Geosci. Model Dev. Discuss.,
doi:10.5194/gmd-2016-51-AC2, 2016

Geoscientific Model Development Discussions
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EGU

Interactive comment on "An open-source MEteoroLOgical observation time series DISaggregation Tool (MELODIST v0.1.0)" *by* Kristian Förster et al.

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Received and published: 1 June 2016

Reply to Anonymous Referee #2

(Reviewer's comments are in italics)

General comments:

Review comments for gmd-2016-51

Overall, it is a well-done and useful paper. It brings together a number of methods together in one convenient place and software tool for the practitioner. When I next need to generate hourly meteorological data, I will refer

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Discussion paper

to this paper and likely use the Python tool as well.

We would like to thank Anonymous Referee 2 for for his/her positive evaluation of our manuscript and for his/her constructive comments and suggestions! The comments are highly appreciated and will help us to improve our manuscript. Please find below our detailed response.

Specific comments:

p. 2 In the discussion of the three approaches used for generating hourly timeseries, it would be helpful to point out even more explicitly to what degree each method can potentially reproduce the actual, time-specific values that represent actual history. The order of decreasing potential would be 1, 3, 2

Our first intention was to list these approaches according to their complexity in ascending order. We agree that sorting this list according to the potential regarding their capability of reconstructing the actual, time-specific values (i.e., the originally measured hourly values) would be beneficial. We will re-arrange the list accordingly. Moreover, we will take up your suggestion to point out more explicitly the potential of each method.

"In general, three completely different approaches exist (listed in descending order regarding their potential to reconstruct the originally measured hourly values that are representative for a given location and time):"

1. Disaggregation: "Despite their simplicity, disaggregation methods have great potential to reconstruct the originally measured hourly values for a given day as they are forced by actual daily values valid for that specific day."

2. Dynamical downscaling: “Since atmospheric (re-)analysis data represent the actual weather for a given time, dynamical downscaling of this kind of data is a sophisticated way to derive hourly values for that time and arbitrary locations in a realistic manner.”

3. Weather generators: “[...] is different due to its random nature, which is why sub-daily time series do not provide the originally measured values.”

Thank you for pointing us in this direction!

p. 6, line 14 Missing word "always" after "almost"

Done.

p. 6, Section 3.4.2 Suggest a stronger word than “overlie”, perhaps “overpower” or “overwhelm or replace” to describe how a low-pressure system can be more important than local effects for wind generation

We replaced “overlie” by “obliterate”. This term is used by Oke (1987) to describe this effect.

p. 9, line 21 Misspelling: “releated”

This typo is fixed.

p. 15, line 2 Would make more sense as “simple and easy-to-use”

Yes. We rewrote this wording accordingly.

Table 7 caption Suggest saying "parentheses" instead of "brackets"

Done.

p. 16, line 4 Instead of "warranted" a better phrase would be "inherent in the methodology".

You are right. Thanks!

Literature

Oke, T. R.: Boundary layer climates, Routledge, London, 2. edn., 1987.

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