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Interactive comment on "Recalculation of error growth models' parameters for the ECMWF forecast system" *by* Hynek Bednář et al.

Anonymous Referee #2

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Review of "Recalculation of error growth models' parameters for the ECMWF forecast system" by Hynek et al

Summary: This paper seeks to provide a new estimate of parameters of error growth models in the ECMWF forecasting system. Using a new approach, the authors calculate the largest Lyapunov exponent and two types of predictability curves, as well as the Lorenz's (2005) system, found that the largest Lyapunov exponent range from 0.32 to 0.41 day-1 in the ECMWF forecasting system, similar to the value of 0.35 day-1 in the Lorenz's system. Several results in this study are interesting, some parts could benefit from clarifications and major revisions. Below are the detailed comments. General Comments: 1. I found the paper not easy to read and understand, and it is not

well organized. There are too many symbols and many words are abbreviated that make reader confuse. 2. I'd suggest to divide section 2"Experimental setting"suggest into"2.1 Experimental setting"and "2.2 Calculation of the predictability curves". 3. The error growth estimate consists of initial and model error is lower bound predictability curve and the upper bound predictability curve only contains initial error. Can you say more about the differences between the bound predictability curves and the limit error? 4. L85:Remove the comma ",". It can be changed to "A bounded dynamical system with a positive Lyapunov exponent is chaotic". 5. L95: How to determine the values of N "real" and N "observed"? 6. L125-130: My main issue with this manuscript is that I'm not convinced that the measure of limit error really works, mainly because of the ERA-Interim daily data including uncertainty. Also, given that the maximum forecast time for the ECMWF forecasting system is 10 days, the forecast error may not be reach to the saturated value or predictability limit. 7. L125-130: What is the physical meaning of the 'limit error' you derived? Dose the limit error means the error of saturated value of predictability limit? 8. The paper of RuiqiangDing., and Jianping, Li(2011) is listed in References, but it cannot be found in the manuscript. Please check it again.

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