Interreg North-West Europe
DGE-ROLLOUT

Exploring the Deep Geothermal Energy Potential at Weisweiler, Germany: 3D-Modelling of Subsurface Mid-Palaeozoic Carbonate Reservoir Rocks

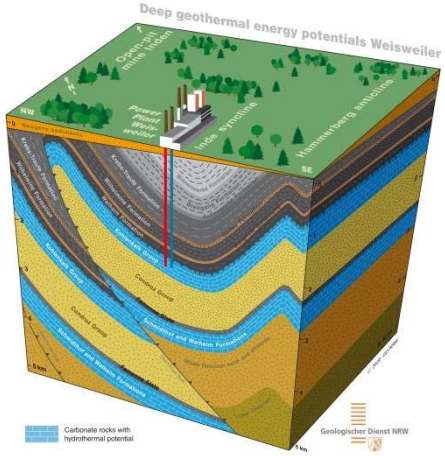
T. Fritschle [1], M. Salamon [1], S. Bißmann [2], M. Arndt [1], T. Oswald [3]

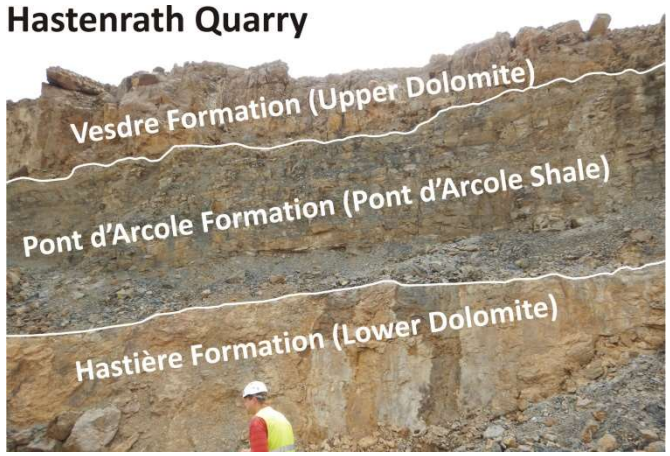
[1] Geological Survey of North Rhine-Westphalia, De-Greiff-Straße 195, 47803 Krefeld, Germany

[2] DMT GmbH & Co.KG, Am TÜV 1, 45307 Essen, Germany

[3] RWE Power AG, Cologne Site, Stüttgenweg 2, 50935 Köln, Germany

Geologischer Dienst NRW





DGE ROLLOUT – Deep Geothermal Energy for NW-Europe

Objective:
Promoting deep geothermal energy in NW-Europe

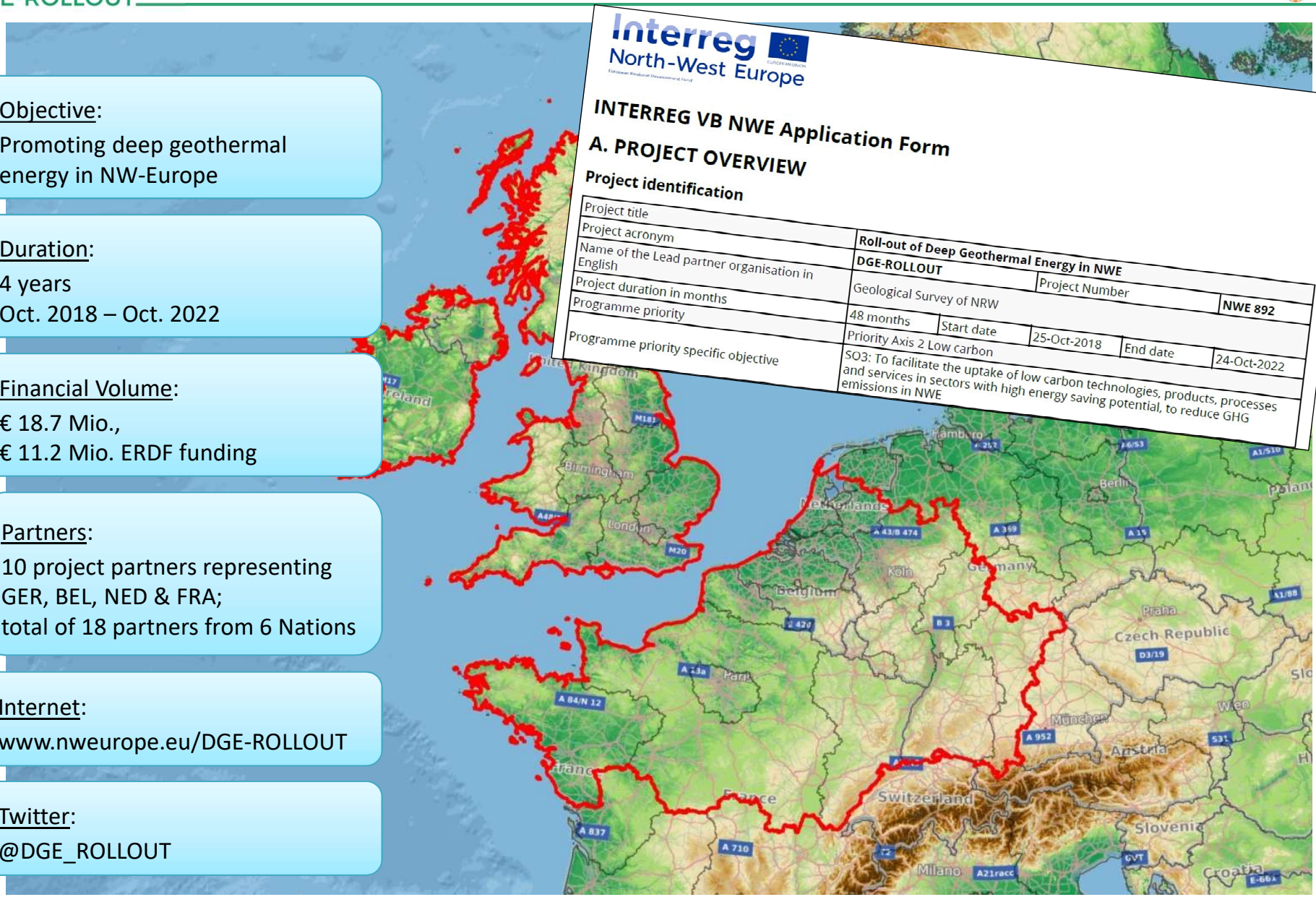
Duration:
4 years
Oct. 2018 – Oct. 2022

Financial Volume:
€ 18.7 Mio.,
€ 11.2 Mio. ERDF funding

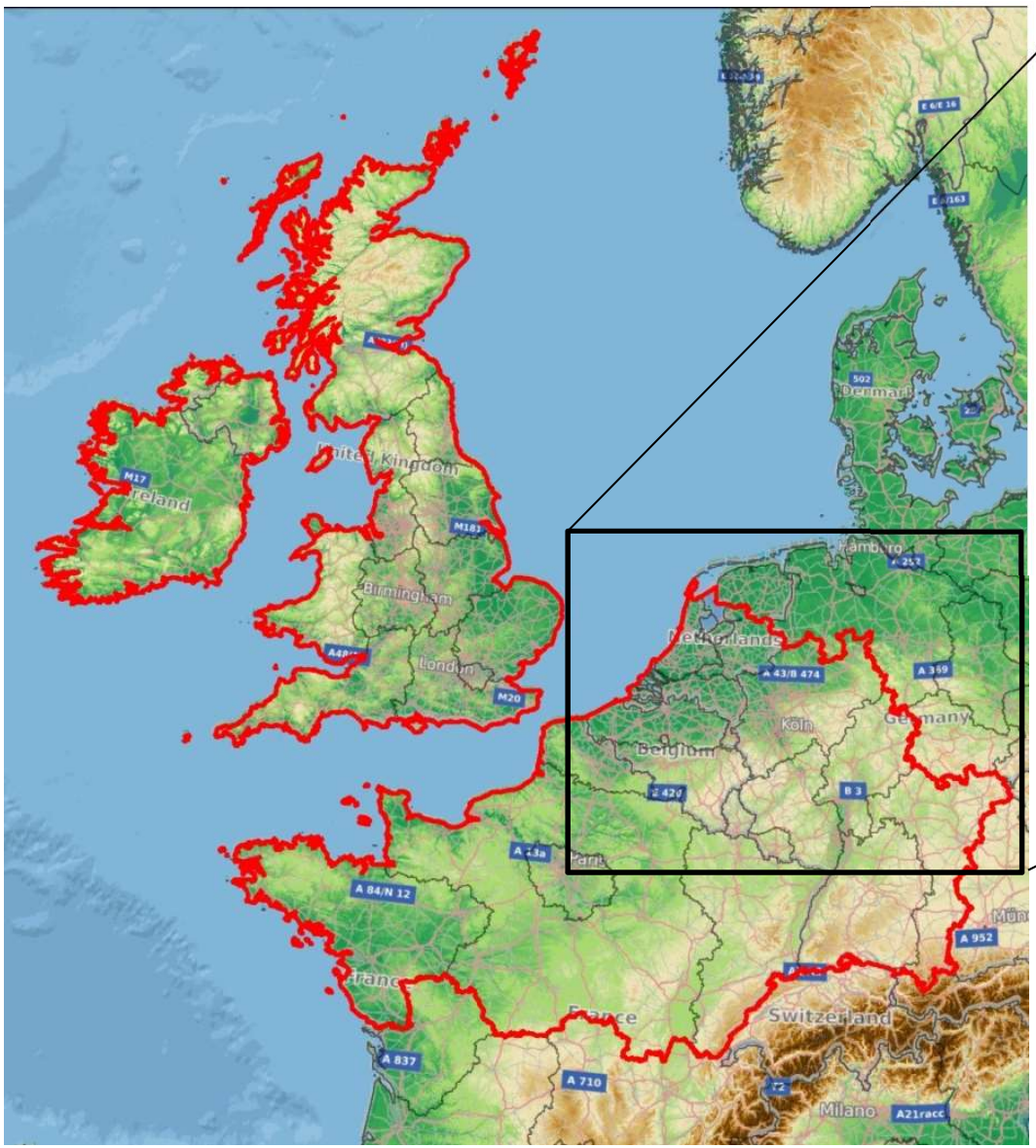
Partners:
10 project partners representing GER, BEL, NED & FRA;
total of 18 partners from 6 Nations

Internet:
www.nweurope.eu/DGE-ROLLOUT

Twitter:
@DGE_ROLLOUT



Working Area – North Rhine-Westphalia, Germany

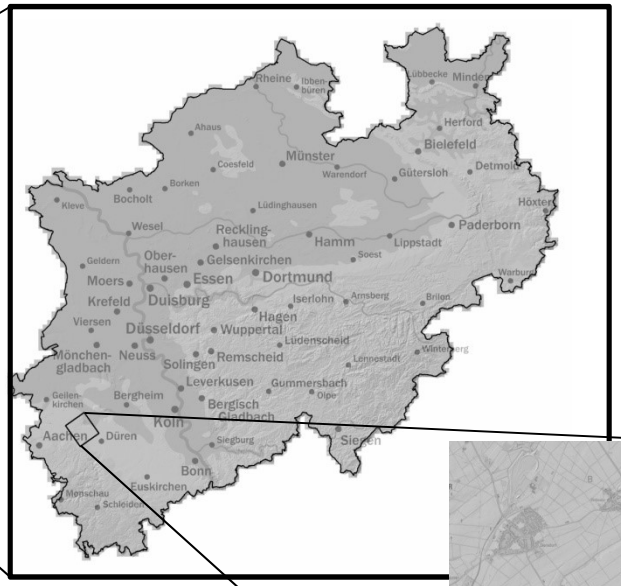


North Rhine-Westphalia

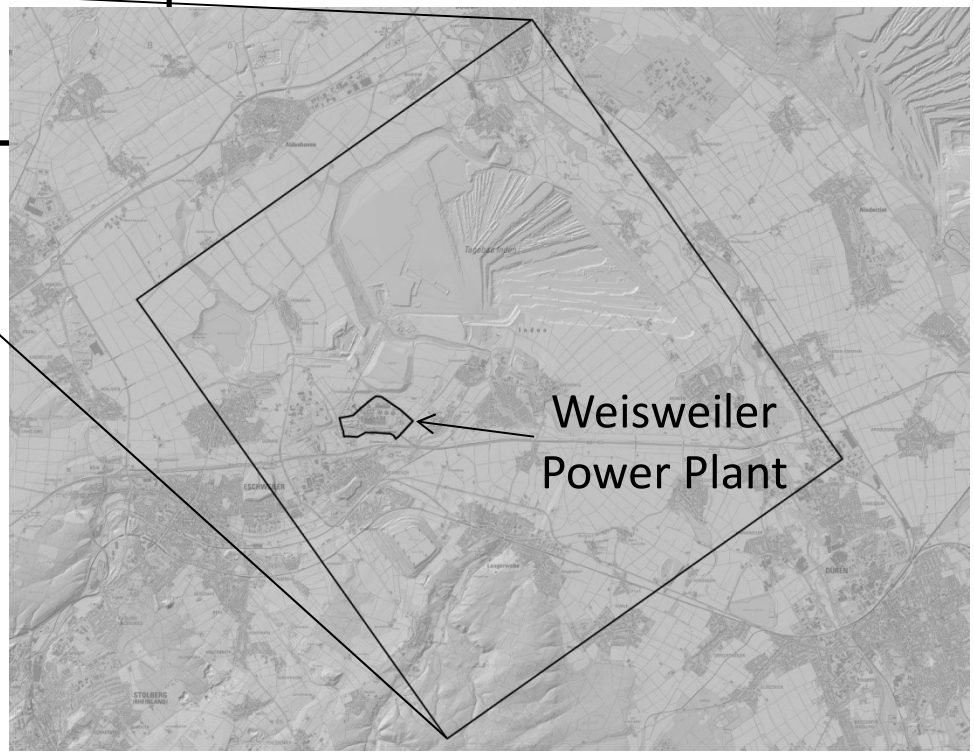
Roll-out of Deep Geothermal Energy in North-West Europe – DGE-ROLLOUT

- The EU-Interreg funded project DGE ROLLOUT aims to **reduce CO_2 emissions** following a multi-disciplinary geoscientific approach

Working Area – Weisweiler Power plant



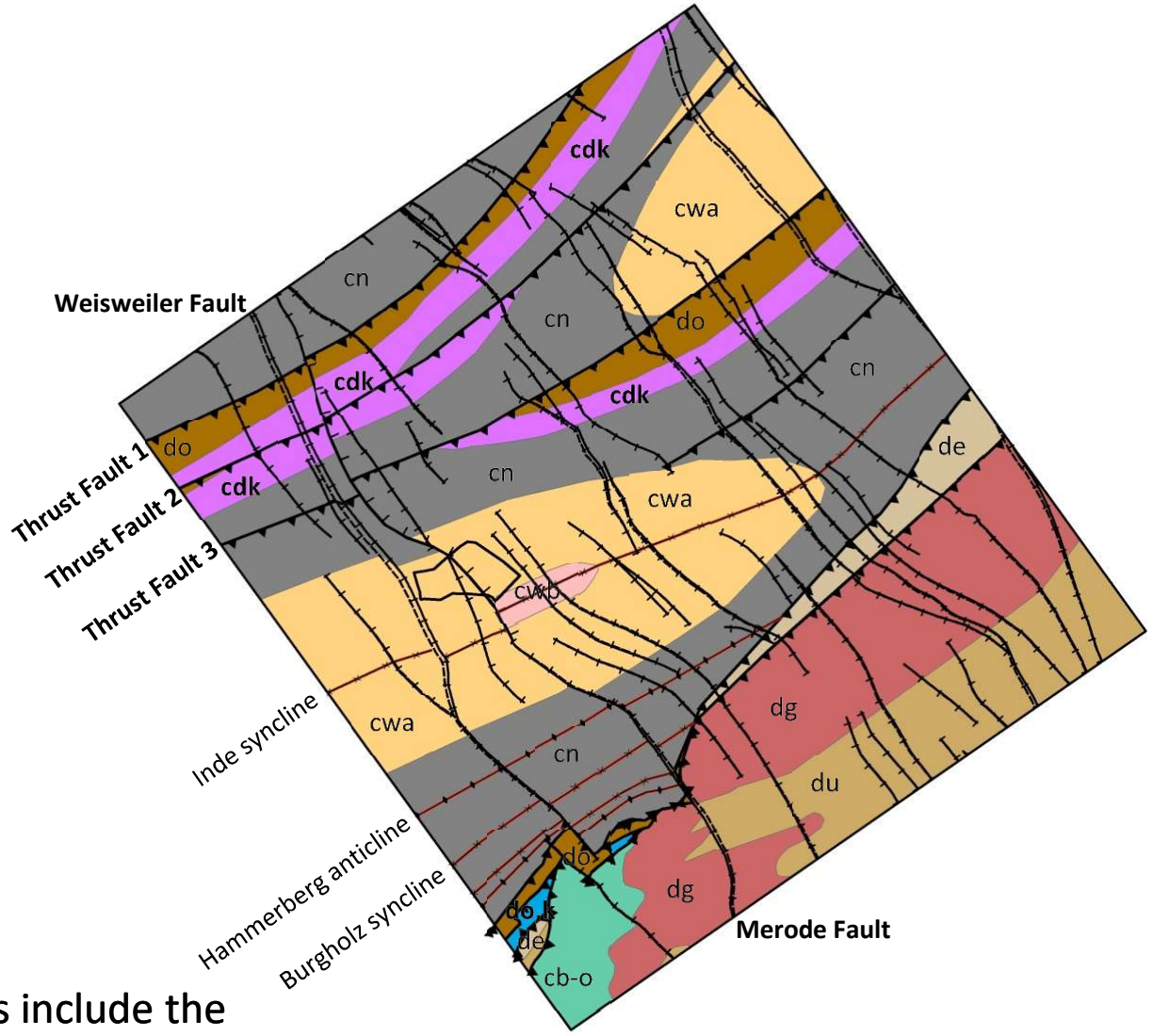
- Particular focus of the DGE ROLLOUT Project revolves around the promotion of **Deep Geothermal Energy as a climate and environmentally friendly energy resource** in North-West Europe



- A major area of interest for the project is located in the border triangle between BEL, NED and GER
- One of the topics within the DGE-ROLLOUT Project includes the evaluation of the feasibility to transform the lignite-fired power plant Weisweiler (RWE Power AG) into a geothermal power plant

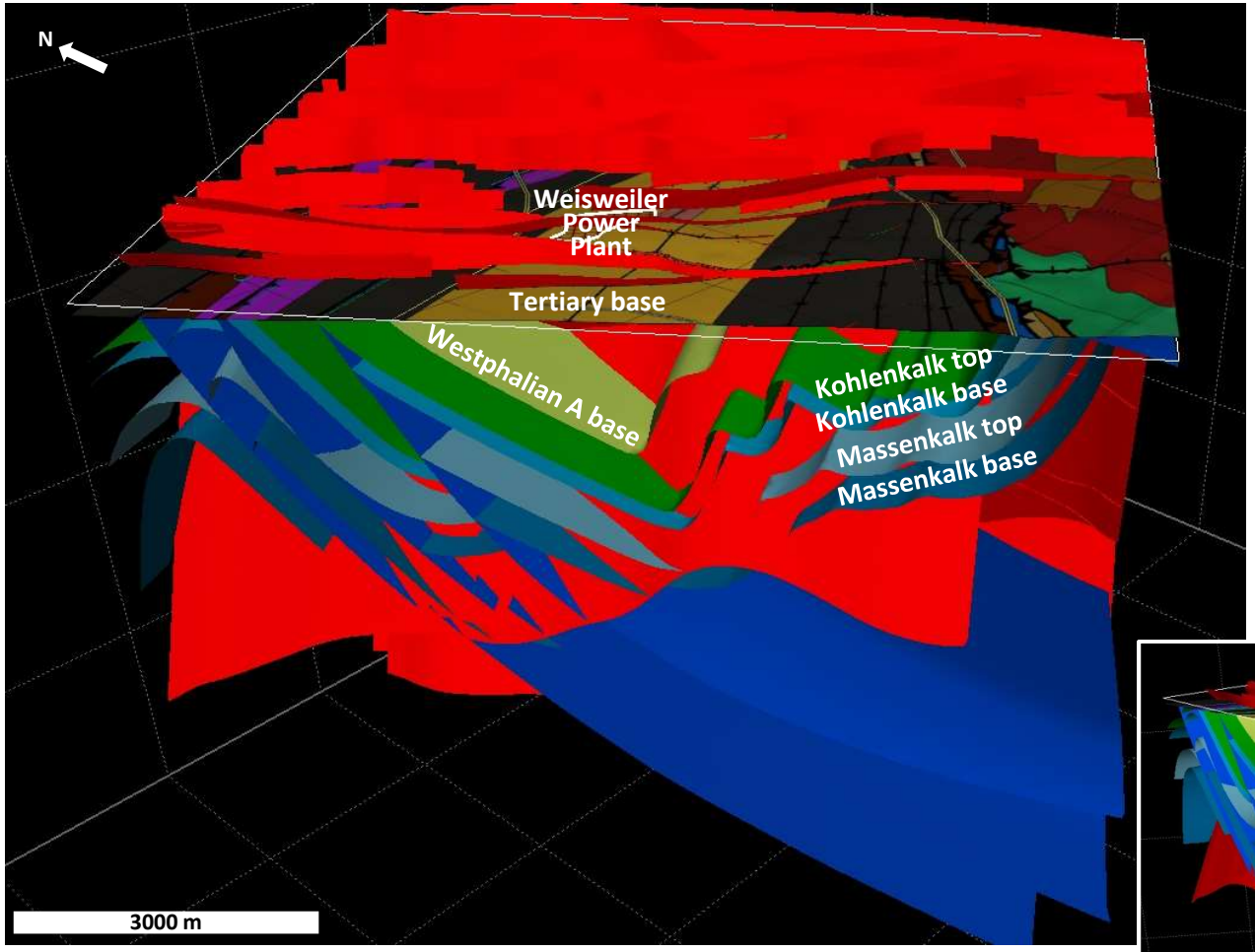
Lithological and Structural Setting of the Working Area

- cwb – Westphalian B
- cwa – Westphalian A
- cn – Namurian
- **cdk – Kohlenkalk Gp. (L'Carb)**
- do – Upper Devonian
- **do,k – Massenkalk (U'Dev)**
- de – Eifelian
- du – Lower Devonian
- dg – Gedinian
- cb-o – Upper Cambrian

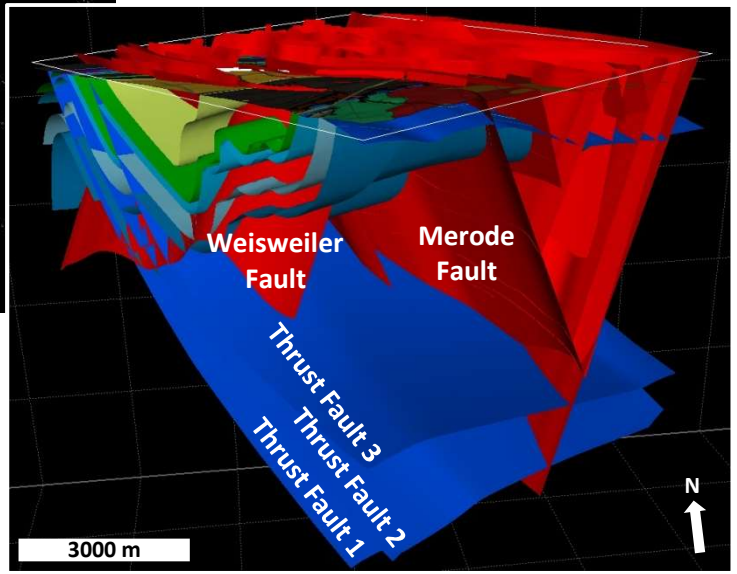


- Potential geothermal reservoirs include the **Lower Carboniferous Kohlenkalk Group** and the **Upper Devonian Massenkalk Facies**

Subsurface 3D-Model Weisweiler

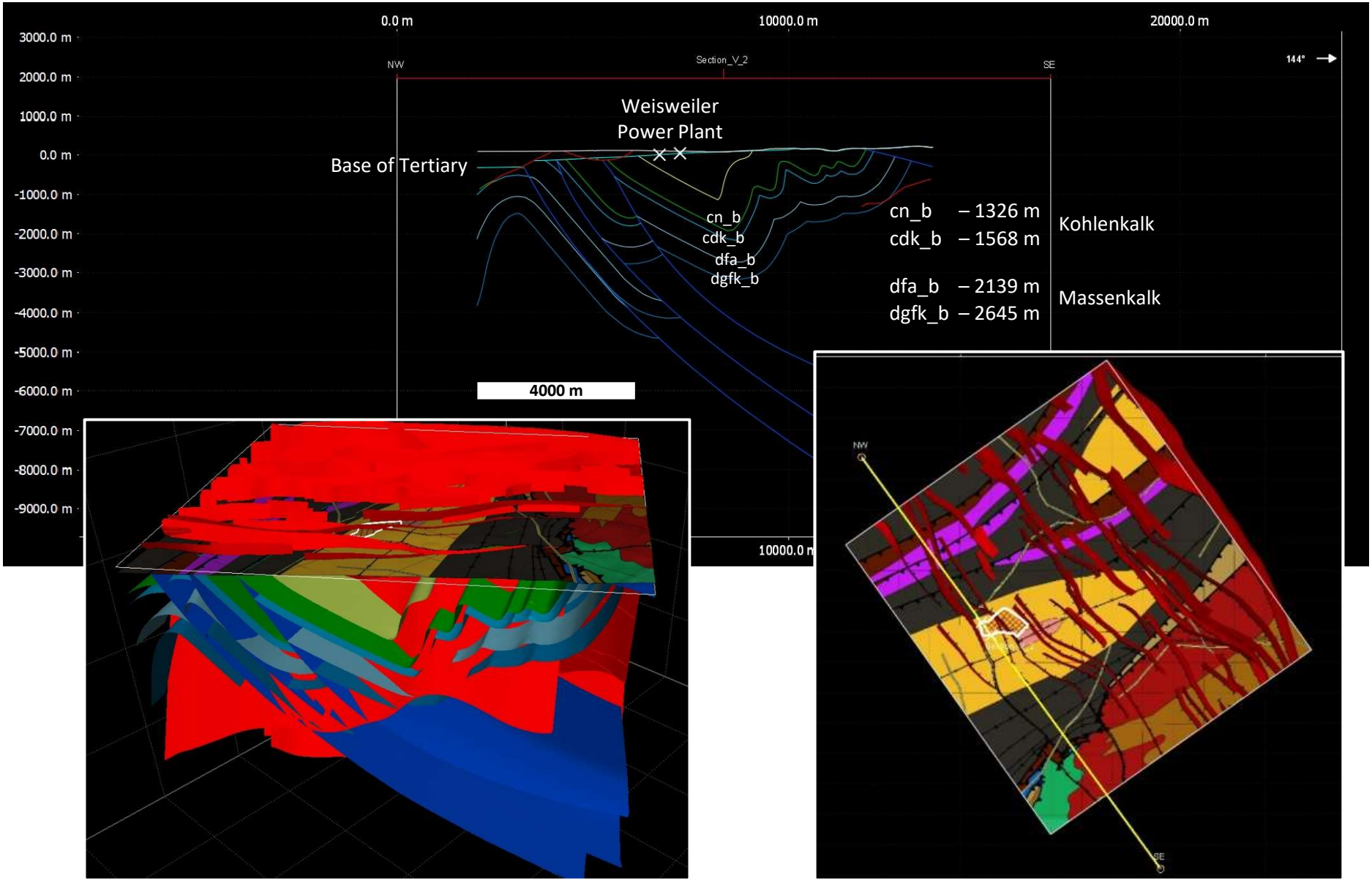


- The geology is determined by NE-SW-trending syn-cline-anticline structures which developed during the Variscan Orogeny
- Alpine (post-)orogenic processes further induced fault-block tectonics in the Lower Rhine Embayment area of tectonic subsidence

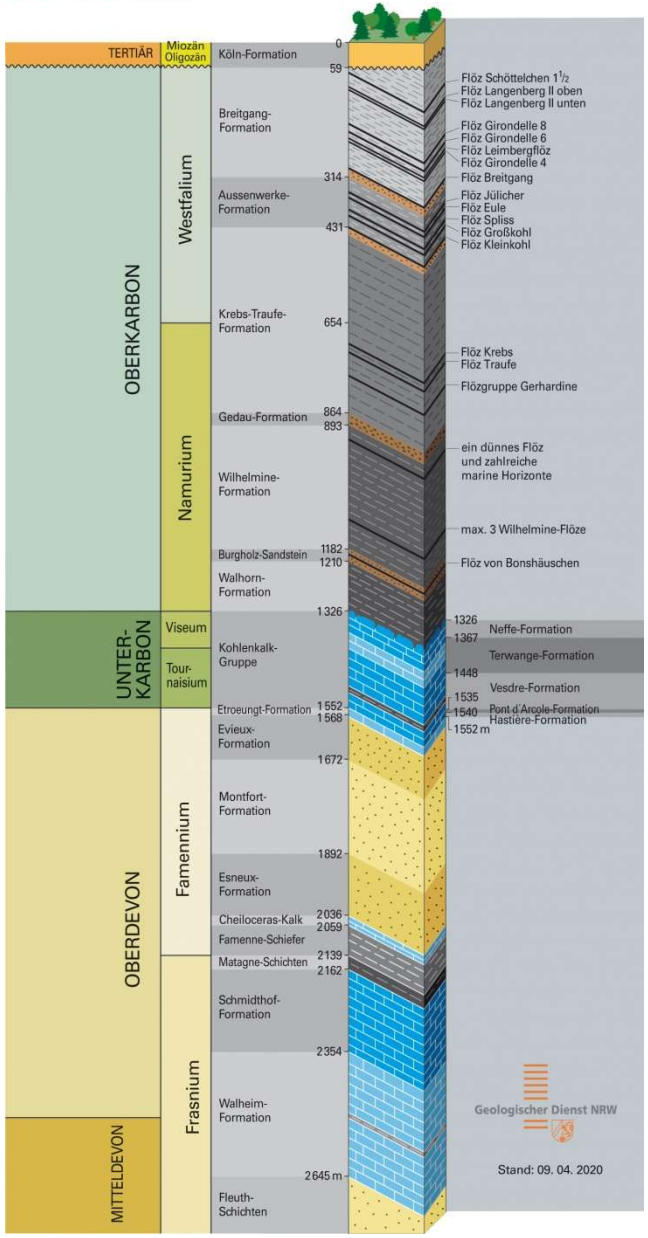


- The Subsurface 3D-Model Weisweiler was build in order to support the selection of the spot for exploration drilling and will be further adjusted following drilling and seismic acquisition

Cross Section through the 3D-Model Weisweiler

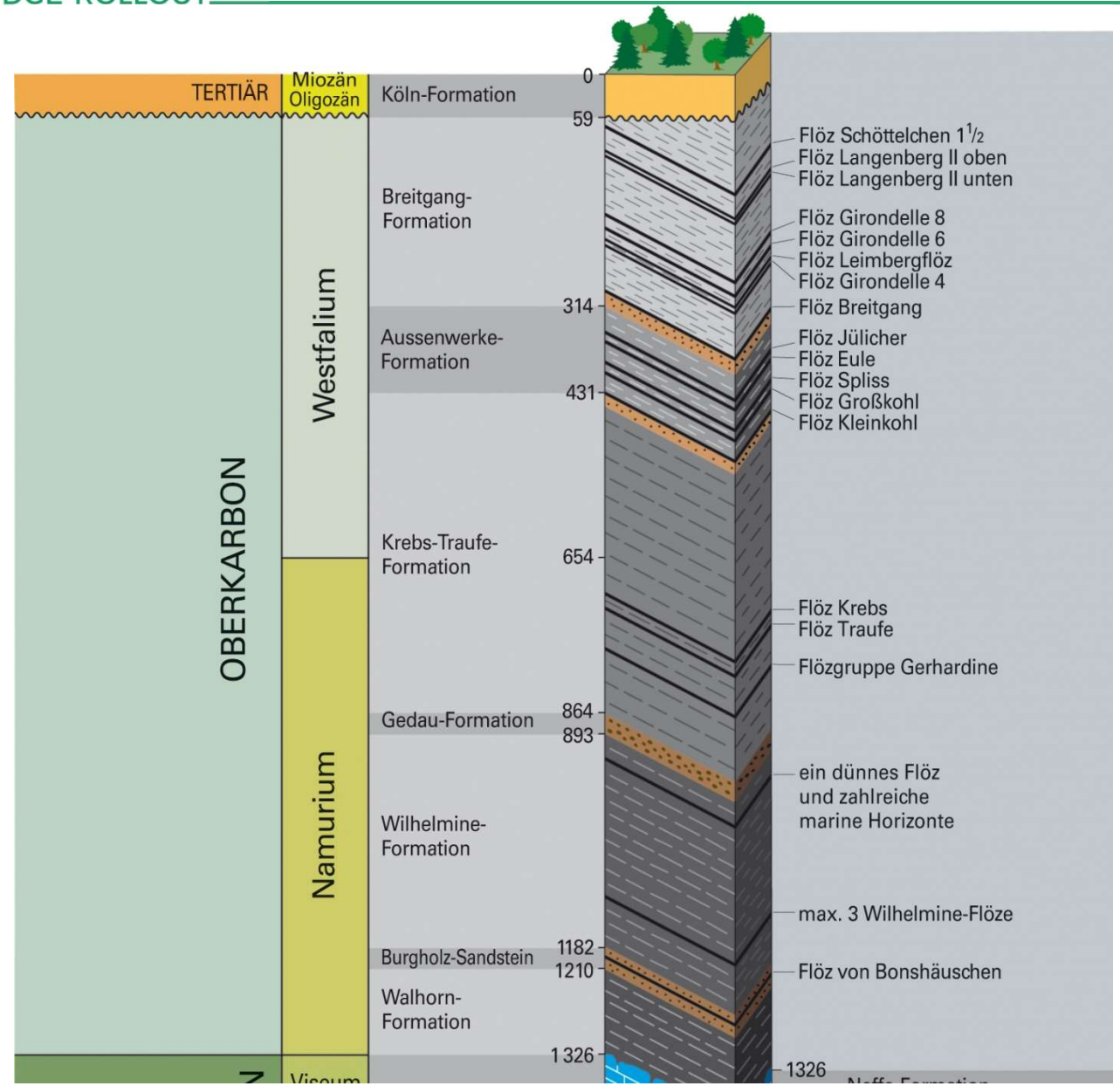


Estimation of Depth and Thickness of the Lithological Units



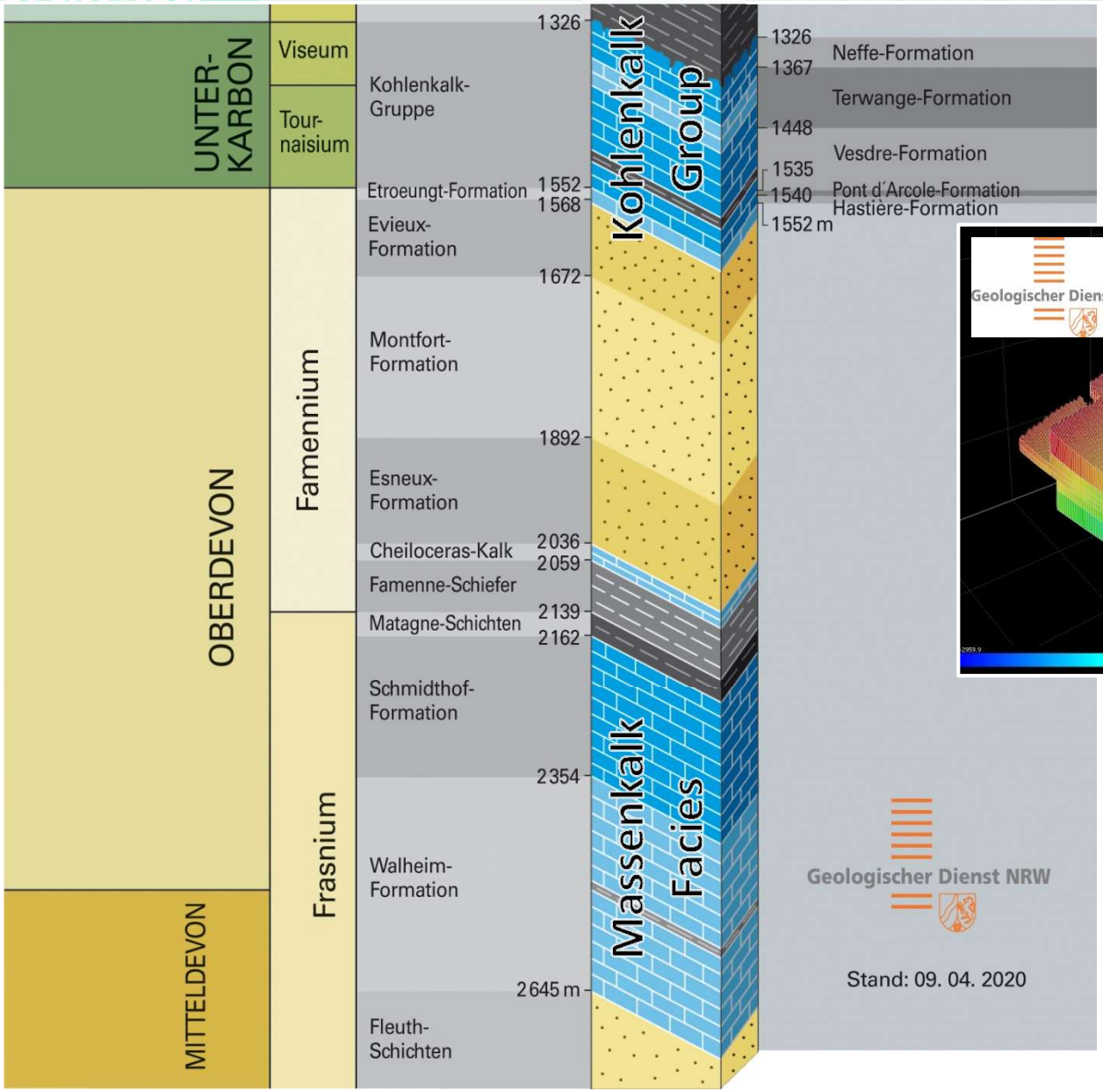
- Based on the Subsurface 3D-Model Weisweiler an estimation of the depth and thickness of the lithological units in the subsurface of the defined drilling spot was compiled
- Drilling of the first exploration borehole will presumably start in autumn 2020
- The exploration borehole will later be used as a first well of the seismic monitoring system

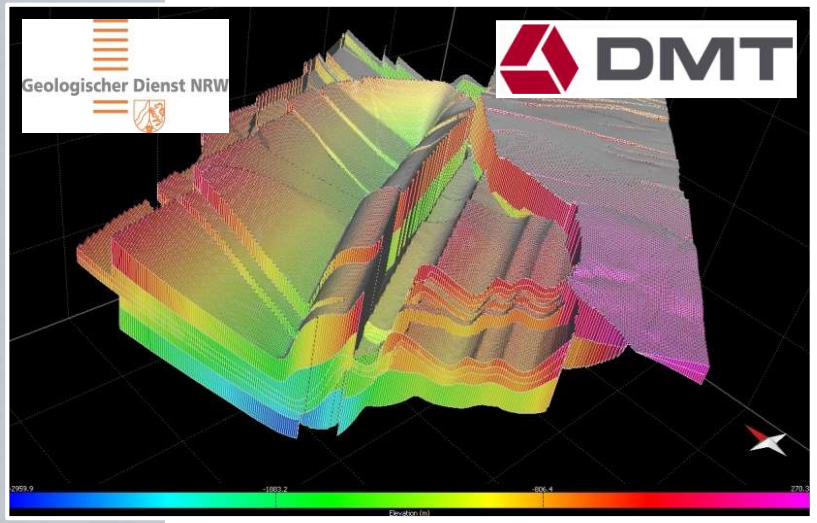
Estimation of Depth and Thickness of the Lithological Units



- Drilling rig of the Fraunhofer Institute for Energy Infrastructures and Geothermal Systems

Estimation of Depth and Thickness of the Lithological Units





- The Subsurface 3D-Model Weisweiler is currently being transformed into a HEAT-FLOW 3D Model together with DMT GmbH & Co. KG in order to estimate the thermo hydraulic processes in the geothermal reservoirs

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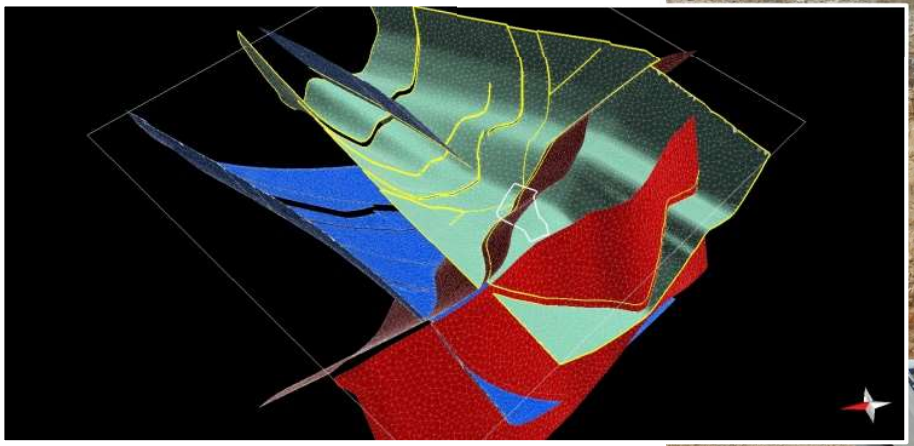
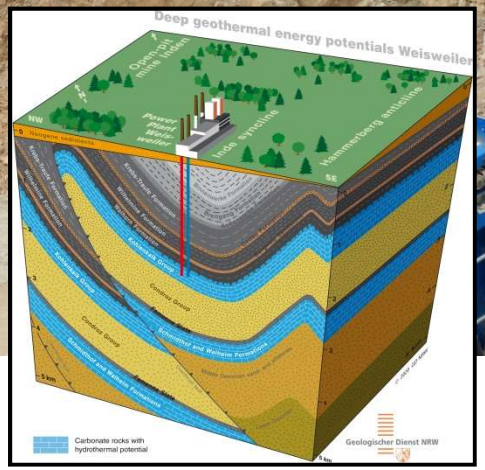
Thank you very much for reading...





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