ILP Task Force

Global Lithosphere Stress – The World Stress Map in 3D

Mojtaba Rajabi, Sebastian von Specht and Oliver Heidbach

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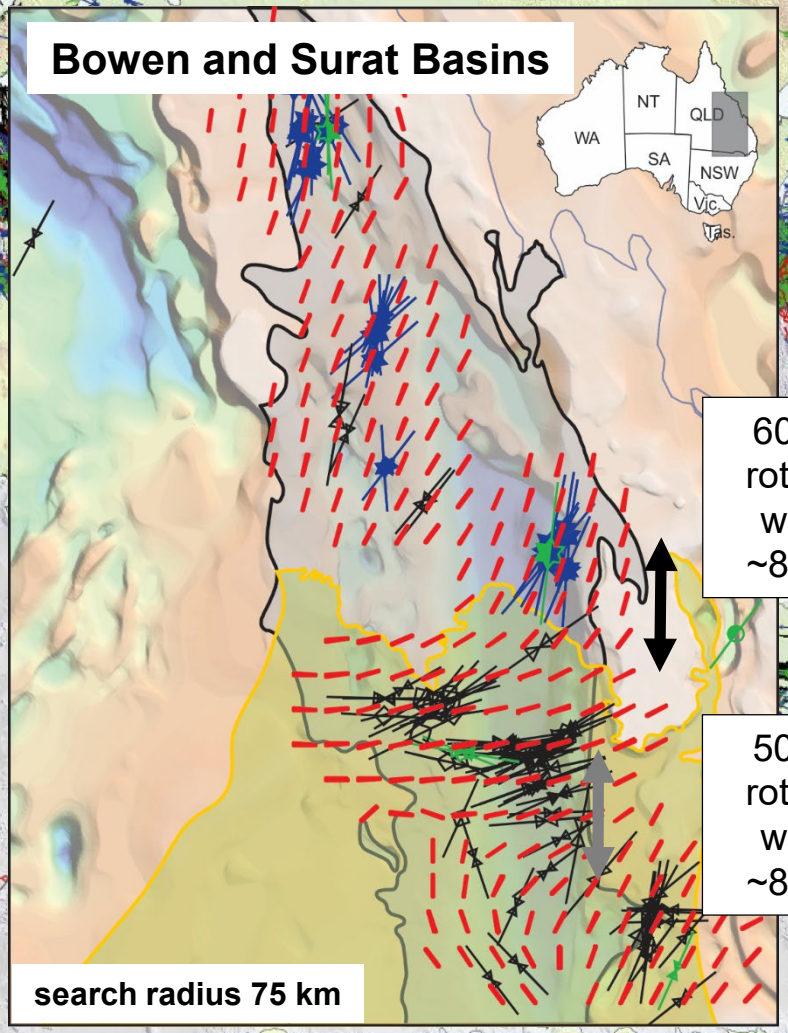
Key Questions

- What drives stress tensor rotations at regional to local scale?
- How far is the stress from criticality in stable continental regions?
- What is the relative importance of plate boundary forces?



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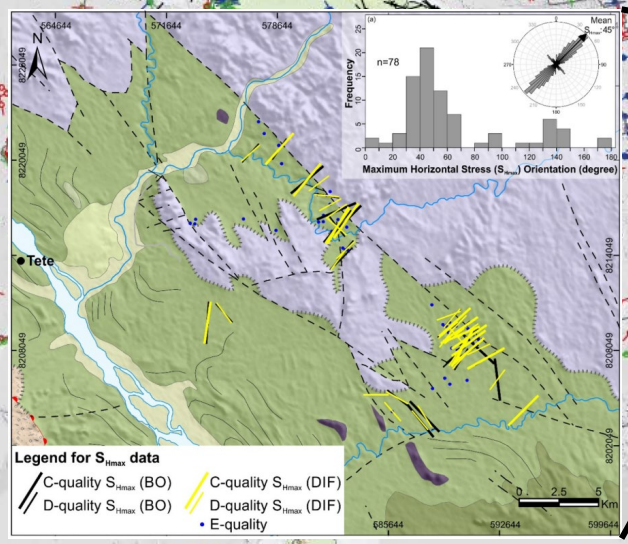
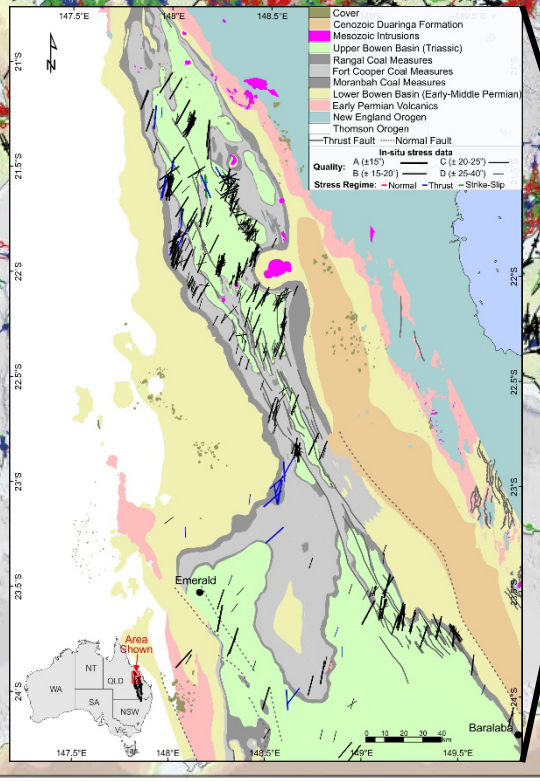
Continue classical WSM database

E.g., Stress orientations inferred from wellbo data in mining regions (e.g., Moatize Basin, Mozambique; and Bowen Basin, Australia)





Analyse of stress orientation using borehole logs.
Left: from 95 vertical boreholes in Moatize Basin, Mozambique
Right: from >1000 boreholes in Bowen Basin, Australia

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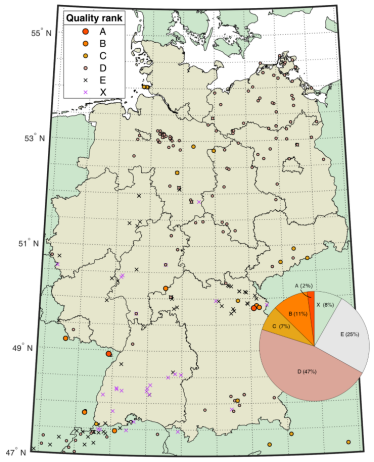
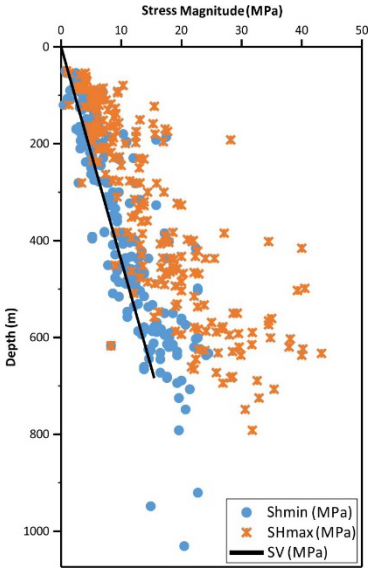
Compilation of stress magnitudes

2020-2022: Germany and adjecent regions



<u>568 quality-ranked data records</u>

2021-2023: Australia



<u>So far, >1000 data records.</u>

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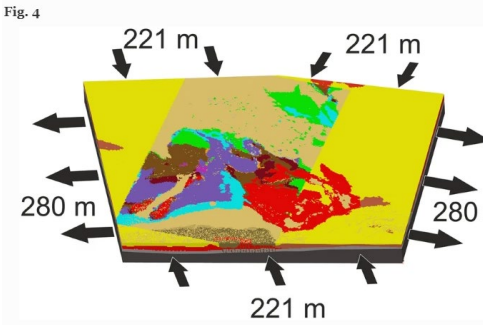
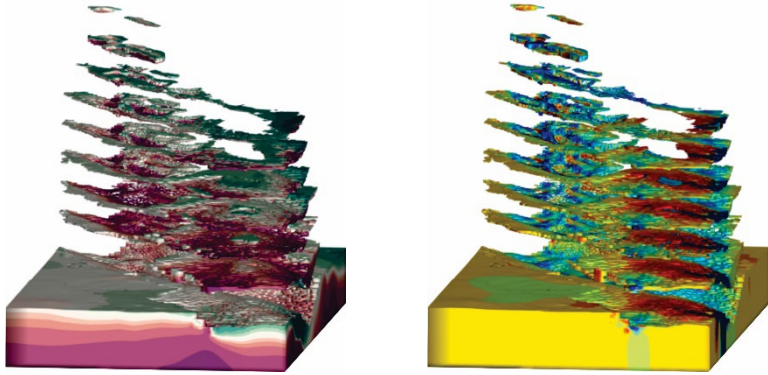
From point-wise data to toward a continuous description of 3D stress tens

Large-scale models conducted in 2022-2023:

e.g. Germany and adjacent regions



Small-Scale (Basin) models conducted in 2022-2023



e.g. Bowen Basin, Australia

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