

# ***Interactive comment on* “Isotopic Constraints on the Atmospheric Sources and Formation of Nitrogenous Species in Biomass-Burning-Influenced Clouds” by Yunhua Chang et al.**

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Comments for Chang et al. “Isotopic Constraints on the Atmospheric Sources and Formation of Nitrogenous Species in Biomass-Burning-Influenced Clouds”

In this study, the authors analyzed stable nitrogen and oxygen isotope ratios timeseries of a biomass burning event at a mountaintop site in eastern China to investigate the sources and formation processes of nitrogenous species in cloudwater. A theoretical approach to calculate N isotope effects is used. While extensive studies of nitrogen-

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containing aerosol isotopic compositions have been conducted worldwide, this study represents the first attempt to isotopically explore what happens to nitrogenous species in cloudwater. My major concern is relatively short discussion regarding their data and results. I will be glad to recommend a final publication after the following questions can be addressed. 1. I am not questioning the novelty of this work, but the authors should put more efforts to clearly describe the novelty of their study in the abstract or introduction section. 2. Since the isotope data reported in the MS are the first of its kind, thus the authors should discuss more about the data in section 3.2. 3. The authors assess the contributions of potential sources and processes with exact numbers. I suggest the authors to discuss more about the uncertainties of these results.

I have a few specific comments: 1. Line 52-56: the authors should double-check the references used here. 2. Line 127-129: brief introduction about the chemical analysis is need. 3. Line 205: “burring” should be changed as “burning”. 4. Please note that  $\delta^{15}N$  represents isotope enrichment factor. Keep a consistent expression in the text.

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-1196>, 2018.

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