Supplement of

Nucleation modeling of the Antarctic stratospheric CN layer and derivation of sulfuric acid profiles

Steffen Münch and Joachim Curtius

Correspondence to: Steffen Münch (steffen.muench@env.ethz.ch)

The copyright of individual parts of the supplement might differ from the CC BY 3.0 License.
S1 Additional sensitivity studies

Figure S1: Preexisting particles: 10% are 300 nm, 50% are 100 nm, and 40% are 50 nm in size (as Fig. 2b and Fig. 4)

Figure S2: Run simulation from mid June until mid October. August and September profiles do not change (as Fig. 2b and Fig. 4)

Figure S3: 5x ion production rates everywhere (left) and 5 ppm water vapor everywhere (right) (as Fig. 4)
S2 Estimation of the trajectories

For the July altitudes we start at 18.5 km and then go up in steps of 1 km. For the following months the values are determined by using the following estimates:

\[
August = July - 4.0 \cdot \frac{July - X}{29.0 - X}
\]

\[
September = August - 2.0 \cdot \frac{August - X}{25.5 - X}
\]

\[
October = September - 1.0 \cdot \frac{September - X}{23.5 - X}
\]

with \( X = 15 \) above the CN maximum trajectory and \( X = 12 \) below it.

Figure S4: Trajectories plotted over the measured CN concentrations from Campbell and Deshler (2014) (in color, cm\(^{-3}\))