

Interactive comment on “Description of algorithms for co-locating and comparing gridded model data with remote-sensing observations” by B. Langerock et al.

Anonymous Referee #2

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General: This paper is a complete description of the data comparison algorithms used on the NORS validation server, and is an invaluable tool for the user needing to understand the nuances of the proffered validation results. The techniques depicted are also generally useful for researchers pursuing similar endeavors to compare station data to satellite or models. I recommend publication with a few revisions.

Specific comments: Page 8153 line 14: replace ‘partly’ with ‘partially’.

Page 8153 (lines 10-17): This paragraph is confusing on first read. The distinction between VAL and NORS would be better explained if an example of the type of instrument used for the in situ surface data were provided. Also in line 16: replace ‘almost

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not the NDACC ground-based' with 'little use of the NDACC ground-based'.

Page 8154 line 3: replace 'the notation convention' with 'notation conventions'.

Page 8154 line 3: replace 'scalar,' 'scalar;'

Page 8154, line 14,15: Most readers will not know what the term consolidated refers to in this context which is simply a statement of whether the data provided in smaller collections (perhaps a file with one month of data) for the RD set and a larger collection (perhaps a file with one year of data) for the NDACC set. Also, the RD data is not necessarily the final PI reviewed validated NDACC quality controlled product. Since this is rather complex, it is likely better to state here that "the NDACC database rapid delivery directory, if not fully in final form, or to the corresponding NDACC database station directory if in its final form both with respect to data versioning (PI reviewed vs operational) and file temporal coverage".

Page 8155, line16-18: Punctuation should be: The dimension column is only indicative. (These values change when considering other model grids. For notational convenience we fix the dimensions to the grid N128.)

Page 8156, line 4: should be "model's pressure levels" or "model pressure levels".

Page 8156, line 11: should be "and the", not "and, the"

Page 8158, line 11: The phrase "recall that z is the MACC grid height vector is descending" has two verbs "is" and is confusing. Probably should be: "recall that the MACC grid height vector, z, is descending".

Page 8159, line 10: should be "and converted to the measurement's units."

Page 8160, line 3: use "conservation of mass in mind"," or with consideration of conservation of mass".

Page 8160, line 4-5: As previously "To fix thoughts" is non-standard English. Also the parentheses are misplaced as not all inside of the "(")" relate to the Ozone profile. Lastly

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“profile” appears as both singular and plural in different parts of the sentence. Possibly correct these items with: “To clarify, assume that an O₃ profile (in partial column units for concentration) or an aerosol extinction profile (in optical depth) is defined. . .”

Page 8161, line 20: Should be “; however,”

Page 8166, line 25: Replace “To fix thoughts” with “For example” or “Specifically”.

Page 8167, line 14: Use “request to S. Niemeijer”.

Page 8167, line 19: Use “for many years”.

Page 8168, line 6: Define QA4EO, and why compliance with this is valuable. Refer to the item in your reference list.

Page 8168, line 12: remove the comma between “covered” and “is”.

Page 8168, Acknowledgements: An appropriate acknowledgment of NDACC should include its web address and a statement that the data are publically available. Perhaps use: The NORS project relies on the data publically available from NDACC. See <http://www.ndacc.org>. The data providers for FTIR, MWR, LIDAR and UVVIS measurements in the NDACC database are acknowledged.

Page 8172 Table 2, under description: the phrase ‘latitude instrument’ should either be ‘instrument latitude’ or ‘latitude of the instrument’. Likewise for longitude and altitude.

Page 8173 Table 3, under description: the phrase ‘array ap is used as translation terms’ is better expressed as ‘array ap is the translation operator’

Page 8173 Table 3, under description: the phrase ‘array bp are used as scaling factors’ is better worded as ‘array bp contains the scaling factors’. Note this corrects the pluralization of the verb ‘are’ for the singular noun ‘array’.

Page 8174 Table 4: It is confusing why either all instruments (FTIR for example) or all species (O₃ for example) are not listed together. There does not seem to be a logical

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order to the placement in this table. Grouping would better serve to help the reader recognize the limits of various measurement techniques.

Page 8175 Table A1: If this table is supposed to be an elucidation of Table 1, then it would make sense for the ordering of the first column to correspond with that of Table 1. Currently Table 1 runs: UVVIS, FTIR, MWR, Lidar; whereas Table A1 runs as: Lidar, FTIR, UVVIS, MWR.

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