

Detachment Faulting, Successive Incision and Controls on Supra-detachment Basin Formation at the Mid-Norwegian Rifted Margin

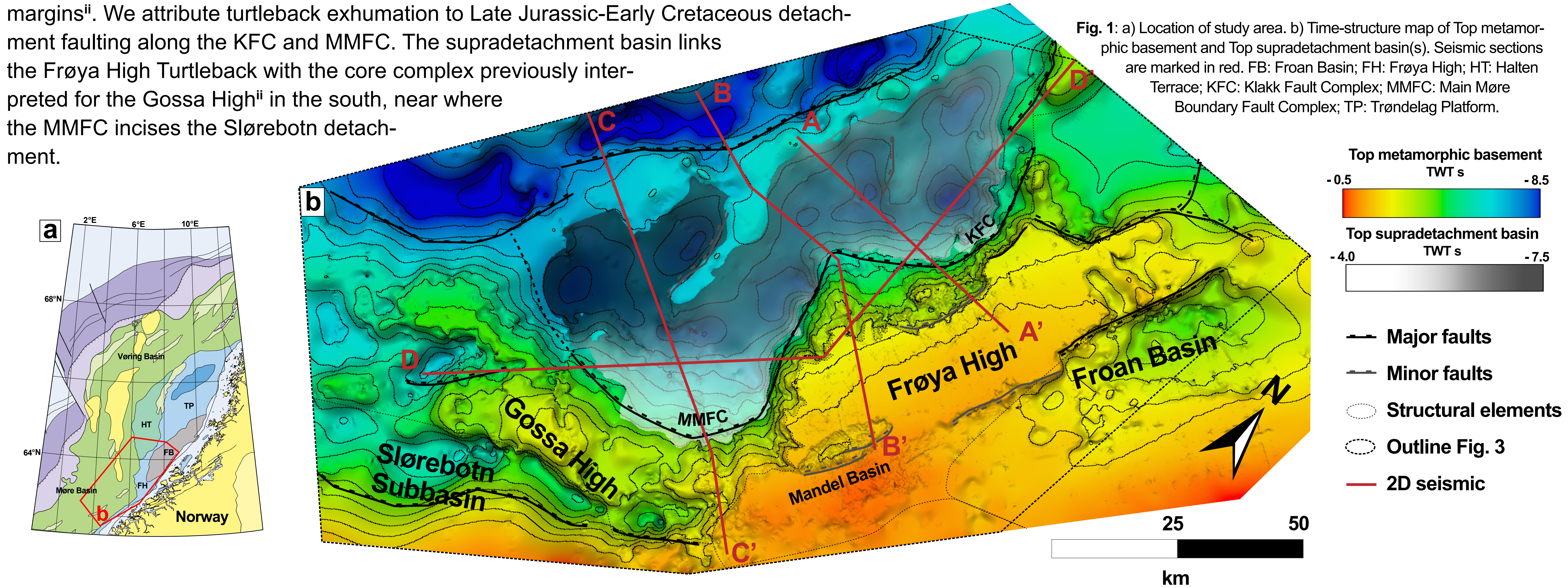
‘The Frøya High Turtleback’

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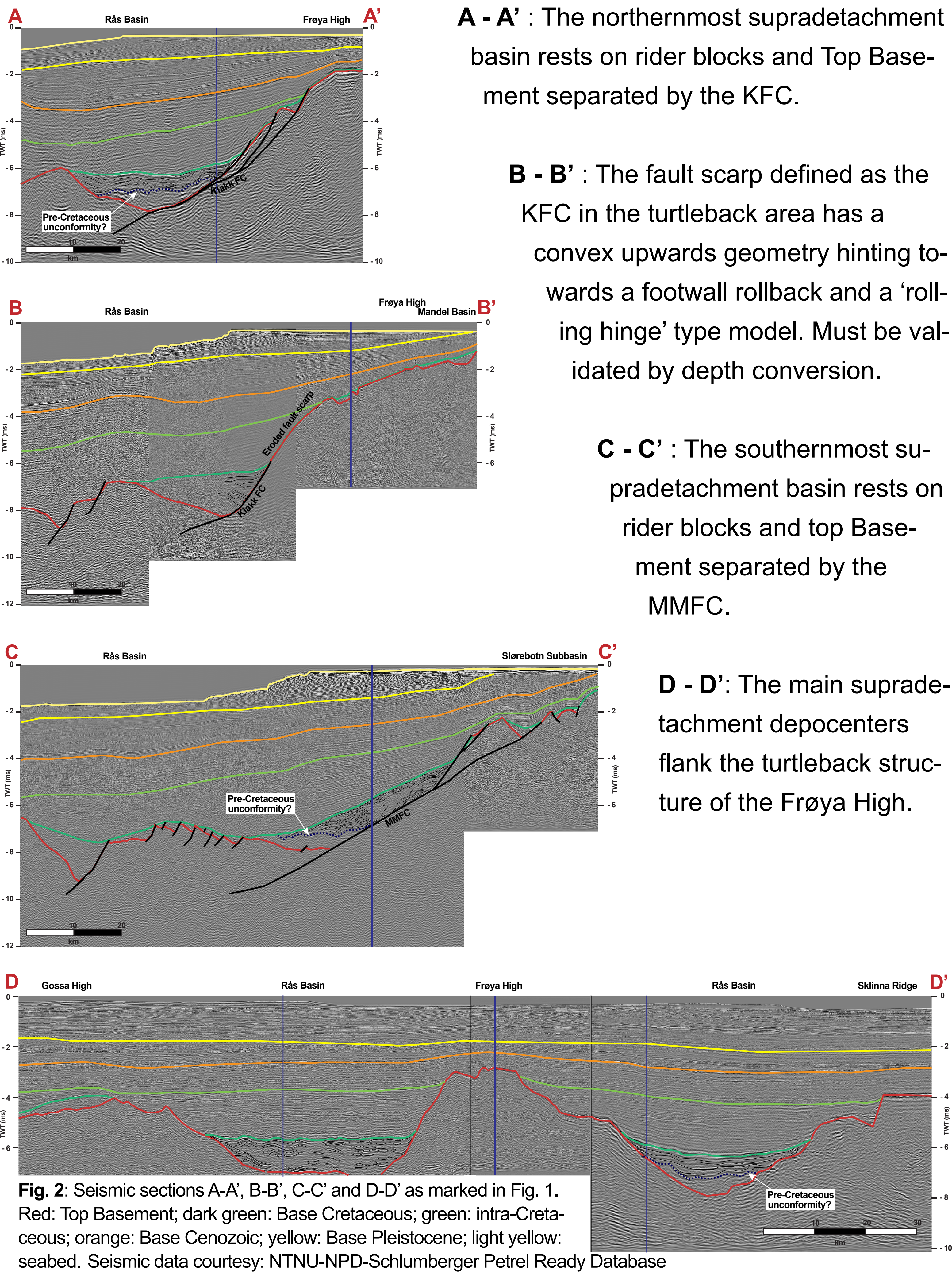
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Our research

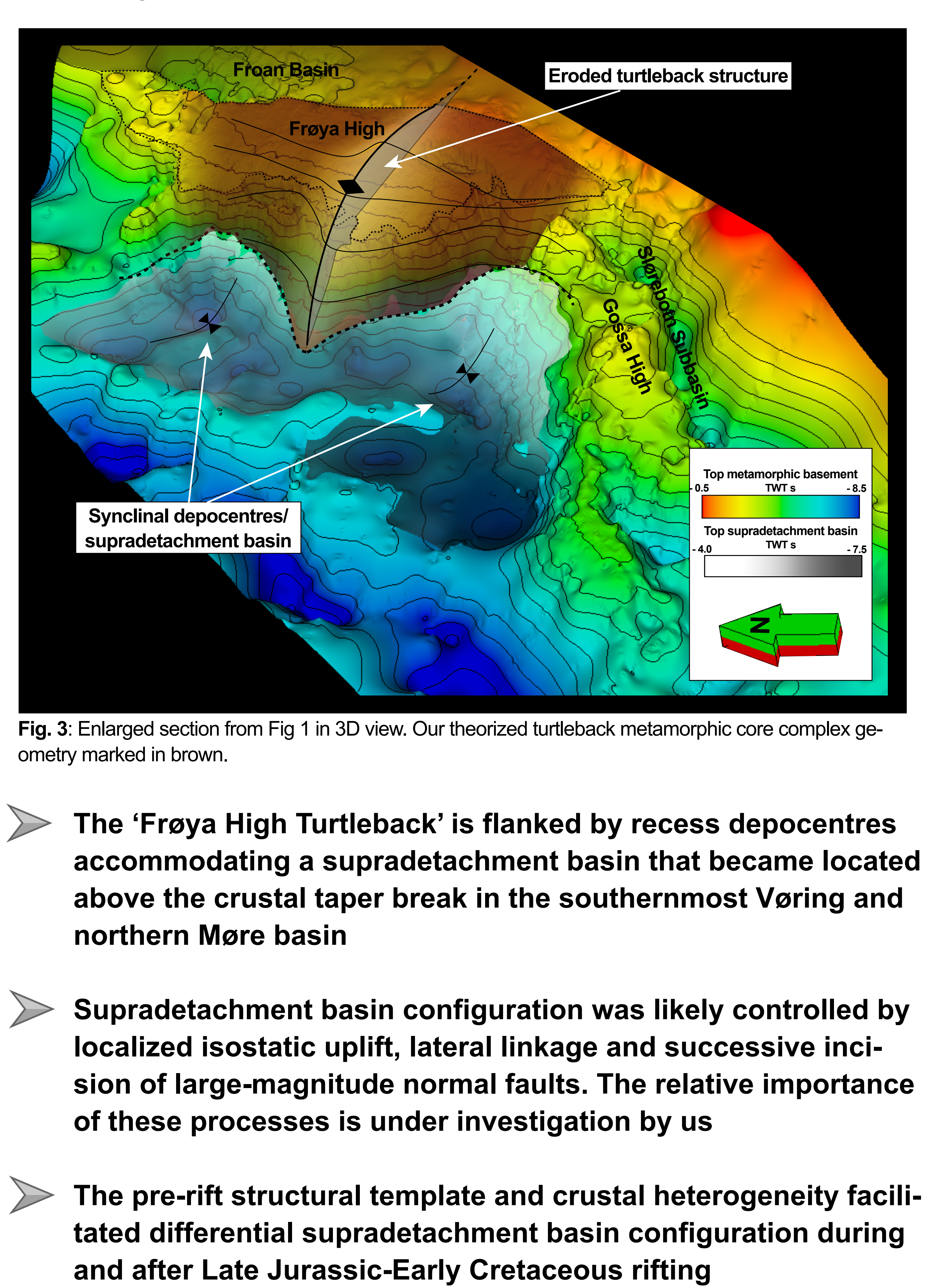
Detachment fault systems that record displacements in the order of 10s to 100s of km are poorly understood compared smaller faults. We investigate the Mid-Norwegian rifted margin through the interpretation of 2D and 3D seismic reflection data (Figs. 1 and 2), where the Klakk and Main Møre Fault Complexes (KFC and MMFC) form the outer necking breakaway complex and the western boundary of the Frøya High. The central Frøya High contains a remnant of a metamorphic core complexⁱ, which we recognize as an extension parallel turtleback-structure (Fig. 3). The turtleback is flanked by a supradetachment basin, whos location corresponds to the crustal taper break associated with the outer necking domain of rifted marginsⁱⁱ. We attribute turtleback exhumation to Late Jurassic-Early Cretaceous detach-ment faulting along the KFC and MMFC. The supradetachment basin links the Frøya High Turtleback with the core complex previously inter- preted for the Gossa Highⁱⁱ in the south, near where the MMFC incises the Slørebotn detach- ment.



Seismic sections



Preliminary conclusions



References

ⁱ Muñoz-Barrera, J. M., Rotevatn, A., Gawthorpe, R. L., Henstra, G. A. & Kristiansen, T. B. (2020) The role of structural inheritance in the development of high-displacement crustal faults in the necking domain of rifted margins: The Klakk Fault Complex, Frøya High, offshore mid-Norway. *Journal of Structural Geology*, 140.

ⁱⁱ Osmundsen, P. T. & Péron-Pinvidic, G. (2018) Crustal-Scale Fault Interaction at Rifted Margins and the Formation of Domain-Bounding Breakaway Complexes: Insights from Offshore Norway. *Tectonics*, 37, 935-964.

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