OZONE ANALYZER INTERCOMPARISON
Thermo 49iPS_ACTRIS CM21267121

intercomparison place : Monte Cimone
intercomparison operator: Paolo Cristofanelli, Francescopiero Calzolari
Transfer Standard: Thermo 49iPs s/n: 1404860524
Transfer Standard has been evaluated by ENPA on 1900-01-01 with SRP#15 giving slope of 1.000 and intercept of -0.3
TS has been warmed-up for more then 12 hours and OA has been conditioning at 200ppb for more then 2 hour
OA has been evaluated at the following 9 concentration levels: 0, 15, 25, 50, 75, 80, 100, 125 e 150 ppb

OA and TS condition:
OA CM21267121 BKG=0.0 ; Coeff=1.017
TS 1404860524 BKG=-0.3 ; Coeff=1.000
intercomparison start : 2023-11-29 07:52:00 ; intercomparison end : 2023-11-29 15:10:00
LinregressResult(slope=0.9651200005999632, intercept=0.17526669640793102, rvalue=0.9999988927333545, pvalue=3.4437424783629236e-55, stderr=0.0003294928407717181, intercept_stderr=0.028432579982436992)

Linear regression results OAmean = TSmean*slope + intercept:
TS Transfer Standard
OA O3 Analizer

slope	= 0.965120	slope_stderr	= 3.295e-04
intercept	= 0.175267	intercept_stderr	= 2.843e-02
rsquare	= 0.999998	covariance	= -4.202e-22

TSmean: TS average [O3] for each calibration step
OAmean: OA average [O3] for each calibration step
Predicted = OAmean*slope + intercept
TSstd: TS standard deviation [O3] for each calibration step
OAstd: OA standard deviation [O3] for each calibration step
Residual = TS - predicted
Deviation = OA - TS

TSmean	TSstd	OAmean	OAstd	predicted	residual	deviation
-0.096	0.104	-0.165	0.186	0.016	-0.112	-0.069
74.729	0.138	77.240	0.270	74.721	0.007	2.511
149.721	0.095	154.886	0.150	149.659	0.062	5.165
124.702	0.102	129.234	0.184	124.901	-0.200	4.532
24.685	0.100	25.407	0.163	24.696	-0.011	0.722
99.682	0.105	103.147	0.225	99.724	-0.042	3.464
79.663	0.123	82.365	0.198	79.668	-0.005	2.703
49.722	0.078	51.320	0.182	49.705	0.017	1.597
14.940	0.482	15.232	0.544	14.876	0.064	0.292
99.682	0.105	103.013	0.178	99.595	0.087	3.331
149.720	0.113	154.879	0.285	149.653	0.067	5.160
0.039	0.125	-0.114	0.119	0.065	-0.026	-0.153
49.672	0.113	51.296	0.169	49.682	-0.009	1.623
24.723	0.087	25.306	0.172	24.598	0.124	0.583
99.714	0.103	103.205	0.259	99.781	-0.067	3.492
124.701	0.051	129.049	0.226	124.723	-0.022	4.348
14.709	0.110	15.031	0.156	14.682	0.027	0.322
74.697	0.098	77.164	0.229	74.648	0.049	2.467
99.724	0.113	103.080	0.317	99.660	0.064	3.356
79.703	0.078	82.457	0.157	79.756	-0.053	2.754
0.007	0.083	-0.151	0.106	0.030	-0.023	-0.158

Unoise: OAstd average	= 0.213
Ulinearity: Residual standard deviation	= 0.073
Urepeat = sqrt(Unoise^2 + Ulinearity^2)	= 0.225

Udrift = sqrt(0.58^2+(0.0025*C)^2) = 0.632
U = sqrt(Urepeat^2+Udrift^2) = 0.671
C = 100.0

compensation equation to obtain unbiased concentration
[O3unbiased]=([OA]*0.965)+0.175

Intercomparison 49iPS_ACTRIS s/n CM21267121 date : 20231129