



Biosphere-atmosphere interactions and rising CO₂

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We will discuss the role of rising CO₂ on land-atmosphere interactions and the the impact of land-atmosphere interactions on climate in the context of rising CO₂ concertations.

We will show that increased leaf level CO₂ (physiological effect) concentrations can compete with the effect of rising CO₂ concentration on temperature (radiative effect).

We will first show that an implications of those feedbacks is a modification of the hydrological cycle, its seasonality and response to extremes. Then we will discuss implications for future droughts. We will then show that the coupling between the carbon and water cycle offers opportunity for observations of those feedbacks. Finally we will question the use of offline simulations to assess the future of ecosystems and further carbon uptake, as land-atmosphere interactions in the future will have such a profound effect on atmospheric aridity that the biosphere cannot be considered in isolation.