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Geoscientific Model Development Discussions

Interactive comment on "Scalable Diagnostics and Data Compression for Global Atmospheric Chemistry using Ristretto Library (version 1.0)" *by* Meghana Velegar et al.

Anonymous Referee #2

Received and published: 8 March 2019

The paper entitled "Scalable Diagnostics and Data Compression for Global Atmospheric Chemistry using Ristretto Library" is well written. it is one of the needed research areas of current scenario. The authors are focusing to apply the dimensionality reduction for the probable compression of spatial features of the Global Atmospheric Chemistry data and for further analytics. The authors are requested to give the clarifications to the following queries for the possible acceptance of the paper.

1. The compression is achieved by means of dimensionality reduction. To achieve additional compression performance (Even the lossless entropy encoding) may be included in this proposed work to yield more compression ratio, this will even reduce the

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Discussion paper

data size.

2. “Taking logarithm of the data” is mentioned in the paper, it would be better to give detail about this along with necessary references.

3. What is the reason for representing the Global Atmospheric Chemistry Data in 2D array in this proposed work? Why didn’t considered as high dimensional data such as Tensor? Please justify the reasons.

4. Mention, Among RSVD, NMF and SPCA, which is appropriate for your Global Atmospheric Chemistry Data analytics.

5. You have specified ozone (O3) in your manuscript, is there any other key species are found in the atmosphere? If so, mention it in your manuscript.

6. It would be better to provide the Bit Rate of compressed data as well as original data in a tabular form.

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