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# The formation and reactivation of long-lived basins and crustal scale faults, example of northern Europe

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Reactivation versus formation of structures at the scale of the crust and lithosphere is a popular and much studied topic. We analyse in this study the relative importance of existing major crustal-scale fault zones and crustal architecture in controlling basin formation vs. reactivation after the example of the South Permian Basin. In many instances reactivation can be studied along a single basin and fault orientation. The European South Permian Basin's many sub-basins fault groups are oriented at high angles of each other. These sub-basins and fault groups were active, reactivated and partly inverted in successive tectonic phases. The well documented sedimentary record of the South Permian Basin and its sub-basins allows for the comparison between basins and of each basin's history with the history of the crustal structuration. The combination of information from the sedimentary record with a new crustal domain map and a model for early Variscan extension yield new insights in the Cenozoic tectonic history of northern Europe and the long-term behaviour of its crust and lithosphere.