



HALO airborne pole-to-pole measurements of trace gases in the Atlantic and Indian Oceans for Earth System Model validation

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We report on atmospheric trace gas measurements from the German research aircraft HALO in the free troposphere and lower stratosphere from Spitsbergen to the border of the Antarctic continent in September 2012 in the frame of the ESMVal (Earth System Model Validation) project. Detailed profile measurements were performed in specific target regions for process studies to investigate corresponding parametrizations in global models. Such areas included large scale outflow from biomass burning in African and anthropogenic sources in Asia, pristine air masses over the open Indian Ocean, and the northern and southern polar regions. The ESMVal mission is a collaborative research activity of several German research centres and universities and closely connected to the TACTS mission. We give an overview of the ESMVal objectives and rationale of the HALO flights. We present first results from the observations in the specific target regions and first comparisons with simulations using the ECHAM/MESy Atmospheric Chemistry (EMAC) model.