

The Cryosphere Discuss., community comment CC1
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Comment on tc-2022-208

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Community comment on "Consistent histories of anthropogenic western European air pollution preserved in different Alpine ice cores" by Anja Eichler et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2022-208-CC1>, 2022

This study combines and discusses air pollution records reconstructed from four different ice-core sites in the European Alps. My comment suggests some technical clarifications concerning the ice-core records from Colle Gnifetti which I invite the authors to address in the revision.

L 142: Please add as citation for the dating Sigl et al., (2018) providing necessary details about the individual ice cores (Table 1) and the final dating (Supplementary) used to derive the NO₃, NH₄, rBC and SO₄ records used for this study together with access to the underlying high-resolution datasets (<https://doi.org/10.1594/PANGAEA.894787>).

L 172: Are these new IC analyses for the CG15 ice core extending back to 1750; or are these the upper 12m of CG15 merged with the records from the two CG03 ice cores (CG03A and CG03B)? Please clarify; see Table 1 in Sigl et al., (2018) for details. If these are new analyses, how was the dating of CG15 done, and how do the records compare relative to the CG03 records during the period of overlap? If the latter, which records did you use for your analyses? CG03A, CG03B or a stacked record of both?

L 187: Same question here: Are these new rBC analyses from the CG15 ice core? The reference to Sigl et al., (2018) suggests these are from CG03B.

L 196: This now answers the two questions noted above. To avoid misunderstanding, I suggest to correct or clarify the meaning of the core labels in the sections above and in Table 1 and 2, since the CG15 ice core is actually encompassing the time period 1750-2015 overlapping with CG03 ice cores.

L 487: Add "Data from CG ice cores are available at PANGAEA, doi.org/10.1594/PANGAEA.894787" to acknowledge the work generating these measurements.

Table 2: Suggest to replace "CG15" with "CC03_CG15" or similar, to show this is the CG03 ice core updated by the CG15 ice core.