

Project: **1115**

Project title: **Frontier Simulations for the Monsoon Region**

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Since the last request for computing resources in 2022, we began to retrieve selected files containing tracer concentrations from our frontier simulation with EMAC, ATTILA and CLaMS over the simulation period from 2000 to 2018, and additionally from a simulation with EMAC and ATTILA without tracer convection for the simulation period from 2005 to 2009. With CLaMS we performed no extra simulation without convection, because CLaMS had no tracer convection to switch off. The data was prepared for further analysis.

Due to problems with the slk (StrongLink) file retrieve (incomplete or no file retrieval) and problems with the tar-commands (tickets were opened at DKRZ, respectively), it took us roughly 10 months to prepare and provide the files, we would like to analyse. Fortunately, the latest version of “slk_helpers gfbt” and the help of the DKRZ team made the file retrieval successful.

As a first starting point we show the contribution of boundary layer air of different emission regions to the air masses at 100 hPa (Fig. 1).

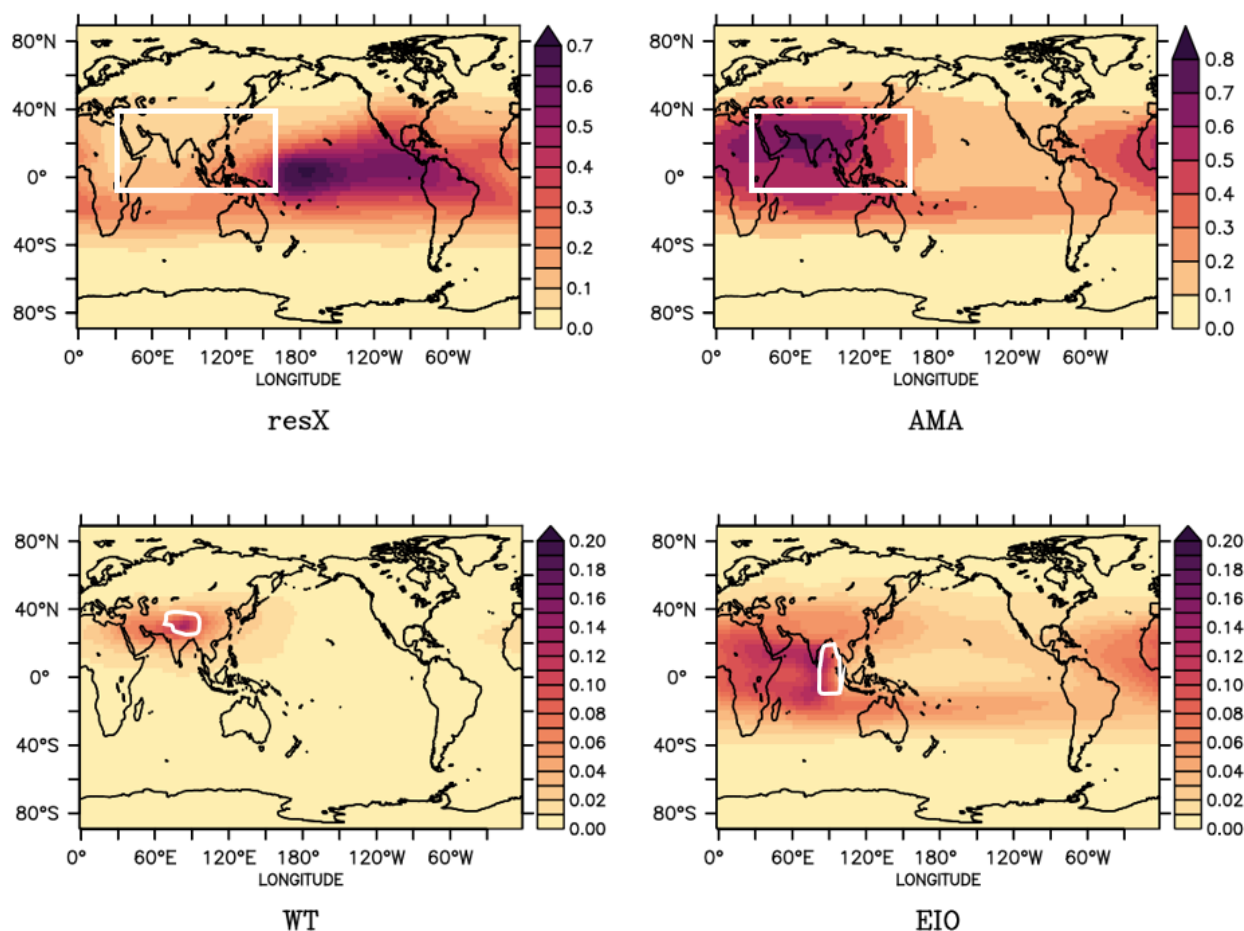


Figure 1: Boundary layer air at 100 hPa height level (in relative units i.e. 0.8 is similar to 80% PBL-mass from the respective PBL region) developed from a 19-years nudged simulation of EMAC including the air-mass-origin-concept by Vogel et al. (2015). Specific emission regions: for “resX”, boundary layer air is emitted only outside the white box, for “AMA” it was emitted only inside the box, for “WT” - the westerly part of the Tibetan plateau, and for “EIO” - the east Indian ocean region the respective emission regions are marked with a white line.

References: Vogel, B., Günther, G., Müller, R., Grooß, J.-U., and Riese, M.: Impact of different Asian source regions on the composition of the Asian monsoon anticyclone and of the extratropical lowermost stratosphere, *Atmos. Chem. Phys.*, 15, 13699–13716, <https://doi.org/10.5194/acp-15-13699-2015>, 2015.

