

Re-review - Geochronology

invitation received: 2023-03-14 | today: 2023-03-27

1 General comment

After having carefully read the responses, all reviewer comments, and authors' responses, as well as the revised version of the manuscript and I am happy to write that I can support a publication of the manuscript.

The authors have addressed all major concerns and clarified their manuscript where required. The responses are acceptable throughout, and the advantage of using the W_2 distance comes across more clearly. Below I have listed a few minor comments, nothing that would block the green light from my side, however.

2 Response to author comments

We strongly contest that the potential impact of this contribution would be 'low'. Since the introduction of multidimensional scaling to detrital geochronology by Vermeesch (2013), the method has been used literally hundreds of times and spawned a small ecosystem of software and derived methods.

I feel that this is the only author's comment where a response is needed because my initial comment was oddly received. I did not contest or intend to diminish previous work. The presented work will add a feature to an existing toolbox, and the revised manuscript, with its discussion makes a justified contribution to the field. However, to me, it was and still is, more of a brief review of an existing metric one can use additionally under particular circumstances. There is nothing wrong with it, but we should also be realistic about the potential impact the presented manuscript will have.

3 Minor comments

- L8: Perhaps, "... as an additional and alternative metric ..." to emphasise add-on character of the metric.
- L190 and later: please decide whether to use mono space letters of Python and R or not. I suggest using the mono space letters for source code only. The canonical writing capitalises the first letter of "Python", although the Python logo uses a small "p".
- L188: Please set URLs as (valid) links throughout (also, e.g., L194-195)
- Figures 1-6: Please unify the axis labels (e.g., "Age, Ma" vs "age [Ma]"). Ma should not read "ma"
- Figure 5:
 - Figure caption: add white space between "a)" and KDE.
 - Furthermore, it would be beneficial if the R code reflects the code used to create the figure (not all of it but the W_2 part. Currently it looks a lot different from what you have in the manuscript (even if I play with the other graphical parameters); nothing related to the random state parameters. The online GUI shows the same result.
 - If you feel that the log conversion is useful (I think it is) you should add it to `IsoplotR::mds()` or `IsoplotR::read.data()`.
 - Please add more white space to the code snippets (as shown below), it is just a more reader friendly code formatting

```

library(IsoplotR)
# load the package: 200 library(IsoplotR)
DZ <- read.data("wobus.csv", method = "detritals")
for(i in 1:length(DZ)) DZ[[i]] <- log(DZ[[i]])

# example 1. calculate the W2 distance matrix for the dataset:
d <- diss(DZ, method = "W2")

```

```
## [1] "W2"
```

```

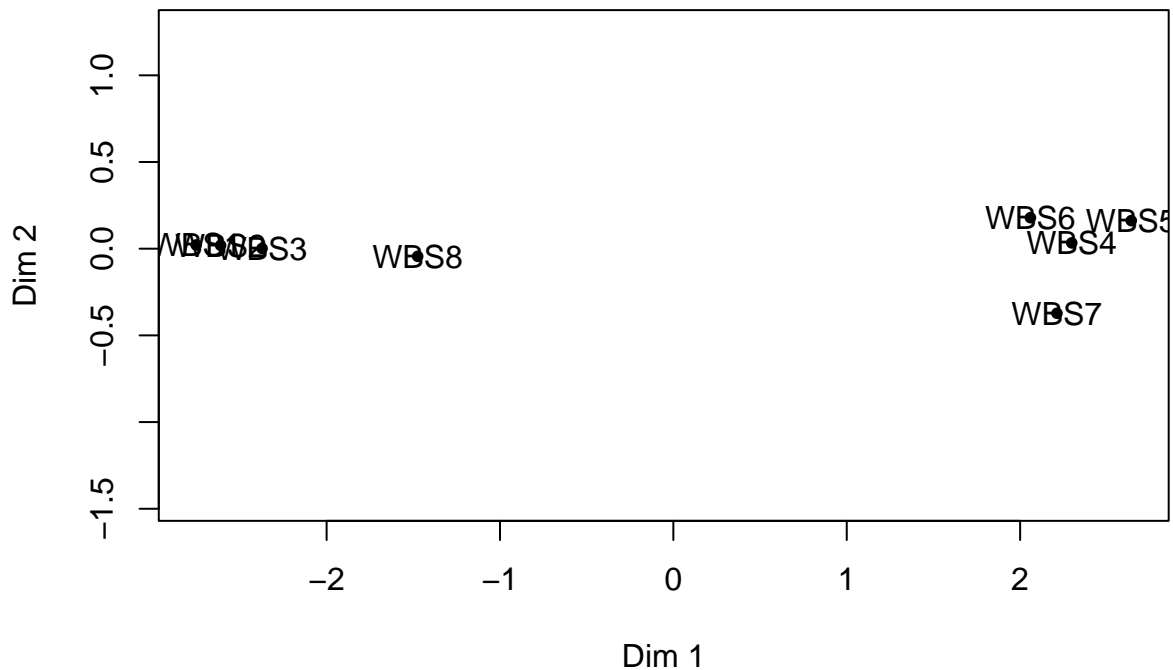
# example 2. apply MDS to the dataset:
mds(DZ, method = "W2", pch = 20)

```

```

## [1] "W2"
## initial value 0.000000
## final value 0.000000
## converged

```



- L266-268: Please check the reference, it does not look right. The correct citation entry of R packages should be generated using `utils::citation("<R package>")`
- L283: I believe that the series number is missing.