

## **The Uralian Orogen in Arctic Russia, and its Significance for Adjacent Hydrocarbon Basins**

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The overall cause of the Uralian Orogeny was the late Paleozoic collision of Euramerica (Laurussia) with Siberia and Kazakhstan, one of the final stages in the construction of Pangea. However, in the northern part of the orogen, there are significant differences in the timing, geometry and intensity of deformation along the collision zone, and lack of data has fuelled contradictory interpretations.

Deformed sediments of the former late Neoproterozoic through Paleozoic margin of Baltica are present in the Polar Urals and Novaya Zemlya, whereas deformed sediments from the age-equivalent margin of Siberia are exposed in southern/central Taimyr. The crustal affinities of northern Taimyr and Severnaya Zemlya remain controversial. Some authors have suggested that the north Kara region (comprising northern Taimyr, Severnaya Zemlya and the northern Kara Sea) was an independent crustal block, thus complicating the collisional history between Baltica and Siberia. More recent studies suggest that the north Kara region has been part of Baltica since at least early Paleozoic time.

Understanding the nature, extent and amalgamation history of different basement provinces is essential for understanding the initiation and development of sedimentary basins - of particular relevance in this region because the northern Uralian Orogen is surrounded and, in part, overlain by some of the most important proven and prospective hydrocarbon basins in the Arctic (Barents Sea, Timan-Pechora, West Siberia, Kara Sea, Laptev Sea). In some parts of the northern orogen, such as Novaya Zemlya, the main phase of compressional deformation occurred in Early Mesozoic time, considerably later than Uralian deformation elsewhere and significantly after the onset of subsidence in adjacent basins. This late deformation may therefore have had a significant influence on hydrocarbon systems. Furthermore, in the hinterland of the orogen there is temporal link between the cessation of compression, the onset of rifting in the West Siberian Basin and the eruption of the Siberian traps, the world's largest continental flood basalt province.

This study draws on the results of fieldwork in the Polar Urals, Novaya Zemlya, Taimyr and Severnaya Zemlya, a variety of analytical studies (sediment provenance analysis, isotopic dating, fission track studies) and regional geodynamic interpretation to synthesize the tectonic evolution of this important hydrocarbon region.