Vegetation types of Europe and North America across the Paleocene/Eocene transition

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The impacts of the Paleocene-Eocene Thermal Maximum (PETM) on plants and vegetation types are poorly known in comparison to mammal communities and oceanic plankton. In an effort to better understand the transition, geographic interaction and modification of floras from the Late Paleocene into the Early Eocene we have assembled a dataset of European and North American palynofloras to characterize the differences between different holarctic continents and between different vegetation types. This dataset from localities that are dated to late Thanetian and Ypresian contains approximately 1000 taxa from c. 80 localities from the North America (USA) and Europe (Austria, Belgium, Germany, France, Romania, UK, Spain, and Slovak Republic) that collapse into about 400 angiosperm taxa once synonyms and singletons are removed from the data matrix. Preliminary results show significant differences between both continents in pollen records although families tend to be geographically widespread: e.g. Bombacaceae are more widespread during the Paleocene of North America than in Europe, Burseraceae is common in Europe but not in North America, Sapotaceae occurred on both continents during Paleocene but their abundance increases in North America during the Eocene. Palms are more significant in number of form-taxa in Europe than in North America. Geographic differences between fern spores are not significant because they are highly facies dependant. The Paleocene/Eocene boundary is associated with limited exchange between continents with little immigration into Europe that can be tied to the PETM. The significance of the turnover pattern will be tested with further work to build a null model of change to identify areas and vegetation types that change in the Eocene significantly beyond the expected pattern.