



SPARC Workshop SHARP2016

The tropical tropopause layer in an idealized moist model: Tropical vs. extratropical control

Prof. Edwin Gerber¹, Dr. Martin Jucker²

¹ New York University

² Princeton University

gerber@cims.nyu.edu

The mechanisms setting the mean state and annual cycle of the region around the tropical cold point are still not fully understood. Three main drivers have been identified: equatorial waves excited by tropical convection, extratropical planetary scale waves associated with the deep Brewer-Dobson Circulation, and synoptic scale waves associated with the midlatitude storm tracks. In both observations and comprehensive General Circulation Models (GCMs), all of these drivers coexist, and it is difficult to separate their individual contributions. In this work, an intermediate-complexity GCM allows us to separate these three players. We show how each acts on the thermal structure of the tropical tropopause region, and investigate the nonlinearity of their mutual interactions.