Supplementary material for

New insights into the early Bajocian (Middle Jurassic) carbon cycle perturbation

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Captions

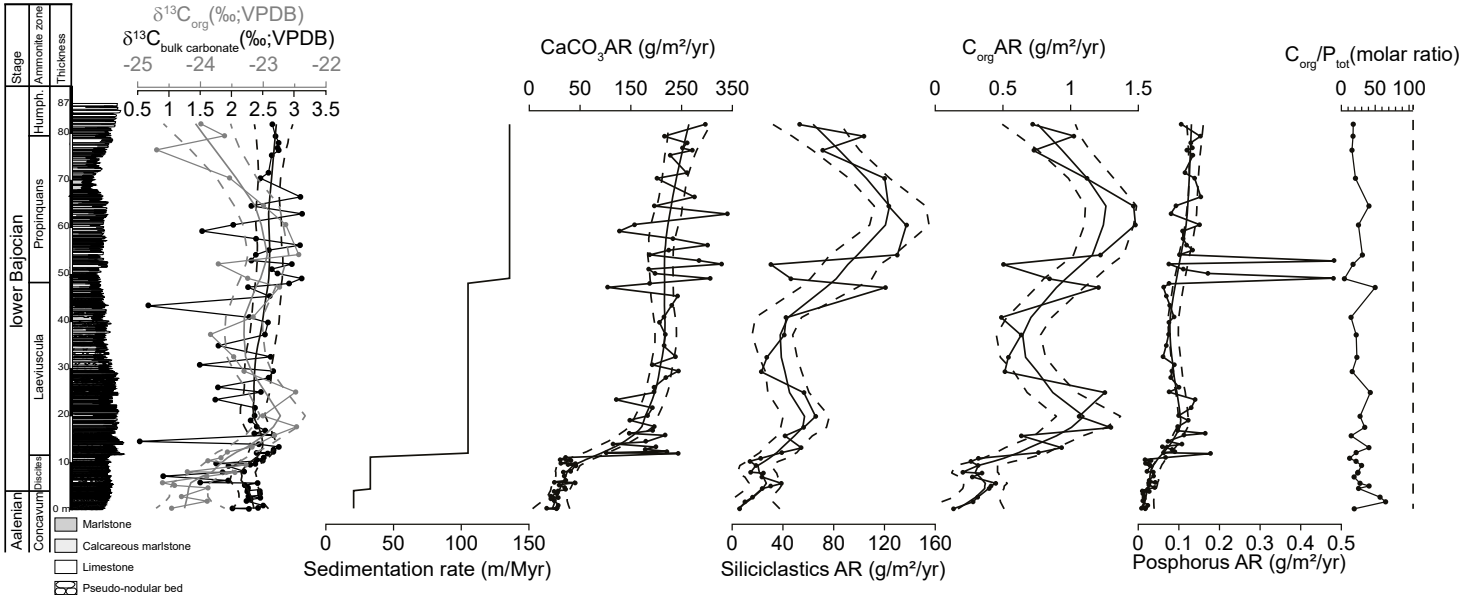
Supplementary Figure 1: Stratigraphic changes in sedimentation rate at Murtinheira (based on Gradstein et al. (2020) age model) and the resulting $CaCO_3$ accumulation rates (AR; g/m²/yr), Siliciclastic AR (g/m²/yr), C_{org} AR (g/m²/yr), and phosphorus AR (g/m²/yr).

Supplementary Figure 2: Stratigraphic changes in sedimentation rate at Chaudon-Norante (based on Gradstein et al. (2020) age model) and the resulting $CaCO_3$ accumulation rates (AR; g/m²/yr), Siliciclastic AR (g/m²/yr), Corg AR (g/m²/yr), and phosphorus AR (g/m²/yr).

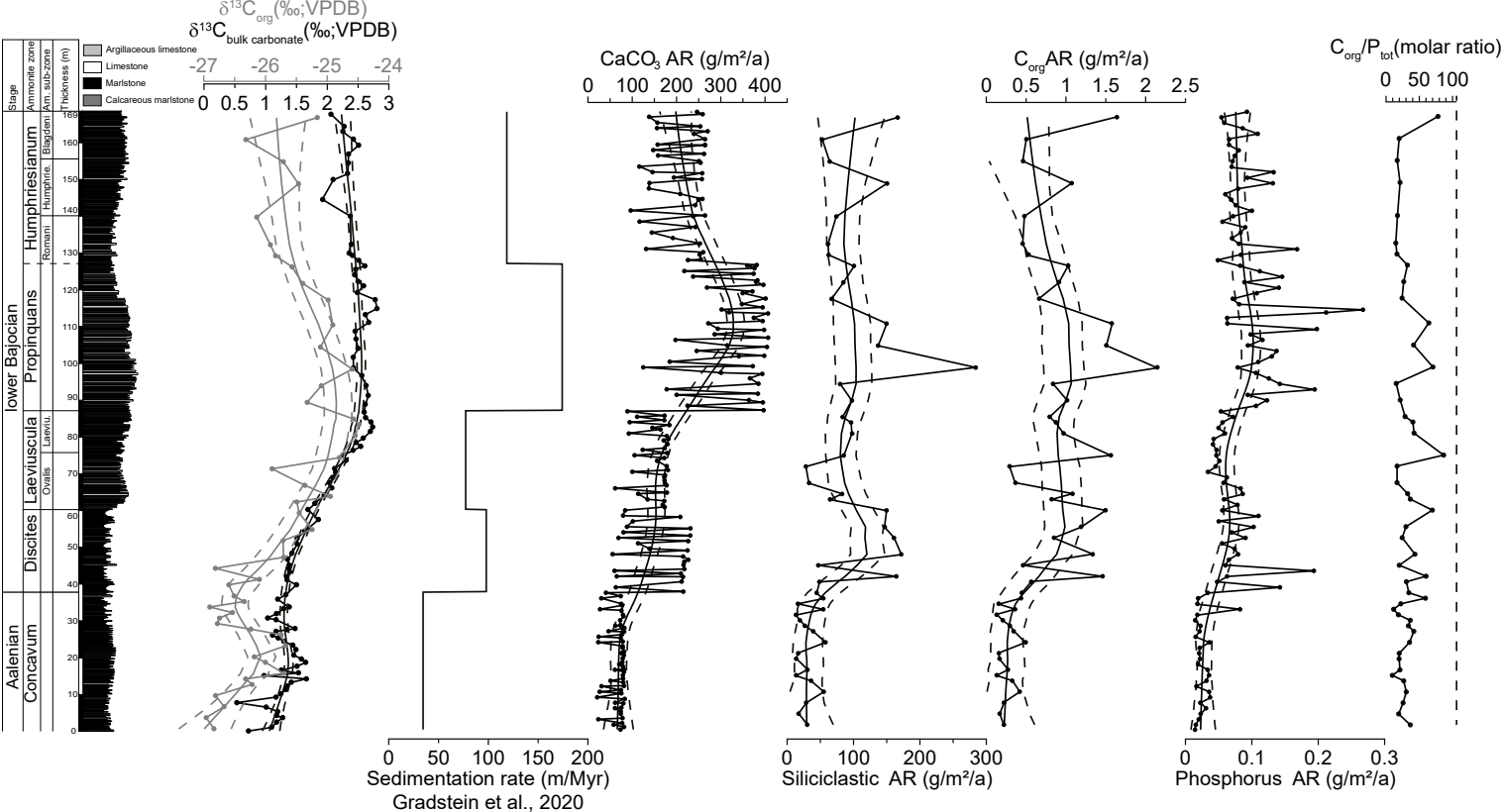
Supplementary Figure 3: Stratigraphic log of Murtinheira section, Portugal with sample position.

Supplementary Figure 4: Stratigraphic log of Chaudon-Norante section, France with sample position.

Supplementary Figure 1: Stratigraphic changes in sedimentation rate at Murtinheira (based on Gradstein et al. (2020) age model) and the resulting $CaCO_3$ accumulation rates (AR; g/m²/yr), Siliciclastic AR (g/m²/yr), C_{org} AR (g/m²/yr), and phosphorus AR (g/m²/yr).


Stage
Ammonite zone
Thickness
lower Bajocian
Aalenian
Humph.
Propinquans
Laeviuscula
Discites
Concavum
δ13Corg(‰;VPDB)
δ13Cbulk carbonate(‰;VPDB)
-25 -24 -23 -22
0.5 1 1.5 2 2.5 3 3.5
CaCO3AR (g/m²/yr)
0 50 150 250 350
Corg AR (g/m²/yr)
0 0.5 1 1.5
Corg/Ptot(molar ratio)
0 50 100
0 50 100 150
Sedimentation rate (m/Myr)
0 40 80 120 160
Siliciclastics AR (g/m²/yr)
0 0.1 0.2 0.3 0.4 0.5
Posphorus AR (g/m²/yr)
Marlstone
Calcareous marlstone
Limestone
Pseudo-nodular bed

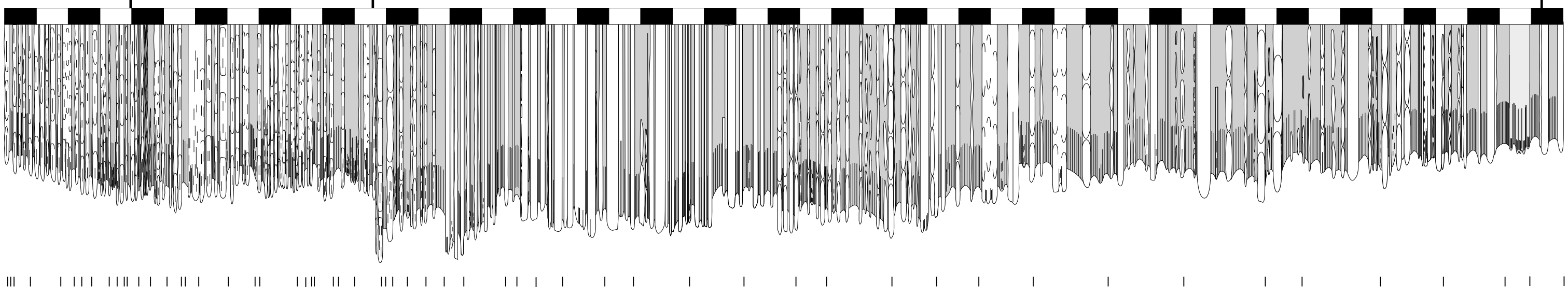
Supplementary Figure 2: Stratigraphic changes in sedimentation rate at Chaudon-Norante (based on Gradstein et al. (2020) age model) and the resulting $CaCO_3$ accumulation rates (AR; g/m²/yr), Siliciclastic AR (g/m²/yr), Corg AR (g/m²/yr), and phosphorus AR (g/m²/yr).


Stage
Ammonite zone
Am. sub-zone
Thickness (m)
Argillaceous limestone
Limestone
Marlstone
Calcareous marlstone
Lower Bajocian
Aalenian
Concavum
Discites
Laeviuscula
Propinquans
Humphriesianum
Ovalis
Laeviu.
Romani
Humphrie.
Blagden
δ13Corg(‰;VPDB)
δ13Cbulk carbonate(‰;VPDB)
-27 -26 -25 -24
0 0.5 1 1.5 2 2.5 3
CaCO3 AR (g/m²/a)
0 100 200 300 400
Corg AR (g/m²/a)
0 0.5 1 1.5 2 2.5
Corg/Ptot (molar ratio)
0 50 100
0 50 100 150 200
Sedimentation rate (m/Myr)
Gradstein et al., 2020
0 100 200 300
Siliciclastic AR (g/m²/a)
0 0.1 0.2 0.3
Phosphorus AR (g/m²/a)

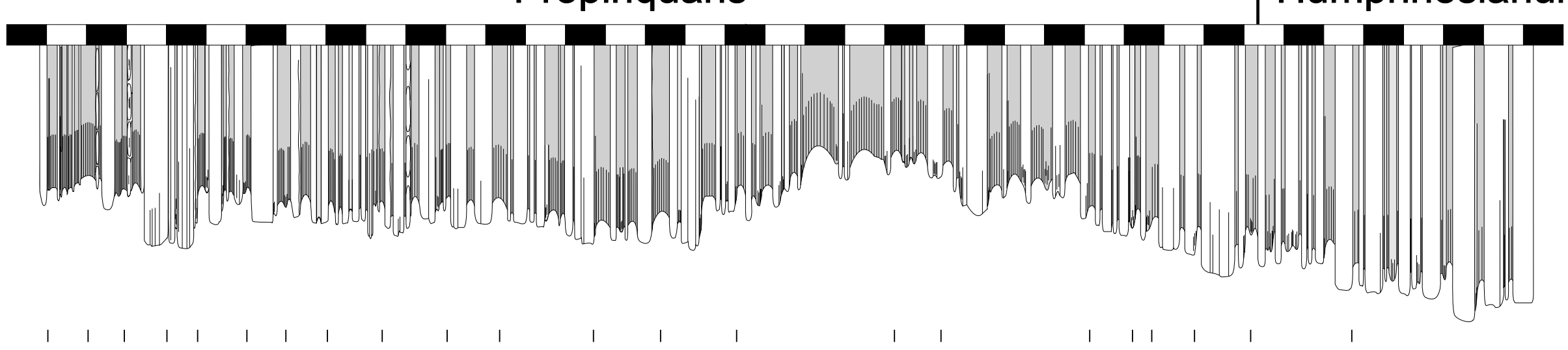
Supplementary Figure 3: Stratigraphic log of Murtinheira section, Portugal with sample position.

Aalenian | Bajocian

Concavum | Discites | Laeviuscula



Propinquans | Humphriesianum



Marlstone

Calcareous marlstone

Limestone

Pseudo-nodular bed

Supplementary Figure 4: Stratigraphic log of Chaudon-Norante section, France with sample position.

Aalenian
Early Bajocian
Concavum
Discites
Ovalis
Laeviuscula
Sauzei
Humphriesianum
Romani
Blagdeni
168.5
0 m
Argillaceous limestone
Limestone
Marlstone
Calcareous marlstone