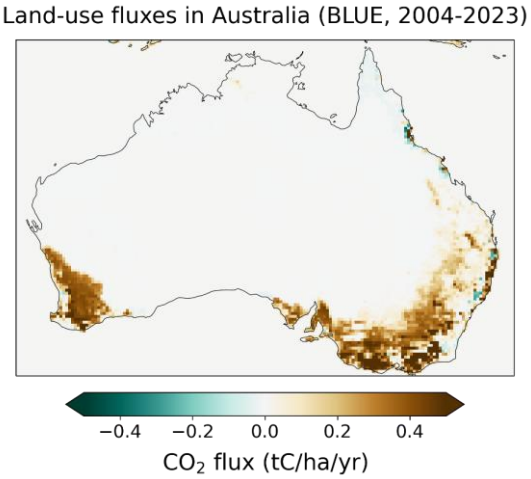
Master thesis

Exploring land-use emissions: a global vs. regional perspective



Comparing the global bookkeeping model BLUE with a regional model for Australian land-use CO_2 fluxes

Supervisors:
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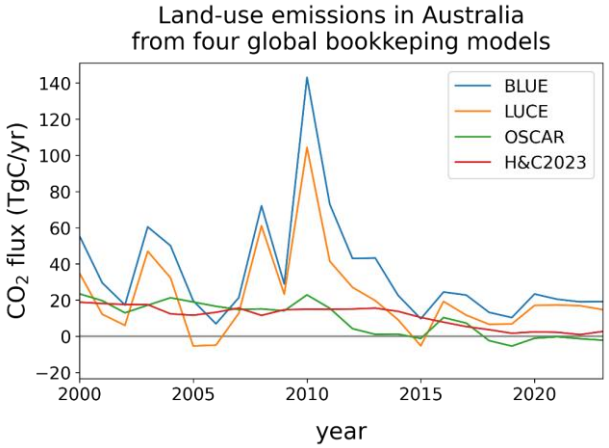
Introduction:

Accurate modelling of land-use emissions is critical for understanding the terrestrial carbon cycle and supporting effective climate policies. The global bookkeeping model BLUE is widely used for estimating land-use emissions globally (e.g. in the yearly published Global Carbon Budget). However, its accuracy in representing regional dynamics remains untested for some areas.
In this master thesis, BLUE will be compared with the regional bookkeeping model FullCAM tailored to Australia, aiming to evaluate how well global and regional models align in capturing land-use fluxes. The analysis will be conducted in collaboration with the Australian *Department of Climate Change, Energy, the Environment and Water*.



Research Objectives:

- Analyse the agreement between BLUE and FullCAM for land-use CO_2 fluxes in Australia
- Identify potential discrepancies in emission estimates and their underlying causes
- Develop suggestions for how to integrate learned insights into BLUE

Prerequisites:

- **Basic programming knowledge** (ideally python) and **interest in data analysis**
- **Good proficiency in English** to exchange with Australian project partners (ideally the thesis is written in English)

Start: summer term 2025 or earlier

For more information and for application, please contact Clemens Schwingshackl (c.schwingshackl@lmu.de).

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