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# Climatological Biomass Burning CO – Where it comes from and where it goes.

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Carbon Monoxide (CO) is an important atmospheric trace gas, and among the key $O_3$ precursors in the troposphere, alongside $NO_x$ and VOCs. It is among the most important sinks of OH radical in the atmosphere, which controls lifetime of $CH_4$ — a major greenhouse gas. Biomass burning sources contribute about 25% to the global emissions of CO, with the remaining CO being either emitted from anthropogenic sources, or being chemically formed in the atmosphere. Because of CO tropospheric lifetime is about two months; it can be transported in the atmosphere thus its sources have a hemispheric impact on atmospheric composition.

The extent of the impact of biomass burning to remote areas of the world through long range transport is here investigated using the global 3-dimensional chemistry transport model TM4-ECPL. For this, tagged biomass burning CO tracers from the 13 different HTAP (land) source regions are used in the model in order to evaluate the contribution of each source region to the CO concentrations in the 170 HTAP receptor regions that originate from biomass burning. The global simulations cover the period 1994—2015 in order to derive climatological transport patterns for CO and assess the contribution of each of the source regions to each of the receptor regions in the global troposphere. The CO simulations are evaluated by comparison with satellite observations from MOPITT and ground based observations from WDCGG. We show the significant impact of biomass burning emissions to the most remote regions of the world.