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Corrigendum

Corrigendum to: “Metamorphic CO_2 Production in Collisional Orogens: Petrological Constraints from Phase Diagram Modeling of Himalayan, Scapolite-bearing, Calc-silicate Rocks in the NKC(F)MAS(T)-HC system”

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It has been brought to our attention that in the above article all the numbers expressed as Mt and Mt a^{-1} are three orders of magnitude too high, due to an inadvertent error in the conversion from tons to mega-tons. These appear in eight occasions, namely in the Abstract (twice), in the Discussion (five times) and in the Conclusion (once) sections.

The correct CO_2 amounts (Mt) and fluxes (Mt a^{-1}) are therefore three order of magnitude lower than those reported in the above article. As an example, the correct version of the last paragraph of the Abstract should be:

> A preliminary estimate of these amounts at the scale of the whole orogen suggests a total metamorphic CO_2 production of $\sim$(2–7) $\times$ 10^{17} mol, corresponding to (1–3) $\times$ 10^7 Mt of CO_2. Integrated over $\sim$20 Myr (i.e. the maximum duration of prograde metamorphism), the calculated metamorphic CO_2 flux would be (1.1–3.4) $\times$ 10^{10} mol a^{-1}, corresponding to an annual mass flux of 0.5–1.5 Mt a^{-1}. Nevertheless, further studies are still needed to assess more precisely the amount of CO_2 released during the Himalayan orogeny.

The error also applies to the fluxes derived from the literature, because we have converted the original values published as mol a^{-1} in Mt a^{-1}, so comparisons are still valid among our CO_2 fluxes and those already estimated by other authors. The correct version of the Discussion section about this point should be:

> This would result in a total metamorphic CO_2 production of $\sim$ (2–7) $\times$ 10^{17}mol, or (1–3) $\times$ 10^7 Mt, of CO_2. Considering that prograde metamorphism in the Himalayas lasted $\sim$ 20 Myr (e.g. Kohn, 2014; see also Kerrick & Caldeira, 1999), and assuming that all the CO_2 produced in that period was expelled to the surface with a constant flux rate, the calculated metamorphic CO_2 flux would be (1.1–3.4) $\times$ 10^{10} mol a^{-1}, corresponding to an annual mass flux of 0.5–1.5 Mt a^{-1}. These values are one order of magnitude lower than the present-day CO_2 fluxes estimated by Becker et al. (2008) (40 Mt a^{-1}) and Evans et al. (2008) (9 Mt a^{-1}) based on the CO_2 degassed from spring waters, but only slightly lower than the past metamorphic CO_2 fluxes estimated by Kerrick & Caldeira (1999) ($\sim$ 10^{11} mol a^{-1}; 4.4 Mt a^{-1}).

Finally, the last paragraph of the Conclusions section should be corrected as:

> A preliminary and first-order extrapolation of these values to the whole Himalayan belt would suggest a total metamorphic CO_2 production of $\sim$ (2–7) $\times$ 10^{17}mol, corresponding to an annual mass flux of 0.5–1.5 Mt a^{-1}. The fate of this CO_2-rich fluid is

nevertheless uncertain and further studies need to be undertaken to understand if such CO_2-rich fluids are able to reach the Earth's surface, or if CO_2 was sequestered through graphite and/or carbonate precipitation during cooling (e.g. Groppo et al., 2013b; Craw & Upton, 2014).

The authors apologize for any inconvenience this may cause.