



Dynamical properties of Model Output Statistics forecasts

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The dynamical properties of forecasts corrected using Model Output Statistics (MOS) schemes are explored, with emphasis on the respective role of model and initial condition uncertainties. Analytical and numerical investigations of low-order systems displaying chaos indicate that MOS schemes are able to partly correct both initial and model errors. Nevertheless the amplitude of the correction is much more sensitive to the presence of model errors and if initial condition errors are much larger than model uncertainties, MOS schemes become less effective. Furthermore, the amplitude of the MOS correction depends strongly on the statistical properties of the phase space velocity difference between the model and reference systems, such as its mean and its covariance with the model predictors in the MOS scheme. Large corrections are expected when the predictors are closely related to the sources of model error. The practical implications of these results are briefly discussed.