



The Influence of Biogenic Emissions on Tropospheric Composition over Africa during 2006

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Biogenic emissions of NO and Volatile Organic Compounds (BVOC's) play an important role in determining the oxidizing capacity of the troposphere near tropical regions which have sparse populations. Here we use a 3D global CTM (TM4) for the purpose of examining the effect of using a recent climatology of biogenic emissions from the ORCHIDEE model (Lathi re et al, 2006) on the distribution and concentrations of trace gas species over equatorial Africa during the AMMA measurement year of 2006. We compare the results against simulations which adopt an older biogenic inventory compiled during the POET project (Granier et al, 2005). Sensitivity studies are conducted to determine the effect of both NO emitted from soils and BVOC's emitted from vegetation (namely the cumulative effect of CO, HCHO, ethanol, acetic acid, acetone and CH₃CHO) on tropospheric ozone, NO_x and the nitrogen reservoir species PAN and HNO₃. Comparisons with a host of measurements have been performed to assess the impact on model performance. Finally an analysis of the tropical O₃ budget is performed to quantify differences introduced for the oxidizing capacity of the tropical troposphere.

Granier, C., Guether, A., Lamarque, J. F., Mieville, A., Muller, J.F., Olivier, J., Orlando, J., Peters, J., Petron, G., Tyndall, G., and Wallens, S., POET – a database of surface emissions of ozone precursors, available at: <http://www.aero.jussieu.fr/project/ACCENT/POET.php>, 2005.

Lathi re, J., Hauglustaine, D. A., Friend, A. D., De Noblet-Ducoudr , N., Viovy, N., and Folberth, G. A., Impact of climate variability and land use changes on global biogenic volatile organic compound emissions, *Atms. Chem. Phys.*, 6, 2129-2146, 2006.