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Comment

Interactive comment on “Lagrangian mixing in an axisymmetric hurricane model” by B. Rutherford et al.

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Received and published: 17 December 2009

The authors would like to thank referee 1 for the helpful comments. We will address the specific comments individually.

1. From a mathematical viewpoint, the time-dependence of the axisymmetric flow makes this a very sophisticated model for studying mixing, though it may be a simple model from a physical viewpoint. This paper is intended as an introduction of a class of techniques from dynamical systems to atmospheric science that effectively handle the time-dependence of atmospheric models. Though the simplicity of this model does not allow us to infer properties of fully 3D hurricanes from mixing in the axisymmetric flow, the methods may be extended to 3D models, which give scientifically important results.

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2. Many changes have been made to improve the literature review and the formulation of many of the measures.

3. The vague language of "hyperbolic processes" has been eliminated, and we now refer to mixing through a "tangle of stable and unstable manifolds."

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 18545, 2009.

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