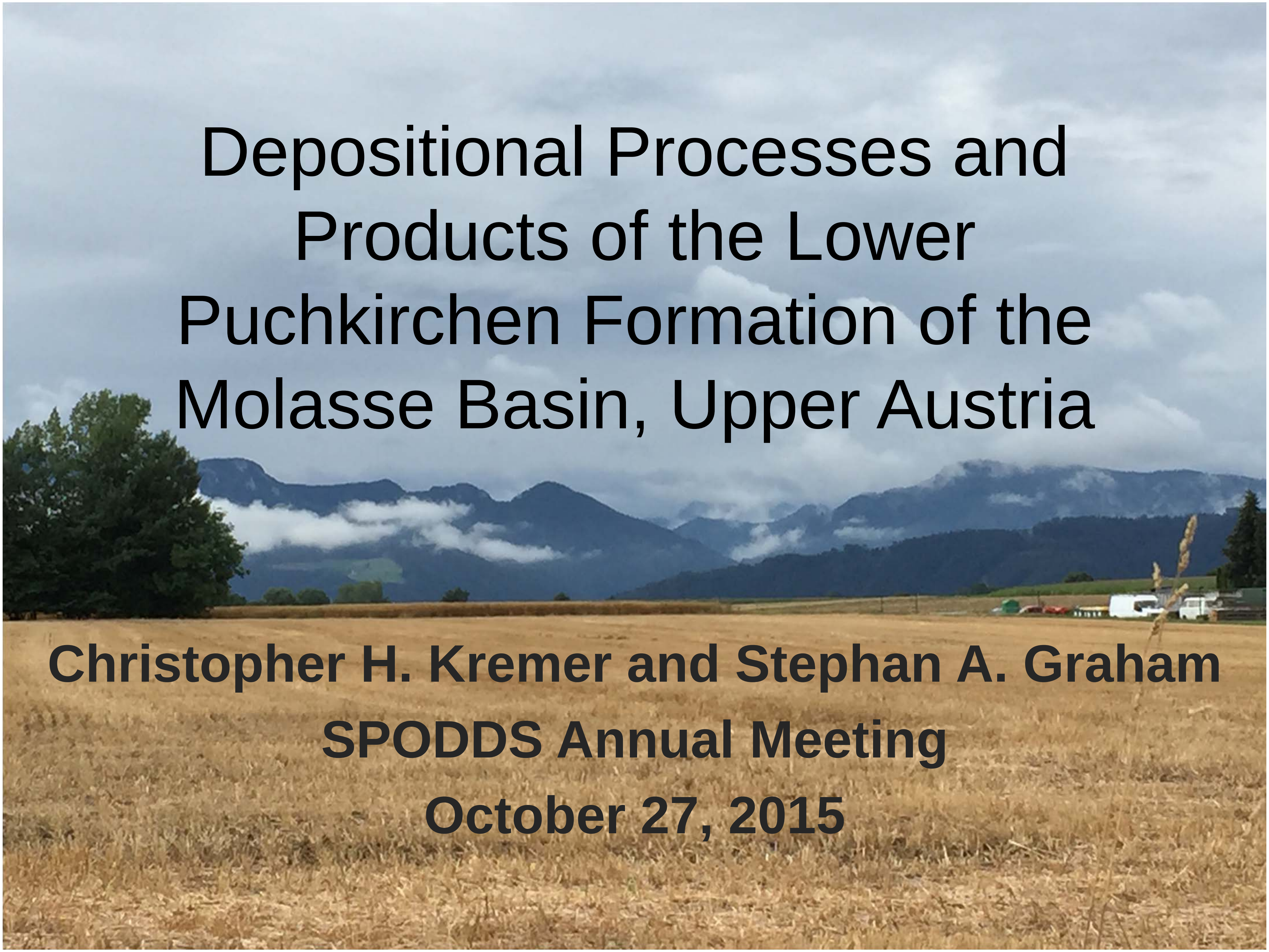


Depositional Processes and Products of the Lower Puchkirchen Formation of the Molasse Basin, Upper Austria

Christopher H. Kremer and Stephan A. Graham

SPODDS Annual Meeting

October 27, 2015

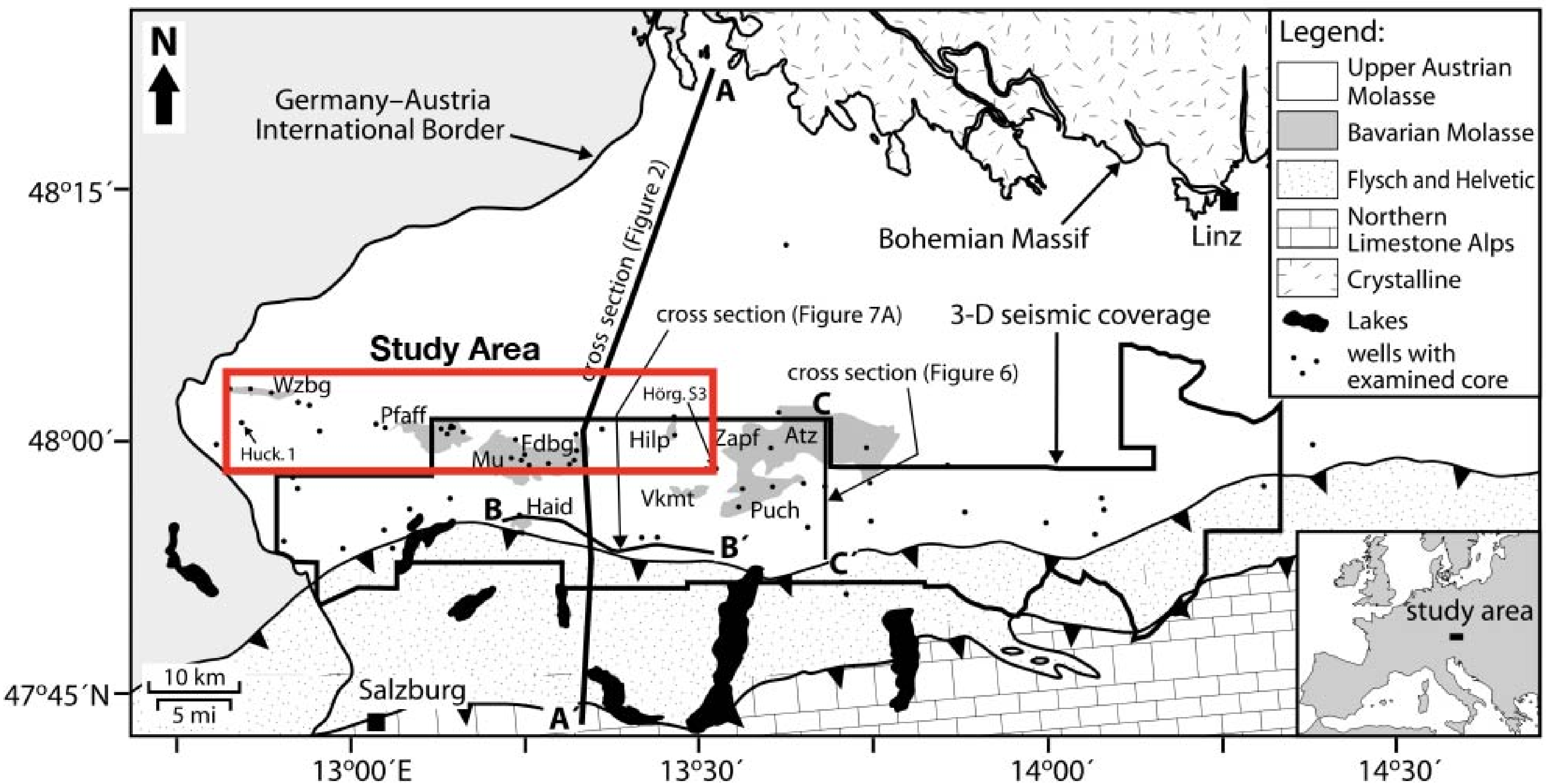
Outline

- Motivations
- Geologic Background
- Methods
- Results
- Future work

Motivations

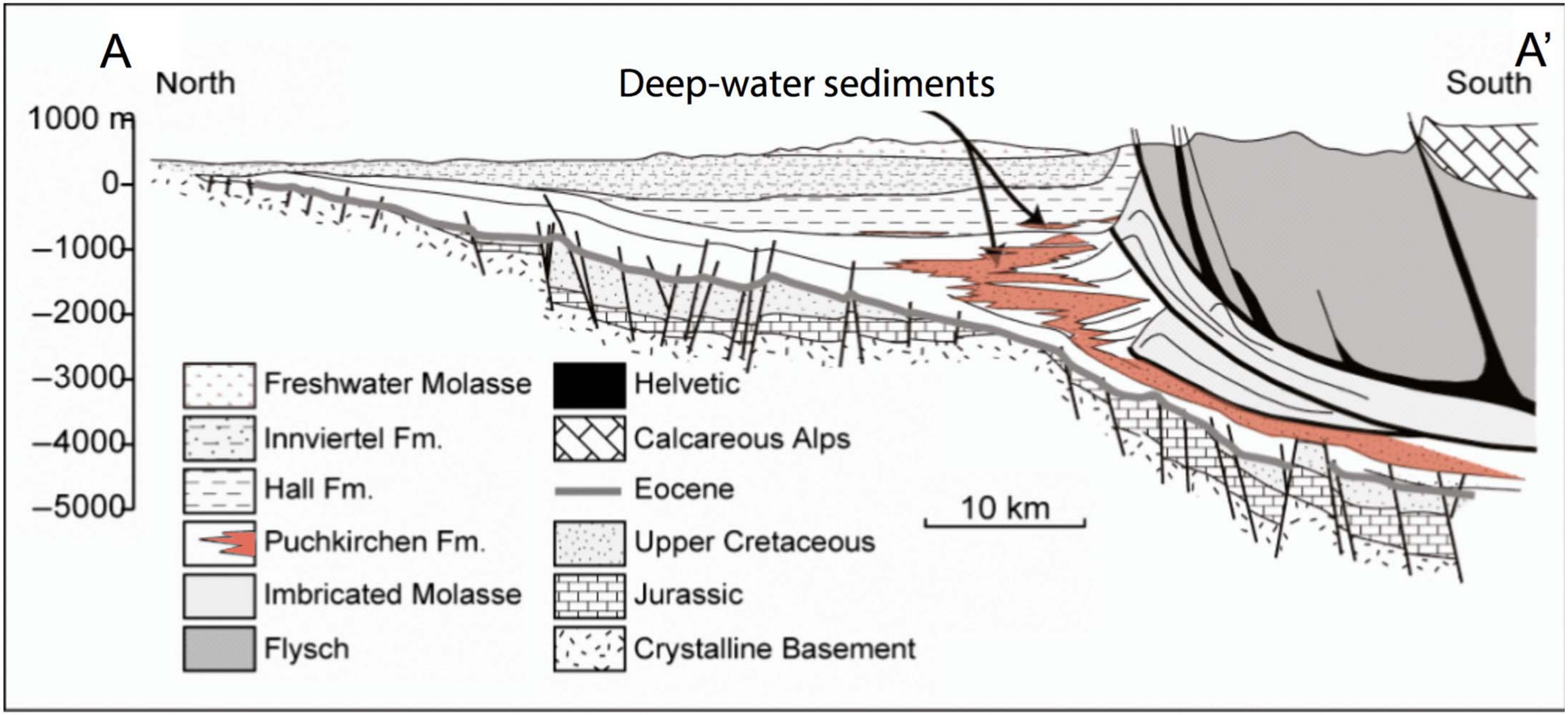
- Erect and correlate lithofacies between wells in the lower Puchkirchen Formation
- Exploration potential of the lower Puchkirchen Formation
- Interpret depositional processes and environments of lower Puchkirchen Formation

Study Area

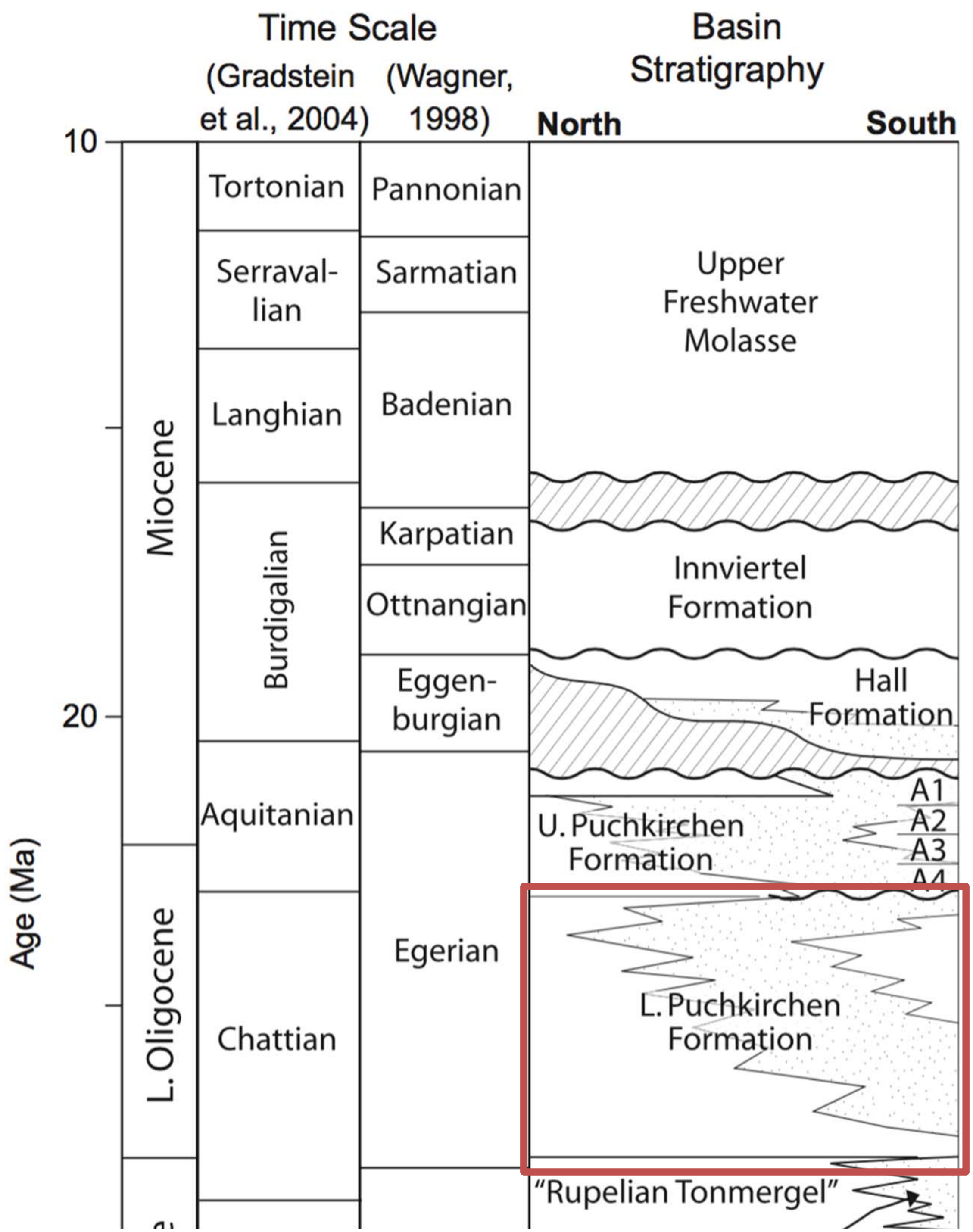


Gas field map of Upper Austria from De Ruig and Hubbard (2006). The study area is boxed in red.

Deep Water Sediments of the Molasse Basin

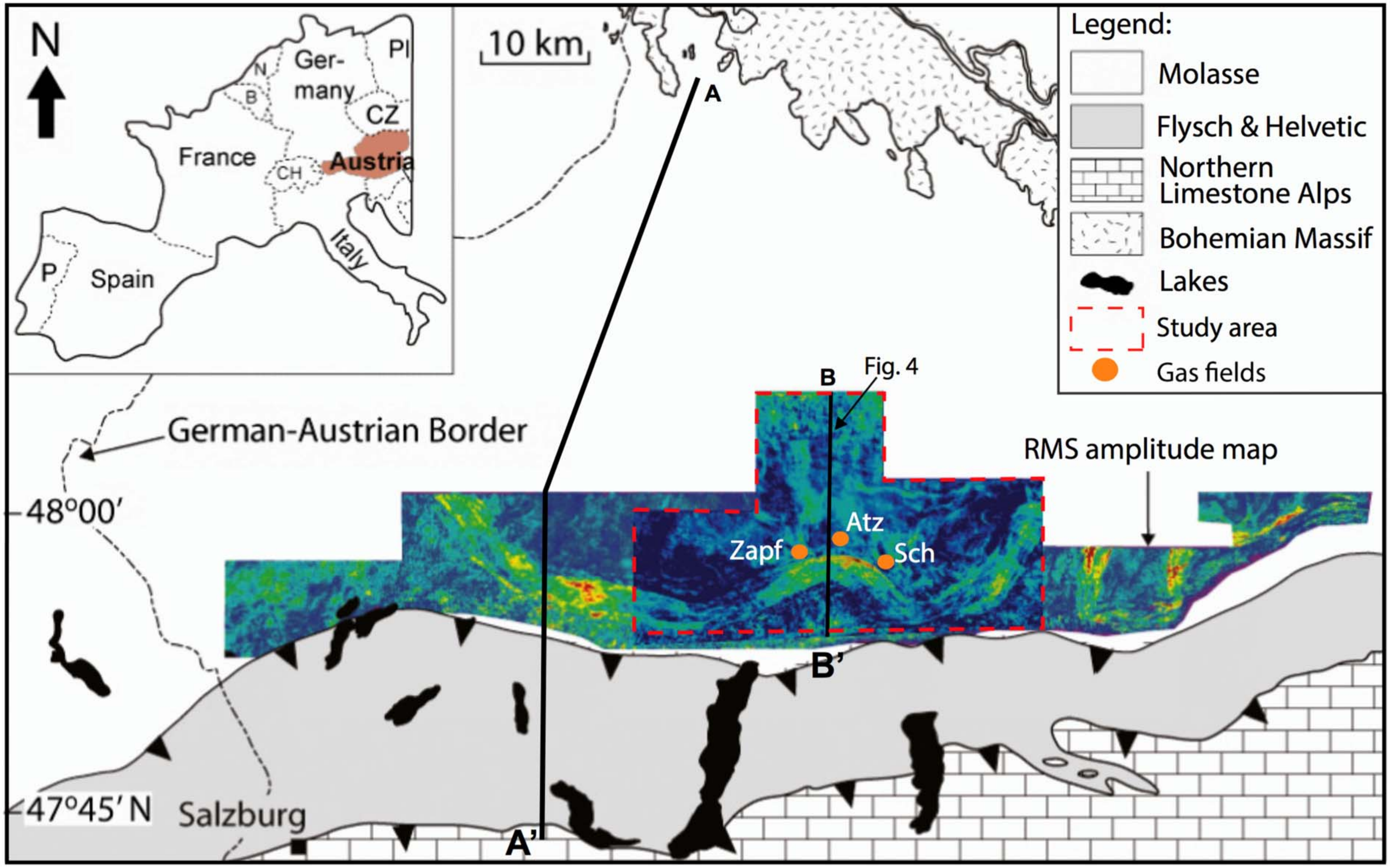


Regional geological cross section of the Molasse Basin, Austria. Deep-water sediments are colored red (Masalimova et al., 2015).



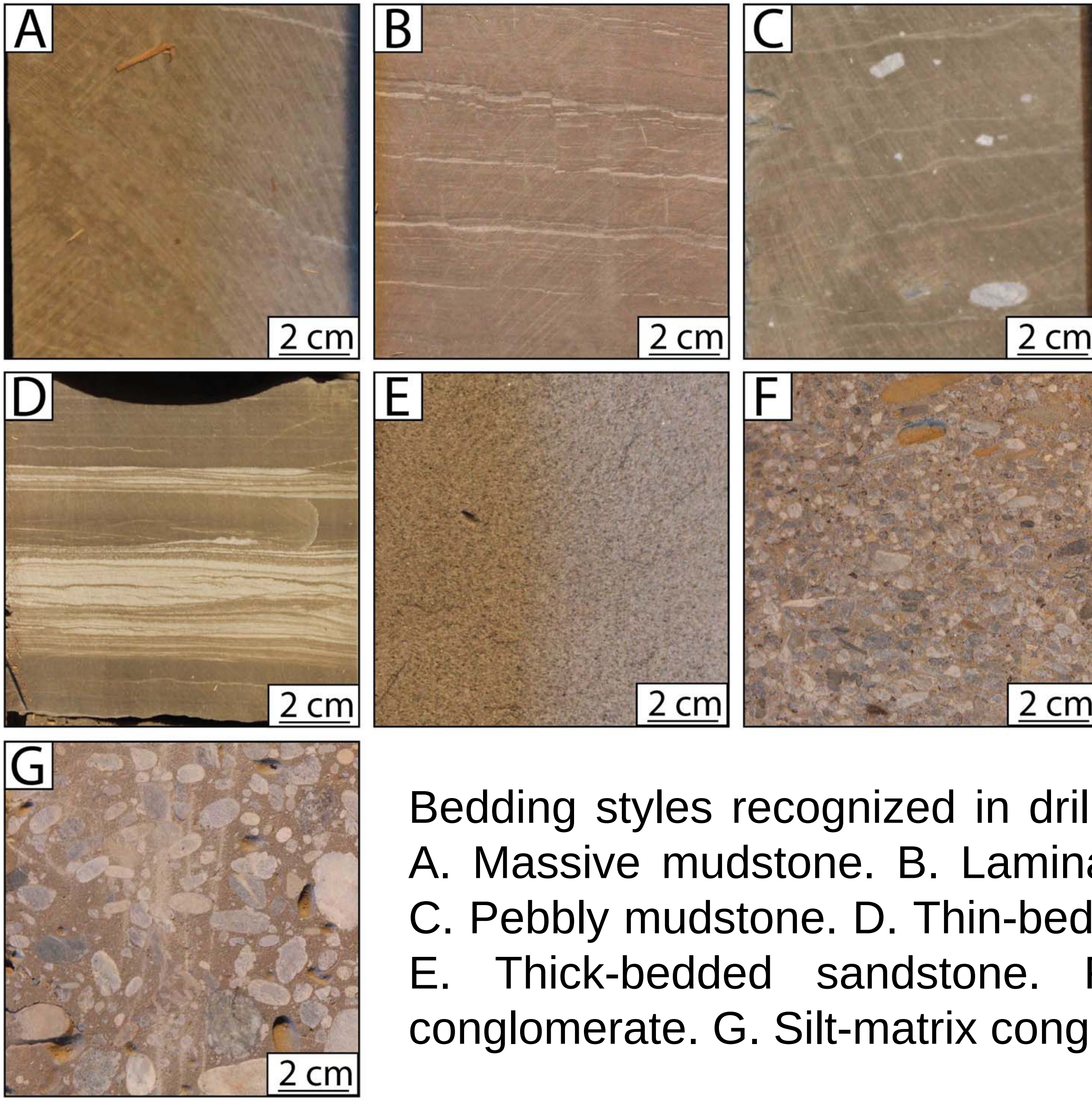
Tertiary stratigraphy of the Upper Austrian Molasse Basin (Hubbard et al., 2007)

Molasse Basin

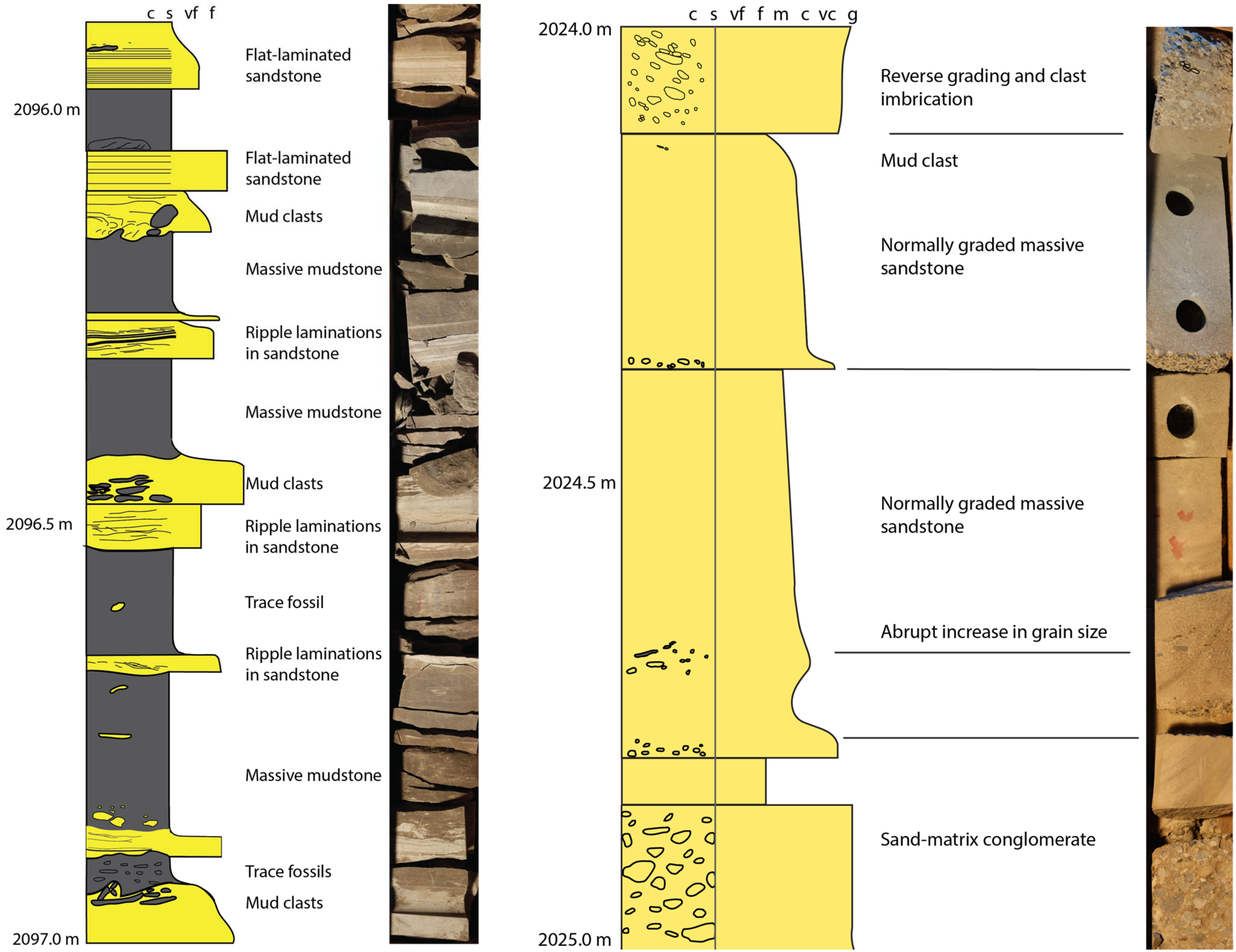


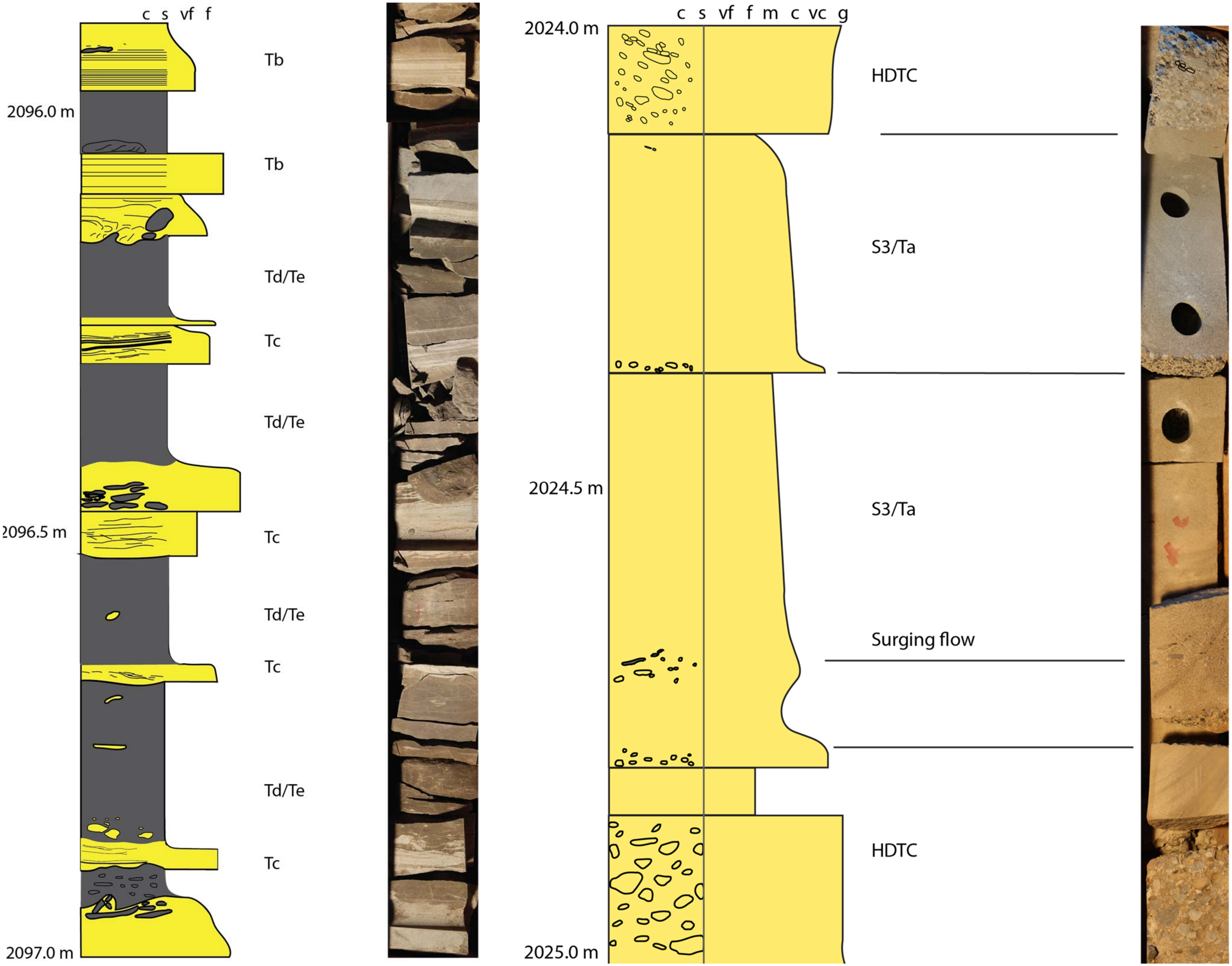
Map of the Molasse Basin in Upper Austria with RMS-amplitude map of the main channel belt and over- bank area (Masalimova et al., 2015).

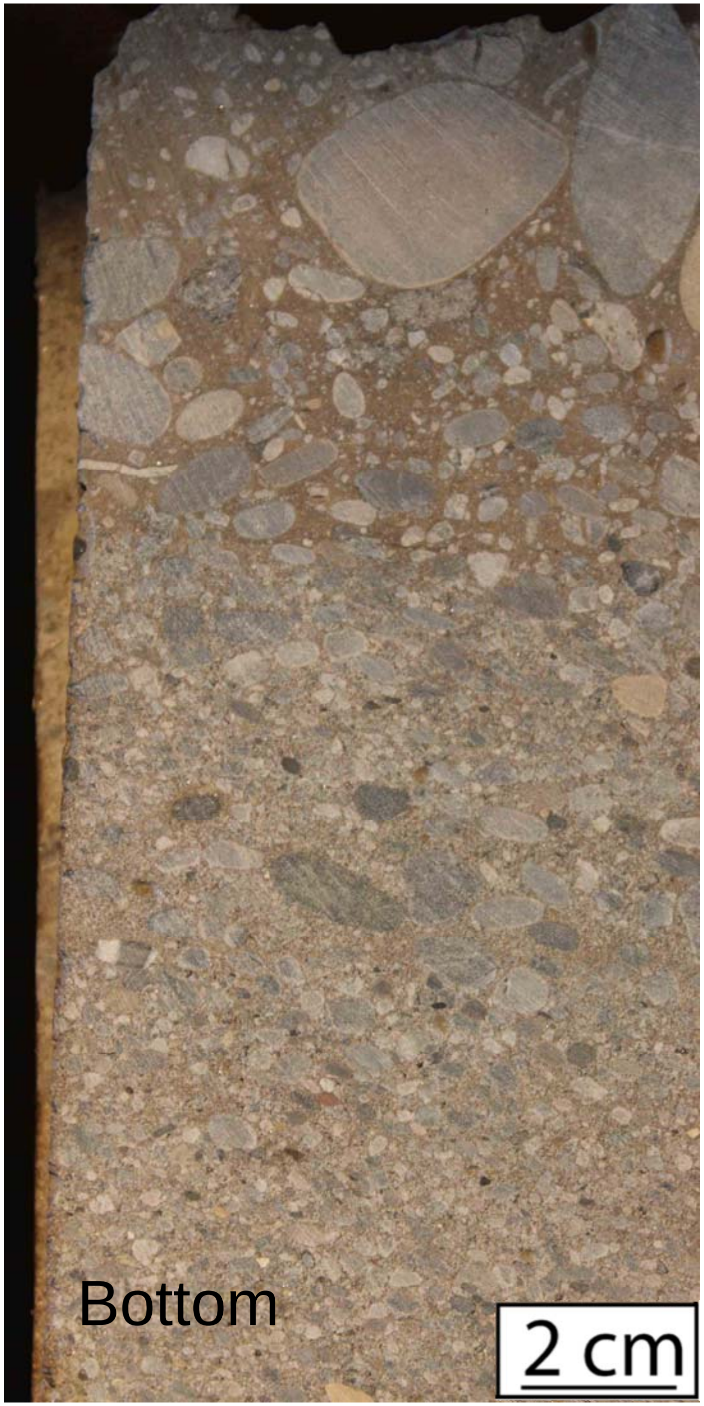
Methods



Bedding styles recognized in drill core samples. A. Massive mudstone. B. Laminated mudstone. C. Pebbly mudstone. D. Thin-bedded sandstone. E. Thick-bedded sandstone. F. Sand-matrix conglomerate. G. Silt-matrix conglomerate.


c s vf f
2096.0 m
2096.5 m
2097.0 m
Flat-laminated sandstone
Flat-laminated sandstone
Mud clasts
Massive mudstone
Ripple laminations in sandstone
Massive mudstone
Mud clasts
Ripple laminations in sandstone
Trace fossil
Ripple laminations in sandstone
Massive mudstone
Trace fossils
Mud clasts
c s vf f m c vc g
2024.0 m
2024.5 m
2025.0 m
Reverse grading and clast imbrication
Mud clast
Normally graded massive sandstone
Normally graded massive sandstone
Abrupt increase in grain size
Sand-matrix conglomerate


c s vf f
2096.0 m
2096.5 m
2097.0 m
Tb
Tb
Td/Te
Tc
Td/Te
Tc
Td/Te
Tc
Td/Te
Tc
c s vf f m c vc g
2024.0 m
2024.5 m
2025.0 m
HDTC
S3/Ta
S3/Ta
Surging flow
HDTC


Bottom
2 cm


Top
2 cm

Future Work

- Plotting lithologies onto well logs
- Petrographic analyses
- U/Pb geochronology and U-Th/He thermochronology of detrital zircons
- Interpretations of depositional processes

SPODDS
Stanford Project On Deepwater Depositional Systems

Discussions
Don Lowe, Lauren Shumaker

RAG Associates
Lorenz Scheucher, Martin Geissler, and Wilma Troiss


Questions?