



20.04.2023 / Seismic2023

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# Integration of geotechnical and seismic data for improved subsurface modeling of offshore windfarm areas

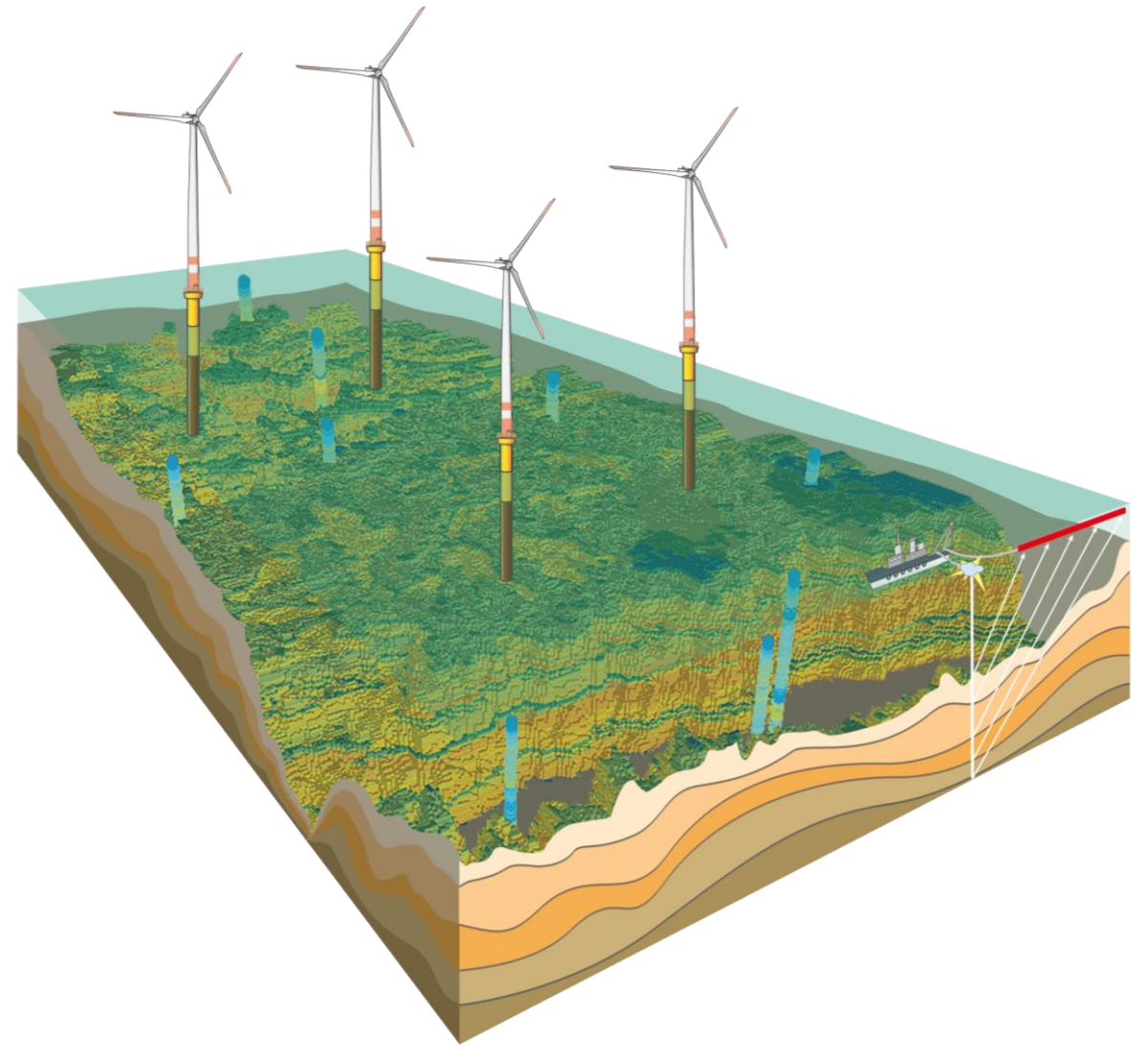
Lennart Siemann, Natasha Morales, Taisiya Pein, Jan Hebig

# Background and Motivation

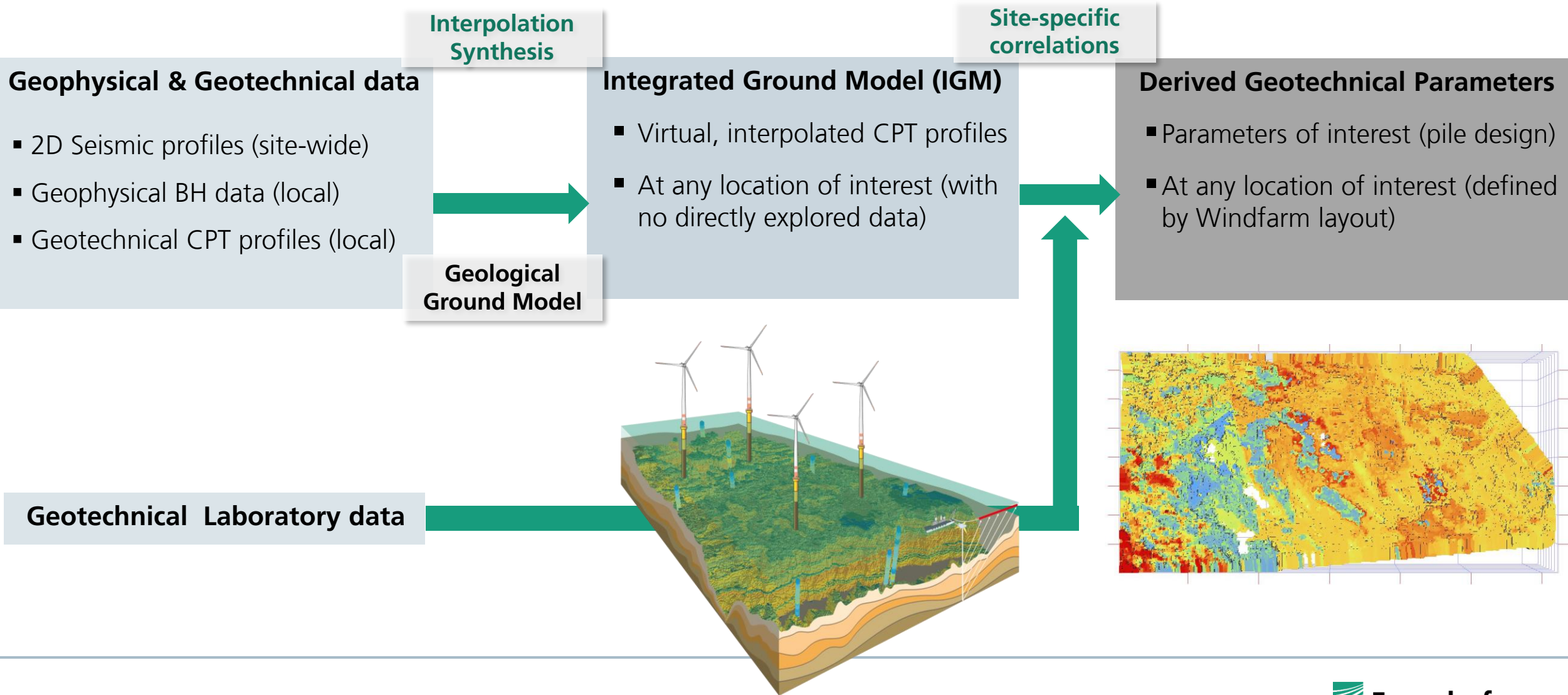
- Reliable ground modeling for de-risking pile installation
- Estimation of pile design relevant parameters at unexplored positions
- Integration and correlation of geotechnical and seismic data

## Challenges

- Sparse Data and large areas
- Variable Geology
- Vertical vs horizontal resolution
- Ground truth vs Seismic data
- Time-depth conversion
- (...)



# Subsoil Models in the Planning and Development Process

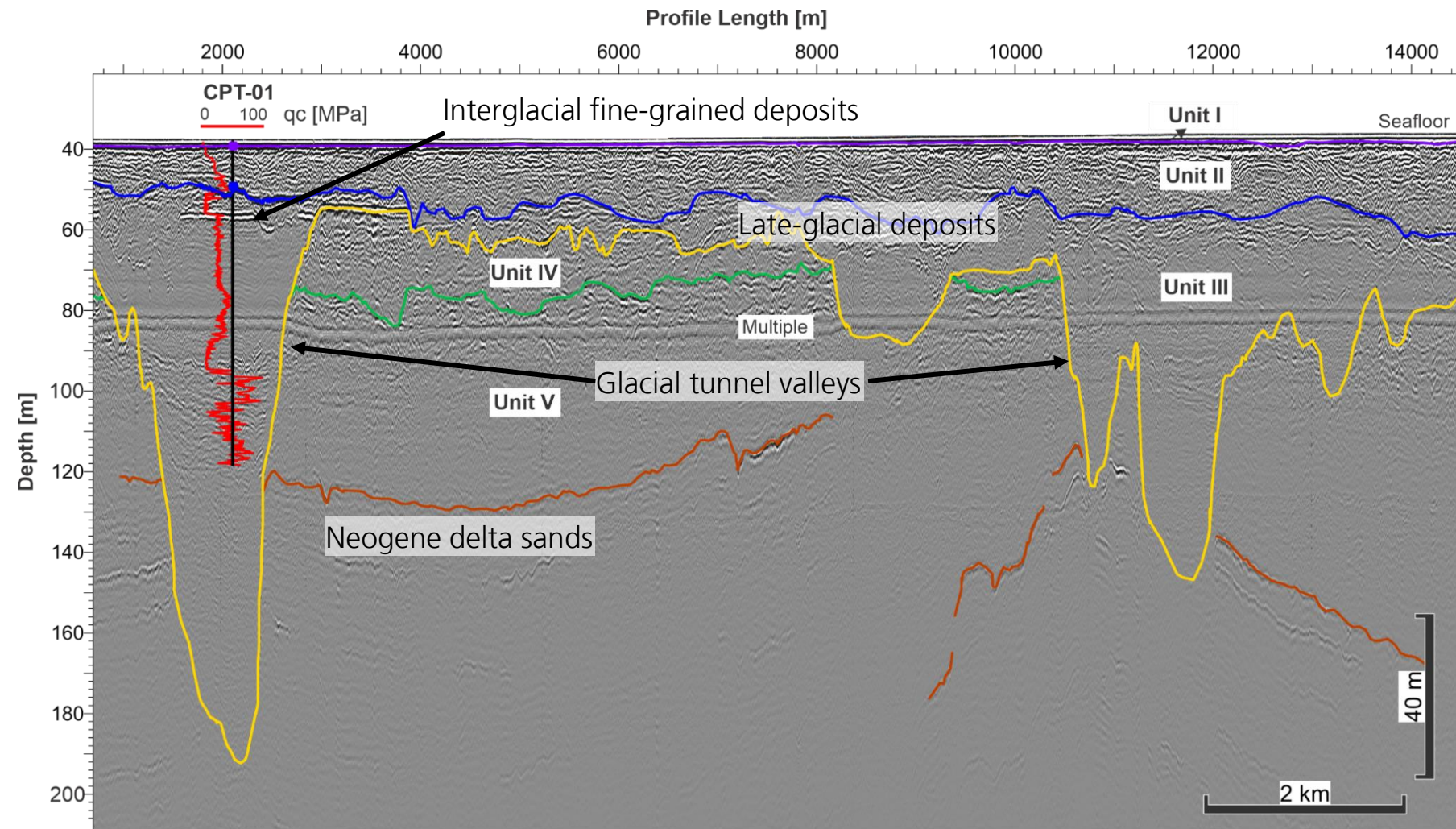




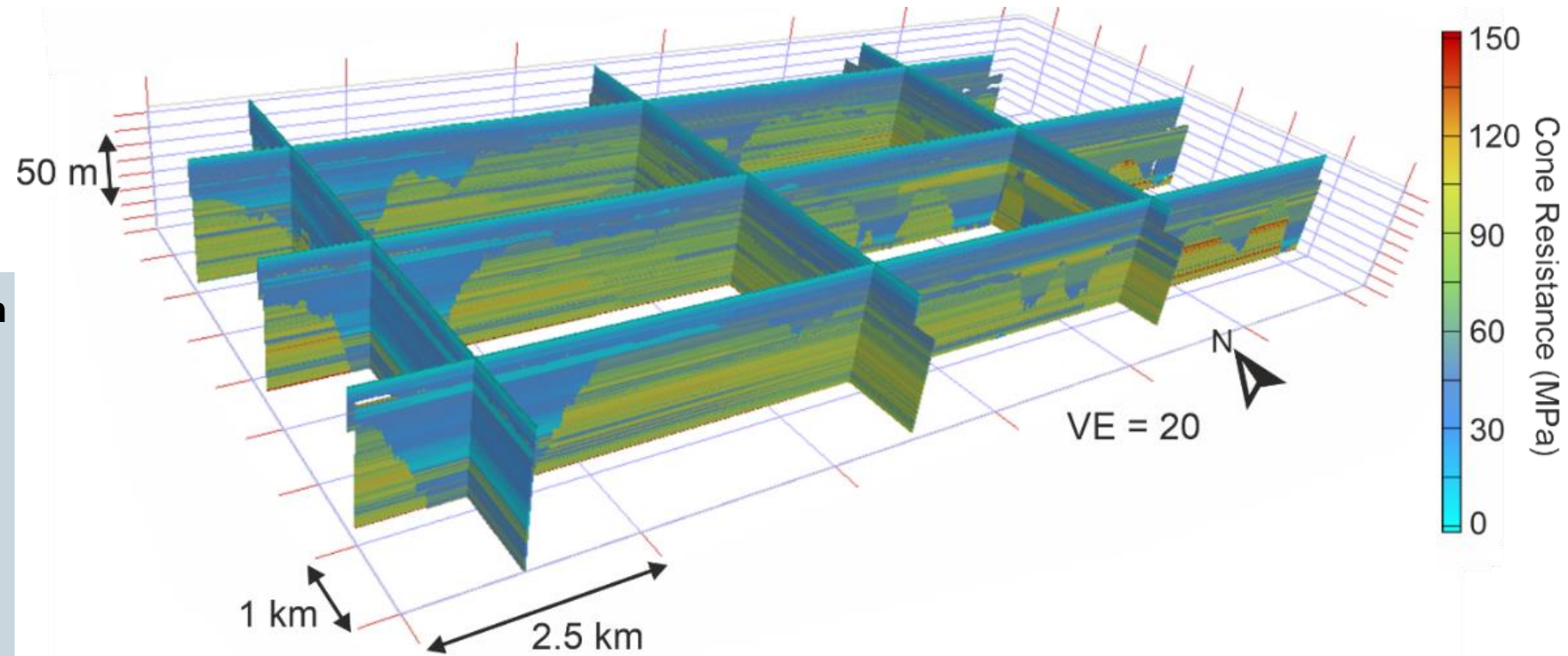
# Integration of Geotechnical and Seismic Data

## Date Input

- 2D/3D Multichannel Seismic
- Cores
- CPT
- Borehole Logs
- GIS data- Basemaps
- Laboratory testing
- Object Detection
- (...)

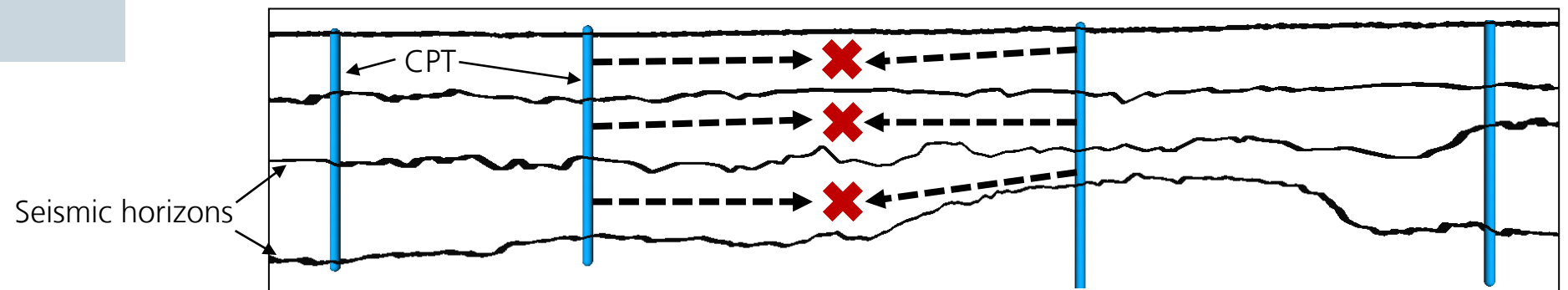


# Area Wide Parameter Prediction



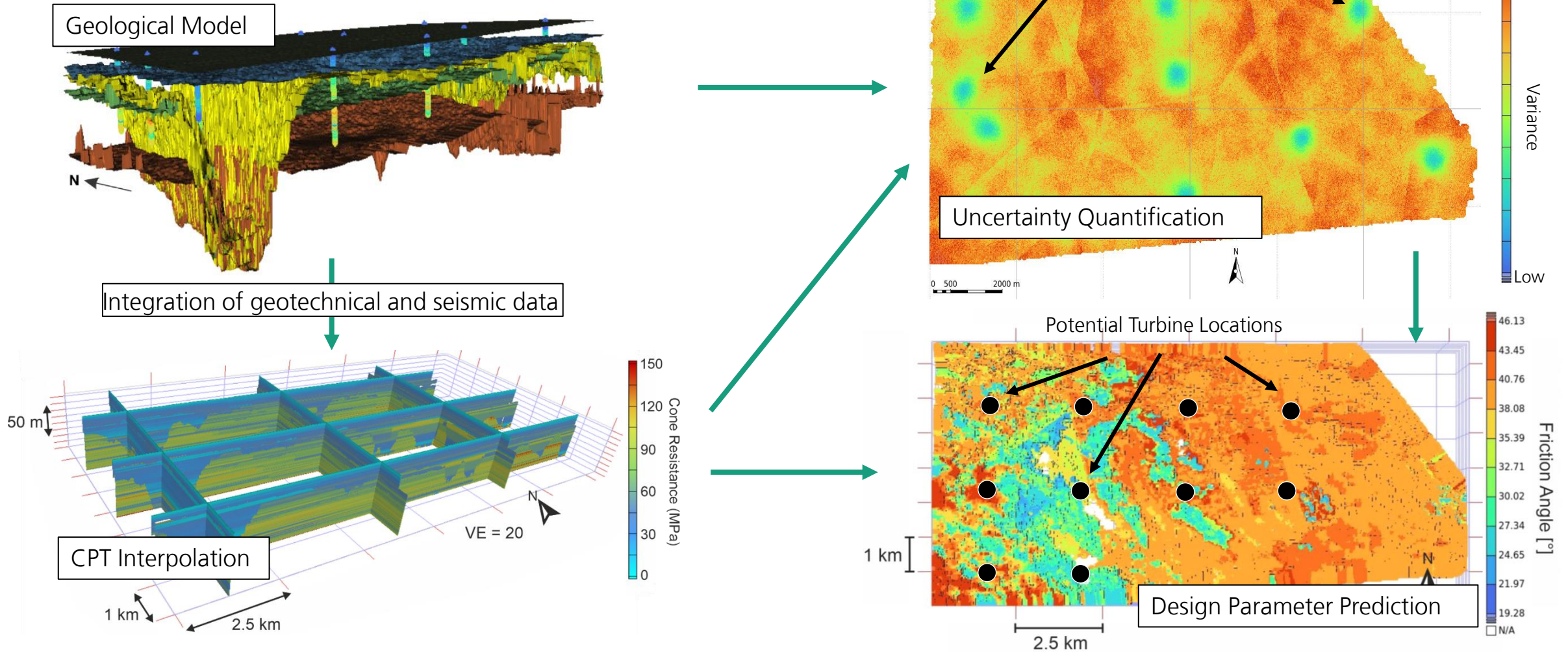
## Different level of data integration

- No Integration  
(Ground truth only)
- Structural Integration  
(Seismic horizons)
- Full Integration  
(Seismic traces)





# Integrated Quantitative Ground Model







Thanks a lot for  
your attention!

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## Contact

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