

Assignment 2: Flow

Directions

Seamless flow of ideas is critical for successful scientific writing, yet is a challenge for many beginners. In this assignment, you will revise a short paragraph to make it flow better. Use the techniques we discussed in lectures 8 when doing this exercise. This paragraph comes from the first draft of a manuscript I helped editing recently. So do not be afraid to make major changes. Once you finish, submit your assignment as a PDF file [here](#). This assignment is due on December 15, 2022.

The huge uncertainties in the global carbon (C) budget are related to the terrestrial C cycle. Reducing these uncertainties requires improving the accuracy of estimating C flux between the atmosphere and terrestrial ecosystems. Soil respiration (R_s) is the second-largest C flux between the atmosphere and terrestrial ecosystems, at 75–100 Pg C yr⁻¹, it is roughly 9 times larger than anthropogenic C emissions. It is well known that R_s plays a key role in regulating the atmospheric carbon dioxide (CO₂) concentration and climate feedback. A slight change in annual R_s flux may cause a significant alteration in global CO₂ concentration. Over the past decades, R_s has shown an increasing trend due to continuous climate warming. Considering its significance in the global C cycle, clearly accurate measurement of R_s is a key issue for the assessment of the feedback between terrestrial ecosystems and climate change, and subsequently, the establishment of models. However, how to accurately measure the R_s is still under debate and development. If soil CO₂ emissions cannot be accurately measured, predictions of long-term dynamic soil C pools using process representations in models will remain in error.