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comment

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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The manuscript by Förster et al. presents the software package MELODIST, a framework of state of the art methods for disaggregating meteorological time series. The methods included comprise deterministic and stochastic approaches with several options to choose for the individual meteorological variables. The disaggregation methods are described concisely with adequate reference to the relevant literature. The general applicability of the disaggregation methods is assessed by comparisons between observed hourly data and disaggregated hourly data based on daily variables. Therefore, five stations in contrasting climates have been chosen. The model code itself is well documented, the software package is easy to apply and modify and thus

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has high potential on being used e.g. by hydrologist who require hourly input data for models. The manuscript is well structured and written. The methods are clearly documented and critically assessed both with reference to the literature and by own analyses of the authors. The conclusions are well supported by the results. I recommend the article for publication after minor revision for the following issues:

- Introduction: motivate the need of a disaggregation to hourly data more directly –for which purposes are data in hourly resolution needed (give examples)

- Introduction: while the relevant literature concerning disaggregation methods is addressed, reference to other tools / software packages for disaggregation of single meteorological variables (e.g. HyetosR) is missing

- Results: It is of interest, whether the distributions of the hourly data are preserved. Table 2 gives only mean values and standard deviations. Do the parameters of the distribution functions differ between observed and disaggregated hourly values?

- Results: On which basis have the times and locations for the result figures been chosen? Are these the times & locations where the disaggregation results fit the observations best? It might be helpful to add performance measures also for the time periods displayed.

Minor comments:

Page 1, line 1: Maybe specify: "Observations of hourly time series" / "Monitoring data in hourly resolution"

Page 3, line 24-26: Can be deleted, the reader should be familiar with the difference between deterministic and stochastic approaches.

Page 6, line 4: replace "small scale" with "sub-hourly"

Page 6, line 5: sentence unclear

Page 6 line 25: specify distribution (uniform)

General language comment: check when to use "a" and "an"

Page 10 line 18: why is this approach not referred to as "inverse distance weighting"

Page 13 line 2: replace "are not reproducable" with "is not reproducible" or: "cannot be reproduced"

Page 14 line 2 & line 29: these lines are redundant.

Page 15 line 3: can you give a ballpark figure on computational costs, e.g. disaggregation of 10 years of temperature data?

Page 15 line 5: give examples here (or in introduction)

Table 1: Please state whether "data availability" refers to hourly data

Figure 2: scale of the points – hard to perceive differences

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