EGU22-831
https://doi.org/10.5194/egusphere-egu22-831
EGU General Assembly 2022

Comparison of the ground-level ozone between Europe and Southeast Asia as simulated with a global-regional model

Markus Kilian[1], Mariano Mertens[1], Patrick Joeckel[1], Astrid Kerkweg[2], and Volker Grewe[1]
[1]Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Physik der Atmosphäre, Oberpfaffenhofen, Germany (markus.kilian@dlr.de)
[2]Institute of Energy and Climate Research, IEK-8: Troposphere, Forschungszentrum Jülich, Jülich, Germany

Non-traffic (i.e. households, industry, etc.) emissions and land transport emissions are important anthropogenic precursors of tropospheric O3 and affect the air quality and contribute to global climate change. In order to improve air quality and mitigate climate change, robust knowledge of the amount of O3 formed by different emission sources is required. This study investigates the contributions of the different emission sectors to the ground-level ozone budget in Europe and Southeast Asia. For the present study we applied the MECO(n) model system, which couples the global chemistry-climate model EMAC on-line with the regional chemistry-climate model COSMO-CLM/MESSy. We used MECO(n) with a source apportionment method for ozone to investigate regional differences of the contributions from different emissions to ground-level ozone. Our findings show that contributions from anthropogenic non-traffic emissions to ground-level ozone are larger in Southeast Asia than in Europe. The contrary applies for the land transport emissions, which are more important in Europe compared to Southeast Asia.