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Nonlinear Processes in Geophysics
Discussions
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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.

V. J. García-Garrido et al.

a.m.mancho@icmat.es

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ANSWER TO REFEREE 1

We want to thank this referee for his/her very useful comments that have been addressed as follows:

1. 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.

Regarding this comment we want to say that we never meant that inertial effects are speculative. To avoid this interpretation we have rewritten Section 3 discussing more extensively wind an inertial effects. In particular for the inertial effects we say now:

Similarly to wind effects, inertial effects depend on the shape of the debris objects, which we do not know in this case, except for the flaperon piece. Although beyond the scope of this work, a thorough study of inertial effects for the flaperon would be of much interest, as it would help to track back, with a larger degree of accuracy, a possible impact point. The lack of knowledge on the distribution of shapes, densities and sizes of the floating debris, requires of too many assumptions which would prevent from a reliable conclusion on the inertial effects. We thus simplify our approach to that of purely advected particles. In the end, the agreement found between the GDP drifters tracks and the mesoscale features that our tools highlight supports this decision.

The sinking of the heaviest objects and the presence of floating objects is discussed both in the Introduction and at the beginning of Section 3.

2. 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.

We have removed that analysis in the current version.

3. And finally, the recent discoveries of some debris in the Reunion Island show that

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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.

We have included some comments in the Introduction and in Section 3 regarding this finding. Some parts of the text have been reworded and the title changed as now debris is not absent.

Please also note the supplement to this comment:
http://www.nonlin-processes-geophys-discuss.net/2/C471/2015/npgd-2-C471-2015-supplement.pdf

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

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