Decision: Reject

Submission: Combining checkpointing and data compression for large scale seismic imaging
Contributors: Kukreja

Key for the below column headings: show

Summary of Reviews of ws_drbsd115s1: Combining checkpointing and data compression for large scale seismic imaging

Reviewer	rel	snd	imp	orgn	pres	act	conf	exp
Reviewer 1	HIGH (5)	HIGH (5)	LOW (3)	LOW (3)	HIGH (5)	WEAK REJECT (3)	MODERATE (4)	LOW (3)
Reviewer 2	HIGH (5)	HIGH (5)	HIGH (5)	MODERATE (4)	MODERATE (4)	WEAK ACCEPT (4)	MODERATE (4)	MODERATE (4)
Reviewer 3	HIGH (5)	LOW (3)	HIGH (5)	HIGH (5)	HIGH (5)	WEAK REJECT (3)	VERY HIGH (6)	VERY HIGH (6)
Averages:	**5.0**	**4.3**	**4.3**	**4.0**	**4.7**	**3.3**	**4.7**	**4.3**

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Commitee Comments & Notes · jump down

Review of ws_drbsd115s1 by Reviewer 1

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Comments for Authors:

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This paper is well written and employs an interesting use case (seismic imaging).
However, the contributions of the paper are marginal. Mostly, it proposes a
relatively straight-forward performance model that leads to unsurprising
predictions/results. I recommend including several of the items listed under
future work.
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Review of ws_drbsd115s1 by Reviewer 2

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Comments for Authors:

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Using compression to reduce the size of the checkpoint files is especially useful
for solving adjoint problems, therefore this work addresses a very important
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technical topic. It is highly relevant to this workshop. The only reason I am not giving this a stronger recommendation is that this work apparently is missing some of the most effective compression techniques, such as SZ.

Review of ws_drbsd115s1 by Reviewer 3

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Comments for Authors:

This paper explores the combination of checkpointing and lossy compression for adjoint computation. While the overall paper is pretty interesting, the evaluation section is not precise enough to make the results convincing.

Pros:
-interesting problem and direction
-potential of performance improvement

Cons:
-The papers studies only 1/2 of the problem: the checkpoint/compression side. It does not study the decompression/impact on results aspects. Lossy compression study is not convincing if there is no study of the impact of the compression error. The level of error (absolute error bound) is not enough to assess the impact on the results. Many other distortion factors could affect the results, depending on how the results is used and what analysis is made.
-The performance of the storage system used for checkpointing is unclear: it is the 8GB/s mentioned in the figures? How many cores are used in these experiments? The relation between the number of cores and the storage bandwidth is not described.
-The paper assumes that the compression factor is the same over all time steps. This is very unlikely, especially for wave propagation.

Committee Comments for Authors

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None