

Interactive comment on “A note on precision-preserving compression of scientific data” by Rostislav Kouznetsov

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Thank you very much for for constructive comments!

The main question of the review is: "How should the rounding bit size would be decided? Is this a parameter so set up through NetCDF?"

There seems to be a confusion between NetCDF (data format), libnetcdf (library to read/write it), and NCO (a popular software to manipulate the data in NetCDF format). Decision on the number of necessary mantissa bits is non-trivial. It depends strongly on the nature of the data and on the application, but has little relevance to the specific data format (NetCDF). The number of mantissa bits should not be decided by any general-purpose data handling software or library, but rather should be carefully selected by an

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experienced user or by the author of a specialized software.

Precision trimming is an operation that should be applied to data arrays before feeding them to NetCDF or another data-output library. It can be applied to any data format, e.g. raw binary, that stores arrays of floating-point numbers to facilitate subsequent compression. CDO provides a limited leverage to control the number of mantissa bits in terms of specifying "a number of significant digits" (SD) for a variable. These digits can be loosely translated into the number of mantissa bits: 1 SD is 6 bits, 2 SD is 9 bit, 3 SD is 12 bits etc. The exact translation slightly varies among the CDO versions.

The above considerations will be incorporated in the revised version of the paper. The specific points will be addressed there as well, and summarized in the final response.

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