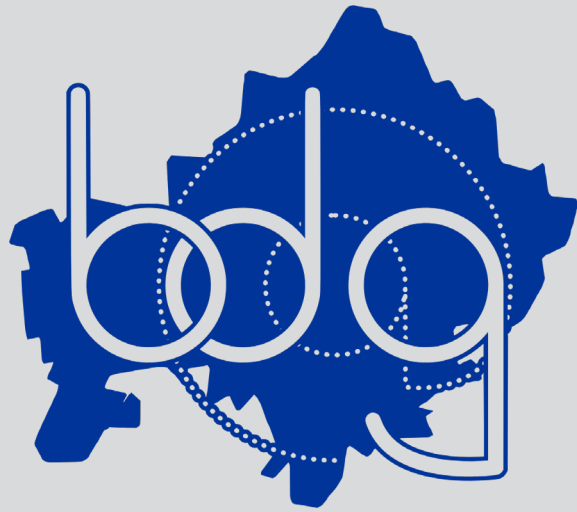




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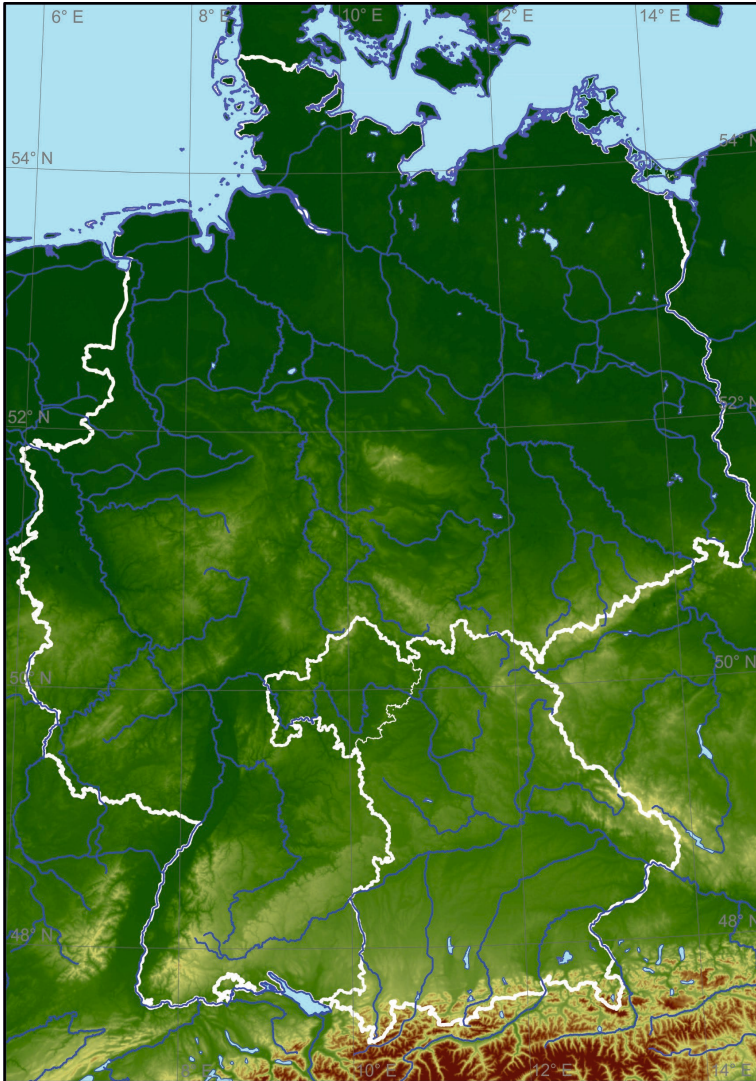
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Monitoring and Modelling of Soil Moisture at Characteristic Sites in Lower Franconia (Germany)

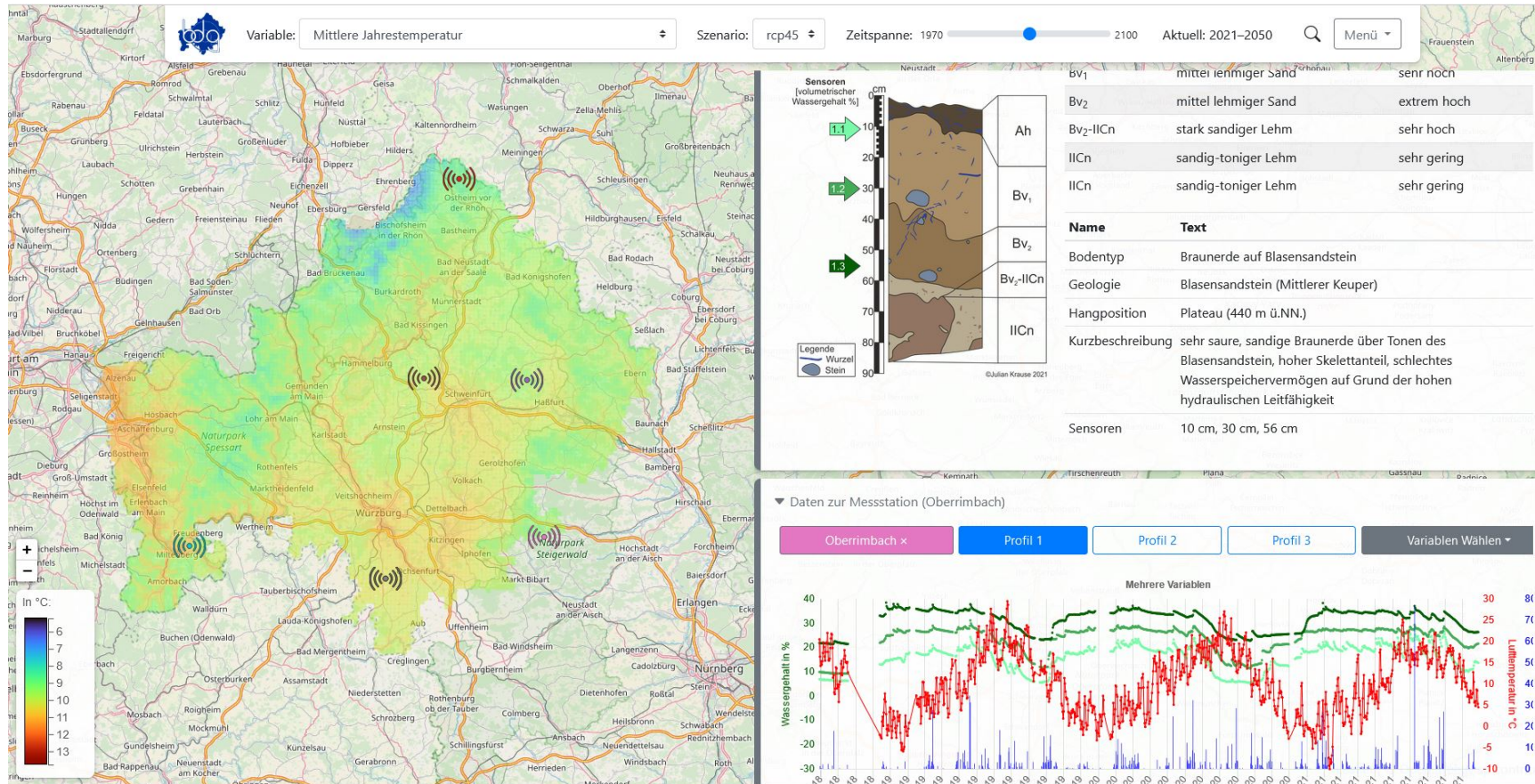
EGU General Assembly 2022, SSS6.1

23.05.2022, EGU22-2621

Julian Krause, Birgit Terhorst



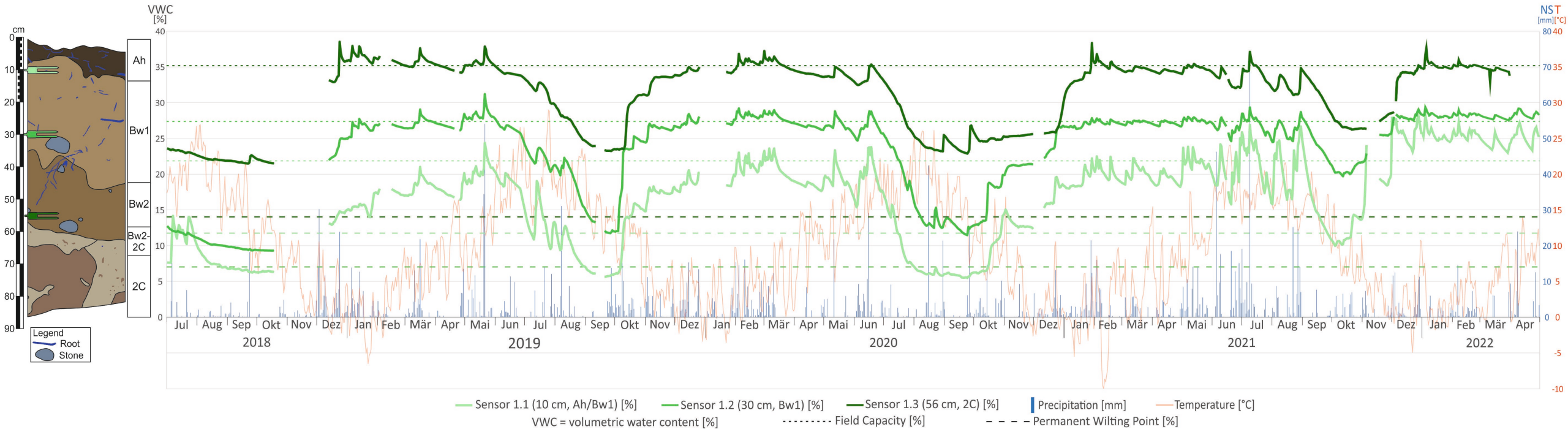
- 3 work packages:
 - **soil moisture monitoring**
 - high resolution climate model (REMO)
 - soil moisture modelling (WaSIM-ETH)
- 6 monitoring sites
- 226 soil profiles and drillings
- different slope positions
- different land uses
 - vineyards
 - forests
 - agricultural land
- laboratory analysis



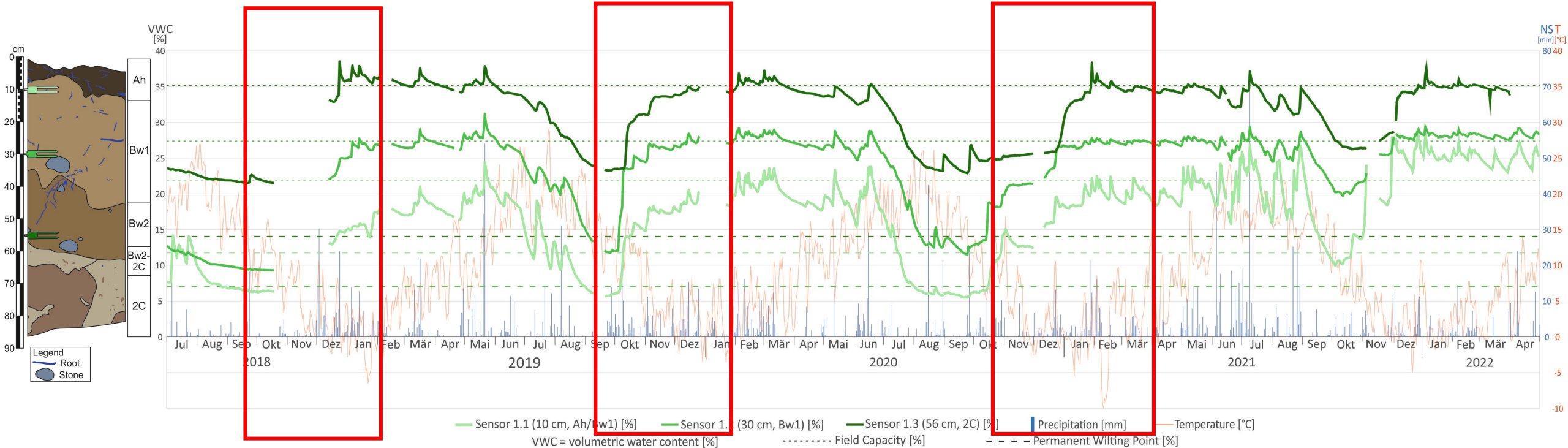
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Results available @ <https://www.bigdata-at-geo.eu/klimaatlas/>

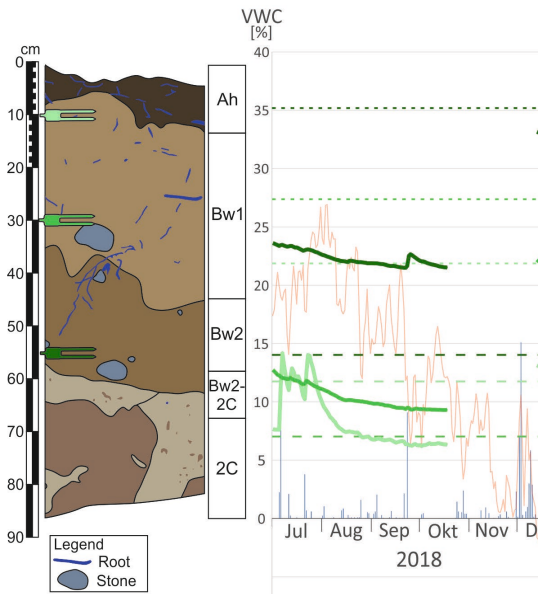




- Cambisol on Blasensandstein (Upper Triassic)
- forest
- low-mountain range Steigerwald

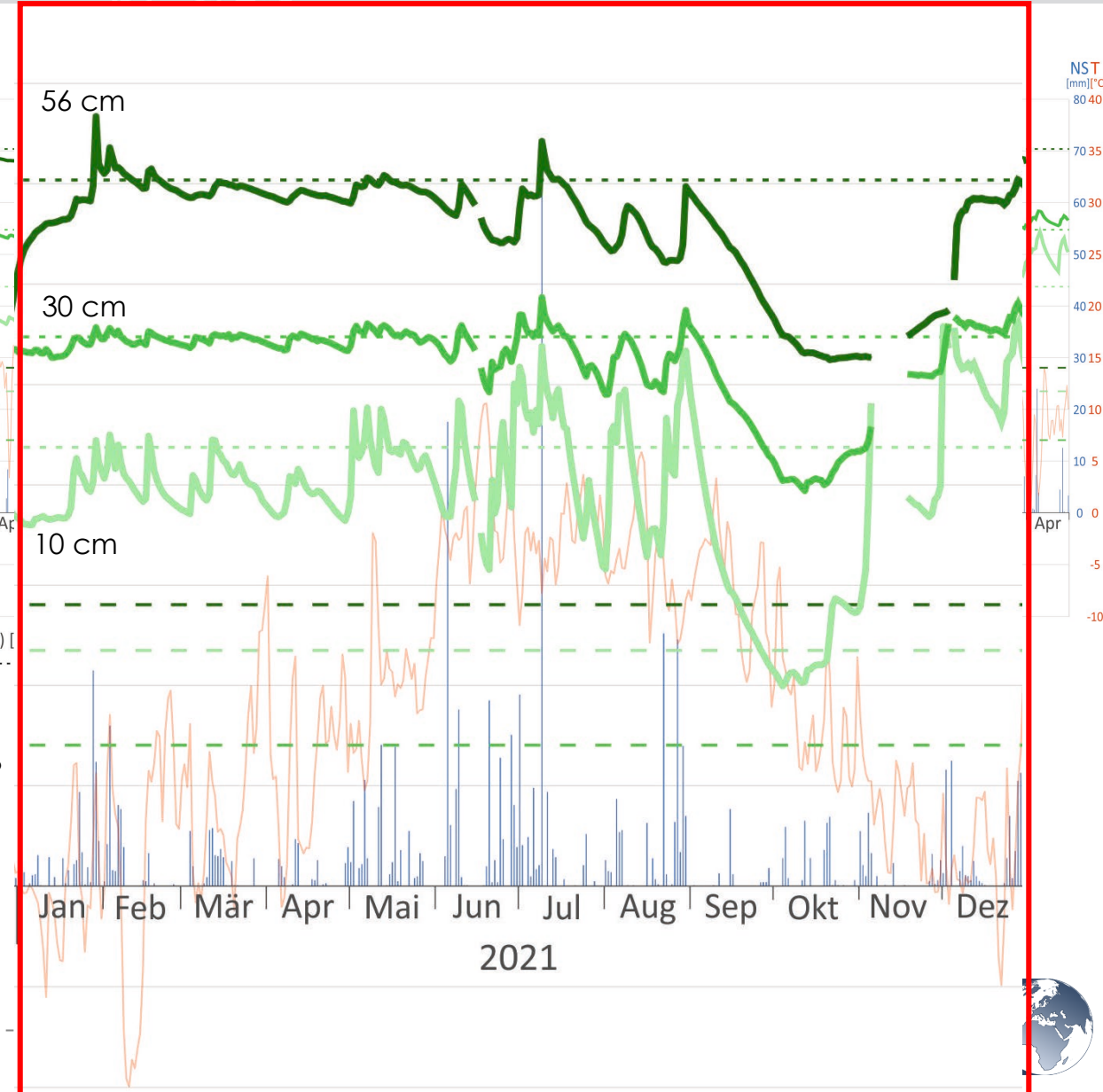


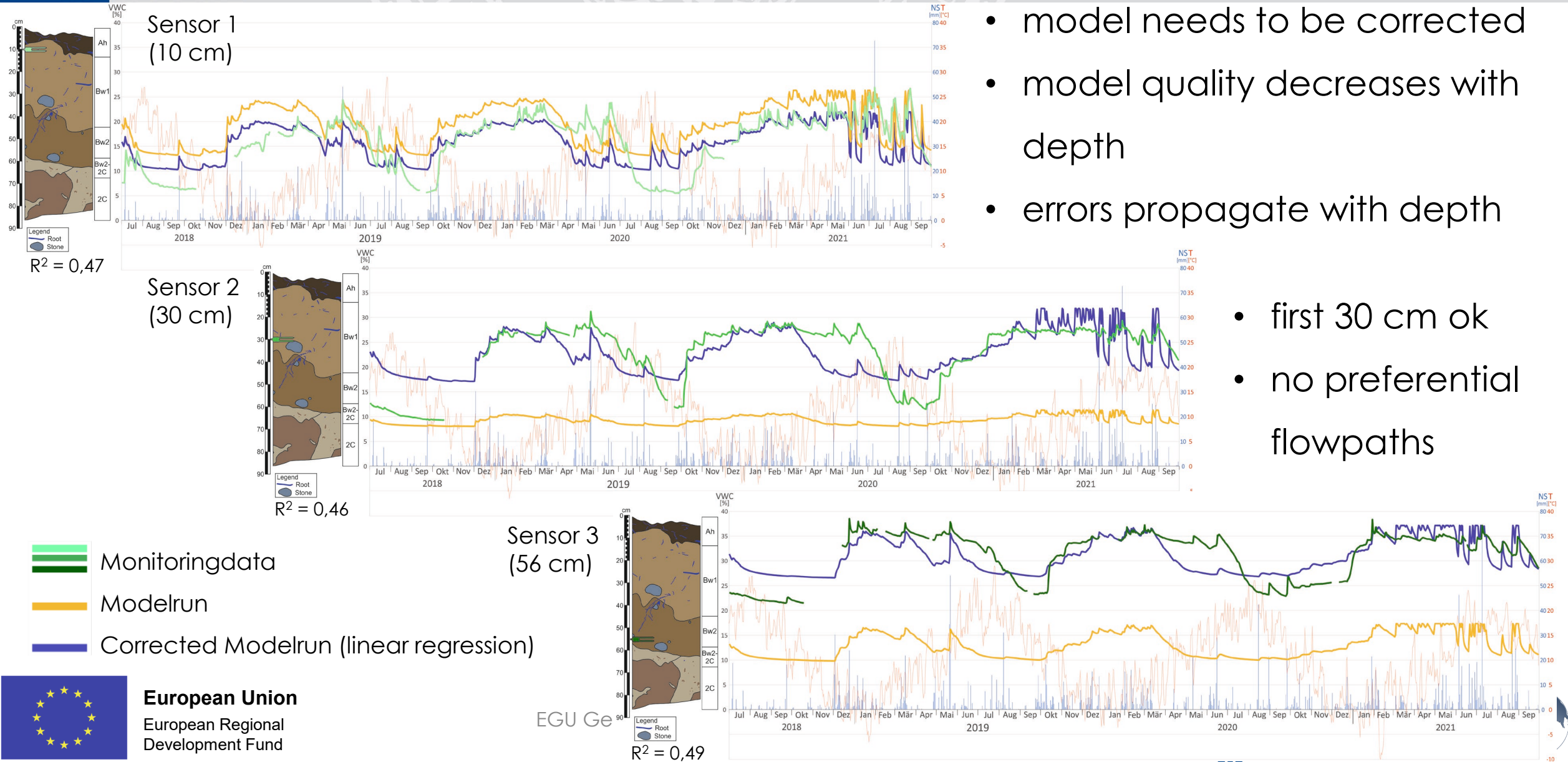
- Cambisol on Blase
- Steigerwald
- seasonal patterns
- 18, 19 and 20 very dry → sharp increase in autumn
- coarse sandy soil



- 2021 a „normal“ year
- frequent rainfalls
- soil moisture levels stable
- only autumn dry

- Cambisol on Blasensandstein (Upper Triassic)
- Steigerwald



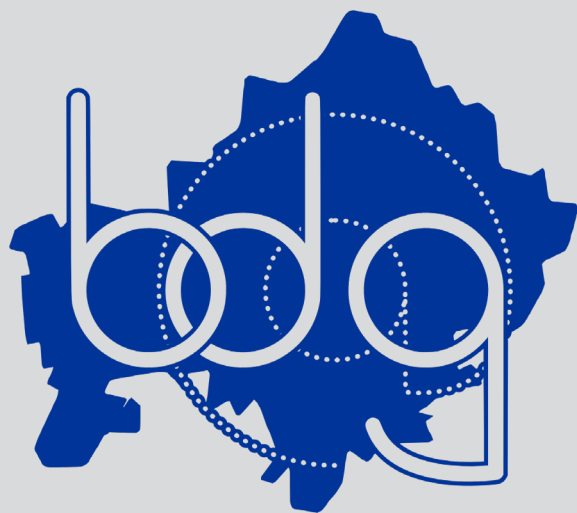


- model needs to be corrected
- model quality decreases with depth
- errors propagate with depth

- first 30 cm ok
- no preferential flowpaths

- seasonal patterns and precipitation thresholds clearly identifiable
- enabling shareholders to plan for future
- importance of monitoring → modelling errors
- high quality soil data improves soil moisture models significantly
- monitoring data is used for a regional soil moisture model and a climate model





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Thank you for your attention!

Workpackages

Soil

Prof. Dr. Birgit Terhorst

Prof. Dr. Roland
Baumhauer

Climate

Prof. Dr. Heiko Paeth

Artificial Intelligence

Prof. Dr. Andreas Hotho

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