

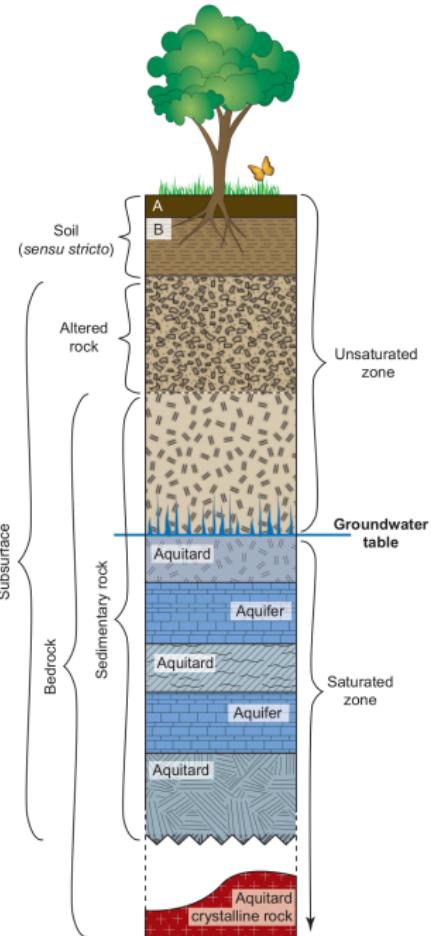
Accessing key players, functional genes and pathways in aqueous habitats using metagenomics and -transcriptomics

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&
RNA Bioinformatics and High Throughput Analysis
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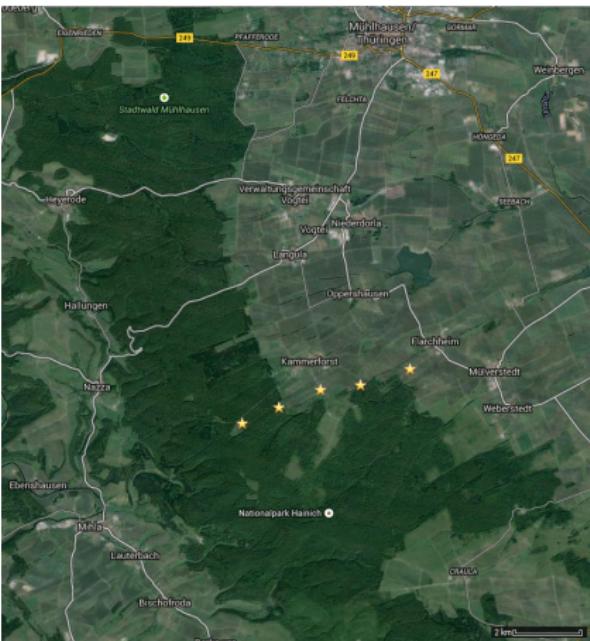


role of water (**Aqua**) and biodiversity (**Diva**) for structure, properties and functions of the **Critical Zone**

- What biota live there?
- How do they interact with and reflect their environment?
- How do they reflect surface properties?

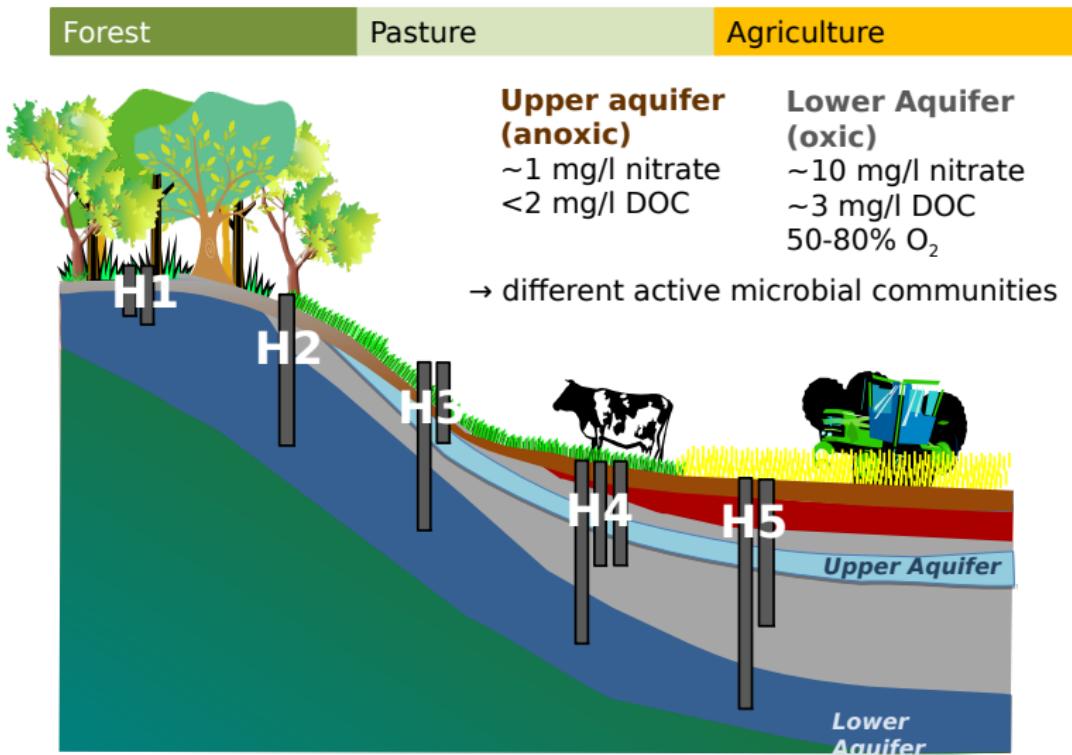
www.aquadiva.uni-jena.de

AquaDiva - Sampling site



Google Maps

AquaDiva - Sampling site



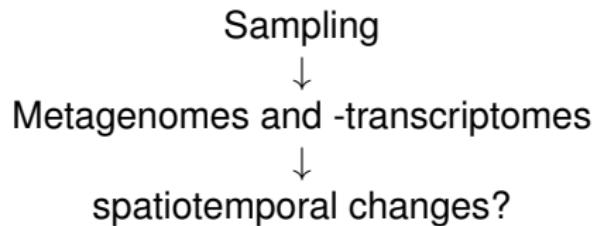
AquaDiva - My job

Sampling

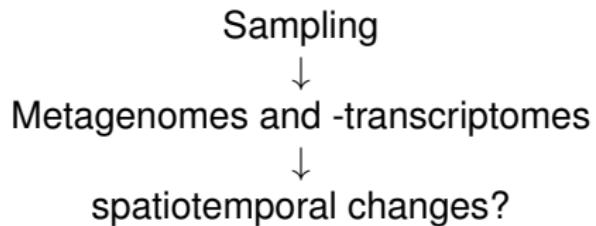
AquaDiva - My job

Sampling
↓
Metagenomes and -transcriptomes

AquaDiva - My job

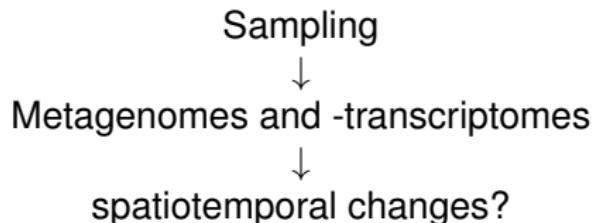


AquaDiva - My job



- natural variation (seasons, ...)
- agricultural use (fertilisation, harvest, ...)
- other events (fire, herbivory, ...)

AquaDiva - My job



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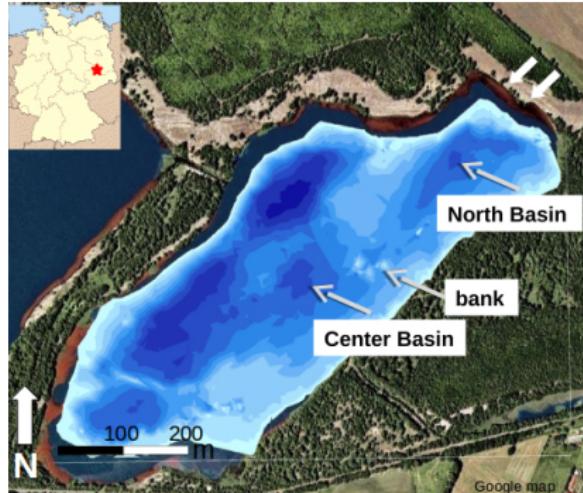
emphasis on

- CO₂ fixation
- ammonium oxidation
- denitrification

Identifying key community traits shaping pelagic iron-rich aggregates



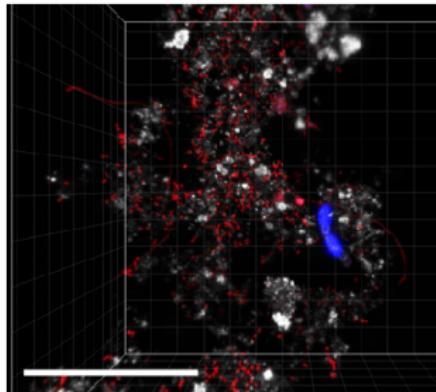
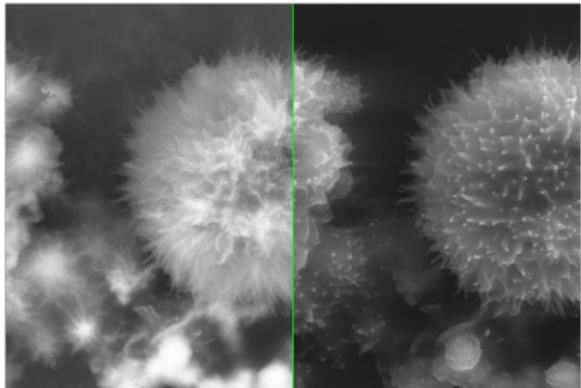
Dr. Shipeng Lu



Deutsches Zentrum
für integrative
Biodiversitätsforschung

- former lignite mine
- pH ~3 (center), 5.5 (north)
- up to 12 mM Fe(II)
- up to 20 mM SO_4^{2-}

The “Iron Snow”

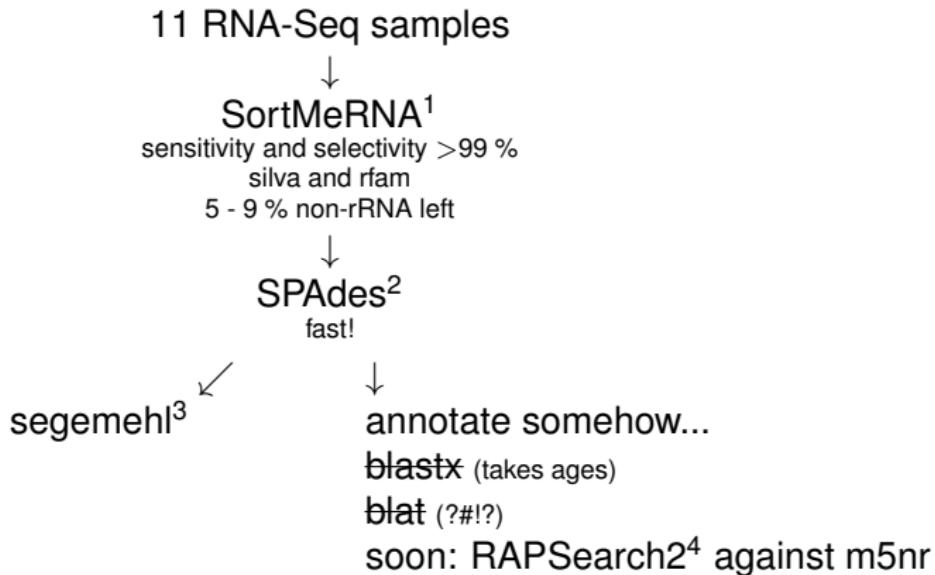


- biogenic origin
- 20 - 200 µm
- 3 - 11 % TOC
- >35 % Fe



Reiche *et al.*, 2011
Lu *et al.*, 2013

Quick 'n' dirty approach



¹ Kopylova *et al.*, 2012

² Bankevich *et al.*, 2012

³ Hoffmann *et al.*, 2009

⁴ Zhao *et al.*, 2011

Acknowledgements

Aquatic Geomicrobiology

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Dr. Anna Späthe



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Thank you for your kind attention!