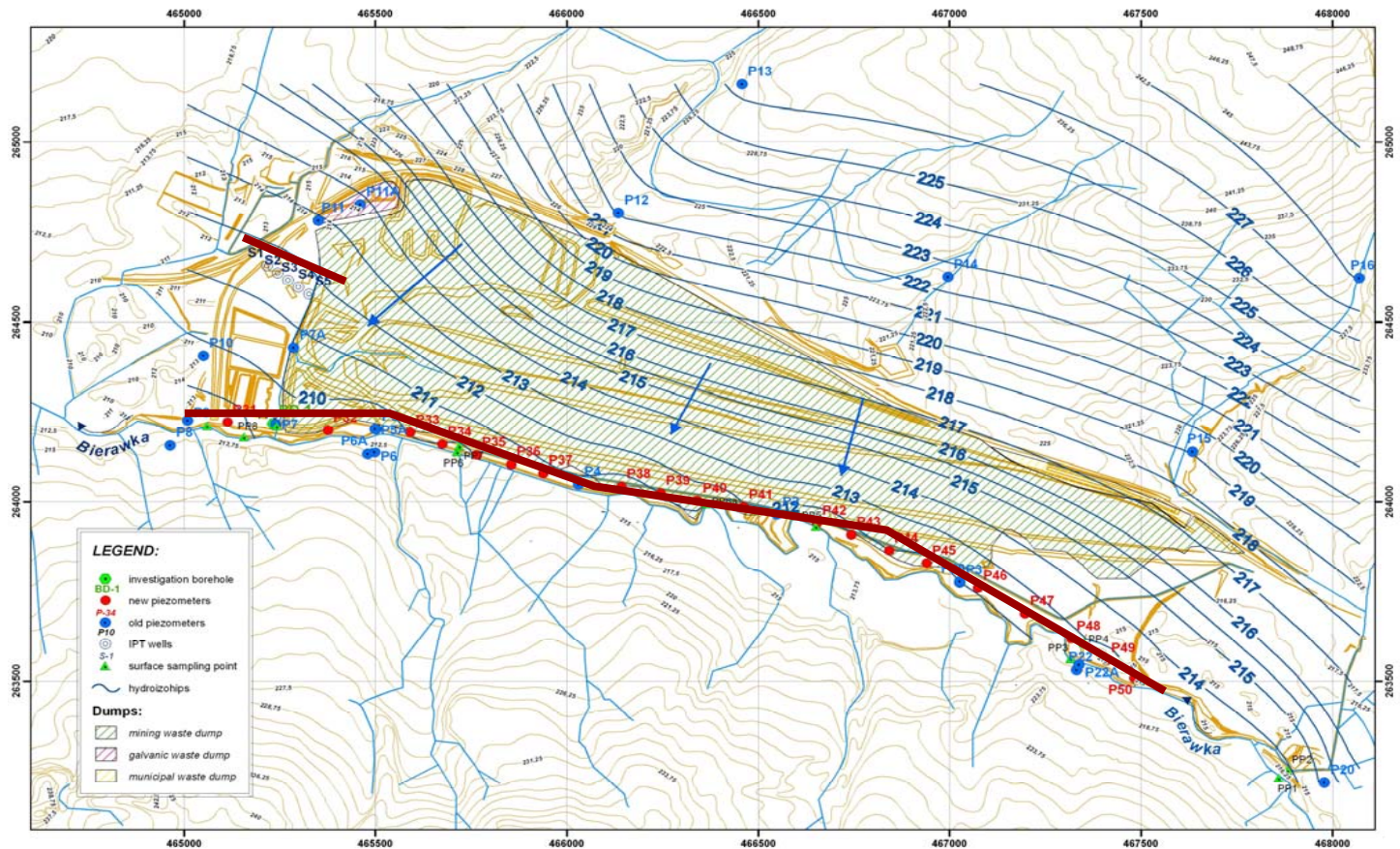
Concentration time series in pumping wells of short control plane



Conductivity change accross the long control plane



Current research



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