



Ozone flux across the dynamical tropopause: Does the PV value matter?

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The ozone flux from the stratosphere into the troposphere is an important tropospheric ozone budget determining quantity which is still uncertain. Observational assessments of this quantity are notoriously difficult, and model assessments of this quantity are quite often done using a closure assumption. In contrast, the global net ozone flux can be relatively easily calculated within a chemistry-climate model using the changing ozone mass in the troposphere due to transport. Even though such a model assessment is in principle simple, a couple of interesting questions remain: How do we choose a suitable tropopause definition? How does the flux depend on constraints on the ozone gradient? Here, we will explore those questions using an idealised model set-up of the Met Office Unified Model (UM). Idealised ozone tracers, which are relaxed to an ozone background climatology using different timescales, are used to diagnose the ozone flux across extratropical dynamical tropopauses as defined by different potential vorticity values (2 and 3.5 PVU). We assess the stratosphere-to-troposphere ozone flux with respect to the position of the tropopause and the resulting ozone distribution. Implications for budget studies will be discussed.