



Corrigendum to “Modeling atmospheric sulfate oxidation chemistry via the oxygen isotope anomaly using the Community Multiscale Air Quality Model (CMAQ)” published in Atmos. Chem. Phys., 25, 18093–18110, 2025

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Abstract. Model comparisons with historical measurements show reasonable agreement in the acidic southeastern US (RMSE = 0.45‰, Baton Rouge, LA). However, the model overpredicts $\Delta^{17}\text{O}(\text{ASO}_4)$ in the Western US with RMSE values of 0.60‰ (La Jolla, CA) and 1.4‰ (White Mountain Research Center, CA).

The authors submitted the paper with an error in Fig. 9 and corresponding text passages. In the published manuscript, the error metric values displayed in Fig. 9 were presented as mean squared error (MSE) but were mistakenly described as root mean square error (RMSE) in the text. The figure annotation and corresponding text have been updated to consistently report RMSE values. The corrected sections of text are reproduced below.

the White Mountain, CA site had a notably higher RMSE of 1.4‰ ($n = 6$).

Figure 9 has been updated and is presented on the next page.

This correction does not affect the evaluation of model performance or the interpretation of the results presented in the paper.

3.4 Comparison of Model $\Delta^{17}\text{O}(\text{ASO}_4)$ with Observations

Generally, the CMAQ model reasonably reproduced $\Delta^{17}\text{O}(\text{ASO}_4)$ at the Baton Rouge, LA site, with a Root Mean Square Error (RMSE) of 0.45‰ ($n = 17$). This region is characterized by relatively low predicted $\Delta^{17}\text{O}(\text{ASO}_4)$ values, consistent with high regional SO_2 emissions and low cloud water pH that favor ASO_4 formation through aqueous $\text{S}(\text{IV}) + \text{H}_2\text{O}_2$ reactions. In contrast, the CMAQ-simulated $\Delta^{17}\text{O}(\text{ASO}_4)$ values tended to be overestimated at the California sites, suggesting possible inaccuracies in representing additional ASO_4 production pathways in this region. The La Jolla, CA site had an RMSE of 0.60‰ ($n = 31$), while

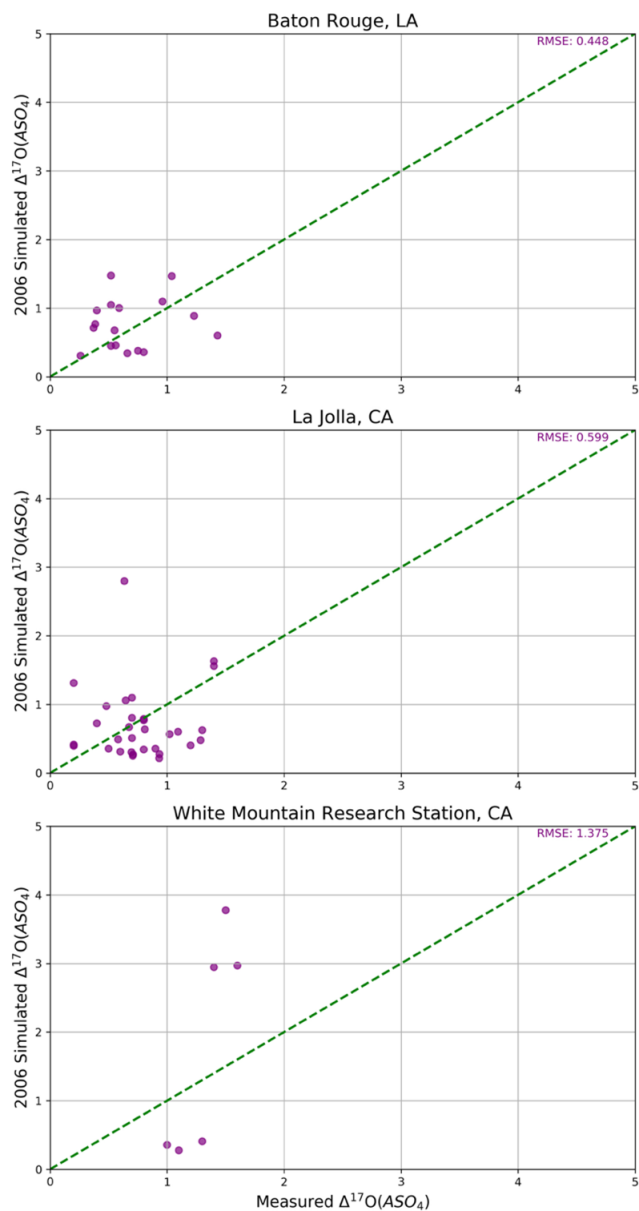


Figure 9. Comparison of $\Delta^{17}\text{O}(\text{ASO}_4)$ measurements and model simulations at La Jolla, CA, White Mountain Research Station, CA, and Baton Rouge, LA from 1996 to 2005.