

StratoClim (Stratospheric and upper tropospheric processes for better climate predictions)

StratoClim (Stratospheric and upper tropospheric processes for better climate predictions) is an EU FP7 project over the time period 1. 12. 2013 - 30. 11. 2018, <http://www.stratoclim.org/>. The aim of StratoClim is to improve climate projections by (1) developing the scientific basis for including the climate relevant components of the Upper Troposphere and Stratosphere (“UTS”) as interactive modules in Earth System Models (ESMs), (2) constructing and implementing such modules, (3) assessing the UTS’s role in climate, and (4) producing new and better climate model projections. Simulations performed at DKRZ for StratoClim will focus on stratospheric ozone, aerosol, water vapor and dynamics (polar vortex and QBO): their natural variability, natural and anthropogenic changes and their impact on past, present and future climate changes. In this project we will simulate unperturbed and enhanced stratospheric aerosol loading under present and future conditions and contribute to an international Stratospheric Sulfur and its Role in Climate (SSiRC) stratospheric aerosol model intercomparison project <http://www.sparc-ssirc.org>. This new international model inter-comparison of global stratospheric aerosol models addressing existing uncertainties and differences among the models with respect to aerosol radiative forcing and its climate response. In addition the impact of large volcanic eruptions on climate dynamics and variability will be addressed. Idealized equatorial eruptions corresponding to the 1815 Tambora eruption, the largest historical tropical eruption, which was linked to the so-called “year without a summer” in 1816, to the high-latitude Laki eruptions and to the early 19th century volcanic cluster will be performed and analysed.