DELTA

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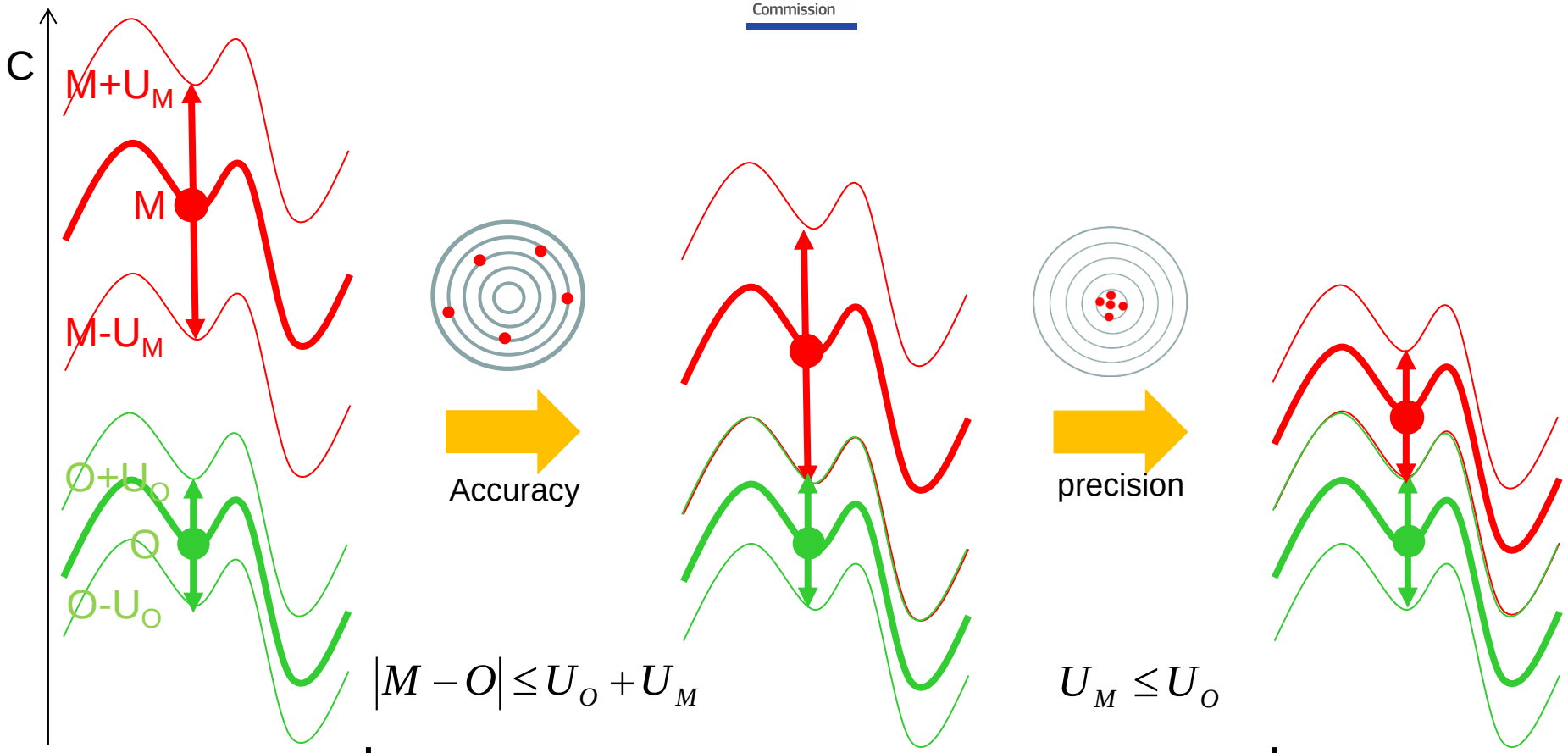
Outline

- *DELTA V3.5 & 3.6*

  - **Model Performance Criteria diagrams (hourly/daily)**
  - **Geo-Map: a "Target companion"**
  - **Input management (myinput.dat)**
  - **Additional MQO**
  - **Others (Display, Cumul…)**

- *Towards V4.0*

Evaluation methodology: Observation uncertainty based MQO

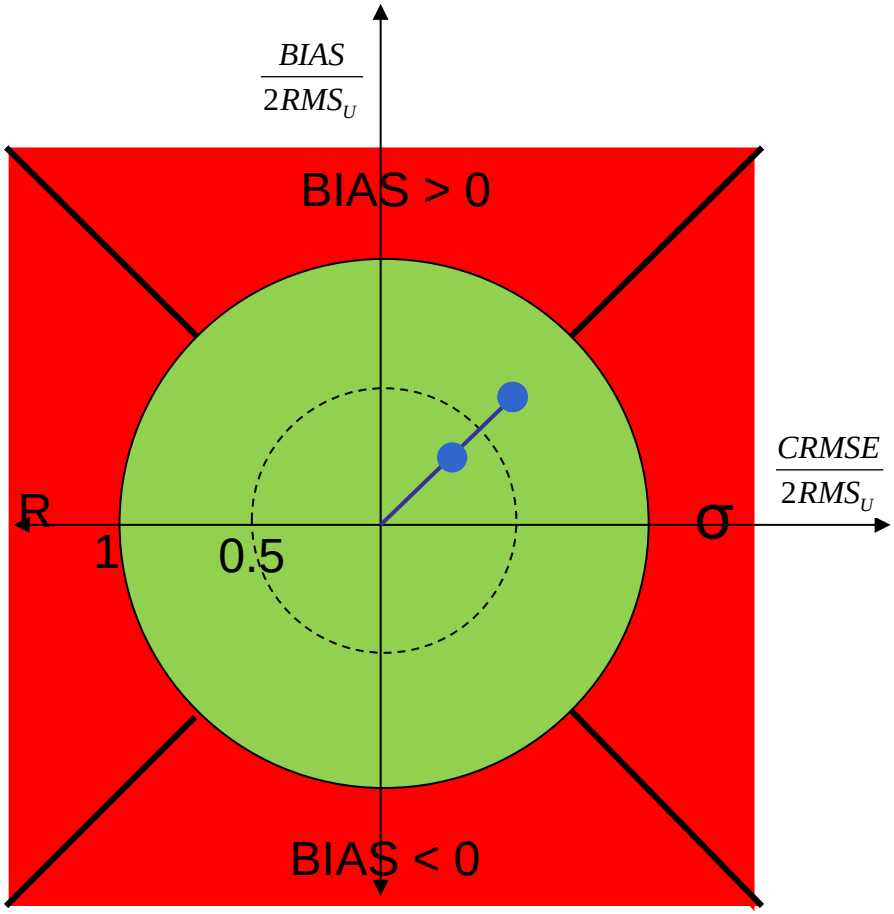


$$|M - O| \le U_O + U_M \qquad U_M \le U_O$$

$$|M - O| \le 2U_O \Rightarrow \frac{\sqrt{\sum (M_i - O_i)^2}}{2\sqrt{\sum U_{O_i}^2}} = \frac{RMSE}{2RMS_U} \le 1$$

Geo-Map: a Target companion

$$\frac{RMSE^2}{(2RMS_U)^2} = \frac{BIAS^2}{(2RMS_U)^2} + \frac{CRMSE^2}{(2RMS_U)^2}$$



$\frac{RMSE}{2RMS_U}$ = distance from origin

$\frac{RMSE}{2RMS_U} \le 1 \rightarrow$ No significant diff between mod and obs

$CRMSE^2 = (\sigma_M - \sigma_O)^2 - 2\sigma_M\sigma_O(1-R)$

$\frac{RMSE}{2RMS_U} \le 0.5 \rightarrow$ Model is within meas. uncertainty

$\frac{RMSE}{2RMS_U} > 1 \rightarrow$ Significant diff. between MOD and OBS

$|BIAS| \ge CRMSE$

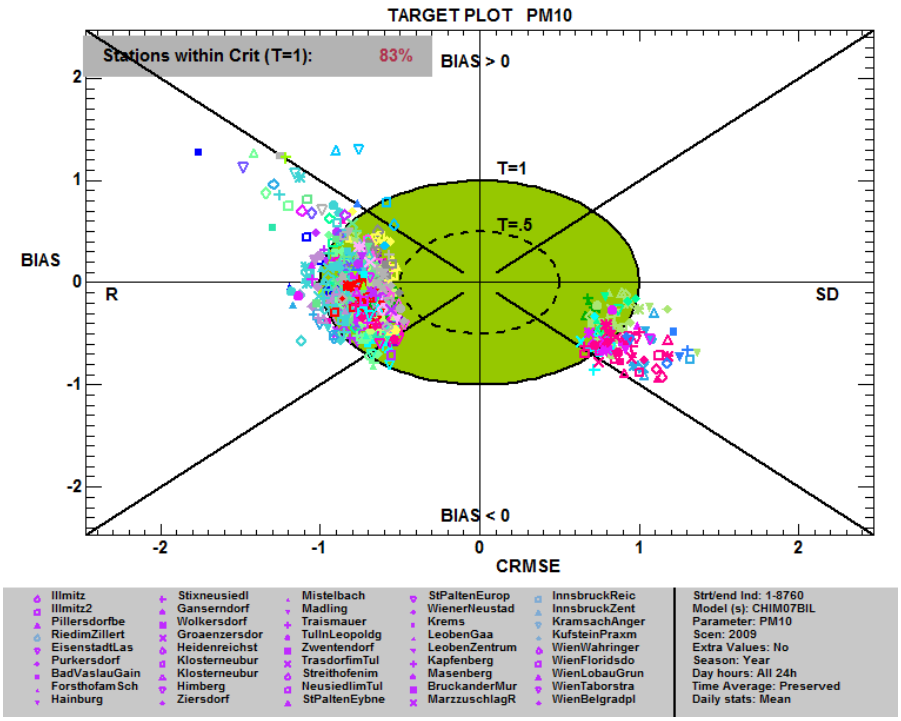
$CRMSE \ge |BIAS|$ & Error (σ) > Error (R)

$CRMSE \ge |BIAS|$ & Error (R) > Error (σ)

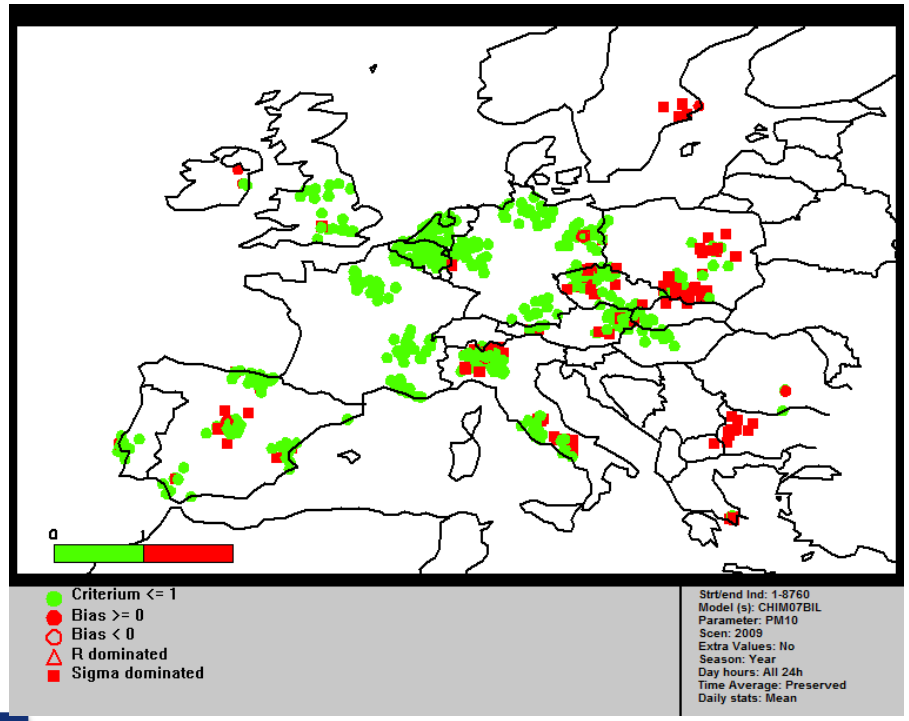
Geo-Map: a Target companion

European Commission

Target



Geo-Map



Model Performance Criteria diagrams (hourly/daily)

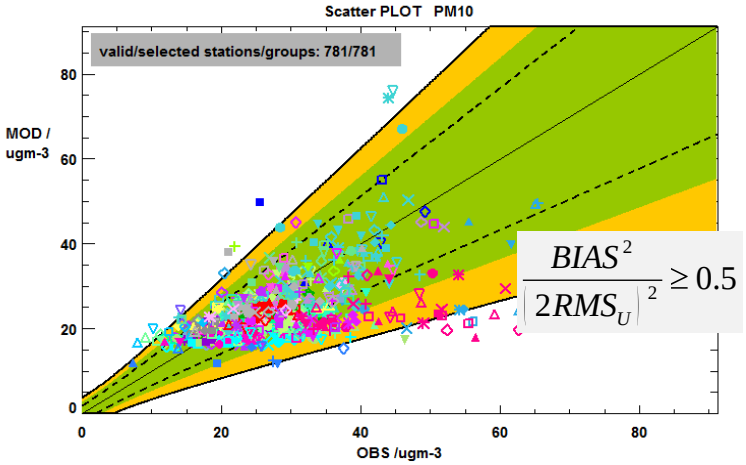
European Commission

$$\frac{RMSE^2}{\left(2RMS_U\right)^2} = \frac{BIAS^2}{\left(2RMS_U\right)^2} + \frac{\left(\sigma_M - \sigma_O\right)^2}{\left(2RMS_U\right)^2} - 2\frac{\sigma_M \sigma_O \left(1-R\right)}{\left(2RMS_U\right)^2}$$

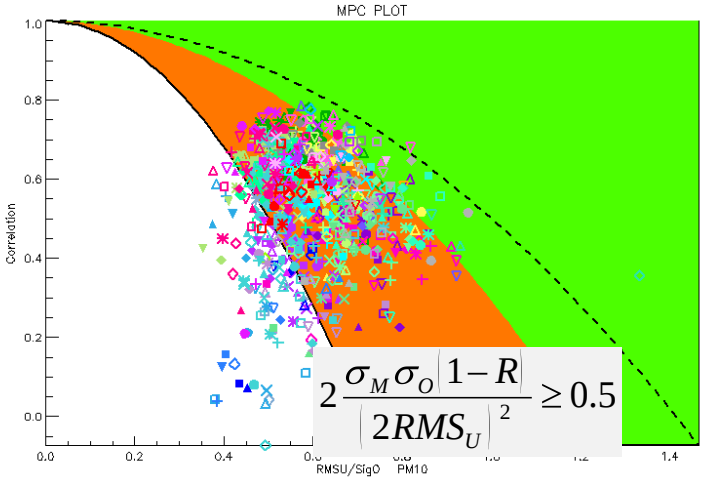
Shaded Area (green or orange): $\frac{RMSE^2}{\left(2RMS_U\right)^2} \le 1$

Shaded Area (orange):

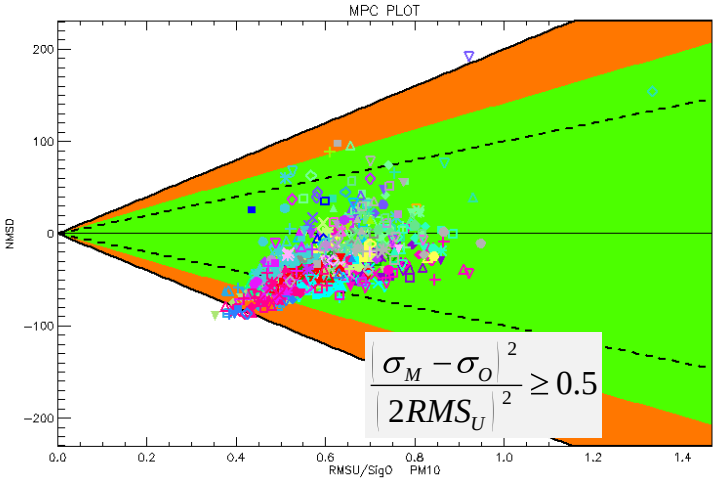
Bias



Correlation



Std. deviation

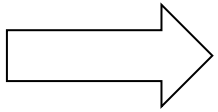


Input management

myDeltaInput.dat

```
startup_XXX.ini
modeling\XXX
monitoring\XXX

# first line: startup
# second line: modeling
# third line: monitoring
```



Resource\startup_XXX.ini

Data → Modeling\ XXX

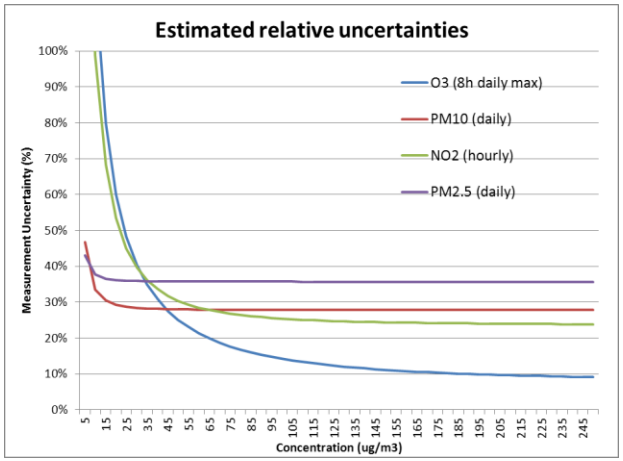
Monitoring\ XXX

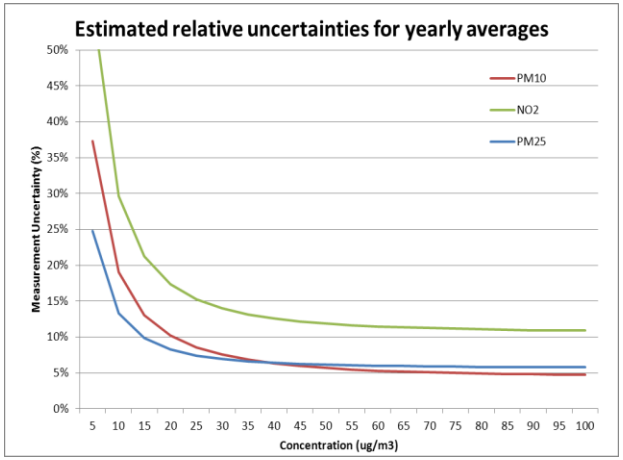
Save

Help

…

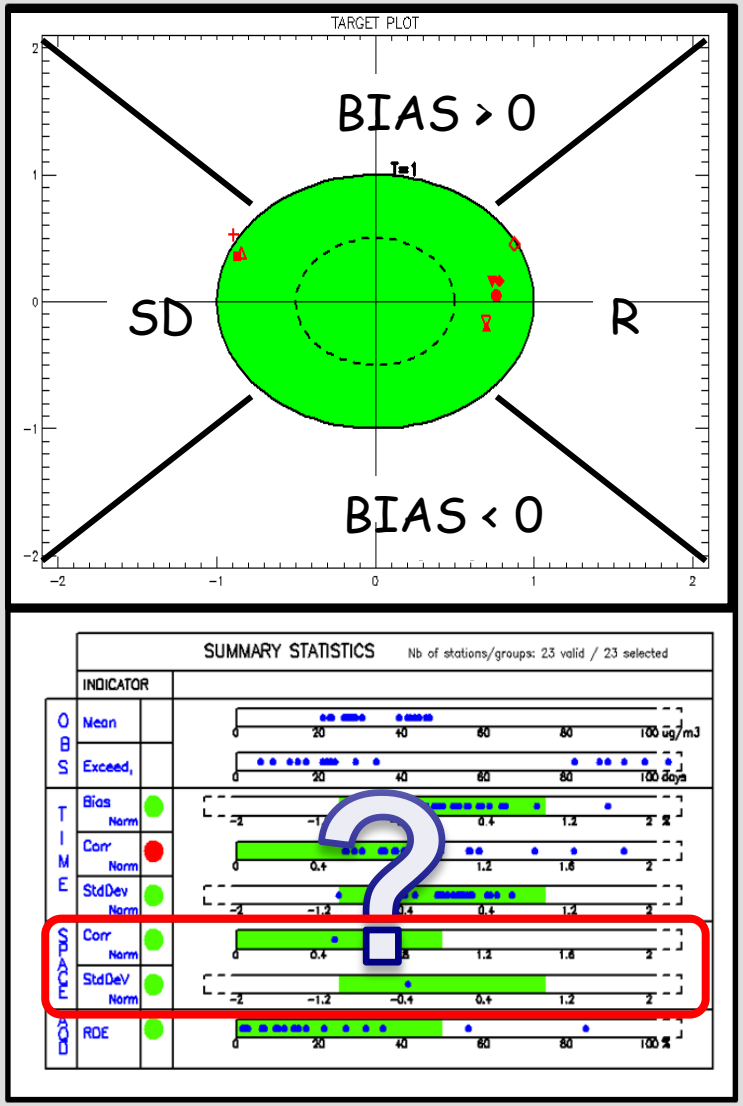
Model quality objectives (MQO overview)

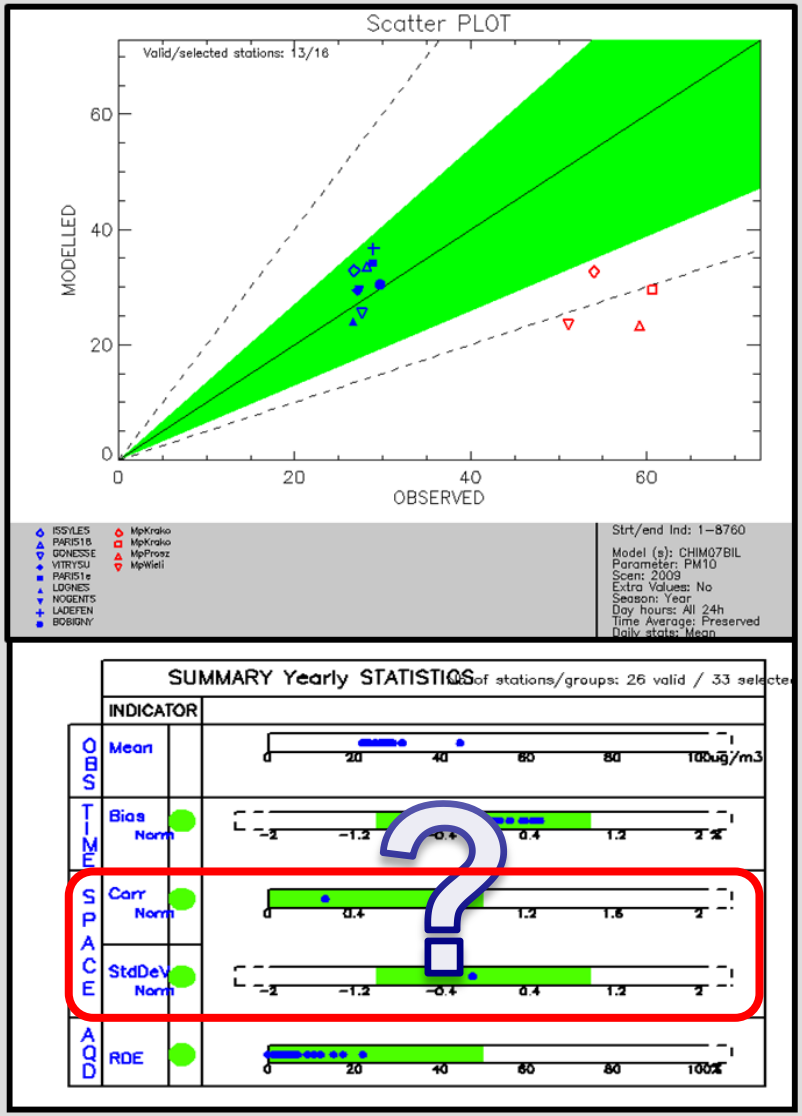




	Fixed		Measurement fit		Yearly values	
Species	k	RV	UrLV	alpha	Np	Nnp
O3	1.4	120	0.090	0.620		
PM10	2.0	50	0.140	0.018	40	1
NO2	2.0	200	0.120	0.040	5	12
PM2.5	2.0	25	0.180	0.018	40	1
WS	2.0	5	0.130	0.800		
TEMP	2.0	25	0.025	1.000		
SO4	2.0	7	0.150	0.018	40	1
NO3	2.0	8	0.150	0.018	40	1
NH4	2.0	4	0.225	0.018	40	1
EC	2.0	5	0.375	0.018	40	1
TOM	2.0	10	0.375	0.018	40	1

Performance summary report





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Towards V4.0

- **Licensing**
- **Helge's suggestions**

AOB

- *DELTA support (expert vs. standard versions)*