

Analyses, interpretation, and integration of boreholes data and seismic reflection profiles into a 3D Geological Model of the Romagna and Ferrara Folds, (Eastern Po Plain) for the evaluation of geothermal resources



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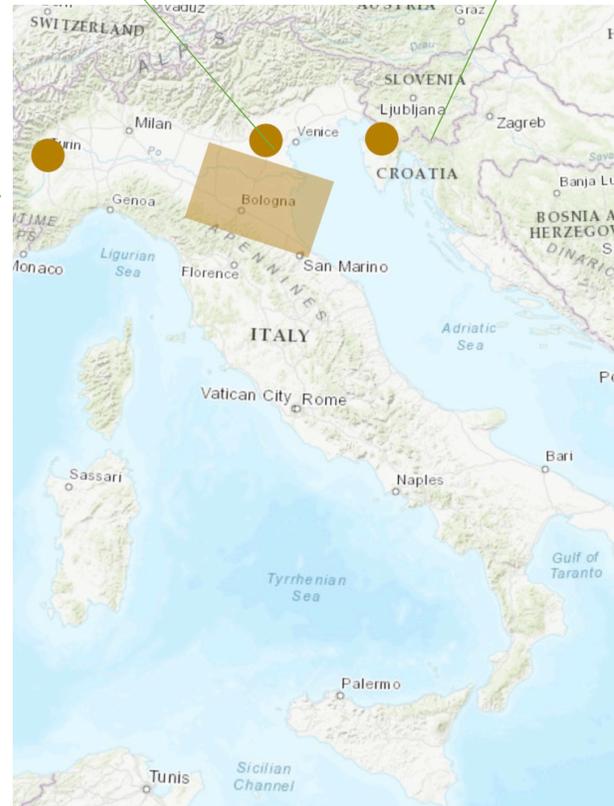
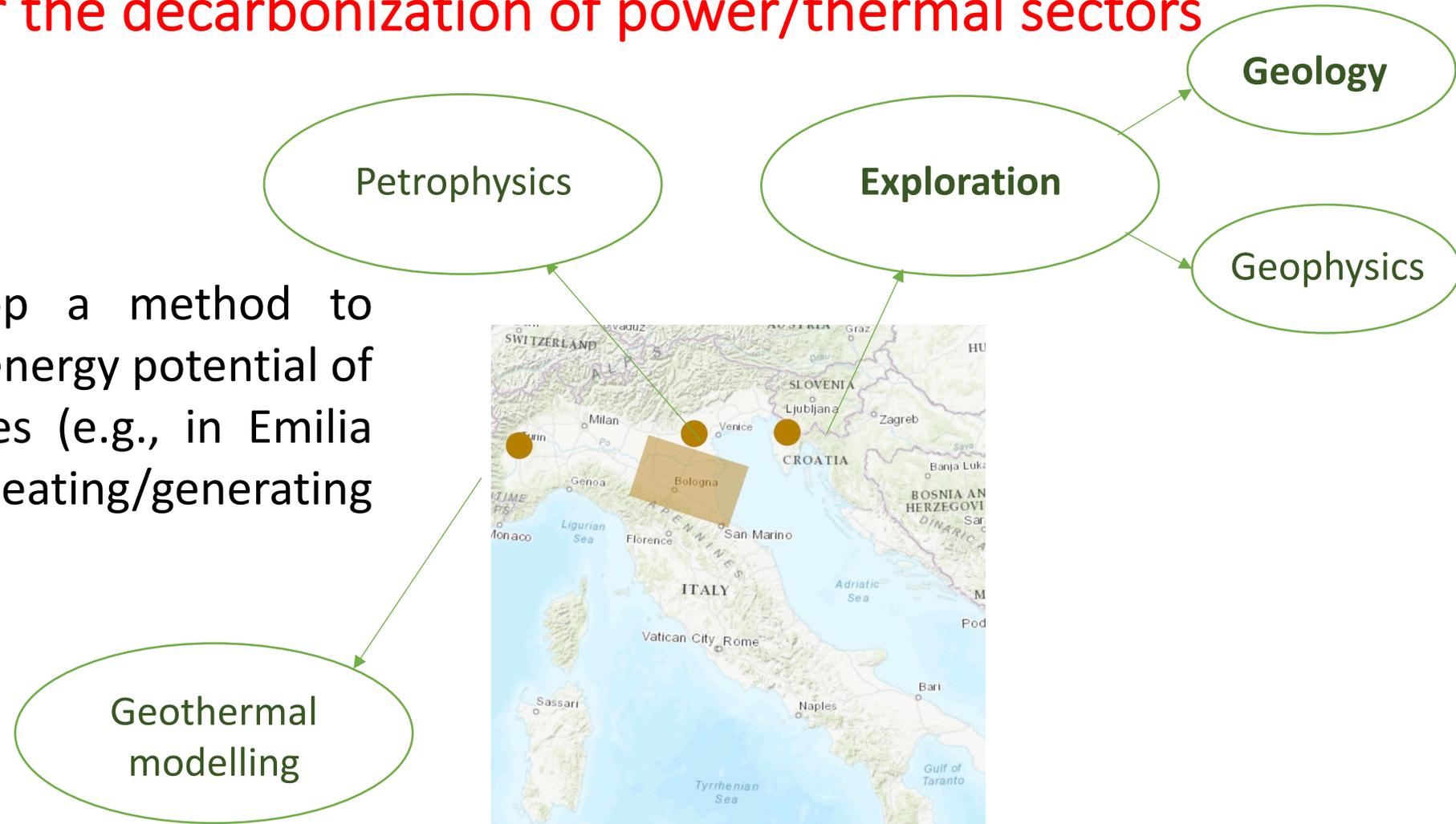
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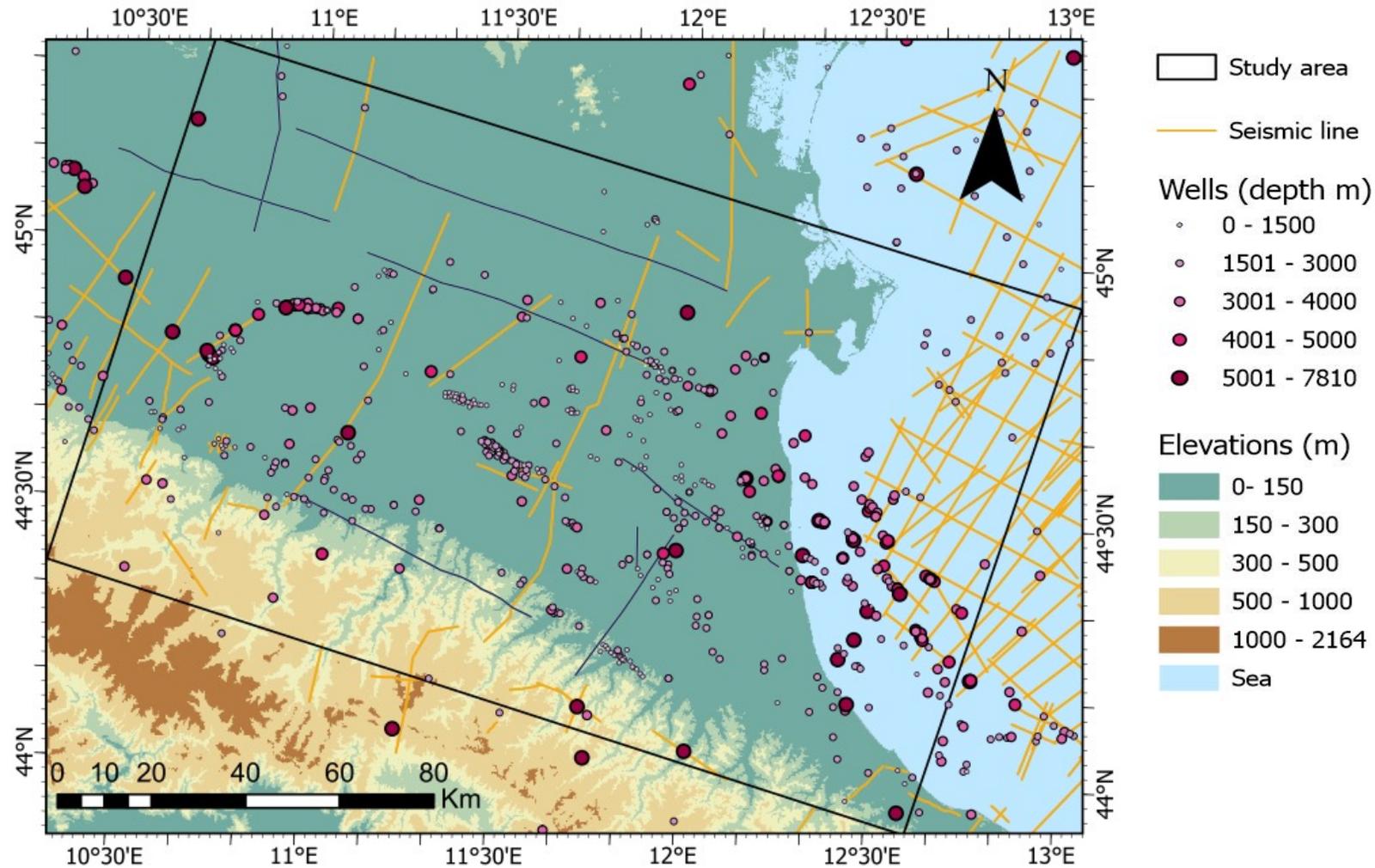
Innovation in GEOthermal resources and reserves potential assessment for the decarbonization of power/thermal sectors

- InGEO aims to develop a method to accurately measure the energy potential of deep geothermal sources (e.g., in Emilia Romagna) for district heating/generating electricity.



InGEO is in line with the European Green Deal

Data availability



Sources:

- VIDEPI database (www.videpi.com)

- CNR database

www.geothopica.igg.cnr.it

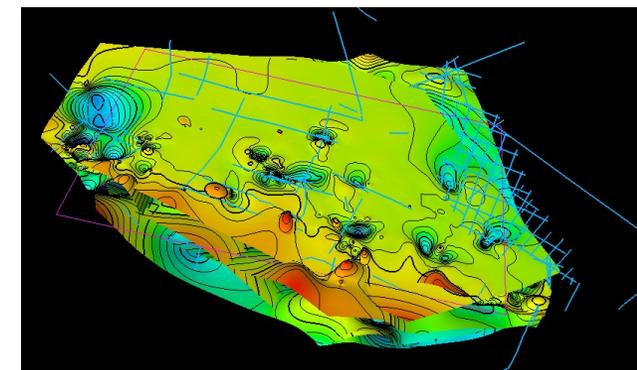
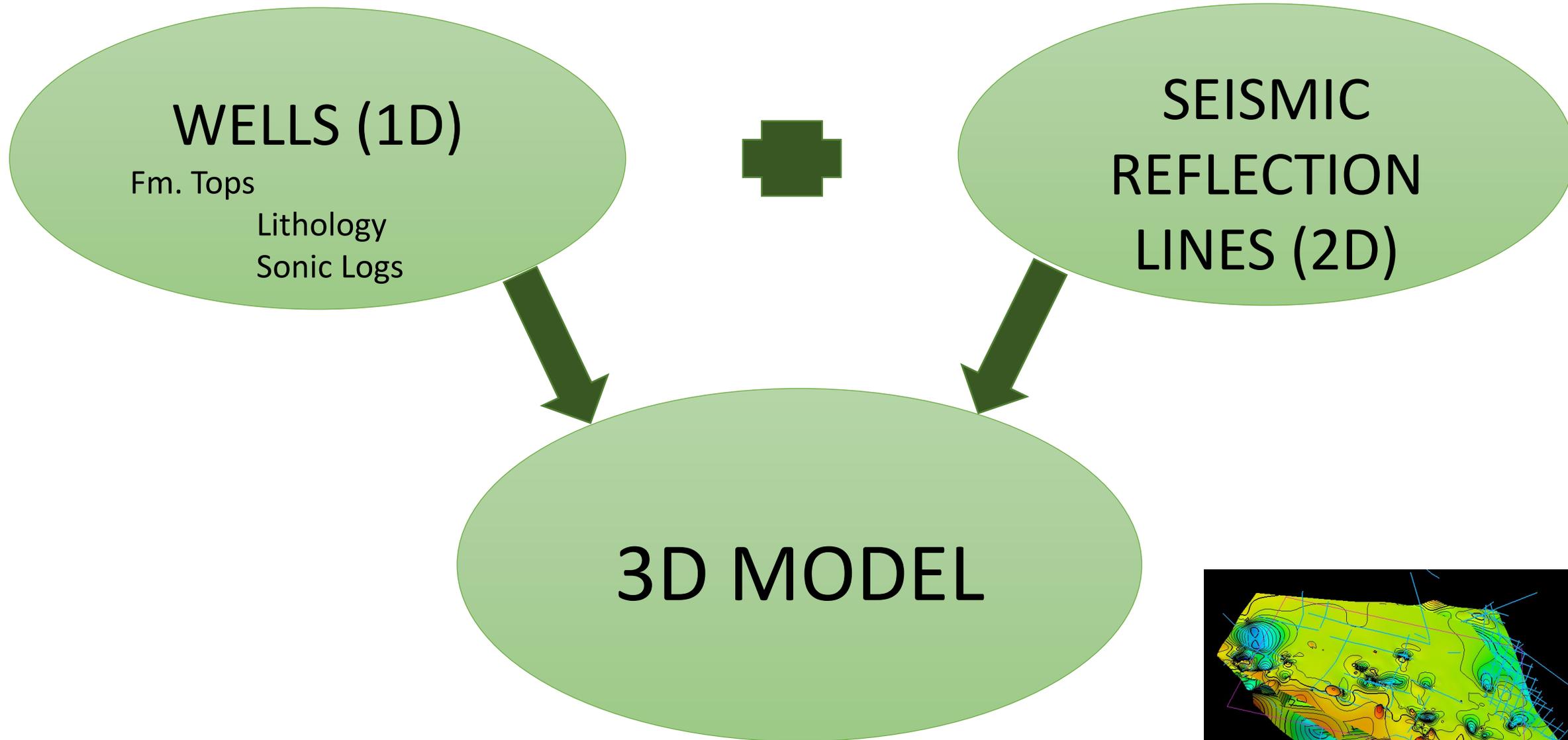
- ENI support

- Other sources:

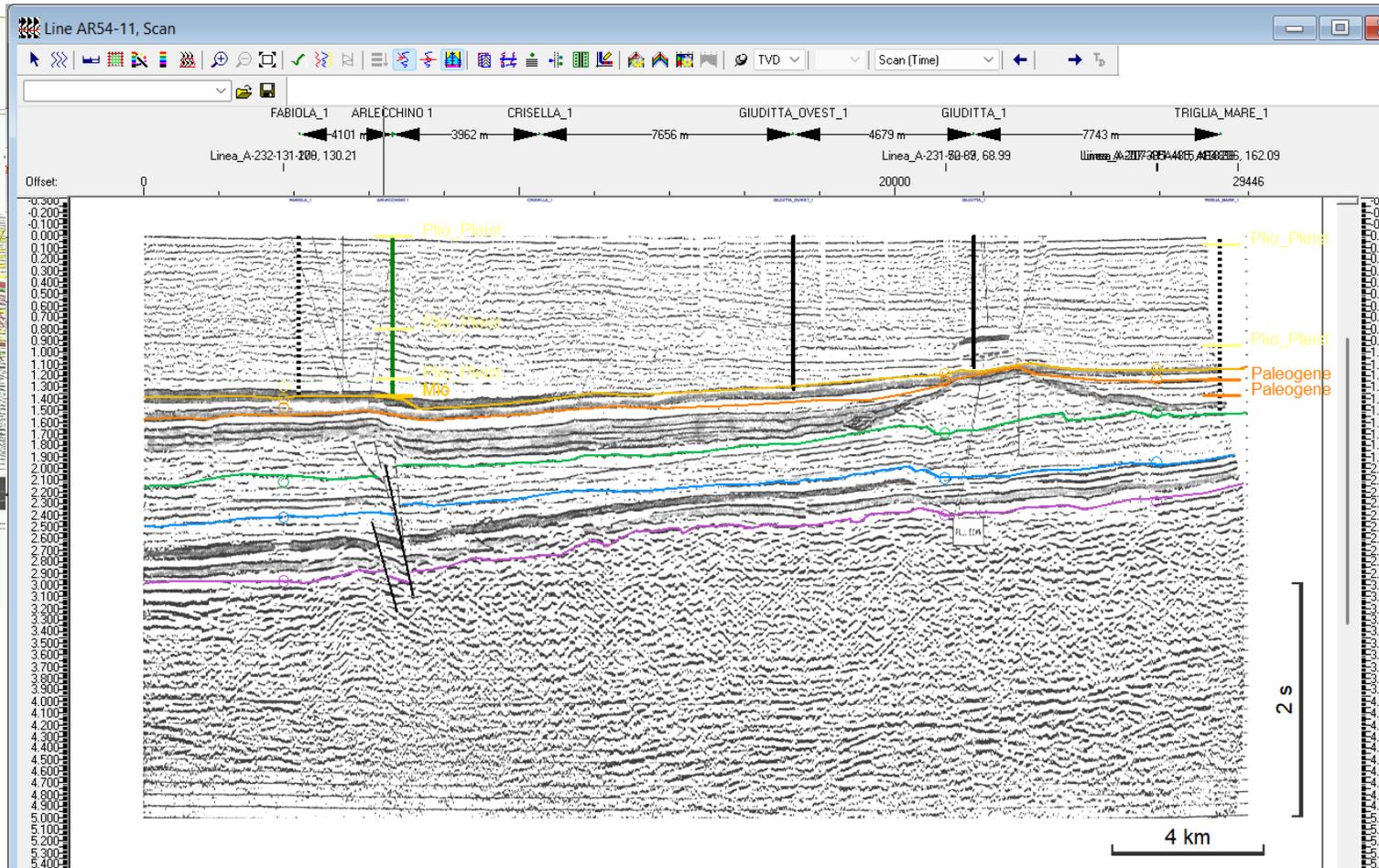
-Livani et al. (2023)

-Amadori et al. (2019)

Location of available seismic lines (in yellow) and wells (colour and size are shown according to their depth).



Seismic lines



PDF to JPEG



JPEG manual cropping
and straightening



SEG Y conversion

 kogeo seismic toolkit 2.7



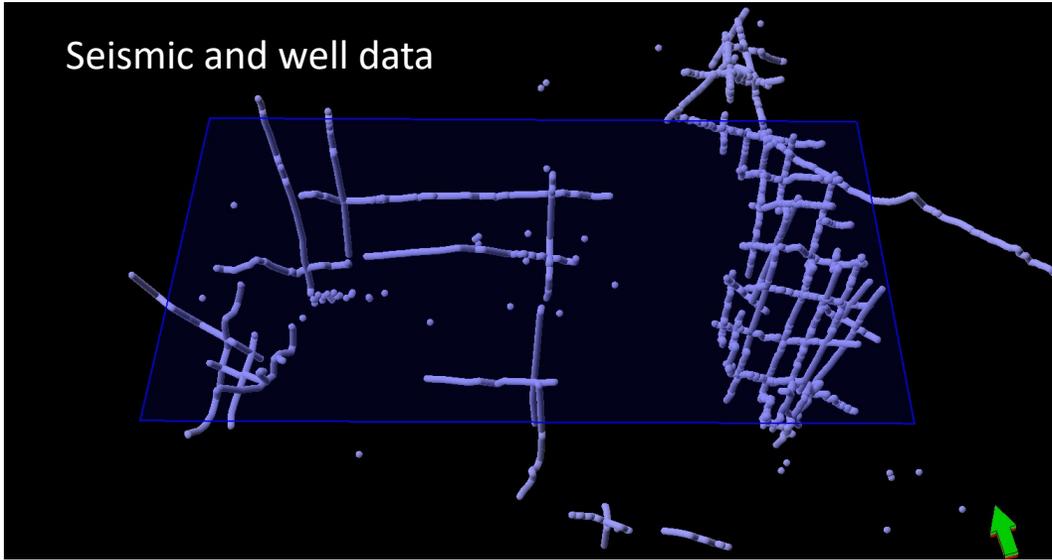
Georeferentiation



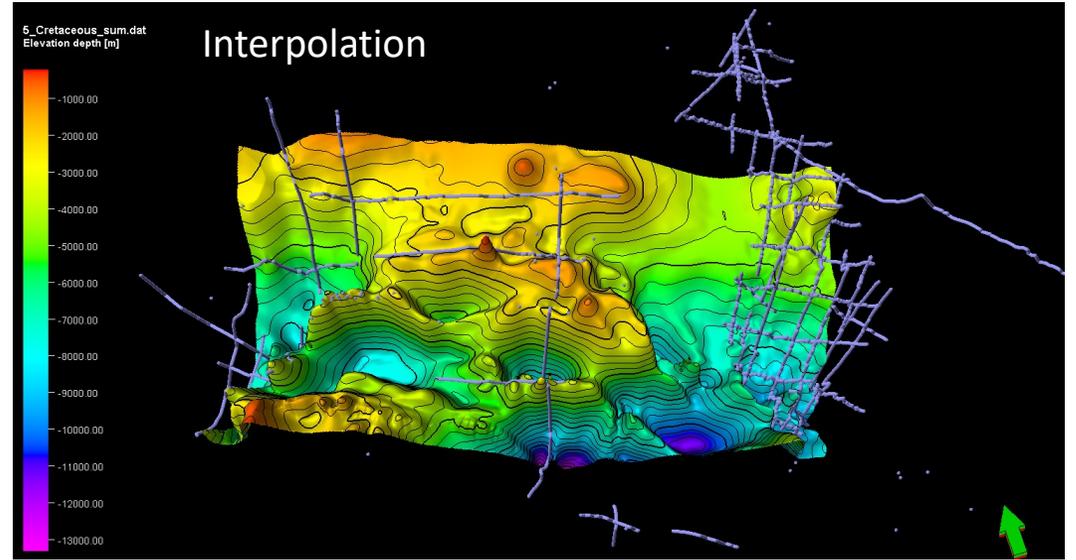
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Data interpretation

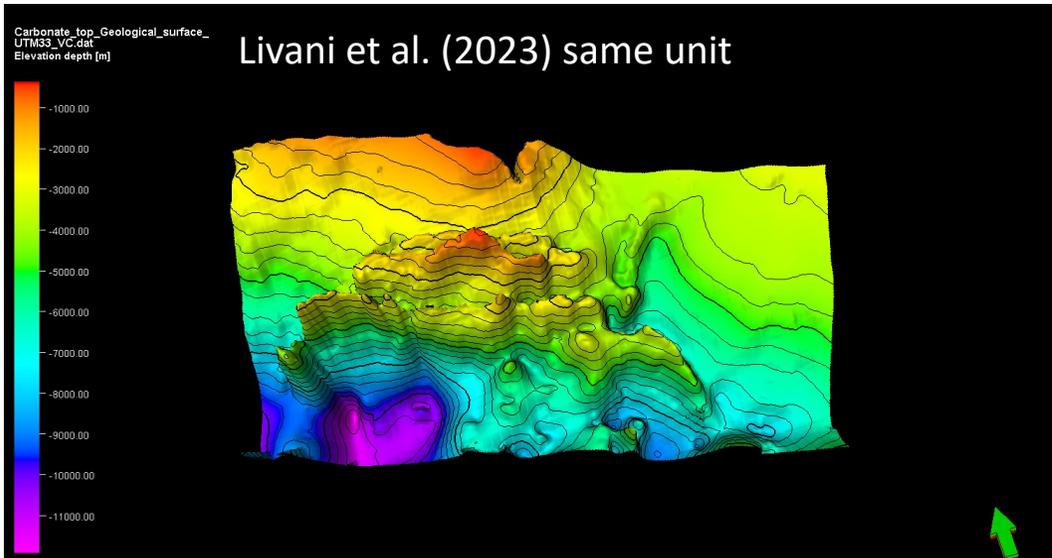
Seismic and well data



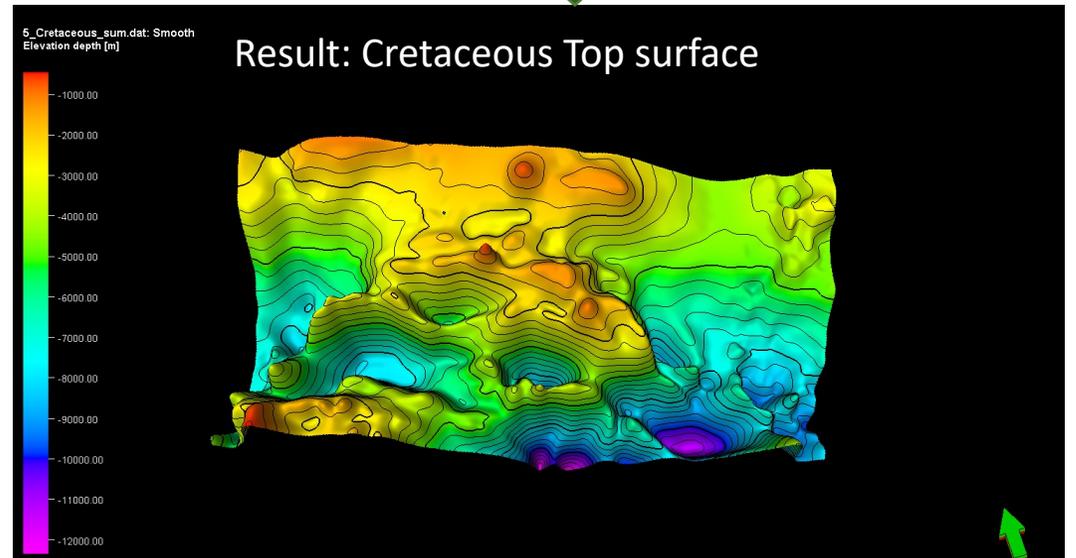
Interpolation



Livani et al. (2023) same unit

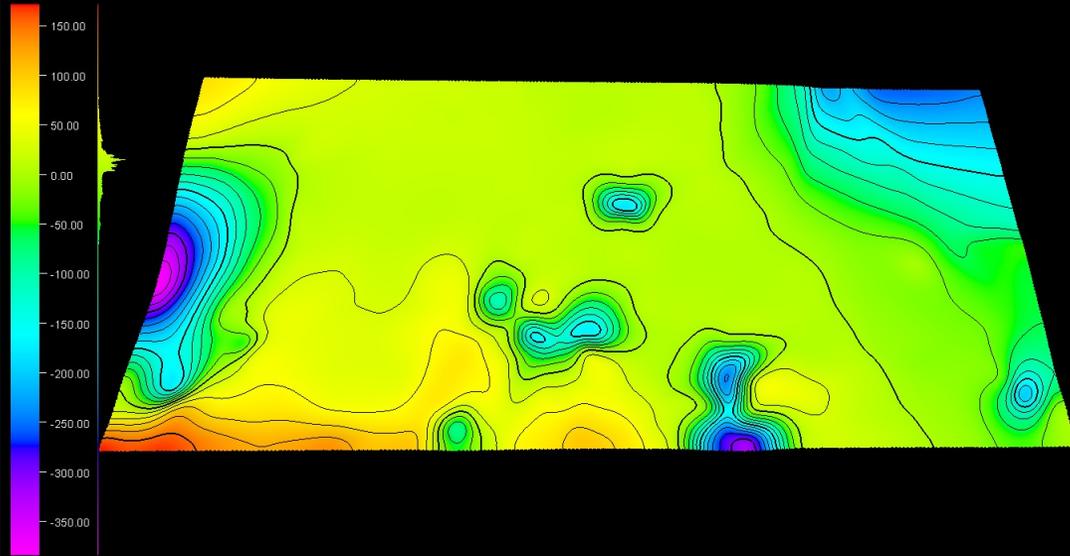


Result: Cretaceous Top surface



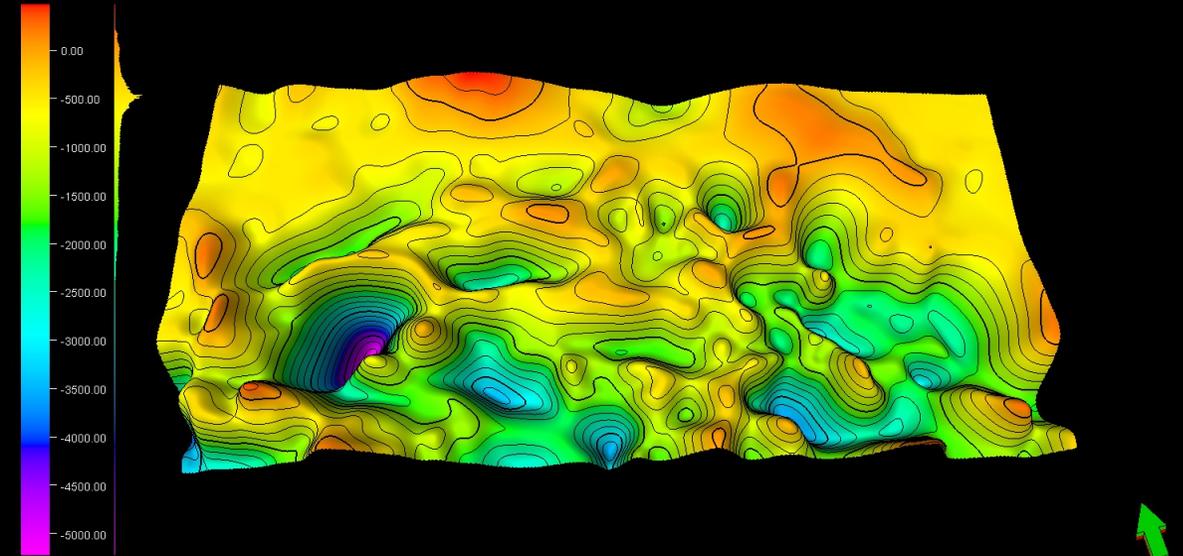
Quaternary Top

Copy of 1_Quat_sum_kri.dat: Smooth
Elevation depth [m]



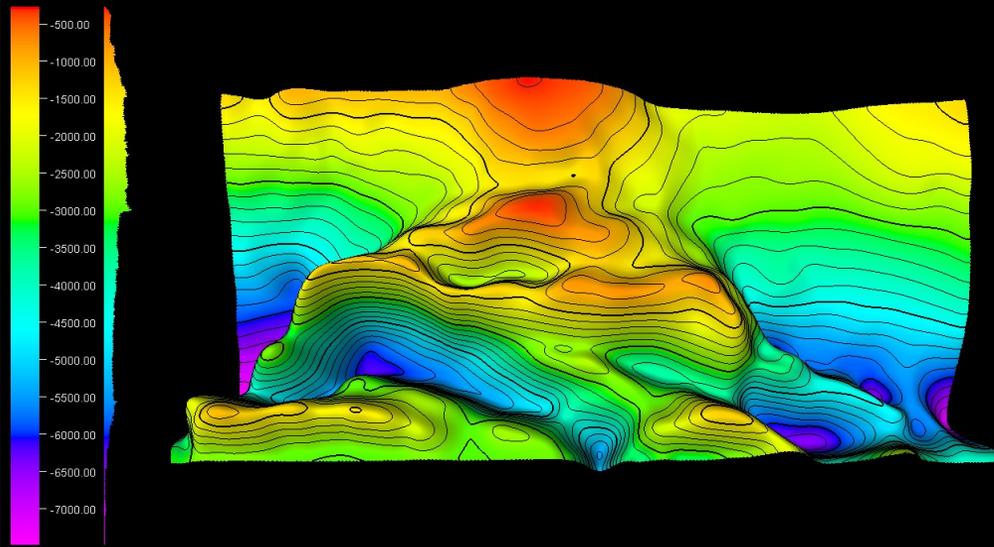
Plio-Pleistocene Top

2_Plio_Pleist_sum.dat: Smooth
Elevation depth [m]



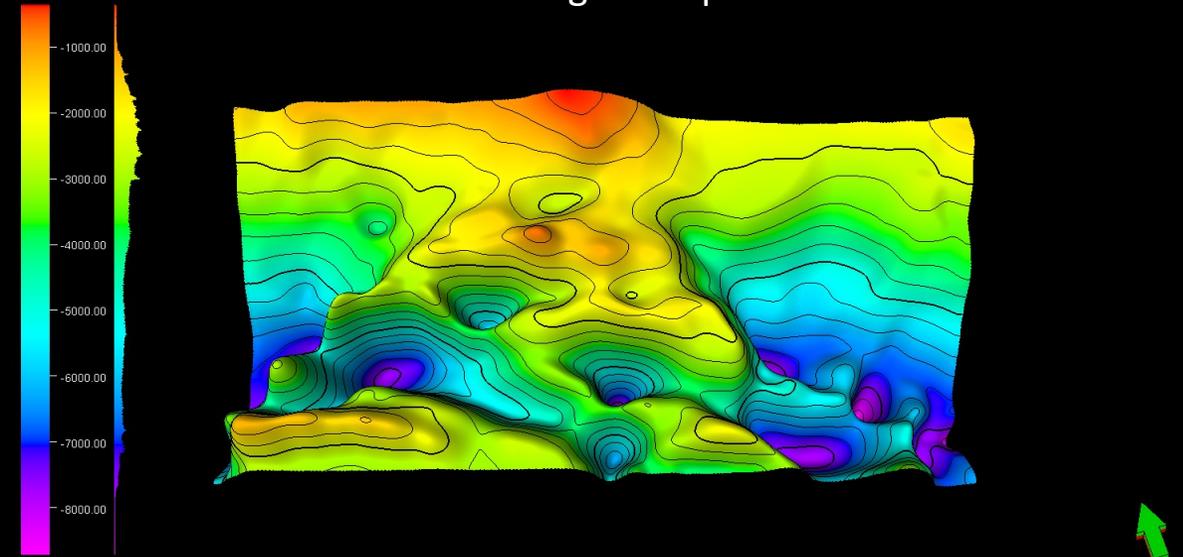
Miocene Top

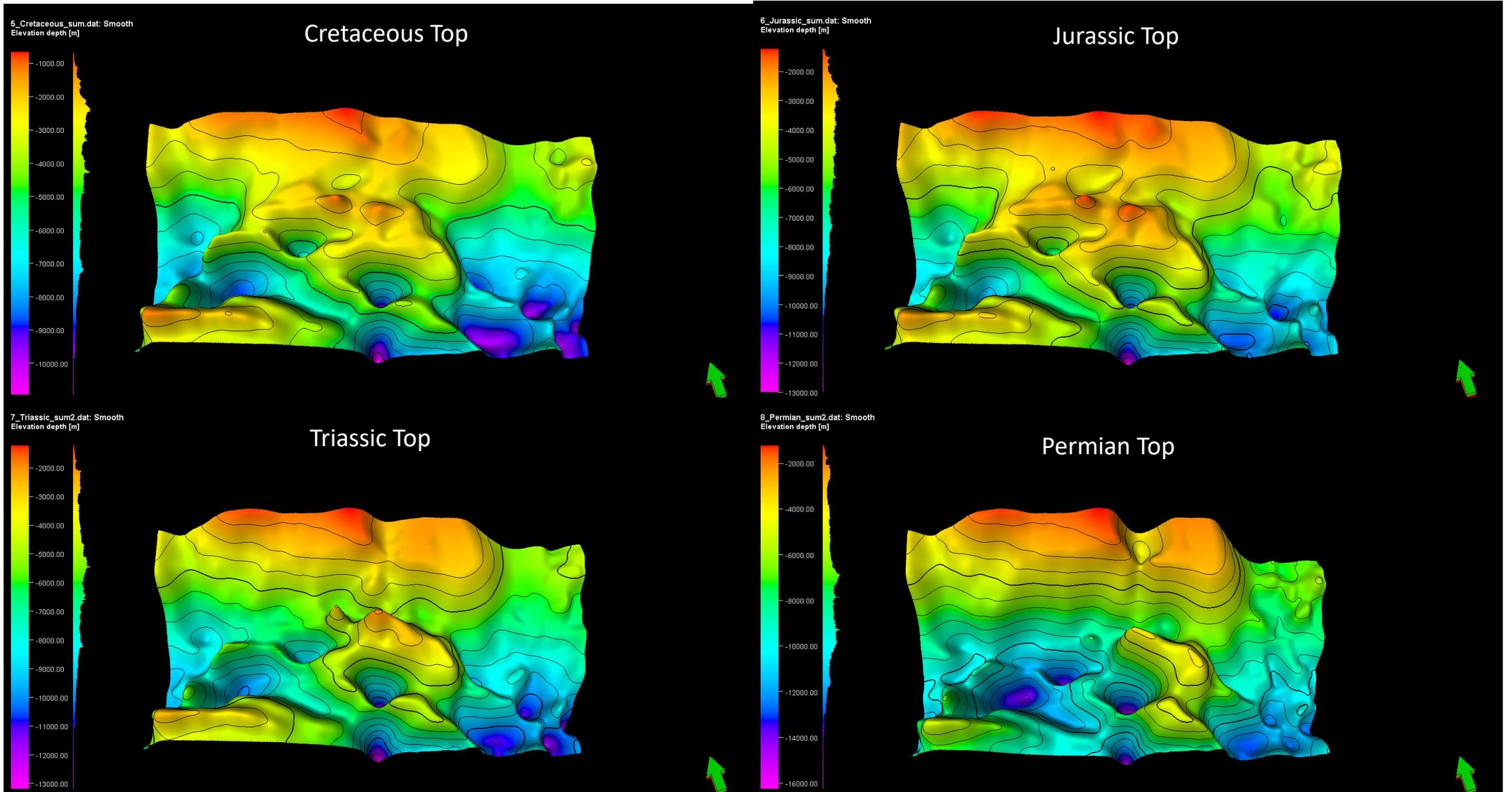
Base_Pliocene_Depth_VC area_
UTM33N.dat: Smooth
Elevation depth [m]



Paleogene Top

4_Paleogene_sum.dat: Smooth
Elevation depth [m]





Conclusions and outlook

- We shown a consistent method for correlating seismic surveys with well tops and implemented a 3D geological model of the study area
 - The 3D model is used to constrain the structures of the underlain crust, obtained from the interpretations of the geophysical data (Basant et al., 2025, Poster area 1, Booth 1).
 - The 3D model with the incorporation of lithologies and thermal properties will allow a robust basin characterization.
- Our general approach is transferable and can be taken as guideline for investigations of other geothermal systems worldwide.

Acknowledgements

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