Challenges in elevated CO2 experiments on forests

Current forest Free Air CO2 Enrichment (FACE) experiments are reaching completion. Therefore, it is time to define the scientific goals and priorities of future experimental facilities. In this opinion article, we discuss the following three overarching issues (i) What are the most urgent scientific questions and how can they be addressed? (ii) What forest ecosystems should be investigated? (iii) Which other climate change factors should be coupled with elevated CO2 concentrations in future experiments to better predict the effects of climate change? Plantations and natural forests can have conflicting purposes for high productivity and environmental protection. However, in both cases the assessment of carbon balance and how this will be affected by elevated CO2 concentrations and the interacting climate change factors is the most pressing priority for future experiments.

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