The Paleocene-Eocene Thermal Maximum (PETM) is recognized as one of the potential analogues in the geological record for present-day global warming. The aim of the International Continental Scientific Drilling Program (ICDP) project PVOLC is to test the hypothesis that voluminous magmatism in sedimentary basins in the NE Atlantic triggered the PETM. Two ICDP boreholes are planned to core the boundary in the Limfjorden area in Denmark in 2022. PVOLC will be conducted in conjunction with IODP Exp 396 on the mid-Norwegian continental margin. The North Atlantic Igneous Province (NAIP) was a large igneous province (5–10 million km$^3$ magma) that coincided with both the opening of the NE Atlantic Ocean and the greenhouse conditions of the early Paleogene. The close temporal correlations suggest a possible causal relationship between the NAIP and both the climatic and tectonic changes around 56–54 Ma. In particular, the main acme of NAIP activity occurred across the Paleocene-Eocene Thermal Maximum (PETM), an extreme hyperthermal event that represents the warmest conditions of the last 60 million years. The NAIP is among several proposed candidates for driving global warming through CO2/CH4 emissions, both by magmatic degassing and through contact metamorphism around shallow intrusions in organic rich sedimentary basins. What is needed to refine the role of the NAIP during the PETM are key sedimentary sequences that contain abundant volcanic and climatic proxies in the same section, thereby allowing a precise geochronology of events to be attained. The sediments exposed on the Fur island, Denmark, are a key sequence of PETM and post-PETM strata with little thermal overprint and hundreds of well-preserved volcanic ash layers from the NAIP. The effects of Quaternary glaciotectionism have disturbed this key stratigraphic interval at Fur, but seismic surveys indicate that undisturbed strata are found a few km to the south. The ICDP PVOLC project plan is to drill both the Paleocene-Eocene and the Cretaceous-Paleocene boundaries, hopefully recovering pristine cores suitable for high-resolution geochemical and climatic studies.