

Scientific Basis

Arguments on Oceanic Carbon Cycle of IPCC Assessments—A Test Using  $\delta^{13}\text{C}$  Budgets

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**摘要** By comparing the global carbon cycle of the IPCC assessment reports in 1990, 1996, 2001 and 2007, it was found that despite the estimated sizes of the main carbon reservoirs and the fluxes between them in the four reports were similar, the estimated carbon fluxes between surface and intermediate-deep sea waters were quite different. The  $\delta^{13}\text{C}$  budget was used to test the reasonable range of these fluxes. The results show that the IPCC assessment reports in 1996 and 2007 have overestimated, whereas those in 1990 and 2001 underestimated the fluxes between surface and intermediate-deep sea waters.

**Abstract** By comparing the global carbon cycle of the IPCC assessment reports in 1990, 1996, 2001 and 2007, it was found that despite the estimated sizes of the main carbon reservoirs and the fluxes between them in the four reports were similar, the estimated carbon fluxes between surface and intermediate-deep sea waters were quite different. The  $\delta^{13}\text{C}$  budget was used to test the reasonable range of these fluxes. The results show that the IPCC assessment reports in 1996 and 2007 have overestimated, whereas those in 1990 and 2001 underestimated the fluxes between surface and intermediate-deep sea waters.

**关键词** [IPCC](#) [CO<sub>2</sub> budget](#)  [\$\delta^{13}\text{C}\$](#)  [isotope fractionation](#)

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