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The representation of the upper branch of the BDC in a 3D-CTM and its impact on mean age simulations

Dr. Thomas Reddmann[1], Dr. Stefan Versick

[1] KIT - Karlsruher Institut für Technologie

thomas.reddmann@kit.edu

The upper branch of the Brewer-Dobson circulation (BDC) is only partly represented in state-of-the-art chemical climate models which mostly do not include the mesopause region. The thermal and wind structure of this height region in the model strongly depends on the gravity wave drag parameterization and the chosen tuning parameters. The Holton-Lindzen type GW drag parametrization in the 3D-CTM KASIMA has been adapted in order to correctly describe the cross mesopause transport often observed after strong mid-winter sudden stratospheric warmings. Here we study the impact of this version of the KASIMA model on the circulation in the whole middle atmosphere by analysing mean age for the different versions.