Corrigendum to The Cryosphere, 11, 2633–2653, 2017
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Corrigendum to
"A multilayer physically based snowpack model simulating direct and indirect radiative impacts of light-absorbing impurities in snow" published in The Cryosphere, 11, 2633–2653, 2017

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This corrigendum corrects three figures presented in the original paper (Tuzet et al., 2017). The impurity concentrations shown in Figs. 2, 6, and 8 were erroneous. As the problem comes from the plot routine, the results and the conclusion of the original article in terms of radiative transfer are not affected. Only Sect. 4.5 needs to be slightly modified. This corrigendum also includes an update to the new version of the SURFEX code repository.

4.5 Profiles of impurity concentration

Figure 6 shows vertical profiles of BC and dust content in the top 25 cm of the snowpack on 11 February both measured and simulated with configurations C2 to C4. BC concentrations have the correct order of magnitude, whereas dust contents are significantly underestimated. For both LAI types, the vertical structure is not correctly reproduced. It is worth noting that, in our simulation, the uppermost 17 cm of snow corresponds to a unique snowfall that occurred on 10 February. During this snowfall ALADIN-Climate did not simulate any mineral dust deposition explaining the absence of dust in this part of the snowpack.

Code availability update

The code used in this study was developed within the open-source SURFEX project (http://www.umr-cnrm.fr/surfex, last access: 17 June 2019). The control software used to manage this project changed in 2017 from svn to git. For reproducibility of results, the version used in this work is tagged as tuzetTCD17 in the SURFEX git repository (git.umr-cnrm.fr/git/Surfex_Git2.git). The full procedure and documentation can be found at https://opensource.cnrm-game-meteo.fr/projects/snowtools_git/wiki/ (last access: 17 June 2019). Note that the code has not been modified; only the access has changed.

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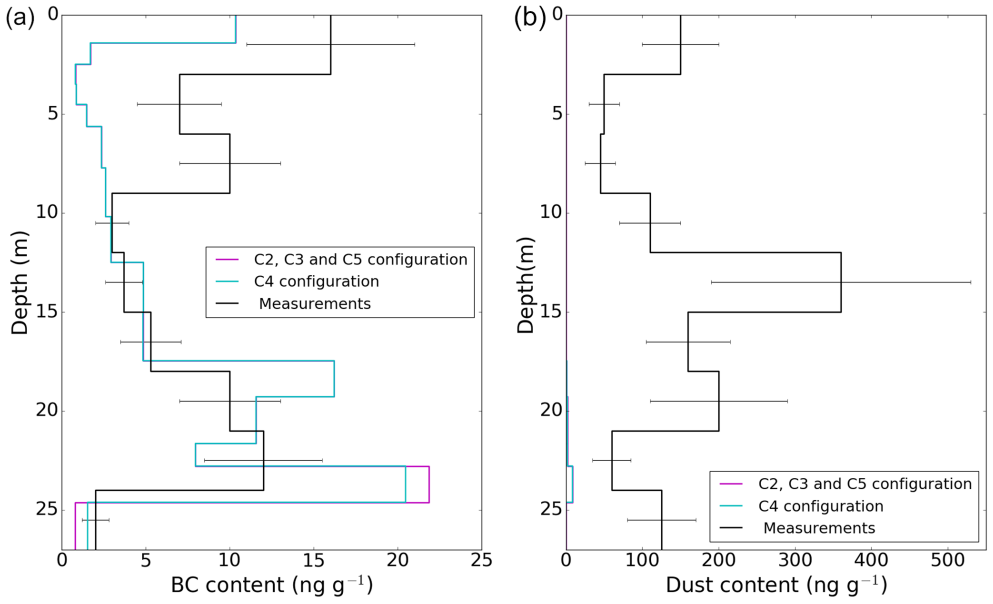

Figure 6. BC **(a)** and dust **(b)** concentrations at Col de Porte on 11 February 2014.

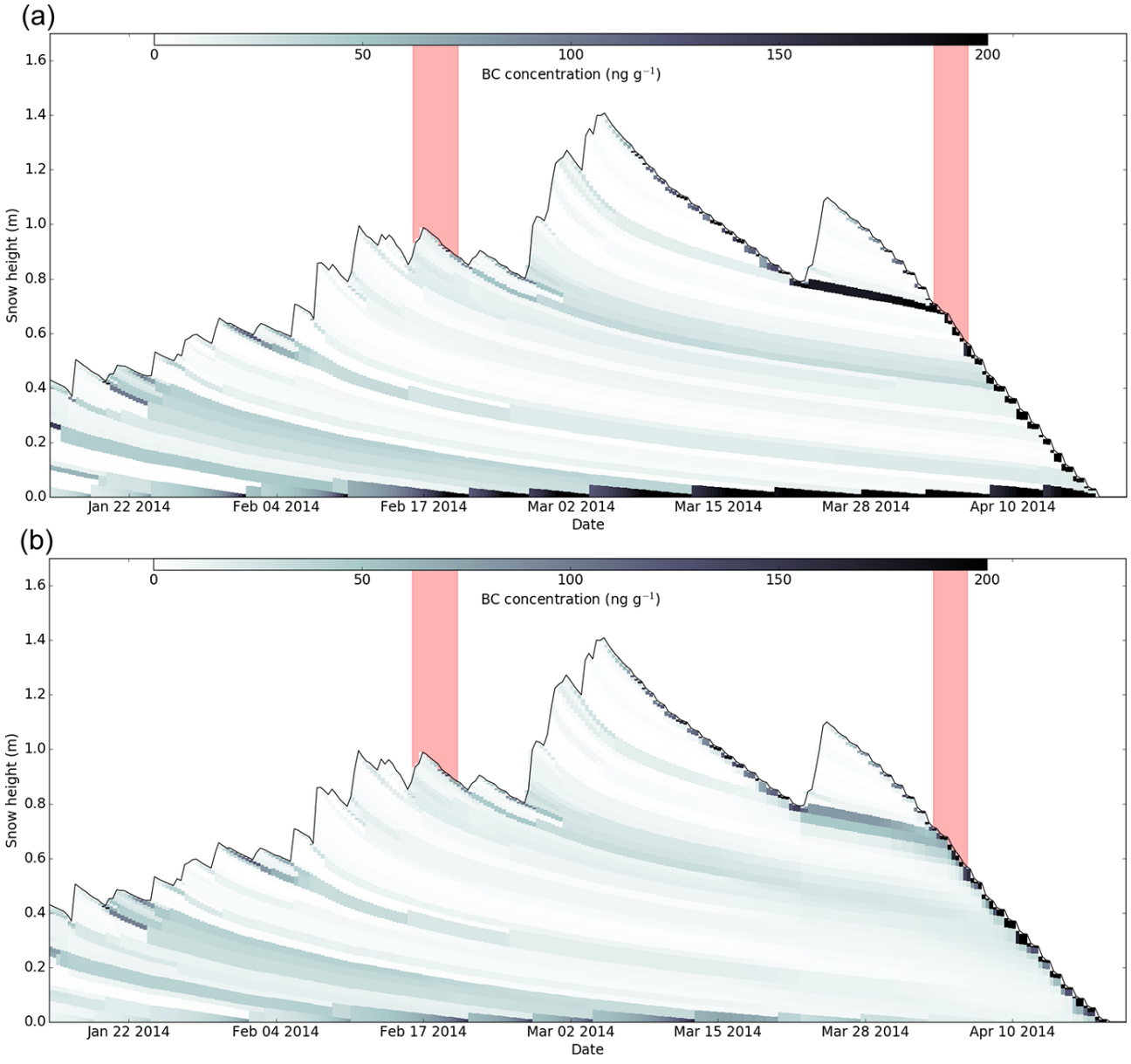

Figure 2. Simulated BC concentration evolution at the end of the 2013/2014 snow season at Col de Porte. Panel **(a)** corresponds to a simulation without scavenging, whereas panel **(b)** corresponds to a simulation using the default value of 20 % for BC scavenging.

The BC concentrations presented in Fig. 2 in the original paper have to be divided by a factor of 10.

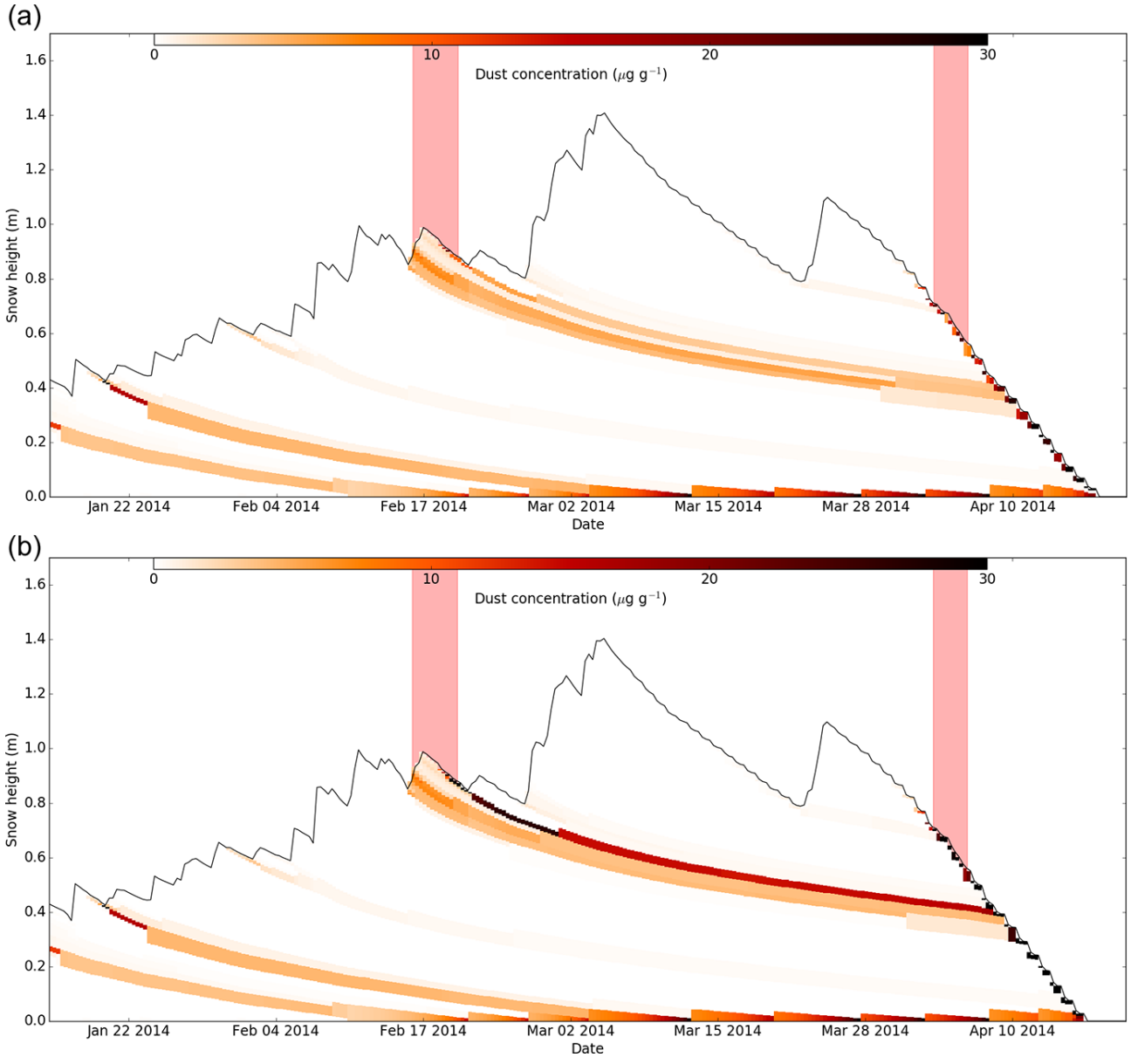

Figure 8. Simulated dust concentration profile for the second half of the 2013/2014 snow season at Col de Porte. Panel **(a)** shows the configuration C2 using ALADIN-Climate deposition fluxes. Panel **(b)** shows the C5 configuration using the same parameters but ALADIN-Climate deposition fluxes have been modified to reproduce the measurements by Di Mauro et al. (2015) The two major Saharan dust events are represented by the red areas.

The dust concentrations presented in Fig. 8 in the original paper are also affected the same way.