**Climate-relevant processes in the upper troposphere and stratosphere (UTS)**

Prof. Martin Riese

Institute for Energy and Climate Research (IEK-7), Forschungszentrum Jülich GmbH

(m.riese@fz-juelich.de)

Changes and variability of the dynamic structure and composition of the upper troposphere / stratosphere (UTS) are major drivers of surface climate change. Even small changes of spatially highly variable concentrations of greenhouse gases such as water vapor (H2O) and ozone (O3), aerosols and cirrus clouds have significant effects on the atmospheric radiation balance. Improved prediction capabilities of chemistry-climate models (CCM) therefore rely on a realistic representation of physical and chemical processes affecting UTS composition. The talk gives an overview of the role of the UTS in the climate system and important underlying processes such as the wave-driven circulation and stratosphere-troposphere exchange.