An itemized response (blue words) to editor's comment and suggestion

We sincerely appreciate the editor's careful review and handling of our manuscript entitled "Influence of oceanic ventilation and terrestrial transport on the atmospheric volatile chlorinated hydrocarbons over the Western Pacific" [EGUSPHERE-2025-251]. We are grateful for the constructive comment, which has been invaluable in improving the quality of the paper. In response, we have carefully revised and enhanced the manuscript, with all changes highlighted in blue. The major correction and our detailed response are provided below.

Comment:

Thank you for submitting the revised manuscript. You have addressed most of the referees' comments. I notice in your response, you indicated that the diluted calibration standards were sent to a CMA's lab for independent checking, but this information and the result were not included in the SI. I suggest you add it as it is an important piece of evidence supporting compatibility of your standards and dilution system.

Reply: We sincerely appreciate the editor's careful review and handling of our manuscript, as well as the valuable suggestion. As suggested, we have added the information about the diluted calibration standards being sent to a CMA's lab for independent checking, together with the comparative results, in the Supplementary Information.

The related revisions are as follows:

"To ensure accuracy and international comparability of our calibration standards, aliquots of the diluted standard gases were sent to the China Meteorological Administration Meteorological Observation Centre (CMA-MOC) for independent analysis using an AGAGE-traceable Medusa-GC/MS system (Zhang et al., 2017; Yu et al., 2020; An et al., 2021). The CMA-MOC results were reported as dry-air mole

fractions on calibration scales established and maintained by the Scripps Institution of Oceanography (SIO) (Prinn et al., 2000; Miller et al., 2008). The intercomparison indicated that the differences between our measurements and those from CMA-MOC for target compounds were within ±5%: $CHCl_3$ (−4.3% to −1.2%), CH_3CCl_3 (+1.5% to +4.6%), and CCl_4 (+1.1% to +3.8%).**" (Supplementary Information Text S2)**

The related literatures are listed below:

An, M., Western, L. M., Say, D., Chen, L., Claxton, T., Ganesan, A. L., et al. (2021). Rapid increase in dichloromethane emissions from China inferred through atmospheric observations. Nature Communications, 12(1), 7279.

Miller, B. R., Weiss, R. F., Salameh, P. K., Tanhua, T., Greally, B. R., Mühle, J., & Simmonds, P. G. (2008). Medusa: A sample preconcentration and GC/MS detector system for in situ measurements of atmospheric trace halocarbons, hydrocarbons, and sulfur compounds. Analytical Chemistry, 80(5), 1536-1545.

Prinn, R. G., Weiss, R. F., Fraser, P. J., Simmonds, P. G., Cunnold, D. M., Alyea, F. N., et al. (2000). A history of chemically and radiatively important gases in air deduced from ALE/GAGE/AGAGE. Journal of Geophysical Research: Atmospheres, 105(D14), 17751-17792.

Yu, D., Yao, B., Lin, W., Vollmer, M. K., Ge, B., Zhang, G., et al. (2020). Atmospheric CH_3CCl_3 observations in China: historical trends and implications. Atmospheric Research, 231, 104658.

Zhang, G., Yao, B., Vollmer, M. K., Montzka, S. A., Mühle, J., Weiss, R. F., et al. (2017). Ambient mixing ratios of atmospheric halogenated compounds at five background stations in China. Atmospheric Environment, 160, 55–69.