



The preliminary studies of plankton in the framework of the project “Paleogene Polar Plankton and Paleoproductivity”.

Gayane Asatryan, David Lazarus, and Johan Renaudie

Museum für Naturkunde - Leibniz Institute for Evolution and Biodiversity, Berlin, Germany (gayane.asatryan@mfng.berlin)

We describe a new integrated data collection and modelling project that will study polar plankton in Eocene-Oligocene transition to better understand the interaction between plankton and climate change: carbon capture, evolution and extinction in the plankton at a point in the earth's past where atmospheric CO₂ and temperatures were as high as predicted for our future. We will collect new occurrence, abundance and diversity data on diatoms, as they play a crucial role in carbon capture; and radiolaria for identifying water masses, polar ocean currents and conditions in past times. Coccolithophores, foraminifera, biochemical analyses and silicon isotope analyses will also be used to provide more robust proxy data and for geochronology. The target localities are polar oceans, where diatoms are abundant as minute fossils in deep-sea sediments and where many are key species for carbon capture. We will however also compile diversity data from tropical regions to identify biogeographic shifts as distinct from true extinction or speciation in polar regions. Our data will be compared to and used to constrain computer generated global simulations of ocean circulation and carbon capture to place our observations from sediments into a coherent geographic context.