

Interactive comment on “Tropospheric CH₄ signals as observed by NDACC FTIR at globally distributed sites and comparison to GAW surface in-situ measurements” by E. Sepúlveda et al.

Anonymous Referee #2

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Concerning Equations (5), (6) and (7). The interpretation as interference error is not sufficient. Please describe the details of the relation $S_a = S_{a,BL} + S_{a,TRO} + S_{a,UTLS}$. Are these block diagonal matrices? What is the dimension of these matrices? If the matrices are block-diagonal, indicate where $S_{a,(BL,TRO,UTLS)}$ have non-vanishing components.

The reference to equations (7) and (8) in the 2003 paper could make sense (they extract from the full state vector two components: the profile component and the extra elements). Do you extract only the tropospheric components of the retrieved profile? If so indicate this and a notation change is required: the A in equation (5) is not the

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same as in equations (6) or (7) or as in equation (9) (where also stratospheric components are considered). If not, a detailed description of the decomposition of S_a is required to understand the structure of equations (5), (6) and (7), i.e. why TRO is treated differently.

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