Format of files in this directory.

Umkehr ozone profile retrieval is performed with UMK04 algorithm (Petropavlovskikh et al, 2005). Empirical stray light corrections are applied (Petropavlovskikh et al, 2011). Each Umkehr ozone profile (61 sub-layers, every 4 sub-layers form 1 Umkehr layer) is interpolated into SBUV layer pressure grid.

Data in files (stn##\_YYBB-YYEE\_70.umk04xl2cor\_sbuvlay) are monthly profiles in SBUV layers.

Format is

27 8 82 1 3 259 2448 3 4 7 14 29 55 92 158 283 472 537 367 427 3 3 10 4 113 93 31

DD,MM,YY,MA,LAM,TO,INTprof\*10, layer 1, layer 2, …..layer 13, numi, SZAB, SZAE, STNNUM, res1, res2, res3,STNNUM

DD-day

MM- month

YY- year (98 is 1998, 01 is 2001)

MA is morning/afternoon profile (1/2)

LAM is 3 (C-pair)

TO- total ozone from Dobson, DU

INTprof\*10 is integrated ozone from Umkehr profile, multiplied by 10 (DU\*10)

Layer 1,…., layer 13 is for ozone in SBUV layers, DU

Numi - number of iterations

SZAB – beginning Solar zenith angle (3 is 70-degrees)

SZAE – number of SZA measurements

res1, res2, res3 – errors of the fit

STNNUM is station number (31 is MLO)

Data in files (stn##\_mm\_umk\_sbuvlay\_YYBB-YYEE) are monthly averaged.

First four columns are fractional year, year, month, total ozone column

Next 13 columns are for Umkehr ozone profile integrated into SBUV-format pressure layers, beginning from the top layer.

The SBUV 13 pressure levels are (multiply by 1013.24 to get hPa)

1,0.0631,0.04,0.0251,0.0158,0.01,0.0063,0.004,0.00251,0.00158,0.001,0.00063,0.0004

012 – Supporo, Japan (revised data in October 2014, private communications with K. Miyagawa, JMA)

014 – Tateno, Japan (revised in October 2014, private communications with K. Miyagawa, JMA)

031 – MLO, Hawaii (after June 2005 Umkehr data are empirically corrected for instrumental offset)

035- Arosa, Switzerland (after 2007 data are preliminary, homogenization is done prior to 2007)

040 – OHP, France (clock related problems are corrected)

067- Boulder, CO

190 – Perth, Australia (historical data prior to 1980s are very sparse and scattered)

256 – Lauder, New Zealand

Petropavlovskikh, I., P. K. Bhartia, and J. DeLuisi (2005), New Umkehr ozone profile retrieval algorithm optimized for climatological studies, Geophys. Res. Lett., 32, L16808, doi:10.1029/2005GL023323

Petropavlovskikh, R. Evans, G. McConville , S. Oltmans , D. Quincy, K. Lantz, P.Disterhoft, M. Stanek, L. Flynn (2011), Sensitivity of Dobson and Brewer Umkehr ozone profile retrievals to ozone cross-sections and stray light effects. *Atmospheric Measurement Techniques*, *4* 1-29, [doi: 10.5194/amtd-4-1-2011](http://dx.doi.org/doi%3A10.5194/amtd-4-1-2011)