



## **Corrigendum to “The Australian Terrestrial Carbon Budget” published in Biogeosciences, 10, 851–869, 2013**

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In the manuscript “The Australian Terrestrial Carbon Budget” by V. Haverd et al. (*Biogeosciences*, 10, 851–869, 2013) the following error occurred: we counted C-CO<sub>2</sub> emissions from clearing fires and from land use change (LUC) as independent fluxes in the Australian C budget. This was incorrect because the LUC emissions also include clearing fire emissions, leading to a double counting in the net carbon balance. We have now excluded clearing fire emissions (23 Tg C yr<sup>-1</sup>) from the net fire emissions term and from the net fluxes and changes in stock in Table 1 and Figs. 1 and 2. This results in a new estimate of net biospheric production of 59 ± 35 Tg C yr<sup>-1</sup>, which is significantly higher than the original estimate of 36 ± 35 Tg C yr<sup>-1</sup>. These changes require revisions to Table 1, Figs. 1 and 2 and to the second key finding in the Summary (Sect. 6) as follows:

Net ecosystem productivity is partially offset by LUC emissions, including emissions from clearing fires (along with other minor fluxes), which cause a net loss of 21 ± 7 Tg C yr<sup>-1</sup> from the biosphere. The resultant net biome production (NBP) of 59 ± 35 Tg C yr<sup>-1</sup> offsets fossil fuel emissions (95 ± 6 Tg C yr<sup>-1</sup>) by 62 ± 36 %.

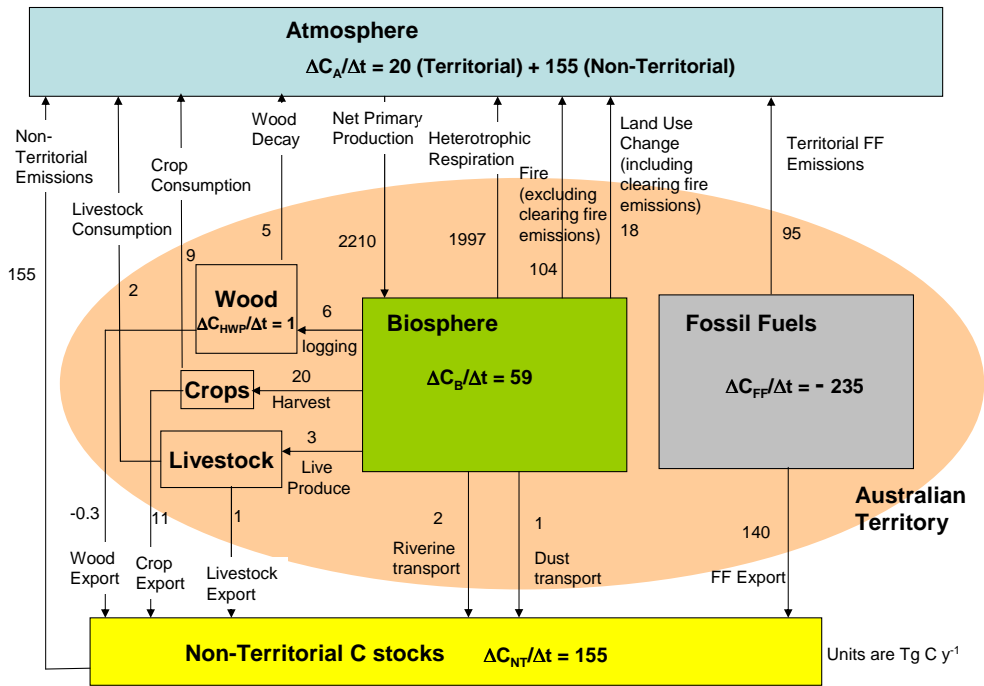


Figure 1. Summary of the Australian Territorial Carbon Budget, 1990–2011.

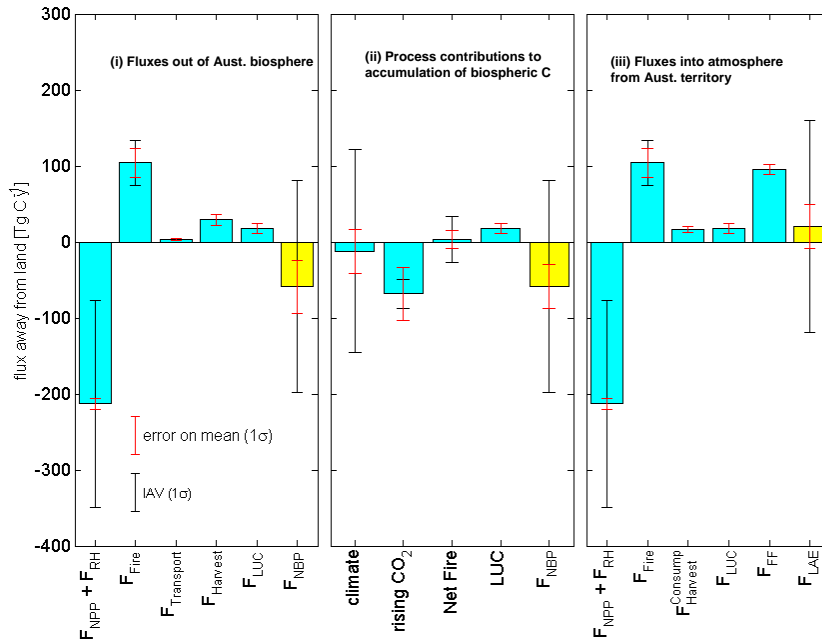


Figure 2. (i) Net flux of carbon out of the Australian biosphere ( $F_{NBP}$ , yellow) as the sum of components (blue); (ii) net flux of carbon out of the Australian biosphere ( $F_{NBP}$ , yellow) as the sum of process contributions (blue) due to variable climate, rising  $CO_2$ , net effect of fire (excluding clearing fires) and LUC (including clearing fires); and (iii) net flux of carbon from the Australian territory to the atmosphere ( $F_{LAE}$ , yellow), as the sum of components (blue). Error bars represent errors on the mean ( $1\sigma$ , red) and interannual variability ( $1\sigma$ , black).

**Table 1.** Components of the Australian Territorial Carbon Budget.

		Flux (away from land surface) (Tg C yr <sup>-1</sup> ) <sup>a</sup>	IAV (1 $\sigma$ )	Error on mean (1 $\sigma$ )	Averaging period
Biosphere (no fire, no transport, no harvest, no LUC)	GPP	-4110	345	740	1990–2011
	RA	1900	154	342	1990–2011
	NPP	-2210	195	398	
	RH <sub>F-T-H</sub> (no fire, no transport, no harvest)	2130	66	383	
	NEP = NPP-RH <sub>F-T-H</sub>	-80	136	30	
Fire	Fire (non-clearing)	104	30	19	
	Fire (clearing) <sup>c</sup>	23	5	4	1990–2010
	Total fire	127.0	30	22	1997–2009
	RH <sub>T-H</sub> (corrected for fire)	2029	66	342	
	Net fire (non-clearing) = $F_{\text{Fire}} + \text{RH}_{\text{T-H}} -$ $\text{RH}_{\text{F-T-H}}$	3	30	4	
Transport	Riverine	2.3	–	1	
	Dust	1	–	1	
	Total transport	3	–	1	
Harvest (wood, livestock, crops)	HWP gross	6.1	–	1.5	2004
	HWP consumption	6.4	–	2	2004
	HWP export	-0.3	–	2	2004
	Livestock gross	3.1	–	0.8	2004
	Livestock consumption	2.0	–	0.5	2004
	Livestock export	1.1	–	0.3	2004
	Crop gross	19.6	–	5	2004
	Crop consumption	8.9	–	2	2004
	Crop export	10.7	–	3	2004
	Harvest gross	29	–	7	
	Harvest export	12	–	3	
Harvest consumption	17	–	4		
Heterotrophic respiration	RH (corrected for fire, harvest, transport)	1997	66	383	
Land use change	LUC	18	–	7	1990–2009
Fossil fuels	FF (territorial)	95	–	6	1990–2010
	FF (export)	140	–	8	1990–2011
Net fluxes	NBP	-59	139	35	
	Land-atm. exchange	20	139	29	
Changes in stock <sup>b</sup>	$\Delta C_{\text{FF}}/dt$	-235	–	15	
	$\Delta C_{\text{Non-Territorial}}/dt$	155	–	17	
	$\Delta C_{\text{Biosphere}}/dt$	59	139	35	
	$\Delta C_{\text{Territorial}}/dt$	-174	139	38	
	$\Delta C_{\text{HWP}}/dt$	1	–	–	
	$\Delta C_{\text{Atmosphere}}/dt$	174	139	38	

<sup>a</sup> Multiply by 0.126 to convert to g m<sup>-2</sup> yr<sup>-1</sup>; <sup>b</sup> sign convention: positive change in stock is an increase in stock; <sup>c</sup> clearing fire emissions are also included in land use change flux, and therefore are not included in net fluxes or changes in stock.