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OZONE ANALYZER INTERCOMPARISON
Thermo 49i 1225011092

intercomparison place : Monte Cimone
intercomparison operator:                        Simonetta Montaguti
Transfer Standard: Thermo 49iPs s/n: 1118511036
Transfer Standard has been evaluated by EMPA on 2023-11-13 with SRP#15 giving
slope of 0.9938 and intercept of -0.22
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 1225011092 BKG=0.0 ; Coeff=1.010
TS 1118511036 BKG=-0.3 ; Coeff=1.013
intercomparison start : 2024-08-07 19:48 ; intercomparison end : 2024-08-08
02:45
LinregressResult(slope=1.0034142307255958, intercept=0.8109405054772836,
rvalue=0.999992694092778, pvalue=2.0966633277339307e-47,
stderr=0.0008799498254478785, intercept_stderr=0.05944194338181281)

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

slope       = 1.003414      slope_stderr      = 8.799e-04
intercept   = 0.810941      intercept_stderr  = 5.944e-02
rsquare     = 0.999985      covariance        = -2.615e-21

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
--------------------------------------------------------------------------
0.078     0.137     -0.630    0.249      0.179      -0.101     -0.708
74.331    0.122     73.430    0.349      74.492     -0.161     -0.901
49.451    0.106     48.370    0.303      49.346     0.105      -1.081
99.095    0.204     98.150    0.472      99.296     -0.201     -0.945
24.616    0.030     23.300    0.500      24.190     0.425      -1.316
119.034   0.061     117.680   0.343      118.893    0.141      -1.354
14.738    0.142     13.960    0.403      14.819     -0.080     -0.778
0.030     0.067     -0.540    0.276      0.269      -0.239     -0.570
24.625    0.061     23.740    0.372      24.632     -0.007     -0.885
99.133    0.171     97.940    0.393      99.085     0.048      -1.193
49.479    0.072     48.570    0.323      49.547     -0.068     -0.909
74.315    0.106     73.350    0.280      74.411     -0.096     -0.965
19.678    0.110     18.860    0.383      19.735     -0.057     -0.818
119.003   0.094     117.790   0.353      119.003    0.000      -1.213
0.057     0.088     -0.550    0.474      0.259      -0.202     -0.607
49.487    0.069     48.310    0.262      49.286     0.201      -1.177
24.614    0.098     23.650    0.459      24.542     0.072      -0.964
74.303    0.063     73.270    0.329      74.331     -0.028     -1.033
99.159    0.065     97.900    0.300      99.045     0.114      -1.259
119.016   0.047     117.910   0.375      119.124    -0.108     -1.106
0.138     0.114     -0.910    0.381      -0.102     0.241      -1.048

Unoise: OAstd average                          = 0.361
Ulinearity: Residual standard deviation        = 0.164
Urepeat = sqrt(Unoise^2 + Ulinearity^2)        = 0.397
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Udrift = sqrt(0.58^2+(0.0025*C)^2)                = 0.632
U = sqrt(Urepeat^2+Udrift^2)                      = 0.746
C                                                 = 100.0
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compensation equation to obtain unbiased concentration
[O3unbiased]=([OA]*1.003)+0.811

Intercomparison 49i s/n 1225011092 date : 20240808