

Editor's comments:

Please cite "Supplementary Materials" (rather than "Supplemental") throughout the text. Sorry, this goes back to my own request from the previous round!

Using "ppt" throughout is ok, but please clarify at the first instance that you refer to "pmol mol⁻¹", to avoid any potential confusion.

P. 7,l. 12: delete "bottom"

P. 17, l. 23-25: This sentence would benefit from a slight rewording: "Sources other than the studied seagrass meadows, for example the abundant salt marshes, may have contributed substantially to the elevated mixing ratios."

Conclusions (*Based on your text, with my own tracked changes*):

Our data are the first to report detailed halocarbon fluxes from seagrass meadows.

The fluxes of halocarbons were highly variable with increased fluxes when the seagrass meadows were submerged, and distinct emission peaks when lagoon waters were just arriving or leaving the sampling site. For CH₃Cl and CH₃Br we observed a diurnal dependence on the fluxes with increased emissions during midday/afternoon and deposition fluxes during periods of low radiation. Generally, diurnal variations (during air exposure), atmospheric mixing ratios, and emission rates of halocarbons were smaller in spring than in summer, suggesting a seasonal dependence. Our results indicate that on a global scale, seagrass meadows are a minor source of halocarbons, but that they will have an imprint on the local and regional budgets, particularly on subtropical coastlines, where seagrass meadows belong to the most abundant ecosystems.

Our stable carbon isotope results suggest that CH₃Cl originates predominantly from the water column and/or seagrass meadows, rather than from adjacent salt marshes or abiotic formation processes. Atmospheric and aqueous CH₃Br in the lagoon was substantially enriched in ¹³C pointing towards degradation processes and re-emission into the atmosphere.

Future studies should focus on emission from seagrass-based systems from different regions in order to refine the global relevance. Since the magnitudes of fluxes are often species-dependent, budgets calculations would benefit from a more detailed investigation of fluxes from different seagrass species. More work is also required to identify other elements of these ecosystems, such as the sediments, which are capable of acting as both a sink and a source of halocarbons.

Biological & Environme..., 29/12/14 18:59

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