Lagrangian Rip Current Field Observations: Swim Parallel?

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A fleet of GPS-equipped drifters were deployed in open coast rip-channeled beaches in Sand City, Monterey Bay, CA; Truc Vert, France; and Perranporth, United Kingdom. New perspectives on rip current circulation patterns and particle pathways were found, previously overlooked with Eulerian observations. The rip current flow field consisted of semi-enclosed large-scale vortices that retained the drifters within the surf zone and resulted in a high number of Lagrangian observations that temporally and spatially repeated. The rip current circulation patterns were often biased to one alongshore direction, which is referred to as an asymmetric rip current. The percentage associated with the likelihood that a person would be swept seaward of the breakers was computed by estimating the occurrence of drifter exits relative to the occurrence of drifters entering a rip channel, either by deployment or re-entering the rip channel after it completed a revolution, was found to be 10%. If you are caught in a rip current and you swim parallel to shore, there is a 50% chance that you will swim in the wrong direction owing to the alongshore rip current circulation pattern asymmetry. However, *if you are caught in a rip current and tread water, there is a 90% chance of you being returned to shore within approximately three minutes.*