Review of: "Annealed Stein Variational Gradient Descent for Improved Uncertainty Estimation in Full-Waveform Inversion"

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Potential competing interests: No potential competing interests to declare.

A new improvement of the Stein Variational Gradient Descent is proposed in the paper. The experimental results are sufficient and persuasive. The authors use Principal Component Analysis and clustering techniques to evaluate the performance of the optimization process. They use both single and multi-scale frequency ranges to show the benefits of annealed SVGD, which also addresses the challenges of dimensionality and computational constraints. **In addition,** the paper is well-structured. The formulas are accurate and self-contained. The whole manuscript is easy to understand. In all, the paper can be accepted.