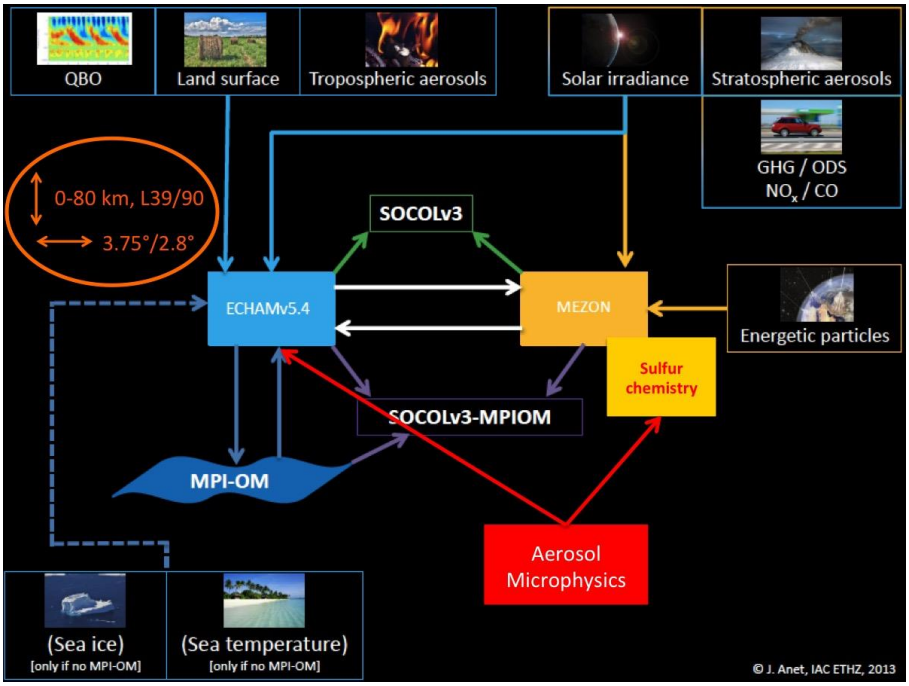
The chemistry-climate model SOCOL

SOCOL (SOlar Climate Ozone Links) is a comprehensive chemistry-climate model, covering the atmosphere from the Earth's surface up to the mesosphere (about 80 km). The current SOCOL generation consists of the middle atmosphere version of the general circulation model (GCM) MA-ECHAM5 and a modified version of the UIUC (University of Illinois at Urbana-Champaign) atmospheric chemistry-transport model MEZON. The chemistry module covers stratospheric homogeneous and heterogeneous ozone chemistry and the most relevant chemical processes for describing the tropospheric background chemistry including an isoprene oxidation mechanism. SOCOL can be run at different horizontal resolutions (spectral truncation T31 or T42) and vertical levels (39 or 90). Depending on the application SOCOL can be run with a mixed-layer or a deep ocean module or with the comprehensive sulfate aerosol module AER (Sheng et al., 2015). A detailed description and evaluation of the current model version SOCOLv.3 is presented by Stenke et al. (2013).

Using SOCOL our group investigates different topics like the drivers of the interannual variability of tropospheric methane concentrations, the impact of solar irradiance on chemistry & climate (https://www.ethz.ch/content/dam/ethz/special-interest/usys/iac/iac-dam/documents/group/chemie/Impacts%20of%20solar%20variability%20on%20climate.pdf), stratospheric and tropospheric ozone trends or stratospheric sulfate aerosols, and participates in international modeling activities like CCMI.



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