

Interactive comment on “Ventilation of the Mediterranean Sea constrained by multiple transient tracer measurements” by T. Stöven and T. Tanhua

Anonymous Referee #1

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The paper “Ventilation of the Mediterranean Sea constrained by multiple transient tracer measurement” by Stöven and Tanhua uses transient tracer measurements from a 2011 cruise to: (i) estimate the age of water masses in the Mediterranean Sea and (ii) to define the optimal TTD model in the various Mediterranean basins. It is an interesting and important paper and the data/methods presented are significant for understanding the water mass formation and overturning circulation of the Mediterranean Sea. This is more important for a basin presenting very strong interannual variability.

Although I was expecting a more quantitative estimation of the ventilation rates and the associated processes, I believe that the results are important and provide significant data for understanding the main deep and intermediate circulation and its variability

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in the various Mediterranean basins and as a whole. Thus, I propose that the paper should be published after minor revision.

My main concern is related to the absence of estimation of the ventilation rates, their variability and the associated water mass formation processes, inferred by the data and related to older estimations. The discussion of the results compared to previous estimations (using tracer data or not) is very weak.

The methodology should include comparison of different sampling/measurement methods and procedure (e.g. measurements analyzed onboard and in Kiel; results of validation/calibration procedures). The definition of “sufficient resolution “ of the water column should also be presented.

The abstract should also include a summary of the findings related to the various water mass ages. The manuscript needs significant editing for some incoherent phrases, missing verbs, typos, etc.

Interactive comment on Ocean Sci. Discuss., 10, 1647, 2013.