



A high-resolution AOD data-set of the stratosphere

Johan Friberg, Bengt G. Martinsson, and Oscar S. Sandvik
Lund university, Physics, Lund, Sweden (johan.friberg@nuclear.lu.se)

We have compiled an AOD data-set of the stratosphere at a resolution of 1 degree in latitude and 8 days time-wise, over the years mid 2006 - mid 2018, which was in part presented in Friberg et al., (2018) . All data were processed from the latest version (V4-10) of low level (level 1b) scattering data from the CALIOP instrument. The high-resolution data provides insight in both short-term and long-term climate impact of volcanic eruptions, the transport paths of volcanically injected aerosol, and the time frame of climate impact for individual volcanic eruptions. Volcanic clouds reaching above 20 km altitude in the tropical stratosphere impact the stratosphere for years. Lower reaching volcanic clouds are flushed through the extratropical tropopause within a year, with similar patterns for tropical and extratropical eruptions. Hence, “small” deep-reaching volcanic eruptions can have similar or larger climate impact than larger once.

In addition to volcanism, stratospheric impact from several major fire events can be identified including the Aug 2017 fires in British Columbia, Canada, the Victoria fire in 2009 (Australia), and the extensive Australian fires in 2006 and 2009.

Friberg, J., Martinsson, B. G., Andersson, S. M., and Sandvik, O. S.: Volcanic impact on the climate – the stratospheric aerosol load in the period 2006–2015, *Atmos. Chem. Phys.*, 18, 11149-11169, <https://doi.org/10.5194/acp-18-11149-2018>, 2018.