Управление качеством воздуха в странах Восточного региона

RPP3 – Final Project Workshop

The Model System

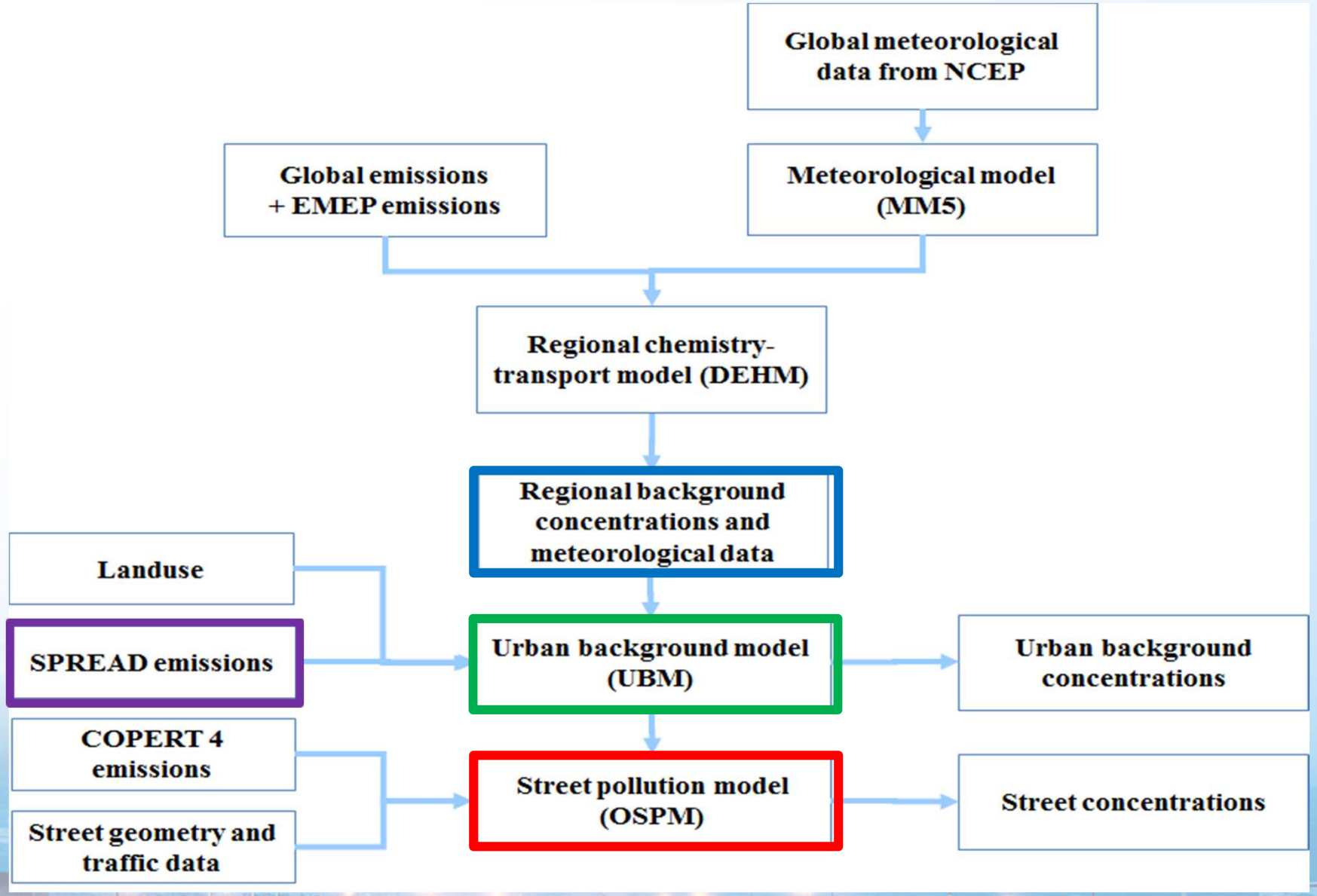
THOR-AirPAS

23-26 September, 2014, Copenhagen, Denmark

Training Workshop, Yerevan, June 2014

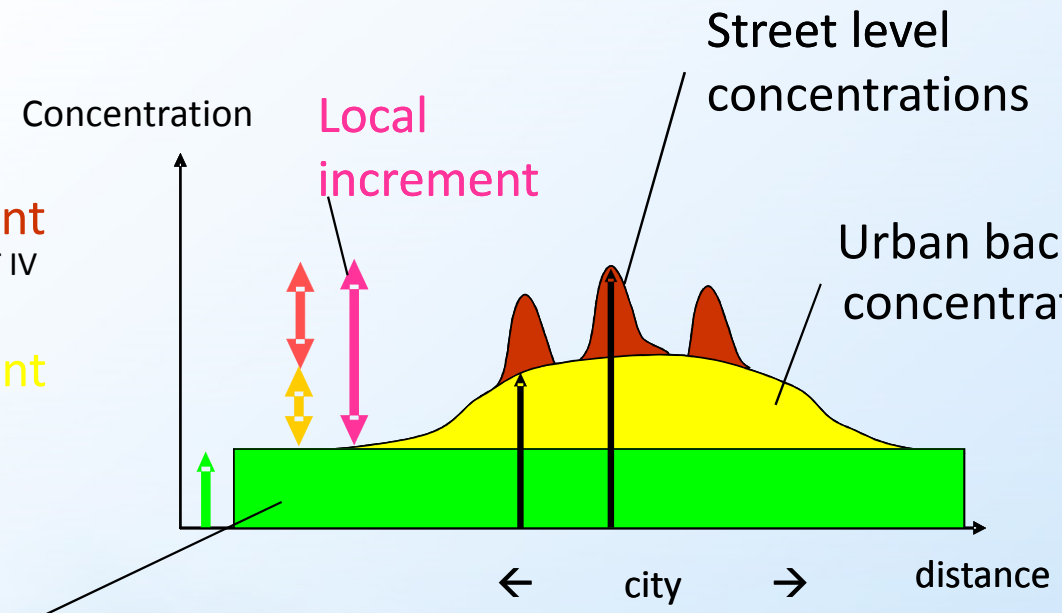
Training Workshop, Chisinau, July 2014

The THOR Integrated Model System Applied to in the RPP3-Project

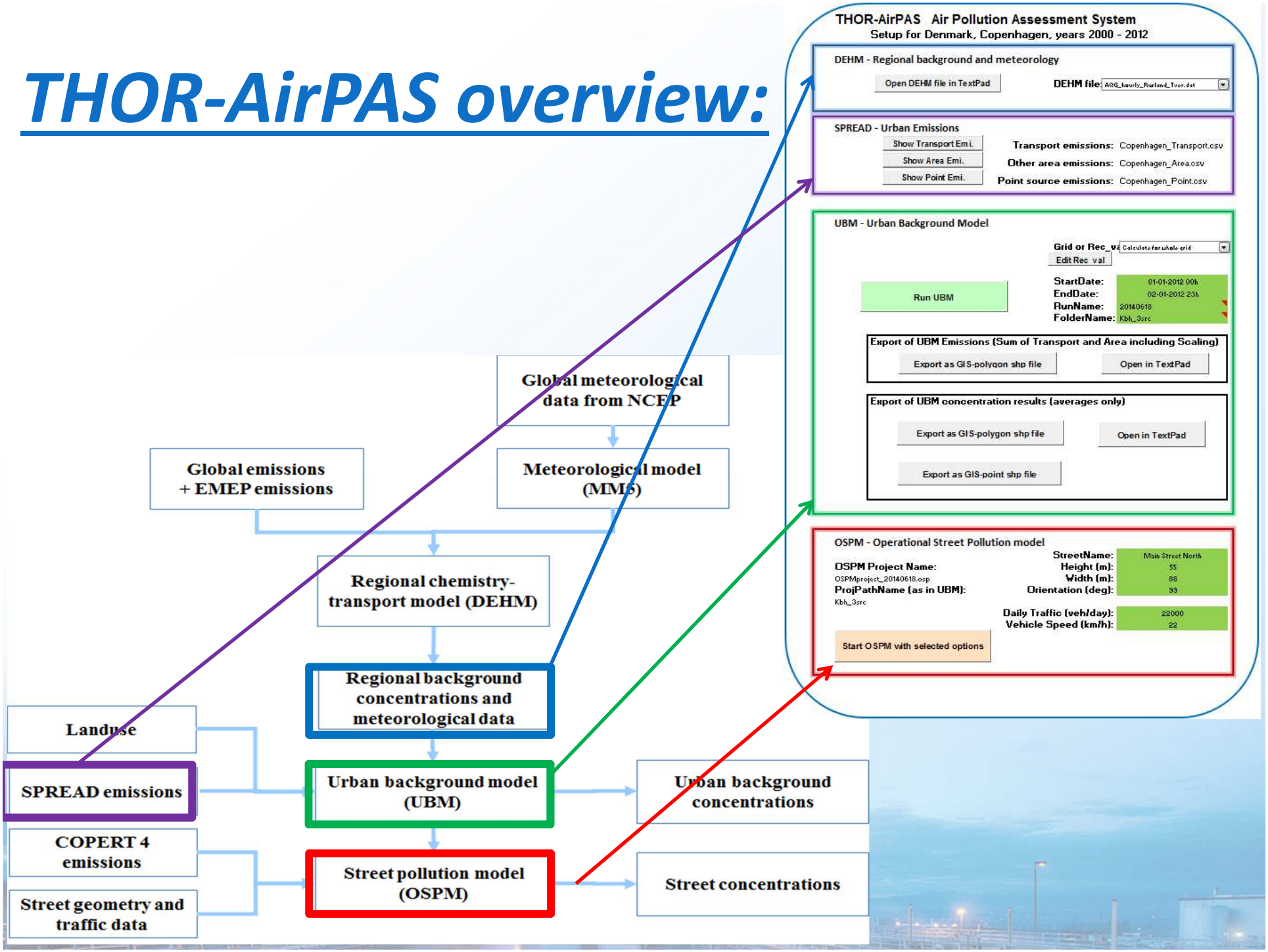


Modelling intra-urban variability

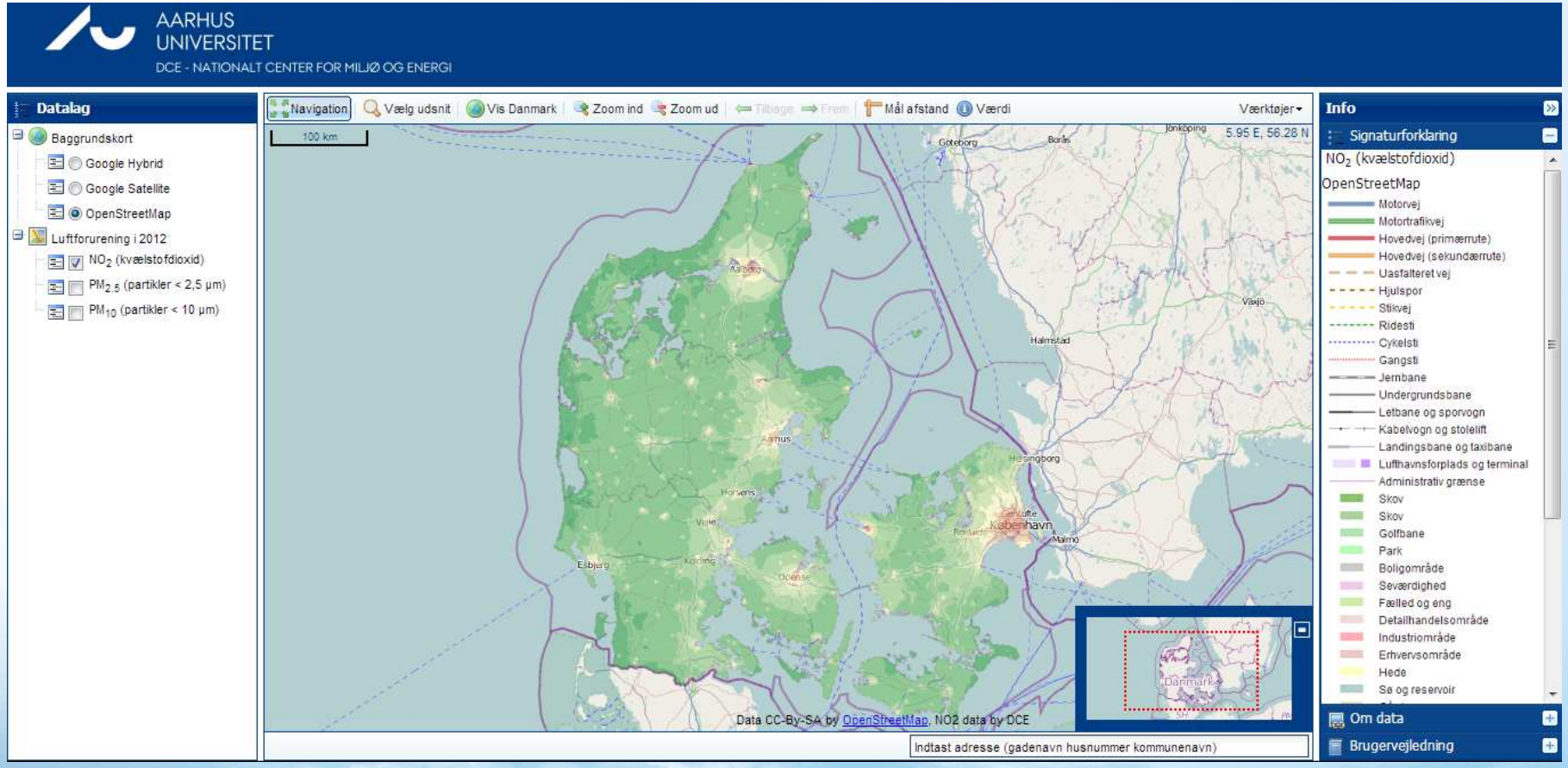
- street increment
  OSPM with COPERT IV
- urban increment
  UBM model
- regional background
  DEHM model



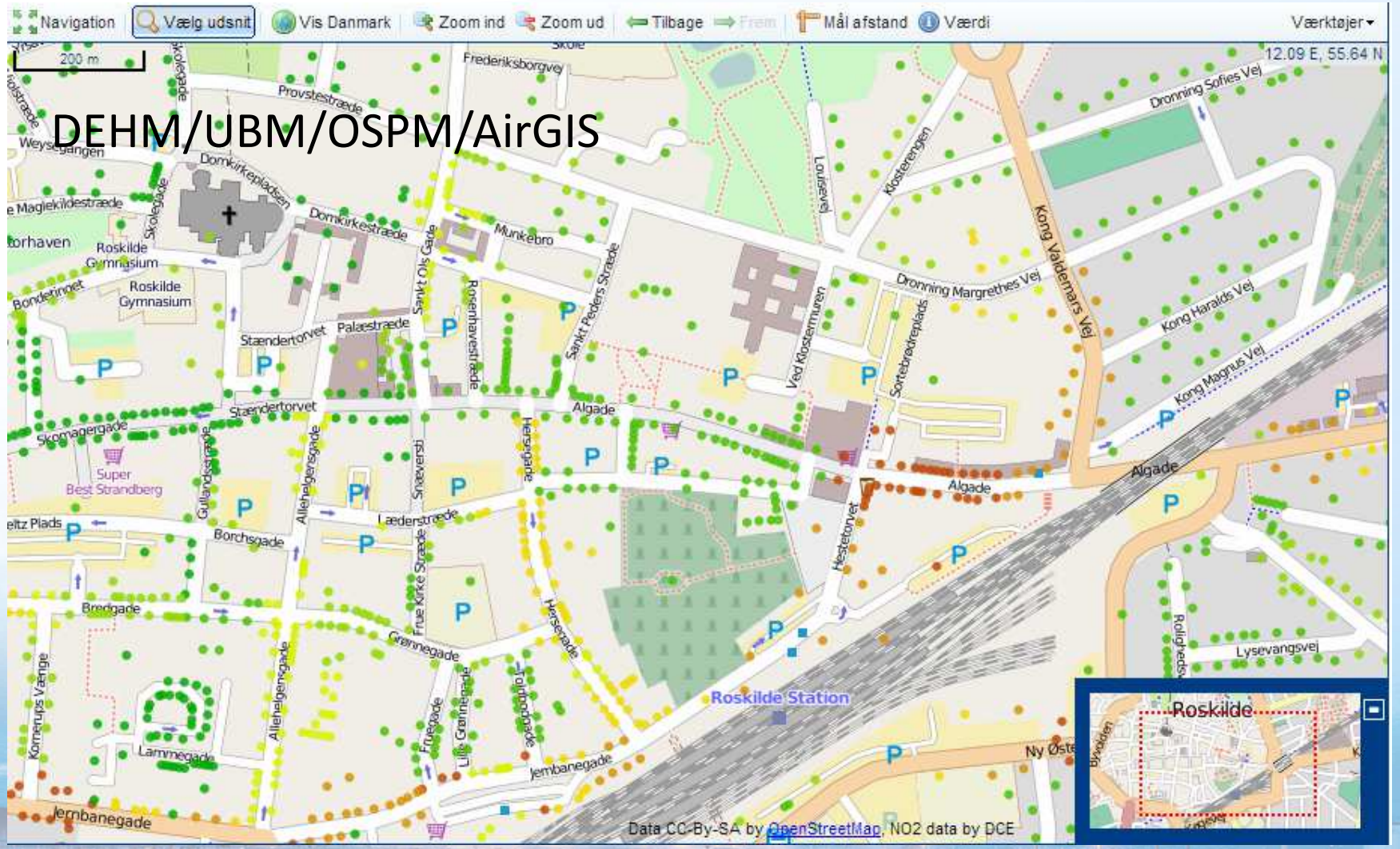
THOR-AirPAS overview:



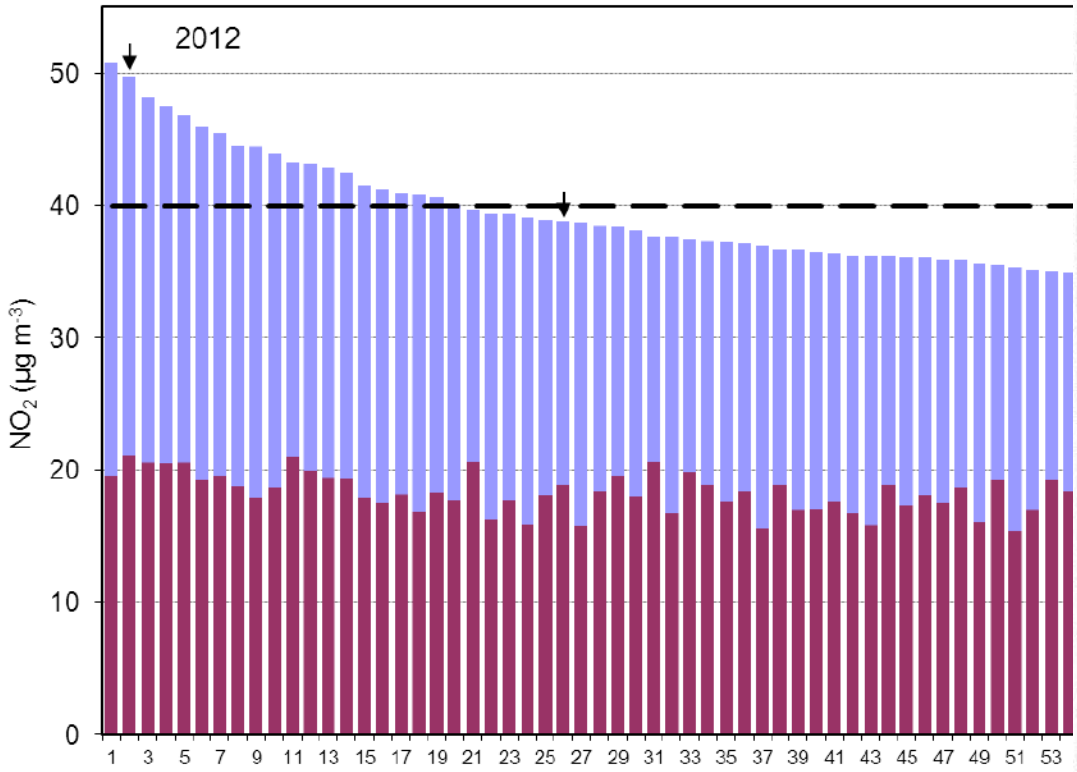
Website for Air Quality at Your Street

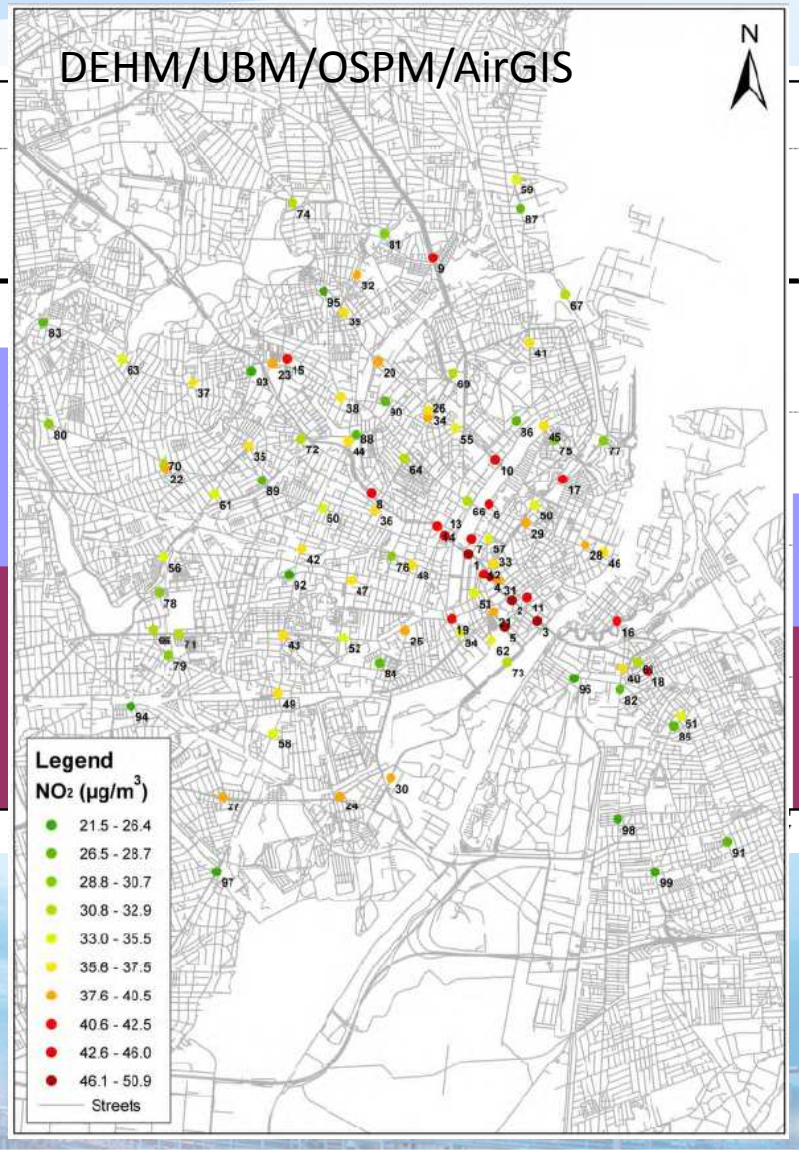


Street concentations of NO_2



NO_2 exceedances in Copenhagen 2012



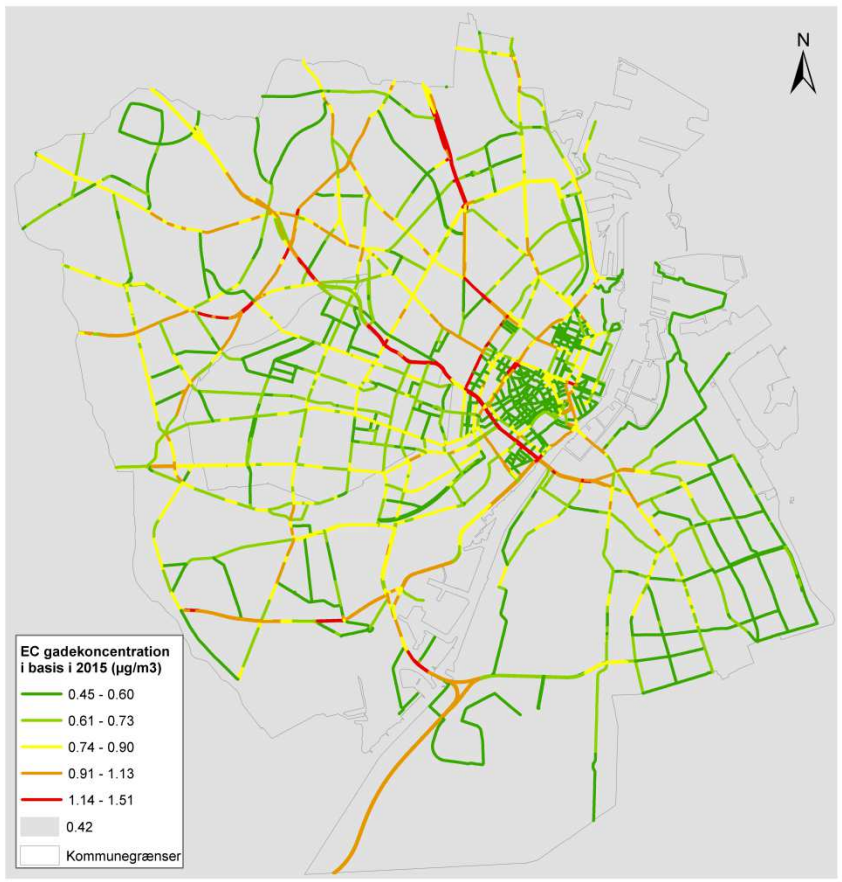


(Ellermann et al. 2013)

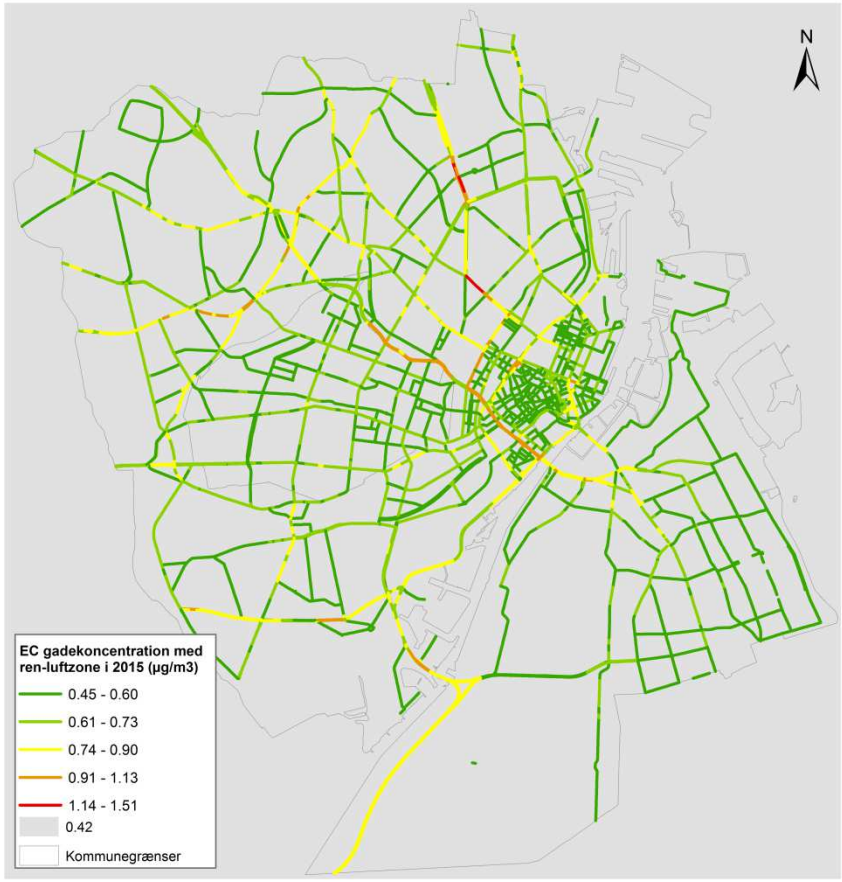
Impacts of proposed LEZ to EC concentrations in CPH

UBM/OSPM/AirGIS

Reference in 2015



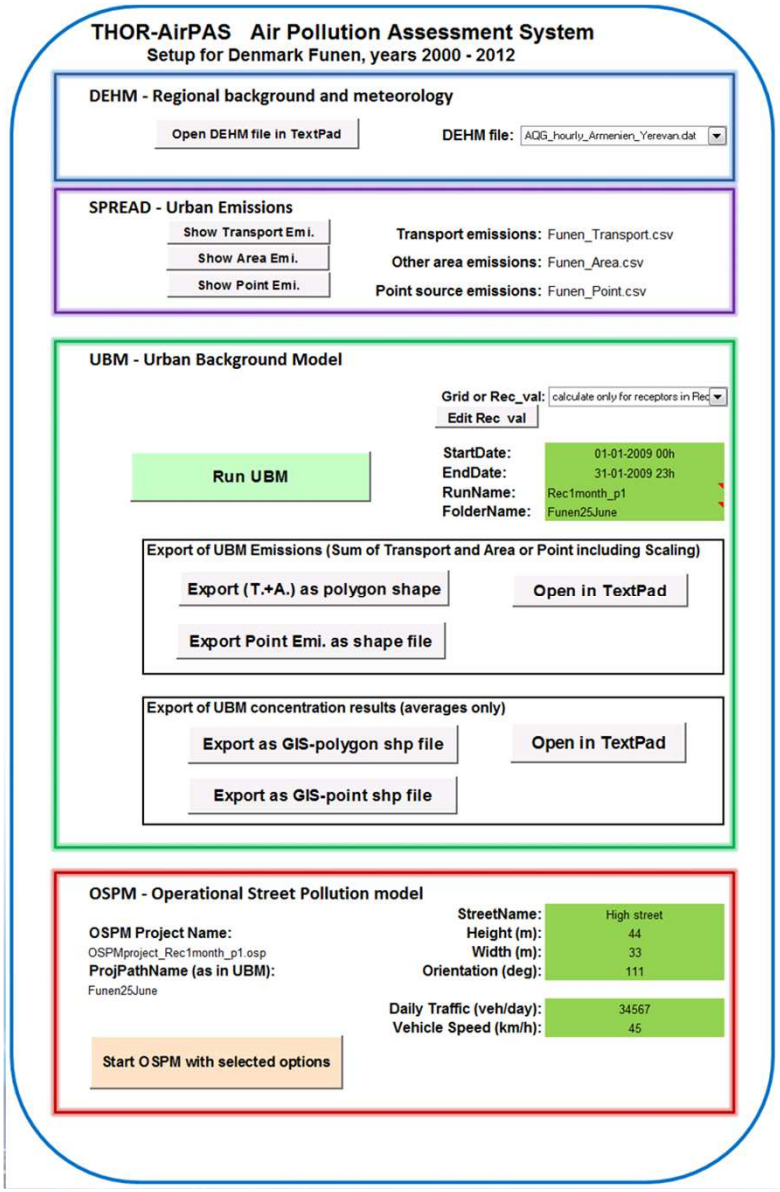
Proposed Berlin scenario in 2015



(Jensen & Ketzel 2014)

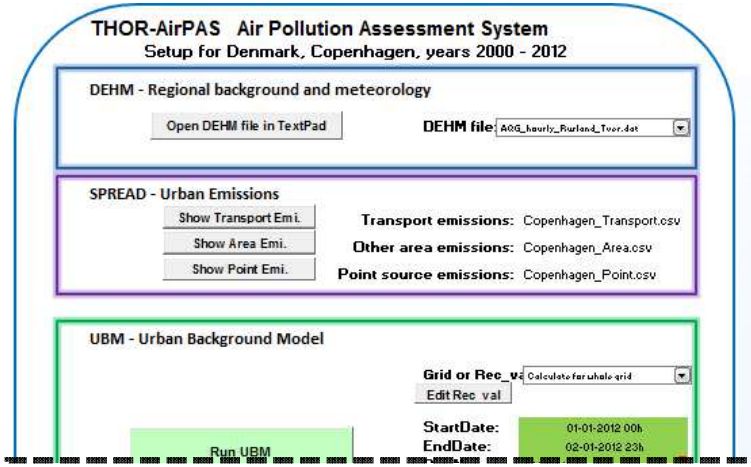
Berlin scenario: Diesel-dreven passenger cars and vans <= Euro 3 and petrol-dreven passenger cars and vans <= Euro 0 are banned in LEZ

THOR-AirPAS overview:

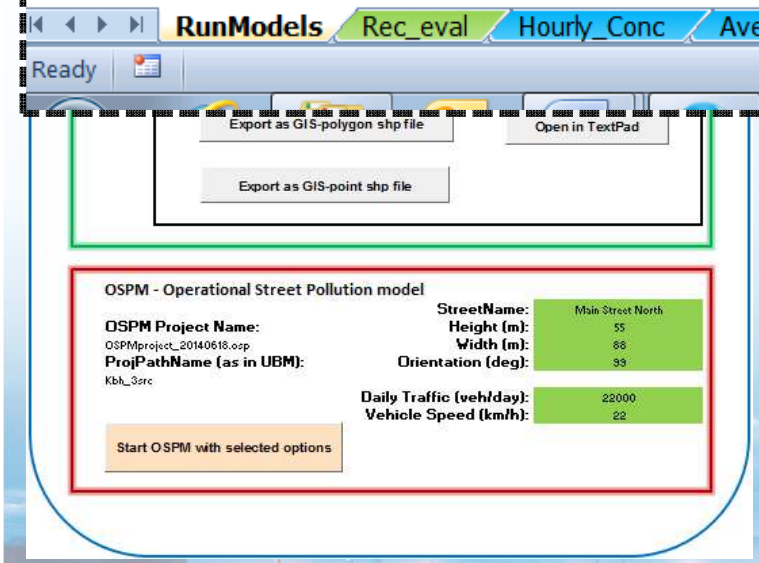


- **ReadMe / Getting Started:**
- You may change the green highlighted cells (basic use) or the yellow cells (advanced options).
- You may select options from the drop-down lists and press the various buttons.

THOR-AirPAS overview:

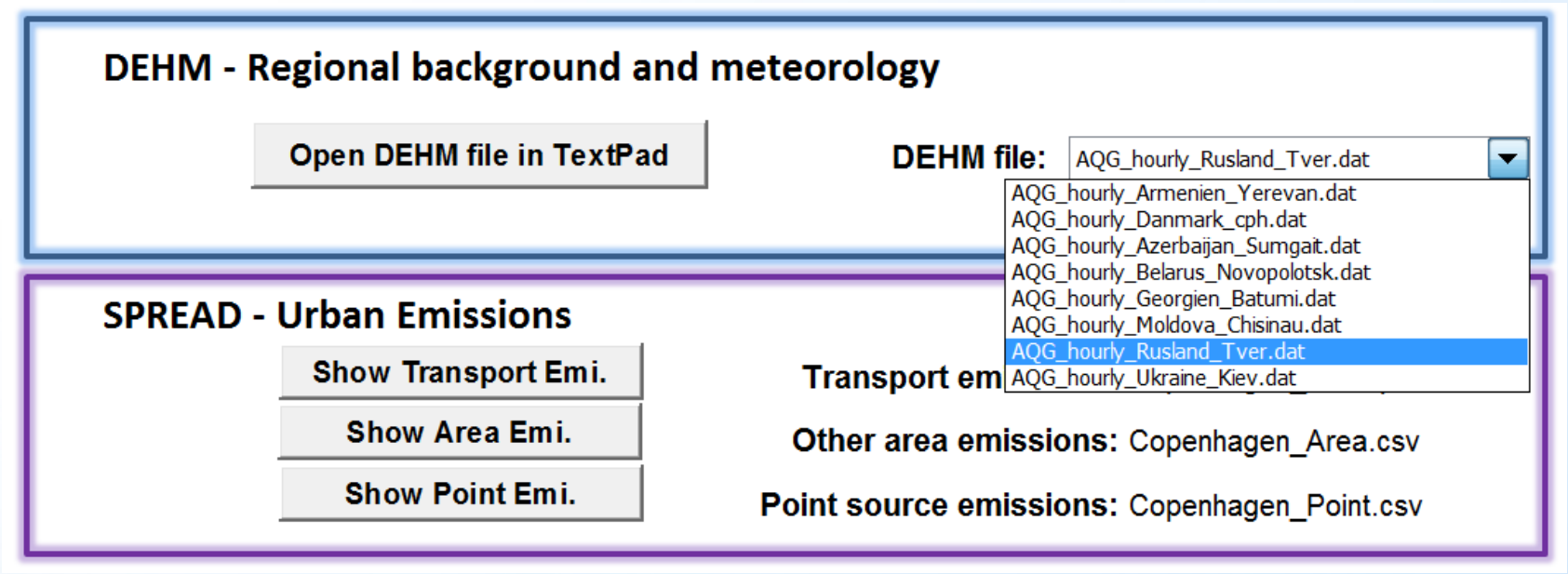


- When you end up at different Sub-Sheets of this workbook you can press CTRL+'m' to get back to this main sheet.



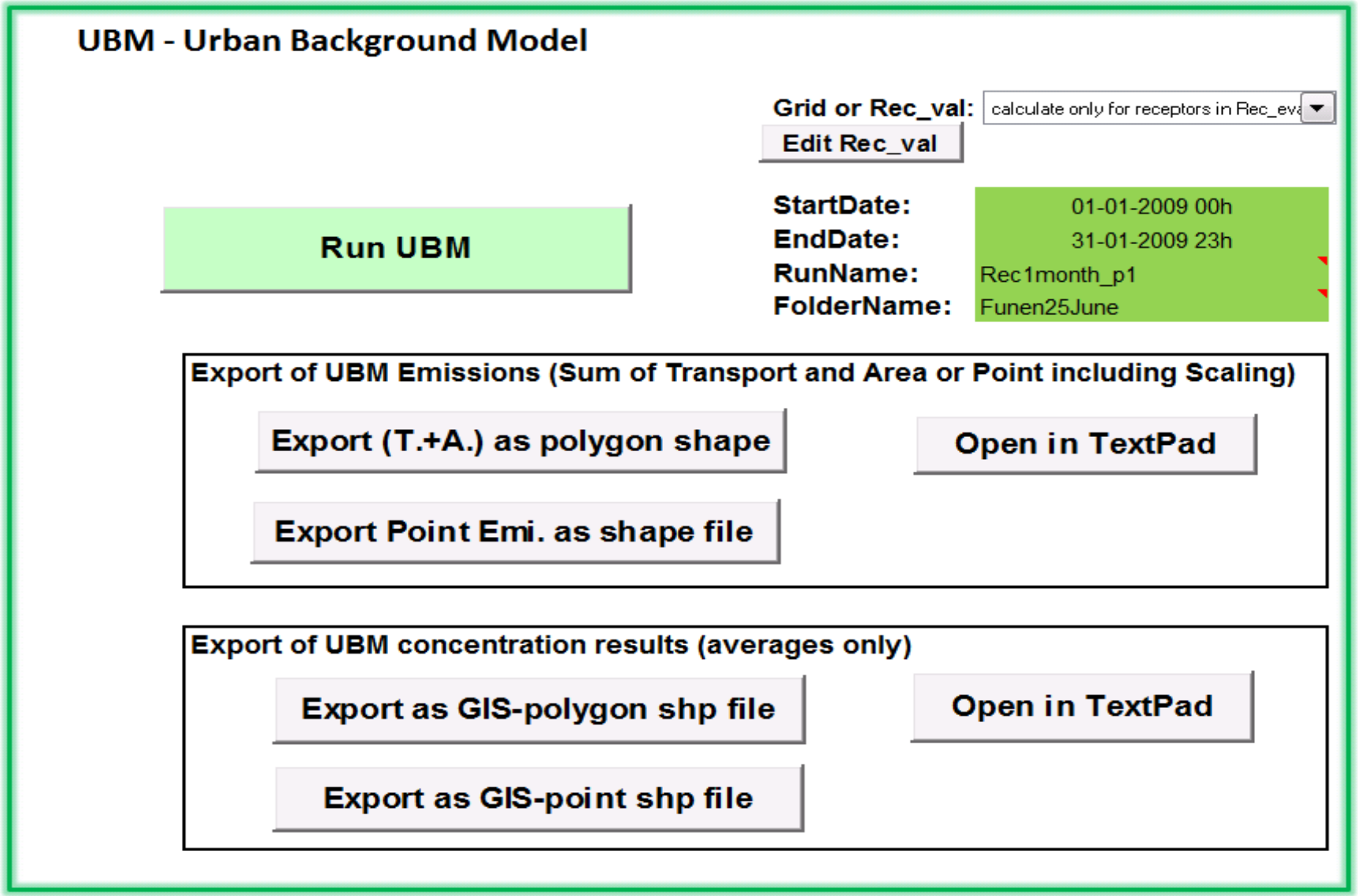
- You can add your own worksheets but **do not alter the names** of the existing worksheets.

DEHM + SPREAD menu

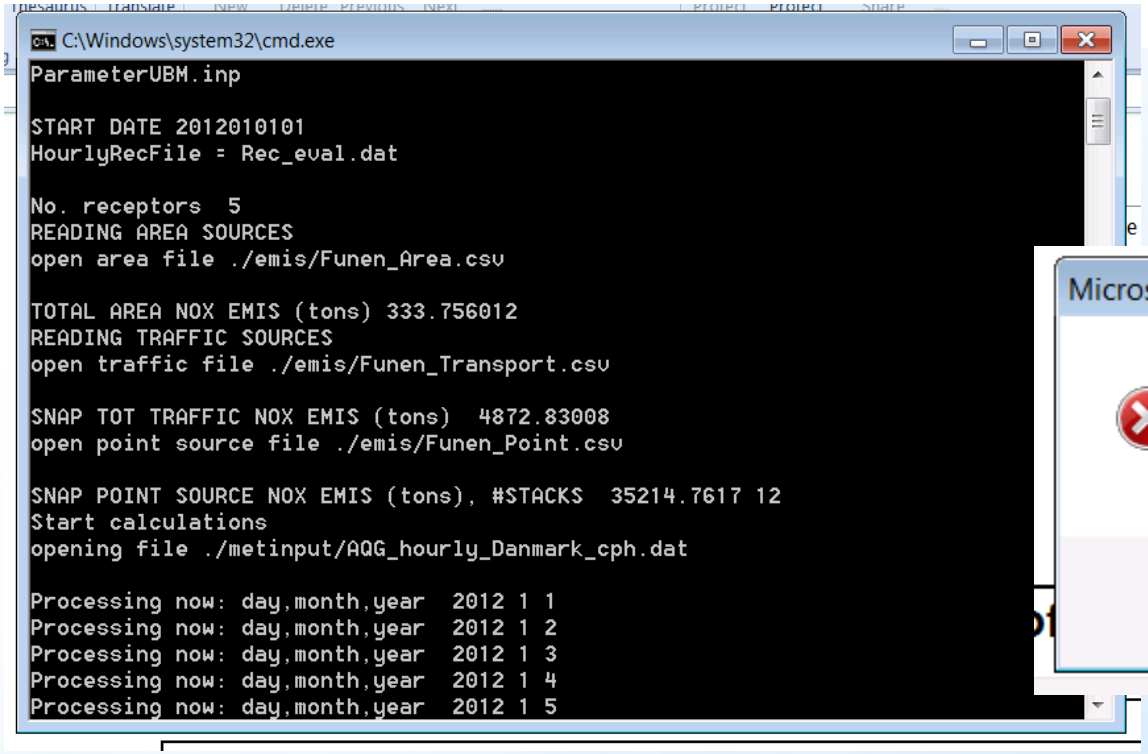


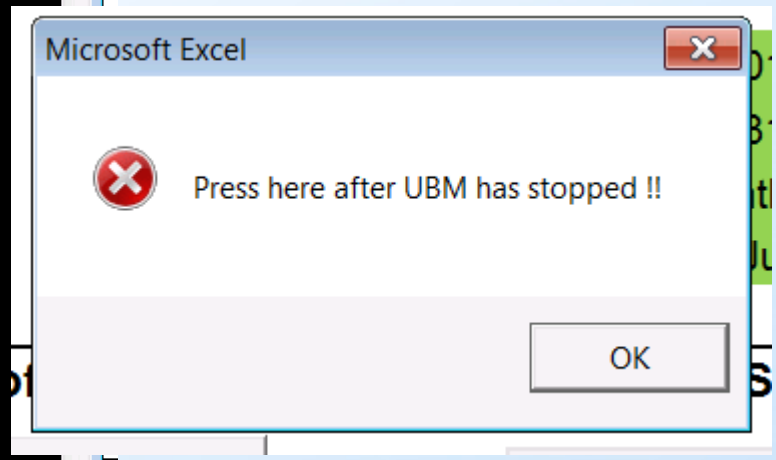
- Select regional time series
- Display various types of emissions

UBM menu


UBM - Urban Background Model
Grid or Rec_val:
calculate only for receptors in Rec_eva
Edit Rec_val
Run UBM
StartDate:
01-01-2009 00h
EndDate:
31-01-2009 23h
RunName:
Rec1month_p1
FolderName:
Funen25June
Export of UBM Emissions (Sum of Transport and Area or Point including Scaling)
Export (T.+A.) as polygon shape
Open in TextPad
Export Point Emi. as shape file
Export of UBM concentration results (averages only)
Export as GIS-polygon shp file
Open in TextPad
Export as GIS-point shp file

Running UBM





- **Important !**
  After starting UBM by pressing "**RunUBM**" a black **Command Prompt Window** will open where UBM is running.
- During the running of UBM the actual date in the processing is displayed. You need to wait a few minutes (depending on the number of receptor points and calculation period).
- The black window will close after the run and you need to confirm this in a message box. The resulting files (**Average_Conc** and **Hourly_Conc**) will be read back to EXCEL!!

UBM advanced options:

ADVANCED UBM Options

EMISSIONS - Calibration and Regulation factors; 1.0=no regulation

NOx	SO2	CO	TSP	PM10	PM2.5	SNAP sector
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 01 COMBUSTION IN ENERGY AND TRANSF. INDUSTRIES
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 02 NON-INDUSTRIAL COMBUSTION PLANTS
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 03 COMBUSTION IN MANUFACTURING INDUSTRY
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 04 PRODUCTION PROCESSES
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 05 EXTR. AND DISTR. OF FOSSIL FUELS
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 06 SOLVENT AND OTHER PRODUCT USE
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 07 ROAD TRANSPORT
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 08 OTHER MOBILE SOURCES AND MACHINERY
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 09 WASTE TREATMENT AND DISPOSAL
1.0	1.0	1.0	1.0	1.0	1.0	SNAP 10 AGRICULTURE

OSPM menu within THOR- AirPAS

OSPM - Operational Street Pollution model

StreetName:	Main Street North
Height (m):	23
Width (m):	20
Orientation (deg):	120
Daily Traffic (veh/day):	22000
Vehicle Speed (km/h):	45

OSPM Project Name:

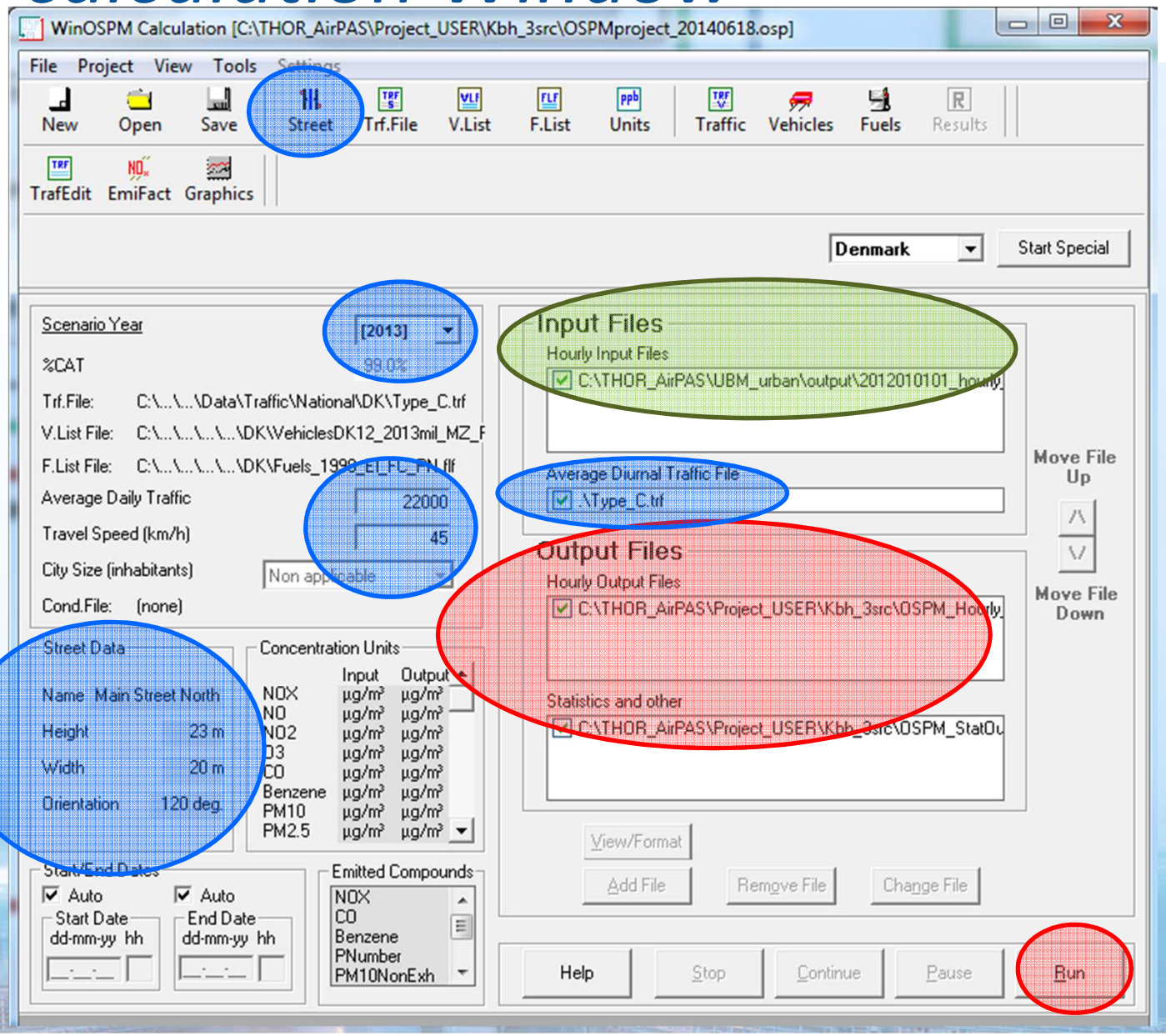
OSPMproject_20140618.osp

ProjPathName (as in UBM):

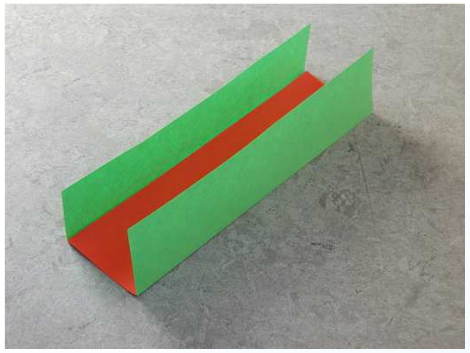
Kbh_3src

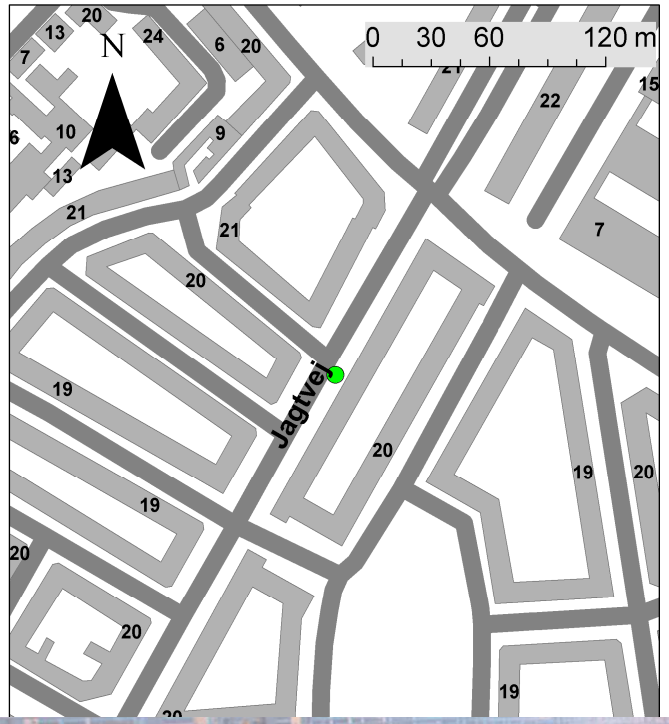
Start OSPM with selected options

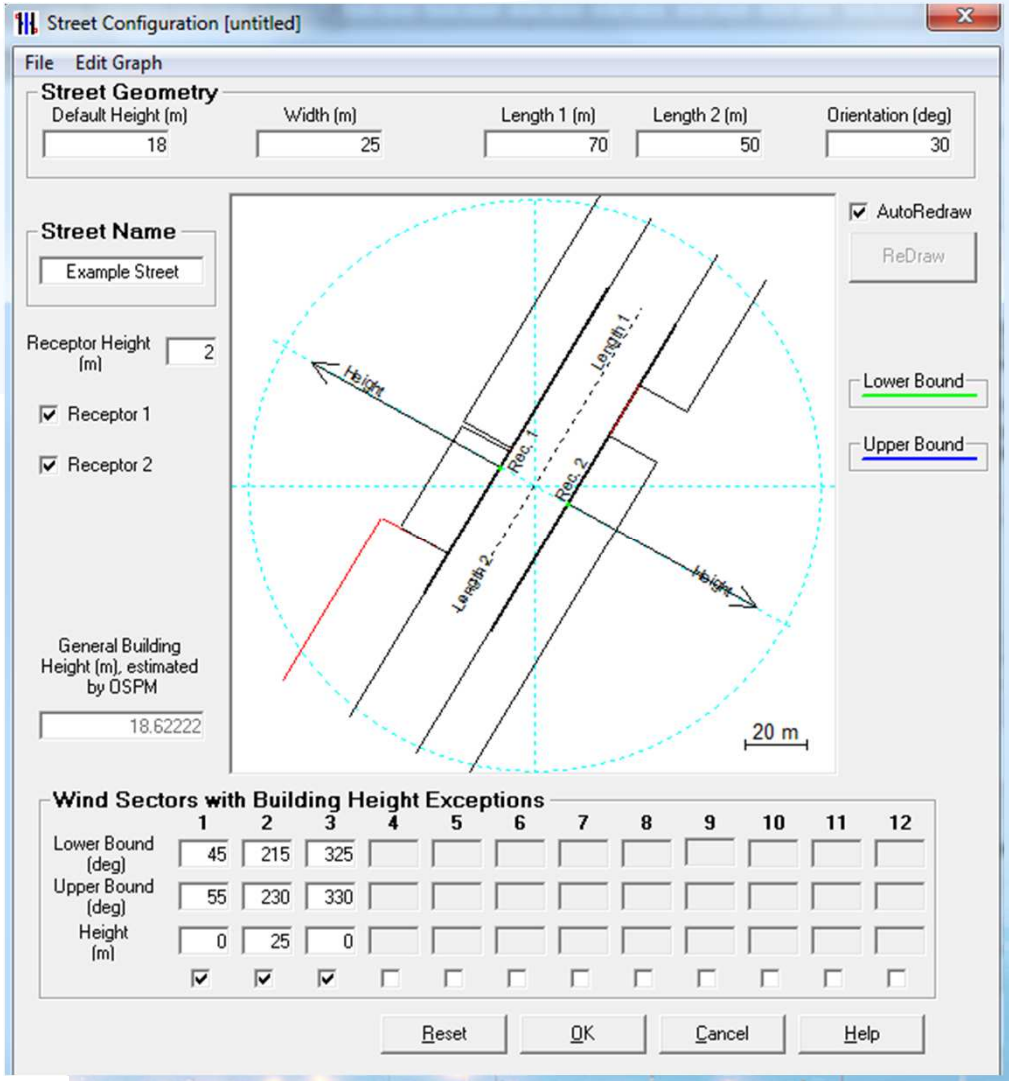
OSPM calculation Window



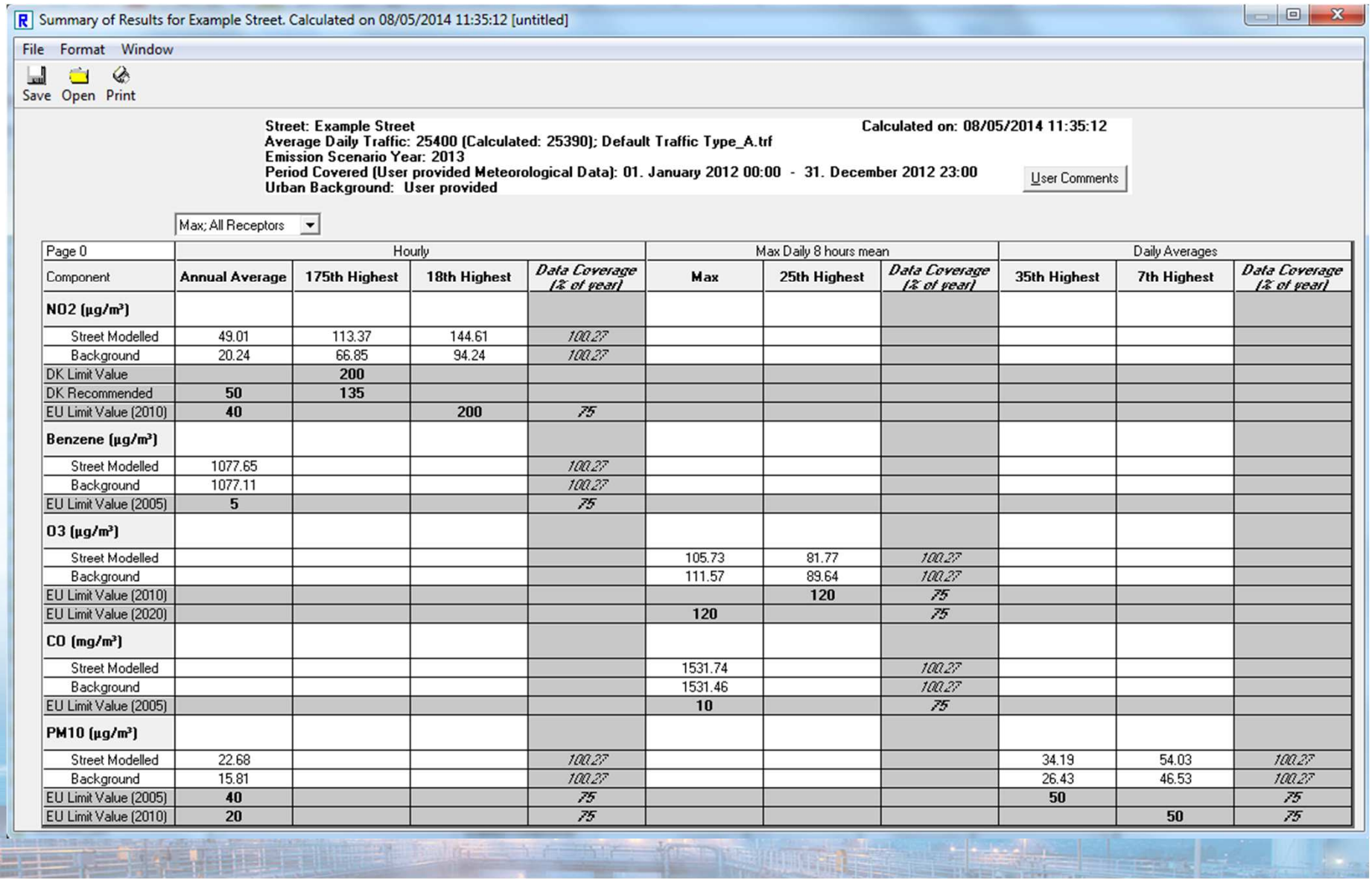
Street Configuration







OSPM result window



Summary of Results for Example Street. Calculated on 08/05/2014 11:35:12 [untitled]

File Format Window

Save Open Print

Street: Example Street **Calculated on: 08/05/2014 11:35:12**
Average Daily Traffic: 25400 (Calculated: 25390); Default Traffic Type_A.trf
Emission Scenario Year: 2013
Period Covered (User provided Meteorological Data): 01. January 2012 00:00 - 31. December 2012 23:00
Urban Background: User provided

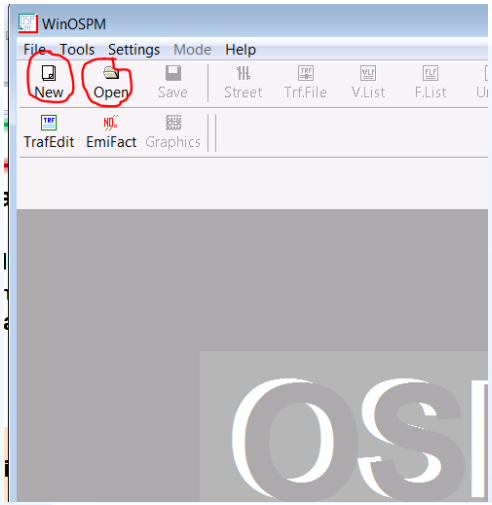
User Comments

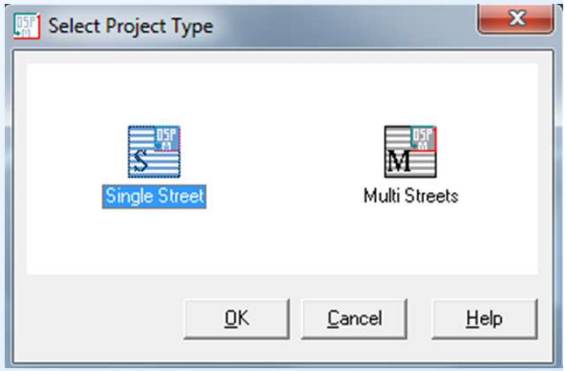
Max; All Receptors

Page 0	Hourly				Max Daily 8 hours mean			Daily Averages		
Component	**Annual Average**	**175th Highest**	**18th Highest**	***Data Coverage (% of year)***	**Max**	**25th Highest**	***Data Coverage (% of year)***	**35th Highest**	**7th Highest**	***Data Coverage (% of year)***
NO2 (µg/m³)										
Street Modelled	49.01	113.37	144.61	*100.27*						
Background	20.24	66.85	94.24	*100.27*						
DK Limit Value		**200**								
DK Recommended	**50**	**135**								
EU Limit Value (2010)	**40**		**200**	*75*						
Benzene (µg/m³)										
Street Modelled	1077.65			*100.27*						
Background	1077.11			*100.27*						
EU Limit Value (2005)	**5**			*75*						
O3 (µg/m³)										
Street Modelled					105.73	81.77	*100.27*			
Background					111.57	89.64	*100.27*			
EU Limit Value (2010)						**120**	*75*			
EU Limit Value (2020)					**120**		*75*			
CO (mg/m³)										
Street Modelled					1531.74		*100.27*			
Background					1531.46		*100.27*			
EU Limit Value (2005)					**10**		*75*			
PM10 (µg/m³)										
Street Modelled	22.68			*100.27*				34.19	54.03	*100.27*
Background	15.81			*100.27*				26.43	46.53	*100.27*
EU Limit Value (2005)	**40**			*75*				**50**		*75*
EU Limit Value (2010)	**20**			*75*					**50**	*75*

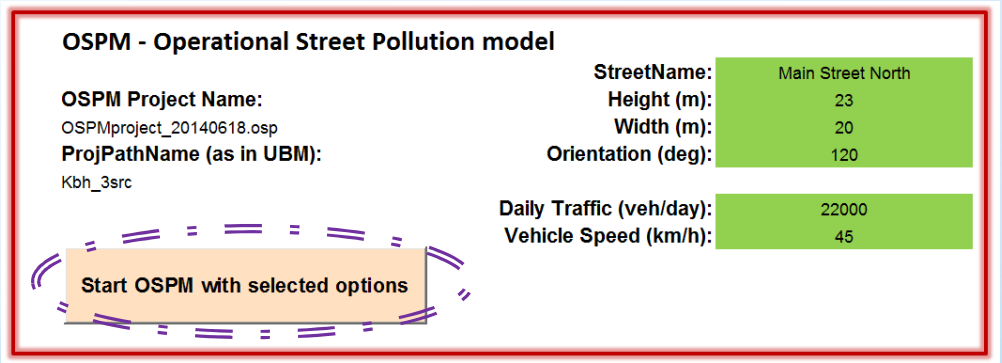
3 ways to start a OSPM project

- New empty Project:

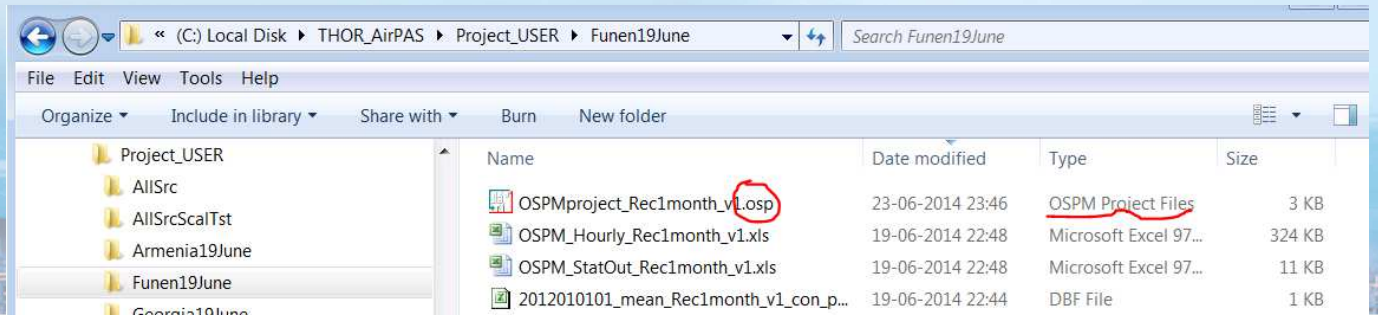




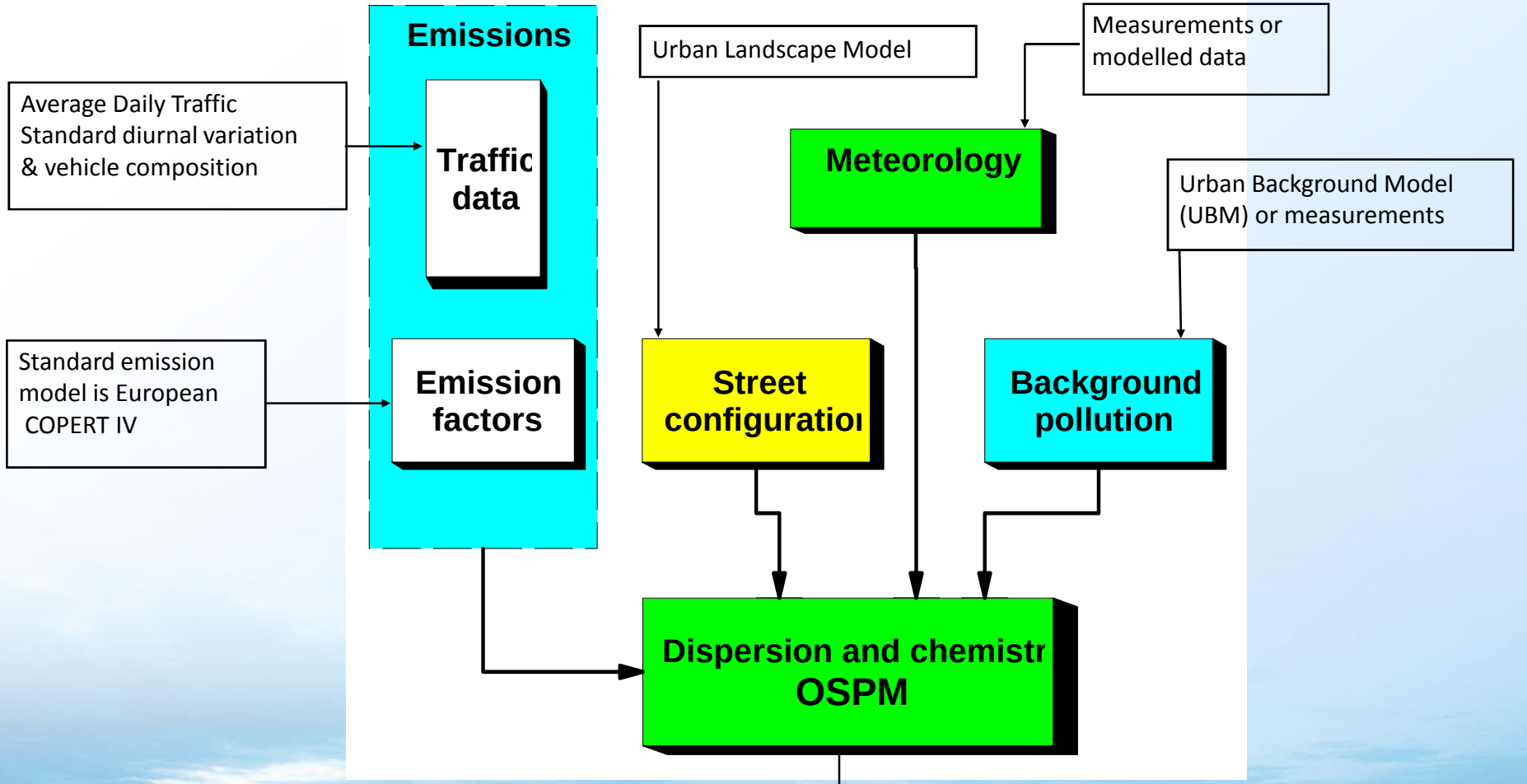
- Via THOR-AirPAS:



- Via File Explorer:

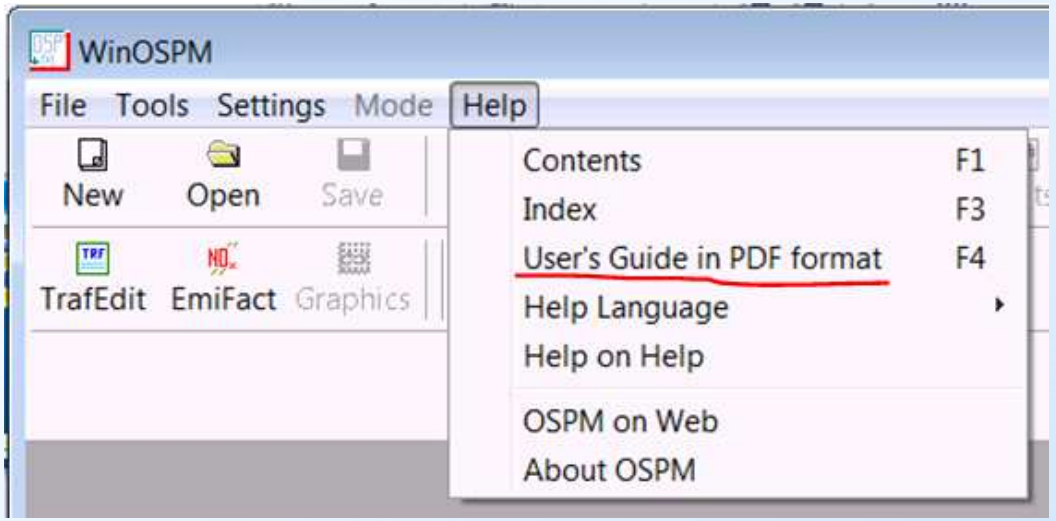


Input & Output of the OSPM model



OSPM – further reading

- User Manual:



- OSPM Web Page: www.au.dk/OSPM


Спасибо За Внимание!