

The paper by Hébert et al. "Comparing estimation techniques for timescale-dependent scaling of climate variability in paleoclimatic time series" studies temporal scaling of paleodata using various techniques and simulated data with non-equidistant time step. The paper is well written and can be accepted after a minor revision, according to the following comments.

The title should be changed to "Comparing estimation techniques for temporal scaling in paleoclimatic time series".

Thank you for this suggestion, we gladly accept to shorten the title in this manner.

The following R package could be added as a reference and possibly as a tested tool:

<https://www.atmosp.physics.utoronto.ca/people/vyushin/mysoftware.html>

Thank you for bringing this package to our attention, we will reference it in the paper and use it in future work dealing with regularly sampled data. We think however that including a test of those tools would broaden the scope of the paper too much.

We add the reference on line 45:

See this approach used in a paleoclimatology context in Huybers and Curry (2006), Laepple and Huybers (2014a, b) and Rehfeld et al. (2018), and see also an implementation of these methods in R for regular climate data, including functions for statistical testing, scaling exponent estimation and trend estimations for different residual models, provided by Vyushin et al. (2009).

It would be useful to add a list of acronyms in the beginning of the paper.

We added the list of acronyms:

CPG	Classical Periodogram
LSP	Lomb-Scargle Periodogram
MTM	Multitaper Spectrum Method
HSF	first-order Haar Structure Function
DFA	Detrended Fluctuations Analysis
LGM	Last Glacial Maximum
fGn	fractional Gaussian noise
fBm	fractional Brownian motion

Table 1. Table of acronyms used in this paper.

I think the following paper should be added to references: Detecting long-range correlations with detrended fluctuation analysis, JW Kantelhardt, E Koscielny-Bunde, HHA Rego, S Havlin, A Bunde, Physica A: Statistical Mechanics and its Applications 295 (3-4), 441-454 (2001)

The reference was added.

It would be good to define what the authors mean by "quazi-Gaussian" (line 86).

We propose to add the clause in green in the sentence on line 86:

“In this work, we will focus on the quasi-Gaussian case, i.e. when statistics approximately follow the Gaussian distribution, in order to minimize the number of estimated parameters;...”

In lines 33, 438, 479, the surnames should be corrected.

Corrected

For ensemble averages, instead of symbols \langle and \rangle it is better to use $\langle \rangle$ and $\langle \rangle$

Corrected

In line 356, it is not clear what database is meant.

To clarify we added after database: “(see section 2.3)”

In line 468, "Nature Climate Change" is typed twice.

Corrected

In line 490, remove &ndash

Corrected

In line 507, change the titles from capital letters

Corrected