

Interactive comment on “A dynamical systems perspective on the absence of debris associated with the disappearance of flight MH370” by V. J. García-Garrido et al.

Anonymous Referee #1

Received and published: 31 July 2015

In this paper, the authors use Lagrangian techniques to identify transport barriers and coherent structures in the Indian Ocean Surface. The main objective of the paper is to help elucidate the possible position of the Malaysia Airlines debris after its accident last March 2014. To that end, in a very didactic way, the Lagrangian techniques are clearly exposed along the paper. A comparison between the geostrophic currents obtained from AVISO or the HYCOM model is done, as well with data from two drifting buoys in the area.

The paper merits for publication in NPG, however some doubts should be clarified that in my opinion may enrich the text.

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Although in page 1205 a comment on the inertial effects is done, I think this aspect requires a larger explanation. All the air flight debris didn't have the same size and their motion is nearly sure that it was affected by waves and inertial effects. Both effects should have modified their Lagrangian motion and probably the sinking of the heaviest, above all after the time periods used in this paper. I do not agree with the authors that considering the inertial motion is speculative, but for larger debris it could be of importance.

The analysis performed at 2000 m depth is surprising. Why this depth, and not a different one? Of course, currents at these depths are calmer than at the surface, and consequently the Lagrangian dispersion will be smaller. The reason to include these results should be justified or in the worst case, deleted. It will be more interesting to show the 3D dispersion considering the full HYCOM model as this will show the final position of the debris.

And finally, the recent discoveries of some debris in the Reunion Island show that some of them could have been displaced from the accident area by the currents. I do not know if a comment could be added in view of this new information.

Interactive comment on Nonlin. Processes Geophys. Discuss., 2, 1197, 2015.

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