

We thank the reviewers for very thorough review and the insightful comments that have helped us improve the paper. We have previously written point-by-point responses to all reviews received in the interactive discussion. We have made the following changes in this revision:

1. Changed the title to be more specific
2. Removed most forward references in the text – there is one remaining, which we believe improves readability.
3. Expanded the description of why domain-decomposition does not solve all peak memory problems.
4. Reference added to Weiser and Götschel (State trajectory compression for optimal control with parabolic PDEs, SISC, 2012).
5. "I'm not sure how to reconcile this with the statement in the present work that the analysis of compression errors is "beyond known numerical analysis". Rephrased.
6. Some rephrasing to make it clear that the key idea of Lossy compression of checkpoints was previously presented by us in a more general context of adjoint computations. This is a followup work that discusses application-specific error tolerances.
7. Fixed notation for consistency.
8. Added a discussion of the adaptivity already present in the method.
9. Added section on Error metrics where PSNR and other metrics are defined.
10. Increased the number of timesteps in the forward propagation experiment.
11. Combined some figures into multipane figures.
12. Added a discussion section that discusses the validity of these results beyond what was studied.
13. Code and Data references are all DOIs now.