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Outstanding Student & PhD candidate Presentation contest

New insights into the brittle evolution along the passive continental margin of Western Norway from **U-Pb calcite dating**

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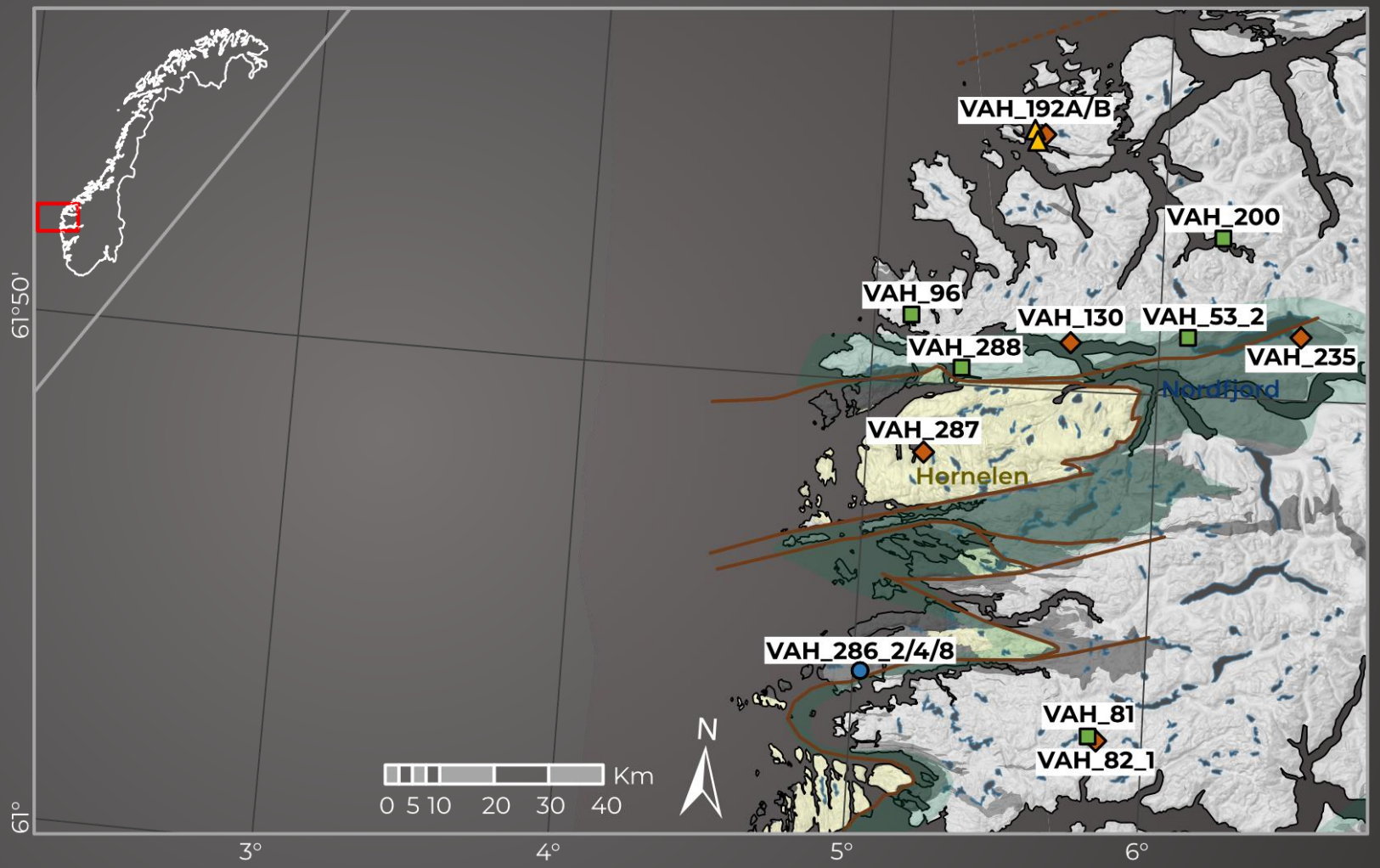
Aim

- What processes control the increased sediment influx offshore in Late Cretaceous and Palaeocene?
- Can we, by the help of U-Pb calcite geochronology, detect late tectonic events?

Samples from Western Norway



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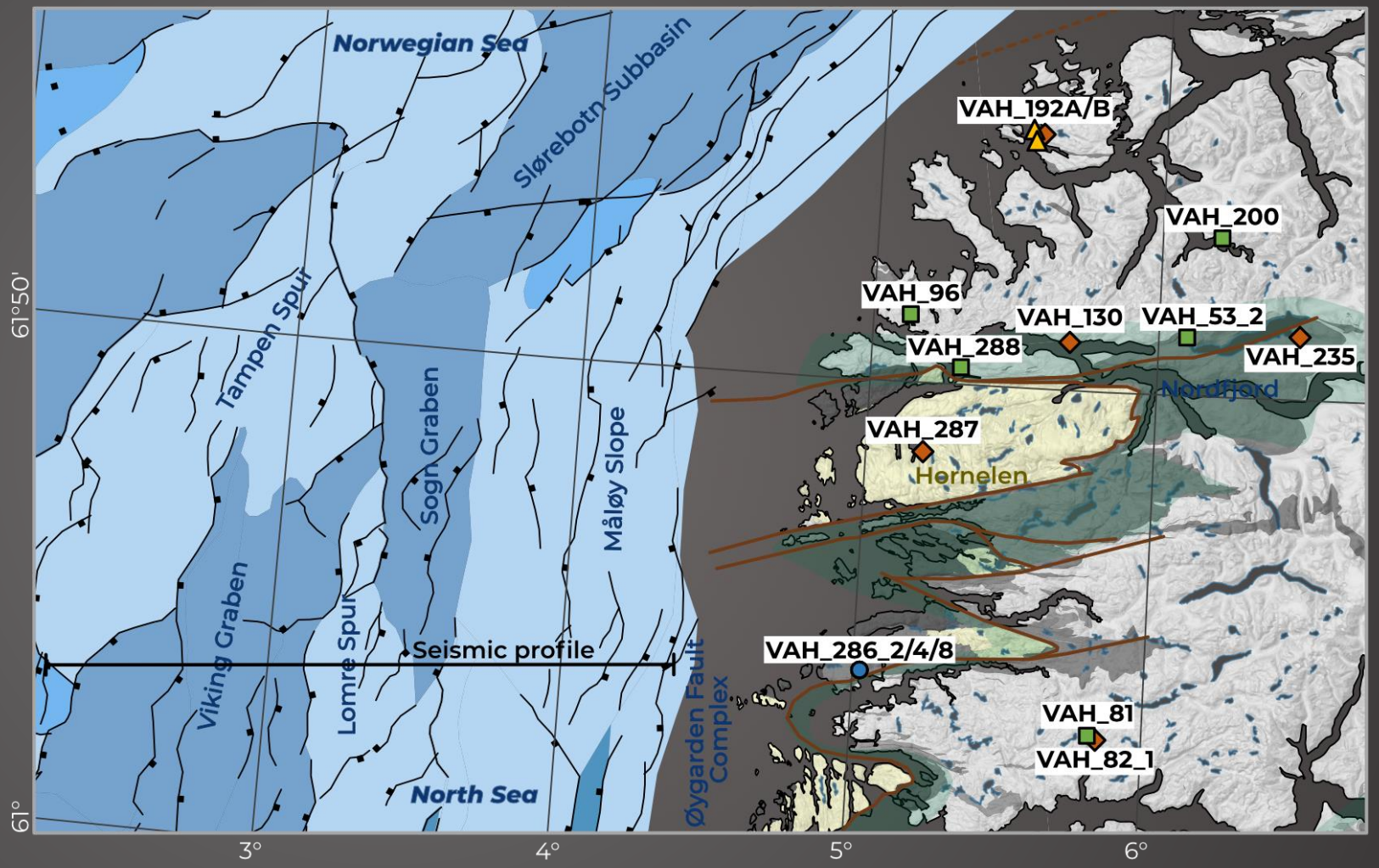
Calcites group into four

1.
Dalsfjord fault
n = 3

2.
~80-90 Ma
n = 2

3.
~60-70 Ma
n = 5

4.
< 50 Ma
n = 5



Cretaceous High
Platform
Terraces and Intra-Basinal Elevations
Deep Cretaceous Basin
Offshore Structures

Devonian sedimentary basin
Upper nappe series
Middle nappe series
Lower nappe series
Western Gneiss Region (WGR)

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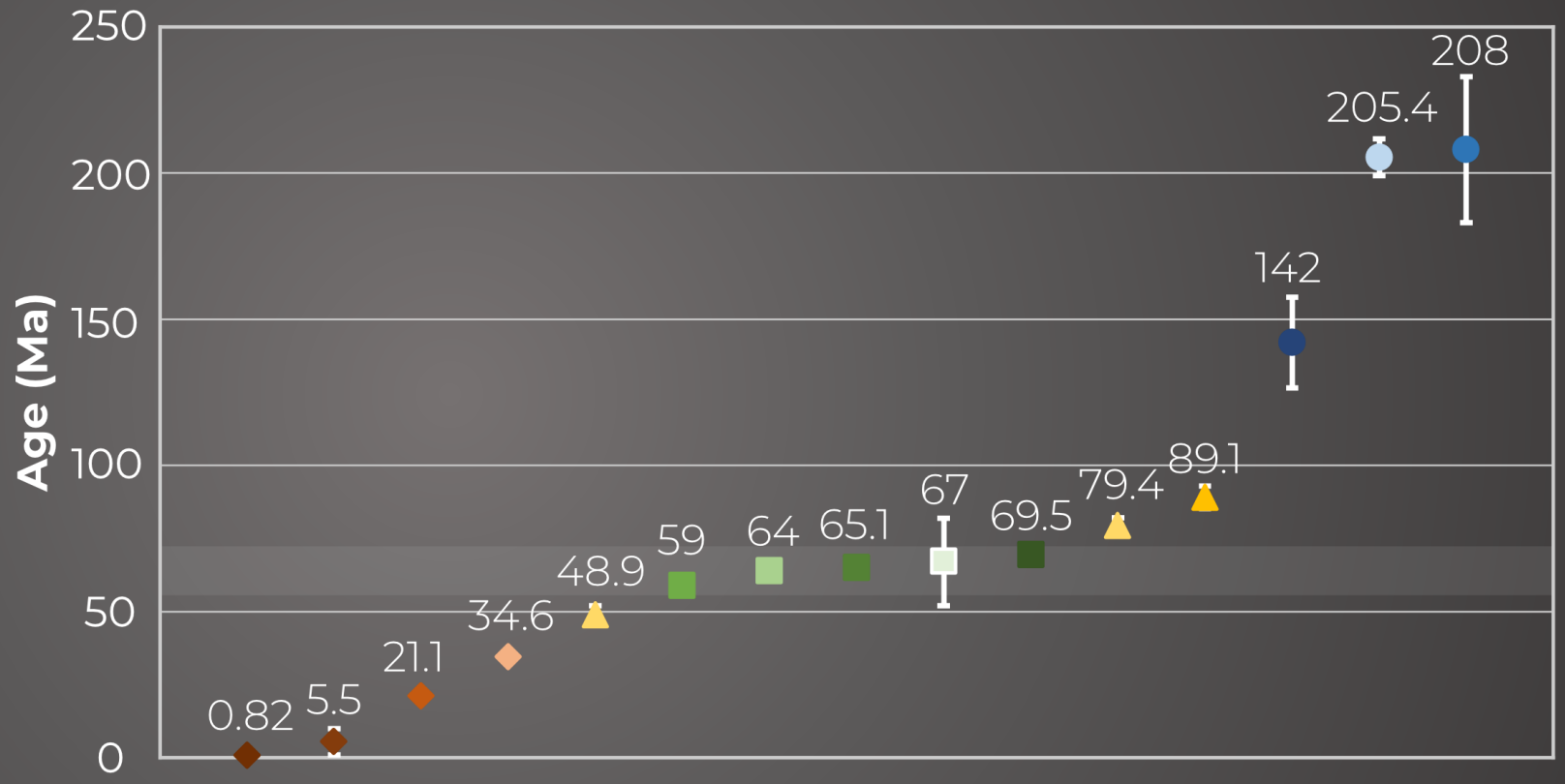
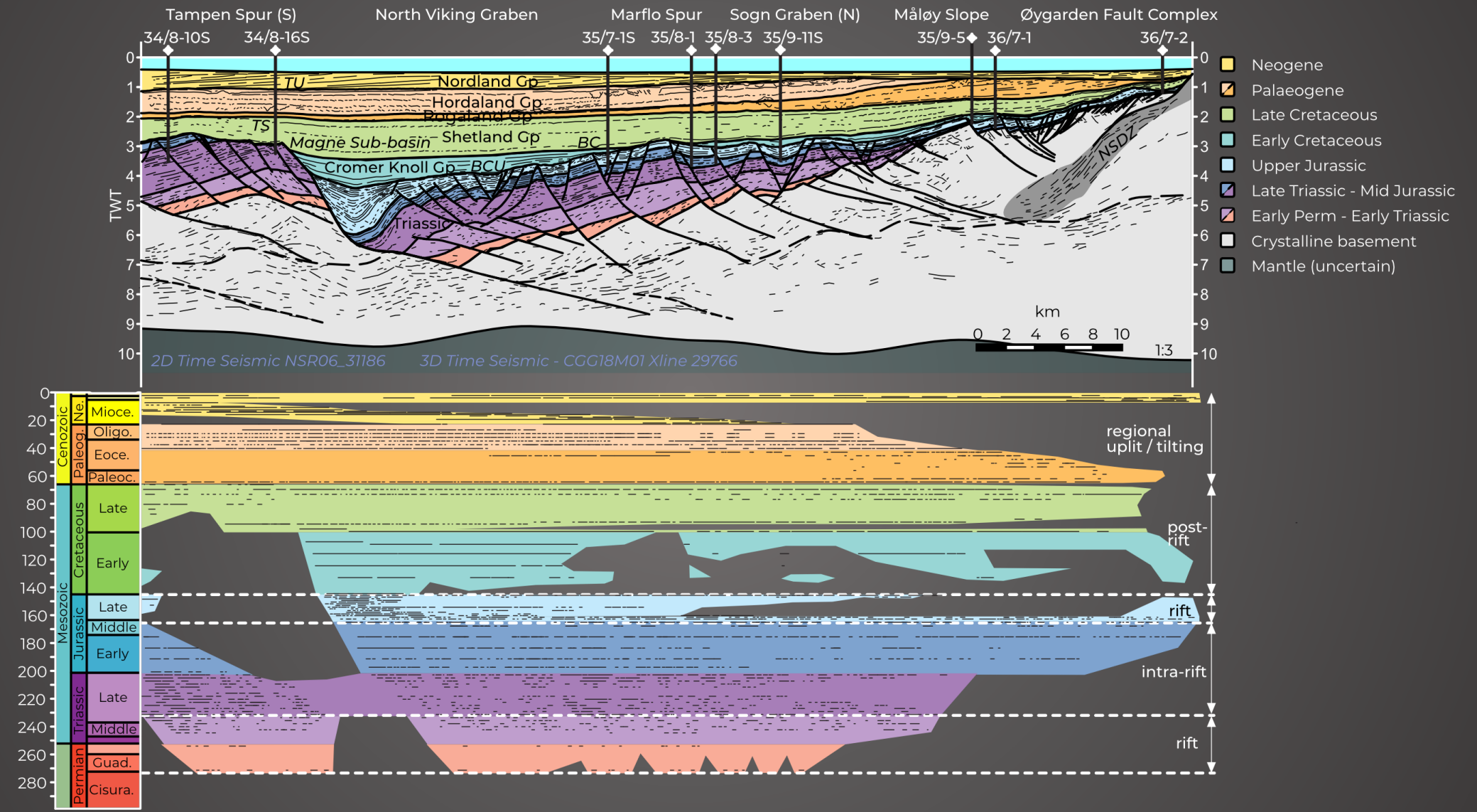


Main event around 70-60 Ma



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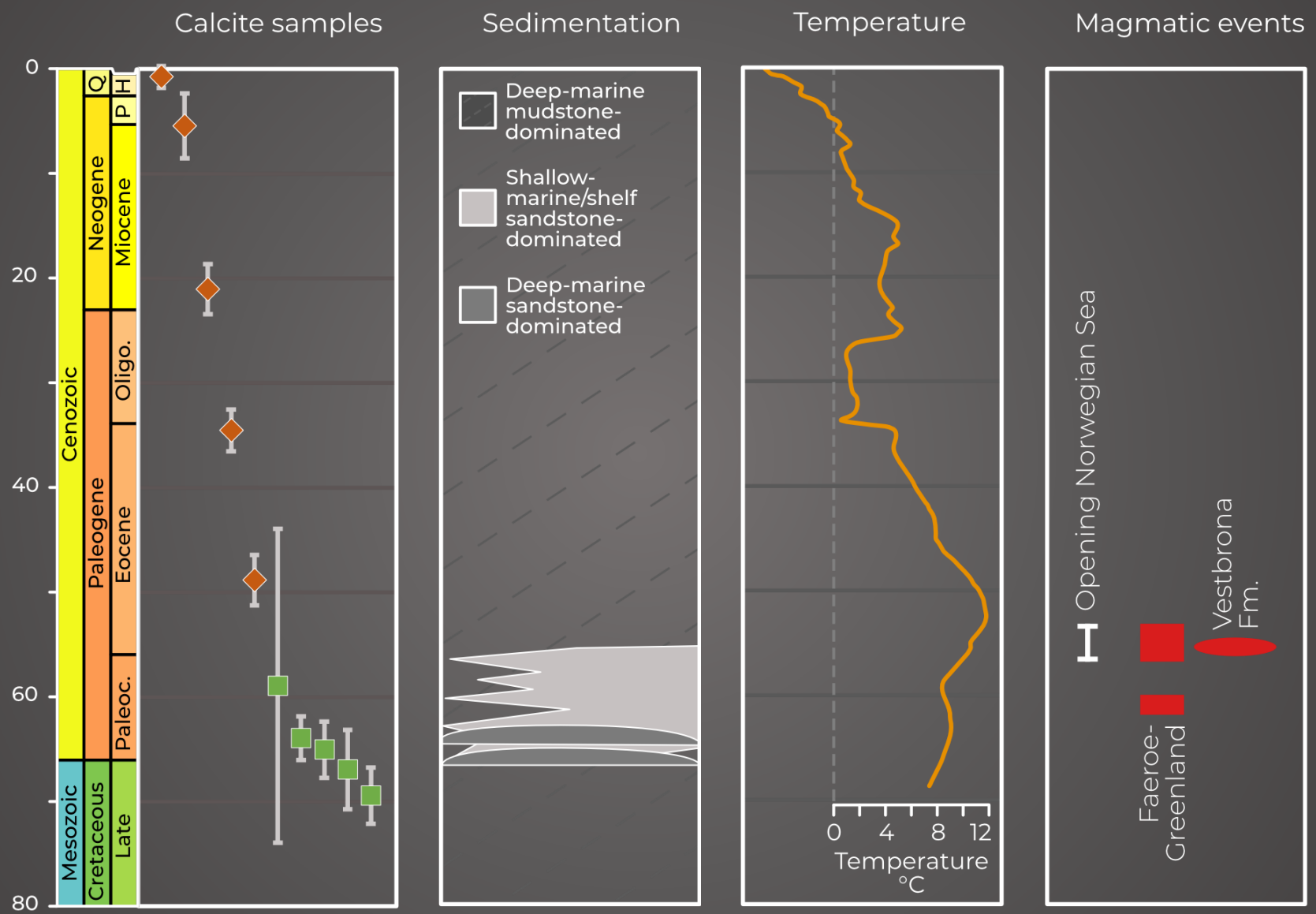
The Mesozoic-Cenozoic boundary



Sømme et al. 2013

Zachos et al., 2001

Bugge et al., 1980; Knox and Morton, 1988

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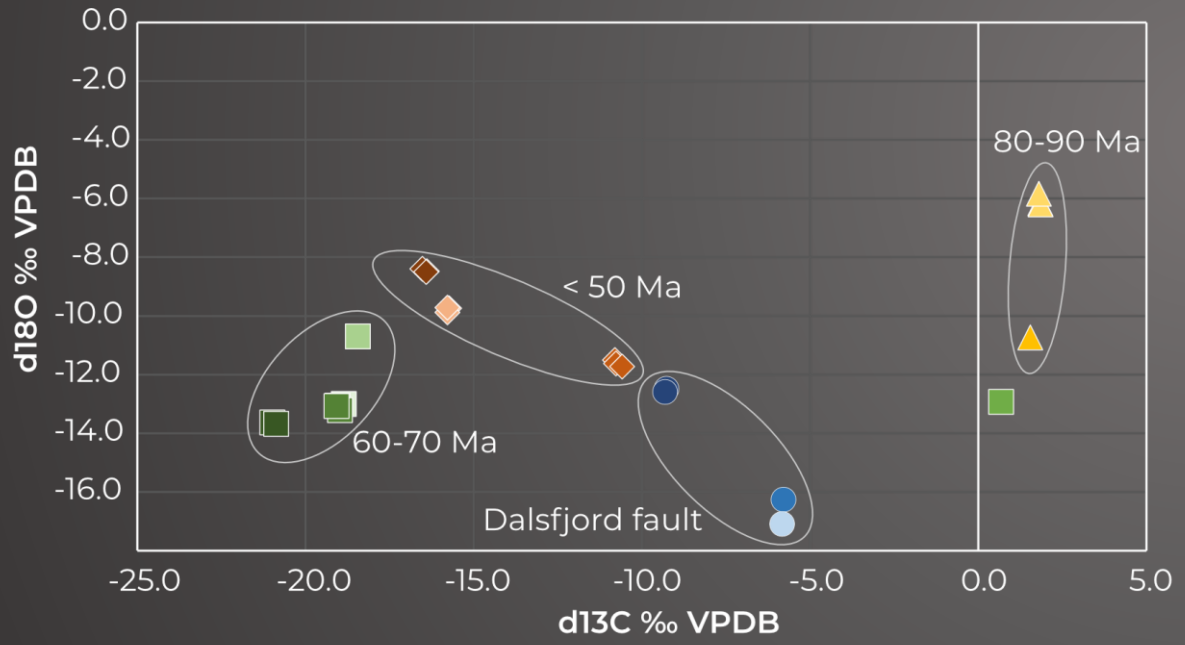
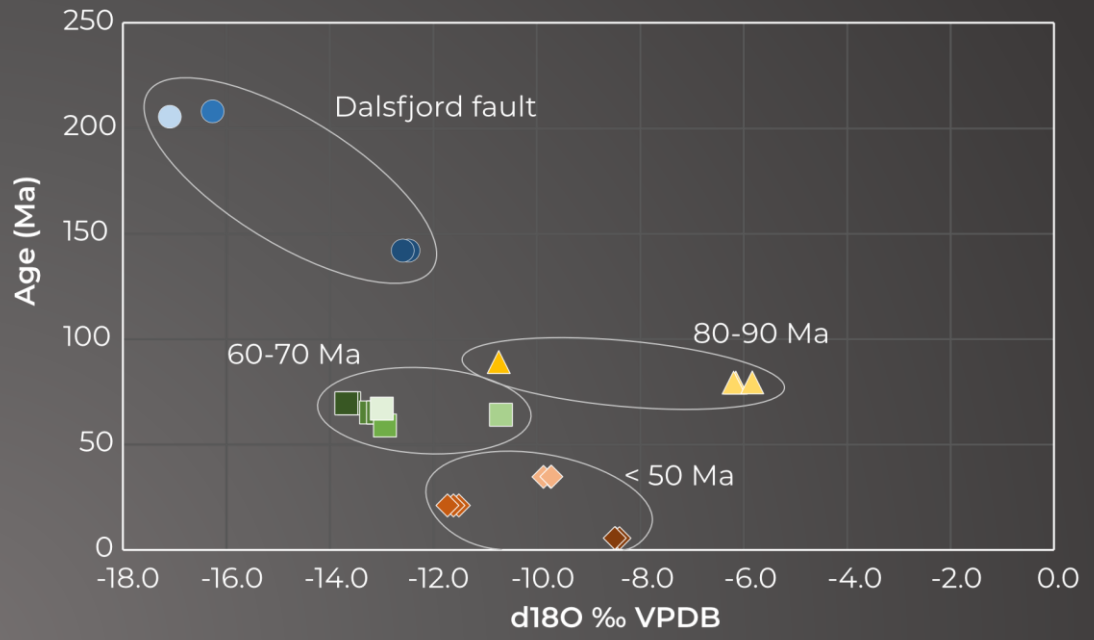
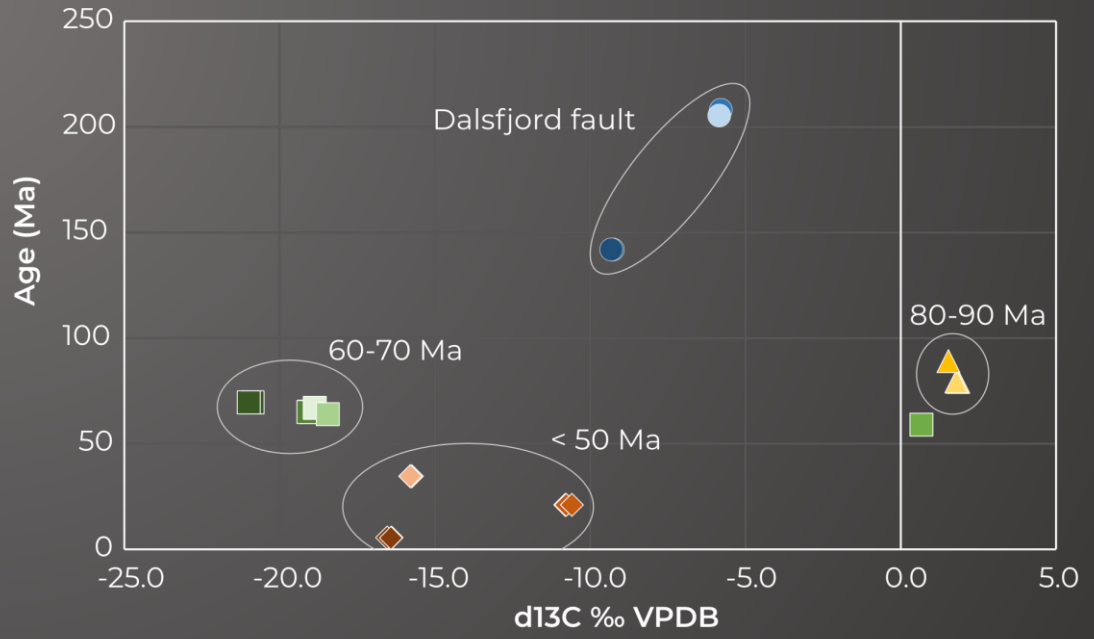
Stable isotopes

- d18O ‰ values could resemble fresh water or metamorphic/diagenetic waters
- d13C ‰ values show similar values as organic (or magmatic) material







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Conclusion

- An event caused regional fluid circulation around 60-70 Ma
- A period known for increased sediment input offshore, magmatic processes and warmer climate
- From 50 Ma until recent we find fluid circulations along NE-SW trending fractures
- Please feel free to approach me to discuss these data

Thank you!