

Review of the manuscript revision, “Significant contrasts in aerosol acidity between China and the United States”

Overall, the authors have done an excellent job addressing referee comments. The updated manuscript is greatly improved and is nearly ready for publication. I do have one substantive comment and several minor technical corrections. All of the comments are straightforward to address.

In the revised analysis, one of the findings, in particular, stood out to me as quite novel and significant. This analysis (discussed in lines 385 – 405 and presented in Figure S7) found that pH changed when the concentrations of all chemical components were scaled by a common factor, keeping meteorological parameters constant. I agree with the authors that this is a surprising result. Although the authors cite several references in lines 428-429 that discuss the effects of concentration and chemical composition on pH, none of those studies showed this specific result (that pH changed with mass concentration even though all chemical component mole fractions did not change). I think that the authors should consider highlighting this result more prominently in the paper, e.g., in the abstract.

Technical Corrections:

- Throughout the manuscript, the ‘dot’ in $\mu\text{g m}^{-3}$ should be removed.
- In Figures 1, 4, and 5, change figure labels from “the United States” to “United States”
- Line 302: delete “process”
- Line 389: comma after “pH”
- Sentence beginning on line 390 should be edited for grammar.
- Entire paragraph beginning on line 395 should be edited for grammar.
- Line 407: what is meant by “weak acidic capacity”? suggest revising this sentence.
- Line 411: change “sensitive” to “sensitivity”
- Line 417: delete “found”
- Line 418-419: awkward as written – suggest revising this sentence
- Line 427: what is meant by “availability of the corresponding aerosol components”? suggest revising this sentence
- Line 440: comma after “study”
- Line 460: comma after “SO₄”
- Line 462: “linking to the pH difference” is awkward - suggest revising this sentence