Response to Reviewer #1 Christophe MIGON

We would like to thank Prof. Migon for the comments that have helped us to prepare this final version. All suggestions have been taken into account and all raised issues are answered one by one. Below is a point-by-point answer to the reviewer's comments (by Italics).

-1:Chemical analysis: Detection limits and blanks are not expressed in the same units.

Many thanks for the indication, the inconsistency was corrected

- 2: Partitioning between nss- and ss-ions:
a) if I am not wrong, those acronyms are introduced in the text ;
b) the authors do not explain how they discriminate nss- and ss-ions

This information is now inserted in the manuscript.
Non sea salt calcium and sulfate (nss-Ca^{2+} and nss-SO_4^{2-}) as well as sea salt sulfate (ss-SO_4^{2-}) are estimated based on the following equations:

$nss\text{-}Ca^{2+} = [Ca^{2+}] - 0.3184*[Mg^{2+}]$ $nss\text{-}SO_4^{2-} = [SO_4^{2-}]_{total} - 2.0958*[Mg^{2+}]$

$nss\text{-}SO_4^{2-} = [SO_4^{2-}]_{total} - 2.0958*[Mg^{2+}]$

$ss\text{-}SO_4^{2-} = [SO_4^{2-}]_{total} - nss\text{-}SO_4^{2-}$

- 3: I am a bit surprised by the use of BC concentrations to characterize continental influences. To my knowledge, this is not usual, and might not be appropriate, because BC emissions from ships are very significant (e.g., ships tracks can be easily detected over marine areas by BC concentration plumes).

We agree that BC is also a tracer for ship plumes, however in this remote part of the world (Austral Ocean) shipping is really limited and the main source of BC at Amsterdam Island is transport from continental sources (Africa). The covariation of BC with Radon (a continental tracer) justifies our assumption. At the revised version the origin of BC at Amsterdam Island will be clarified.