Efficient and robust detection of transport barriers using the geodesic approach MICHAEL ALLSHOUSE, Massachusetts Institute of Technology, JEAN-LUC THIFFEAULT, University of Wisconsin - Madison, THOMAS PEACOCK, Massachusetts Institute of Technology — There is an increasing number of applications where the identification of transport barriers is valuable. A recent advance in transport barrier theory has created a unified approach to detecting hyperbolic (LCS based), elliptic (KAM based), and parabolic (shear jets) transport barriers. We have developed an algorithm building on the details from this result. We present a number of modifications to the algorithm which aim to increase accuracy, reduce unnecessary calculations, and make the method suitable for practical applications. This approach is then applied to an ocean surface model to study transport barriers present during the Deepwater Horizon spill.

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