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Halogens in the Troposphere - HitT

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In the last two decades it became clear that halogens do not only strongly influence stratospheric chemistry but that they can also have a decisive influence on trace gas cycles in the troposphere. For instance, in polar spring boundary layer ozone can be completely destroyed in areas amounting to several percent of the earth's surface (the 'tropospheric ozone holes'). In particular emission of reactive halogen compounds (molecular Cl, Br and I, halogen oxides and acids) from the ocean surface, sea salt particles, salt pans, and sea ice is known to influence the tropospheric ozone budget, the oxidation capacity, and perhaps particle formation in the MBL. In addition, and potentially even more importantly, there is accumulating evidence for the existence of a widespread - if not global - abundance of reactive bromine (largely BrO) in the free troposphere. This 'bromine background' with concentrations of a few times 10^7 molec cm^{-3} could have a large impact on the tropospheric ozone budget.

The fundamental objective of HitT is to determine the importance of reactive halogen compounds (RHCs) in tropospheric chemistry and climate forcing through their roles in the oxidation capacity of the atmosphere, ozone production/destruction, and aerosol nucleation and evolution. HitT will provide a framework for international research on reactive halogens in the troposphere. The steering committee of the program Surface Ocean Lower Atmosphere Studies (SOLAS) has already endorsed HitT and we are in the progress of formally seeking endorsement by the steering committee of the program International Global Atmospheric Chemistry (IGAC).

A first HitT workshop was held in Heidelberg in May 2004 which resulted in the draft for a scientific White Paper which we will present on this poster.