

Review of Faiola et. al paper et al. paper –

This paper is about using the flame ionization detector and effective carbon number (ECN) concept as a means of quantifying biogenic VOCs.

This is good contribution to the literature and should be published with minor modifications. The authors did a careful job in putting this paper together. It is well written and easy to follow.

I suggest a paragraph, early on in the paper, summarizing the all of the uncertainties in the approach taken here in determining the ECNs. Follow this with putting uncertainty limits (+/-) on the ECN numbers given in Table 4. The authors discuss uncertainties in the analytical method previously used in ECN studies but not enough systematic discussion of their own uncertainties. Once the uncertainties are established more clearly, it will help with discussions where uncertainty is involved throughout the rest of the paper.

e.g.,

2430 line 15: “The sum of the contributions of all impurities was always less than 10 % of the response of the target analyte, and thus the overall impact of this correction is expected to be very small relative to the uncertainty associated with the analysis.”

-this leaves the reader wondering what the uncertainties are – i.e., if 10% is considered very small in relation to the overall uncertainty, then what exactly is the overall uncertainty.

Minor:

The following two paragraphs have similar information – I have suggested a possible change:

P2426 line 5:

“The objective of this study was to calculate the ECNs of a variety of representative BVOC compounds with an automated cryotrapping and analytical system used for BVOC analysis. To accomplish this, a dynamic dilution system was built in order to generate gas-phase standards with a known mixing ratio from liquid analytical standards. The reproducibility and accuracy of the dynamic dilution system was characterized with a proton transfer reaction mass spectrometer (PTR-MS). Gas-phase standards generated from this system were used to calculate ECNs of terpenoid compounds. The reproducibility and reasonableness of the measured ECN values were used as a quality control to improve the BVOC analytical system for future analyses.

4 Methods

4.1 Generation of gas standards

~~A-The aforementioned~~ dynamic dilution system was ~~built-used~~ to make stable, reproducible, quantitative gas standards of VOCs. ~~For this study standards were generated~~ with mixing ratios between 20 and 55 ppbv, ~~but t~~he actual dynamic range of the system is much larger, from approximately 2–1000 ppbv for most organic compounds of intermediate volatility assuming a dilution flow capability from 5–20 SLPM.”