

Following the reports of the referees posted in the OSD website, I wish to call your attention to the following issues:

- 1) Improving the discussion of the results comparing them with previous estimations (both referees) and particularly with the companion paper by Schneider et al. submitted to this same issue (referee 2).
In any case I will appreciate if you will comment why your definition and related results are more reliable and robust of those from others, and justify the possible differences. In particular, the results of Schneider et al. should be commented in the light of your improved method, showing if and where they are definitely surpassed.
- 2) Provide an estimate of the uncertainties associated to your mean ages, as well as data precision, confidence of analytical methods, what method is used for a tracer, etc.

Moreover, I add the following:

- 3) As regards a comment posted by B. Hochwimmer, I wonder if he refers to the possible importance of tracers' input from the sea-floor (e.g. terrigenous ^3He), and in this case, please add a comment in the text since I think you have neglected this component for its reduced magnitude. Is it?
- 4) You should give information on the size of your data base, How many samples do you have for different parameters? How many of them are used in the discrete calculations? The latter is important to define their robustness.
- 5) Eqs. (8) and (9) are lacking a dependency to t_s in the integral.
Moreover, comparing eq. (8) with eq. (1) in the manuscript by Schneider et al. (this issues), I note they are also accounting for a radioactive decay term in the right side you don't have in your formulation.

For the remaining, please refer to the referees reports, and also check carefully the text as already stressed by one of them.

In the following, I list some further errors and misspellings I've found, in addition to the ones listed by referee 2:

- Adriatic Pit used at page 2 and 6 should be corrected with Southern Adriatic Pit.
- Parameter "A" in equation (4) has not been introduced. Moreover, using different symbols ("c" and "A") for indicating concentrations is confusing.
- Acronym TTD is used at page 4 line 277 but it is defined later in section 4 (second column, line285).
- Referring to the initial year of atmospheric history, you are using $t(\text{hist})$ in some place and $t(i)$ in others.
- Equation (7) is not clear: do you mean $t_i=1936$ and $t_s=2011$? So the range is $t_i:t_s = 1936:2011$?

- 1D-IG-TTD and 1IG-TTD are used indifferently for One dimensional Inverse Gaussian Transit Time Distribution.
- Page 8 line 9 first column: "extend" should be "extent" or better "magnitude" (referring to change).
- Page 8, line 713, second column: "Alghero" should be "Algero".
- Page 9, line 796, first column: "The mean age ... with a mean ages ...", plural (ages) is wrong, and it would read better " "The mean age ... with a mean value ..."

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