

## Supplement to:

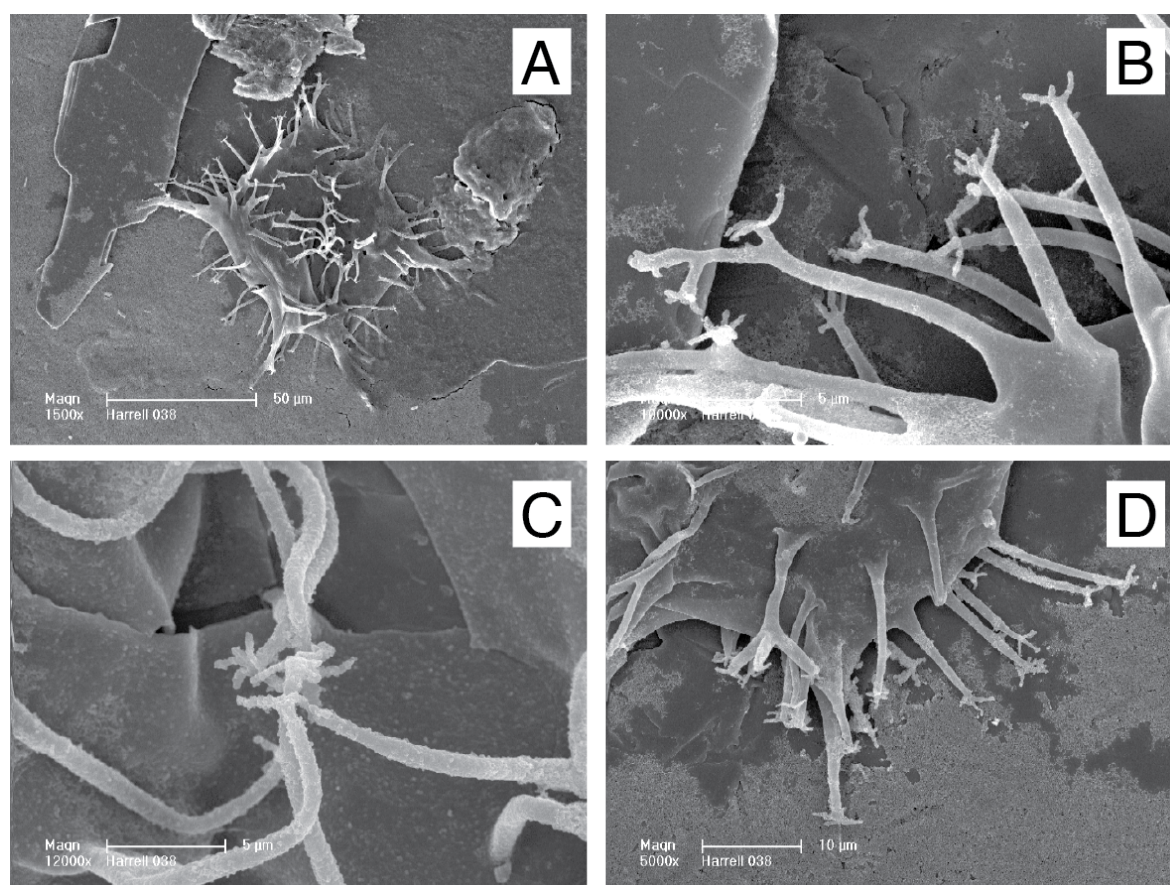
“Warming, euxinia and sea level rise during the Paleocene-Eocene Thermal Maximum on the Gulf Coastal Plain: implications for ocean oxygenation and nutrient cycling” by Appy Sluijs, Linda van Roij, Guy J. Harrington, Stefan Schouten, Jocelyn A. Sessa, Leah J. LeVay, Gert-Jan Reichart, and Caroline P. Slomp. The supplement comprises this PDF file and Tables S1 and S2 in excel format.

**1. Raw data** All raw data are provided in Table S1.

## 2. Dinocyst Taxonomical section

### 2.1 *Apectodinium*

We recorded many specimens of *Apectodinium* that only differed from the above species by having aculeate process tips, reminding of *Wetzeliiella astra* (Plate A). For specific morphotypes, this feature was used to define the species *Apectodinium cornufruticosum* (Islam, 1983). We have seen this feature in all of the reported *Apectodinium* species at Harrell suggesting it represent phenotypic plasticity rather than a species-specific feature.



**Plate A.** Scanning electron microscope photos of *Apectodinium* specimens showing aculeate process tips. All specimens are from sample 141.21 mbs. A-B. *A. quinquelatum*, C-D *A. hyperacanthum*.

## 2.2 Encountered dinocyst species

We follow taxonomic concepts of Fensome and Williams (2004) unless stated otherwise.

*Achomosphaera* spp.  
*Adnatosphaeridium* spp.  
*Apectodinium homomorphum*  
*Apectodinium hyperacanthum*  
*Apectodinium quinquelatum*  
*Apectodinium parvum*  
*Apectodinium* spp. (pars).  
*Areoligera coronata*  
*Areoligera* spp. (pars.)  
*Cerebrocysta* spp.  
*Cleistosphaeridium* spp.  
*Cordosphaeridium fibrospinosum* cpx. *sensu* Sluijs and Brinkhuis (2009)  
*Cribooperidinium* spp  
*Deflandrea* spp.  
*Dinogymnium* spp.  
*Diphyes colligerum*  
*Eocladopyxis peniculata*  
*Eocladopyxis* spp. (pars.)  
*Fibrocysta* spp.  
*Florentinia reichartii* Sluijs and Brinkhuis (2009)  
*Glaphyrocysta* spp.  
*Hystrichosphaeridium tubiferum*  
*Hystrichokolpoma* spp  
*Kenleyia* spp.  
*Lanternosphaeridium lanosum*  
*Membranosphaera* spp.  
*Muratodinium fimbriatum*  
*Operculodinium israelianum*  
*Operculodinium severinii*  
*Operculodinium* spp. (pars.)  
*Paleotetradinium* spp.  
*Phthanoperidinium* spp.  
*Polysphaeridium* spp.  
*Pyxidinopsis* spp.  
*Senegalinium* spp.  
*Senegalinium* cpx. *sensu* Sluijs and Brinkhuis (2009)  
*Spinidinium densispinatum*  
*Spiniferites* spp.  
*Spiniferites* cpx. *sensu* Sluijs and Brinkhuis (2009)

### 3. Nature and source of data supporting Figure 6

Site numbers in Figure 6 correspond to the site numbers in Table S2. The table provides information on the types of data used from the literature (references provided) to suggest deoxygenation of the sea floor and water column at the various sites. Moreover, it provides references to the papers that have presented quantitative information on sea surface and continental warming, sediment supply, sea level and atmospheric nitrogen fixation. References to papers in Table S2 are included below.

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