

## Comment on **essd-2021-401**

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Community comment on "Historical and future weather data for dynamic building simulations in Belgium using the regional climate model MAR: typical and extreme meteorological year and heatwaves" by Sébastien Doutreloup et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-401-CC1>, 2022

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- General comments:
  - The paper is very clear, thanks.
  - And thanks for the data!
- Technical comments:
  - (This is the only strong comment I have :)) I don't understand why you make so strong reference to ISO 15927-4, especially in the abstract (line 22) and in lines 58 and 248, whereas the followed method is not the one of ISO 15927-4. I found this misleading. In the abstract and in line 58, it is said "are generated following the method proposed by the standard ISO15927-4, allowing the reconstruction of typical and extreme years" whereas ISO 15927-4 litterally specify that it can not be applied to generate extreme years ("The procedures in this part of ISO 15927 are not suitable for constructing extreme or semi-extreme years for simulation (...)") I believe that the reference to ISO 15297-4 should be removed from the abstract, and that the paper should or remove the reference too, or explain why you used a method "based on ISO 15297-4" and not the method of ISO 15297-4 itself. In fact, when I read the procedure (line 154), I even don't see the link with ISO 15297-4!
  - Once again, thanks for the data. However, HWE are not so useful for building simulation, as models have to be "preheated". I mean that the initial conditions of the building can't be guessed, they must be calculated by running the simulation a few weeks before the first day of interest. So, for a heat wave starting e.g. on 01/07, we should have data since 01/06. Another option would be to make available all years, and a table to find the definition of each type of heat waves (but that would make a lot of data!). It would also allow to calculate TMY according to ISO 15297-4 too :)
- Possible clarifications:
  - Line 110 "Thus, since the ESMs do not simulate general atmospheric circulation changes" > that might be clear for climatologist, but it's less clear to usual people like me.
  - Line 234: The reason of having different approaches for leap year could be explained.
- Purely editorial comments:
  - SSP5-8.5 is sometimes written SSP585. Consider to uniformise the notation of SSP's (is the first notation not the right one?).
  - It's not very important, but line 70 says "MAR is initially forced every 6 hours at its lateral boundaries (temperature, wind, and specific humidity)" and line 82 says "The

atmospheric variables used to force MAR every 6 hours at each MAR vertical level are temperature, surface pressure, wind, and specific humidity, **as well as the sea surface temperature** over the North Sea from both ERA5 reanalysis..." > Why not combine those two lines.

- Line 127: the abbreviation "a.g.l." is evident for climatologist, but there is room to write above ground level so that everyone can understand, at least the first time.
- Line 164: "Diffuse solar radiation" > Maybe this is the normal denomination for climatologist, but for building simulation, we must be sure to know what is behind. It's quite obvious that it is "solar", but is it on a horizontal surface ? "Diffuse horizontal radiation"

(Due to a technical problem, I don't know if those comments are not submitted twice.)