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Climate effects of Biomass Burning using EMAC model

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Biomass burning includes natural and anthropogenic fires. In some regions where biofuel use and agricultural practices are associated with the burning of woods or grasslands, pollutant emissions can be substantial. The anthropogenic sources could become more significant as population and, in consequence, the need for food grows. At the same time climate change may lead to an increasing frequency of natural fires in areas that become dryer. Biomass Burning effects may be comparable, for some pollutants, to fossil fuel use.
Climate effects of Biomass Burning are modelled using the EMAC atmospheric chemistry-climate model. In this first step several modelling experiments, like a control and exchanged emission inventories simulations are performed to underline the climate effects of biomass burning. The analysis of the experiments provide information about both direct and indirect effects on clouds and climate due to modified aerosol concentrations and distributions. The results show differences between the control simulation and the simulation with GFED (Global Fire Emission Data) emissions, mainly located in Africa and South America. Sensitivity simulations are performed to study the influences of biomass burning on the composition of the atmosphere and the radiative forcing of climate.