

## Regular talk

## PALEOCENE METHANE SEEP COMMUNITY FROM SPITSBERGEN, SVALBARD

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A new Paleocene seep locality is reported from Fossildalen on Spitsbergen, Svalbard. This is one of a very few seep communities of latest Cretaceous–earliest Paleogene age, and the best preserved Paleocene seep community known so far. The seep carbonates and associated fossils have been first identified in museum collections, and subsequently sampled from the weathered outcrops of the Basilika Formation. A frequent feature of the Basilika Formation is the occurrence of glendonites–pseudomorphoses after the cold-water authigenic carbonate mineral ikaite. The seep deposit comprises wood-rich carbonate blocks and numerous carbonate-filled invertebrate fossils, scattered within turbiditic deposits. The isotopically light composition ( $\delta^{13}\text{C}$  approaching  $-50\%$  V-PDB) and characteristic petrographic textures of the carbonates are consistent with their formation at a methane seep. The invertebrate fauna associated with the Fossildalen seep carbonates is of moderate diversity (16 species) and is almost exclusively composed of “background” species, testifying for its shallow water origin. However, the fauna is less diverse than other fossil shallow water seep faunas, which could result from the destructive activity of turbidity currents, low ambient seawater temperatures, or from a general impoverishment of marine faunas in the Paleocene. Fossildalen seep carbonates are characterized by mass accumulations of a thyasirid bivalve belonging to *Conchocele*, similar to mass accumulations of *Conchocele* in other latest Cretaceous and Cenozoic cool-water seeps. So far we did not find any bathymodiolin and vesicomid bivalves, which is in agreement with the Eocene emergence of both clades and the Eocene origin of the “modern” seep fauna.

