Thesis Introduction

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July 26, 2016

1 Notation

List of symbols and meanings consistent throughout thesis.

2 The global carbon cycle

IPCC figure 6.1 and 6.8: Partitioning of fluxes important and hard (shown by error on estimates in fig 6.1). Land surface carbon uptake least understood mechanism in the global carbon cycle, ref IPCC. Will uptake remain the same under climate change.

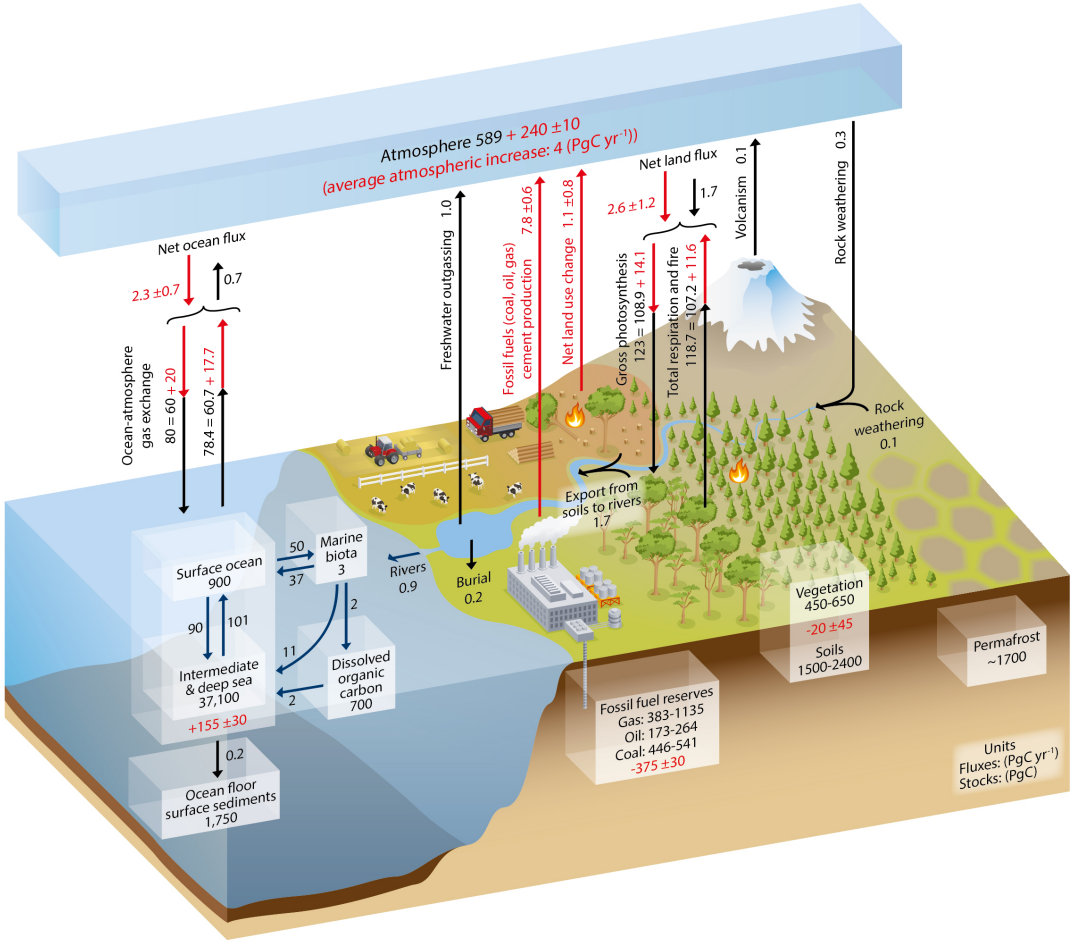

Figure 1: Global carbon cycle simplified schematic [Ciais et al., 2014]. Black numbers and arrows represent reservoir mass and exchange fluxes estimated for the time prior to the industrial era (1750). Red numbers and arrows represent annual fluxes average over the 2000-2009 time period. Red numbers in the rservoirs indicate the cumulative change of carbon over the industrial period (1750-2011).

3 The role of models

IPCC figure 6.16 and section 6.3.2.6.6: Contribution of models to understanding the terrestrial carbon cycle. Reference every DALEC paper.

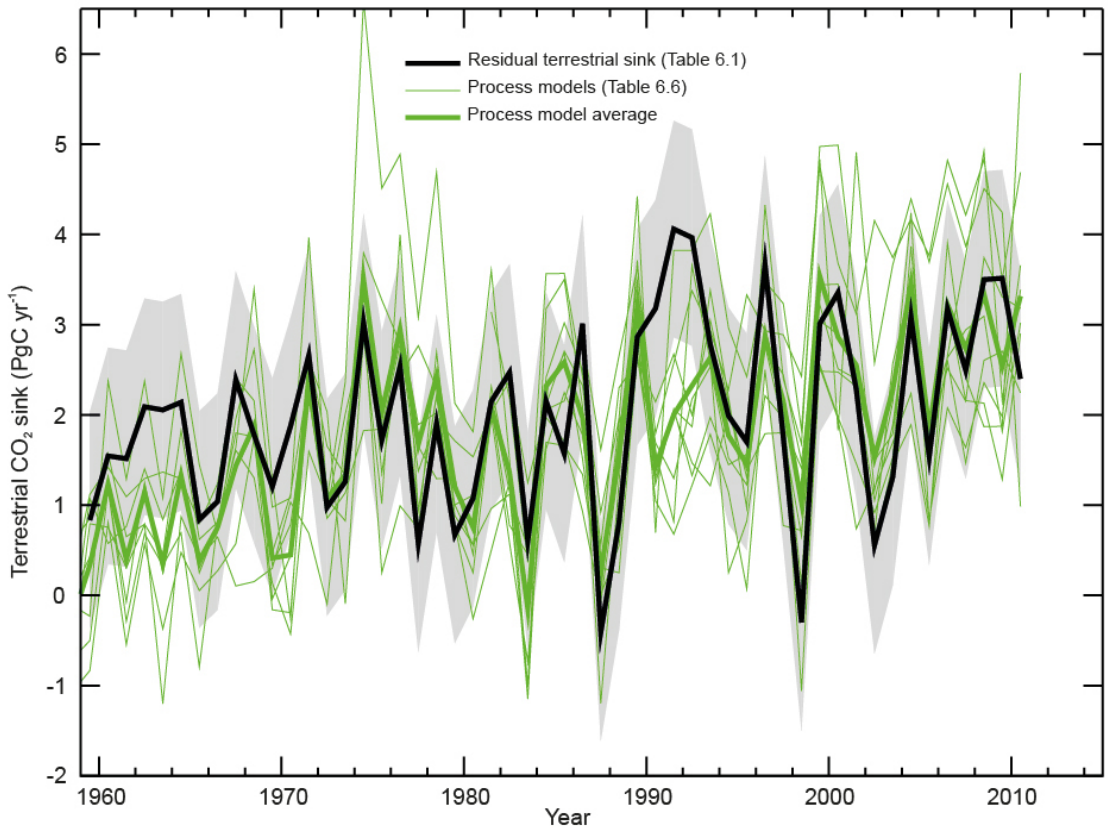

Figure 2: Modelled land sink [Ciais et al., 2014].

4 Eddy covariance and other observations

Baldocchi paper: Many observations of forest carbon flux made worldwide.

5 Data assimilation

Role of DA in NWP improving forecast skill.

References

P. Ciais, C. Sabine, G. Bala, L. Bopp, V. Brovkin, J. Canadell, A. Chhabra, R. DeFries, J. Galloway, M. Heimann, et al. Carbon and other biogeochemical cycles. In *Climate change 2013: the physical science basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pages 465–570. Cambridge University Press, 2014.