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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Rip current evidence by hydrodynamic simulations, bathymetric surveys and UAV observation" *by* Guido Benassai et al.

Anonymous Referee #3

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First of all, I want to congratulate the authors for their interesting research. Not only is the integration of the proposed different methods of great interest for the scientific community, but it has also a very important impact on general public due to the safety-related implications of rip currents. The paper is readable and quite well written, nevertheless, in my opinion, it needs some important improvements, in particular with respect to its length that, at the moment, is not sufficient to describe important aspects of the proposed method. First, I would recommend the authors to provide a more comprehensive literature review in the introduction/motivation to highlight if and how the problem is dealt with, which technology is used, and if/where/how the authors are now filling a missing gap. There are many papers dating back up to the 1970s on the same topic, some using photogrammetry to quantify direction and velocity of rip current for example Sasaki, T., Horikawa, K. and Hotta, S., 1977. Nearshore current on a gen-

tly sloping beach. In Coastal Engineering 1976 (pp. 626-644). Also, I would better introduce the problem of rip currents with some good references to better understand the related dynamics also in different coastal zones, for example outside the Mediterranean. To better understand the motivation behind the specific technology used, I would recommend to state which physical quantities the authors are looking for and provide a range for them (i.e. seafloor minimum depth variations in the order of XX cm? Which geometric resolution is necessary for the DTM?) Which data and outcomes are the authors willing to draw from both satellite and UAV images (Orthophoto, 3D point cloud, orientation or particular pattern distributions in the aerial views)? In order for the paper to be useful to the scientific community so that the proposed methodology could be reproduced by other scientists, the authors should provide much more details for each surveying technique. The term bathymetry is somehow confusing since the authors used a RTK GPS survey to sample some transect on the beach across the shoreline. Did the authors use a pole and, how far from the shore did they go? How deep was the water? How much deep it is necessary to obtain the bathymetry in relation to the wave height? Regarding the use of aerial views, the authors should specify what kind of technique was used and output produced (i.e. photogrammetry, orthophoto?). Some comments with respect to legislative constraints and regulations for the use of remotely piloted aerial system should be provided. The authors cited the use of some targets surveyed with GNSS positioning techniques but then they do not explain how these are taken into account during the processing.

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