

Assignment: Nitrogen Cycle and Interactions with the Carbon Cycle

Mode

Partner work allowed: yes, maximum groups of three.

Create a text document of 3-5 pages (A4, 11 pt) that answers the content points listed below. You may structure the document along the given questions or as you like. Make sure that references in your text are correctly cited and that each statement is referenced. Ideally, your responses are complemented by a figure from original sources for each point. The document may be handed in as a Word, [RMarkdown](#), or [Quarto](#) document that can be added to the repository of the LES textbook (<https://geco-bern.github.io/les/>).

Present this work in a presentation of 30 min.

Supervised by Fabrice Lacroix.

Content points

1. What processes in soil and vegetation determine the cycling of nitrogen in terrestrial ecosystems? Sketch a scheme showing the most important nitrogen pools and fluxes between plants, soil, atmosphere and the hydrosphere.
 - (Gruber and Galloway, 2008; Nevins et al., 2020; Vicca et al., 2018)
2. What determines the demand for nitrogen by plants and what is the annual total terrestrial nitrogen uptake by vegetation?
 - (Peng et al., 2023) and LES Book Chapter 5 (<https://geco-bern.github.io/les/ecosystemcarbon.html>)
3. How does nitrogen availability impact CO₂ uptake in terrestrial ecosystems? How can nitrogen limitation be observed in terrestrial ecosystems?
 - (Hungate et al., 2003; Reich et al., 2006; Terrer et al., 2019)
4. How are the inputs and losses of reactive nitrogen to/from terrestrial ecosystems changing due to human activities (agriculture, industry) and climate change?
 - (Galloway et al., 2004; Gruber and Galloway, 2008; Stocker et al., 2013)

References

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