



Corrigendum

Corrigendum to “Water vapor adsorption by dry soils: A potential link between the water and carbon cycles” [Sci. Total Environ. volume 824 (2022) 153746]



Clément Lopez-Canfin^{a,b,*}, Roberto Lázaro^c, Enrique P. Sánchez-Cañete^{a,d}

^a Department of Applied Physics, University of Granada (UGR), Avenida de Fuente Nueva s/n, Granada, Spain

^b Department of Plant and Soil Sciences, University of Delaware, Townsend Hall, Newark, DE, USA

^c Department of Desertification and Geo-Ecology, Experimental Station of Arid Zones (EEZA-CSIC), Carretera Sacramento s/n, Almería, Spain

^d Inter-University Institute for Earth System Research (IISTA-CEAMA), Avenida del Mediterráneo s/n, Granada, Spain

The authors regret that the printed version of the above article contained an error in Fig. 7. The values of the total soil specific surface area were displayed in $\text{m}^2 \text{kg}^{-1}$ while the title of the x-axis mentioned unit in $\text{m}^2 \text{g}^{-1}$. Therefore, the correct values should have been divided by 10^3 to match. The correct and final version of the figure follows. The new values are low compared to values commonly reported in the literature (e.g., with the BET method), and the authors attribute it mainly to the methodology that has been used in the study.

Here, the soil specific surface area was estimated from the particle size distribution measured by a laser particle size analyzer (Mastersizer 3000 Hydro EV, Malvern Panalytical, Malvern, United Kingdom). Different factors related to this technique can have played a role: (i) this estimation assumes that soil particles are spherical and non-porous. However, the reality is that they can be far from a perfectly spherical shape and can also be porous; (ii) this technique involves a preliminary digestion of organic matter (by hydrogen peroxide) which commonly has a high surface area, and (iii) since the studied soils have a high carbonate content (between ca. 20 and 30 %), a fraction of this organic matter can be tightly bound to carbonates, forming stable organo-mineral aggregates of lower surface area that can have resisted to the digestion to a certain extent.

However, this likely underestimation of the soil specific surface area does not affect the interpretation of the results because values were not discussed in absolute terms but in relative terms throughout the manuscript. Since all values were obtained with the same methodology, results are still useful to compare biocrusts succession stages, highlighting an important increase in soil specific surface area over early succession stages. The authors would like to apologize for any inconvenience caused.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Clément Lopez-Canfin*
 Enrique P. Sánchez-Cañete
 Department of Applied Physics, University of Granada (UGR),
 Avenida de Fuente Nueva s/n, Granada, Spain
 *Corresponding author.
 Email address: lopezcle@ugr.es (C. Lopez-Canfin).

Clément Lopez-Canfin
 Department of Plant and Soil Sciences, University of Delaware,
 Townsend Hall, Newark, DE, USA

Roberto Lázaro
 Department of Desertification and Geo-Ecology,
 Experimental Station of Arid Zones (EEZA-CSIC),
 Carretera Sacramento s/n, Almería, Spain

Enrique P. Sánchez-Cañete
 Inter-University Institute for Earth System Research (IISTA-CEAMA),
 Avenida del Mediterráneo s/n, Granada, Spain

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* Corresponding author at: Department of Applied Physics, University of Granada (UGR), Avenida de Fuente Nueva s/n, Granada, Spain.

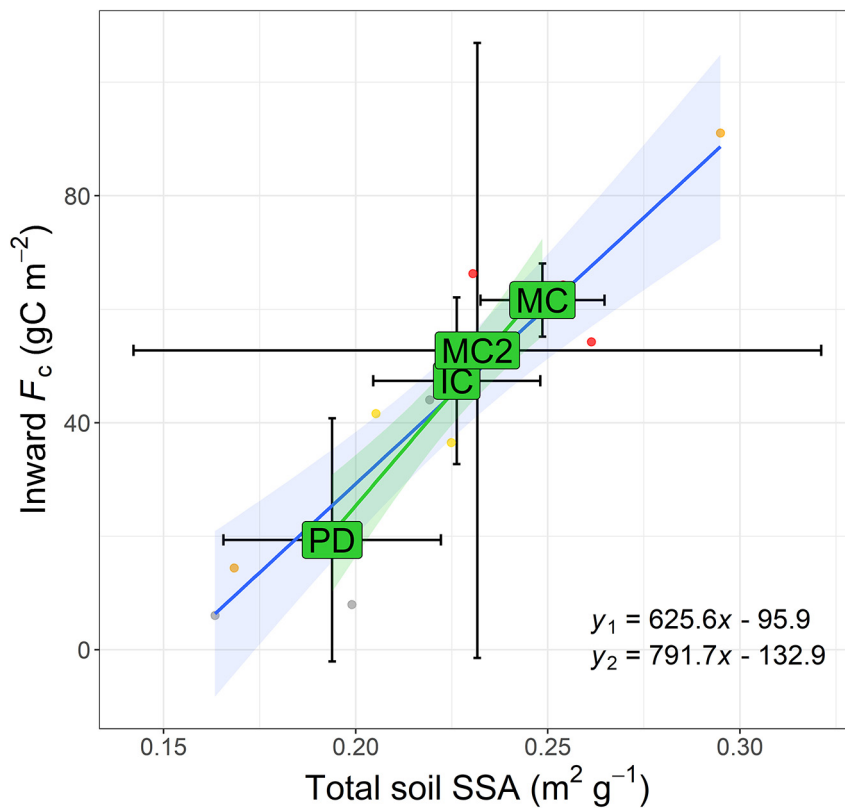


Fig. 7. Fits of linear models of the absolute cumulative inward soil-atmosphere CO₂ flux (F_c) as a function of the total soil specific surface area. The blue and green lines are the model fits from the whole dataset and from averages by crust, respectively (corresponding to the y_1 and y_2 equations, respectively). Stages of the biocrusts succession are labeled as: physical depositional crust (PD), incipient Cyanobacteria (IC), mature Cyanobacteria (MC), and Cyanobacteria patches within a lichen site (MC2). Grey, yellow, red and orange points correspond to data from the PD, IC, MC and MC2 microsites, respectively. Error bars correspond to the intra-microsite standard deviation. Shaded bands represent the 95% confidence intervals. The high spatial variation in the MC2 microsite is attributable to soil heterogeneity and less replicates ($n = 2$ for MC2 and $n = 3$ for other microsites).