



Extreme westward surface drift in the North Sea: public reports of stranded drifters and Lagrangian tracking

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Observations using two kinds of drifters were carried out in the southern North Sea aiming to study the propagation pathways of marine litter. One drifter, which was driven by the upper layer currents, was equipped with global positioning system. Further 1,600 wooden drifters, driven mostly by wind and Stokes drift were released offshore in German waters. Individuals found the stranded wooden drifters and reported the respective positions and times. It appeared that a large number of them were washed ashore on the British coast, indicating a reversal of the general circulation in the North Sea continuing over relatively long time. Lagrangian numerical experiments, calibrated using data from observations, helped explain the anomalous transport and the reversal of the circulation at the sea surface and in deeper layers. The plausibility of similar events having occurred in past decades has also been estimated using data from atmospheric analyses.