EMS Annual Meeting Abstracts
Vol. 12, EMS2015-183, 2015
15th EMS / 12th ECAM


# TransClim: A fast climate-response-model for evaluating new developments in road traffic

Vanessa Rieger and Volker Grewe
DLR, Institute of Atmospheric Physics, Wessling, Germany (vanessa.rieger@dlr.de)

Emissions of road traffic produce ozone which are not only harmful to human health if exceeding certain thresholds, but also acts as a greenhouse gas increasing the anthropogenic climate warming. To mitigate the influence of ozone on climate, it is necessary to evaluate the climate impact of new technological and regulatory trends in road traffic. Current approaches utilise detailed atmosphere-chemistry models, which are time consuming and inhibit the analysis of a large set of emission scenarios. However, to evaluate a large range of future scenarios as well as the impact of uncertainties on the results, a fast and effective tool is required. Thus, we develop such a suitable tool, the climate-response-model TransClim. It is based on an approach which utilises a set of emission dependent climate responses, precalculated by the global climate-chemistry model EMAC. By combining these precalculated climate impacts, the climate impact of each emission scenario can be determined. Using this approach, TransClim does not explicitly calculate physical and chemical processes and thus, is very numerical effective. Hence, TransClim is well-suited for sensitivity and error propagation studies. Here we present the first steps of an idealised and simplified environment to prepare the setup of the model TransClim.