

Interactive comment on “The dynamic connection of the Indonesian Throughflow, South Indian Ocean Countercurrent and the Leeuwin Current” by E. Lambert et al.

Anonymous Referee #1

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My apologies if my comment on the SICC was unclear. I was referring to the 2-layer model solutions, where the eastward current appears to be associated with the outcrop of the layer. The processes determining the position of the outcrop in each of the experiments need to be discussed in detail, in order to allow for conclusions on why the position and properties of the frontal current differ among the experiments. My understanding is that this has a lot to do with the conservation of mass (again, in this regard it is unfortunate that the experimental design does not allow for a steady state) and Rossby wave dynamics. The local dynamics allowing for the frontal current (viscosity vs inertial terms) may also affect the circulation as suggested by the authors. However, with the current experimental design and information given in the manuscript,

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i find it difficult to understand what part of the difference between the experiments can be really attributed to local processes.

Interactive comment on Ocean Sci. Discuss., 12, 2231, 2015.

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