The influence of **subaerial denudation** on carbonate platform **stratigraphy** architecture

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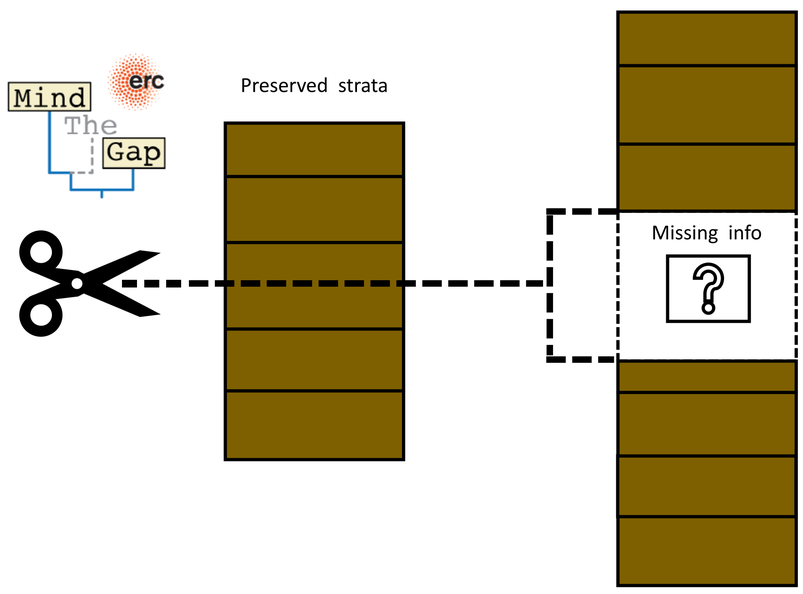
Background

- The preservation of geological information in strata is heterogenous and incomplete.



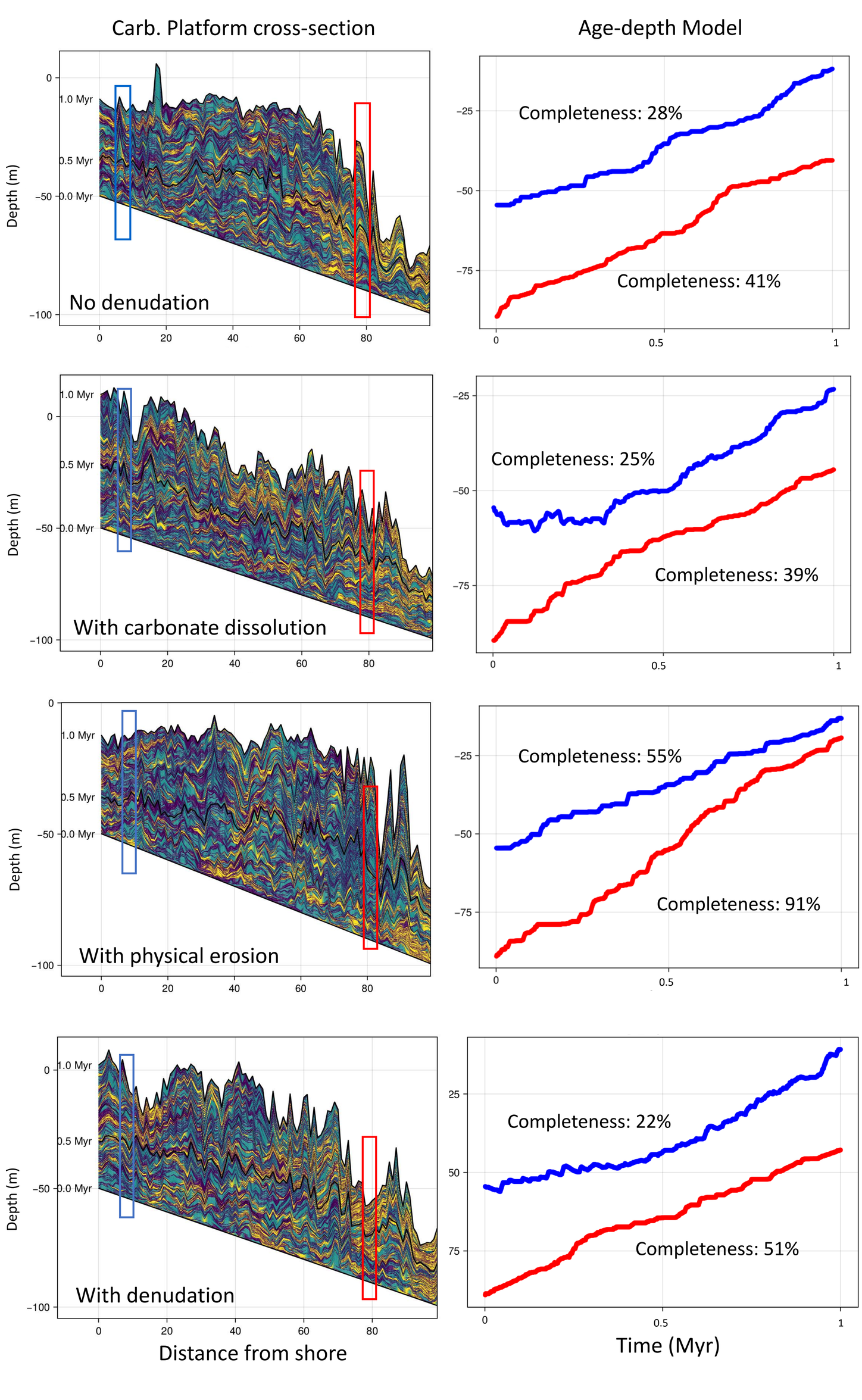
- Influence our estimations on age-depth model and further distort the interpretations based on the model. E.g., how long is an anoxic event?
- Erosion is a way to cause such distortion.
- How to quantify the effects of erosion?

Methodology

- Based on a 3D carbonate platform model ‘CarboKitten.jl’ [1]
- Denudation rates in karst regions as analogue

1. Carbonate dissolution [2]
2. Physical erosion [3,4]
3. Total denudation estimated from Cl isotope data [5]

Case study: Miller’s curve [6] (0-1Ma, input)



- Subaerial exposure (S.E.) can change the preservation of strata
- Physical erosion and transport could increase influence strata completeness
- S.E. changes the distribution of strata.

[1] https://mindthegap-erc.github.io/CarboKitten.jl/
[2] Kaufmann G, Braun J. Terra Nova. 2001.
[3] Tucker GE, Slingerland R. Basin research. 1996.
[4] Van De Wiel MJ, Coulthard TJ, Macklin MG, Lewin J. Geomorphology. 2007.
[5] Ben-Asher M, Haviv I, Crouvi O, Roering JJ, Matmon A. Bulletin. 2021.
[6] Miller, K.G., Kominz, M.A., Browning, J.V., et al., Science. 2005.

Funded/Co-funded by the European Union (ERC, MindTheGap, StG project no 101041077). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Council. Neither the European Union nor the granting authority can be held responsible for them.