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Technical note: The new comprehensive atmospheric chemistry module MECCA

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Abstract. In this technical note we present the multi-purpose atmospheric chemistry model MECCA. Owing to its versatility and modular structure, it can be used for tropospheric as well as stratospheric chemistry calculations. Extending the code to other domains (e.g. mesospheric or oceanic chemistry) is easily possible. MECCA contains a comprehensive atmospheric reaction mechanism that currently includes: 1) the basic O_3, CH_4, HO_x, and NO_x chemistry, 2) non-methane hydrocarbon (NMHC) chemistry, 3) halogen (Cl, Br, I) chemistry, and 4) sulfur chemistry. Not only gas-phase chemistry but also aqueous-phase and heterogeneous reactions are considered. Arbitrary subsets of the comprehensive mechanism can be selected according to the research objectives. The program code resulting from the chemical mechanism can easily be used in any model, from a simple box model to a comprehensive global general circulation model.

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