

Mode of continental breakup of marginal seas

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SEISMIC INTERPRETATION METHOD

Regional seismic surveys in the three basins were integrated in a workstation and interpreted using either the Petrel or Sismage softwares. First order structures and interfaces (pre-, syn-, post-rift horizons and Moho) were consistently mapped and cross-correlated within the three basins.

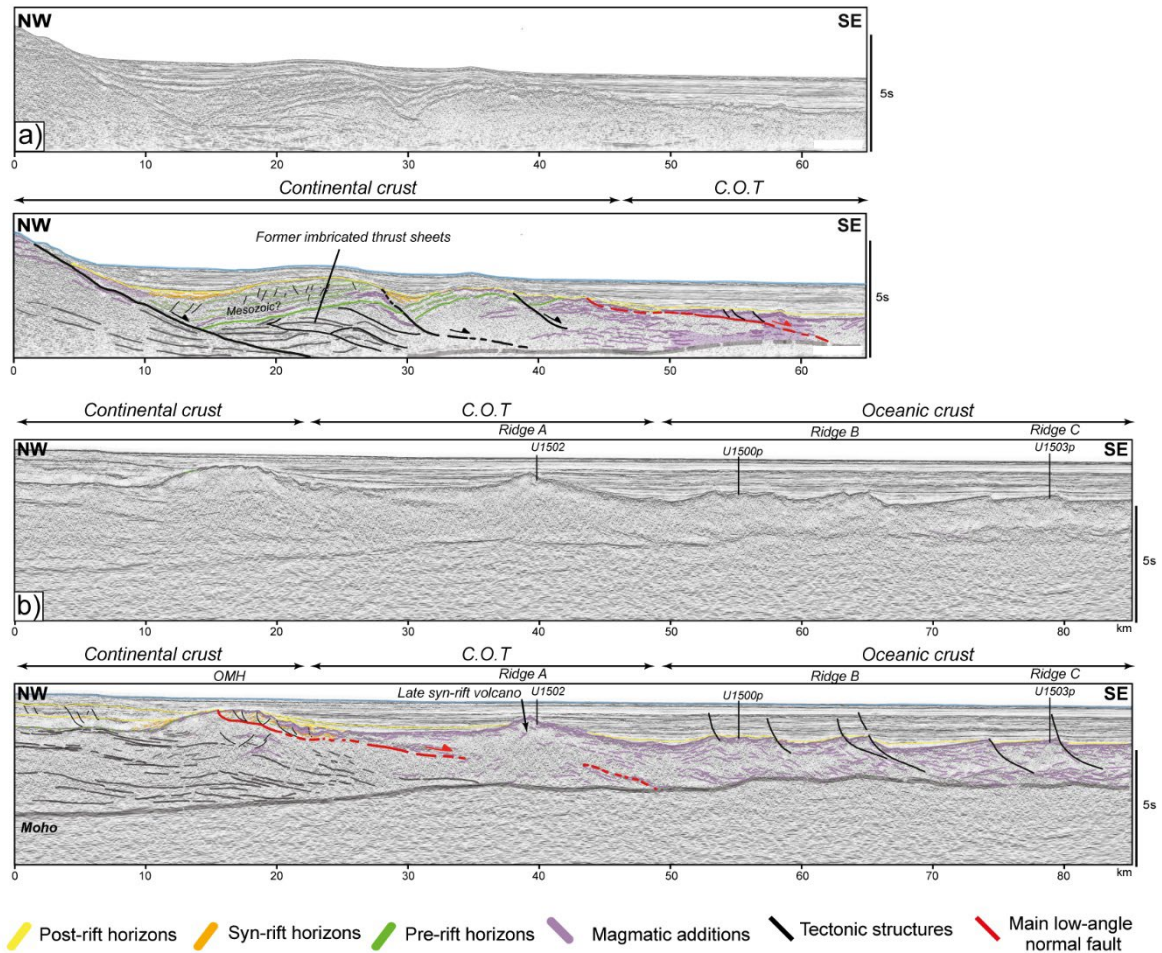
Stratigraphic sequences shown in the paper correspond to tectonic sequences relative to the rifting stage (including pre-, syn-, and post-rift sequences) and their distinction is based on their geometry (e.g., sedimentary wedge, sealing faults, onlaps). We used drilling results to calibrate the rifting age and related stratigraphic sequences where it was possible: in the South China Sea (sites U1500, U1502; U1503 from International Ocean Discovery Program expeditions 367/368; Larsen et al., 2018) and Woodlark Basin (Sites 1117, 1114, 1118 and 1109 from Ocean Drilling Program Leg 180; Taylor and Huchon 2002).

The 2D seismic profiles presented in the paper were selected within existing regional surveys and the line drawings were performed to highlight the main structures, key tectono-stratigraphic sequences, and magmatic additions.

Seismic profiles across the South China Sea passive margin

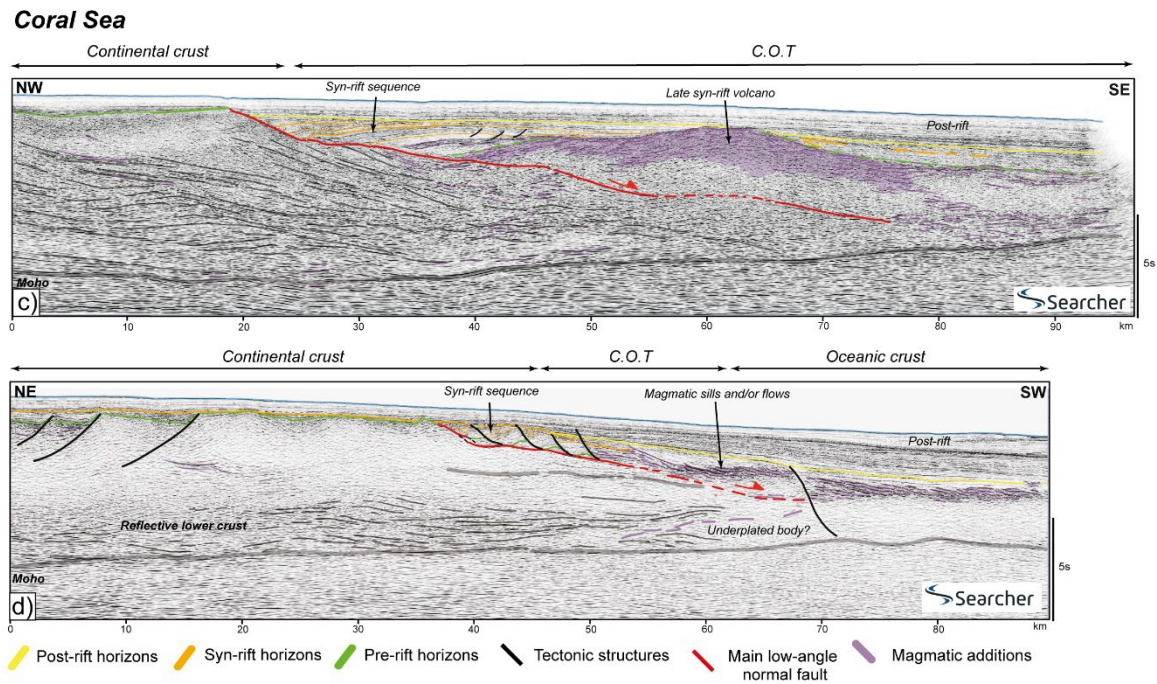
Uninterpreted seismic profiles (a) and (b) are from Lei et al., (2018) and Zhang et al., (2021) respectively. Below each uninterpreted profile we show our interpretation of the Continent Ocean Transition (COT).

South China Sea



Seismic profiles across the Coral Sea passive margin

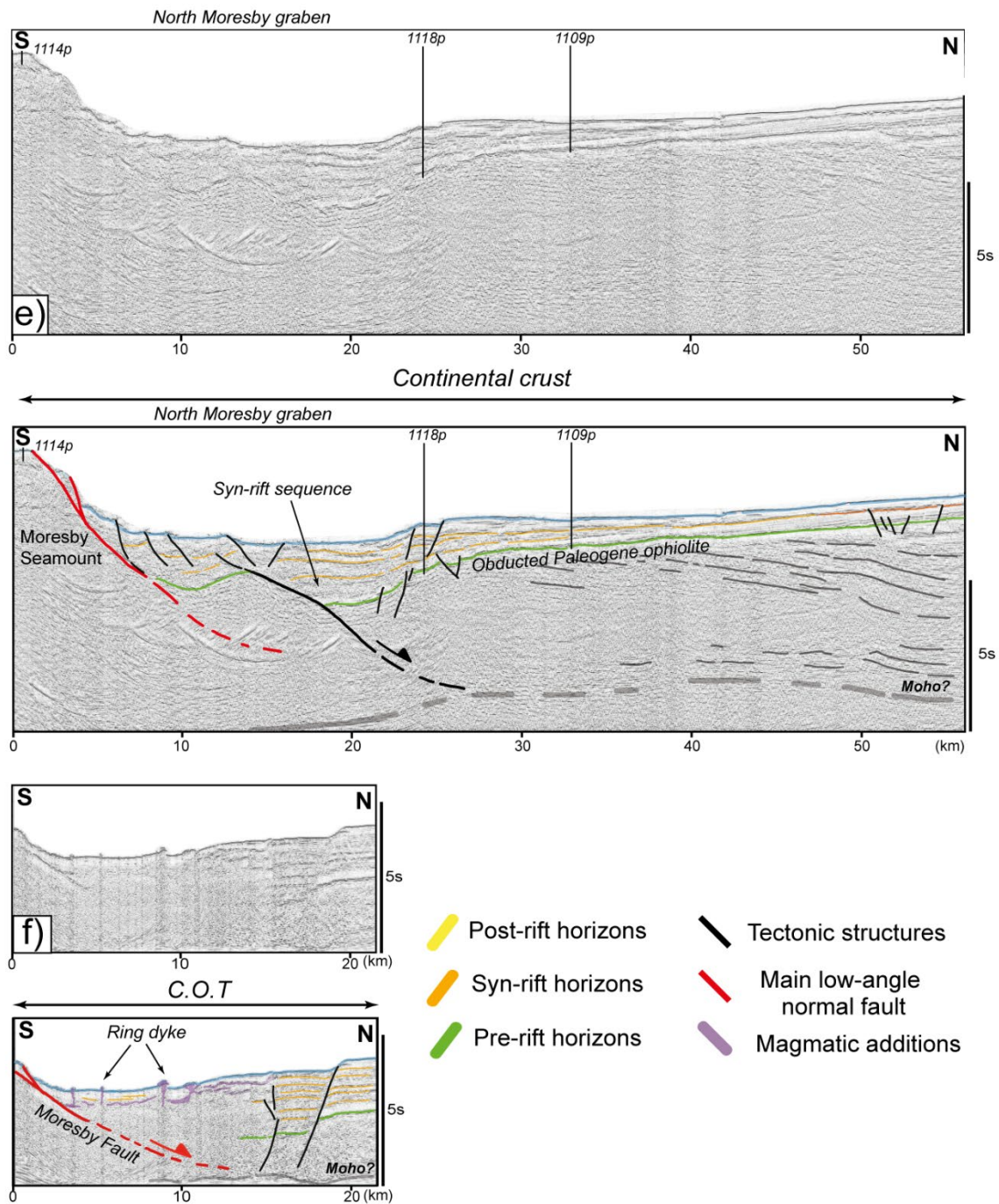
Searcher Seismic is kindly acknowledged for permission to publish interpreted seismic lines across the Coral Sea. Uninterpreted seismic profile (d) is published in Sapin et al. (2021) and the interpretation of seismic profile (d) is modified after Sapin et al., (2021). Interpreted seismic profile (c) is newly presented in this paper.



Seismic profiles across the Woodlark Basin

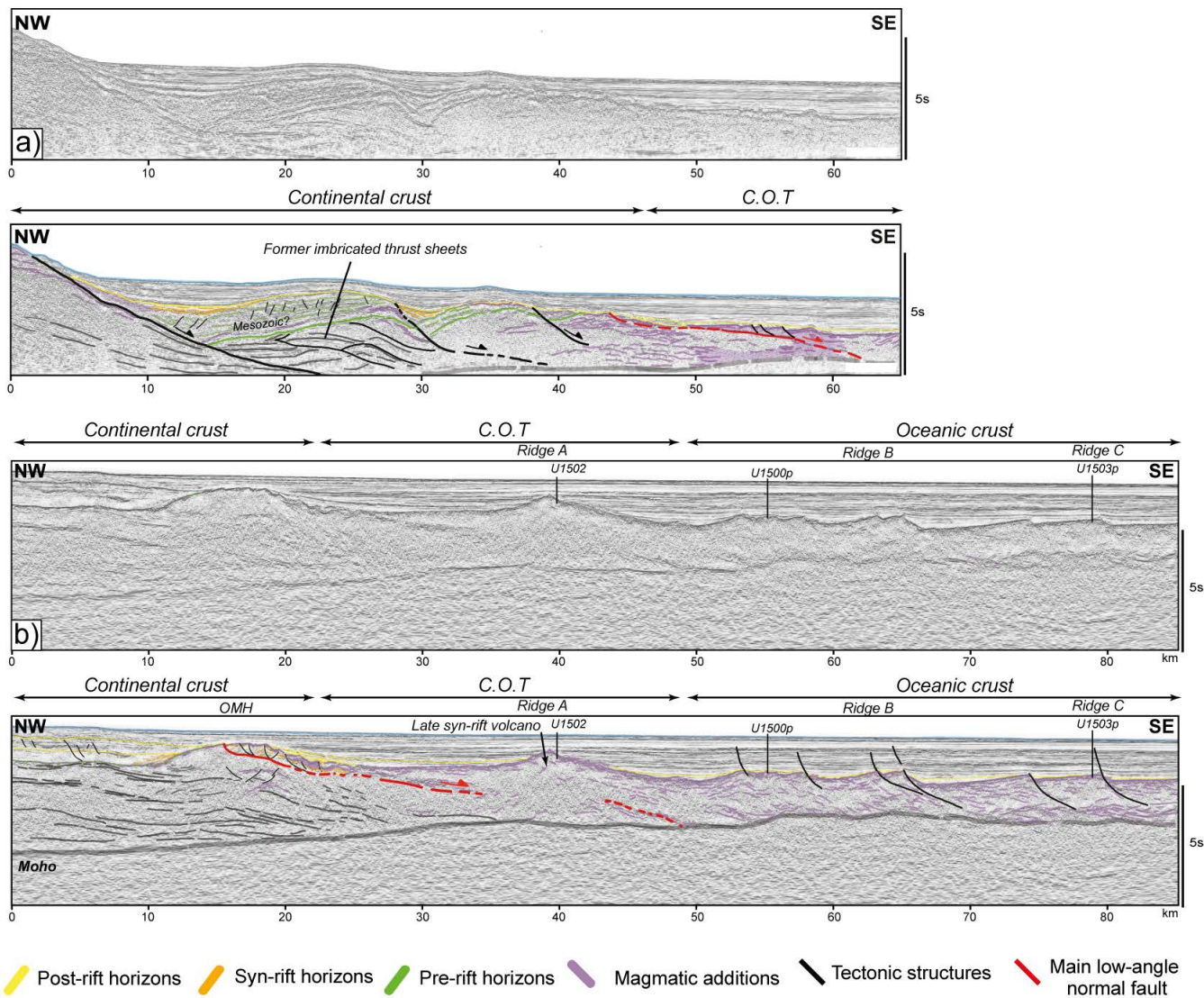
Uninterpreted and interpreted seismic profiles (e) and (f) are shown below. Seismic profile (f) was previously published in Goodliffe and Taylor 2007. Both seismic lines are available from <https://ig.utexas.edu/academic-seismic-portal-at-utig/>, which is acknowledged here.

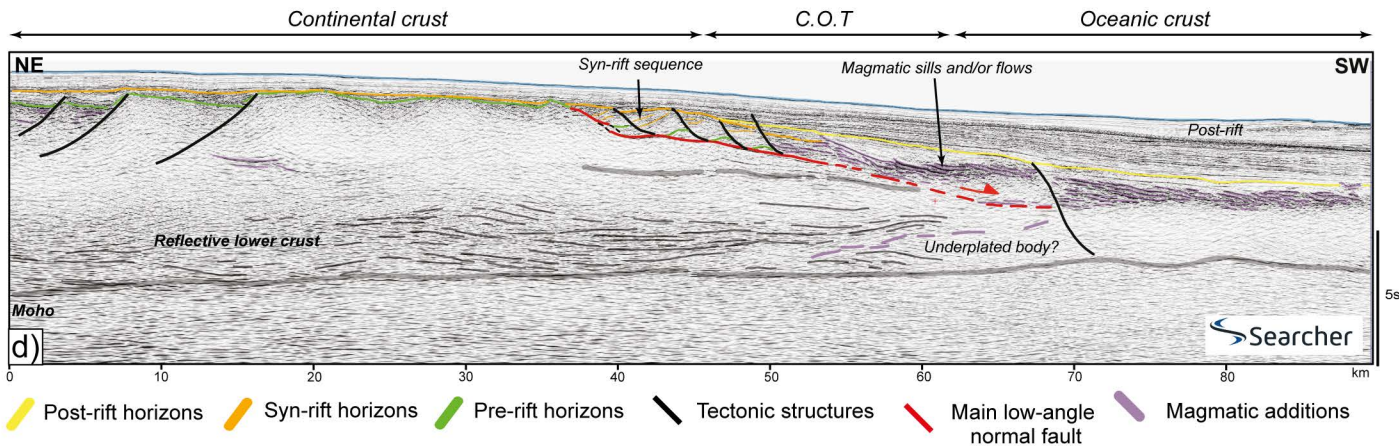
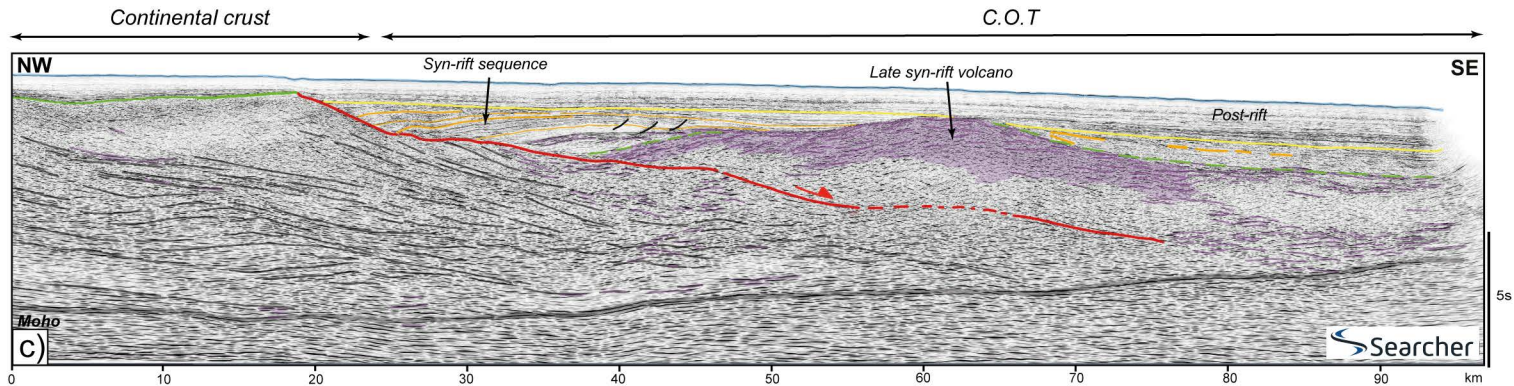
Woodlark Basin



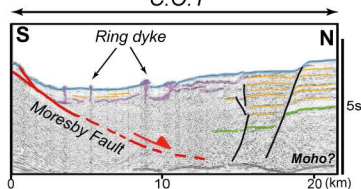
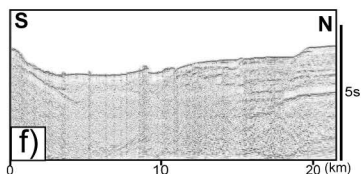
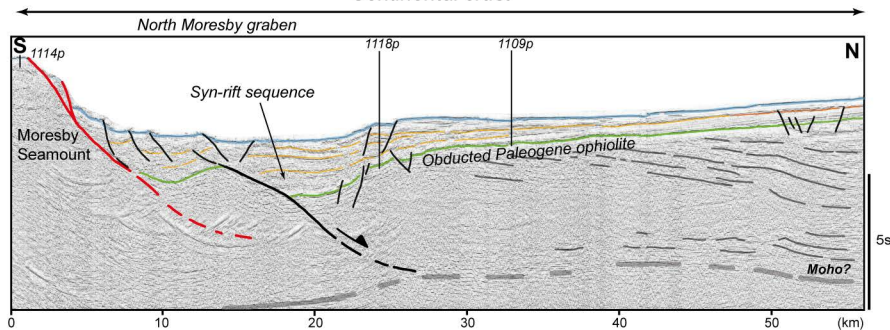
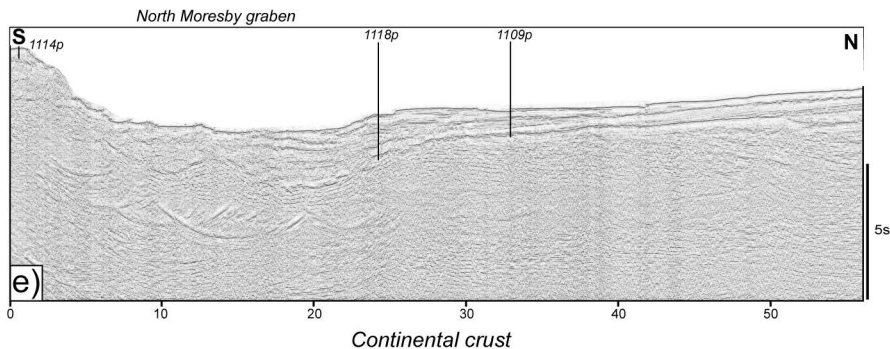
References

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Woodlark Basin



- ▬ Post-rift horizons
- ▬ Syn-rift horizons
- ▬ Pre-rift horizons
- ▬ Tectonic structures
- ▬ Main low-angle normal fault
- ▬ Magmatic additions