

Interactive comment on “Global and regional emissions estimates of 1,1-difluoroethane (HFC-152a, CH₃CHF₂) from in situ and air archive observations” by P. G. Simmonds et al.

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Referee 2. We thank this referee for his constructive comments and corrections which are addressed below:- General comments. Acronyms have been changed to station names as requested. Other acronyms have also been changed where possible. Figures have been improved, see specific changes below. Specific comments. P21337, L7: “Significant” has been removed. P21337, L22 and L26: “Global” has been replaced with “reported”. P21347, L17: “Insignificant” has been replaced with “almost zero”. P21348, L22: Wording has been changed to “during the economic recession”. A factual statement rather than speculating on the probable cause. P21348, L29 and P21349,

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L13: Radiative efficiency, GWP (and refs) have been added. P21349, L6: Changed to UNFCCC reported emissions. P21349, L9: Change to “... with a non-statistically-significant decrease” P21350, L16: “Developing” removed to avoid confusion. P21351, L4: We presume the reviewer is referring to P21352 here. We have reworded this sentence to reflect the fact that there are some years where the UNFCCC is outside the “inversion uncertainties”: “As shown in Fig. 8, the NWEU emission estimates for HFC-152a from InTEM (rolling 3 yr averages) agree to within inversion uncertainties with the UNFCCC (2013 submission) for most years”. 25% uncertainty is estimated by the UK in their National Inventory Report (NIR) submission to the UNFCCC, the same uncertainty was assumed for NW Europe given the lack of additional information. The 3-year rolling window approach used by InTEM. P21352, L24ff: We did draw attention to the fact that the domains used in the estimates were quite different and agree that the comparison would have been much more robust if similar domains had been used. We would respectively like to retain this sentence where it is clear to the reader that different domains were used. P21372, Figure 2. Station names have been added and the Y-axis scales modified to more common intervals.

P21376, Figure 5a and 5b. Added text to captions: “The black line represents the average for each month of these individual years and the error bars represent the min-max range.” P21379, Figure 8. Figure 8 only has blue bars not green? The blue bars represent the 5th and 95th percentile uncertainty in the InTEM inversion estimates. Additional text has been added to Figure 8. “25% uncertainty is estimated by the UK in their National Inventory Report (NIR) submission to the UNFCCC, the same uncertainty was assumed for NW Europe given the lack of additional information.”

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