



Corrigendum

Corrigendum to “Climatological mean and decadal change in surface ocean pCO₂, and net sea–air CO₂ flux over the global oceans” [Deep Sea Res. II 56 (2009) 554–577]

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In June 2009, we discovered a minor programming error in our spatial interpolation algorithm used in Takahashi et al. (2009). The error was made in the distance weighting procedure applied between 2.5°E and the prime meridian. (One half of 5° longitude in 4° latitude × 5° longitude boxes.) Negative weighting factors occurred here where all should have been positive. Accordingly, the surface water pCO₂ and sea–air CO₂ flux values that are located near the prime meridian are

affected. Fig. 1 shows a histogram for the number of box areas versus the differences between the corrected and originally published values for the surface water pCO₂. Of a total of 21,108 boxes (= 12 months × 1759 boxes), only 1904 boxes require corrections, and their geographical distributions in February and August 2000 are shown in Fig. 2. These corrections are applicable to the monthly maps for mean sea–air pCO₂ difference (ΔpCO₂) shown in Fig. 9 of Takahashi et al. (2009). However, since these corrections are restricted in small areas and some of them have opposite signs, the zonal mean sea–air CO₂ flux values listed in Table 6 of the original publication are virtually unaffected. In the South Atlantic Ocean, where

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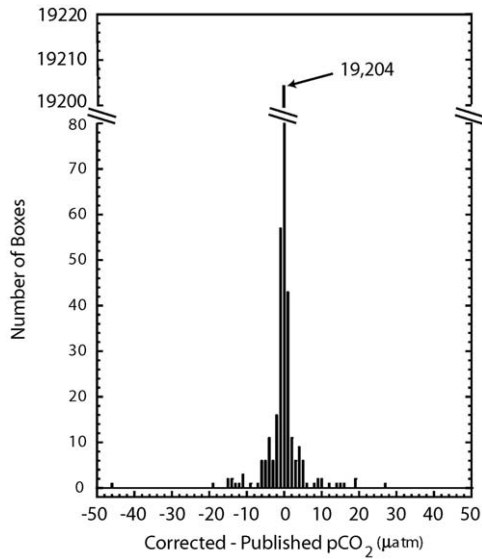


Fig. 1. Histogram showing the number of boxes versus the corrections required for the mean monthly pCO₂ in each box. Of a total of 21,108 boxes, only 1904 boxes require corrections.

the corrections are largest, the 14–50°S zonal mean CO₂ flux of $-0.20 \text{ Pg C yr}^{-1}$ in Table 6 is changed by $0.002 \text{ Pg C yr}^{-1}$, which is well within the uncertainty of our flux estimates. The corrections for the flux values for all other zones are also negligibly small, and the global ocean sea–air CO₂ flux values in Table 6 stand as they are.

The revised mean monthly values and their distribution maps for the surface water pCO₂, sea–air pCO₂ difference and CO₂ flux are listed in our web site: <http://www.ldeo.columbia.edu/res/pi/CO2>.

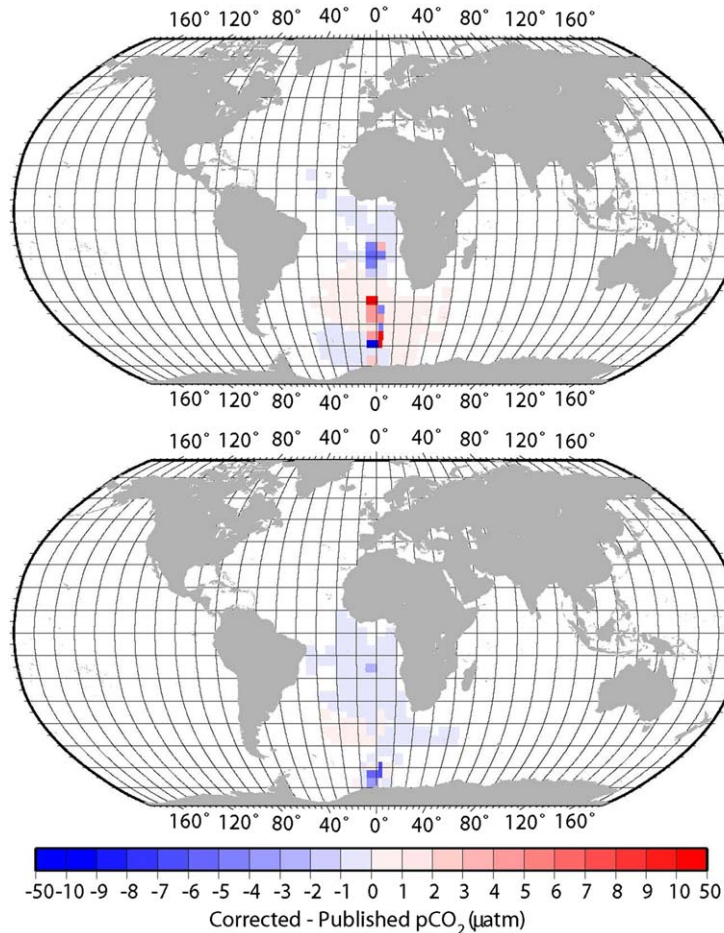


Fig. 2. Maps showing the [corrected – published (pCO₂)_{sw}] in µatm: (top) February 2000 and (bottom) August 2000. Corrections are larger during the months of October to February in the box areas along the prime meridian, and are smaller during other months. The correction maps for each of 12 months are available at our web site (see the text).