

Dear Professor Riipinen,

We have included the following statement in Section 3 to provide the reason to adjust ModelE2-TOMAS nucleation scheme.

“This might be related to overpredicted sulfur dioxide lifted into the upper and free troposphere over the Pacific Ocean in ModelE2, possibly due to overly-strong convective transport, which can be oxidized to form sulfuric acid and then contribute to nucleation (Lee et al., 2015).”

Thank you!