

# Increased nitrate concentrations in the soil of a mature mixed forest subjected to elevated CO<sub>2</sub> concentrations (Swiss web-FACE experiment)

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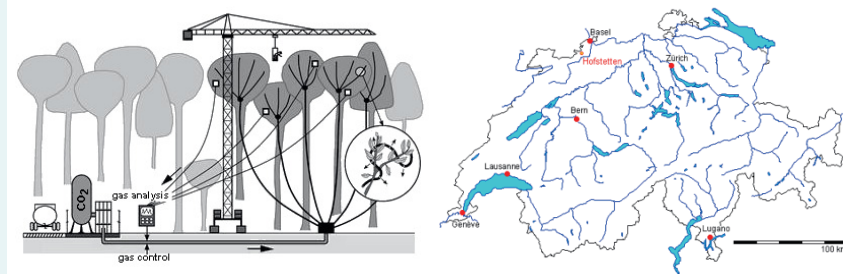
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## Hofstetten (CH) experiment

CO<sub>2</sub> enrichment on 12 mature broadleaved trees



### Hofstetten:

Altitude: 540 m

Geology: Jura limestone

Soil: Rendzina

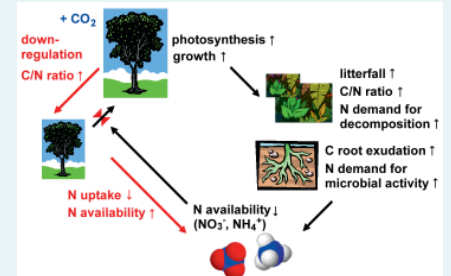
Vegetation: mixed forest, 80-120 year old

Precipitation: 1000 mm/a

Bulk N deposition: 20-25 kg/ha/a

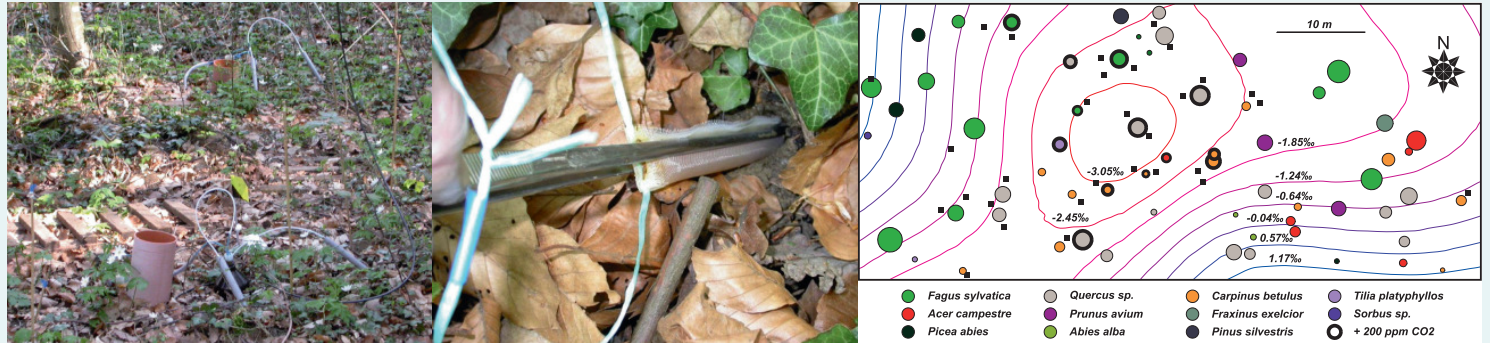
## Hypothesis

Progressive N limitation ?



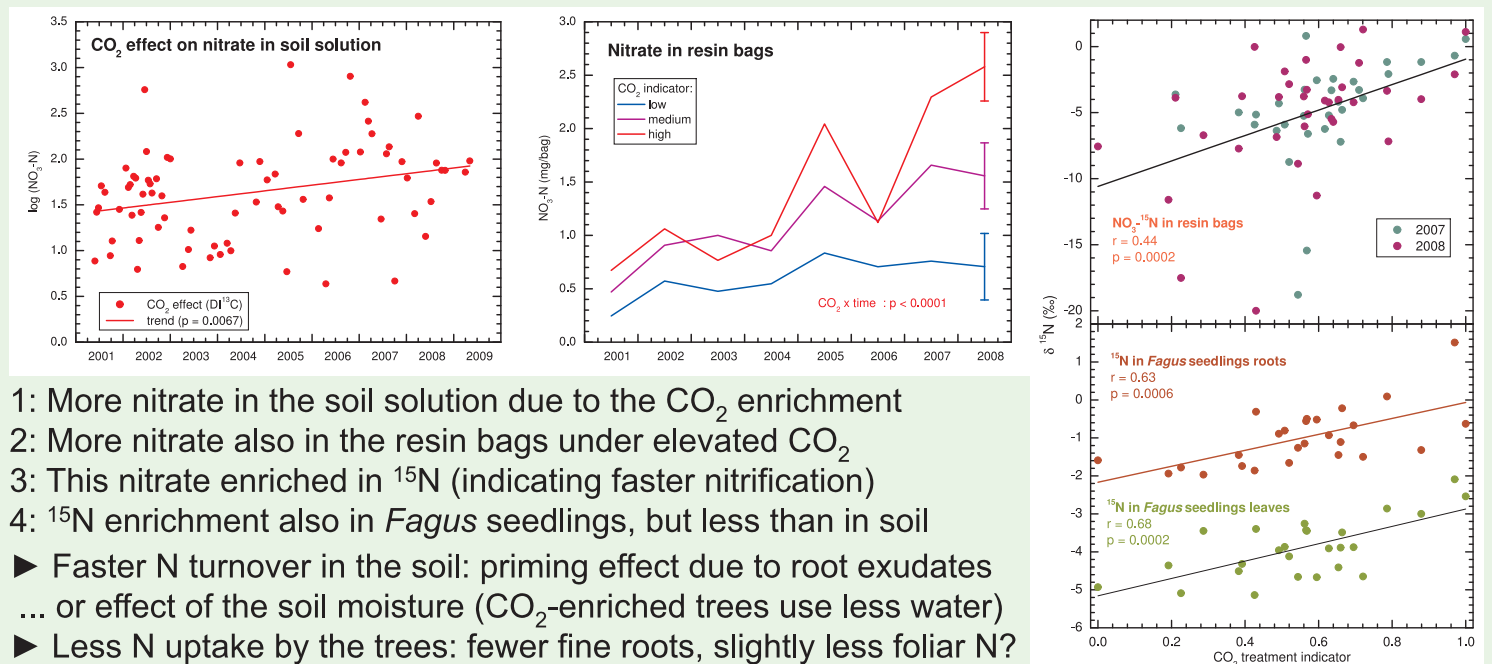
## Analytical approach

Suction cups and resin bags along 3 transects (*Fagus sylvatica*, *Quercus* sp., *Carpinus betulus*)



Statistics: regression vs. treatment-induced <sup>13</sup>C depletion in dissolved inorganic C in soil solution

## Results



## Conclusions

In the mature trees of this temperate mixed forest, 8 years of elevated CO<sub>2</sub> produced no sustained growth enhancement, but this is **not due to a progressive N limitation** since more nitrate is available in the soil. The risk of nitrate leaching increases, especially under high N deposition.