Files in this directory provide corrections to the Umkehr ozone profiles to account for the stratospheric aerosol interference with Umkehr UV zenith sky measurements.

The corrections are derived based on the GRAD Aerosol climatology of optical depth at 320 nm offered at four latitude bands (10-20N, 20-30N, 30-40N, and 40-50N).

The VPD radiative-transfer code (Herman et al., U. of Arizona) is used to model radiative effects of stratospheric aerosols on Umkehr wavelengths (Petropavlovskikh et al, 1998)

The vertical profile of aerosols is modeled as Guassian normal distribution centered at 15, 20 and 25 km.

Integrated aerosol profile is normalized to the aerosol optical depth of 0.01, 0.05, 0.1.

Results of simulations are used to estimate Umkehr ozone profile retrieval (UMK04) errors related to the presence of volcanic aerosols.

The simulations are used to create time series of monthly mean correction coefficients that are normalized to time series of optical depth from the Stratospheric Aerosol climatology compiled for the Northern Hemisphere over 1953-1997 period.

Filenames are **LAT**N\_od\_**ALT**.corr

Where LAT is 1020, 2030, 3040 and 4050. It indicates latitude band (i.e. 10-20N)

ALT – is altitude of the maximum aerosol load – 15, 20 or 25 km

Corrections (coefficients) are summarized in tables with the following format:

Columns are YY, MM, C8+, C8, C7, C6, C5, C4, C2+3, and C1

YY is year (for 1957 we use 57)

MM is month of the year

C8+ is correction factor for ozone combined from Umkehr layers 8, 9 and 10.

C8, C7, C6, C5, C4, C1 are correction factors for ozone in individual Umkehr layer 8, 7, 6, 5, 4 and 1.

C2+3 is correction factor for ozone combined from Umkehr layers 2 and 3 (recommended for trends).

Correction factor =1 means that no correction is applied.

After 1997 there were no major volcanic eruptions and thus aerosol load in the stratosphere stayed low

For Umkehr retrievals to have large errors requires an increase in AOD at 320 nm above 0.01.

Thus, for the years after 1997 it is recommended to use correction factor 1.