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Interactive comment on "Automating the solution of PDEs on the sphere and other manifolds in FEniCS 1.2" *by* M. E. Rognes et al.

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We would like to thank the reviewer for taking the time to read and comment on our paper.

The reviewer raises a specific question with respect to energy conservation in Fig 10. We agree that it is not possible to detect the exact energy conservation error from the plot. However the plot does serve the purpose of illustrating that there is real energy transfer between kinetic and potential energy, and therefore demonstrating that the energy conserving property is non-trivial. Since energy is conserved to machine precision, we do not feel that a graph showing essentially random fluctuations on the scale of 10^{-15} would be particularly edifying. Instead, the revised paper will include the maximum conservation error (1.4×10^{-15}) in the caption. Furthermore, to ensure

that readers have the possibility of reproducing and verifying our results, we have modified `examples/linear-shallow-water/plot_energies.py` in the supplementary materials to also calculate and print the maximum energy conservation error.

Interactive comment on Geosci. Model Dev. Discuss., 6, 3557, 2013.