Synthesising, translating and mapping Tertiary vegetation data for global climate modelling studies

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A growing number of studies have highlighted the importance of vegetation-climate feedbacks in palaeoclimate modelling exercises. The importance of vegetation as a boundary condition in Tertiary modelling has not been fully recognised and/or explored. Several palaeovegetation datasets and maps have been produced for specific time slabs or regions for the Tertiary, but the vegetation classifications which have been used differ, thus making meaningful comparisons difficult. In order to facilitate further investigations into Tertiary climate and environmental change it is necessary to construct a comprehensive GIS database designed to:

(a) integrate marine and terrestrial vegetation data taken from fossil pollen, leaf or wood to produce global palaeo-vegetation maps for different time slabs covering the Late Eocene to Plio-Pleistocene transition

(b) translate for the Neogene vegetation from different vegetation schemes into a single internally consistent vegetation classification which will enable better comparison and validation of climate and vegetation model outputs to palaeo-data

(c) reconstruct global Miocene to Pliocene vegetation patterns using an objective biomization scheme based on plant functional types. This technique has already been successfully applied primarily for the Quaternary (e.g. BIOME 6000).

The combined modelling and proxy data approach of our project will provide new palaeoclimate datasets to test climate models that are used to predict future climate change, and provide a more rigorous picture of climate and environmental changes during the Tertiary.