Clim Dyn (2017) 49:4317
DOI 10.1007/s00382-017-3839-y

ERRATUM

Erratum to: Constraints on oceanic meridional heat transport from combined measurements of oxygen and carbon

L. Resplandy[1] · R. F. Keeling[1] · B. B. Stephens[2] · J. D. Bent[2] · A. Jacobson[3] · C. Rödenbeck[4] · S. Khatiwala[5]

Published online: 19 August 2017

Erratum to: Clim Dyn (2016) 47:3335–3357 DOI:10.1007/s00382-016-3029-3

The original article has been published online with 2 errors. The errors have been corrected as below:

1. The definition of pre-industrial oceanic potential oxygen (OPO_{pi}) given in Eq. (7) reads:

$$OPO_{pi} = O_2^* + 1.1 \times C_{pi}^*$$

but should appear as:

$$OPO_{pi} = O_2^* + 1.1 \times C_{pi}^* - \left(1/X_{N_2}\right) \times N_2$$

where O_2^* and C_{pi}^* are the quasi-conservative ocean tracer concentrations tracking air–sea exchanges of O_2 and pre-industrial CO_2, N_2 is the dissolved N_2 ocean concentration and X_{N_2} is the atmospheric mole fraction of N_2 ($X_{N_2} = 0.7808$).

This definition of OPO_{pi} and the OPO_{pi} data shown on Fig. 1 therefore include the changes in OPO due to air–sea fluxes of O_2 and pre-industrial CO_2 but also due to the thermally driven air–sea fluxes of N_2, which are important for understanding changes in pre-industrial atmospheric potential oxygen (APO_{pi}). Including the N_2 contribution makes OPO_{pi} a mirror tracer of APO_{pi} across the air–sea interface, i.e. with equivalent air–sea fluxes. The data based OPO_{pi} to potential temperature ratio derived from Fig. 1 includes the N_2 contribution and is equal to −3.9 nmol/J. Note that without the N_2 contribution, this ratio would equal −4.4 nmol/J.

2. In Table 1, the isopycnal defining the base of the thermocline reads $\sigma_\theta = 24.7$ and should read $\sigma_\theta = 27.4$.

Acknowledgements We thank Gregory de Souza for identifying the typo in Table 1 of Resplandy et al. (2016).

Reference

Resplandy L, Keeling RF, Stephens BB, Bent JD, Jacobson A, Rödenbeck C, Khatiwala S (2016) Constraints on oceanic meridional heat transport from combined measurements of oxygen and carbon. Clim Dyn. doi:10.1007/s00382-016-3029-3

The online version of the original article can be found under doi:10.1007/s00382-016-3029-3.

✉ L. Resplandy
lresplandy@ucsd.edu

[1] Scripps Institution of Oceanography, University of California, San Diego, La Jolla, CA, USA

[2] National Center for Atmospheric Research, Boulder, Colorado, USA

[3] Earth System Research Laboratory, NOAA, Boulder, Colorado, USA

[4] Max Planck Institute for Biogeochemistry, Jena, Germany

[5] Department of Earth Sciences, University of Oxford, Oxford OX1 3AN, UK