Interactive comment on "Bit Grooming: Statistically accurate precision-preserving quantization with compression, evaluated in the netCDF Operators (NCO, v4.4.8+)" *by* Charles S. Zender

Anonymous Referee #1

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This paper is a short clear paper describing a simple but useful concept, that of "Bit Grooming", a technique that allows more compact storage of scientific data, preserves an unbiased mean, and allows the data creator to store just as much precision as is justified. The paper describes some common data compression techniques, and discusses the pros and cons of various techniques. Although many of these concepts have previously appeared in the literature, these techniques are still not widely known in the field, and this paper provides a nice review of the state of the art, which should prove useful to the community. In addition, it introduces a simple but novel concept of "Bit Grooming".

A few minor comment/questions only:

In the Abstract on line 13, it is mentioned that Bit Grooming produces storage reductions comparable to other quantization techniques such as linear packing when "used aggressively". Is this always true?

On line 22, the statement that begins "False precision can mislead..." and the following sentences express a concept that should be captured in the abstract. This is the real strength of this approach: turning useless precision into something that is (a) more honest, and (b) saves space!

The "eight-hundred pound gorilla" example is cute, but perhaps a better example would be something less cute and ordinary, such as a "liter of milk" or something.

It's great that the source code is provided on Github. Kudos to the authors for making the code truly open source!

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