

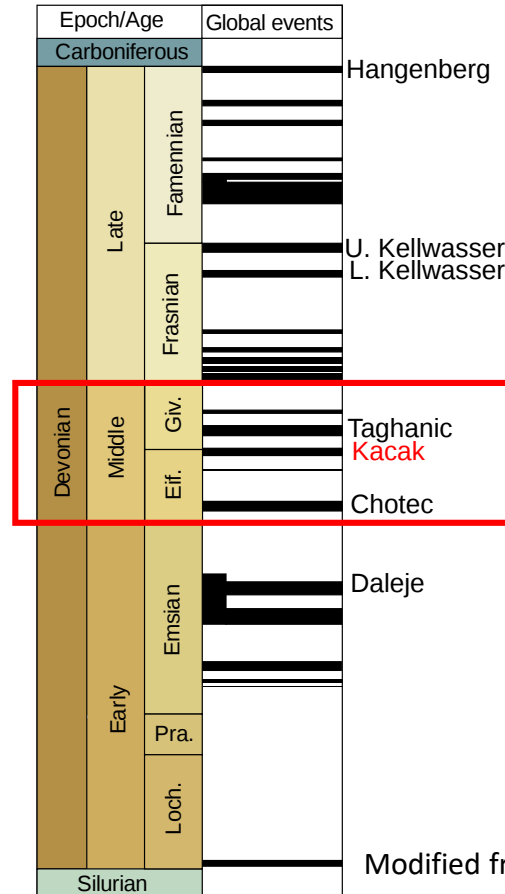


The late Efelian (Middle Devonian) Kačák event and its effects on rugose coral palaeobiodiversity (Ardennes, Belgium)

Presented by : Valentin Jamart (PhD at the University of Lausanne)
Co-author of the article : Dr. Julien Denayer

Devonian ecological crises

- Mainly identified in Eurasia
- Platform and basin
- Short duration
- Pelagic fauna



Modified from Becker *et al.* (2012; 2020)

The Kačák event

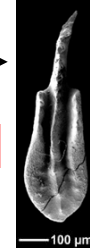
- When?

The Kačák event

- When?

Givetian
Eifelian

Polygnathus ensensis Biozone



=> ~ 200-300 kyr

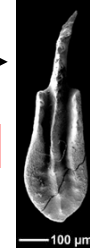
Modified from Suttner *et al.* (2017)

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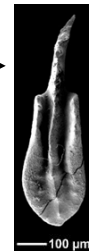
Increase in T°

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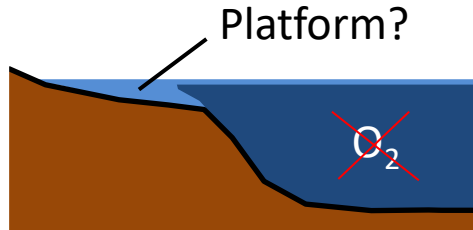
Modified from Suttner *et al.* (2017)

- What?



Increase in T°

+



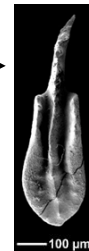
Anoxia (Basin)

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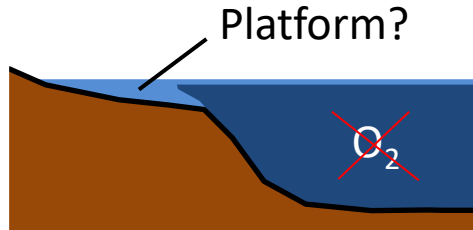
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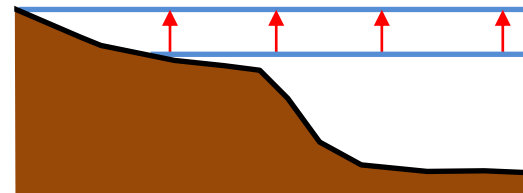
Increase in T°

+



Anoxia (Basin)

+



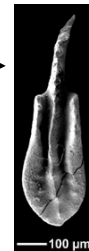
Transgressive phase

The Kačák event

- When?

Givetian
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Polygnathus ensensis Biozone



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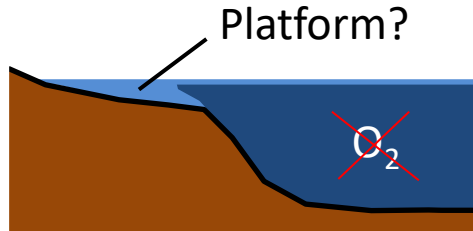
Modified from Suttner *et al.* (2017)

- What?



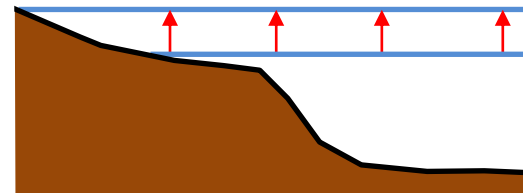
Increase in T°

+



Anoxia (Basin)

+



Transgressive phase

- Markers?

The Kačák event

- When?

Givetian
Eifelian

Polygnathus ensensis Biozone



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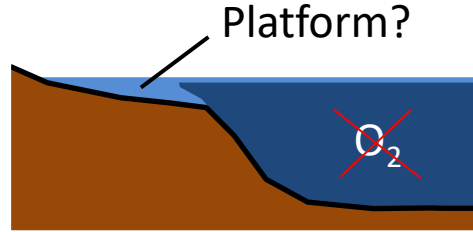
Modified from Suttner *et al.* (2017)

- What?



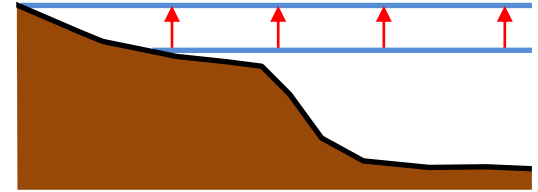
Increase in T°

+



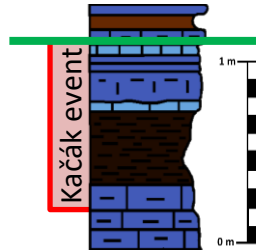
Anoxia (Basin)

+



Transgressive phase

- Markers?



GSSP of the Givetian,
Jebel Mech Irdane,
Morocco

Modified from
Becker *et al.* (2012; 2020)

(Anoxic) Black Shales

The Kačák event

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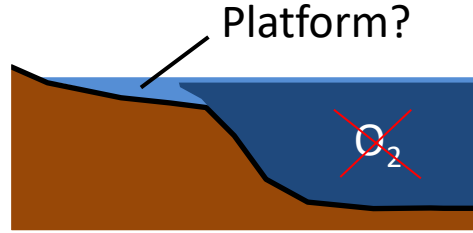
Modified from Suttner *et al.* (2017)

- What?



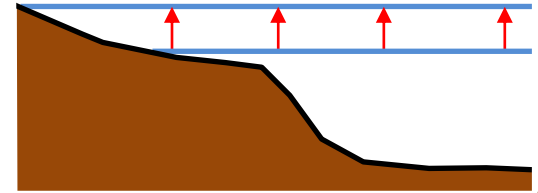
Increase in T°

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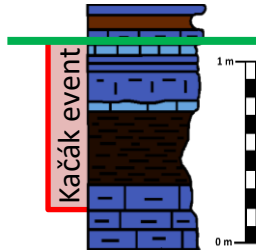
Anoxia (Basin)

+



Transgressive phase

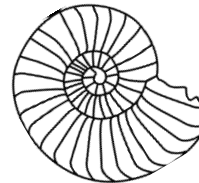
- Markers?



GSSP of the Givetian,
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Modified from
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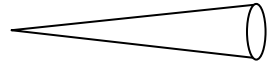
+



Ammonoids



Conodonts



Dacryoconaridids

(Anoxic) Black Shales

Turnovers amongst pelagic faunas

Impacts of the Kačák event on the palaeobiodiversity?

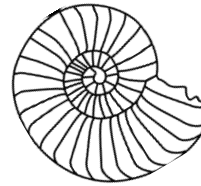
Impacts of the Kačák event on the palaeobiodiversity?

- Disappearance of two out of the three faunal realms

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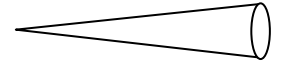
- Turnovers amongst pelagic fauna



Ammonoids



Conodonts

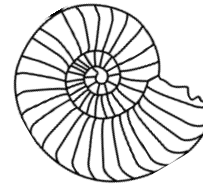


Dactyloconaridids

Impacts of the Kačák event on the palaeobiodiversity?

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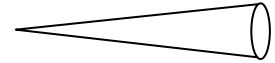
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Ammonoids



Conodonts



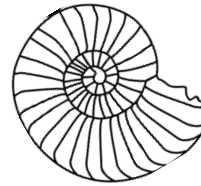
Dacryoconaridids

- Benthic fauna less affected

Impacts of the Kačák event on the palaeobiodiversity?

- Disappearance of two out of the three faunal realms

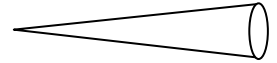
- Turnovers amongst pelagic fauna



Ammonoids



Conodonts

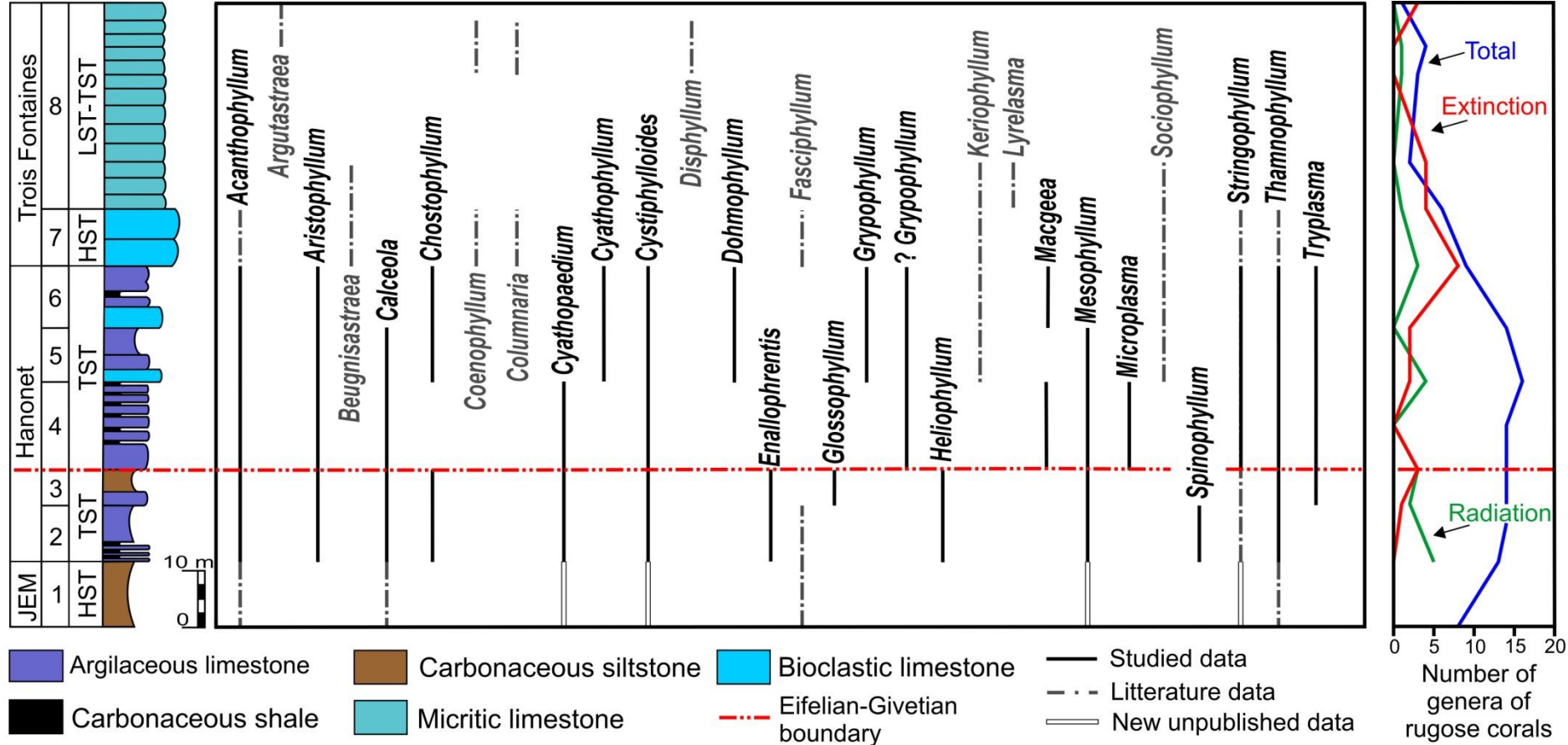


Dactyloconaridids

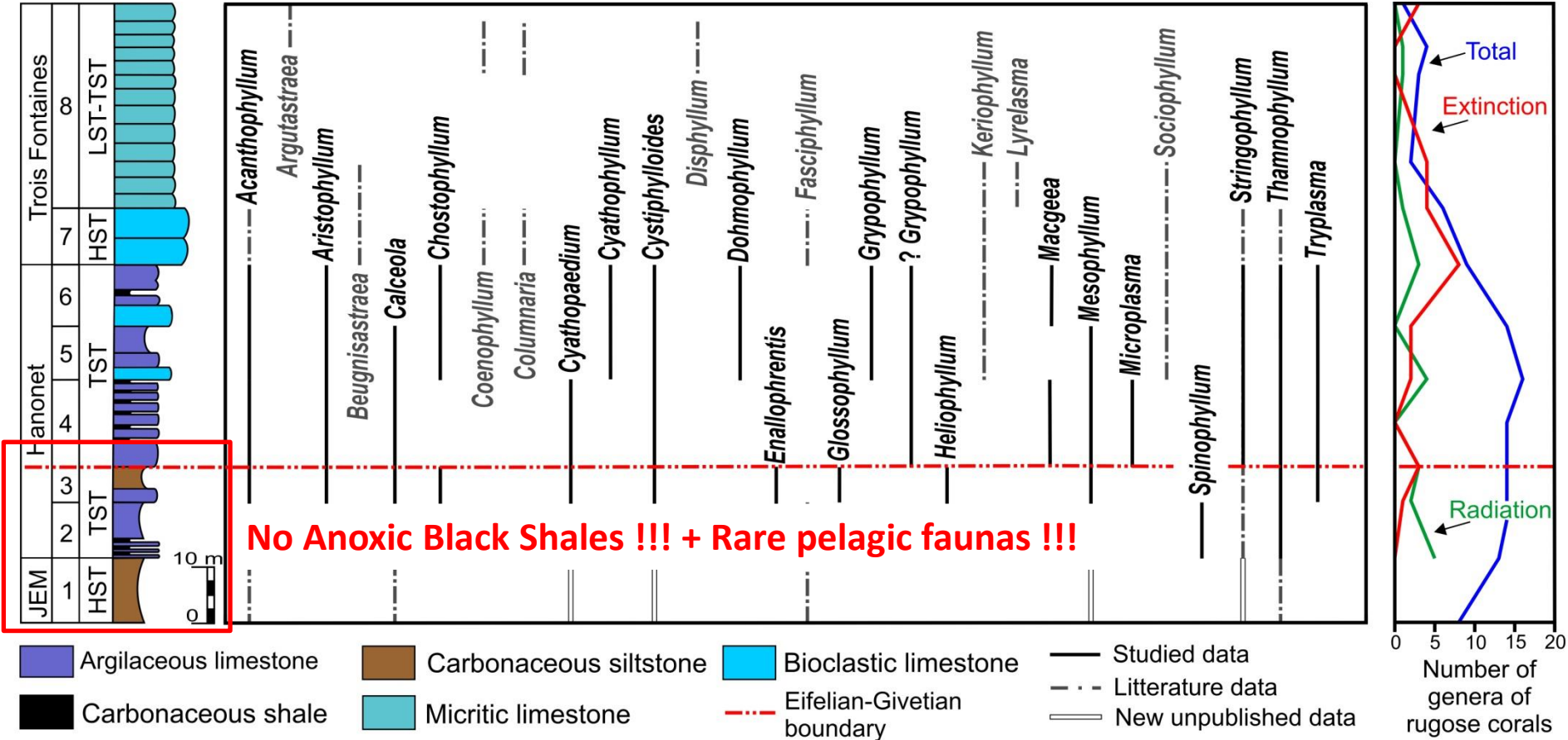
- Benthic fauna less affected

How the event impacted the benthic fauna on the belgian ramp?

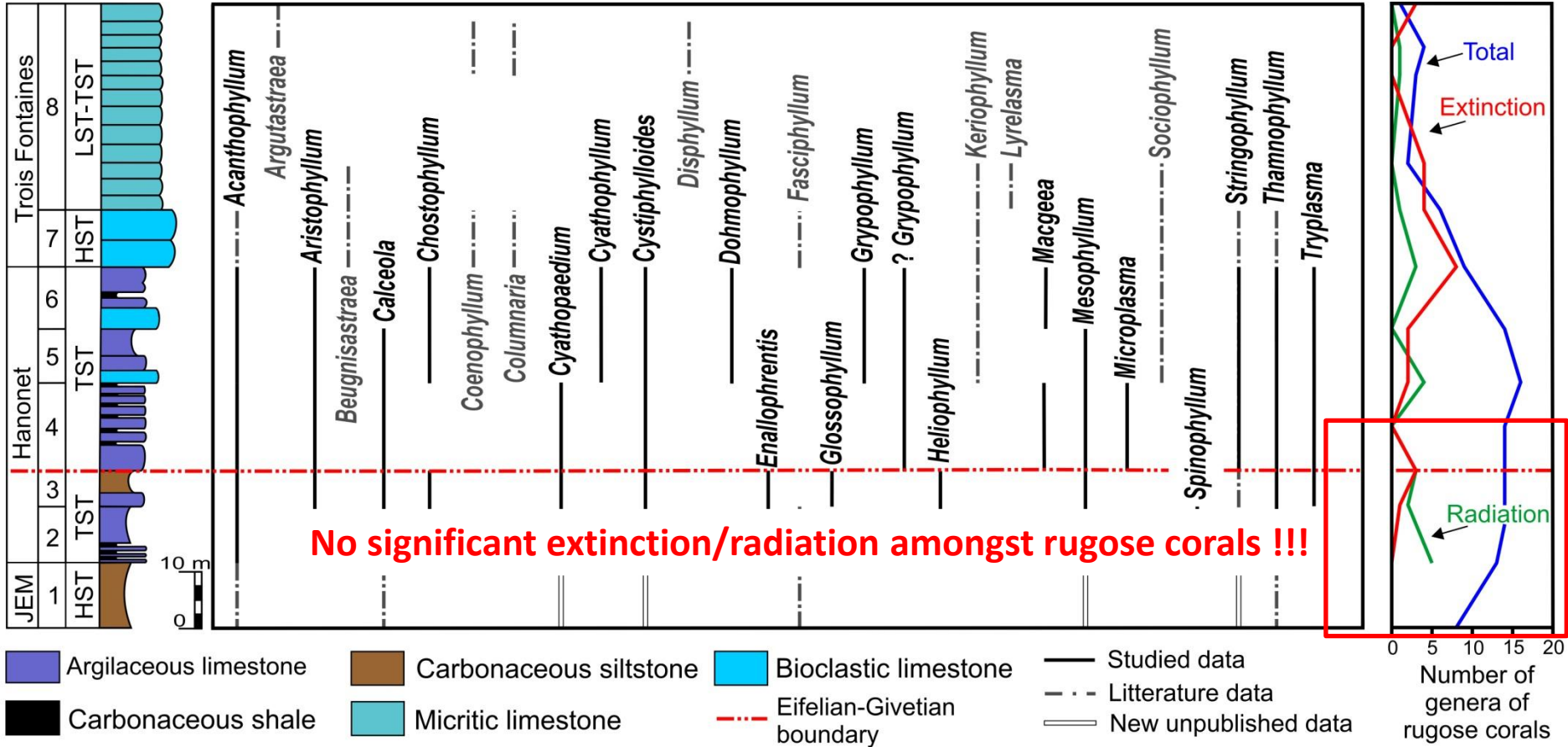
Rugose coral diversity in the Hanonet Formation



Rugose coral diversity in the Hanonet Formation

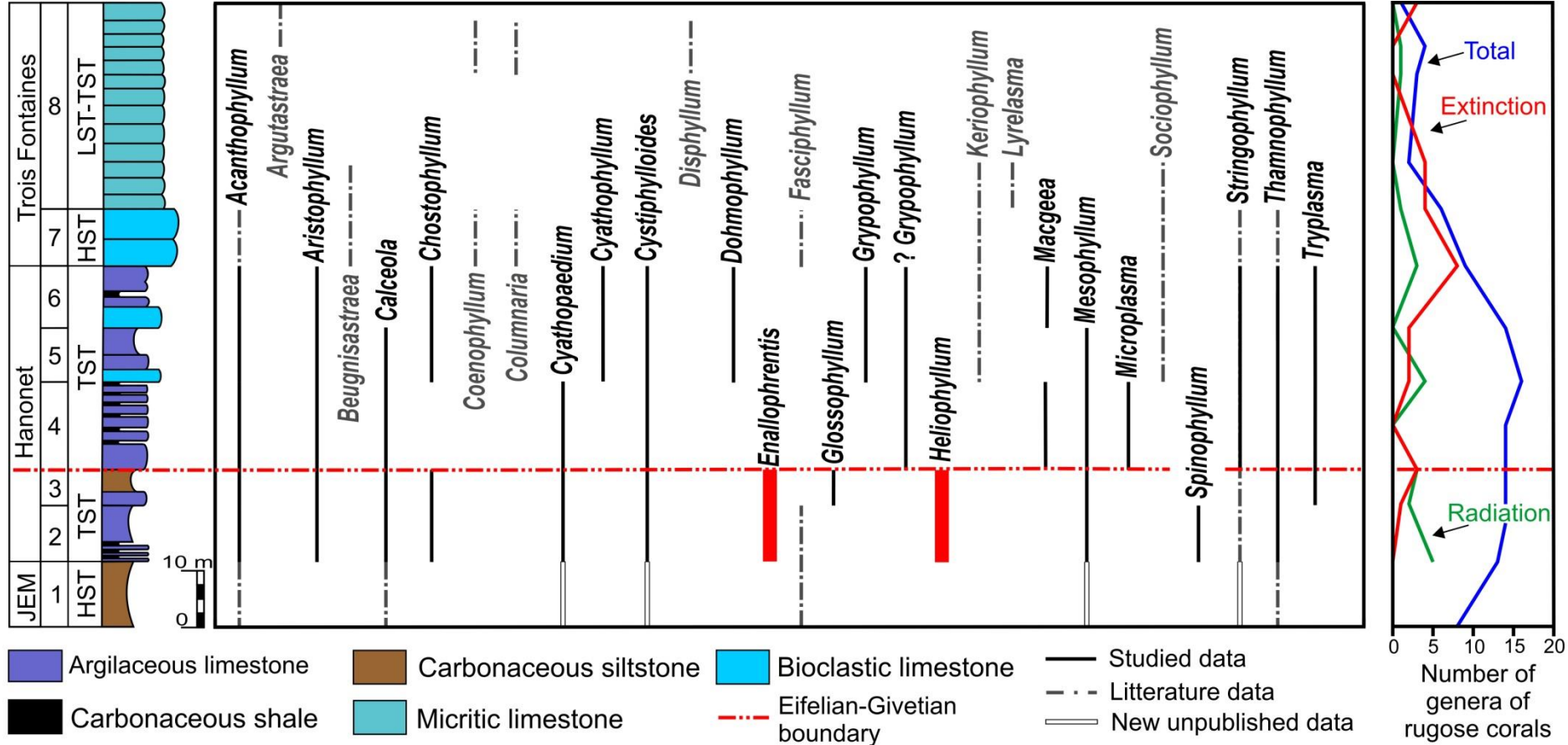


Rugose coral diversity in the Hanonet Formation



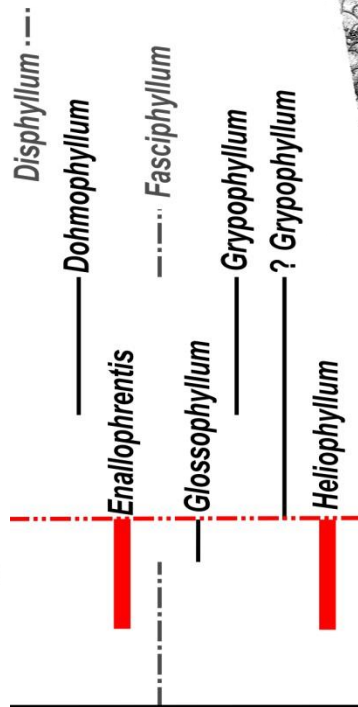
Jamart & Denayer, 2020 (modified and colored)

Rugose coral diversity in the Hanonet Formation



Enallophrentis

Heliophyllum

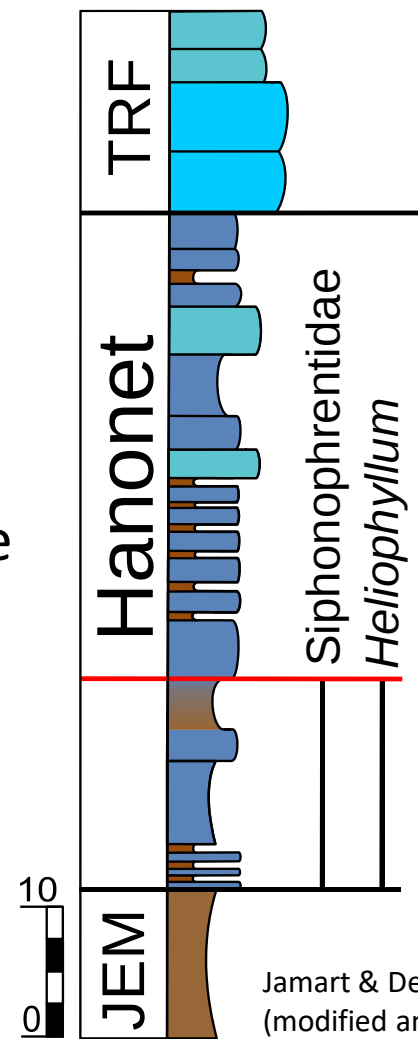


1 cm

1 cm

Conclusions

- No significant faunal/lithological changes within the Hanonet Fm
- Rugose corals can be used as a marker of the Kačák event, especially when typical pelagic markers are missing



Jamart & Denayer, 2020
(modified and colorized)

Thanks for your attention

Hanonet Fm. in the disused quarry of Resteigne



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DIVERSITY
DYNAMICS LAB

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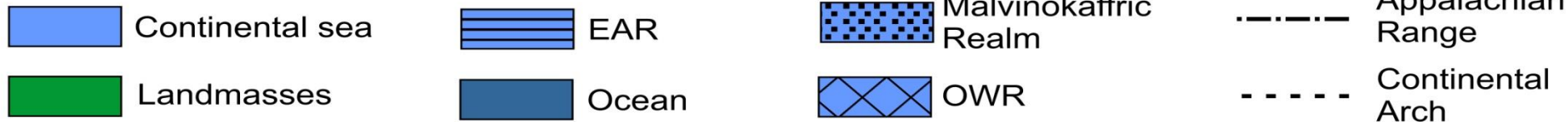
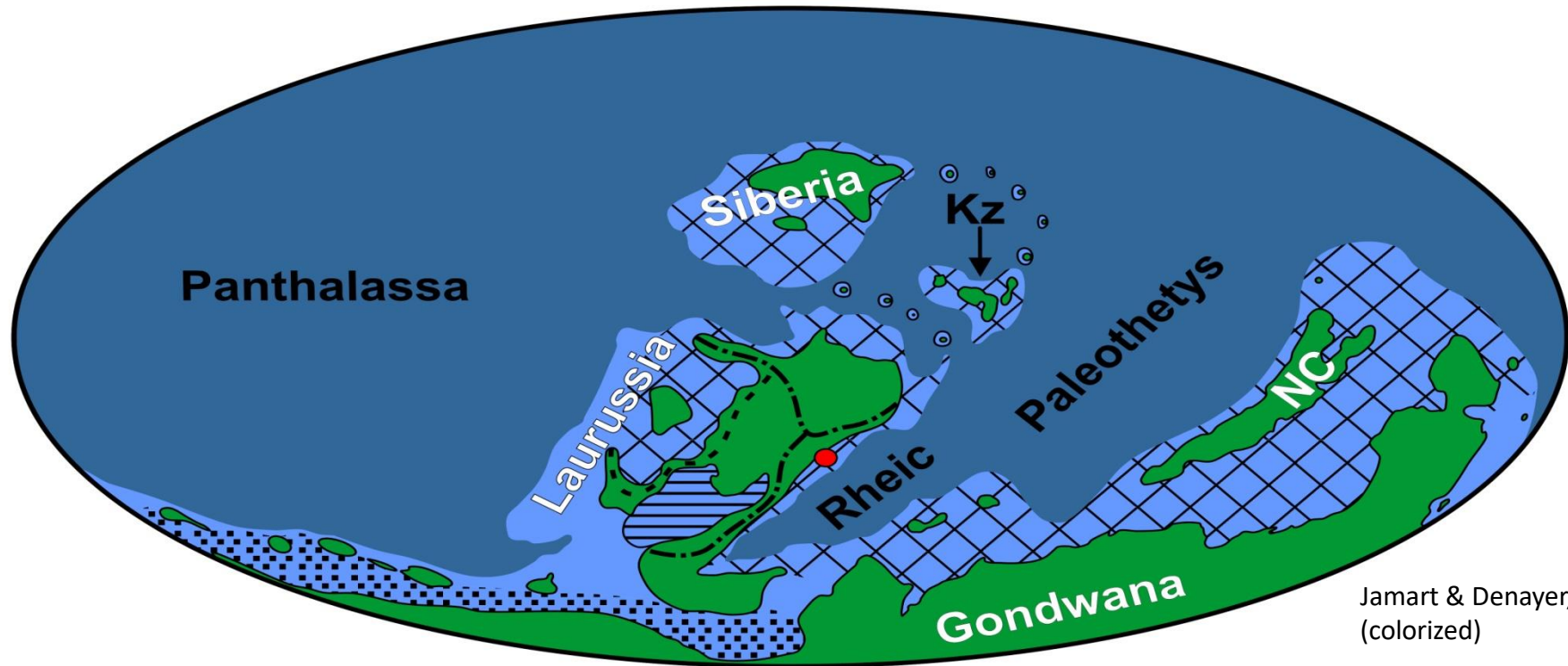
This presentation participates in OSPP



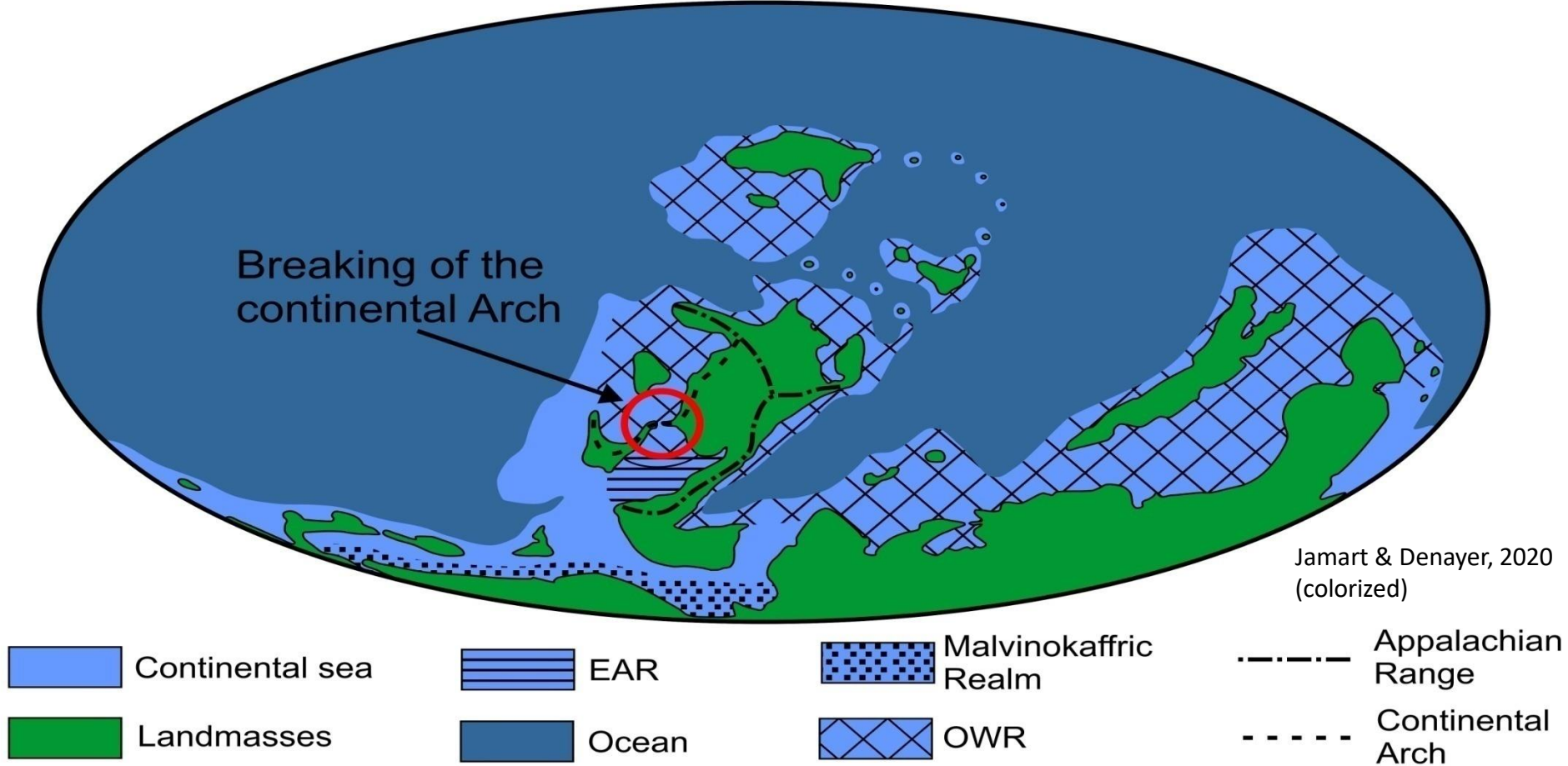
Outstanding Student
Poster & PICO Contest



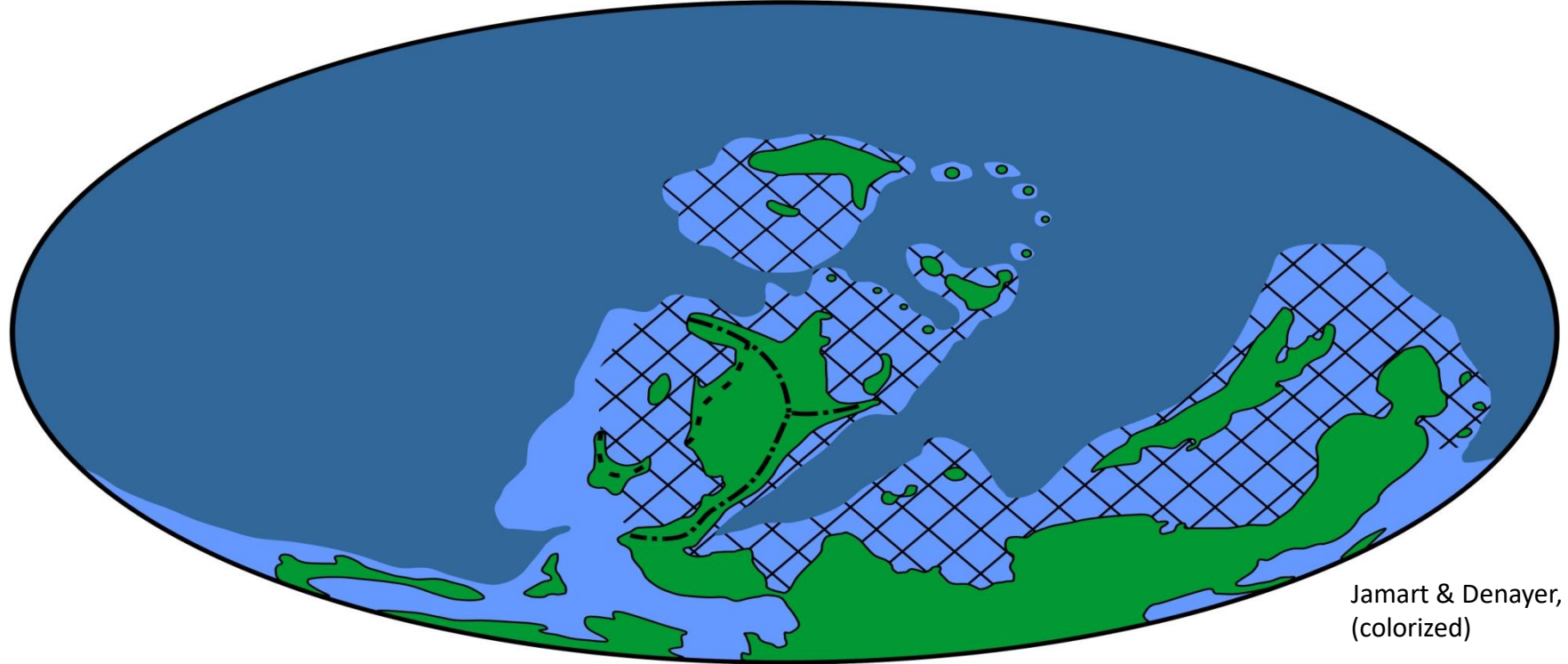
Palaeobiogeography at the Emsian



The Eifelian transgression



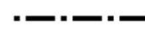
Disappearance of two realms during the Kačák event



Continental sea



OWR



Appalachian
Range



Landmasses



Ocean



Continental
Arch