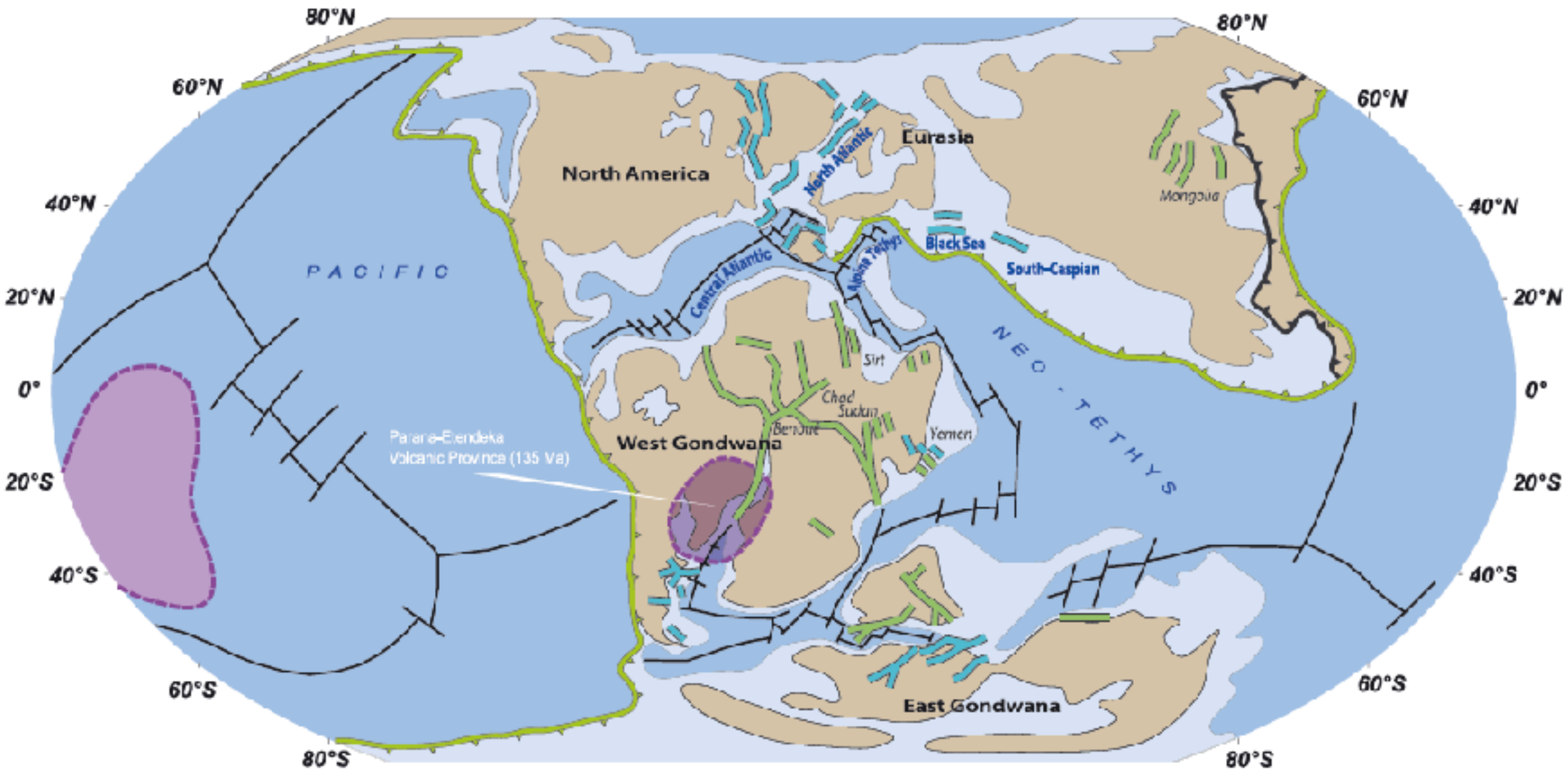
Paper plan: Dispersal of the Pangea supercontinent, associated magmatism and its relationship with proposed ‘hot-spots’



Alex Peace; Dieter Franke; Jordan Phethean; Gillian Foulger; Nick Kusznir, Tony Dore, Christian Schiffer; Sergio Rocchi; Gregory McHone; Kim Welford; Michel Schnabel et al…

Paper aims and approach

- The aim of this paper is to review the spatial-temporal dispersion of Pangea/ Gondwana and consider its relationship with proposed hotspots.

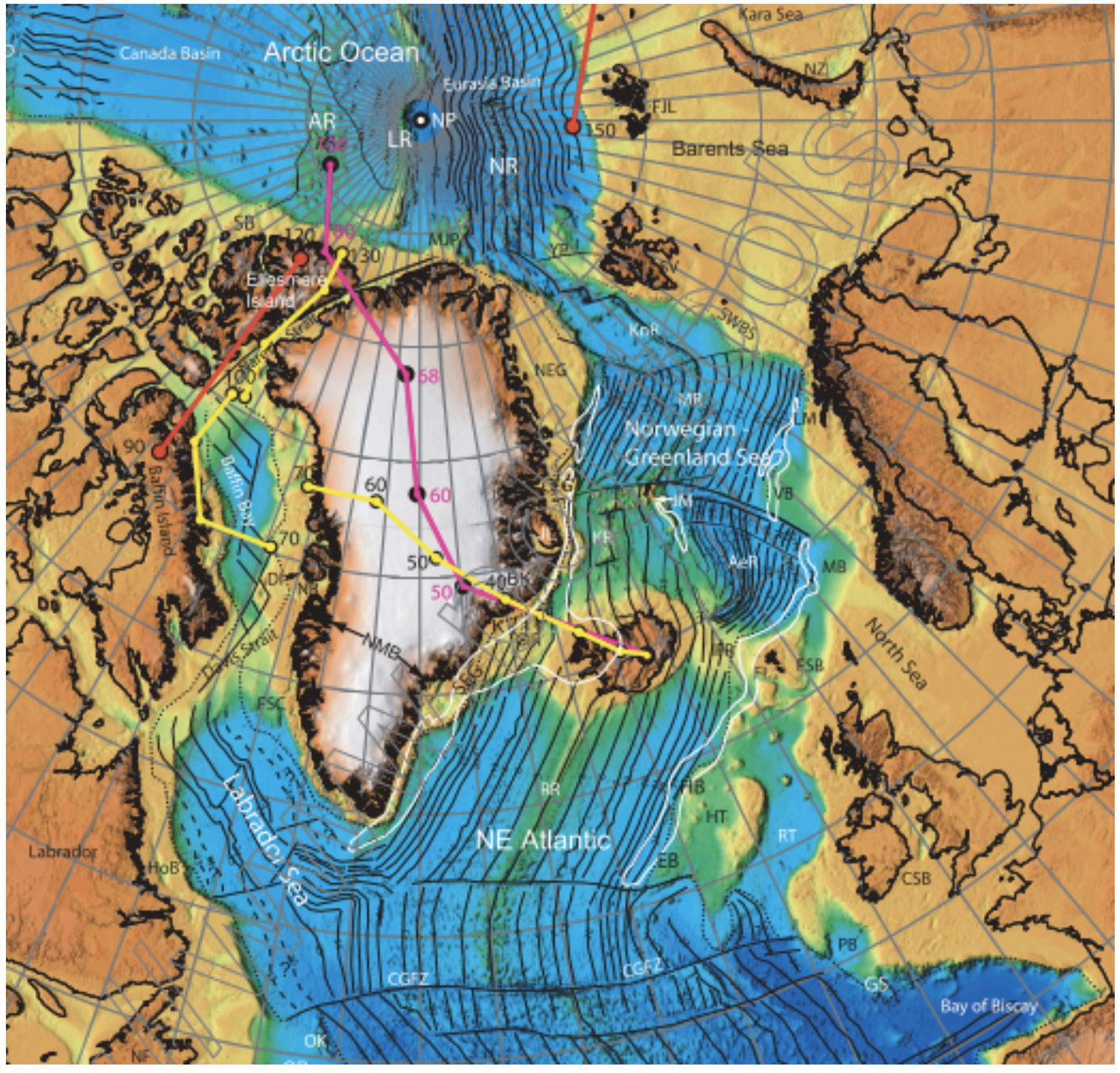
- Our intention is to achieve this by systematically reviewing distinct regions within the disintegrating supercontinent.

- These sections are being/to be written by different invited contributors.

- In doing this we are able to show that a simple relationship between the locations of proposed plumes, rifts and magmatism does not exist.

- This builds on previous work that has also questioned the simple supercontinent-plume relationship (e.g., Beutel et al. 2005)

- Finally, the paper will propose that plate-tectonics processes primarily drove the dispersal of Pangea



Lundin & Doré (2005; GSA SP)

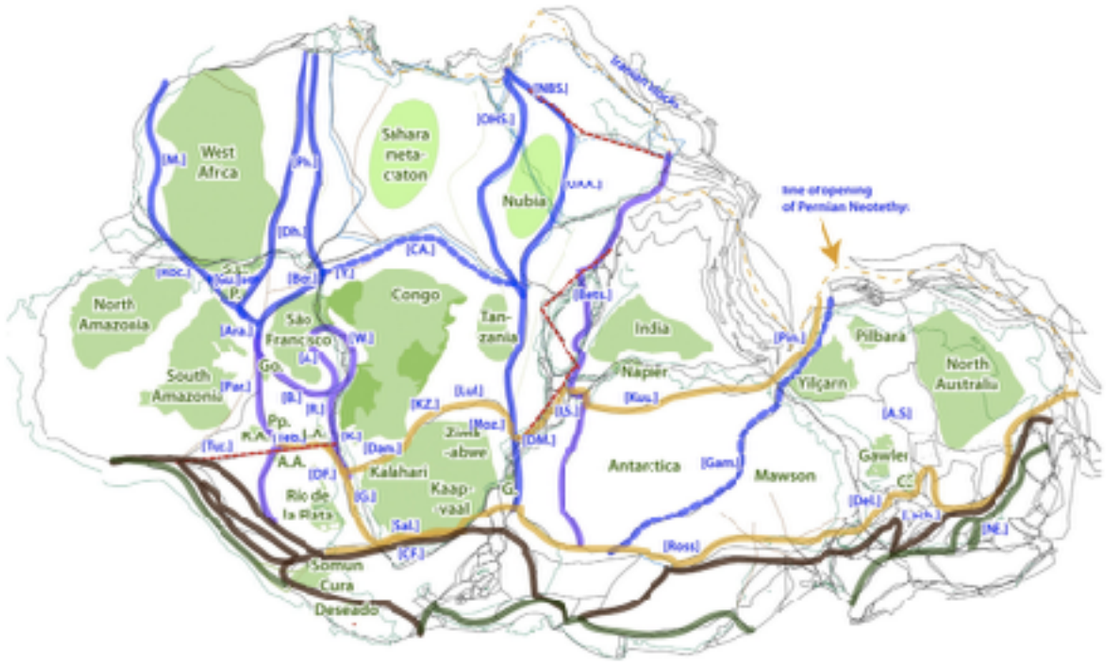
Introduction - The assembly and dispersal of Pangea

- Not intended to be an in depth review - this has been covered sufficiently by many previous reviews (e.g. Stampfli et al., 2013),

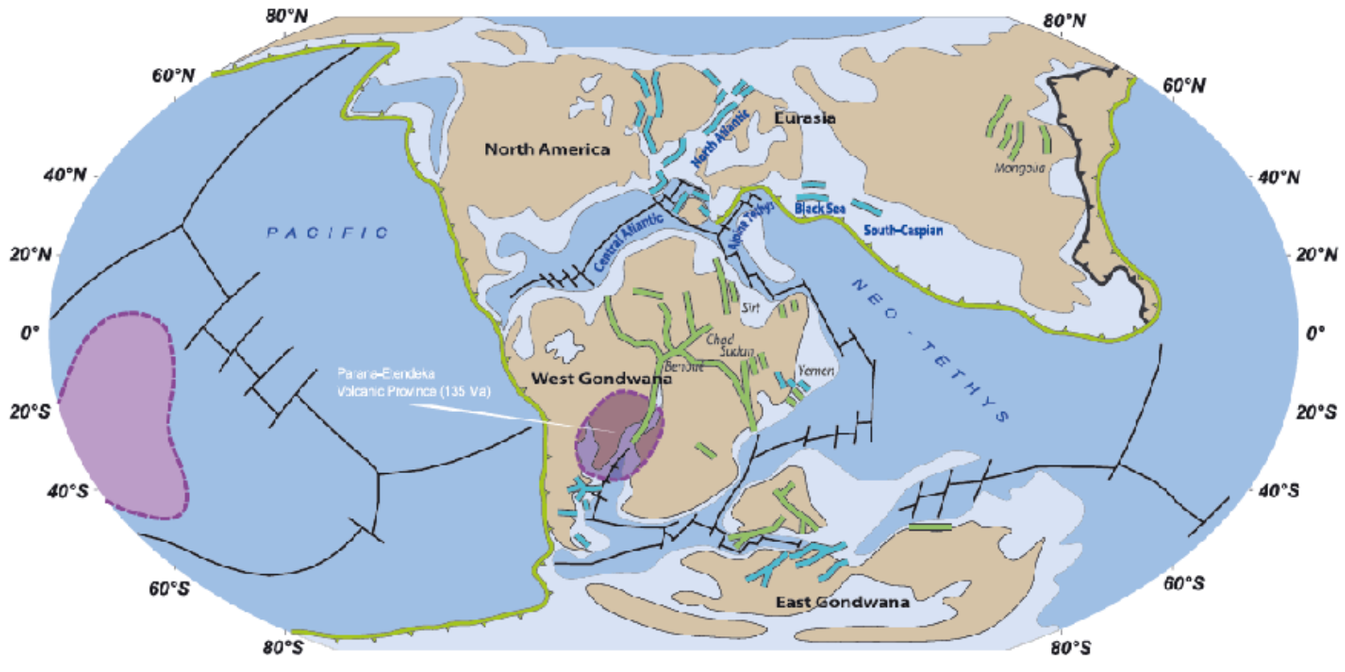
- Currently seeking an author for this section…

- … or maybe we don't actually require this section?

- However, understanding the assembly of Pangea is essential if invoking plate processes such as inheritance in the breakup



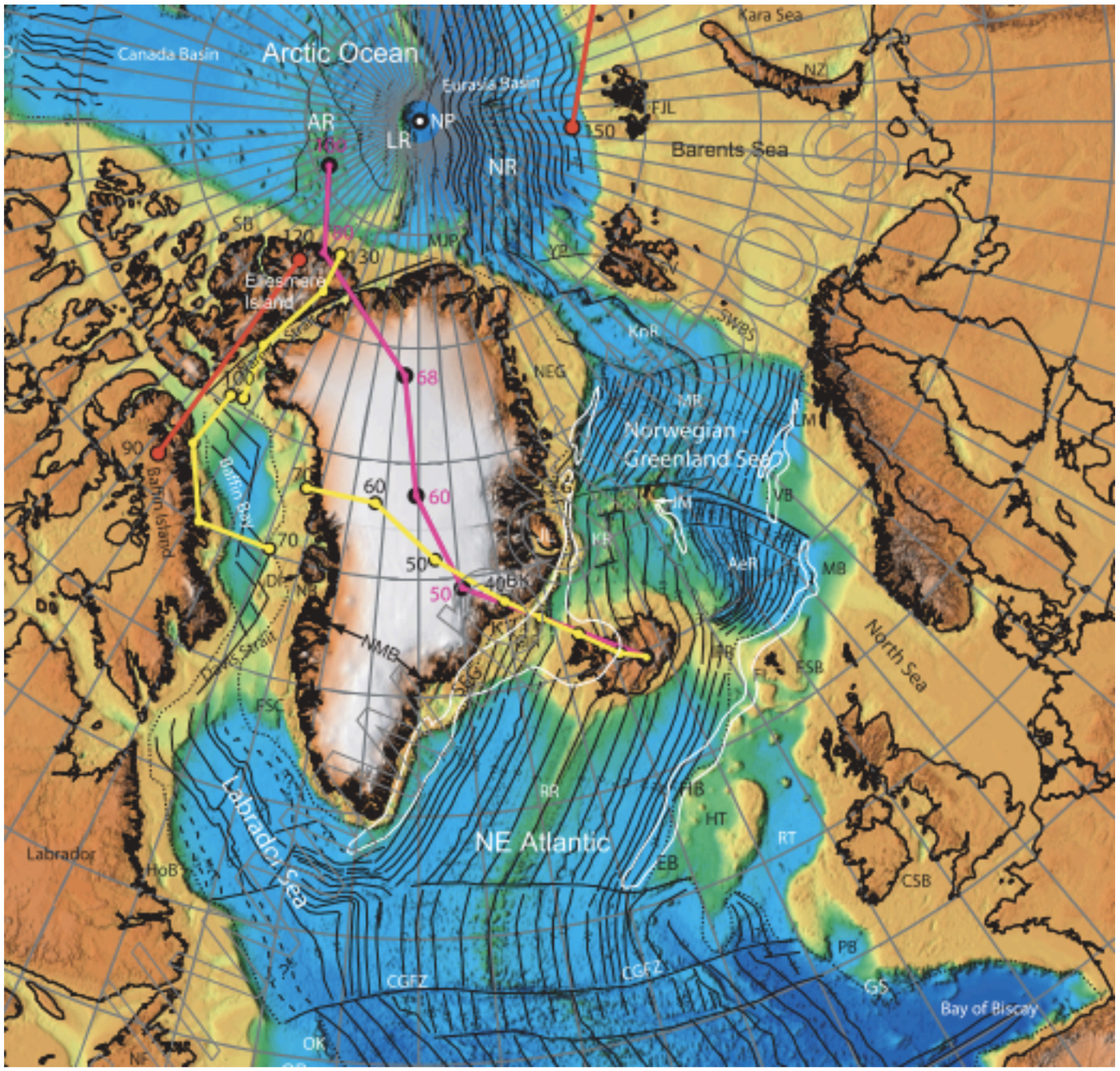
Gondwana reconstruction from Stampfli et al. (2013; Tectonophysics)



120 Ma from Frizon De Lamotte et al. (2015; Tectonics)

Introduction - Proposed ‘hot-spots’ in proximity to the disintegrating supercontinent

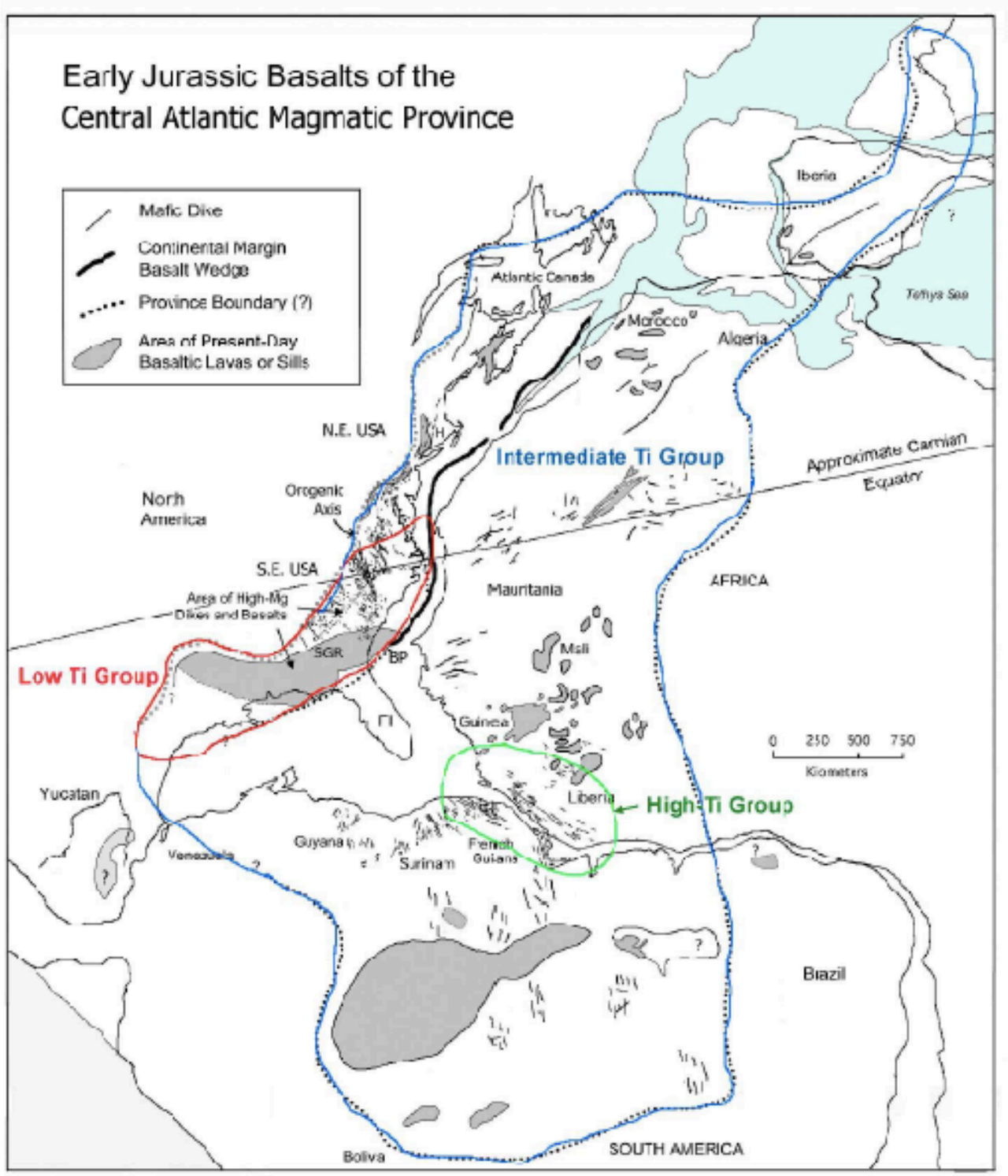
- Do we need the section?
- Or will this be sufficiently covered in the ‘regional sections’?
- If we include this section we are currently seeking an author…



Lundin & Doré (2005; GSA SP)

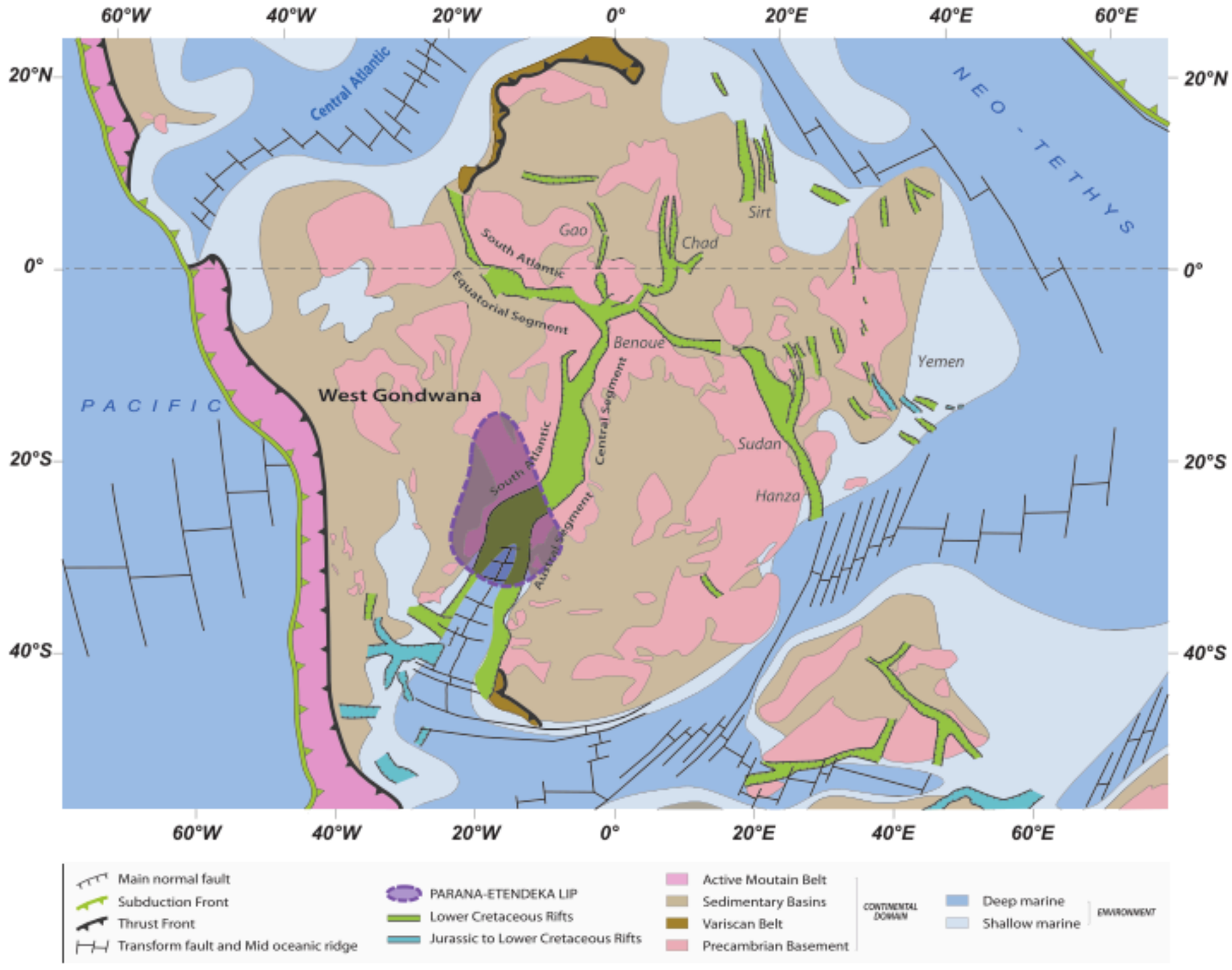
CAMP and The opening of the Central Atlantic - Gregory McHone/Michel Schnabel

- GM has provided us with a comprehensive overview of CAMP:
  - Geography
  - Basalt groups
  - Ages
  - Relationship with rifting
  - Mantle origins
- Timing of rifting and magmatism Kinematics of the central Atlantic rift still needs to be written/developed more but we how have MS for this section



The opening of the South Atlantic - Dieter Franke

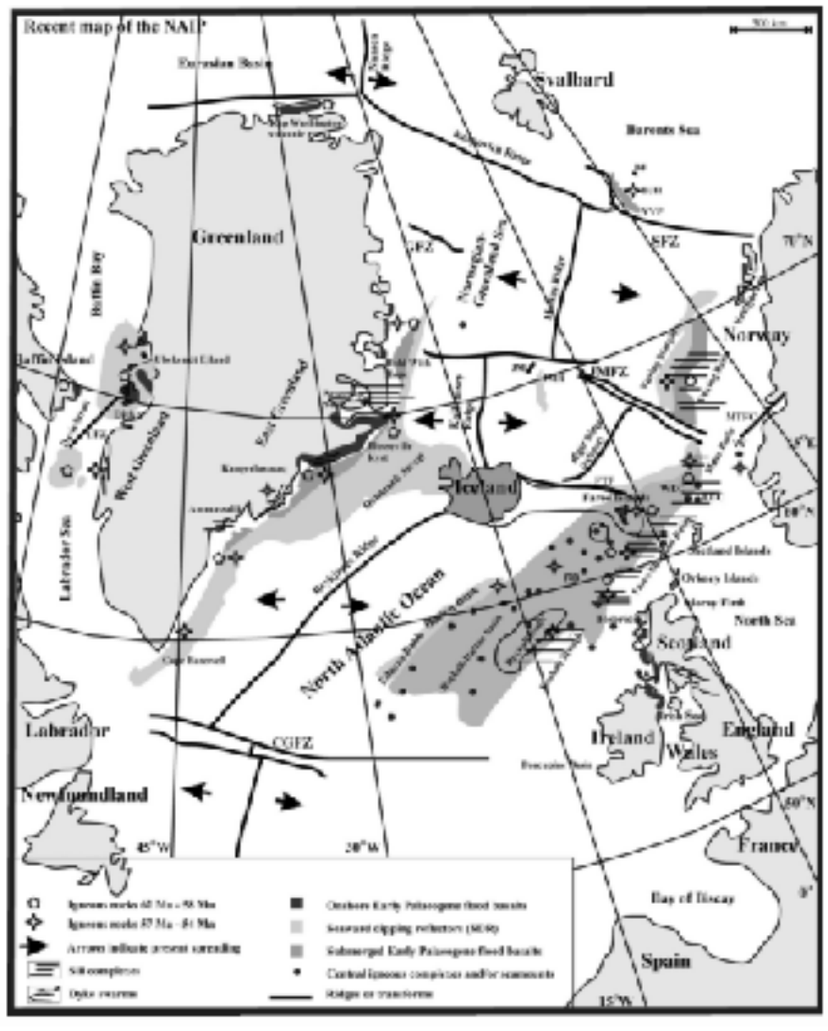
- Rifting and magmatism
- Timing of rifting and magmatism
- Kinematics of the South Atlantic rift



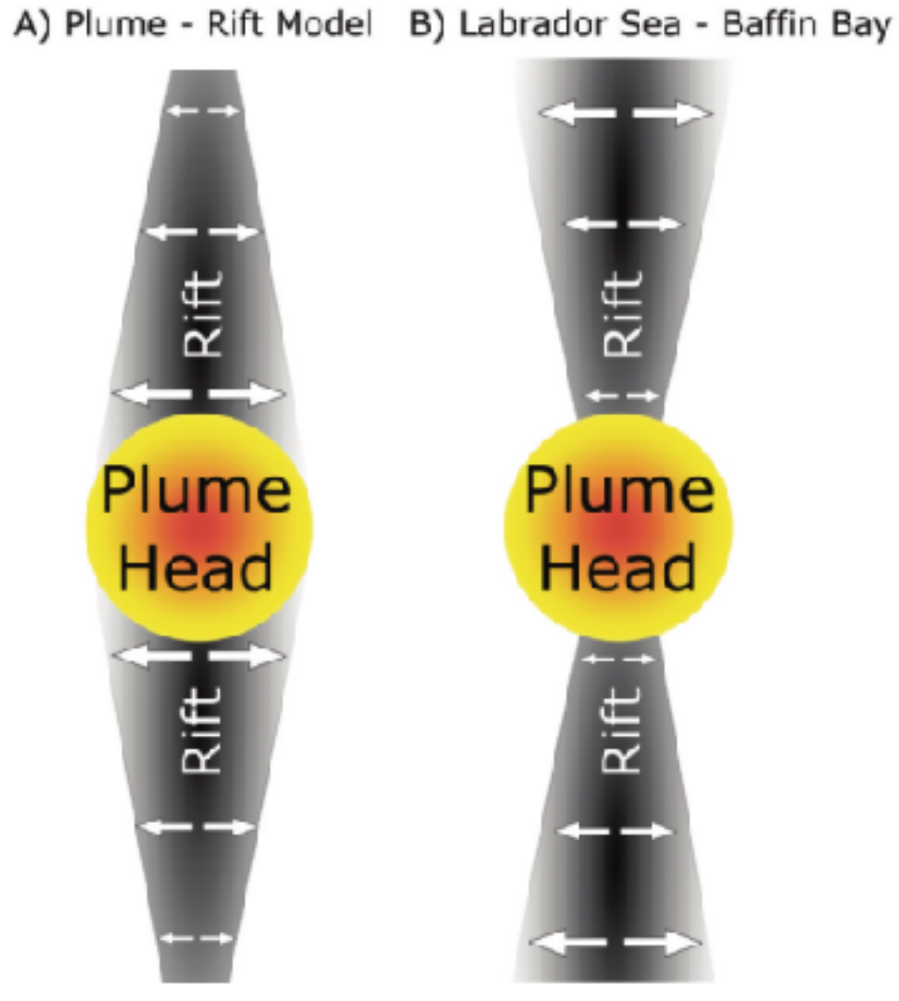
Gondwana breakup at 120 Ma from Frizon De Lamotte et al. (2015; Tectonics)

The opening of the NE Atlantic, Labrador Sea and Baffin Bay - Alex Peace

- Review of rifting and breakup history
- Review of rift related magmatism and NAIP
- Timing of magmatism
- Implications for breakup mechanisms
- LS-BB in Same section as the NE Atlantic?



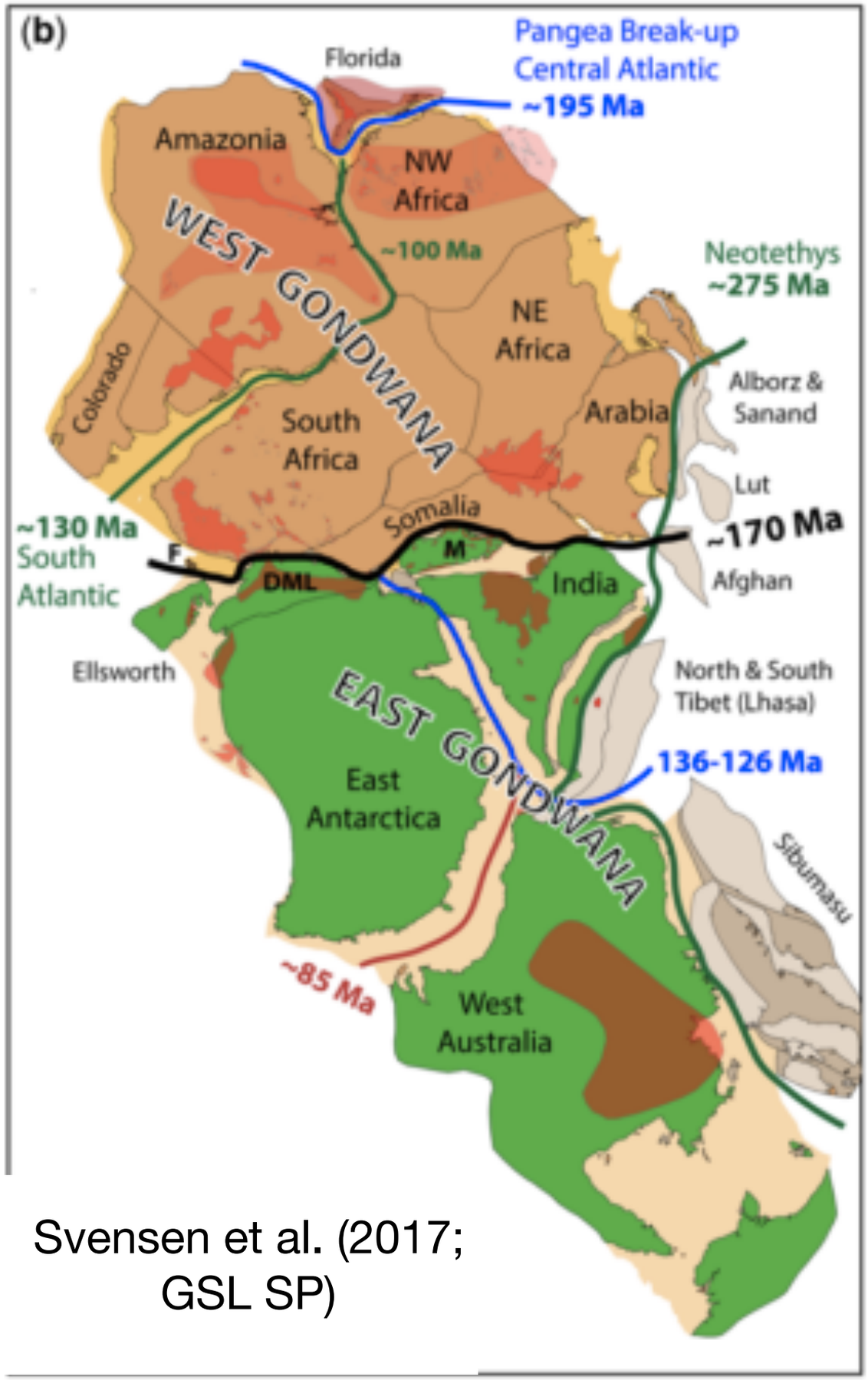
Hansen et et al. (2009; Geological Magazine)



Peace et al. (2017; Geoscience Canada)

Other regional sections…

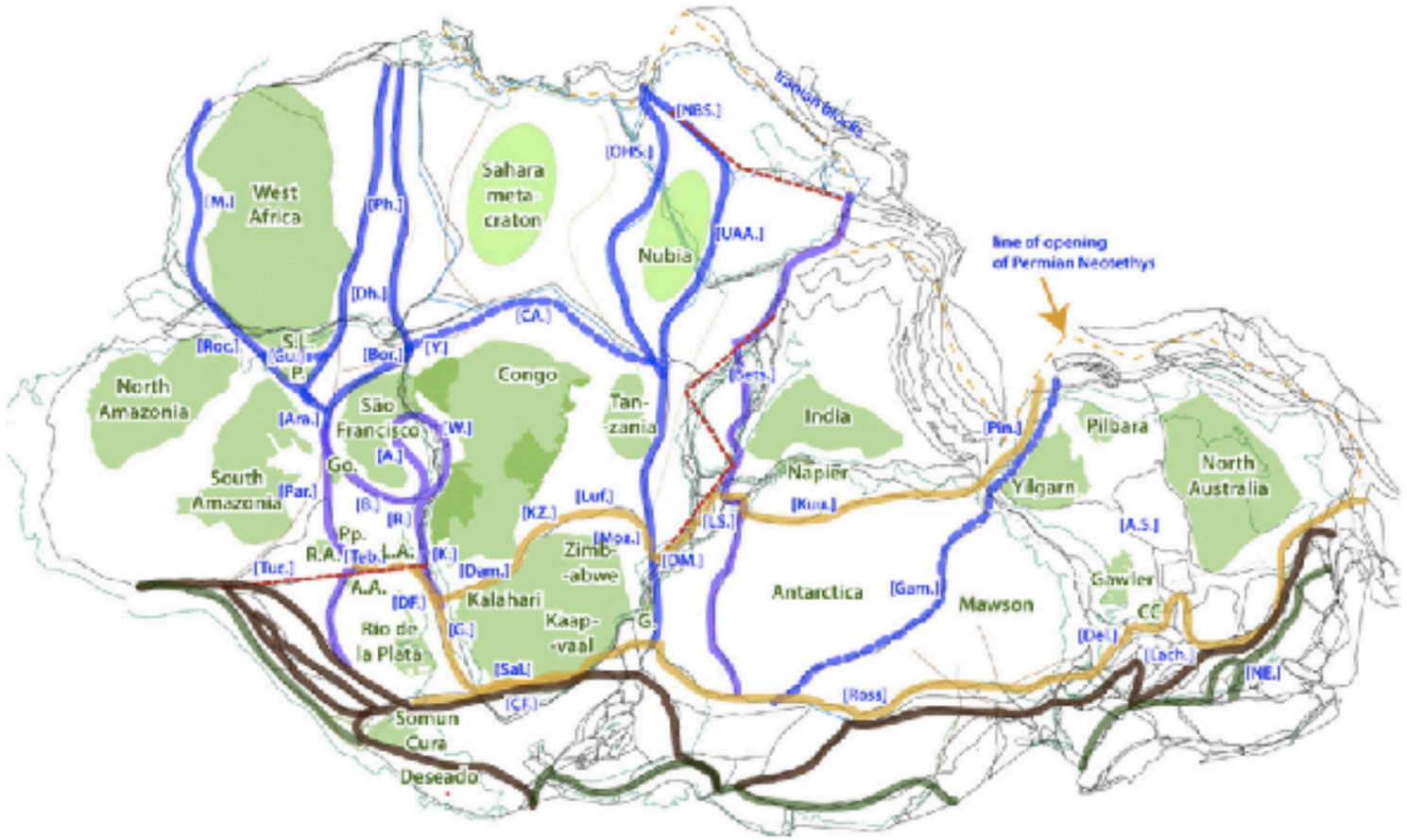
- The Separation of India and Antarctica - SR
- The breakup of East and West Gondwana - JP?
- Afar - possibly to be included but most likely will be left out as breakup not achieved



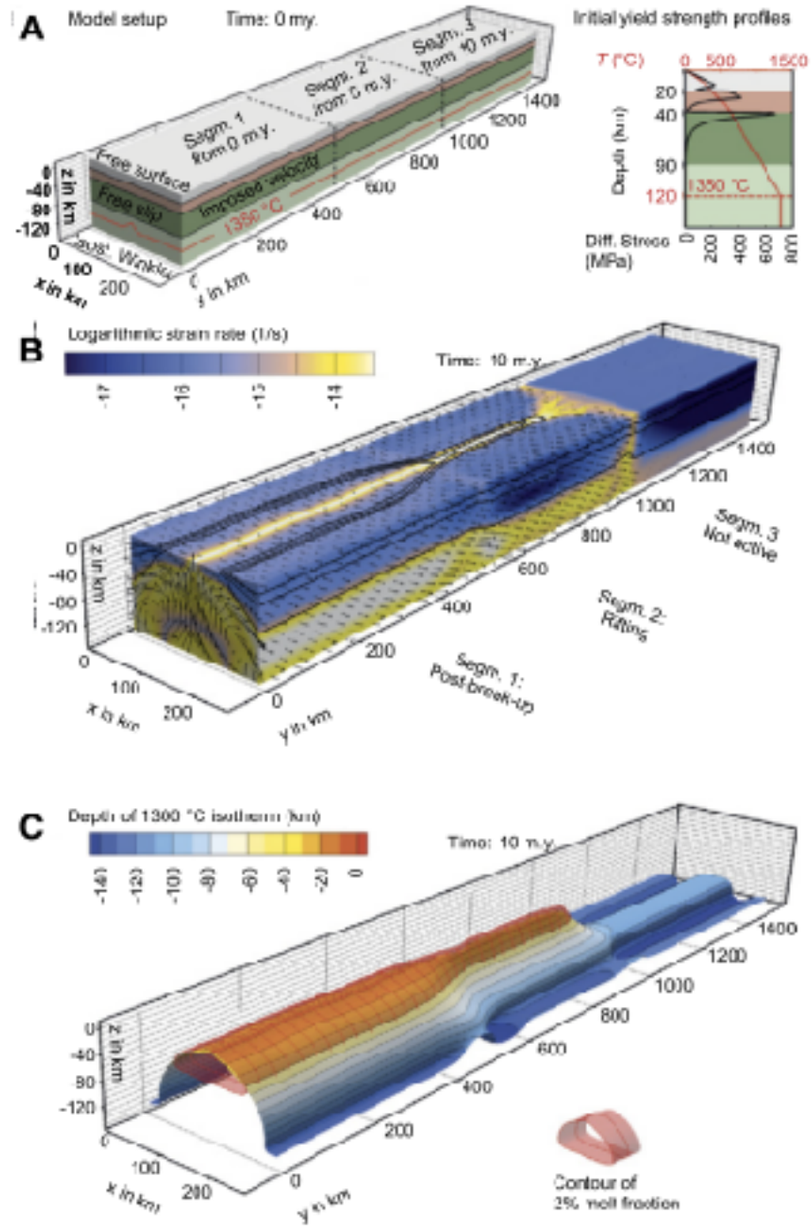
Svensen et al. (2017; GSL SP)

Plate tectonic model(s) for supercontinent dispersal

- Dispersal of Pangea/Gondwana unlikely to have been driven by a singular mechanism
- Multiple plate tectonic processes contributed



Stampfli et al. (2013; Tectonophysics)

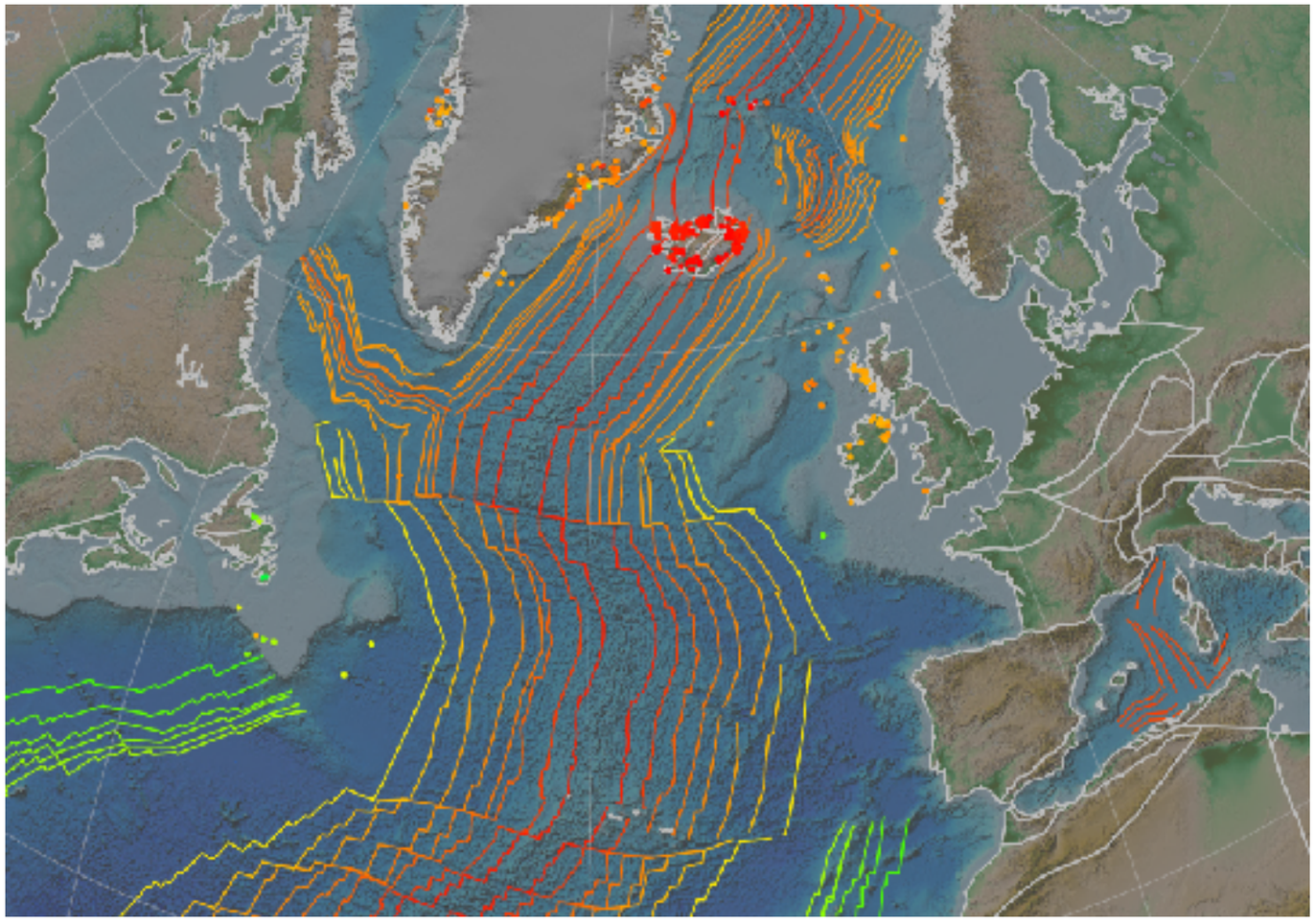


Koopmann et al. (2014; Geology)

Paper conclusions

- A simple relationship between proposed hotspots, rifting, breakup and magmatism is not apparent during the dispersal of Pangea and Gondwana

- The dispersal is better explained through plate tectonic processes



Modified NAGTEC compilation in GPlates

Contributions we are still looking for:

- The breakup of East and West Gondwana

- Review of proposed plumes in relation to the disintegrating supercontinent (if this introductory section is included?)

- A summary of the assembly and dispersal of Gondwana/Pangea (again, if this introductory section is included?)