Helsinki metropolitan area

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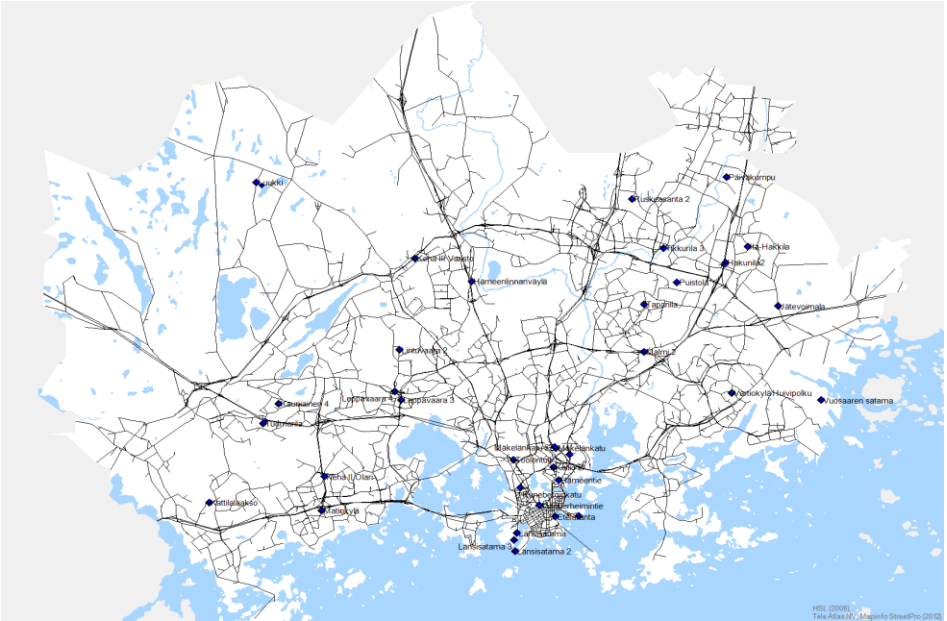
Pilot Exercise for Finland / Helsinki metropolitan area

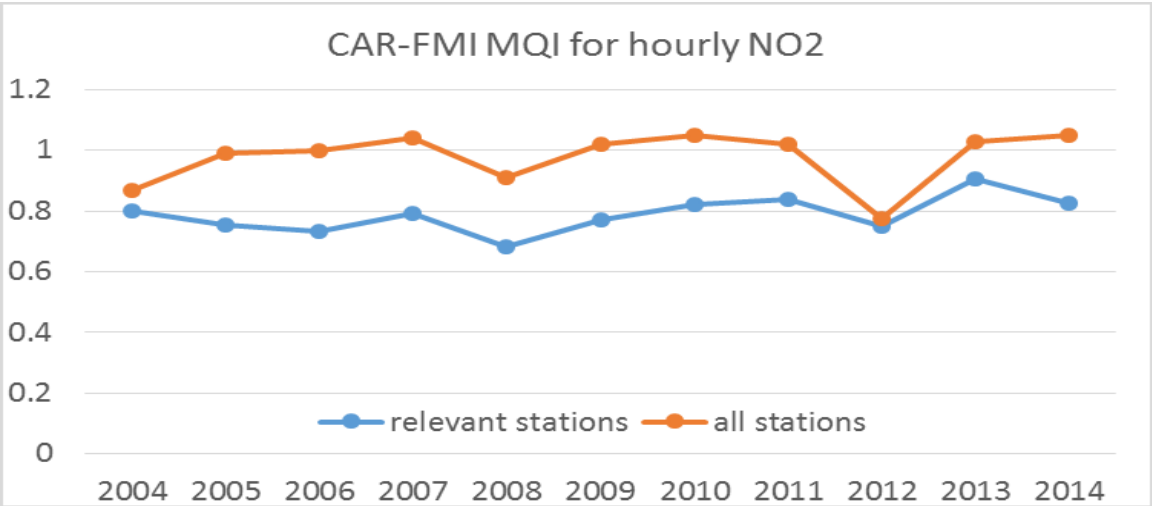
- Hourly NO2 from 43 air quality monitoring stations during 2004-2014
- 8 to 10 stations per year
- Urban scale air quality model for road traffic-originated pollution (CAR-FMI)

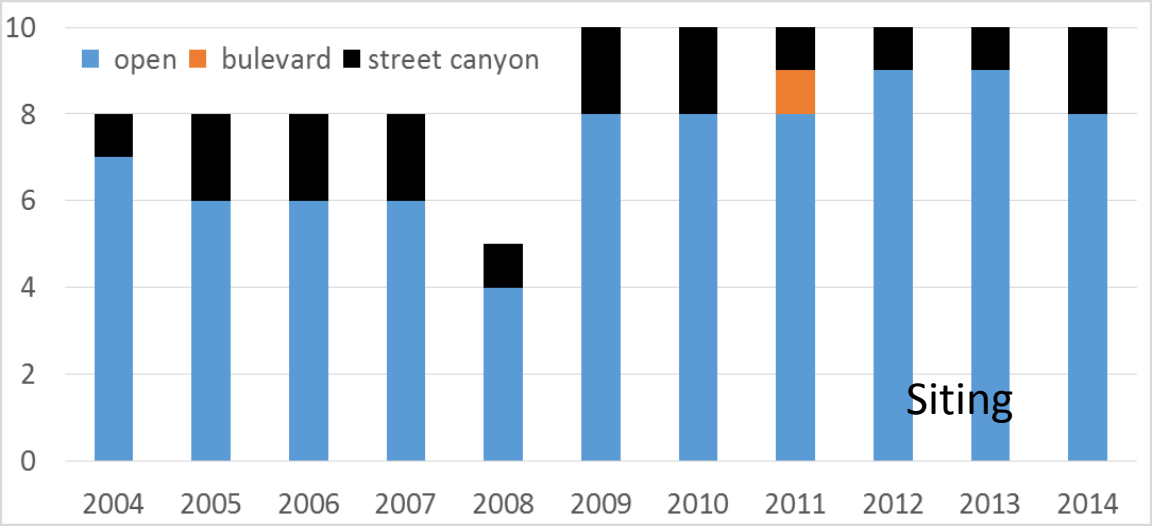


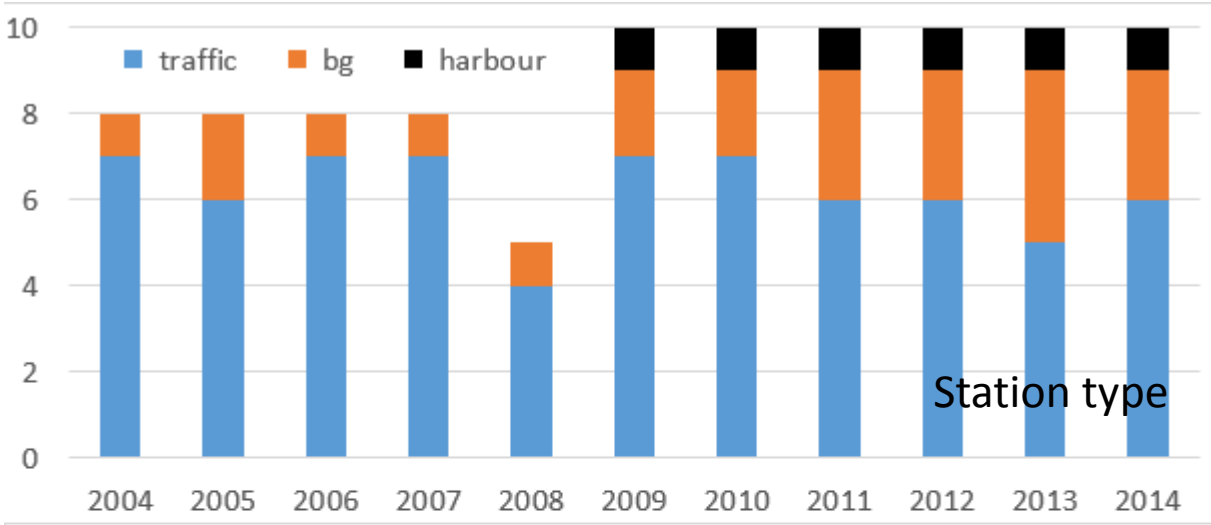
ID	Station/year	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
E609	Espoon keskus								NO2,PM10			
H842	Eteläranta				NO2,PM2.5	NO2,PM2.5						
V872	Hakunila2			NO2,PM2.5								
H561	Helsingin pitäjän kk											NO2,PM10
H565	Hämeentie	NO2,PM2.5,PM10					NO2,PM2.5,PM10				NO2,PM10	
V828	Itä-Hakkila							NO2,PM2.5				
H425	Kallio 2	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10
H825	Katajanokka 2		NO2,PM2.5				NO2,PM2.5					
E871	Kattilalaakso			NO2,PM2.5								
K826	Kauniainen 3							NO2				
K882	Kauniainen 4		NO2,PM2.5									
E896	Kehä II Olari	NO2,PM2.5,PM10										
V883	Kehä III Varisto		NO2,PM2.5,PM10									
E560	Kivenlahti											NO2,PM10
V577	Kivistö									NO2,PM10		
V823	Koivuhaka						NO2,PM10					
V610	Lentoasema								NO2,PM10			
E407	Leppävaara 2											NO2,PM10
E563	Leppävaara 3						NO2,PM2.5,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	
E841	Leppävaara 4	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10						
E566	Lintuvaara										NO2,PM10	
H827	Länsisatama							NO2,PM2.5				
H869	Länsisatama 2			NO2,PM2.5								
H894	Länsisatama 3	NO2,PM2.5										
H870	Malmi 2			NO2,PM2.5,PM10								
H564	Mannerheimintie	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	
E414	Matinkylä				NO2,PM2.5							
V844	Myyrmäki2					NO2,PM10						
H851	Mäkelänkatu 52				NO2,PM2.5,PM10							
E843	Niittymaa					NO2,PM10						
E578	Pohjois-Tapiola									NO2,PM10		
V852	Päiväkumpu				NO2,PM2.5							
H447	Runeberginkatu											NO2,PM2.5,PM10
V895	Ruskeasanta 2	NO2,PM2.5										
V567	Tammisto 2										NO2,PM10	
H881	Tapanila		NO2,PM2.5									
V370	Tikkurila 3	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10
E824	Tuomarila						NO2,PM2.5					
H204	Töölö											NO2,PM10
H576	Töölöntulli					NO2,PM2.5,PM10				NO2,PM10		
H608	Unioninkatu								NO2,PM10			
H206	Vallila 1	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10	NO2,PM10
H781	Vartiokylä Huivipolku	NO2,PM2.5	NO2,PM2.5	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10	NO2,PM2.5,PM10					

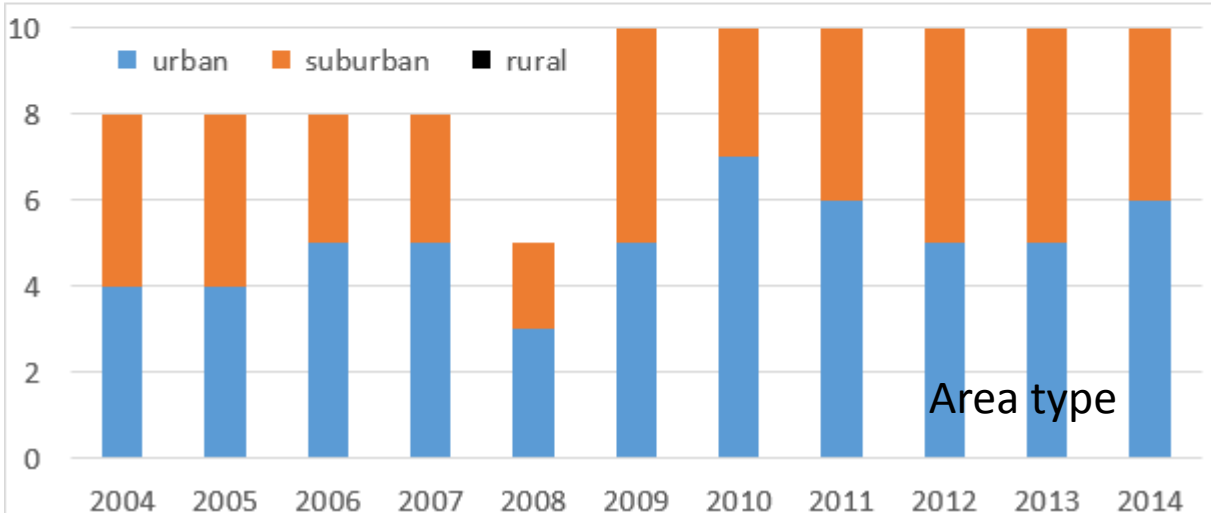
Pilot Exercise for Finland / Helsinki metropolitan area

- Model Quality Index (MQI) computed for all study years with all stations and with those relevant for CAR-FMI (i.e. street canyon stations excluded)
- MQI < 1 with stations relevant for CAR-FMI (and with street canyon stations mostly MQI > 1)







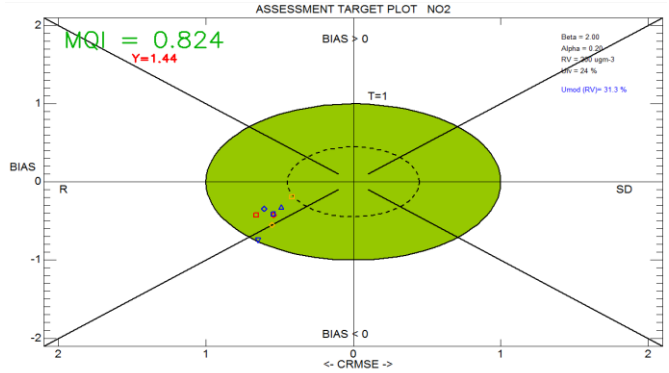


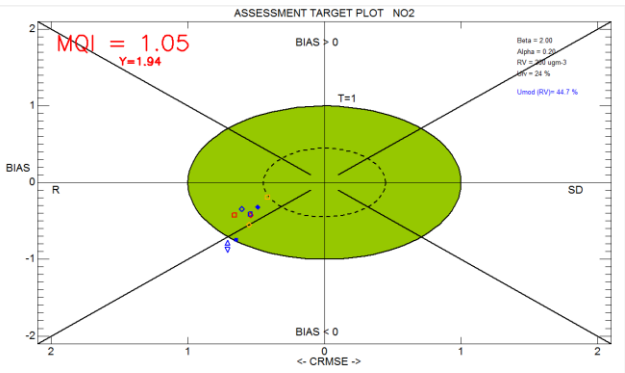
Pilot Exercise for Finland / Helsinki metropolitan area

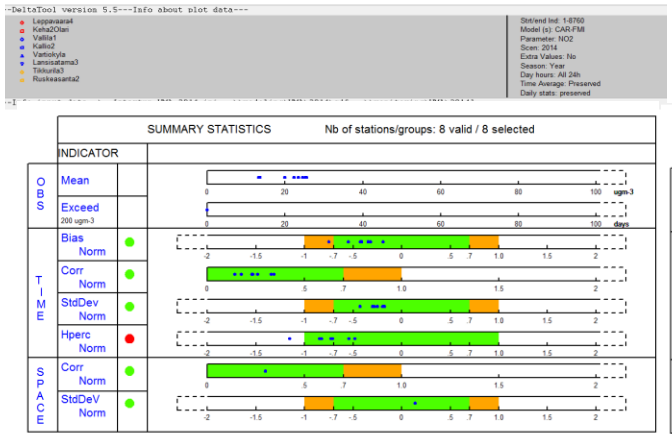
- Target Plot helps to understand how the model performs for stations representing different environment and emission sources.

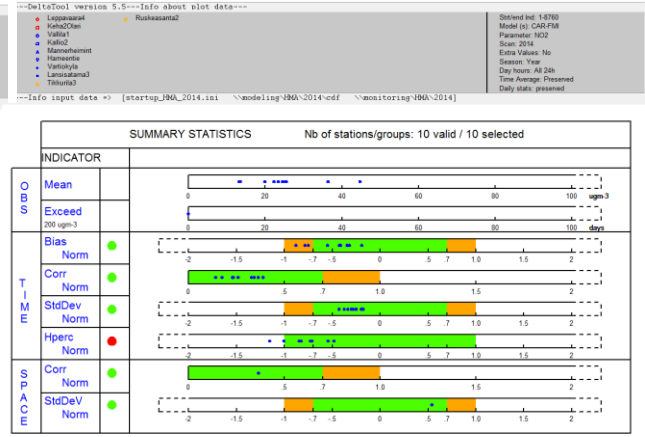
- Gives a lot of information of the model performance.

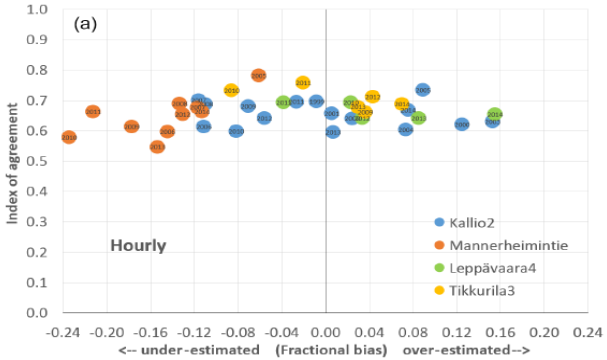
- It should be possible to study different years on the same graphs.
  - For example, diagram showing index of agreement and fractional bias for several years

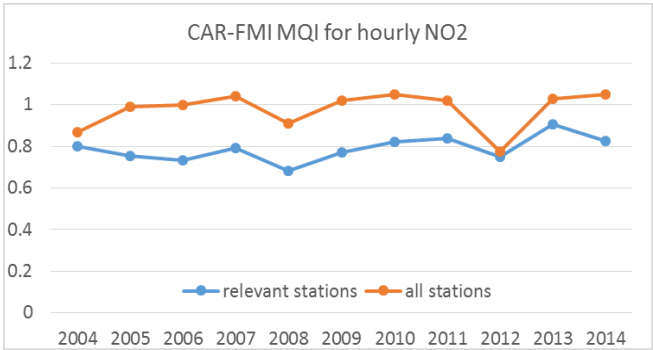


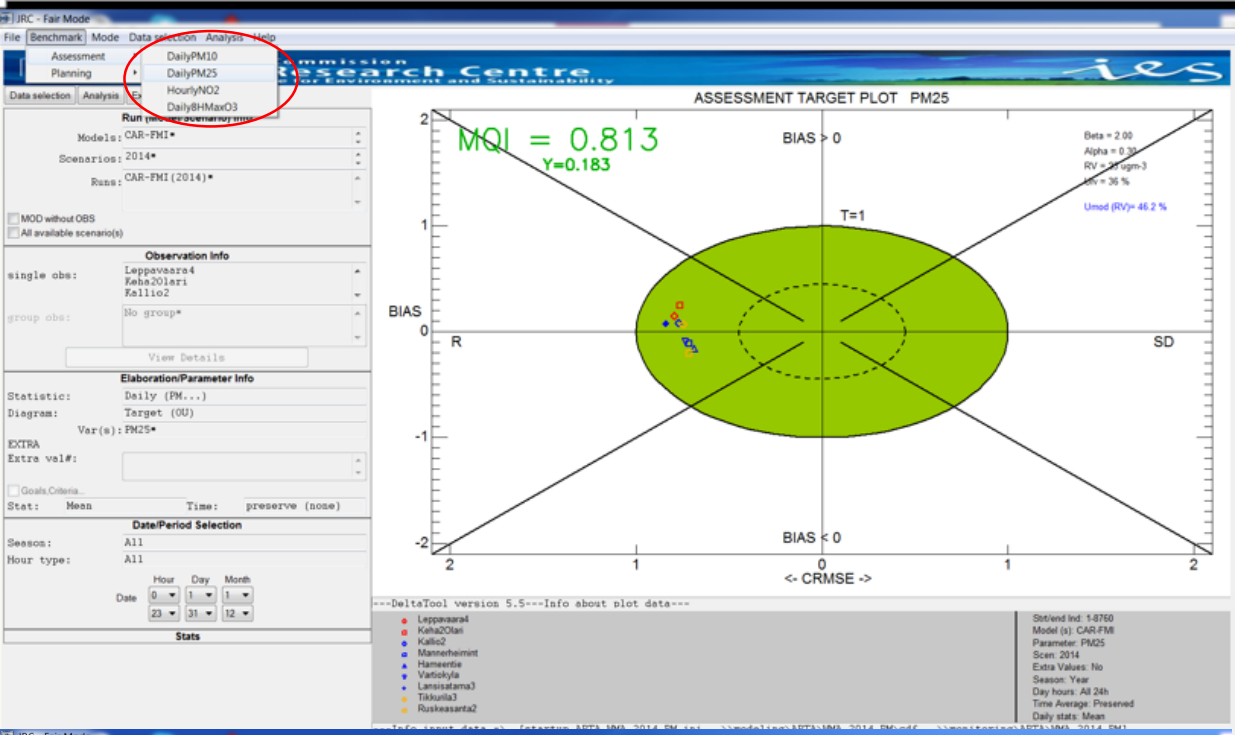


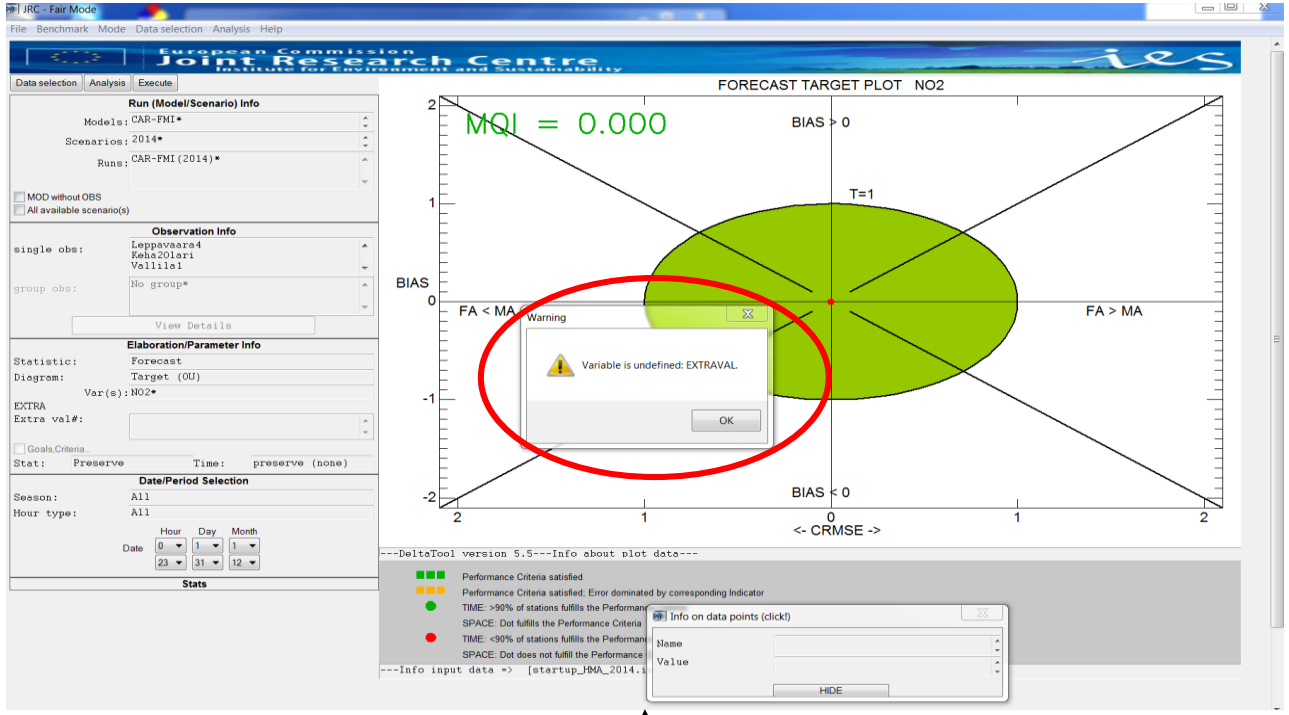




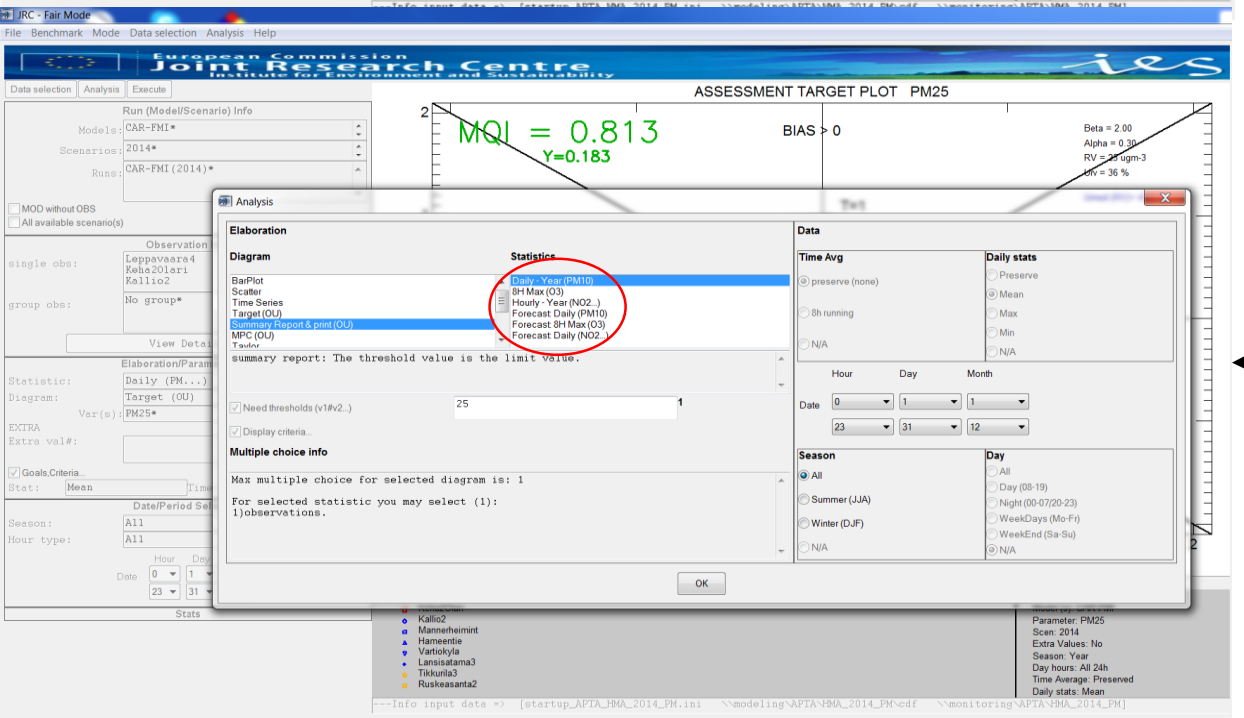








Hourly NO2

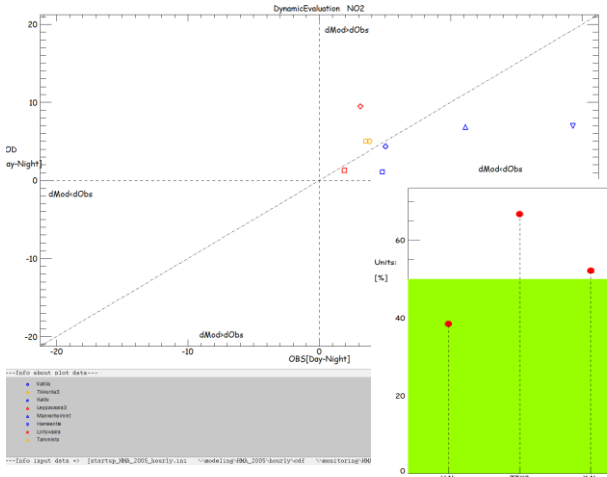


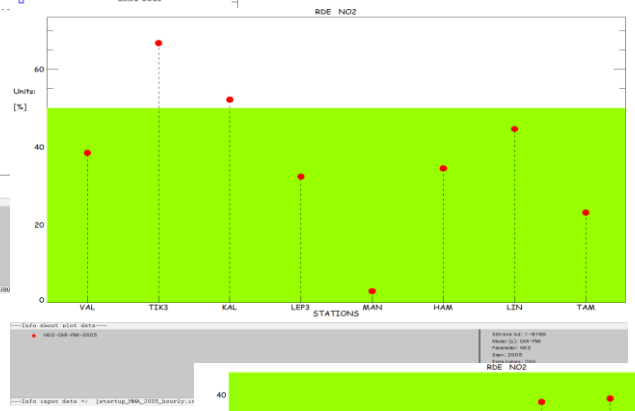
Daily PM2.5

- Benchmarking tool worked for daily PM2.5 but not for hourly NO2.
- No daily PM2.5 in Analysis tool

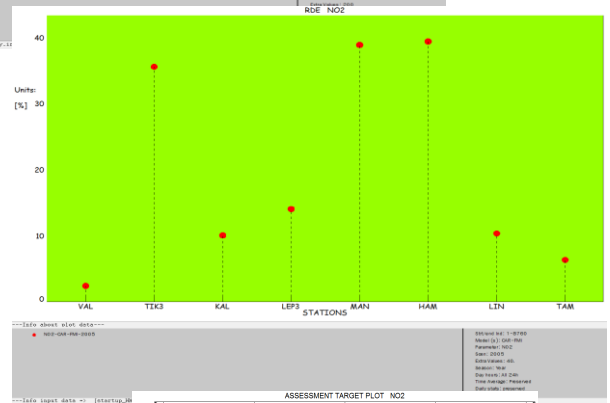
“Delta tool” - Finland/Helsinki metropolitan area

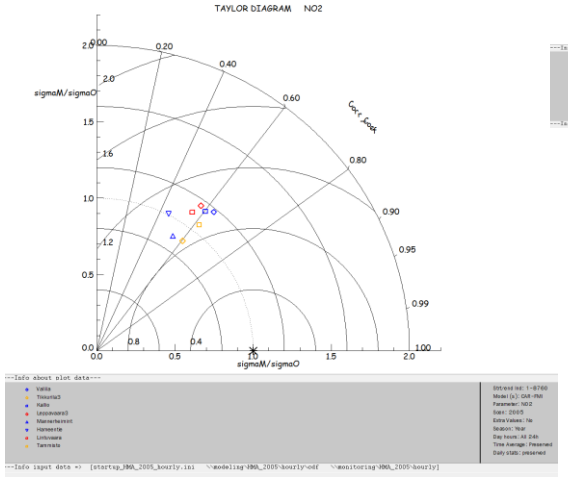
- User interface should be more easy to use
  - Time consuming and complicated to use
  - Should recognise csv and cdf files both for modelled and measured data

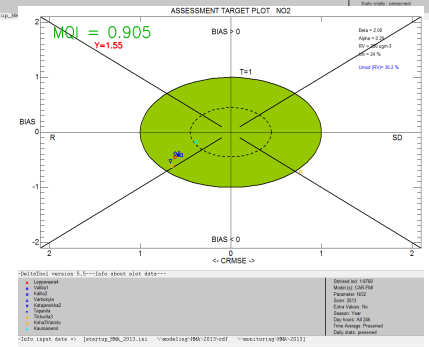


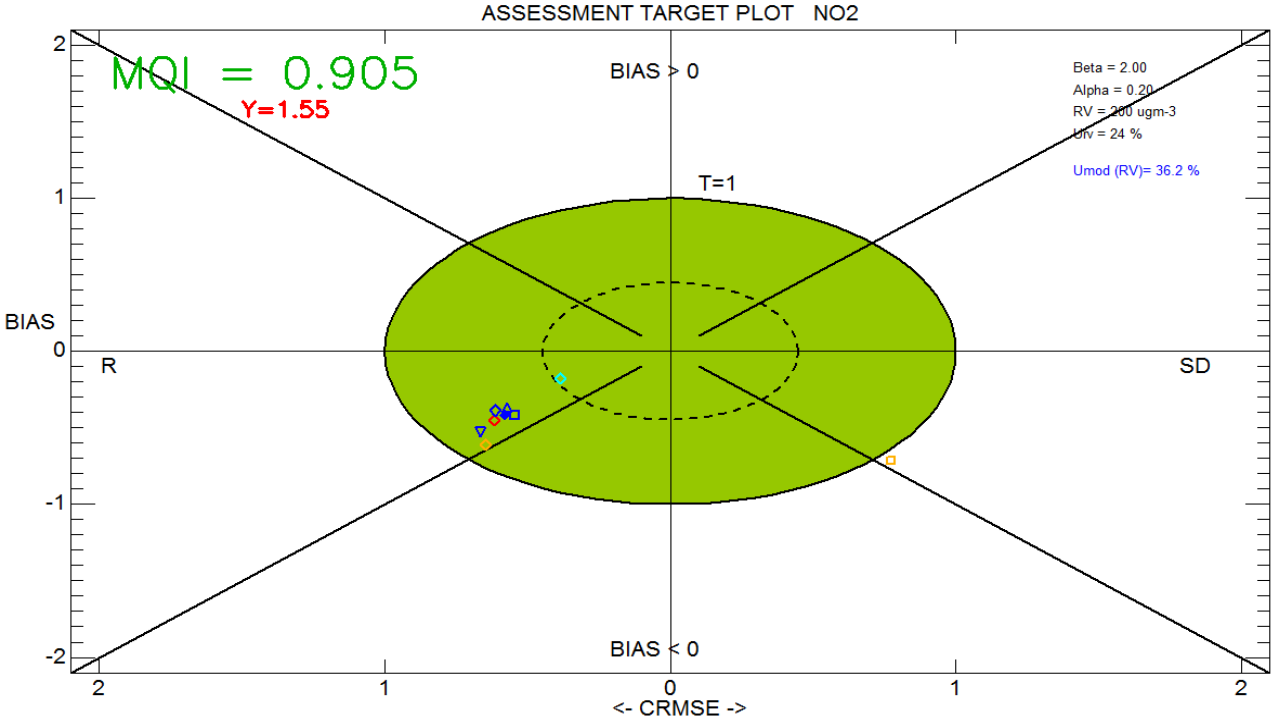


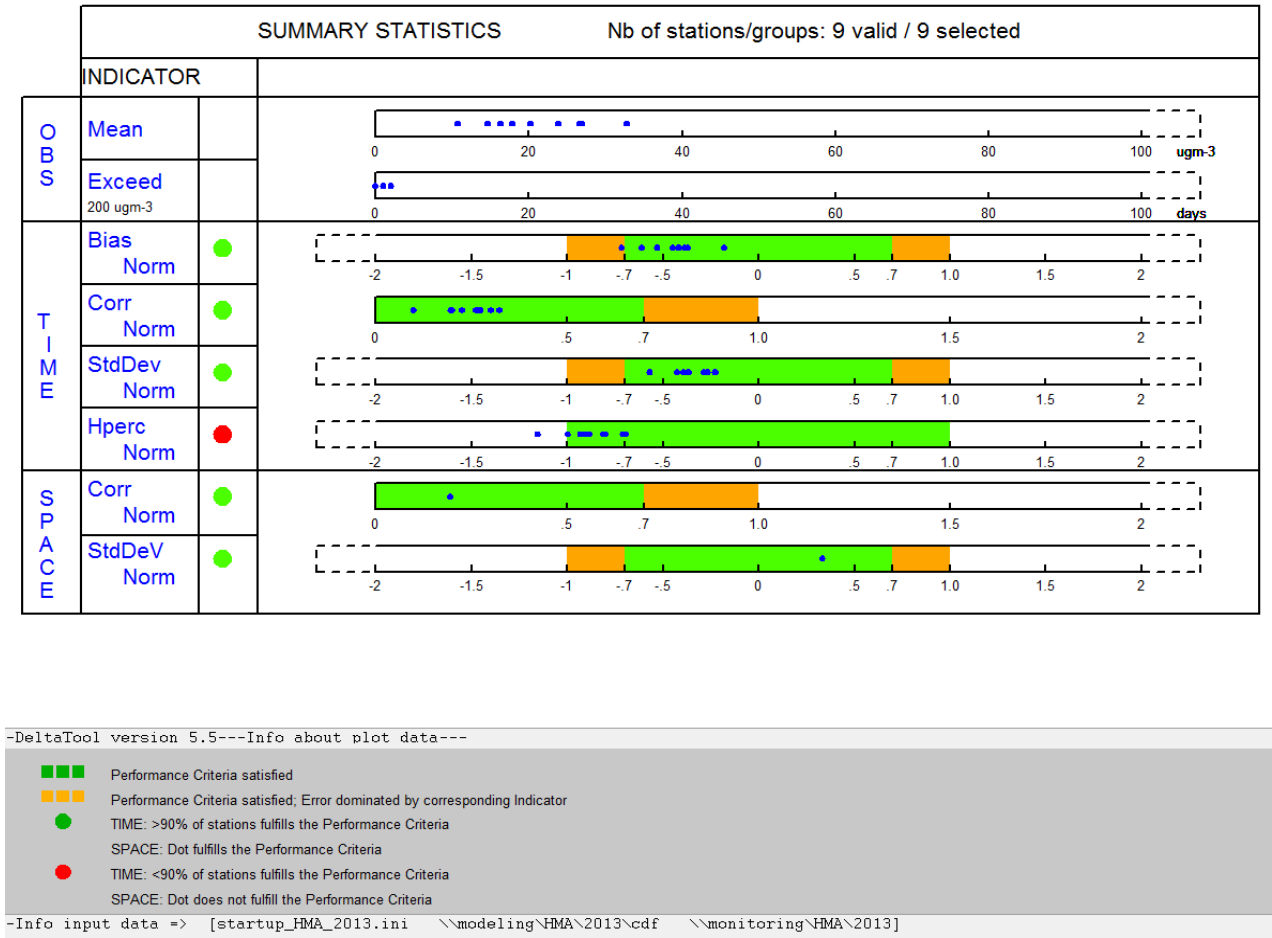
- Analysing of results
  - It is good that tool produces a lot of information.
    - But in the separated output files. → Would it be possible to get these in a single file?
  - Result graphs are not easy to interpret (terminology needs to be opened, e.g. by explaining case graphs more clearly verbally)
  - E.g. why is analysis by seasons only possible for winter and summer?











- User should be able to modify the grahps (e.g., colours and markers of stations)
- Figure fonts should be larger

- Stations should be with different colours and markers
- Figure fonts should be larger
- Why mean and exceedances only for observed data?