

## ***Interactive comment on “Amino acids in Arctic aerosols” by E. Scalabrin et al.***

### **Anonymous Referee #1**

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#### General Comments

The manuscript is focused on a study of amino acids concentration in arctic aerosol. This is an interesting topic and one useful point in the paper is that the study reports size-segregated information. The analysis comprehend several statistical considerations that are useful to understand the concentration levels in remote areas. However, there are some points, detailed in my specific comments, that could be considered for improving the interpretation of results. Therefore, this reviewer suggest to publish the paper after minor revision.

#### Specific Comments

The discussion of the intrusion of volcanic emissions is based only on back-trajectories and no effective evidence of a deposition (at ground level) is reported. I agree that there is a reasonable probability to have a contribution from this eruption. However, as the

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authors pointed out in their comments, there are other works presented at conferences and workshops that independently demonstrate this. Therefore I believe that it would be better to include some of these other works in the bibliographic references because this will give more support and strength to the conclusion relative to the contribution of volcanic emission to the observed concentration of amino acids.

The LOD in table 1 are expressed in ng/m<sup>3</sup> but the other concentrations in the paper are reported in fmol/m<sup>3</sup>. It would be better to use the same measurement units also for the LOD in order to facilitate the comparison with the other table and to see effectively how much the concentrations are larger than the LOD. I understand that the sampling volume are different in the different samples, however, it could be used the average sampled volume or the minimum sampled volume (in this case it would be a precautionary LOD).

On page 17379. Line 14. This reviewer does not understand what the authors means for “sample flux” in the sentence “In addition, the sample flux of Leu and Ile. . . .”. It would be probably better to modify this sentence.

#### Technical corrections

In Table 2 (and also in Table S1 of the supporting material) it would be better to report “<0.49” instead of “0.49-0” for the last column as in the rest of the manuscript. This because the lowest size of particles sampled in this kind of sampler is not well defined (because of the losses due to different physical phenomena) and it is very likely larger than zero.

On page 17378. Line 10. The sentence “. . .is generally be considered as an indicator. . .” is not clear and it would be better to use “. . .is generally considered an indicator. . .”.

In the abstract. Line 20. The sentence “. . .input from Icelandic volcanics” do not seems to be correct and it would be likely better “. . .input from Icelandic volcanic emissions”.

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