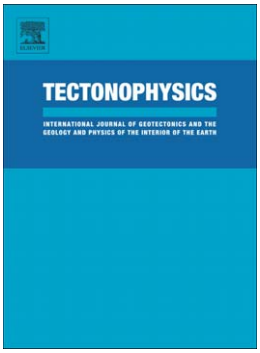

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Intraplate brittle deformation and states of paleostress constrained by fault kinematics in central German platform

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Abstract

The structural evolution of Central Europe reflects contrasting tectonic regimes after the Variscan orogeny during Mesozoic – Cenozoic time. The brittle deformation related to each tectonic regime is localized mainly along major fault zones, creating complex fracture patterns and kinematics through time with diverging interpretations on the number and succession of the causing events. By contrast, fracture patterns in less deformed domains often provide a pristine structural inventory. We investigate the brittle deformation of a relatively stable, wide area of the central German platform using fault-slip data to identify the regional stress fields required to satisfy the data. In a non-classical approach, and in order to avoid local stress variations and misinterpretations, the fault-slip data are scaled up throughout the study area into subsets of consistent kinematics and chronology for sedimentary cover and crystalline basement rocks. Direct stress tensor inversion was