

WG1. Benchmarking DELTA-Tool Feedback on the new MQO and Target plot : Portugal case study

Alexandra Monteiro Ana Isabel Miranda Helder Relvas



Data

Model: EURAD

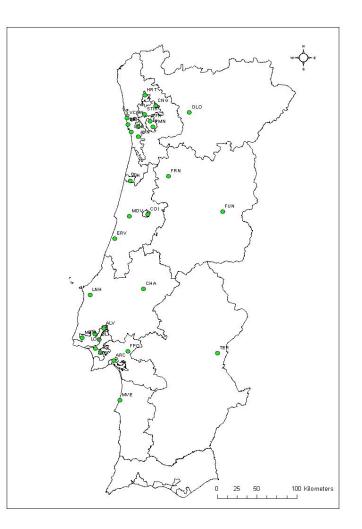
Year: 2012

Assimilation: data fusion

Domain: Portugal

Resolution: 5x5 km2

Validation: **225** stations



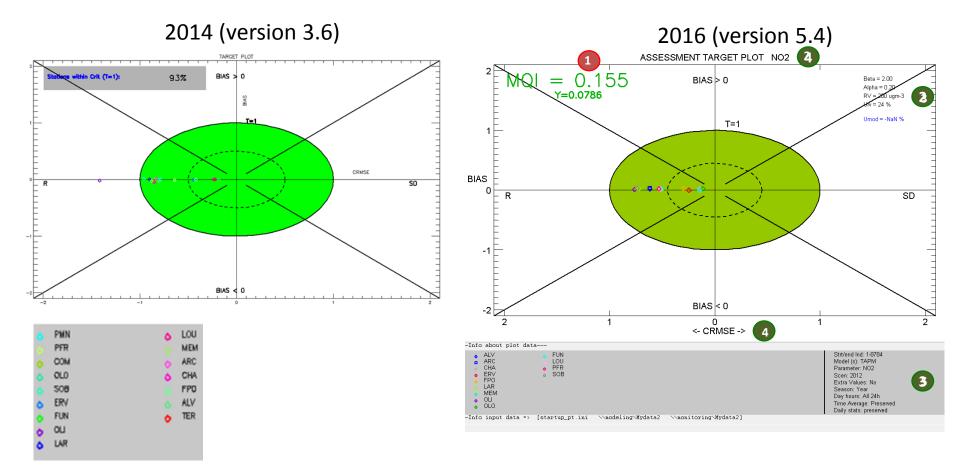
DELTA-Tool use

Official reports for Environmental Protection Agency



The performance of the air quality modelling system (for both assessment and forecast purposes) is evaluated using DELTA-Tool

NO₂ Short-term (hourly)



 NO_2 Hourly average

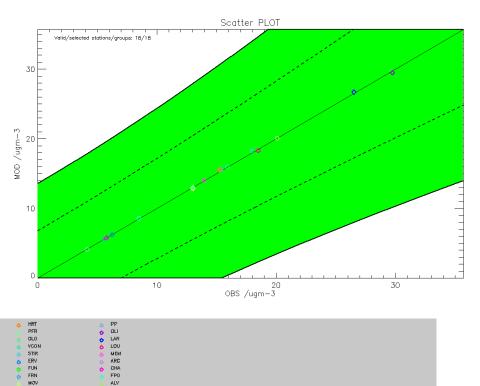
2016 (version 5.4)

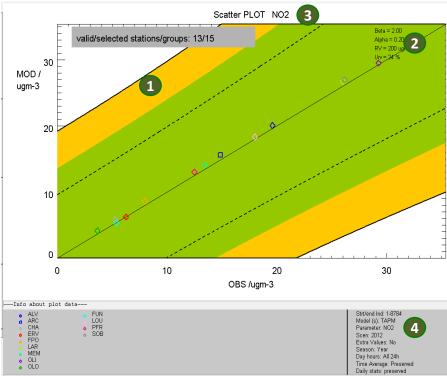
2014 (version 3.6)

(2) TAYLOR DIAGRAM NO2 2.8.00 0.20 2.0.00 0.20 0.40 Cott Coer 0.40 2.0 0.60 Gar-Coa sigmaM/sigmaO 0.60 1.5 1.5 SigmaM/eigma0 X.6 1.6 0.80 0.80 \$ \diamond 1.0 ò 0.90 Ø 0.90 ٥ ó ۵ 94 1.2 /1.2 0.95 0.95 0.5 0.5 0.99 0.99 0.8 0.4 0.0 1.00). F 1.0 1.5 2.0 0.0 0.5 0.0 1.00 SigmaM/sigmaD 0.5 1.5 2.0 0.0 sigmaM/sigmaO -Info about plot data---ALV ARC CHA ERV FPO LAR MEM OLI OLI FUN LOU PFR SOB Strt/end Ind: 1-8784 PMN LOU Model (s): TAPM ۵ Parameter: NO2 PFR MEM Scen: 2012 Extra Values: No ARC COM Season: Year Day hours: All 24h OLO CHA Δ. o OLI Time Average: Preserved 508 FPO Daily stats: preserved -Info input data => [startup_pt.ini \\modeling\Mydata2 \\monitoring\Mydata2] ERV ALV FUN TER Ô. OU ٥ LAR ۵

NO₂ Short-term (hourly)

2014 (version 3.6)

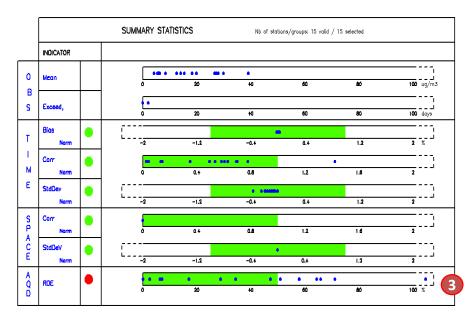




---Info input data => [startup_pt.ini \\modeling\Mydata2 \\monitoring\Mydata2]

NO₂ Short-term (hourly)

2014 (version 3.6)



PMN PFR CNG OLO 508 ERV FUN OLI

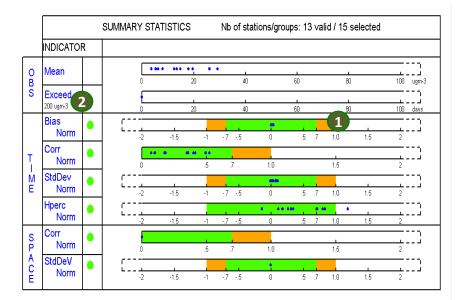
LOU MEM

ARC CHA

FP0

ALV

🔒 LAR



1110 800	ut plot data									
	Performance Criteria satisfied									
	Performance Criteria satisfied; Error dominated by corresponding Indicator									
•	TIME: >90% of stations fulfills the Performance Criteria									
_	SPACE: Dot fulfills the Performance Criteria									
•	TIME: <90% of stations fulfills the Performance Criteria									
	SPACE: Dot does not fulfill the Performance Criteria									

NO_2

laboration			Data	
iagram	Statistics		Time Avg	Daily stats
arPlot	Daily - Year (PM10)	<u> </u>	preserve (none)	Preserve
catter me Series	8H Max (O3)	•		Mean
ne senes Irget (OU) Immary Report & print (OU)	E Hourly - Year (NO2)		Sh running	Max
PC (OU)				Min
aylor	-		© N∕A	0.141
ummary report: The threshold	l value is the limit value.		^	○ N/A
			Hour Day	Month
Need thresholds (v1#v2)	40.0000#	1	Date 0 • 1	• 1 •
Need thresholds (V 1#VZ)				
Display criteria			23 🔻 31	▼ 12 ▼
ultiple choice info			Season	Day
ax multiple choice for seled	ted diagram is: 1		(@ All) All
-	-			Day (08-19)
or selected statistic you ma)observations.	wy select (1):		Summer (JJA)	Night (00-07/20-23)
			O Winter (DJF)	🔘 WeekDays (Mo-Fr)
				WeekEnd (Sa-Su)
			👻 🔘 N/A	N/A

NO_2

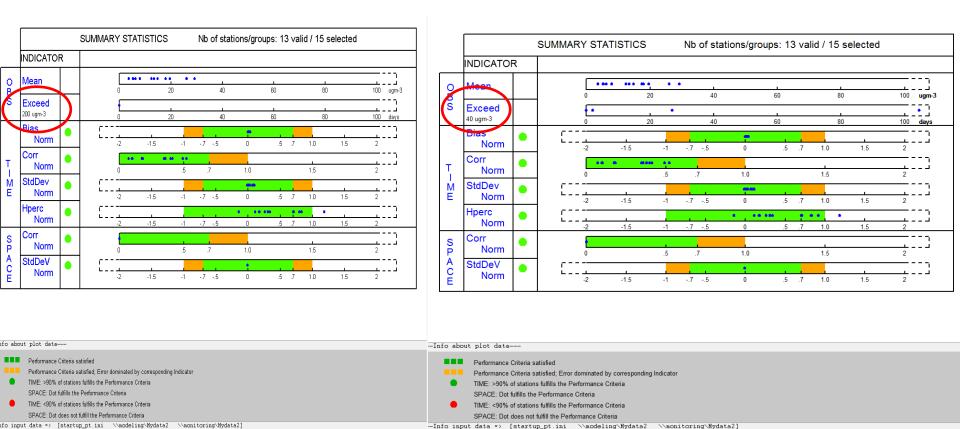
long-term (annualy)???

		SUMMAR'	ARY STATISTICS Nb of stations/groups: 13 valid / 15 selected									
	INDICATOR											
O B	Mean		0	20	•	• 40		60	80		100	 ugm-3
1	Exceed 40 ugm-3		• 0	20	•	40		60	80		100	days
⊢-ME	Biac Norm	с L	-2	-1.5	-1	75	0	.5.7	1.0	1.5	2	
	Corr Norm		•• • 0		.5	.7	1.0		1.5		2	
	StdDev Norm		-2	-1.5	-1	75	0	.5 .7	1.0	1.5	2	
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S P	Corr Norm		0		.5	.7	1.0		1.5		2	
A C E	StdDeV Norm		-2	-1.5	-1	75	0	.5 .7	1.0	1.5	2	

	• • •
-Info about	plot data
:	Performance Criteria satisfied Performance Criteria satisfied; Error dominated by corresponding Indicator TIME: >90% of stations fulfills the Performance Criteria SPACE: Dot fulfills the Performance Criteria TIME: <90% of stations fulfills the Performance Criteria SPACE: Dot does not fulfill the Performance Criteria
-Info input	data => [startup_pt.ini \\modeling\Hydata2 \\monitoring\Hydata2]

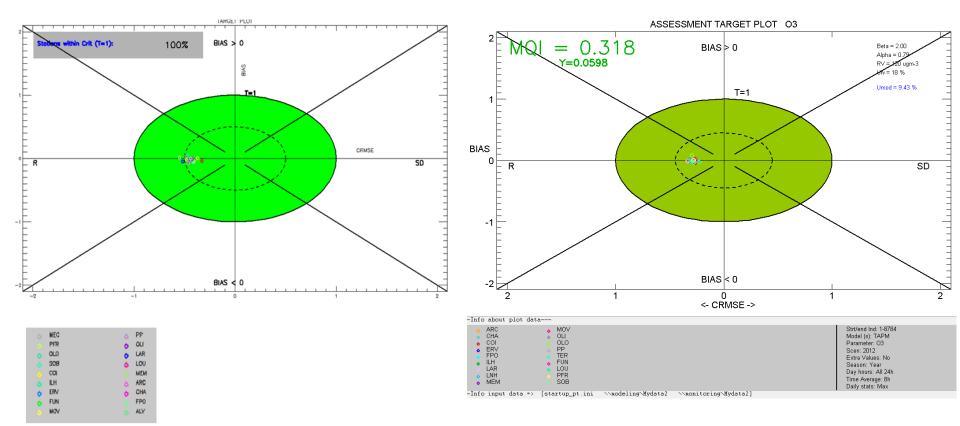
 NO_2

Results are the same!



O₃

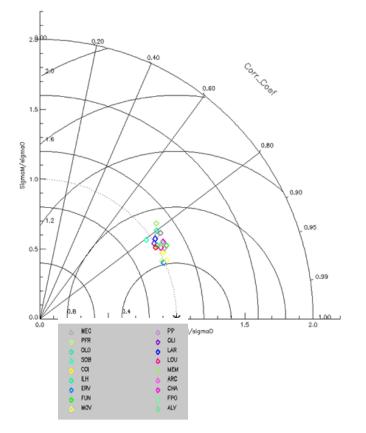
2014 (version 3.6)

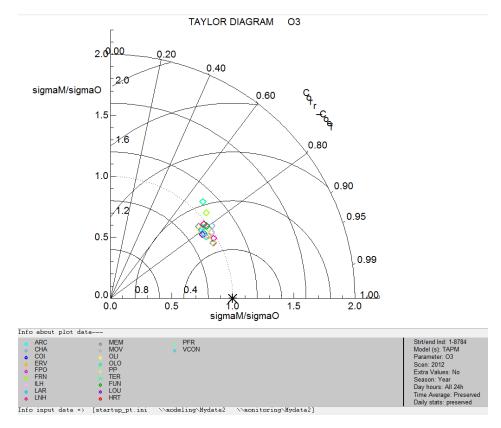


03

2014 (version 3.6)

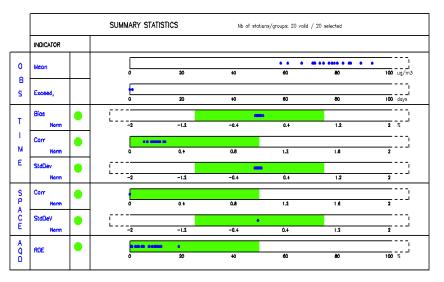
2016 (version 5.4)



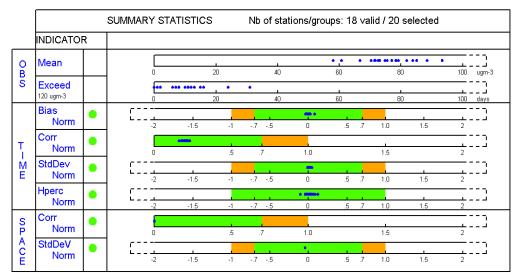


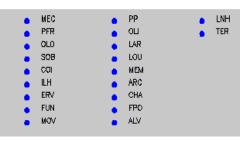
03

2014 (version 3.6)



2016 (version 5.4)





--Info about plot data---

Performance Criteria satisfied

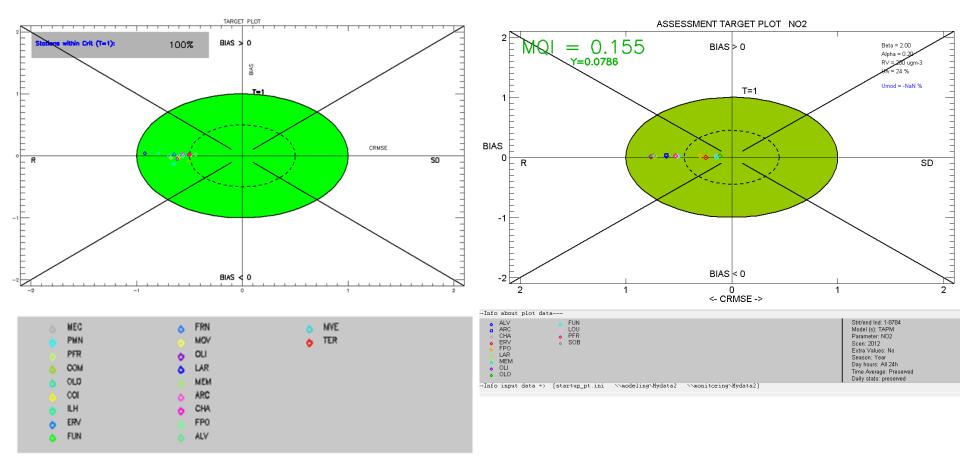
Performance Criteria satisfied; Error dominated by corresponding Indicator

- TIME: >90% of stations fulfills the Performance Criteria
 - SPACE: Dot fulfills the Performance Criteria
- TIME: <90% of stations fulfills the Performance Criteria SPACE: Dot does not fulfill the Performance Criteria

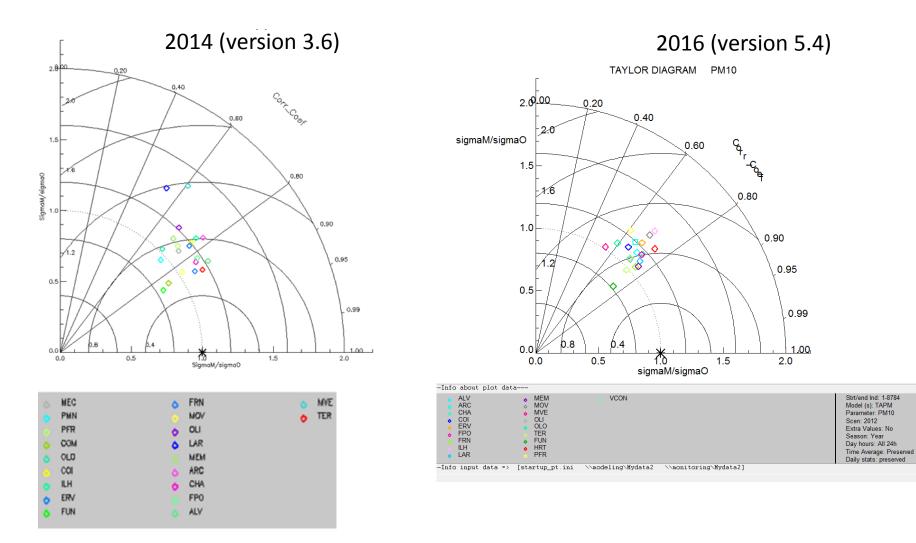
--Info input data => [startup_pt.ini \\modeling\Mydata2 \\monitoring\Mydata2]

Daily average

2014 (version 3.6)



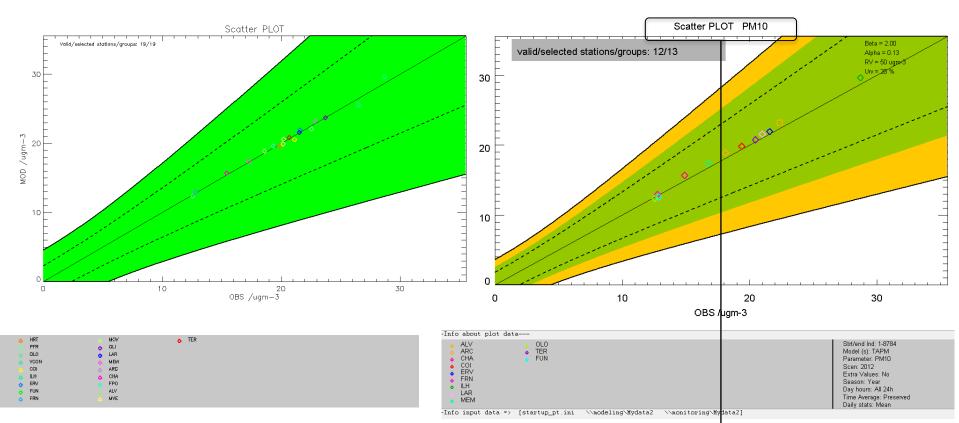




Daily average

2014 (version 3.6)

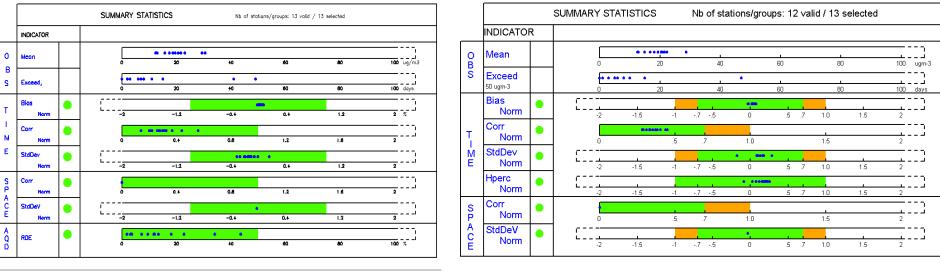
2016 (version 5.4)



Would be possible to add information to the title regarding the time period? Hourly/daily or annual?

Daily average

2014 (version 3.6)



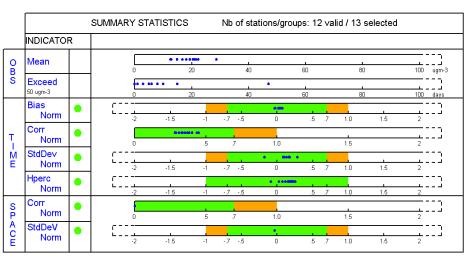


[nfo about	plot data
	Performance Criteria satisfied
	Performance Criteria satisfied; Error dominated by corresponding Indicator
•	TIME: >90% of stations fulfills the Performance Criteria
	SPACE: Dot fulfills the Performance Criteria
•	TIME: <90% of stations fulfills the Performance Criteria
	SPACE: Dot does not fulfill the Performance Criteria
nfo input	data => [startup_pt.ini \\modeling\Mydata2 \\monitoring\Mydata2]

Some question of NO2: how to proceed for annual data?

🕢 Analysis				×
Elaboration			Data	
Diagram	Statistics	•	Time Avg	Daily stats
BarPlot Scatter	Daily - Year (PM10)		preserve (none)	Preserve
Time Series	E 8H Max (O3) Hourty - Year (NO2)	•		Mean
Target (OU) Summary Report & print (OU) MPC (OU)			8h running	Max Min
Taylor	•		⊙ N/A	⊖ I/A
summary report: The threshold	value is the limit value.		A Hour D)ay Month
			· · · · · · · · · · · · · · · · · · ·	
✓ Need thresholds (v1#v2)	40.0000#	1	Date 0 V	1 • 1 •
☑ Display criteria			23 🔻	31 • 12 •
Multiple choice info			Season	Day
Max multiple choice for select	ed diagram is: 1		All	○ All
For selected statistic you may	select (1):		Summer (JJA)	 Day (08-19) Night (00-07/20-23)
1)observations.			Winter (DJF)	WeekDays (Mo-Fr)
				WeekEnd (Sa-Su)
			▼ 0 N/A	@ N/A
		ок		

Previous one: daily values



Annual values?? X

			SUMM	ARY ST.	ATISTIC	s	Nb of st	ations/gro	ups: 12	2 vali	d / 13 s	selected		
	INDICATOR	२												
O B	Mean			0	•••	20	• 40		60		80		100	 ugm-
S	Exceed 40 ugm-3			•• • 0	••	20	40		60	•	80		100	days
	Bias Norm	•	:		-1.5	-1	75	0	.5	.7	1.0	1.5	2	::3
Ţ	Corr Norm	٠		0		.5	.7	1.0			1.5		2	::3
м Е	StdDev Norm	٠	5		-1.5	-1	75	• •••	•	.7	1.0	1.5	2	::3
	Hperc Norm	٠	Ę		-1.5	-1	75	0	.5	.7	1.0	1.5	2	::3
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info about p	plot data	nfo about plot data				
F F	Performance Criteria satisfied		Performance Criteria satisfied			
F F	Performance Criteria satisfied; Error dominated by corresponding Indicator		Performance Criteria satisfied; Error dominated by corresponding Indicator			
• т	TIME: >90% of stations fulfills the Performance Criteria	•	TIME: >90% of stations fulfills the Performance Criteria			
S	SPACE: Dot fulfills the Performance Criteria		SPACE: Dot fulfills the Performance Criteria			
т	TIME: <90% of stations fulfills the Performance Criteria	•	TIME: <90% of stations fulfills the Performance Criteria			
ş	SPACE: Dot does not fulfill the Performance Criteria		SPACE: Dot does not fulfill the Performance Criteria			
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Annual data: some doubts...

JRC - Fair Mode		National Analysis, Page 15 (2014), Marcal Readout	
ile Benchmark Mode	Data selection Analysis Help		
Assessment	DailyPM10		
Planning	DailyPM25 HourlyN02	earch Centre	
Data selection Analysis	Execu Daily8HMaxO3	TAYLOR DIAGRAM NO2	
	Run (Iviodel/Scenario) Into		
Model	ls: TAPM*		
Scenario	os: 2012*	6. BENCHMARKING MODE	
	TAPM(2012)*		
Run	18.	From the Delte Teel tee mean educt the item "Developmenting" (this is educed at the "Dete Celection"	
		From the Delta Tool top menu select the item "Benchmarking" (this is only possible when the "Data Selection"	
MOD without OBS All available scenario(s)		window and the "Analysis" window are closed).	
	Observation Info	At present the automatic production of performance reports is available for the following pollutant	
single obs:	ARC CHA		
	ERV	 concentrations and time frequencies: 	
group obs:	No group*		
		 daily maximum 8h mean O3 	
	View Details		
	Elaboration/Parameter Info	Daily averaged PM10	
Statistic:	8H Max (O3)	Daily averaged PM25	
Diagram:	Target (OU)		
	s): NO2*	Hourly NO2	
EXTRA Extra val#:		Yearly PM10	
√ Goals,Criteria		Yearly NO2	
Stat: Max	Time: 8h running		
	Date/Period Selection	Reports are produced similar to those presented in <u>Section 5</u> of the "Concepts" part of this document.	
Beason:	A11		_
Hour type:	A11	sigmaM/sigmaO	
	Hour Day Month Date 0 • 1 • 1 •	Info about plot data	
	23 - 31 - 12 -		
	Stats	O CHA O PFR Parameter: NO2	
	Stats	o FPO	
		LAR MEM Season: Year Device June 2012	
		OLI Day hours: All 24h Time Average: Preserved	
		OLO Daily stats: preserved Daily stats: preserved Daily stats: preserved	
		The the set ([correspondent manual manual complete the manual manua	

Some final comments

- Conclusions <u>for this model assessment case study</u> were the same as previous ones
- But the several changes significantly improved the analysis of results (more detailed information and more correct one):
 - Information regarding uncertainty
 - Quantified information
- There is still some doubts regarding the annual (vs hourly/daily) selection

Some final comments

• There are a lot of different plots available: maybe it could be interesting to separate the most "relevant" ones (target; summary report) from the others for the non-expert users...

Print screen Helder

Thank you!

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