

almost continuous Quaternary record. Furthermore, their relatively high diversity predisposes them to detailed and reliable biostratigraphic correlations in a region critical for understanding the history and future of Northern Hemisphere climate. Initial studies on sub-arctic sequences with excellent independent chronostratigraphy demonstrate that robust numerical ages may be defined for palynomorph events in the Neogene and Quaternary. Despite their biostratigraphic potential, neither biozonations on a regional and supra-regional scale have been defined nor palynomorph events have been thoroughly calibrated to an independent chronostratigraphic framework. We reviewed the stratigraphic distribution of aquatic palynomorphs in the Arctic Ocean and the adjacent subarctic basins to demonstrate their potential for establishing a high-latitude Quaternary chronostratigraphy. Palynomorphs are rare and are restricted to few intervals in the Central Arctic Ocean in contrast to the rich and diverse assemblages in the marginal Arctic Ocean, but some events calibrated in the subarctic basins may be useful for providing (sub) arctic-wide stratigraphic datums showing that palynomorphs remain a promising tool for future stratigraphic work in the Arctic Ocean.

Session 2.2: Mesozoic and Cenozoic dinocyst stratigraphies.
Poster presentation.

First record of cellulosic resting cysts of the benthic dinoflagellate *Prorocentrum leve* in a natural reservoir in Gujan-Mestras, Gironde, France

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Here we describe resting cysts of the potentially toxic benthic dinoflagellate *Prorocentrum leve* from a natural reservoir in Gujan-Mestras (Gironde, France). The urn-shaped cysts were incubated and gave rise to cells of *Prorocentrum leve*. Morphological observations through light microscopy and scanning electron microscopy combined with large subunit ribosomal DNA sequences obtained through single-cell analysis confirm their affinity to the species *Prorocentrum leve*. This is the first conclusive evidence for fossilizing resting stages within the Prorocentrales, one of the major orders within the Dinophyceae. Resting cysts were previously described for the benthic species *Prorocentrum lima* and *Prorocentrum foraminosum* (as *Prorocentrum marinum*) but these findings were not considered reliable. Palynological treatments show that the cysts withstand hydrochloric and hydrofluoric acid. MicroFTIR analysis on single specimens suggests that the cyst wall composition is cellulosic, as well as the underlying endospore, which would explain that the cysts do not preserve long-term in the sedimentary record, and the lack of a fossil record for this large order of dinoflagellates. In the same sample several other cyst-producing species were present. Cysts of a *Bysmatrum* sp. were also discovered, as well as an undescribed Pfiesteriacean. Other species present were *Spiniferites* cf. *scabratus*, *Peridinium* cf. *ponticum* and *Kryptoperidinium* sp. Despite high abundances of *Dinophysis sacculus* cells in the plankton, we could not identify any cyst stages of this species in the sediment. Several other species of dinoflagellates occurring in brackish waters possibly also produce cellulosic cysts, which suggests that this is a particular strategy to survive in such environments.