Interactive comment on "The TropD software package: Standardized methods for calculating Tropical Width Diagnostics" *by* Ori Adam et al.

Anonymous Referee #2

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This paper describes a software package that implements eight commonly-used methodologies for the calculation of metrics of the tropical width. A set of optional parameters is made available for some methodologies. The code is written in the widely used MATLAB programming language, and its purpose is to provide standardized calculation methodologies for commonly used diagnostics of the tropical width, helping in the comparison of the results from different studies.

The paper is well written and the software functions well described. A sensitivity analysis for the different methodologies is presented to justify the choice of the default options.

Because the basic operators applied in the metric calculations are nonlinear, the metric calculations do not commute in space and in time. The authors discussed this in

the manuscript. However, there is another effect of nonlinearity that the authors did not discuss. The input data for the software are zonal-mean variables in a latitude pressure grid. For example, in the TBP method, the zonal-mean tropopause is calculated by applying the WMO lapse rate criteria to the isobaric zonal mean temperature. I wonder if the results will be the same when the zonal mean tropopause parameters are obtained by zonally averaging the respective values calculated at each longitude.

I have more two minor comments:

pg. 3, line 16: "(ii) In cases where multiple zero-crossing latitudes exist, the first zero crossing along the input interval is chosen."

Because the data grid is ordered from the South Pole to the North Pole, the first zero-crossing latitude in the SH is far from the equator than the first zero-crossing latitude in the NH. Is it right?

Fig. 9: It will be useful to call the attention for the different vertical scales used in Figs. 9a,b and 9c,d.