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**Chris Danforth\*** ([danforth@math.umd.edu](mailto:danforth@math.umd.edu)), Department of Mathematics, College Park, MD 20742, and **James A. Yorke**. *Making Forecasts for Chaotic Physical Processes*.

Making a prediction for a chaotic physical process involves specifying the probability associated with each possible outcome. Ensembles of solutions are frequently used to estimate this probability distribution. For a typical chaotic physical system  $H$  and model  $L$  of that system however, no  $L$  solution remains close to  $H$  for all time. We propose an alternative. This letter shows how to “inflate” or systematically perturb the ensemble of trajectories of  $L$  so that some ensemble member remains close to  $H$  for orders of magnitude longer than unperturbed solutions of  $L$ . This is true even when the perturbations are significantly smaller than the model error. (Received September 13, 2005)