

Table 3. The global carbon budget for two time periods (Pg C year^{-1}). There are different arrangements to account for elements of the global C budget (see also table S6). Here, the accounting was based on global C sources and sinks. The terrestrial sink was the residual derived from constraints of two major anthropogenic sources and the sinks in the atmosphere and oceans. We used the C sink in global established forests as a proxy for the terrestrial sink.

Sources and sinks	1990–1999	2000–2007
	<i>Sources (C emissions)</i>	
Fossil fuel and cement*	6.5 ± 0.4	7.6 ± 0.4
Land-use change†	1.5 ± 0.7	1.1 ± 0.7
Total sources	8.0 ± 0.8	8.7 ± 0.8
	<i>Sinks (C uptake)</i>	
Atmosphere‡	3.2 ± 0.1	4.1 ± 0.1
Ocean‡	2.2 ± 0.4	2.3 ± 0.4
Terrestrial (established forests)§	2.5 ± 0.4	2.3 ± 0.5
Total sinks	7.9 ± 0.6	8.7 ± 0.7
Global residuals	0.1 ± 1.0	0.0 ± 1.0

*See (2). †See (4, 7, 25). The global land-use change emission is approximately equal to the tropical land-use change emission, because the net carbon balance of land-use changes in temperate and boreal regions is neutral (24, 38). ‡See (4). §Estimates of C sinks in the global established forests (that are outside the areas of tropical land-use changes) from this study. Note that the carbon sink in tropical regrowth forests is excluded because it is included in the term of land-use change emission (see above and Table 1). ||Global C residuals are close to zero when averaged over a decade. Uncertainties in the global residuals indicate either a land sink or source in the 212 Mha of forest not included here, on nonforest land, or systematic error in other source (overestimate) or sink (underestimate) terms, or both.

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