PTR-MS measurements at Maïdo observatory – Data selection during biomass burning events

A selection of the 2-year dataset recorded by the high-sensitivity quadrupole-based Proton Transfer Reaction Mass spectrometry instrument (hs-PTR-MS, Ionicon Analytik GmbH, Austria) at the Maïdo observatory (21.4°S, 55.1°E, 2150 m altitude) in the framework of the OCTAVE project is provided here. The hs-PTR-MS instrument was run in multiple ion detection mode using H_3O^+ precursor ions and a total cycle time of ~2.7 minutes. The data was combined to generate hourly averages in order to lower both the limit of detection and the stochastic error on measurements. Regular calibrations were performed twice a week. Intensive calibrations as a function of relative humidity were done every two months. The systematic certainties are expected to be 5% (corresponding to the stated accuracy of the calibration mixture) for compounds that are calibrated in a direct manner. Calibration factors for formic acid and acetic acid were estimated using those of acetaldehyde and acetone, respectively, and ion/molecule reaction kinetics and product ion distributions. The systematic uncertainty for those carboxylic acids is estimated to be 50%. More details on this data can be found in Verreyken et al. (2020). This dataset is derived from the high time-resolution two-year dataset generated for the OCTAVE campaign. The complete dataset will be submitted to the EBAS database in the framework of the ACTRIS (European Research Infrastructure for the observation of Aerosol, Clouds and Trace Gases) project.

The current selection is made to characterise biomass burning plumes arriving at the observatory originating from burning events in southern Africa and Madagascar recorded in August 2018 and August 2019. It is the core dataset used in Verreyken et al. (2020).

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For using this data for any kind of publications, please contact the data originators, in term of acknowledgement.

Reference

Verreyken, B., Amelynck, C., Brioude, J., Müller, J.-F., Schoon, N., Kumps, N., Colomb, A., Metzger, J.-M., Lee, C. F., Koenig, T. K., Volkamer, R., and Stavrakou, T.: Characterisation of African biomass burning plumes and impacts on the atmospheric composition over the South-West Indian Ocean, *Atmos. Chem. Phys. Discuss.*, https://doi.org/10.5194/acp-2020-637, in review, 2020.