

Early Mesozoic Sinistral Transpression Along the Pai-Khoi – Novaya Zemlya Fold-and-Thrust Belt, Russia

Michael Curtis¹, Berta Lopez-Mir¹, James Howard¹, and Gloria Heilbronn¹

¹CASP, Cambridge, Cambridgeshire, United Kingdom.

ABSTRACT

The NW-SE trending Pai-Khoi fold-and-thrust belt (PKFB) links the Permian Uralian Orogen in the Polar Urals with the early Mesozoic fold belt on Novaya Zemlya. Analysis of regional-scale geological maps of the adjacent PKFB reveals large-scale structural relationships indicative of sinistral shear along the fold-and-thrust belt, including the presence of left-stepping en-echelon folds within the Kara Shale Allochthon. This interpretation is corroborated by field studies of the allochthon bounding Main Pai-Khoi Thrust which exhibits a consistent oblique tectonic stretching lineation, and recent observations of abundant sinistral strike-slip faulting within NW Pai-Khoi. It is proposed, therefore, that the PKFB is best described as a zone of sinistral inclined transpression. The structural relationships documented within Pai-Khoi are highly informative for interpreting structural lineaments identified in southernmost Novaya Zemlya, suggesting both areas form part of an approximately 500 km long belt of sinistral transpression. These conclusions have important implications for the tectonic evolution of the Arctic Uralides, the South Kara Sea, and potential sediment pathways during the Permian and Triassic.