

Interactive comment on “Multi-periodic climate dynamics: spectral analysis of long-term instrumental and proxy temperature records” by H.-J. Lüdecke et al.

Anonymous Referee #2

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This article is interesting and it deserves publication after some revisions. I agree with the two previous comments (one by an anonymous referee and the other by Manfred Mudelsee) and I will not repeat the points already mentioned therein. In addition to these points, the following aspects have to be considered. The first is a major point and the other are minor points.

1. The dashed blue line in Fig. 5 can be easily misunderstood by the reader and I suggest to remove it. Also the corresponding comment in the last paragraph of the discussion has to be formulated more carefully. The essential point is that this strong cooling shown in Fig. 5 with the blue dashed line is the result of the intrinsic periodicity

of the Fourier transformation with the period equals to the record length (The record after 2000 has to be the same after 1750). I agree with the authors that a local minimum is likely due to the 64 year cycle, but this minimum does not have to be so extreme. This extreme behavior is just the result of the huge period of size N and thus some kind of finite size effect. Thus I recommend to delete the dashed blue line in Fig. 5 and just to mention that according to the smaller period a local temperature minimum and thus a cooling is to be expected soon. But any comment about the depth like "a substantial temperature drop" should be skipped since this is a pure bias of the periodicity of size N in the definition of the finite size Fourier transform.

2. Page 4495: How is Figure 2 related to the Northern and Southern Hemisphere?
3. It should be mentioned earlier that the results of the DFT are shown in Fig. 3.
4. In Fig. 4 the color code is missing.

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