

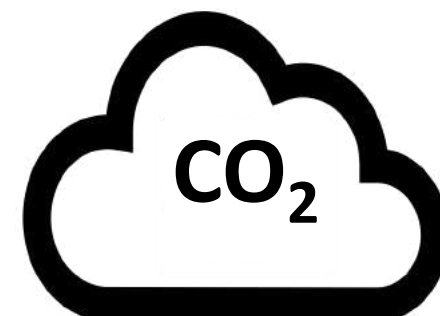
# The Role of Peatlands in Climate Change Mitigation

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**Peatlands of the world store over 500 Gt of Carbon**  
in their peat (Joosten 2010).

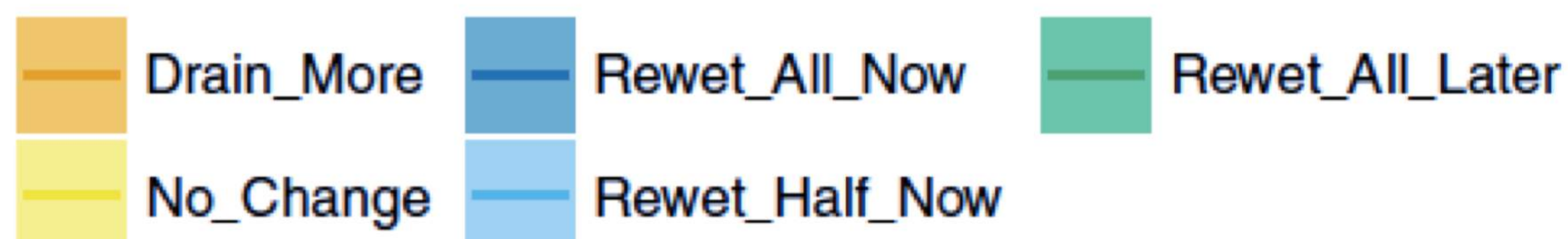
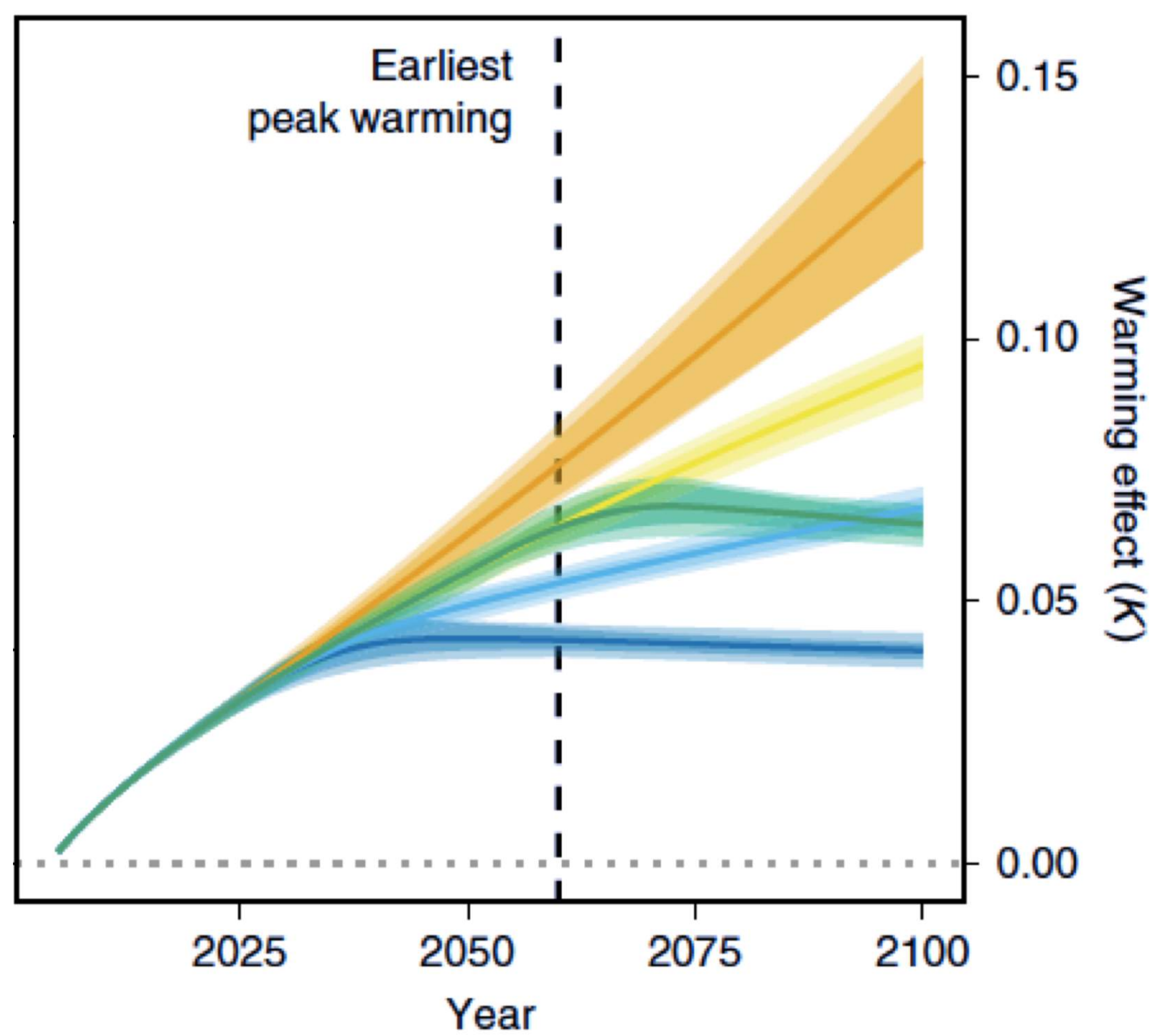
**Twice as much carbon as the global forest biomass**

They emit **CO<sub>2</sub>** when drained  
Peatlands contribute ~ **2 Gt** each year  
~ **5%** of our total annual emissions  
CO<sub>2</sub> emissions can be substantially reduced by **rewetting**  
**But rewetting increases CH<sub>4</sub> emissions** (Trumper 2009)



## Emission scenarios with or without rewetting

(Günther et al. 2020)



Scenarios	Description
Drain_More	The area of drained peatlands continuous to increase from 2020 to 2100 at the same rate as between 1990 and 2017
No_Change	The area of drained peatlands remains at the 2018 level
Rewet_All_Now	All drained peatlands are rewetted in the period 2020-2040
Rewet_Half_Now	Half of all drained peatlands are rewetted in the period 2020-2040
Rewet_All_Later	All drained peatlands are rewetted in the period 2050-2070

- **Rewetting** of drained peatlands leads to **climate benefits** by avoiding CO<sub>2</sub> emissions
- The long-term warming effect is lowest in the **immediate rewetting scenario** and highest in the **drain more scenario**
- There is a **0.1 K warming effect difference** between the most **optimistic** and the most **pessimistic** peatland management scenario

Fig. 1 Global warming and climatic effects of peatland management (Günther et al. 2020, Fig.4)

## Conclusions

**Immediate rewetting of drained peatlands reduces climate warming**  
**The long-term climate benefits of rewetting all peatlands by far exceed the negative short-term climate effects of reestablished CH<sub>4</sub> emissions!**

### References:

- Günther, A., Barthelmes, A., Huth, V. et al. (2020): *Prompt rewetting of drained peatlands reduces climate warming despite methane emissions*. Nature Communications 11. Art. Number 1644
- Joosten, H. (2010): *The Global Peatland CO<sub>2</sub> Picture - Peatland status and drainage related emissions in all countries of the world*. Wetlands International.
- Trumper et al. (2009): *The Natural Fix? The role of ecosystems in climate mitigation*. UNEP rapid response assessment. Cambridge, UK.

