

***Interactive comment on “On the relationship among the Adriatic–Ionian Bimodal Oscillating System (BIOS), the Eastern Mediterranean salinity variations and the Western Mediterranean thermohaline cell” by M. Gačić et al.***

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We fully agree with the referee stating that the differences between our phase-lag estimates and those in Roether et al. (1998) using transient tracers are too large partly due to the fact that we were calculating the phase-lag between the surface layer in the Levantine and the LIW-layer in the Sicily Strait. In Roether et al. (1998) the tracer-based value was determined using the common 29.05 potential density horizon. This means that in fact the difference between our estimate and this by Roether et al. (1998) is reduced for the time needed for the surface signal to be transmitted to the LIW-layer

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by winter convection, i.e. according to us at maximum for one year. In that context we are not sure we fully understood the sentence where the reviewer said: “The formation will furthermore drag in waters somewhat off the formation center, which takes extra time.” We also fully agree with the reviewer that the rather wide maximum in the cross-correlation function introduces additional uncertainty in the exact determination of the phase-lag. We thank the reviewer for having raised this question and we will certainly include this aspect into the final version of the manuscript mentioning also the possibility to calculate the phase-lag as a median value. Our final estimate of the LIW travel time between the Levantine basin and Sicily Channel is within the range between 15 and 16 years. We also would like to thank the reviewer for addressing a number of technical items which will certainly be addressed in the final version of the manuscript.

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