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11 am (Paris time, UCT +2)

Salle 201, Bâtiment PS2, CIRAD-UMR AMAP
Visioconference: [Link TEAMS](#)

Plant fossil-informed ecosystem modeling is a testing ground for hypotheses regarding deep time terrestrial surface processes.

presented by

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ABSTRACT: Plants have supported terrestrial ecosystems for hundreds of millions of years. However, plant evolution implies changing function. Estimating era-appropriate vegetation function and distribution is critical to resolving terrestrial surface processes across the Phanerozoic. The ecosystem simulation model paleo-BGC is a set of linked processes relevant to the Earth system scale that can also be parameterized using measurements from fossils, providing a useful mesoscale for understanding deep time Earth.

I will present an overview of my work developing paleo-BGC and input parameters representing extinct plants. To date, most of this work has focused on vegetation changes at the end of Earth's penultimate ice age (i.e., the Late Paleozoic Ice Age, 340-285 Ma). First, the development of a tracheid-scale model of xylem physiological limitation for paleo-BGC ancient plant stems, even in subhumid conditions, certain plant types may have been water-limited. Extrapolating this limitation to global ecosystem simulations has allowed for biogeographic projections of single plant types for the end Pennsylvanian (290 Ma). The future of this work depends on building collaborations between paleo- and neo-plant scientists to harmonize measurement and modeling approaches and make optimal use of the plant fossil record--the only direct source of evidence regarding the function and biogeography of extinct, non-analog, pre-angiosperm plants.

KEY-WORDS: modeling, fossil, traits, ecosystems

Invited and animated by:

Type:

Oral language:

Language of PPT:

Dr. Anne-Laure DECOMBEIX (UMR AMAP)

Research questions & results

English

English

