THOR Training Course and Study Tour
23–26 September, 2014, Copenhagen, Denmark


Experience with THOR-AirPAS system

Lusine Gevorgyan and Anna Zatikyan

lusinegevorgyan@gmail.com, anna_zatikyan@hotmail.com

Environmental Impact Monitoring Centre,Yerevan, Armenia

Content

- ***experience with THOR-AirPas system***
  - ✓*UBM simulation for the EMEP station of Armenia*
  - ✓*whole grid UBM simulation for Yerevan city*
  - ✓*UBM simulation for 2 background stations in Yerevan*
  - ✓*OSPM simulation for Komitas street in Yerevan*
- ***future plans***

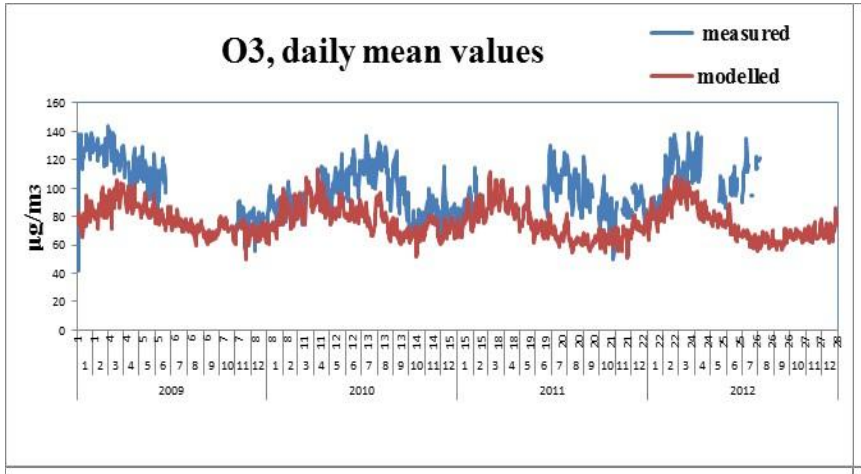
•*experience with THOR-AirPas system*

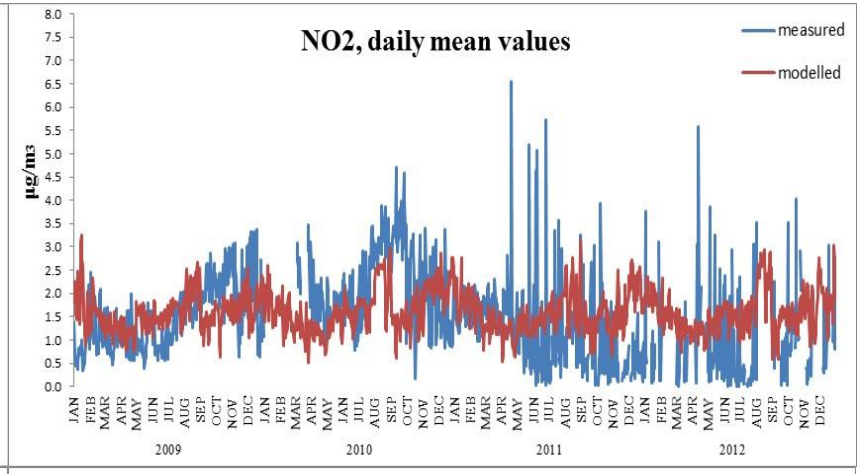
✓ *UBM simulation for the EMEP station of Armenia*

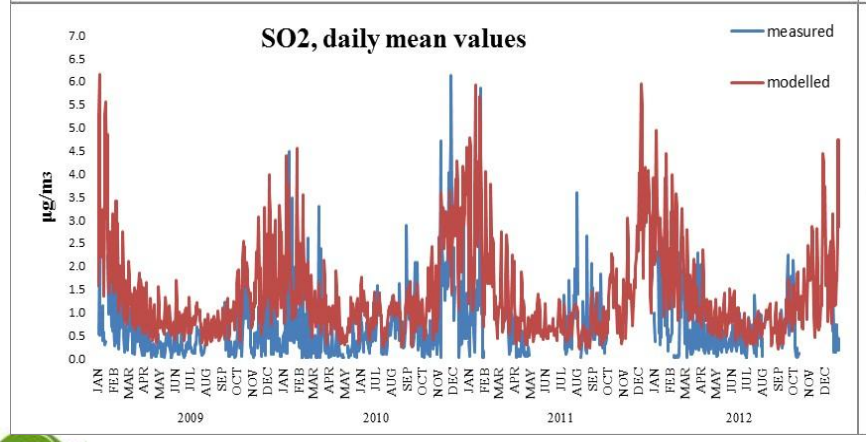
Latitude 40^0 23’ 04.0” N
Longitude 044^0 15’ 38.1” E
Altitude 2080m

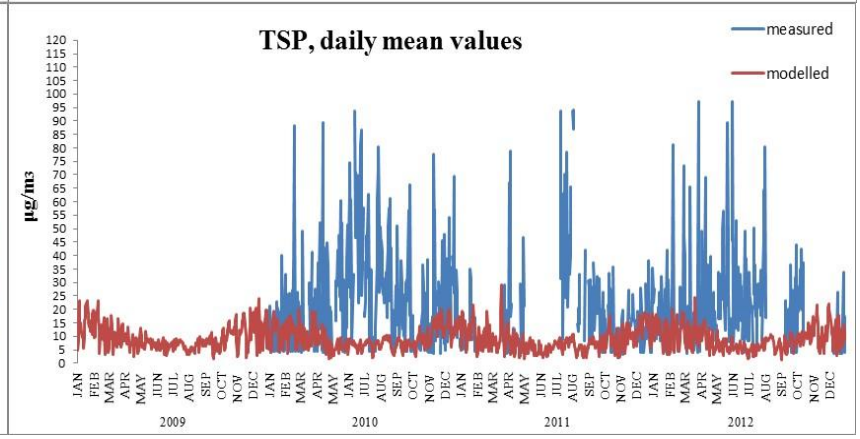
•*experience with THOR-AirPas system*

✓ *UBM simulation for the EMEP station of Armenia*





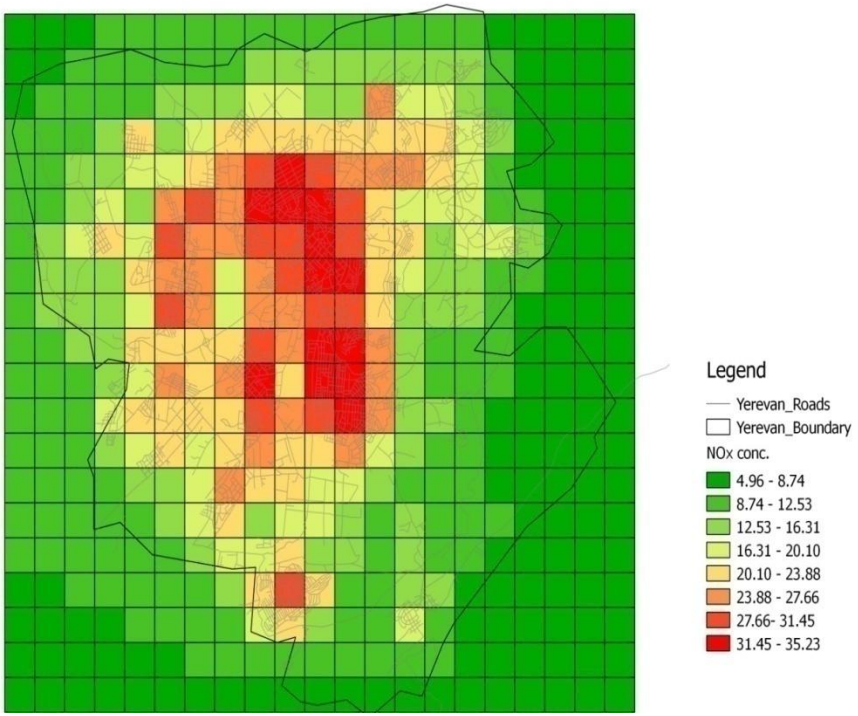




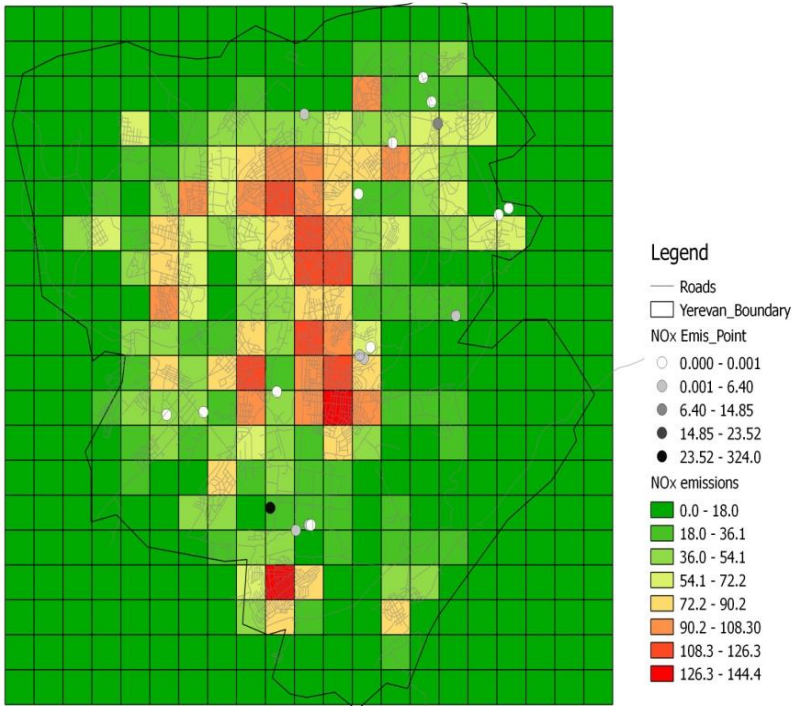
•*experience with THOR-AirPas system*

✓ *whole grid UBM simulation for Yerevan city*

NOx conc., µg/m3, Yerevan, 2012



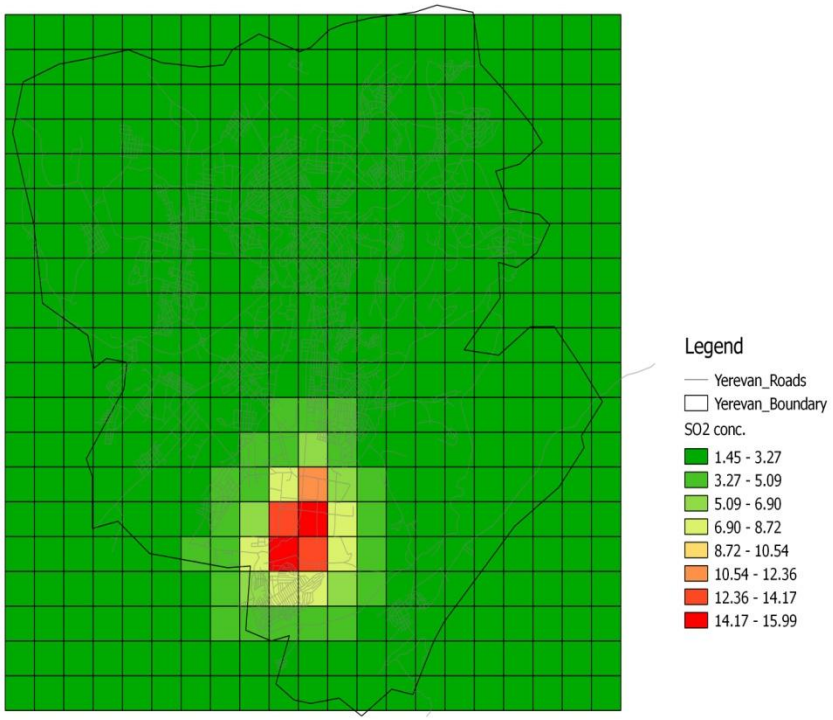
NOx emissions, Yerevan tons/km2/year



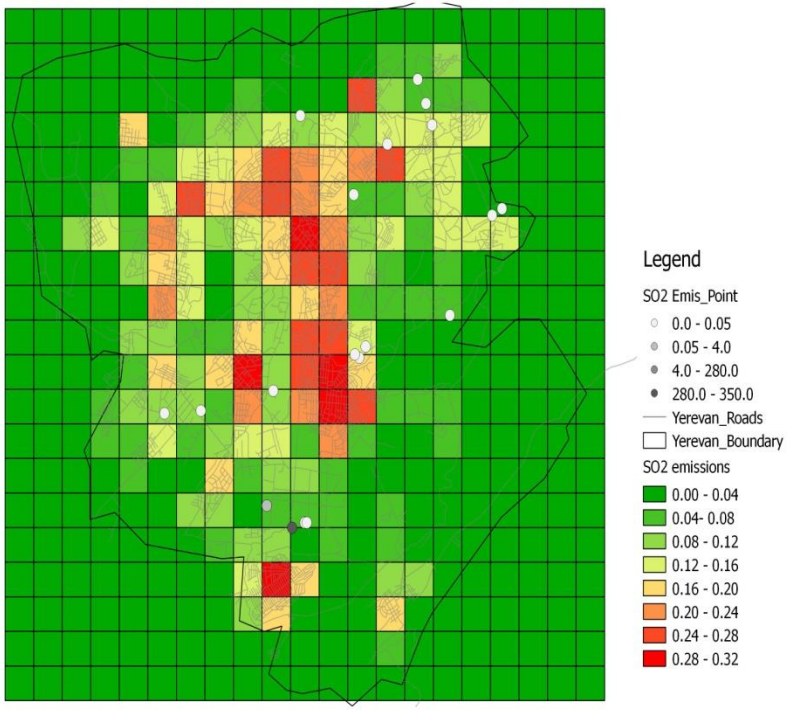
•*experience with THOR-AirPas system*

✓ *whole grid UBM simulation for Yerevan city*

SO2 conc., µg/m3, Yerevan, 2012

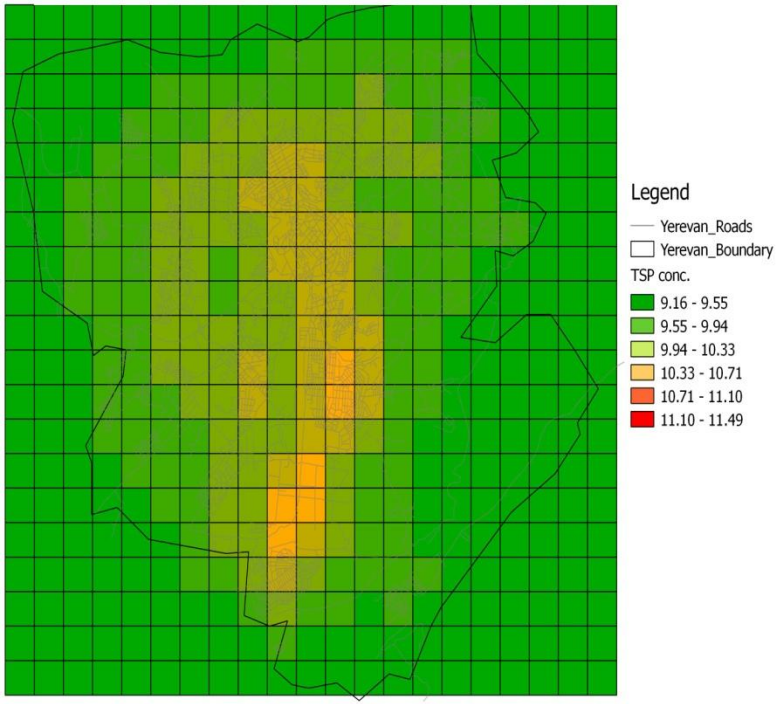


SO2 emissions, Yerevan
tons/km2/year

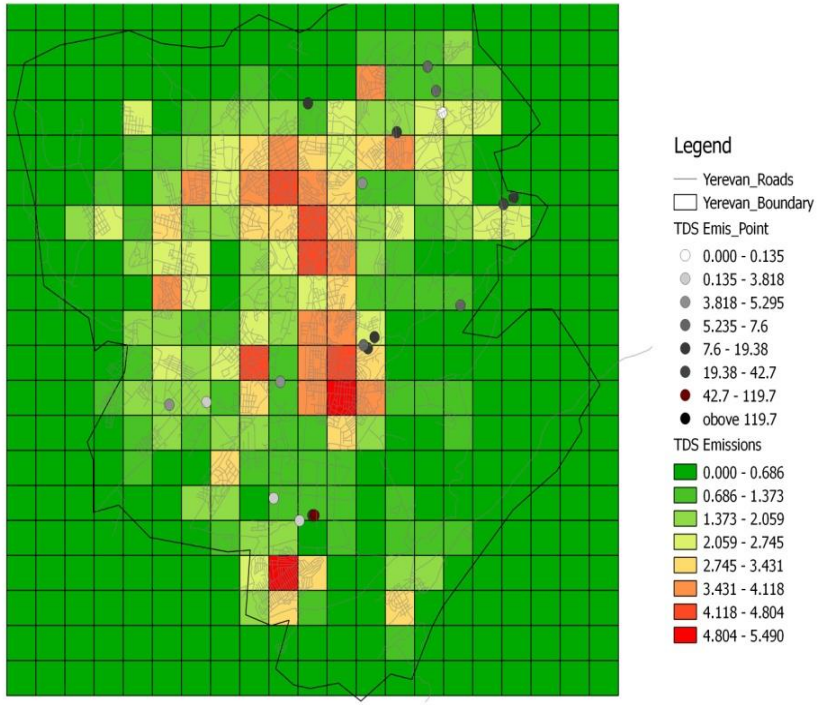


- ***experience with THOR-AirPas system***
  - ✓ *whole grid UBM simulation for Yerevan city*

TSP conc., µg/m3, Yerevan, 2012

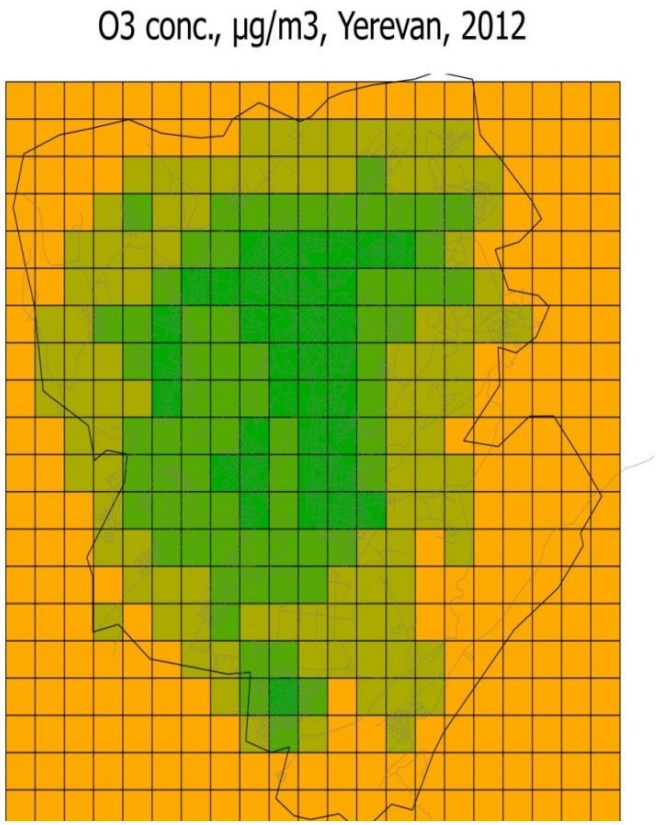


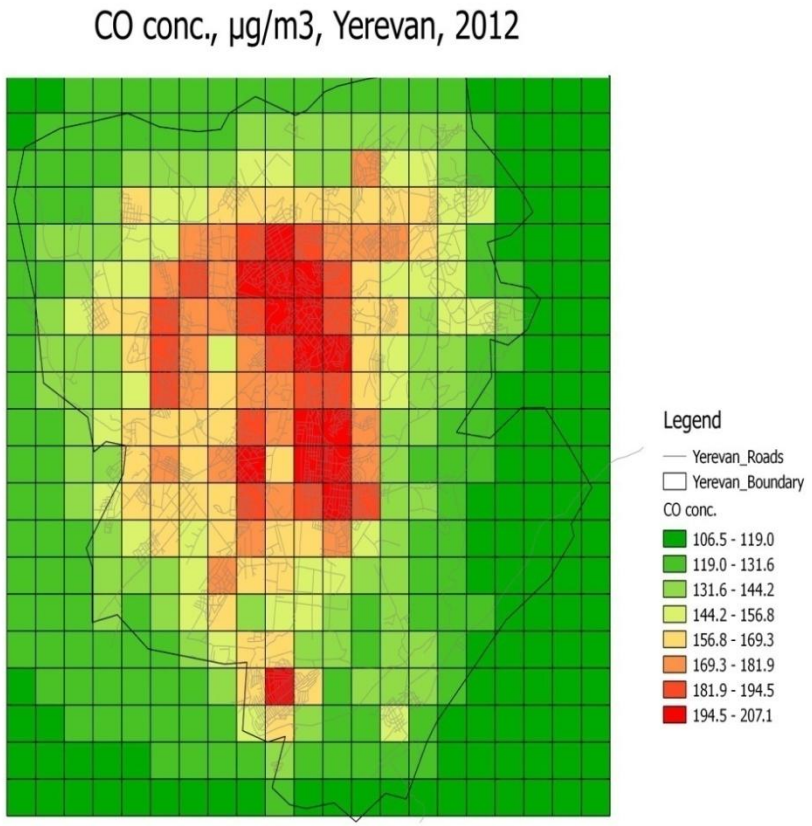
TSP emissions, Yerevan
tons/km2/year



•*experience with THOR-AirPas system*

✓ *whole grid UBM simulation for Yerevan city*

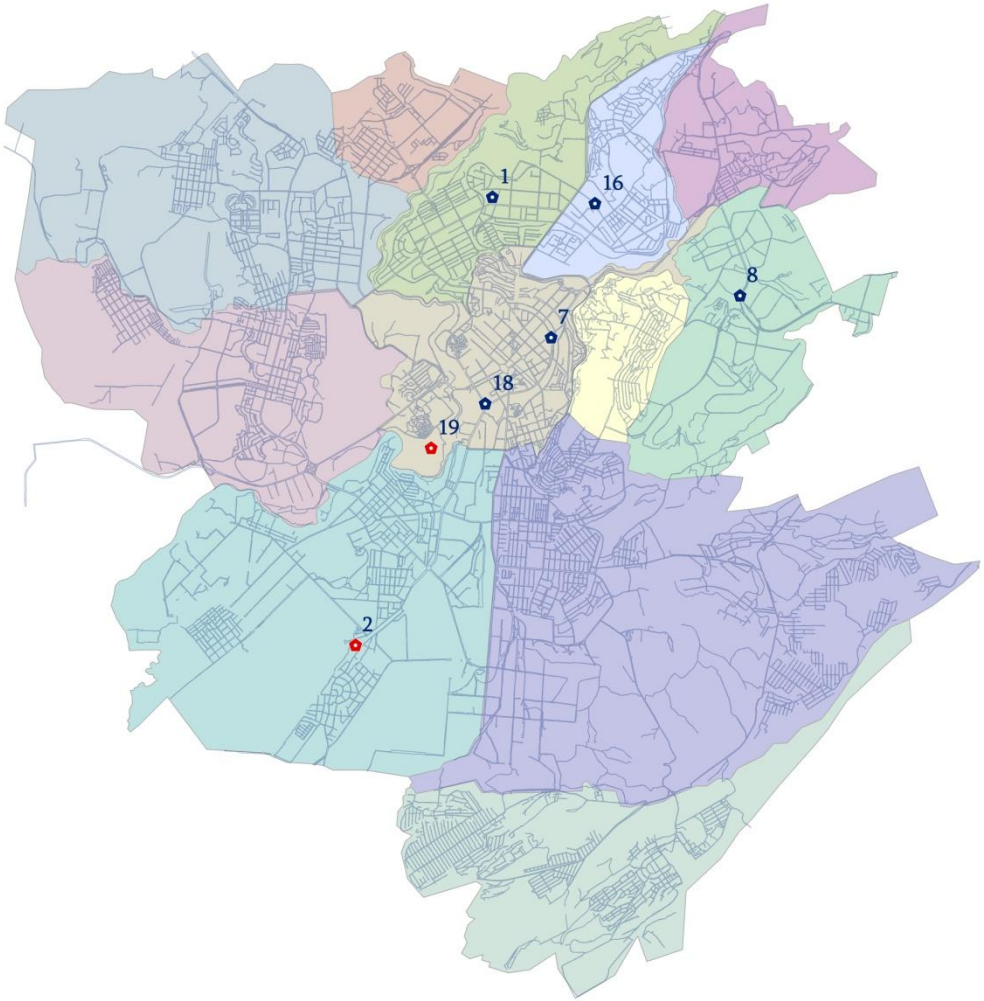




- ***experience with THOR-AirPas system***
  - ✓ *UBM simulation for 2 background stations in Yerevan*

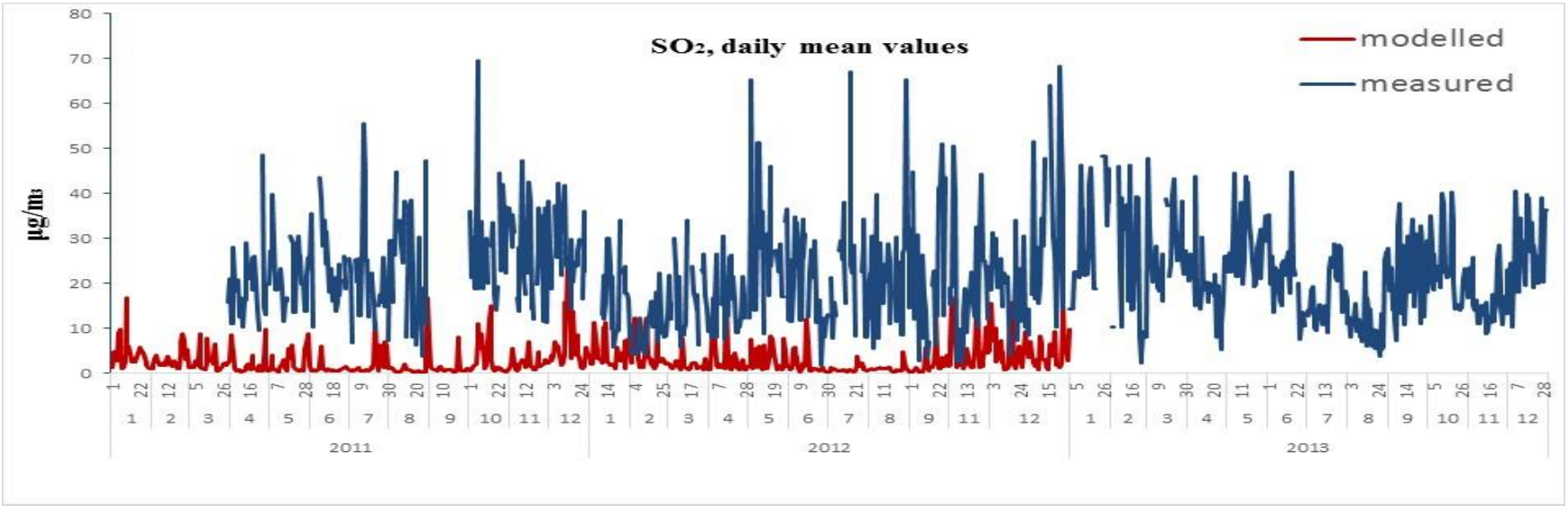
7 monitoring stations in Yerevan

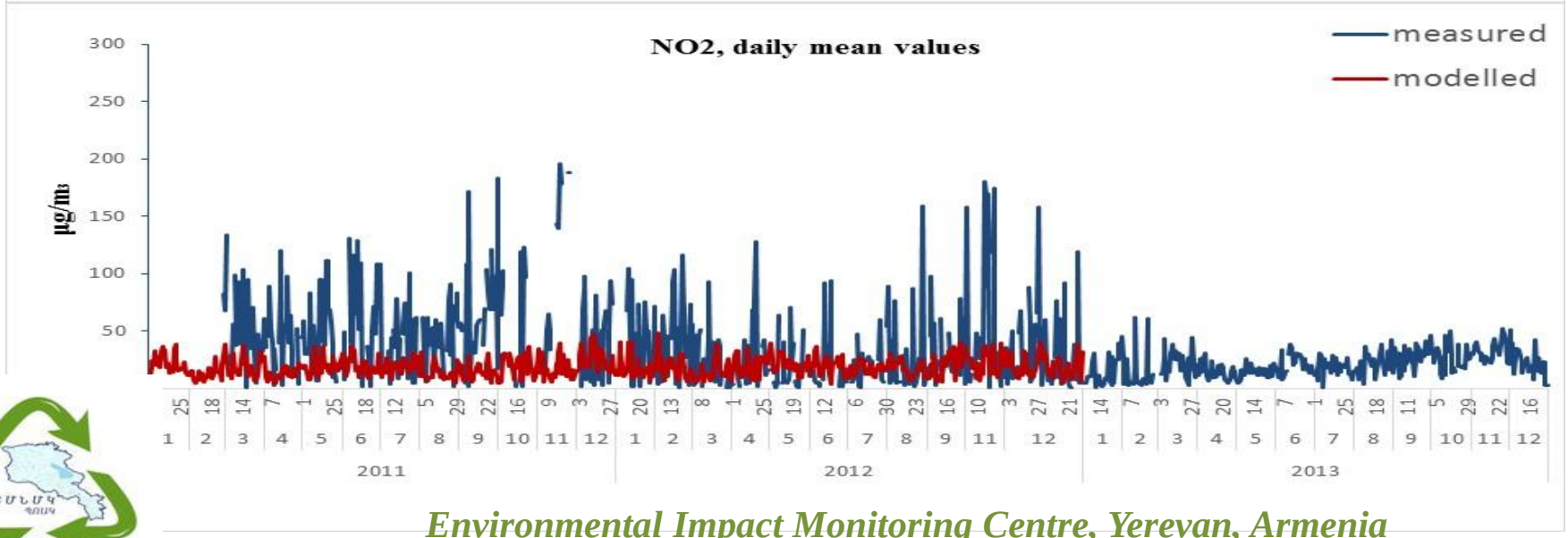
***2** and **19** urban background stations*



•experience with THOR-AirPas system

✓ *UBM simulation for 2 background stations in Yerevan*





✓ *OSPM simulation*

results for receptor1

Street: Komitas

Calculated on: 19/09/2014 11:31:54

Average Daily Traffic: 25400 (Calculated: 25386); Default Traffic Type C.tif

Emission Scenario Year: 2013

Period Covered (User provided Meteorological Data): 01. January 2009 00:00 - 31. December 2009 23:00

Urban Background: User provided

User Comments

Receptor 1; z = 2 m

Page 1	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	53.01	120.93	147.30	100.00						
Background	23.43	96.82	117.85	100.00						
Benzene (µg/m³)										
Street Modelled	1.58			100.00						
Background	0.75			100.00						
O3 (µg/m³)										
Street Modelled					94.83	79.82	100.00			
Background					111.04	100.85	100.00			

✓ *OSPM simulation*

results for receptor 2

Street: Komitas — Calculated on: 19/09/2014 11:31:54
Average Daily Traffic: 25400 (Calculated: 25386); Default Traffic Type_C.trf
Emission Scenario Year: 2013
Period Covered (User provided Meteorological Data): 01. January 2009 00:00 - 31. December 2009 23:00
Urban Background: User provided
User Comments

Receptor 2; z = 2 m

Page 2	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 Modeled	55.10	125.77	150.64	100.00						
Background	23.43	96.82	117.85	100.00						
Benzene (µg/m³)										
Street Modeled	1.66			100.00						
Background	0.75			100.00						
O3 (µg/m³)										
Street Modeled					93.90	77.69	100.00			
Background					111.04	100.85	100.00			
CO (mg/m³)										

- ***future plans***

➢setup the modelling system for other cities in Armenia

➢forecast street level pollution, particularly where measurement stations do not exist

➢use the model in combination with measurements for integrated air quality monitoring and assessment

- ***how to achieve***

➢collect information about emissions and other required input data

➢set up spatial distributions

➢run UBM and OSPM simulations

➢output visualisation by using GIS software

➢support from experts will be needed !!!


Thank you for your attention !!