

OZONE ANALYZER INTERCOMPARISON
 Thermo 49i CM08460046

intercomparison place : Lampedusa
 intercomparison operator: Maurizio Busetto, Damiano Sferlazzo
 Transfer Standard: Thermo 49iPs s/n: 1404860524
 Transfer Standard has been evaluated by NaN on NaN with SRP#15 giving slope of 0.9995 and intercept of -0.19
 TS has been warmed-up for more then 12 hours and OA has not been conditioning at 200ppb for more then 2 hour
 OA has been evaluated at the following 6 concentration levels: 0, 25, 50, 75, 100 e 125 ppb

OA and TS condition:
 OA CM08460046 BKG=-0.2 ; Coeff=1.020
 TS 1404860524 BKG=-0.3 ; Coeff=1.0
 intercomparison start : 2023-08-15 16:17:00 ; intercomparison end : 2023-08-15 23:32:00
 LinregressResult(slope=0.9826721526904962, intercept=0.12965104258530857, rvalue=0.9999915511524363, pvalue=5.2101925131789407e-42, stderr=0.0009797170709531105, intercept_stderr=0.07177355948678586)

risultati regressione lineare $OA_{mean} = TS_{mean} \cdot slope + intercept$
 TS Transfer Standard
 OA O3 Analyzer

slope = 0.982672 slope_stderr = 9.797e-04
 intercept = 0.129651 intercept_stderr = 7.177e-02
 rsquare = 0.999983 covariance = -1.366e-21

TSmean : media [O3] TS ogni step di calibrazione
 OAmean : media [O3] OA per ogni step di calibrazione. NB: OAmean \hat{A} ottenuta dalle misure dell'analizzatore riportate a slope=1.0 e bkg=0.0

Predicted = TSmean*slope + intercept

TSstd : standard deviation [O3] TS per ogni step di calibrazione

OAstD : standard deviation [O3] OA per ogni step di calibrazione

Residual = TS - predicted

Deviation = OA - TS

TSmean	TSstd	OAmean	OAstD	predicted	residual	deviation
0.290	0.112	0.479	0.122	0.600	-0.311	0.190
25.003	0.120	25.187	0.209	24.880	0.123	0.184
75.007	0.042	75.988	0.196	74.801	0.206	0.981
50.014	0.100	50.616	0.186	49.869	0.145	0.602
99.954	0.140	101.730	0.228	100.097	-0.143	1.776
125.020	0.133	127.330	0.338	125.253	-0.233	2.310
0.333	0.084	0.369	0.168	0.492	-0.159	0.036
50.009	0.060	50.523	0.193	49.777	0.232	0.514
99.988	0.103	101.610	0.230	99.979	0.009	1.622
125.040	0.143	127.250	0.220	125.175	-0.135	2.210
25.002	0.129	25.218	0.118	24.911	0.091	0.216
75.009	0.126	75.991	0.270	74.804	0.205	0.982
0.378	0.107	0.430	0.164	0.552	-0.174	0.052
74.976	0.116	76.022	0.199	74.834	0.142	1.046
125.010	0.104	127.240	0.242	125.165	-0.155	2.230
49.956	0.085	50.554	0.195	49.808	0.148	0.598
24.987	0.113	25.077	0.122	24.772	0.215	0.090
75.013	0.103	76.188	0.160	74.997	0.016	1.175
0.357	0.079	0.458	0.180	0.579	-0.222	0.101

Unoise : media 0Astd	= 0.197
Ulinearity : standard deviation Residual	= 0.181
Urepeat = sqrt(Unoise^2 + Ulinearity^2)	= 0.267
Udrift = sqrt(0.58^2+(0.0025*C)^2)	= 0.632
U = sqrt(Urepeat^2+Udrift^2)	= 0.686
C	= 100.0

compensation equation to obtain unbiased concentration
[O3unbiased]=[O3]*0.983)+0.130

Intercomparison 49i s/n CM08460046 date : 20230815

