

Interactive comment on “Impact of HF radar currents gap-filling methodologies on the Lagrangian assessment of coastal dynamics” by Ismael Hernández-Carrasco et al.

Anonymous Referee #1

Received and published: 23 April 2018

The manuscript by Hernández-Carrasco et al. entitled "Impact of HF radar currents gap-filling methodologies on the Lagrangian assessment of coastal dynamics" is a well-written, well-documented manuscript. The work investigates the relative accuracies of a number of spatial gap-filling techniques based on high frequency (HF) radar-derived surface current observations from the Bay of Biscay.

The work is systematic and clearly presented. The topic should be of interest to coastal oceanographers and resource managers due to the increasing use of HF radar networks for surface current mapping applications. The dataset from the Bay of Biscay is long enough that the authors are able to: 1) find well covered months with

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nearly complete spatial coverage and 2) develop the basis functions necessary for the statistical-based gap-filling techniques. Since the manuscript is also well written and documented, I recommend it for publication with minor corrections.

MINOR COMMENTS:

Page 2, Line 14: "understanding surface" should be "understanding of surface"

Page 5, Line 20: "EOF based" should be "EOF-based"

Page 7, line 23: "since is" should be "since it is"

Page 8, line 24: A better/additional reference here is:

Chapman, R.D., L.K. Shay, H.C. Graber, J.B. Edson, A. Karchintsev, C.L. Trump, and D.B. Ross, 1997: On the accuracy of HF radar surface current measurements: Inter-comparison with ship-based sensors. *J. Geophys. Res.*, 102, 18737-18748.

Page 12, Line 10: "velocity respectively" should be "velocity, respectively,"

Page 13, Line 1: "reach values" should be "reaches values"

Page 14, Line 12: The following references should be added here:

Lipphardt, B.L., Jr., D. Small, A.D. Kirwan, Jr., W. Wiggins, K. Ide, C.E. Grosch, and J.D. Paduan, 2006: Synoptic Lagrangian maps: Application to surface transport in Monterey Bay. *J. Mar. Res.*, 64(2), 221-247.

Shadden, S.C., F. Lekien, J.D. Paduan, J.E. Marsden, and F.P. Chavez, 2008: The correlation between surface drifters and coherent structures based on high-frequency radar data in Monterey Bay. *Deep-Sea Res.*, doi:10.1016/j.dsr2.2008.08.008.

Page 24, Line 9: The Lipphardt et al., reference above should also be inserted here.

Interactive comment on *Ocean Sci. Discuss.*, <https://doi.org/10.5194/os-2018-26>, 2018.

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