

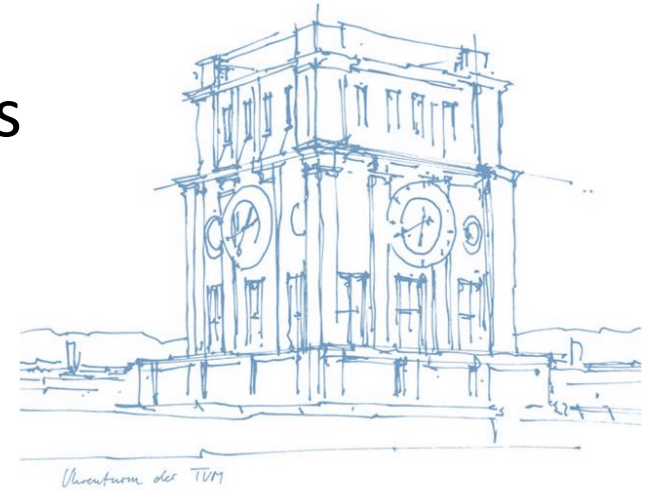


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Compiling and correlating paleostress fields across Central Europe

A paleostress chart for northern Bavaria and adjacent areas



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General idea

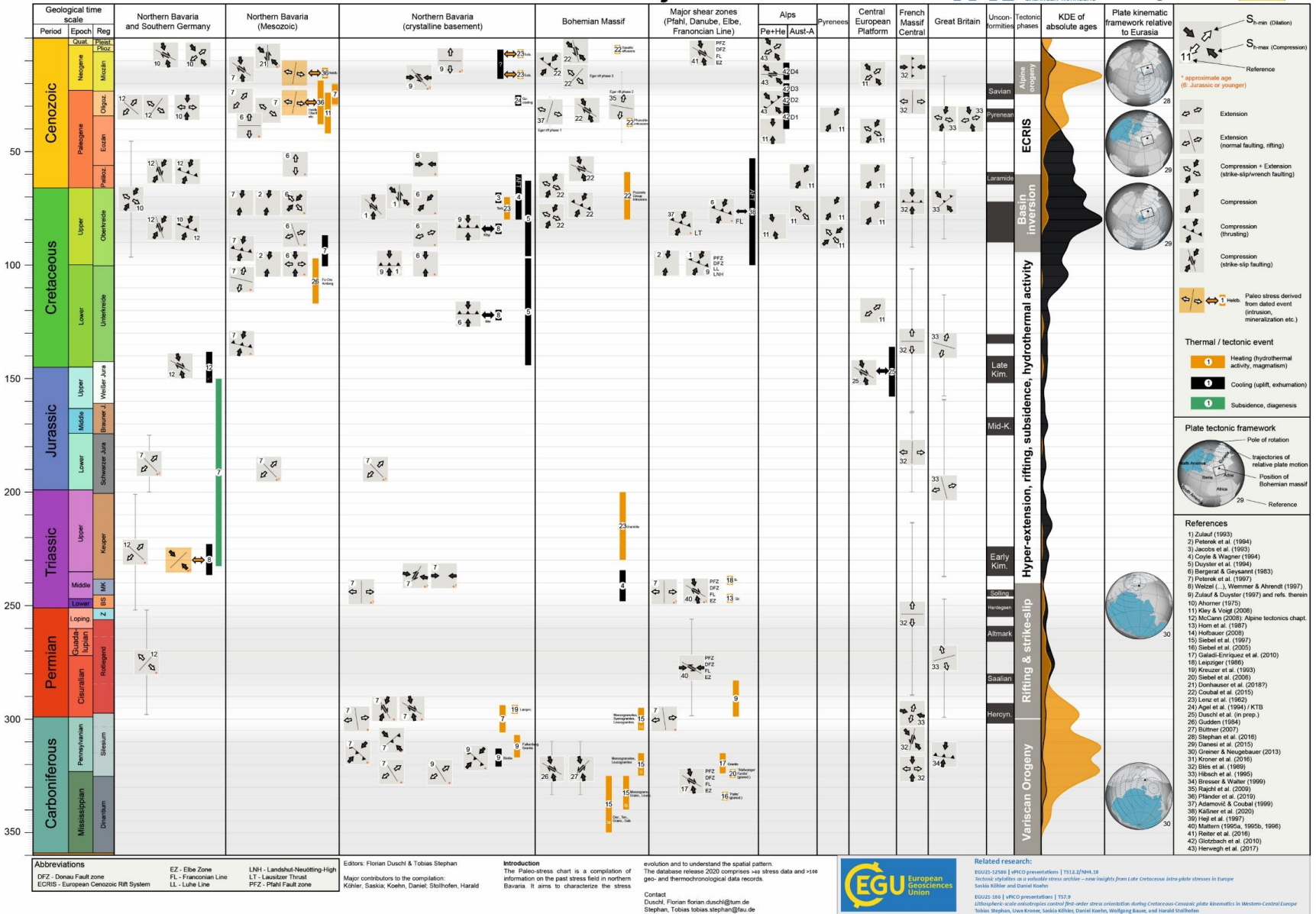
- **Compiling and correlating paleostress fields** in Central Europe with special emphasis on **Northern Bavaria**
- Critical **revision of published data** on **fault kinematics** and **thermochronology**
- Consistently combining **kinematic data** with **geo-thermochronological data**
- Complementing and improving **existing data** with **original research data**
- Visualizing **temporal** and **spatial evolution** on **different scale**
- Providing **database with metadata** for public use
- Linking data to **kinematic framework** in Northern Bavaria and Central Europe in the **context of plate tectonics**

Methods

- Literature research
- Field work (→ kinematic data)
- Geo-thermochronology (→ dating fracture / fault mineralization, etc.)

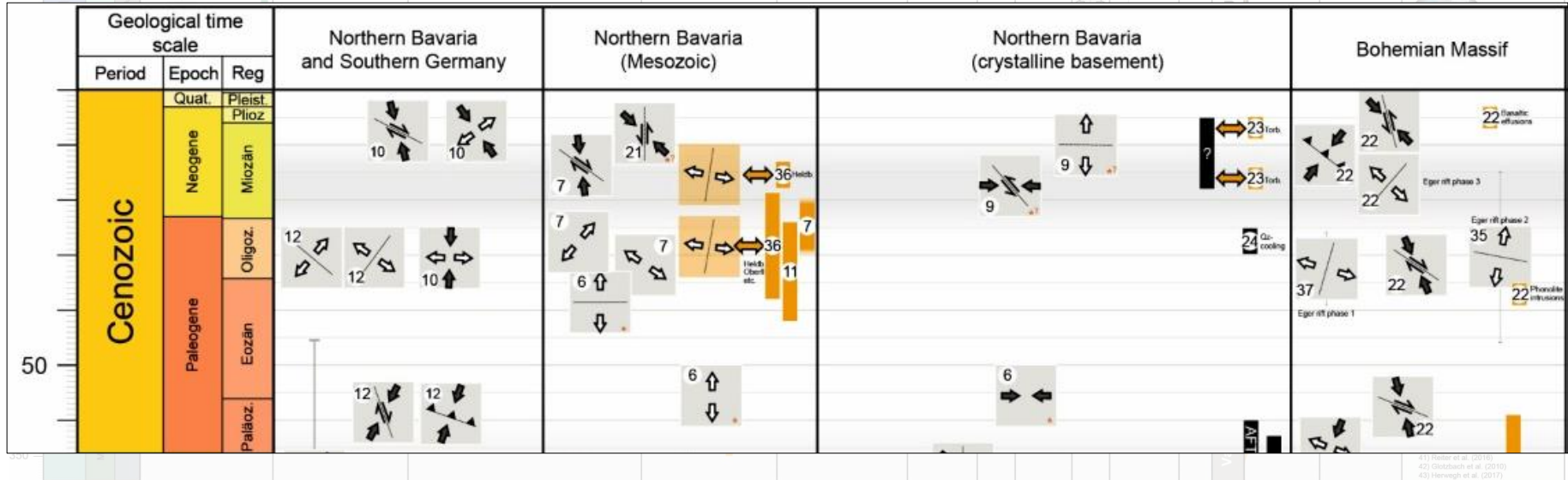
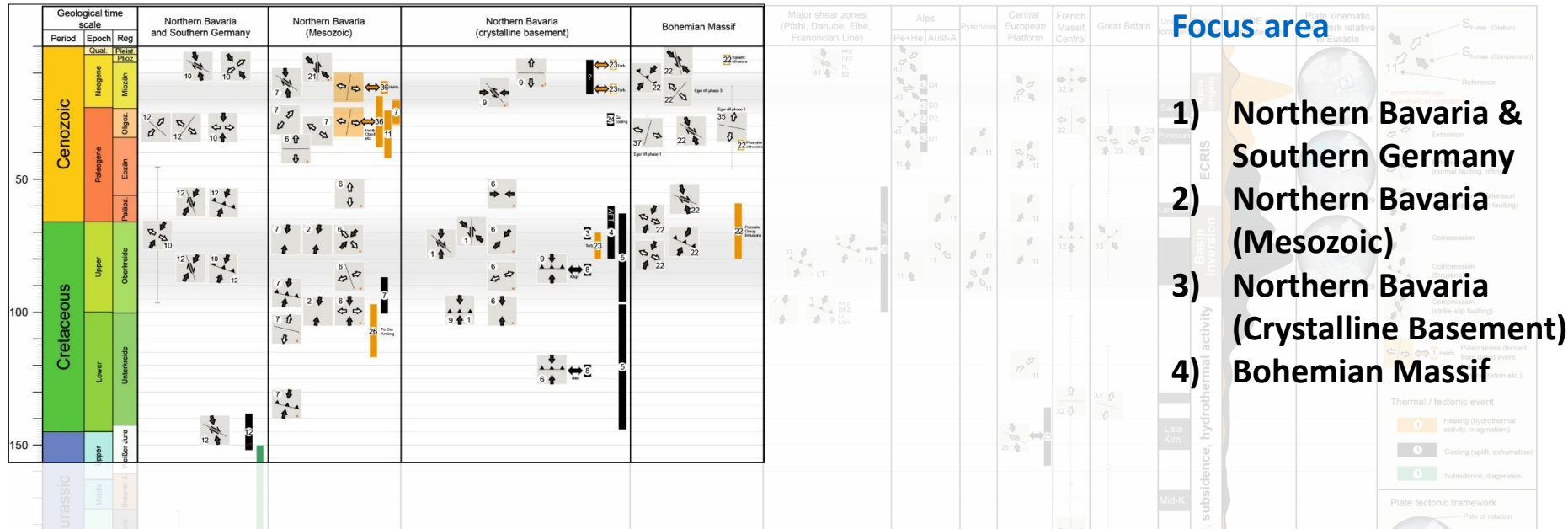
Introduction II – A paleostress chart

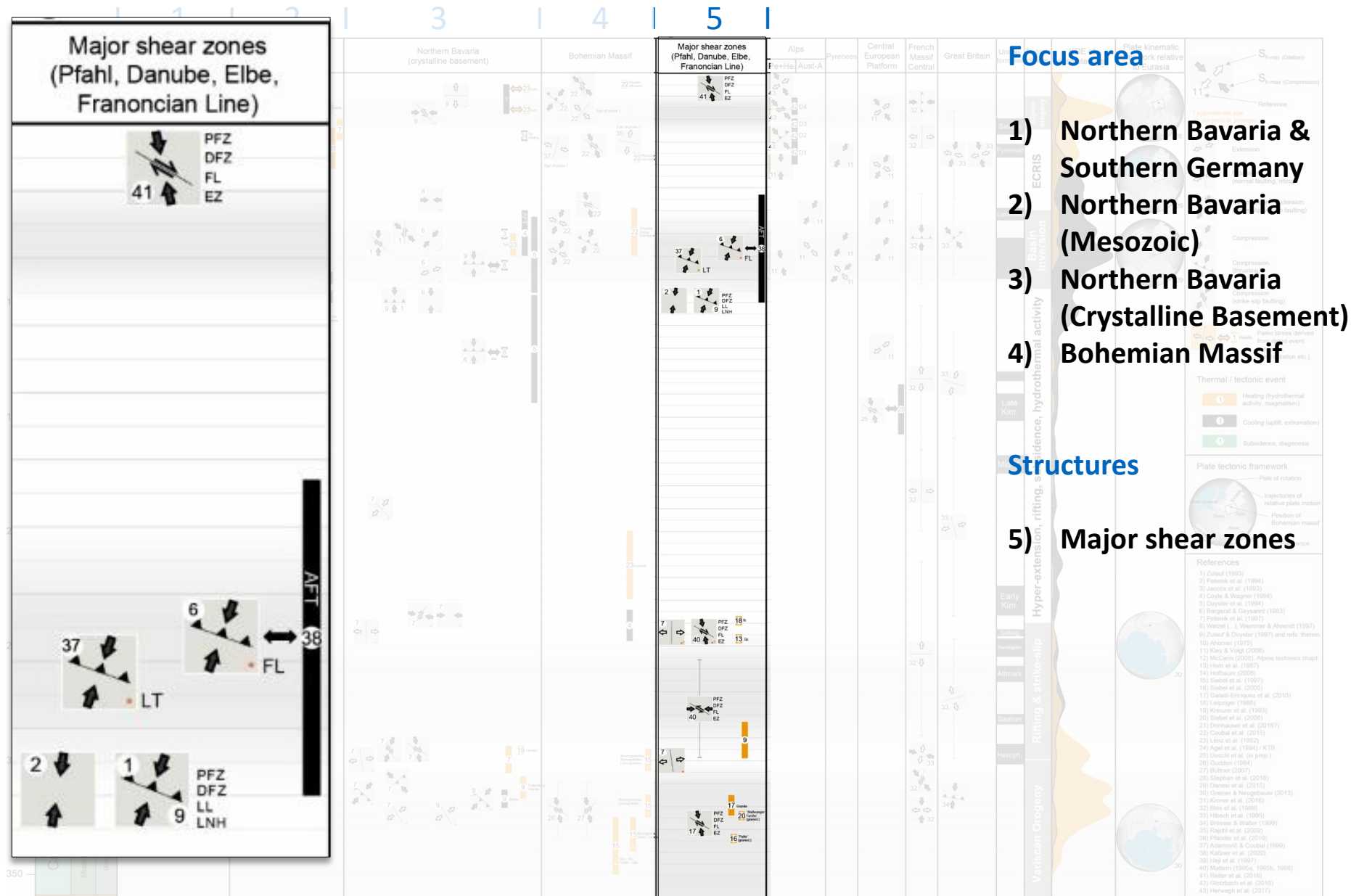
Paleostress chart for northern Bavaria and adjacent areas



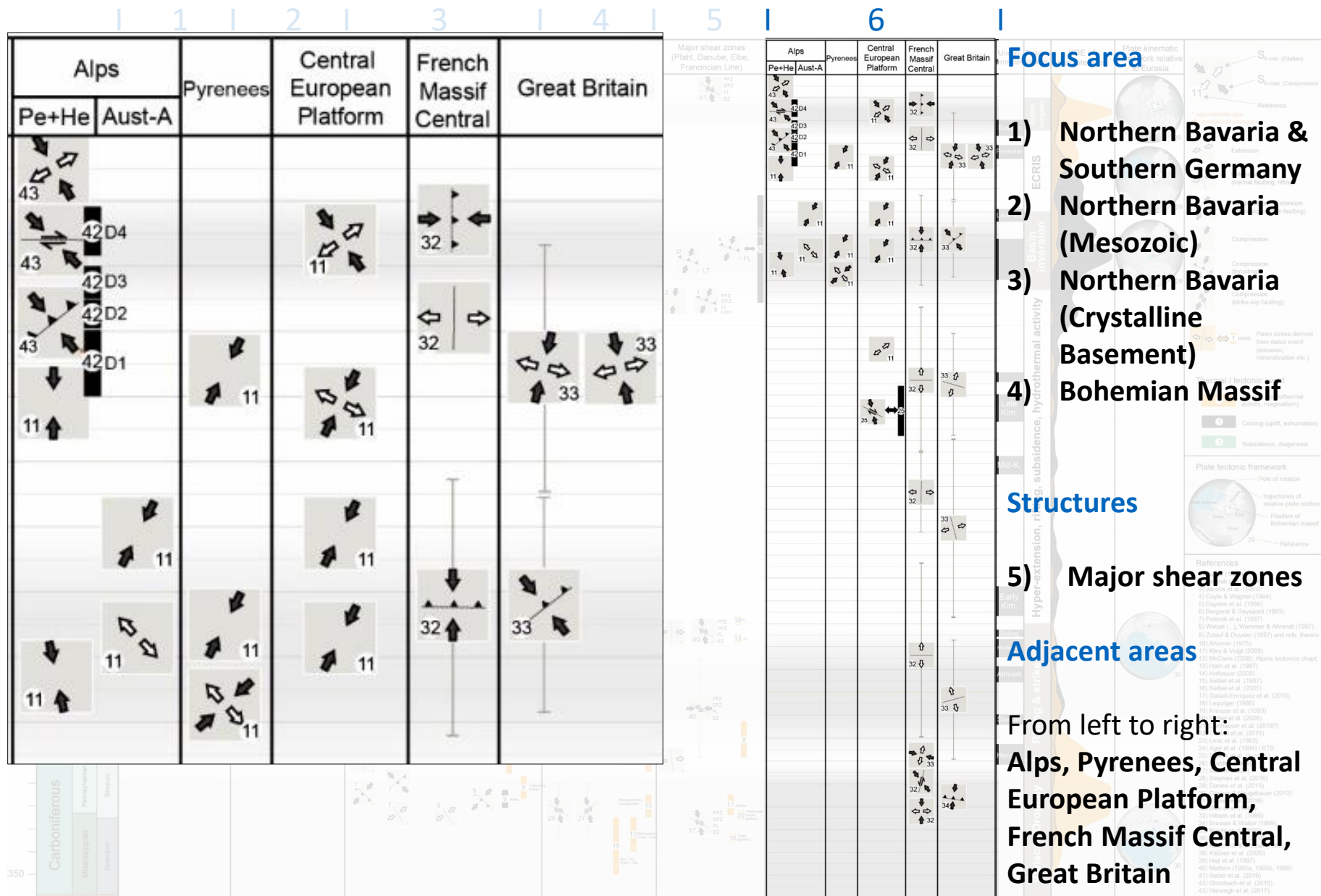
Structure I – Study area

1 2 3 4

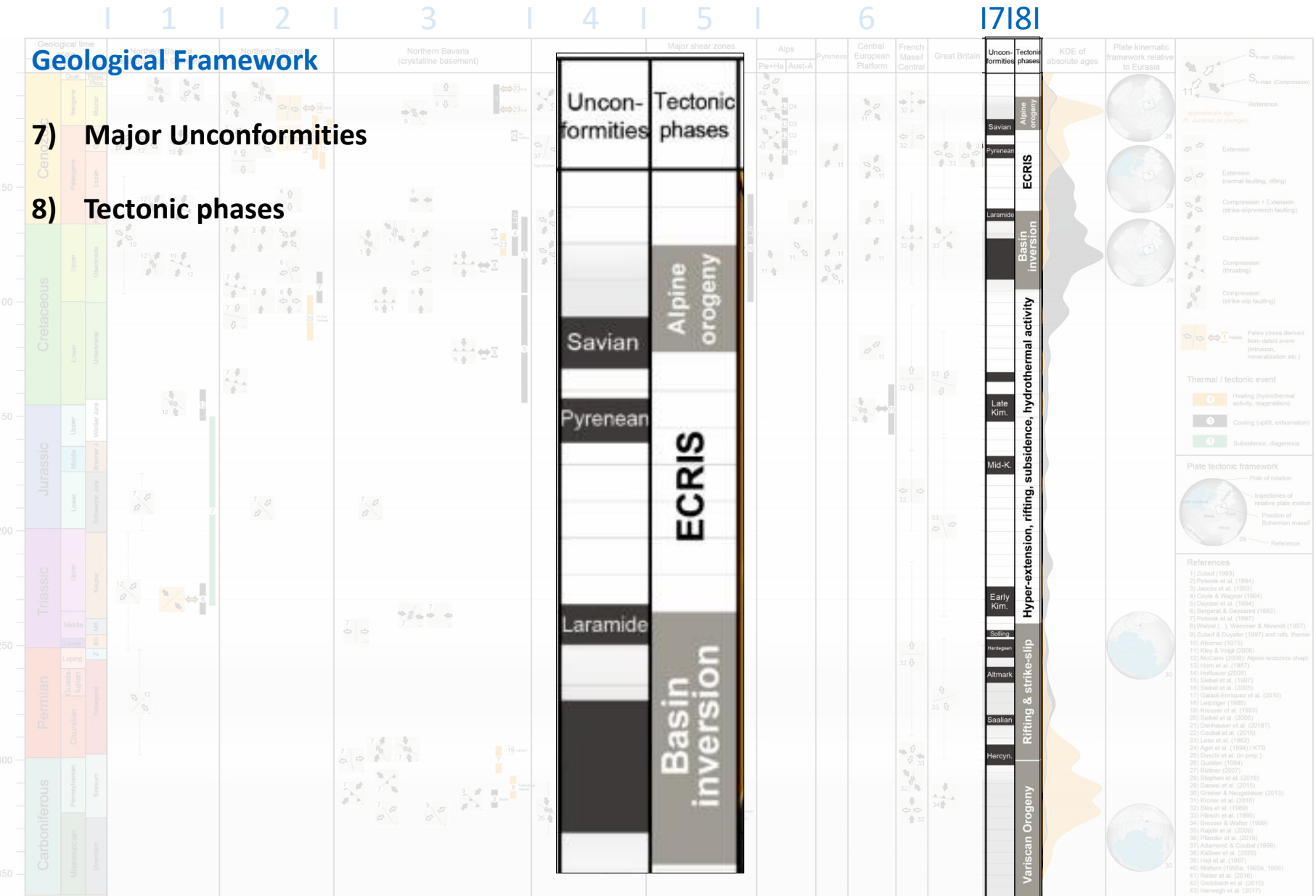




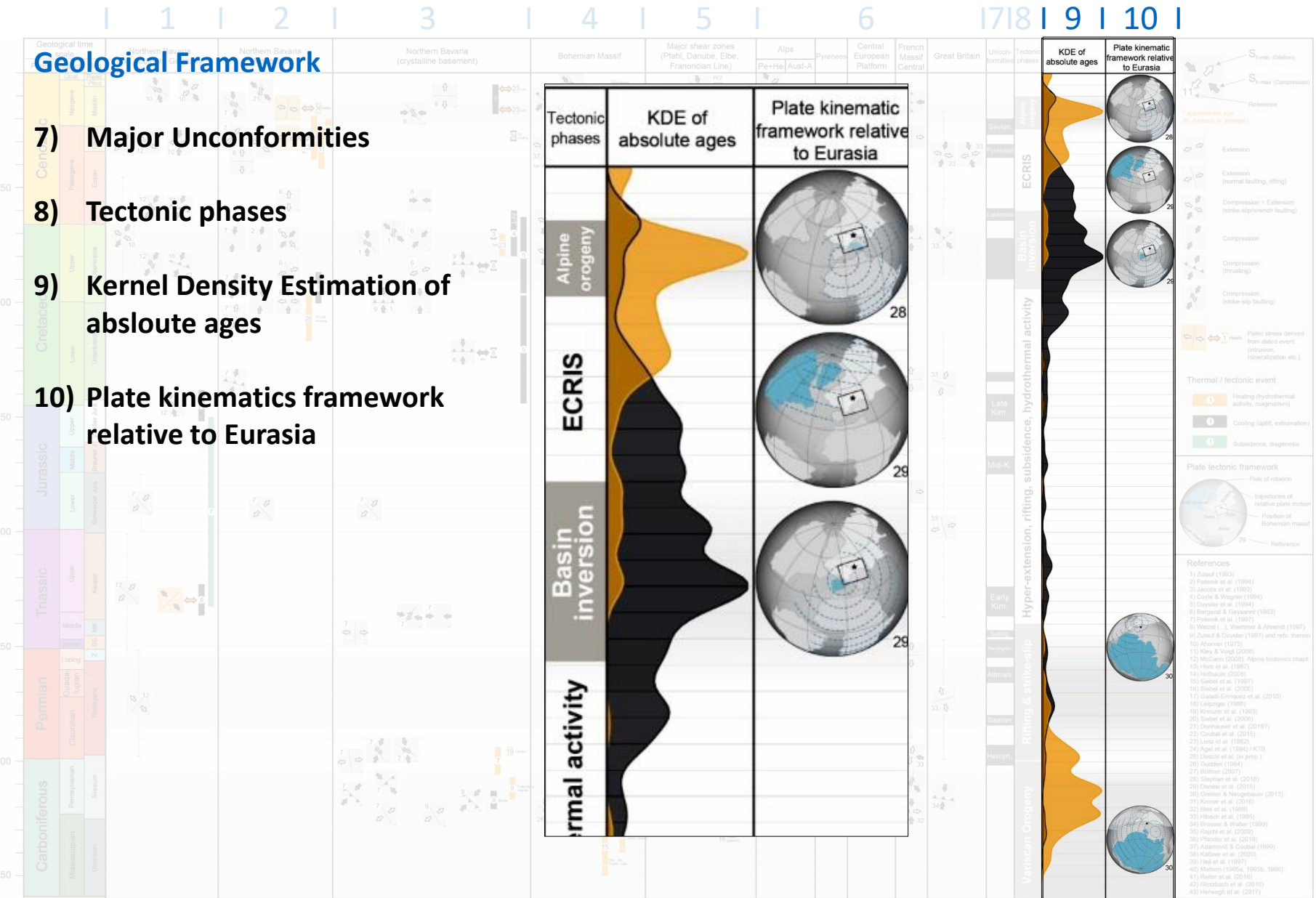
Structure III – Adjacent areas



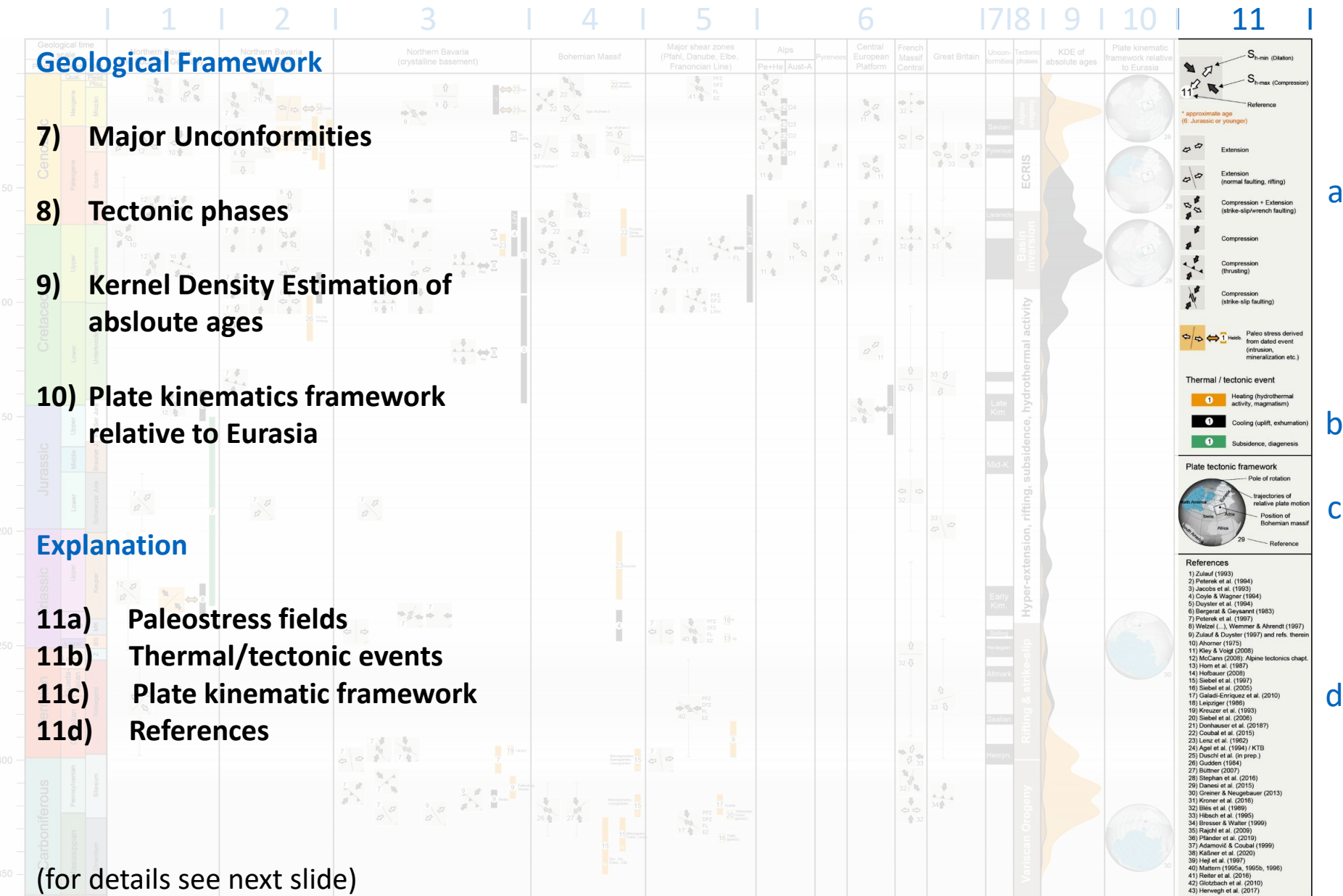
Structure IV – Framework



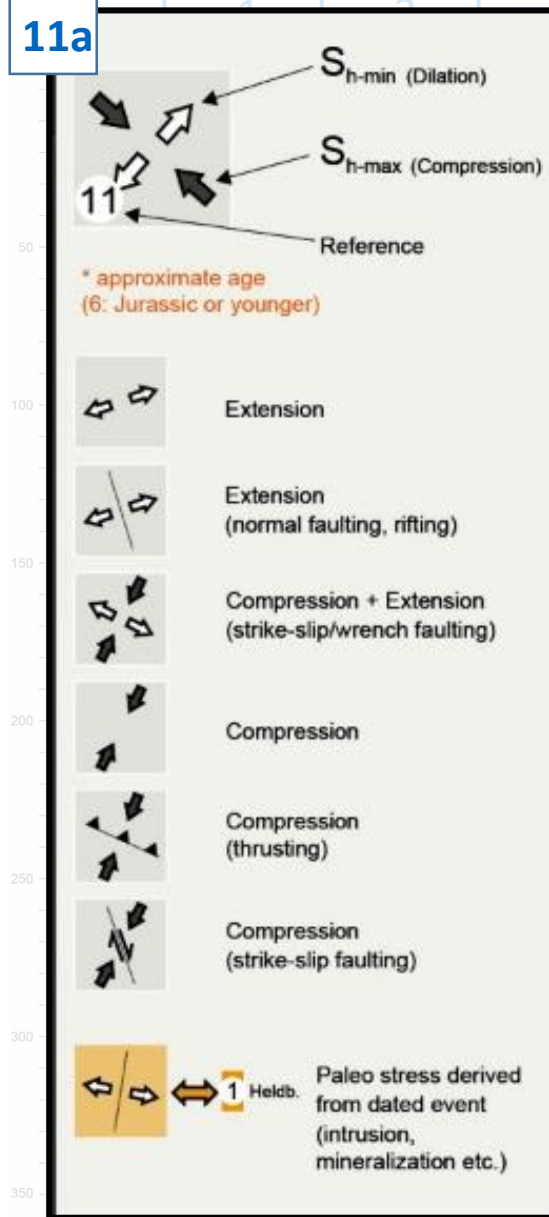
Structure IV – Framework



Structure IV – Explanation



11a



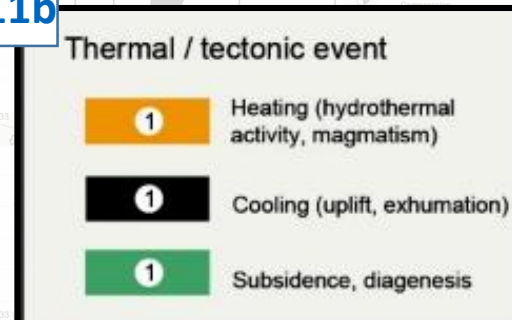
11a) Paleostress fields

Literature data on fault-slip analysis and tectonic stylolites is interpreted and transformed into symbols that represent fault kinematics. Each symbol is linked to its corresponding reference.

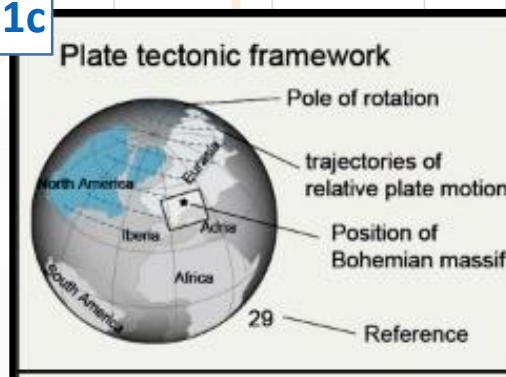
11b) Thermal / tectonic events

Phases of heating and cooling as well as subsidence and diagenesis are color-coded.

11b



11c



11c) Plate tectonic framework

Relative position of the study area with respect to the regional and global tectonic framework is illustrated.

Current status

- The current chart includes more than 40 studies on structural data and more than 100 studies dealing with geo-thermochronological data.
- The chart is complemented with and compared to structural data based on field work (see Köhler et al.)
- Compilation of structural and thermochronological data from Central Europe is ongoing

Next steps

- Finalise quality ranking for structural and thermochronological data
- Develop database for metadata
- Publish first results on correlating paleostress fields across Central Europe (*Geological Magazine – Special Issue*)

Related research

Köhler, S. and Koehn, D.: *Tectonic stylolites as a valuable stress archive – new insights from Late Cretaceous intra-plate stresses in Europe*, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-12586, <https://doi.org/10.5194/egusphere-egu21-12586>, 2021.

Stephan, T., Kroner, U., Köhler, S., Koehn, D., Bauer, W., and Stollhofen, H.: *Lithospheric-scale anisotropies control first-order stress orientation during Cretaceous-Cenozoic plate kinematics in Western-Central Europe*, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-106, <https://doi.org/10.5194/egusphere-egu21-106>, 2020.

Acknowledgements

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