FOCI: Non-CO2 Forcers and their Climate, Weather, Air Quality and Health Impacts

Description

While overall global warming with the causes and global processes connected to well-mixed greenhouse gases (GHGs), especiallyCO2 and their impacts on global to continental scales are well understood with a high level of confidence, there are knowledge gaps concerning the impact of many non-CO2 radiative forcers leading to low confidence in the conclusions.

This relates mainly to specific anthropogenic and natural precursor emissions of short-lived GHGs, aerosols, and their precursors. These gaps and uncertainties also exist in their subsequent effects on atmospheric chemistry and climate, through direct emissions dependent on changes in, e.g., agriculture production and technologies based on future development scenarios and feedbacks of global warming emissions, e.g., permafrost thaw.

In addition to the atmospheric radiative forcing (gaseous or aerosols), albedo changes connected to land use and land cover can play a role, depending on the adaptation or mitigation measures included in different scenarios. Thus, the main goal of the proposal is to assess the impact of key radiative forcers, where and how they arise, the processes of their impact on the climate system, and to find and test an efficient implementation of these processes into the global Earth System Models and Regional Climate Models.

And finally, to use the tools developed to investigate mitigation and/or adaptation policies incorporated in selected scenarios of future development targetted at Europe and other regions of the world. We will develop new regionally tuned scenarios based on improved emissions to assess the effects of non-CO2 forcers. Mutual interactions of the results and climate services producers and other end-users will provide feedback for the specific scenarios preparation and potential application to support the decision-making, including climate policy.

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