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Biosphere interactions with droughts on inter annual time scales and with rising CO_2

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In this presentation we will use both coupled general circulation models and multi-year observations from drought-induced experiments to understand how vegetation interacts with droughts, and can either expand or reduce them on multiple time scales.
We will show that there are multiple processes at play (such as stomatal modification by CO_2 enrichment, greening with CO_2, changes in the soil water cycle as well as changes in wood anatomy and ecosystem conductance) occurring at multiple time scales that together not only constrain the responses of ecosystems to droughts but also impact the occurence and topology of droughts.
We will then show that as a result of changes in these biospheric changes droughts in the future will be fundamentally differentially affecting water resources, plant health, or atmospheric temperature.