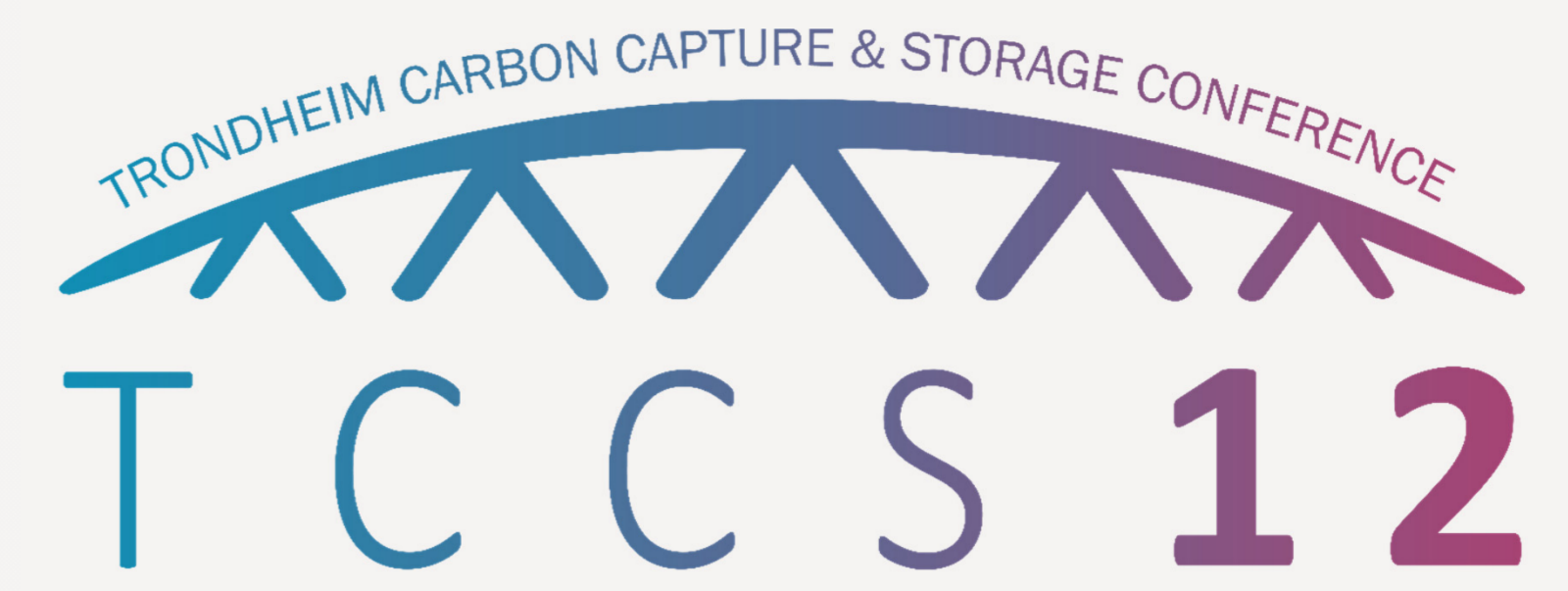


Preparing for CO2 pilot in the Czech Republic



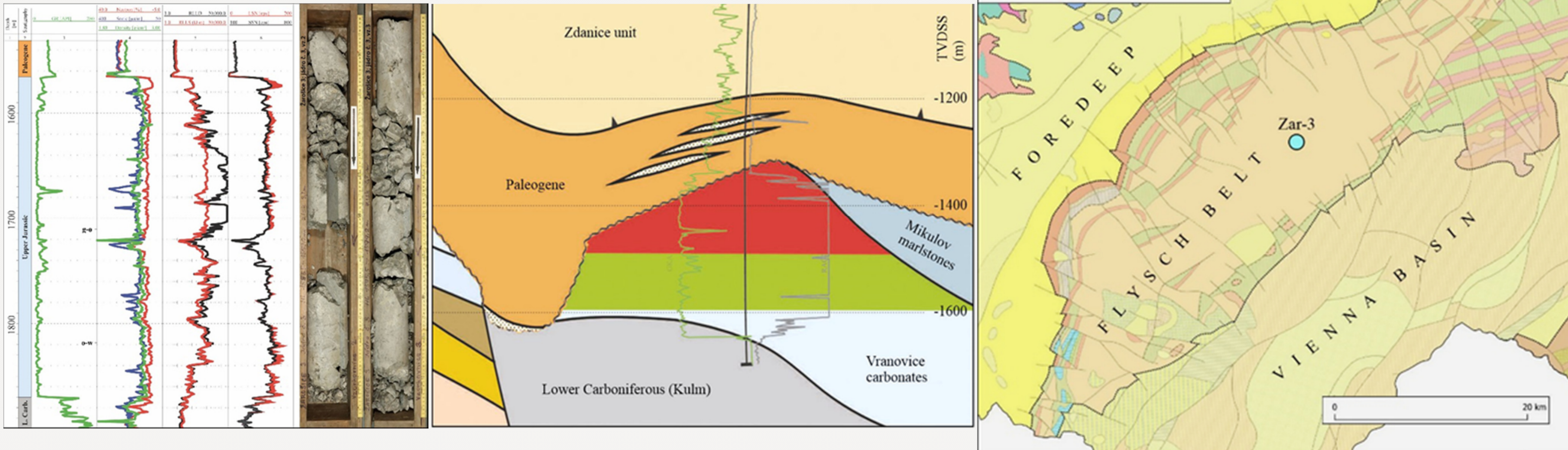
R. Berenblyum¹, V. Hladík^{2†}, J. Franců², M. Pereszlényi², E. Hudečková², V. Kolejka², V. Opletal³, M. Pagáč³, A. Shchipanov¹, A. Nermoen¹, E. Ford¹, P. Jirman², M. Klempa⁴, P. Kolář⁵

¹ NORCE Norwegian Research Center AS ² Czech Geological Survey ³ MND a.s.

⁴ VSB – Technical University of Ostrava ⁵ Institute of Geophysics of the Czech Academy of Science



The project is a necessary step towards CCS in the Czech Republic aiming at demonstrating safe, reliable and economically sound storage in abandoned hydrocarbon carbonate field.

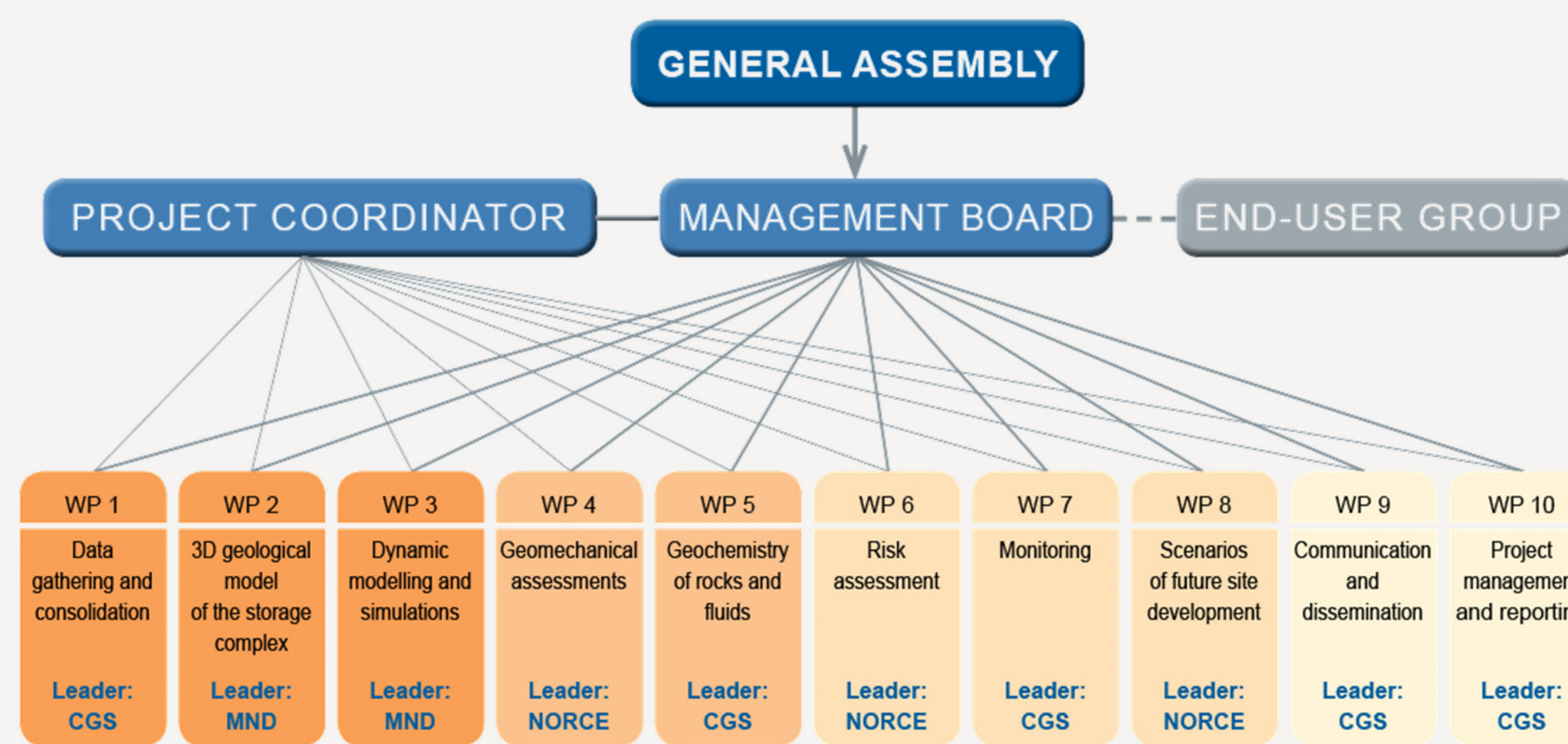
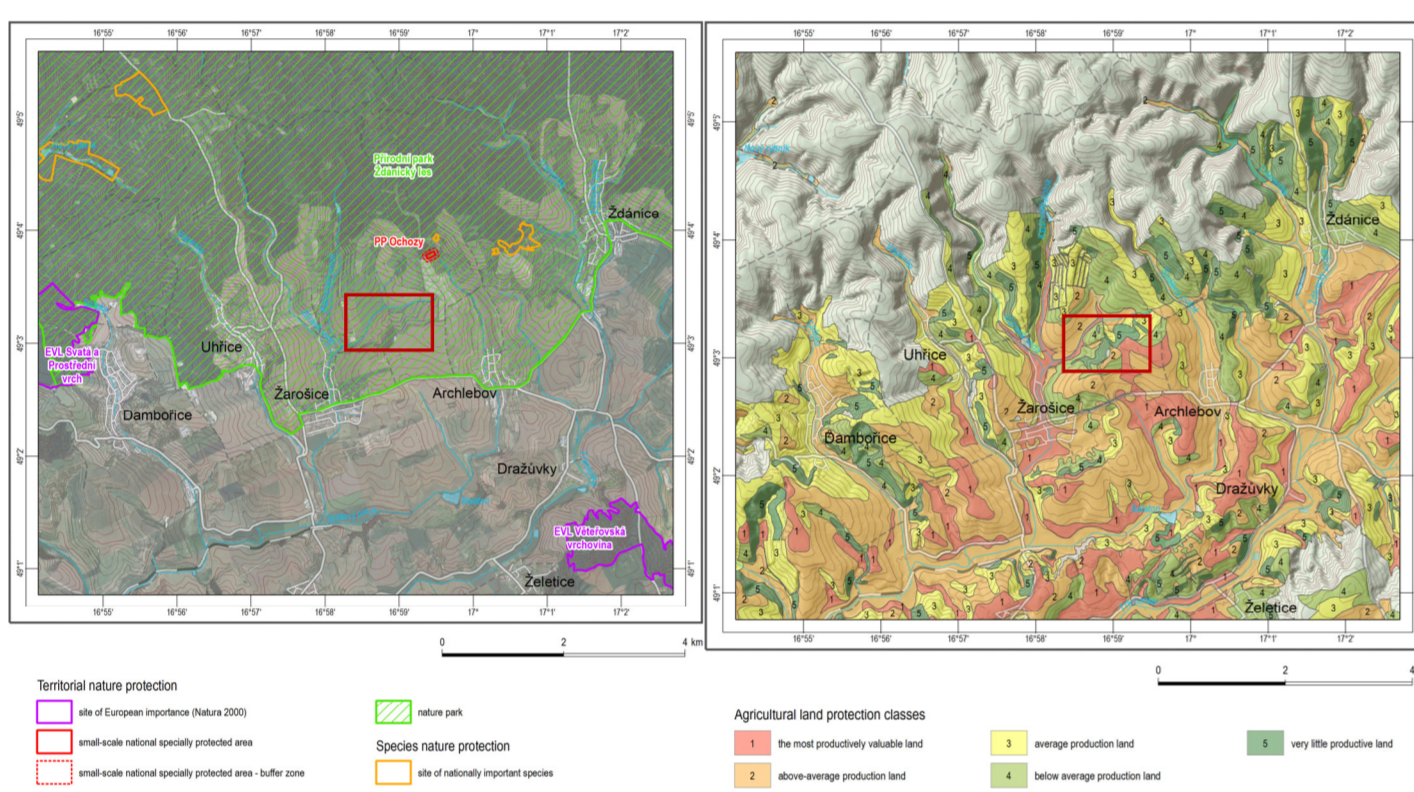


Main objective is to prepare implementation of a **pilot project of CO2 geological storage** at the mature Zar-3 oil & gas field. **Specific project goals include:**

- construction of a **3D geological model** of the storage complex
- dynamic modelling and **simulations of CO2 injection** in the reservoir using various scenarios
- evaluation of **geomechanical and geochemical properties** of the storage complex
- **risks assessment related to CO2 storage** on the pilot site
- development of **scenarios for future site development**, including design of CO2 injection facilities
- strengthening of **Czech-Norwegian cooperation** in the field of CCS

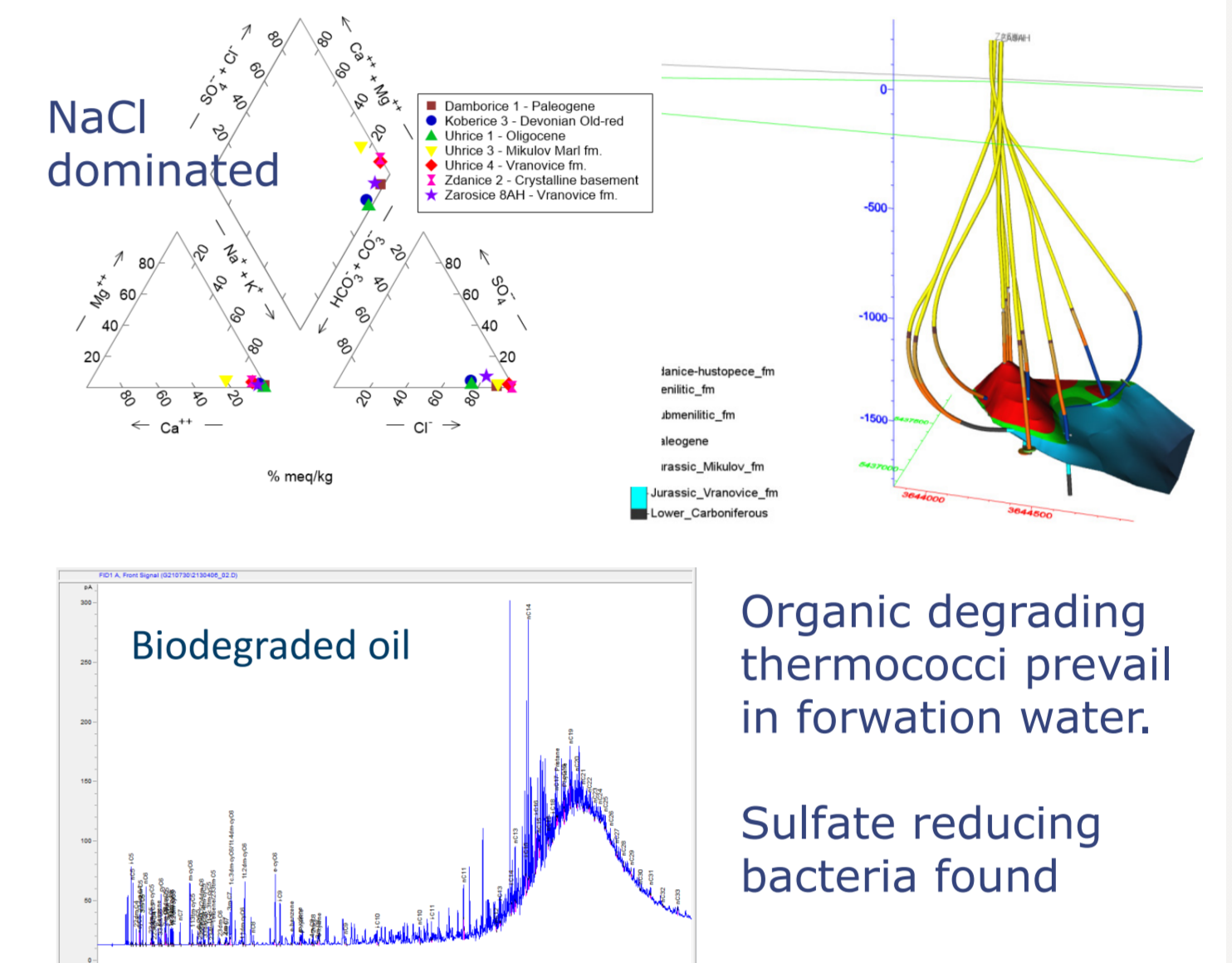
WP1. Data gathering

Public data were aggregated with MND archives and databases, data consolidated. GIS maps of geomorphology, pedology, geology, climatology, conflicts of interest and nature protection in the area of interest. Data made publicly available



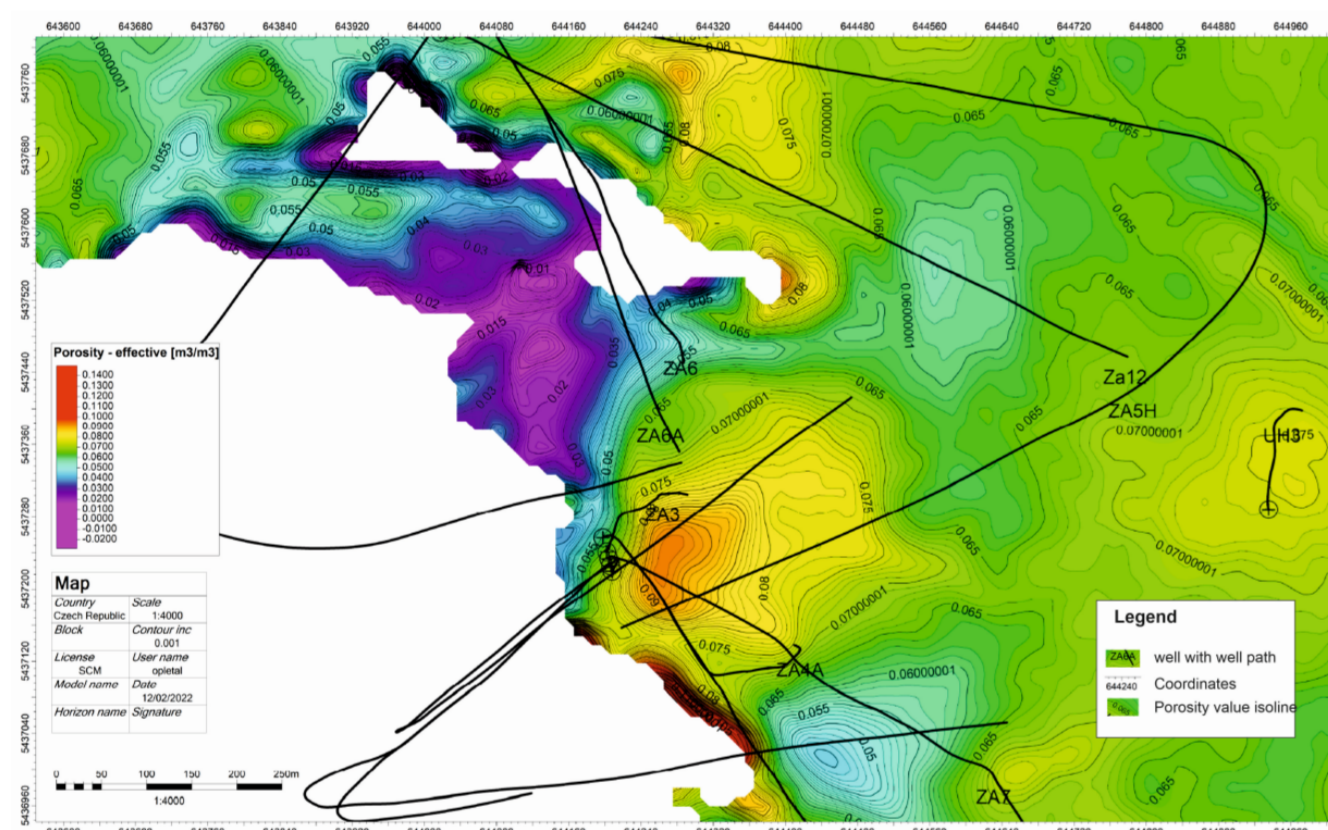
WP5. Geochemistry

Investigate interplay of fluids, microbiology and rocks.



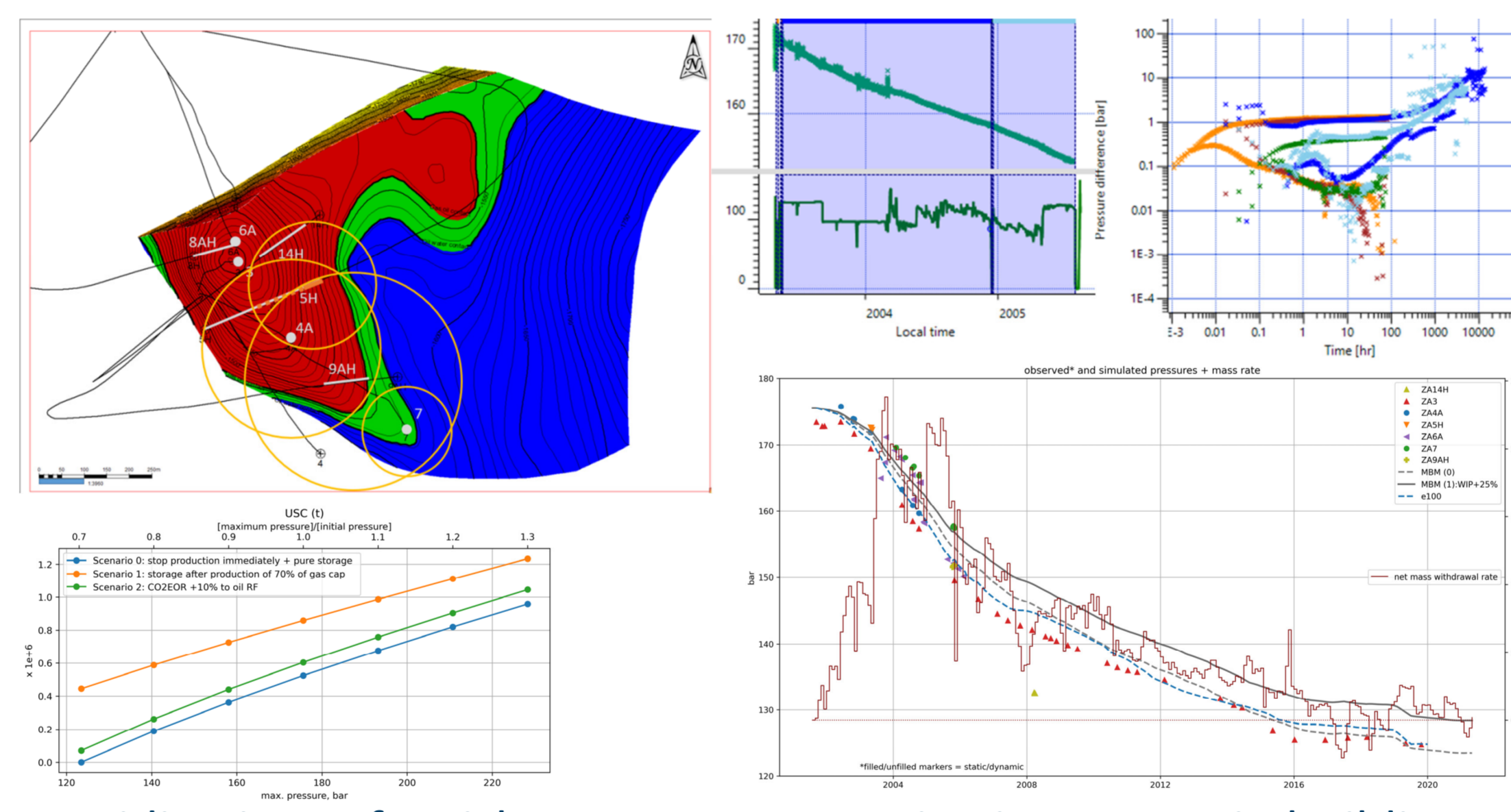
WP2. Geo-modelling

Main goal – develop new model of the storage complex.



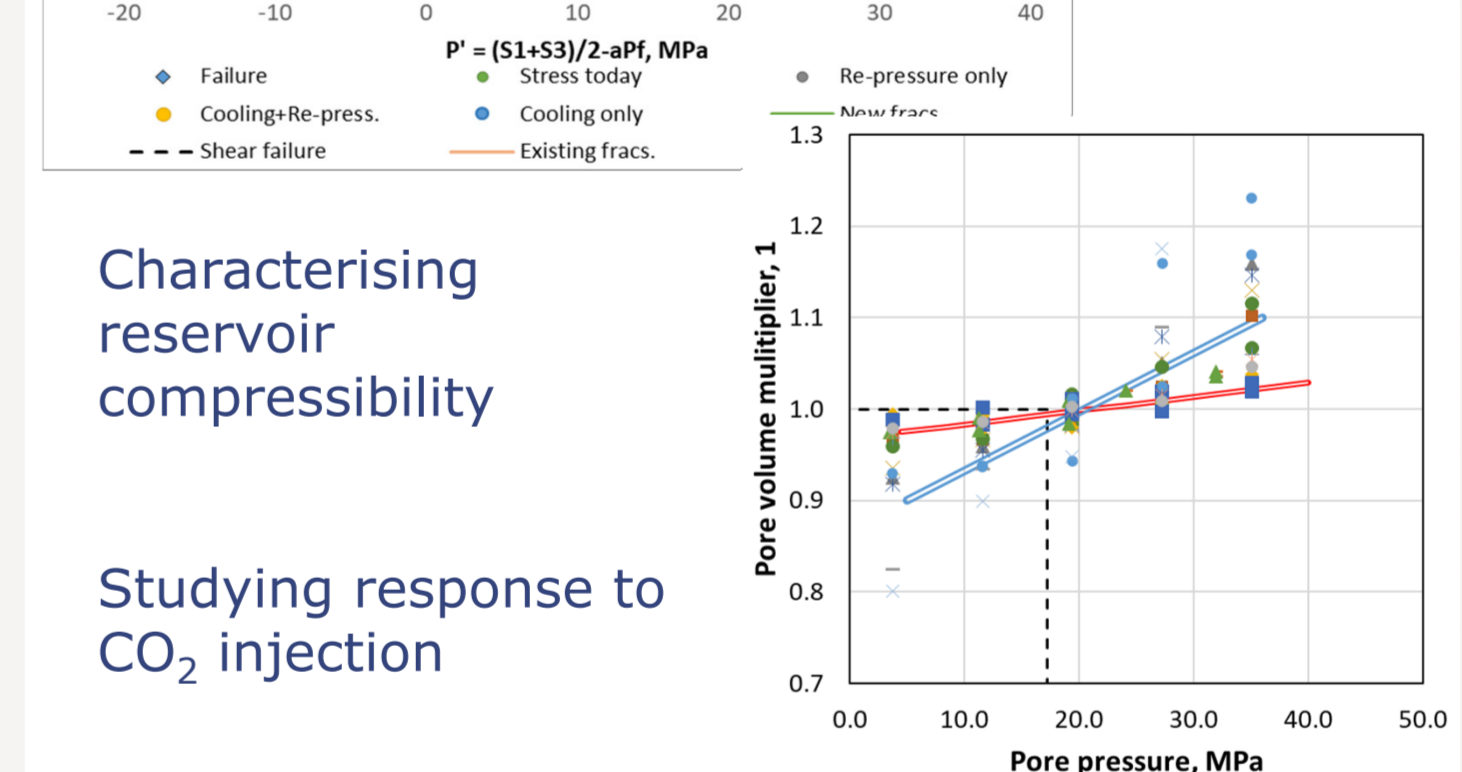
WP3. Reservoir simulation

MBM - new PVT model – evaluating field production data – new reservoir model - integrating geochemistry and geomechanics



WP4. Geomechanics

Providing operational envelope for current field operation and planning of future pilot and CCS scenarios.



WP6. Risk

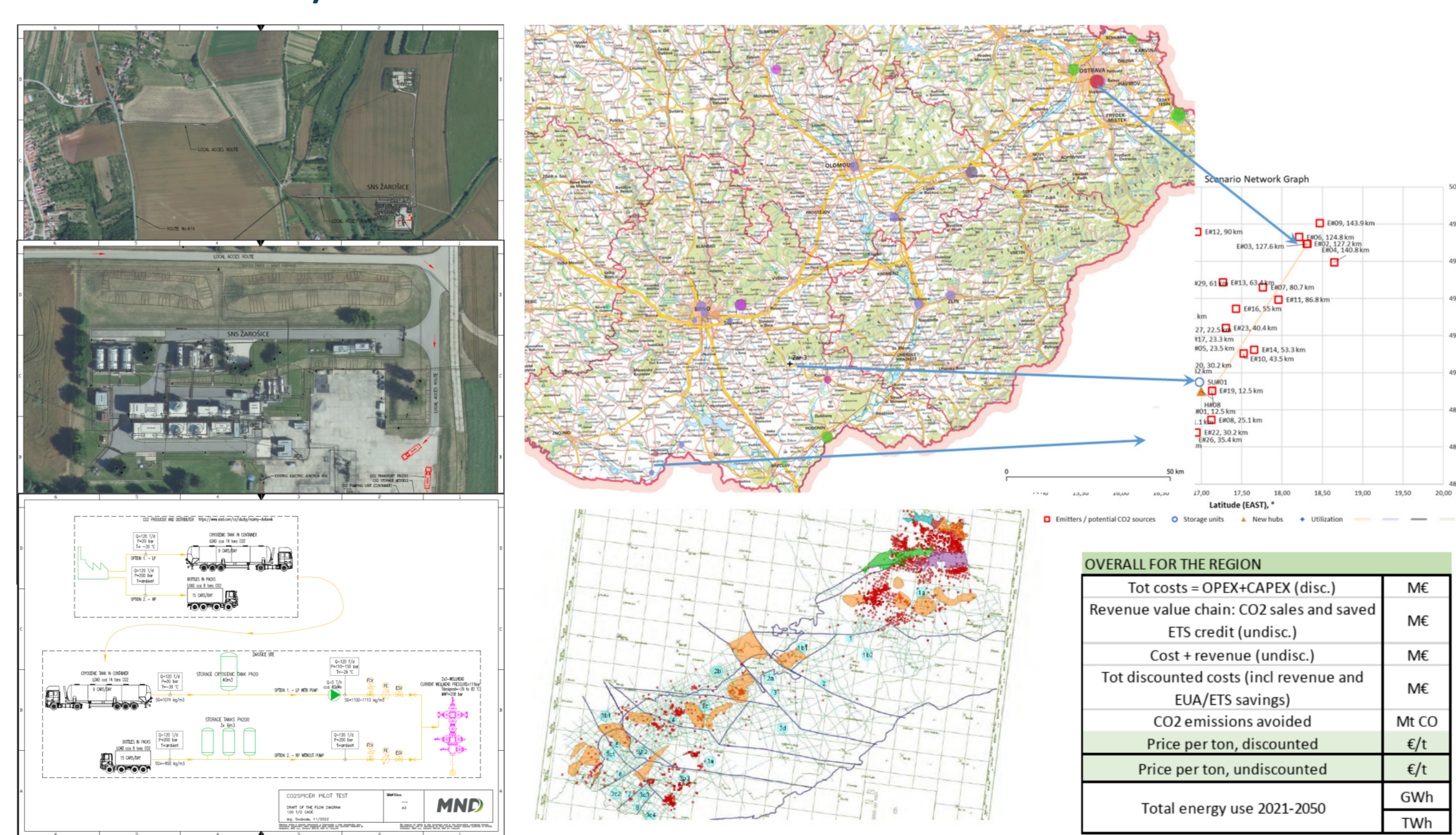
Framework – Leakage simulations from abandoned wells

Exposure assessment and Task 6.3 – Effects assessment

- Dispersion simulations will be used as basis for determining both possible impacts wrt human health, resources and infrastructure
- Using likely release locations and maps of e.g. land use can thereby provide realistic scenarios for types of consequences

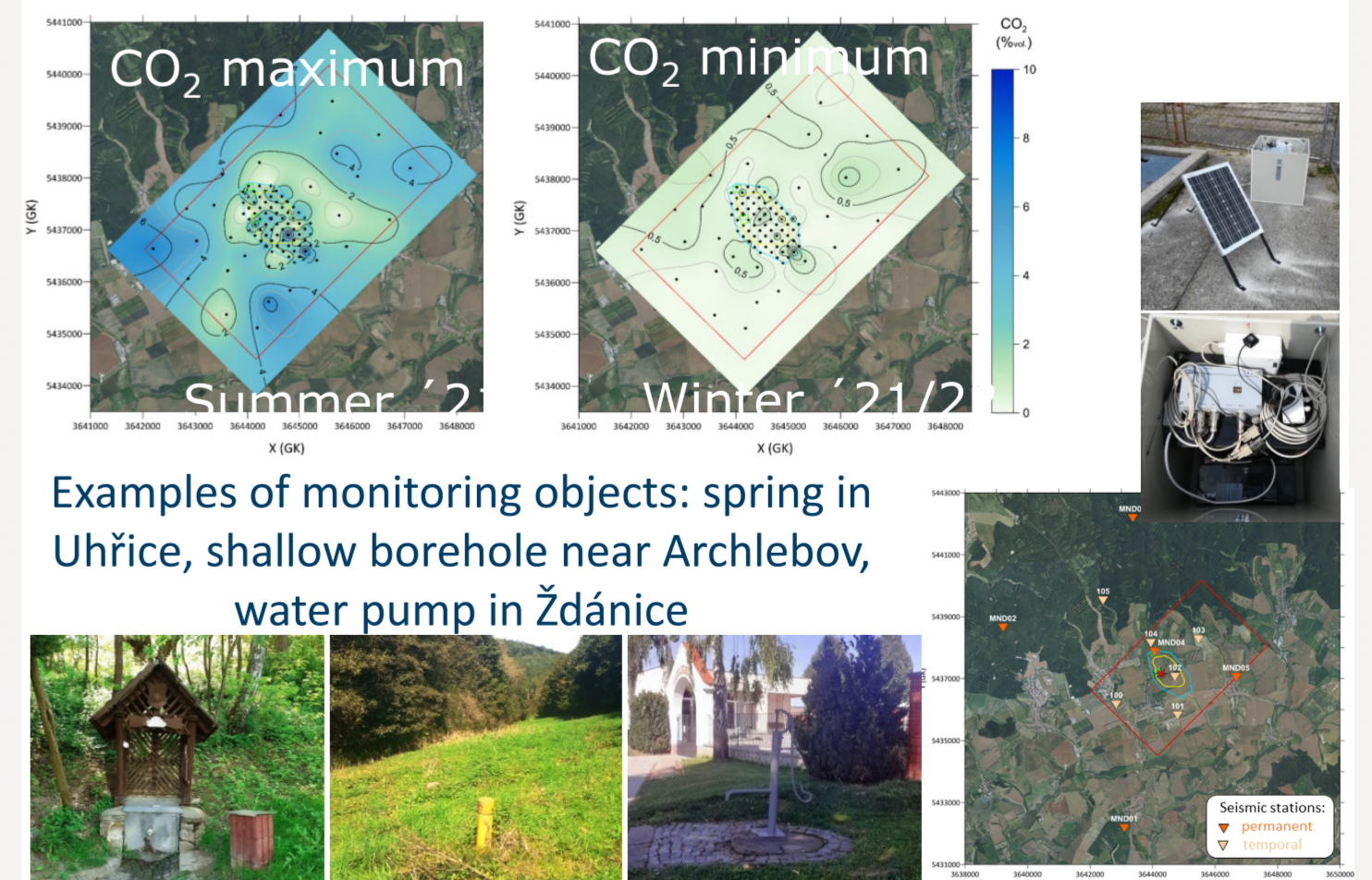
WP8. Scenarios

Designing of injection facilities – scenarios for future development and their analysis



WP7. Monitoring

Atmogeochemical, seismic / seismological, shallow groundwater, containment monitoring, site monitoring plan



More about CO2 SPICER during TCCS-12:

Poster by Nermoen et.al. “Monte Carlo Simulations Ensure Safe Operations Under Uncertain Rock Strength and Earth Stresses during CO2-injection”

Poster by Ford et.al. “Decision-making under uncertainty – case study from Czech Republic CO2 storage”

Poster by Jirman et.al. “Seasonal variability, vegetation and climatic controls of the estimated CO2 baseline in the Zar-3 CCS pilot”

Other relevant projects



Project website



Contact Author



CO2GeoNet – a lot more info on CCS



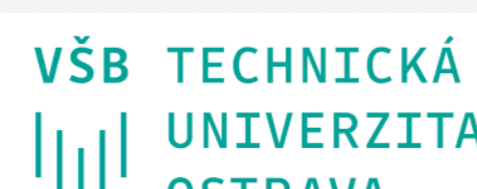
REPP-CO2 project



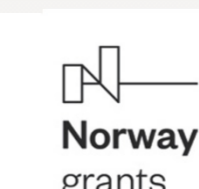
Strategy CCUS project



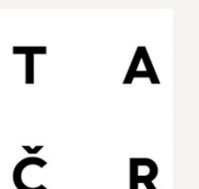
NORCE MND



The CO2-SPICER project benefits from a € 2.32 mil. grant from Norway and Technology Agency of the Czech Republic



Programme Kappa



TA ČR