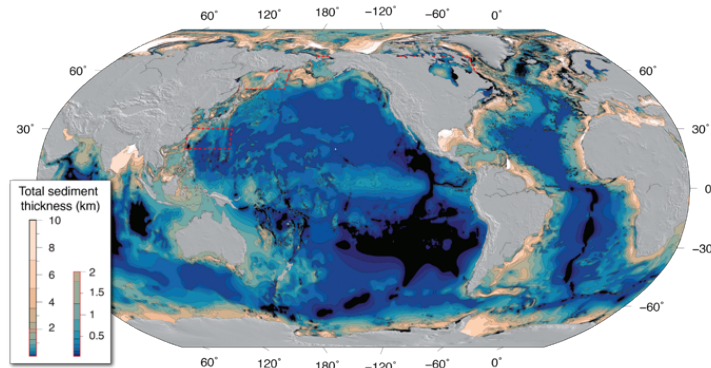


# How can syn-rift sedimentation impact the formation of hyperextended margins?

Susanne Buitter (Tectonics and Geodynamics, RWTH Aachen University, Germany, and Geological Survey of Norway, Trondheim, Norway)

Many rifted margins are associated with large amounts of offshore sediments.

GlobSed by Straume et al. (Gcubed, 2019) <https://www.ngdc.noaa.gov/mgg/sedthick/>

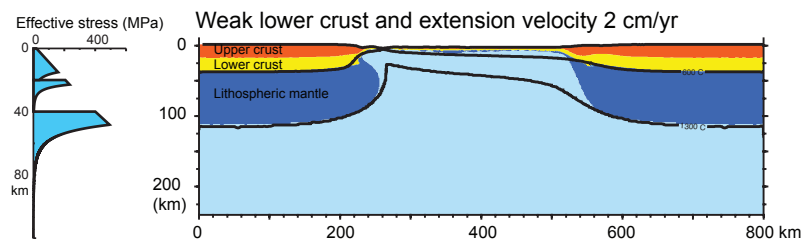
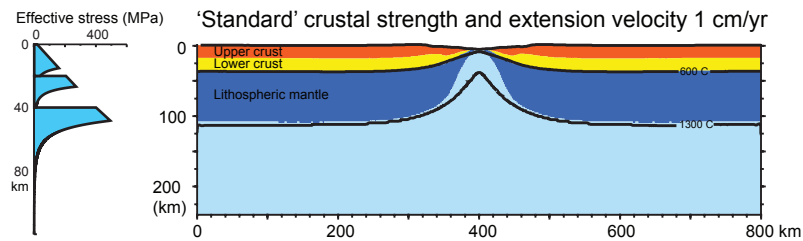


What are the possible effects of sedimentation on rifted margins?

- Isostatic response
- Induced flow of viscous layers
- Changes in vertical stress and therefore brittle strength
- Replacement of crust by mechanically weaker sediments
- Thermal blanketing

Which effects could play a controlling role on margin width?

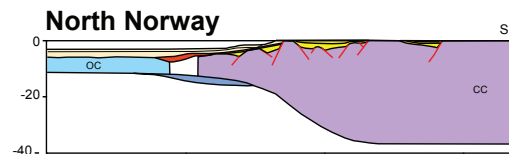
Numerical experiments show how a weak lower crust favours the formation of wide rifted margins. How do surface processes play into this? What is the interplay of sedimentation with crustal rheology?



Experiments with SULEC by Susanne Buitter

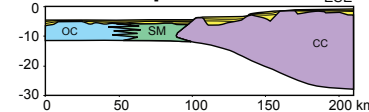
Can syn-rift sedimentation promote the formation of wide rifted margins?

## Narrow margin/Sediment poor



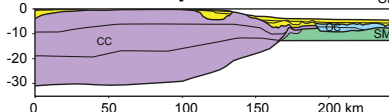
Faleide et al. (Episodes, 2008)

## Goban Spur



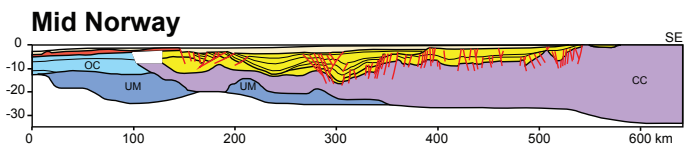
Horsefield et al. (GJI, 1993)

## Flemish Cap



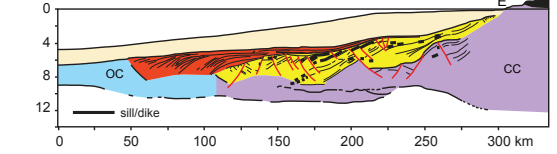
Funck et al. (JGR, 2003)

## Wide margin/Sediment rich



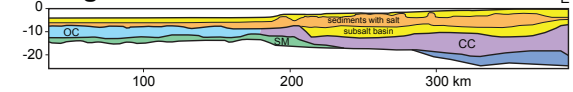
Faleide et al. (Episodes, 2008)

## North Namibia



Gladchenko et al. (J. Geol. Soc., 1997)

## Angola



Contrucci et al. (GJI, 2004)