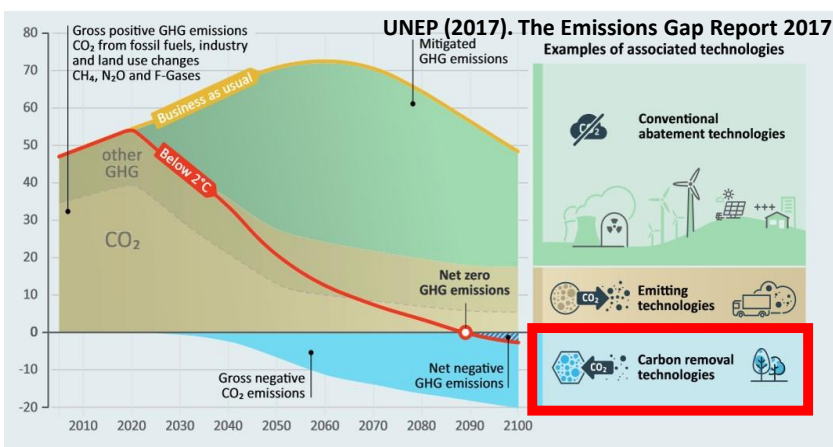
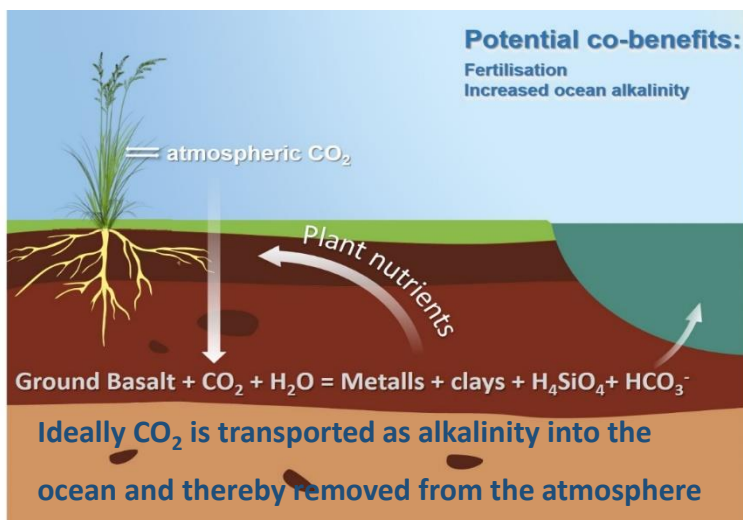


The potential of carbon dioxide removal through enhanced weathering of basalt on agricultural land in Austria

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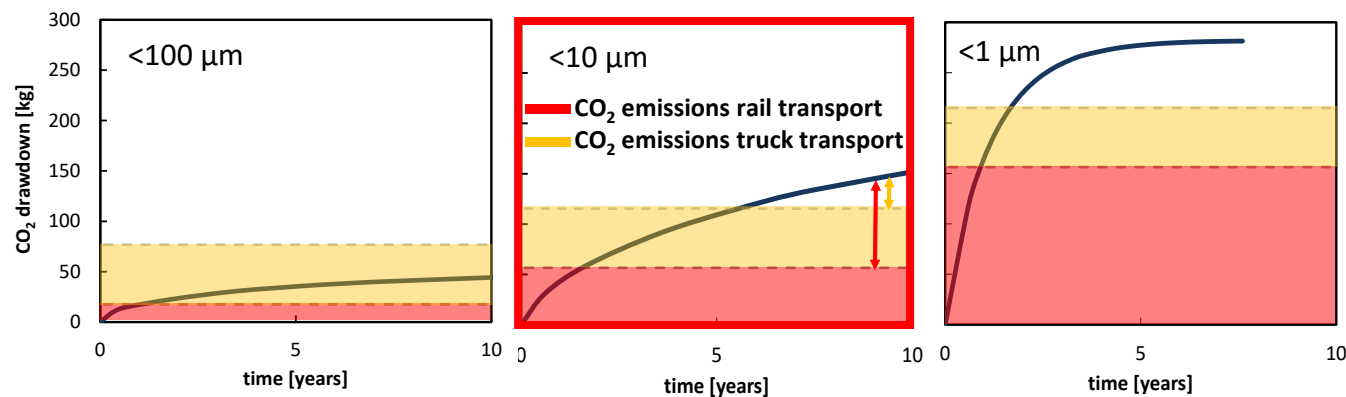


Scenarios consistent with the goals of the Paris agreement often include Carbon removal technologies to reach those goals



Enhanced weathering of basalt is one of the proposed technologies to meet future emission scenarios

Dissolution of powders with different grain size distribution was calculated with a modified shrinking core model. CO₂ emissions include mining, grinding, application and **300 km** transport, based on regional availability of basalt



- Application rate of scenario is 10 kg/m² on 1,9 Million ha cropland and intensive grassland
- Removal after 10 years equals **18 (7.2)** million tons CO₂ or **20 (9)** % of the annual emissions

Appr. 45 % of Austria's annual electricity generation is needed for grinding down to <10μm

1. Smaller grain sizes are more suitable, despite high energy requirements
2. Considerable uncertainty exists with respect to field weathering rates
3. If field rates keep the promise, enormous efforts have to be taken to enable mining and supply required energy

Amount
of
basalt
400 m