**Climate
of the Past**

Discussions

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Interactive comment on "Estimating the timescale-dependent uncertainty of paleoclimate records – a spectral approach. Part II: Application and interpretation" *by* Andrew M. Dolman et al.

Anonymous Referee #2

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The manuscript demonstrates how the theoretical framework presented in the first companion paper can be used to estimate proxy uncertainties that are timescale-dependent and correlated in time using the example of marine sediment cores. The paper comes with an R-package that makes the methodology easily accessible. The associated package was easy to install, and the functions within the package are well documented and easy to use.

In my opinion, the manuscript is well-written, scientifically sound and provides a great contribution to the field. I agree with the comments of Referee #1 in that it would be interesting to see how different assumptions on the characteristics of the climate

fluctuations affect their results, and a discussion of the applicability of this approach beyond the Holocene.

I have the following minor comments and suggestions:

Text in subscript should not be in italics: page 4 line 17, page 5 line 1, page 8 lines 19, 21 and 27, page 14 lines 12 and 23, and in Table 1. Page 8 line 9: parenthesis should generally not be preceded by a comma. Page 4 line 2: "an heuristic" should be changed to "a heuristic". Page 13 line 14: 'of' is written twice in "odd multiple of of the sampling interval". Page 18 line 4: delete 'to' in "PSEM allows to other processes".

I also have a few technical comments on the package.

Some arguments are not included in the argument description of their respective functions: OrbitalError.Rmd: delta_phi_c OrderStages: rev ProxyErrorSpectrum: n.k, delta_phi_c, sigma.cal S_E: n.k sinc: normalized

The argument 'tau_a' is not included in /usage in the documentation file of 'ProxyErrorSpectrum'.

Generally, data sets located in the /data folder in an R-package should be documented. However, since these files seem to not be intended to be used directly by the end-user, but rather used or processed by other scripts, I would suggest, if possible, to place these files in another folder.