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Evaluating Arctic ozone depletion in chemistry-climate models using observations from the NDACC station Ny-Alesund

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New coordinated chemistry-climate model (CCM) simulations with specified dynamics as part of the WRCP/IGAC Chemistry Climate Modeling Initiative (CCMI) offer the opportunity for direct comparison with observations. Here, we evaluate Arctic ozone depletion in chemistry-climate models. We compare model simulations of ozone with observations at the Arctic station of the Network for the Detection of Atmospheric Composition Change (NDACC) in Ny-Alesund, Spitsbergen. NDACC observations are augmented by co-located satellite observations from MIPAS/ENVISAT. Models considered include the ECHAM/MESSy Atmospheric Chemistry (EMAC) model, the United Kingdom Chemistry and Aerosol (UMUKCA) model and the Global Model Initiative (GMI) chemistry and transport model. We show that the fidelity of the models to reproduce Arctic ozone depletion is closely related to the representation of transport in the models, as diagnosed from long-lived tracers.