Geophysical Research Abstracts,
Vol. 11, EGU2009-3495, 2009
EGU General Assembly 2009

New methods for new data on plant organic carbon from sediments.

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New methods for new data on plant organic carbon from sediments.
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Vegetation distribution is linked to climatic and non-climatic factors. In the past, the knowledge of plant species distribution at different scales (global to regional) is a necessary step for climate simulating models. Pollen is one of the most important fossil plant remains and has been widely use for that purpose. But species level determinations are not possible in most cases on pollen. A physiological plant type basis (C3, C4 plants) is frequently employed to improve data accuracy. C3 and C4 plants may be characterized by the delta 13C values of pollen organic carbon. Biogeochemical methods using sporopollenin (a well preserved wall constituent of fossil pollen grains) as macromolecular proxy have been developed. We present here a combination of non-destructive methods, never used on fossil pollen grains. Specific pollen taxa has been isolated from sediments by cytometry and the structure of the sporopollenin is controlled by Attenuated Total Reflection Fourier Transform Infrared spectroscopy. This method allow further delta 13C measurements on the same material. Selected pollen taxa could be isolated in different levels from a sediment core and the structure of the sporopollenin is controlled before delta 13C measurements.