

NOVEL REEF-BUILDING COMMUNITIES emerging after deep-time HYPERTHERMAL EVENTS

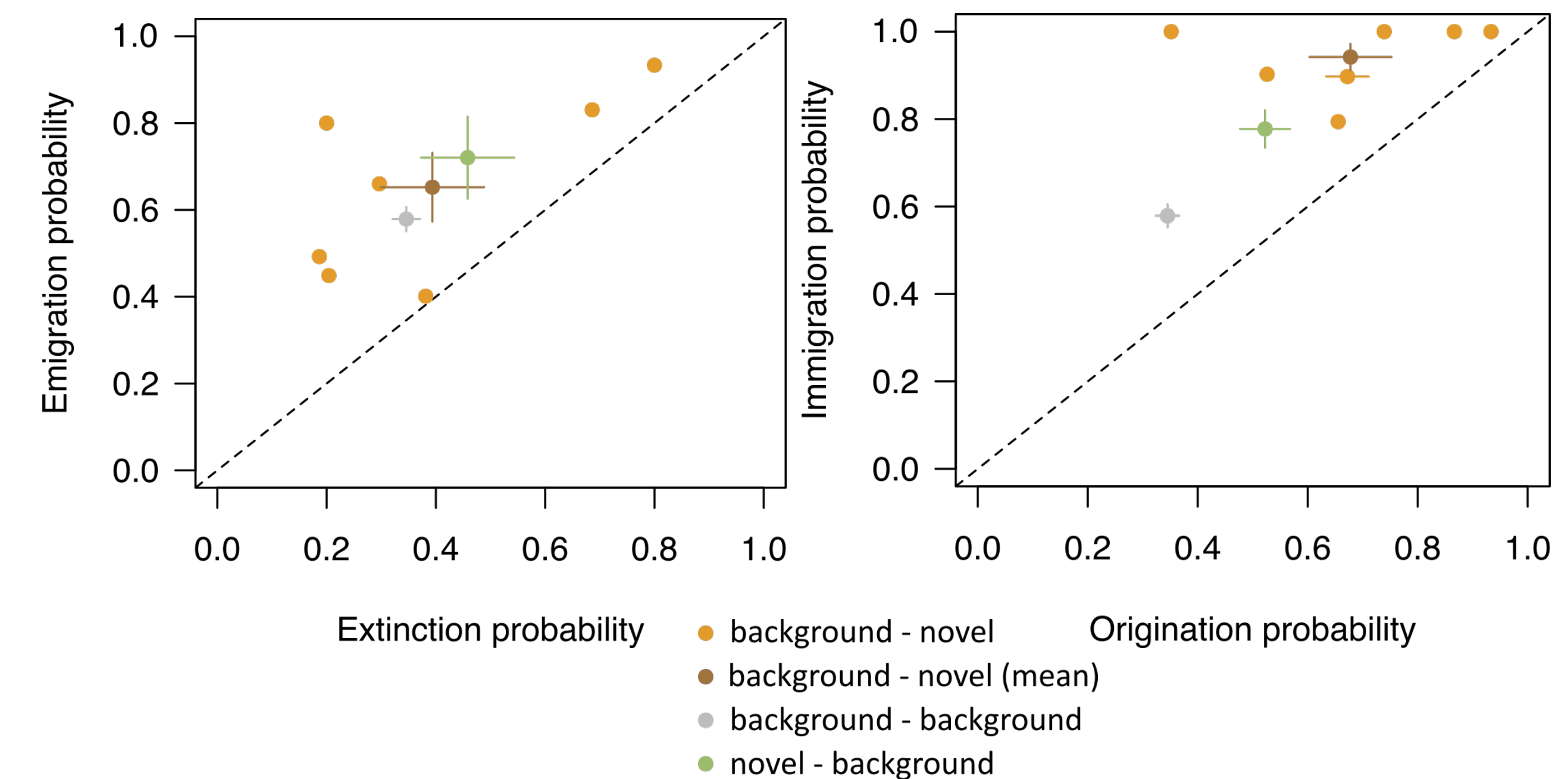
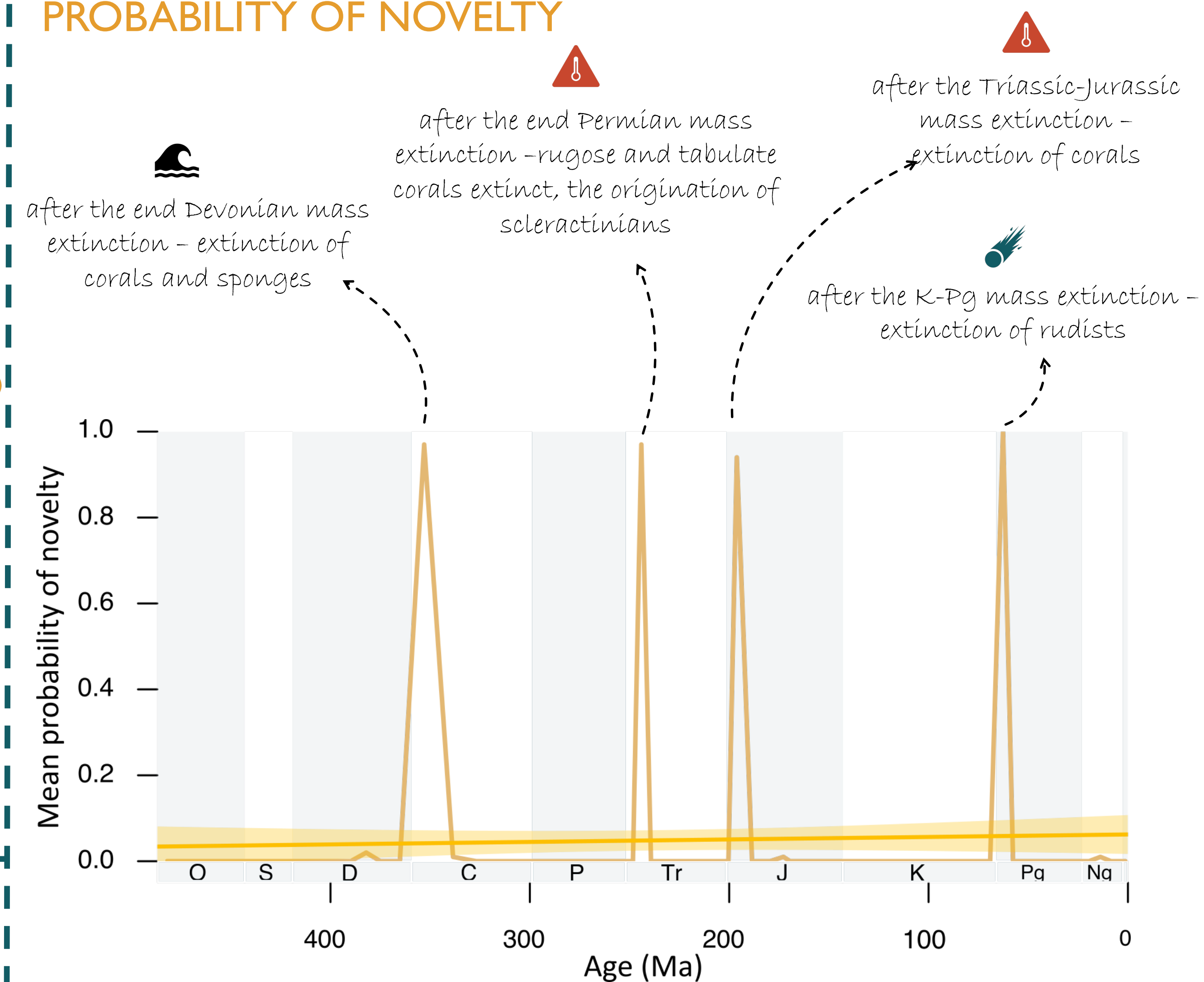
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PROBABILITY OF NOVELTY



CONCLUSIONS

- Novel reef communities emerge after mass extinction events.
- Novel reef communities emerge due to origination and immigration, rather than due to extinction and emigration.



Pandolfi et al., Science, 220-222 (2020)

NOVEL COMMUNITIES

Document a rapid and irreversible shift into a new state that differs in composition and/or function from past communities (Pandolfi et al. 2020).

HYPERTHERMAL EVENTS
Times of rapid global warming.

HYPOTHESIS
Past hyperthermal events had lasting impacts on reef-building communities, where novel communities are expected to emerge after these events.

REEF BUILDERS

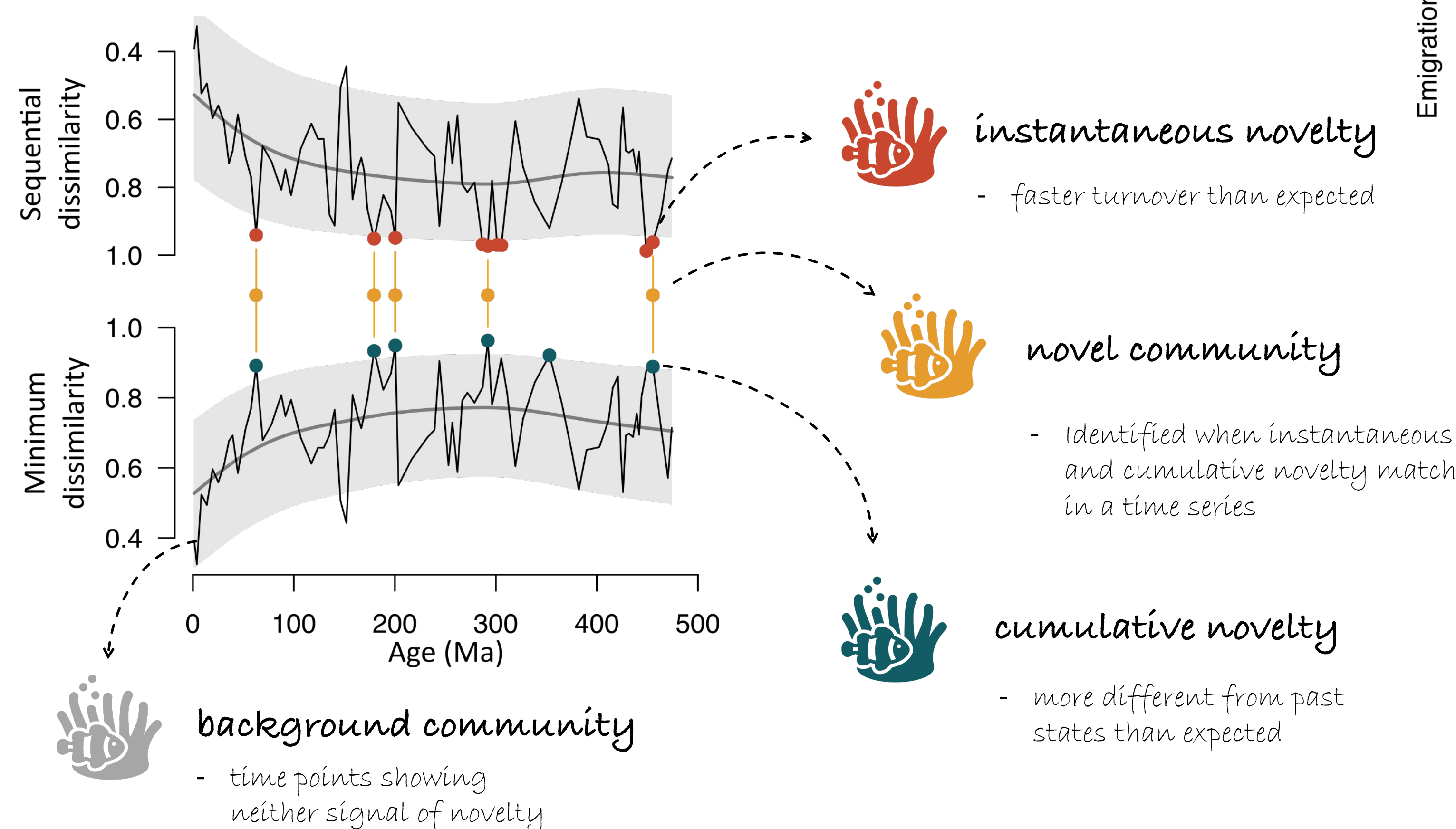
CORALS: scleractinians are the main reef builders today. Tabulate and rugose corals are extinct reef-builders of the Paleozoic.

SPONGES: phylum Porifera – dominant reef builders in the Paleozoic.

RUDISTS: extinct bivalves, important reef builders during the Cretaceous period.

METHODS

NOVEL COMMUNITY DETECTION FRAMEWORK



DATA

A global compilation of reef-building genera from the Ordovician period (486.9 Ma) to Quaternary (0.0117 Ma) was obtained from the Paleobiology Database (PBDB).

