Nikolai
Maximenko
IPRC/SOEST, University of Hawaii
Jan Hafner, IPRC/SOEST, University of Hawaii
Oleg Melnichenko, IPRC/SOEST, University of Hawaii
Poster
Presented are preliminary results of the study, in which feasibility for floating matter to travel between a pair of selected locations is characterized on a global scale, using trajectories of Lagrangian drifting buoys. Low-connectivity areas are identified and role of major fronts, strong currents, and the equator as barriers are discussed. Lagrangian time scales of the exchange are assessed and shown to be much larger than Lagrangian velocity time scales in the mesoscale eddy field. Empirical SCUD (Surface CUrrents from Diagnostic) model, forced by satellite altimetry and QuikSCAT and ASCAT winds, is used to study Lagrangian trajectories longer than the characteristic life time of a drifter. Applied to the problem of marine debris, generated by the 2011 tsunami in Japan, the study suggests that pathway, linking the source to a particular destination, may be narrower than one might expect from the advection-diffusion model. Knowing these pathways could help optimize the use of limited resources available to monitor safety of critical sites (such as Midway Islands or big harbors).
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