

Version :

# **copert** street level

MANAGING STREET EMISSIONS



Software presentation



# Software characteristics

- COPERT hot emission calculation methodology
- Predefined fleet composition for EU countries
  
- User input data file
- Fast execution
  
- Stand alone software application
- Works alongside traffic analysis tools eg PTV Visum, Aimsun macro, SUMO, Emme



# COPERT vs COPERT Street Level

	COPERT	COPERT street level
Minimum temporal level	Year	Hour
Minimum spatial level	City	Small road
GIS visualization	No	Yes
Emissions covered	Regulated and Non Regulated pollutants, GHG	CO, CO <sub>2</sub> , NO <sub>x</sub> , PM, VOC
Energy consumption calculation	Yes	No
Automated scenario execution	No	Yes
Advanced input data	No	Yes

# Input data

## ➤ Vehicle volume

- no of vehicles
- PCU (Passenger Car Unit)

## ➤ Road segment length

## ➤ Average road segment vehicle speed

## Optional

- GIS information
- Road segment category
- Time (hourly information)



# Output data

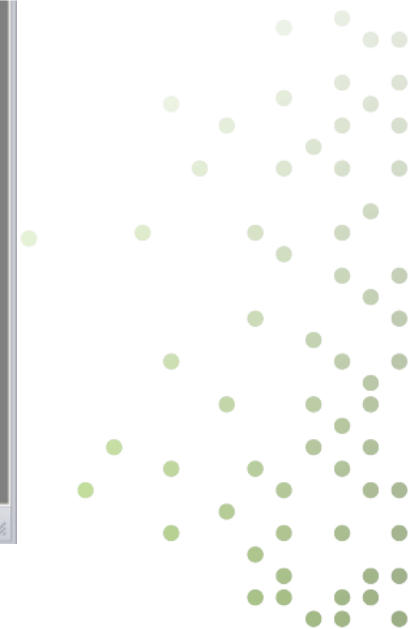
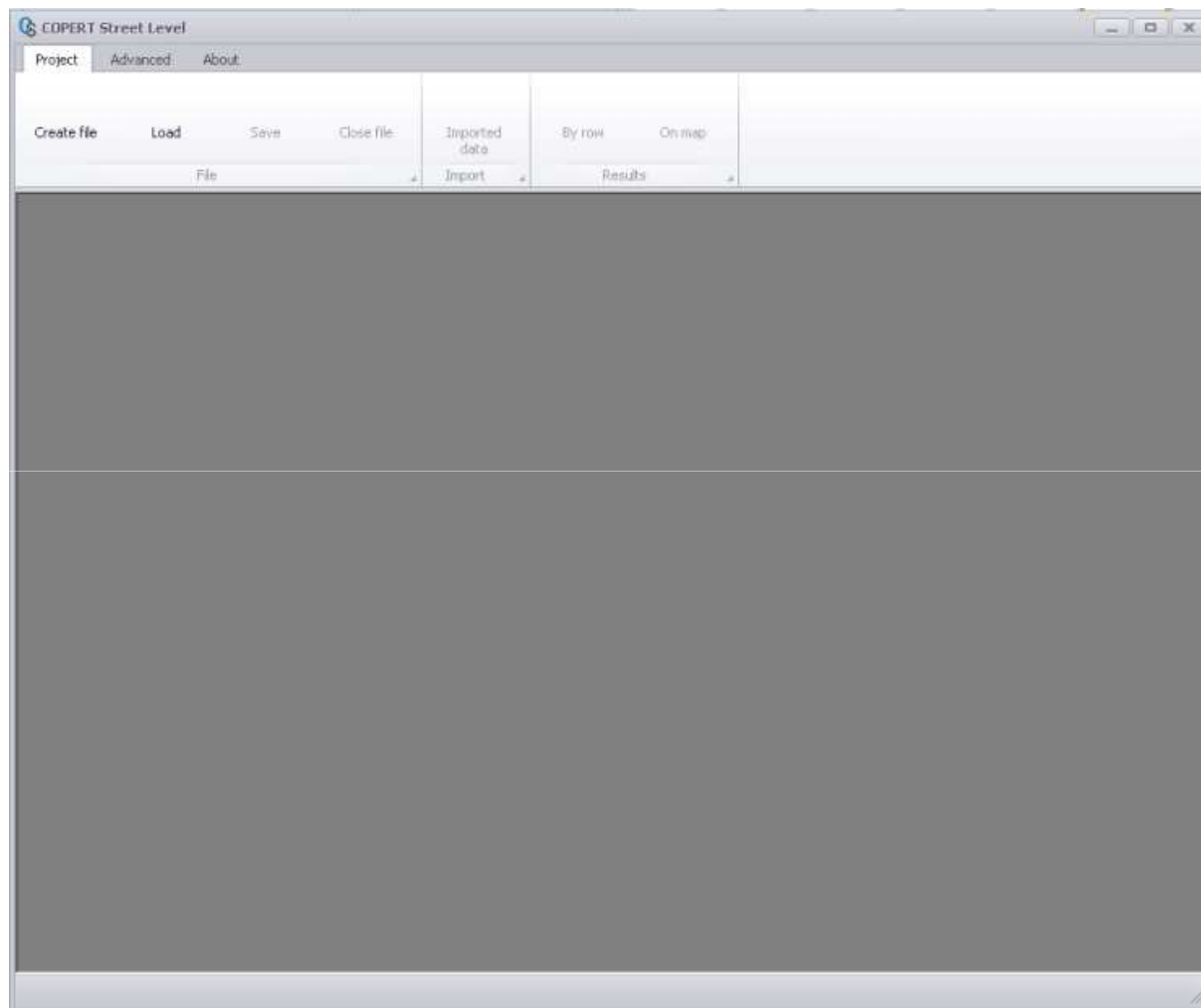
Pollutants covered:

CO, CO<sub>2</sub>, NO<sub>x</sub>, PM, VOC

- Emissions per segment (default)
- Emissions per segment and hour (optional)
- Emissions on a GIS map (optional)



# Main window



# Scenario creation

Load output file

Project name   One file per hour

Input path

Baseline Country  Year  Sheet name

**Basic columns**

Link ID	Speed	Link Length	Vehicle Volume	<input type="checkbox"/> Type column	<input type="checkbox"/> Hour column
<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>

GIS columns

Start Lat	Start Lon	End Lat	End Lon	<input type="checkbox"/> Node columns
<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	From node <input type="text" value="-"/> To node <input type="text" value="-"/>



# Input file sample

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5	\$LINK:NO	LENGTH	VOLVEHPRT(AP)	VCUR_PRTSYS(C)	Hour	Link Type	start_x	start_y	end_x	end_y
6	1	42	320	32	23:00	1	2564183.5	4951336.89	2564285.11	4951386.25
7	1	42	558	15	23:00	2	2556750.04	4952288.23	2556779.65	4952160.79
8	2	113	558	15	23:00	4	2567049.61	4911556.61	2567059.52	4911699.26
9	2	113	320	32	23:00	2	2567032.28	4911267.53	2567040.21	4911409.72
10	3	880	401	25	23:00	4	2567024.51	4911139.85	2567032.28	4911267.53
11	3	880	421	24	23:00	2	2567040.21	4911409.72	2567049.61	4911556.61
12	4	320	840	7	23:00	3	2567059.52	4911699.26	2567068.11	4911842.58
13	4	320	832	7	23:00	1	2565635.88	4952913.43	2566005.9	4953419.48
14	5	580	430	23	23:00	2	2566005.9	4953419.48	2566201.77	4953267.56
15	5	580	419	24	23:00	2	2555180.82	4949501.37	2555301.18	4949406.27
16	6	590	5653	37	23:00	3	2555301.18	4949406.27	2555327.09	4949370.08
17	6	590	0	0	23:00	1	2555327.09	4949370.08	2555364.67	4949317.59
18	7	811	3899	87	23:00	4	2561548.71	4949979.71	2561619.42	4950098.19
19	7	811	0	0	23:00	2	2561394.89	4949840.22	2561456.94	4949878.54
20	8	350	1760	6	23:00	2	2561456.94	4949878.54	2561548.71	4949979.71
21	8	350	833	24	23:00	3	2554896.37	4958841.76	2554857.89	4958779.09





# Input data

View import data

Delete	Row	Link ID	Speed	Length	Volume	Lat 1	Lat 2	Lng 1	Lng 2	
<input type="checkbox"/>	6	1	32.0	0.0	320	2564183.50074	4951336.88546	2564285.11317	4951386.25405	
<input type="checkbox"/>	7	1	15.0	0.0	558	2556750.04155	4952288.22729	2556779.65254	4952160.79294	
<input type="checkbox"/>	8	2	15.0	0.1	558	2567049.61027	4911556.60835	2567059.51771	4911699.25526	
<input type="checkbox"/>	9	2	32.0	0.1	320	2567032.27783	4911267.52513	2567040.21491	4911409.71530	
<input type="checkbox"/>	10	3	25.0	0.9	401	2567024.50773	4911139.84771	2567032.27783	4911267.52513	
<input type="checkbox"/>	11	3	24.0	0.9	421	2567040.21491	4911409.71530	2567049.61027	4911556.60835	
<input type="checkbox"/>	12	4	7.0	0.3	840	2567059.51771	4911699.25526	2567068.11157	4911842.57580	
<input type="checkbox"/>	13	4	7.0	0.3	832	2565635.87500	4952913.43166	2566005.90099	4953419.47955	
<input type="checkbox"/>	14	5	23.0	0.6	430	2566005.90099	4953419.47955	2566201.76763	4953267.56127	
<input type="checkbox"/>	15	5	24.0	0.6	419	2555180.81522	4949501.36547	2555301.18498	4949406.26736	
<input type="checkbox"/>	16	6	37.0	0.6	5653	2555301.18498	4949406.26736	2555327.08903	4949370.08372	
<input type="checkbox"/>	17	6	0.0	0.6	0	2555327.08903	4949370.08372	2555364.67049	4949317.58910	
<input type="checkbox"/>	18	7	87.0	0.8	3899	2561548.71311	4949979.71313	2561619.42325	4950098.19349	
<input type="checkbox"/>	19	7	0.0	0.8	0	2561394.89183	4949840.21769	2561456.94132	4949878.54283	
<input type="checkbox"/>	20	8	6.0	0.4	1760	2561456.94132	4949878.54283	2561548.71311	4949979.71313	
<input type="checkbox"/>	21	8	24.0	0.4	833	2554896.37166	4958841.75635	2554857.88851	4958779.08919	
<input type="checkbox"/>	22	9	10.0	0.6	1386	2554857.88851	4958779.08919	2554795.36035	4958691.47026	
<input type="checkbox"/>	23	9	42.0	0.6	816	2554933.12935	4958900.08176	2554896.37166	4958841.75635	
<input type="checkbox"/>	24	10	46.0	0.1	634	2550538.20246	4964429.38558	2550430.50085	4964430.14882	
<input type="checkbox"/>	25	10	0.0	0.1	0	2568709.86255	4943104.31017	2568559.84841	4943138.69856	

00:00 - 01:00

Check all

Uncheck all

Delete selected

Cancel

Save

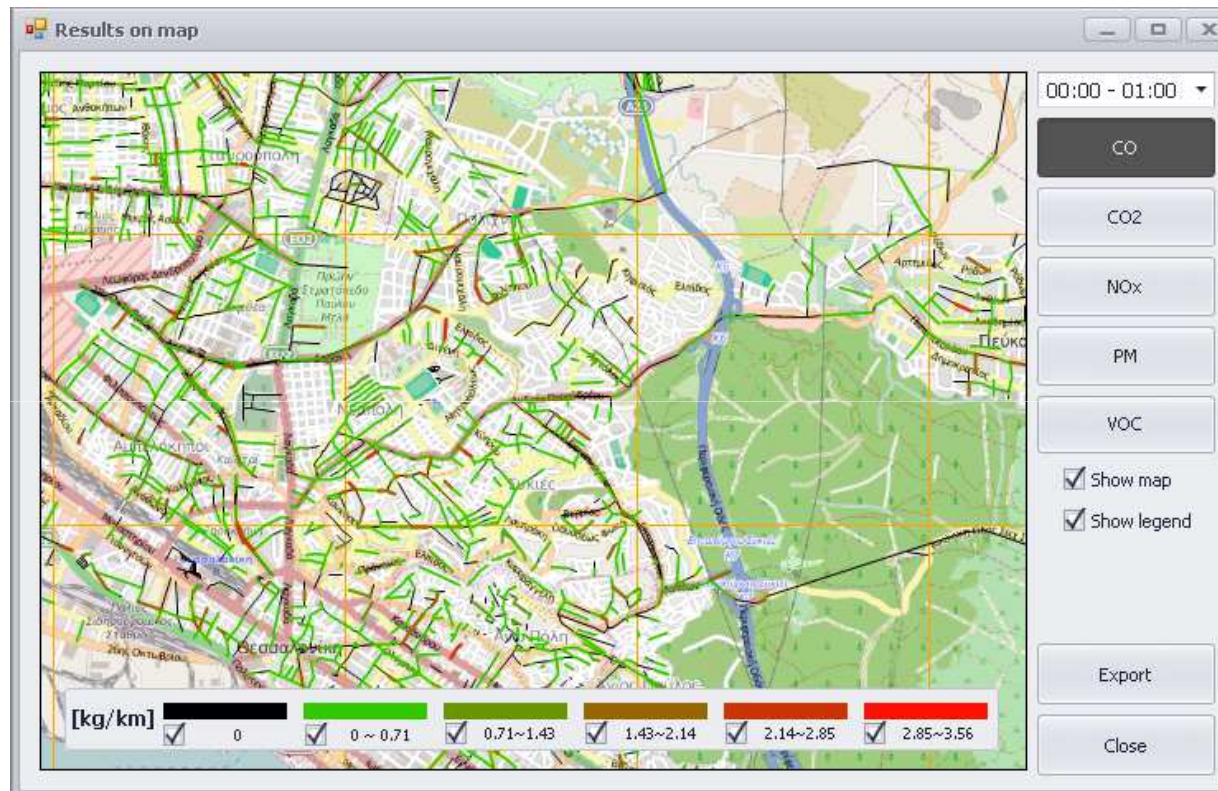


# Results

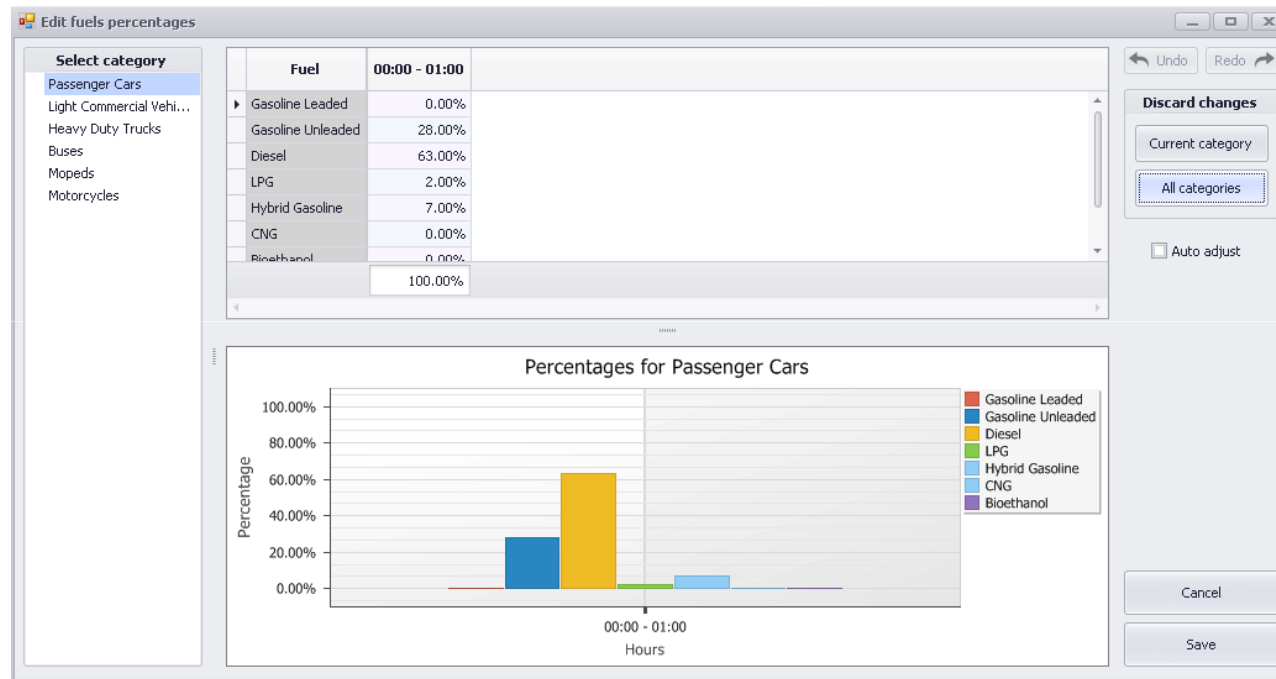
View results

Row	Link ID	Speed [km/h]	Length [km]	Volume [veh]	00:00 - 01:00 [g]	
6	1	32.0	42.0	320.0	4,755.32	CO
7	1	15.0	42.0	558.0	9,835.45	CO2
8	2	15.0	113.0	558.0	26,462.05	NOx
9	2	32.0	113.0	320.0	12,794.08	PM
10	3	25.0	880.0	401.0	134,712.15	VOC
11	3	24.0	880.0	421.0	143,492.85	
12	4	7.0	320.0	840.0	116,119.98	
13	4	7.0	320.0	832.0	115,014.08	
14	5	23.0	580.0	430.0	98,101.74	
15	5	24.0	580.0	419.0	94,125.55	
16	6	37.0	590.0	5,653.0	1,143,998.51	
17	6	0.0	590.0	0.0	0.00	
18	7	87.0	811.0	3,899.0	1,384,232.49	
19	7	0.0	811.0	0.0	0.00	
20	8	6.0	350.0	1,760.0	267,165.79	
21	8	24.0	350.0	833.0	112,921.99	
22	9	10.0	570.0	1,386.0	338,007.57	
23	9	42.0	570.0	816.0	157,012.94	
24	10	46.0	100.0	634.0	21,316.11	Export
25	10	0.0	100.0	0.0	0.00	Close

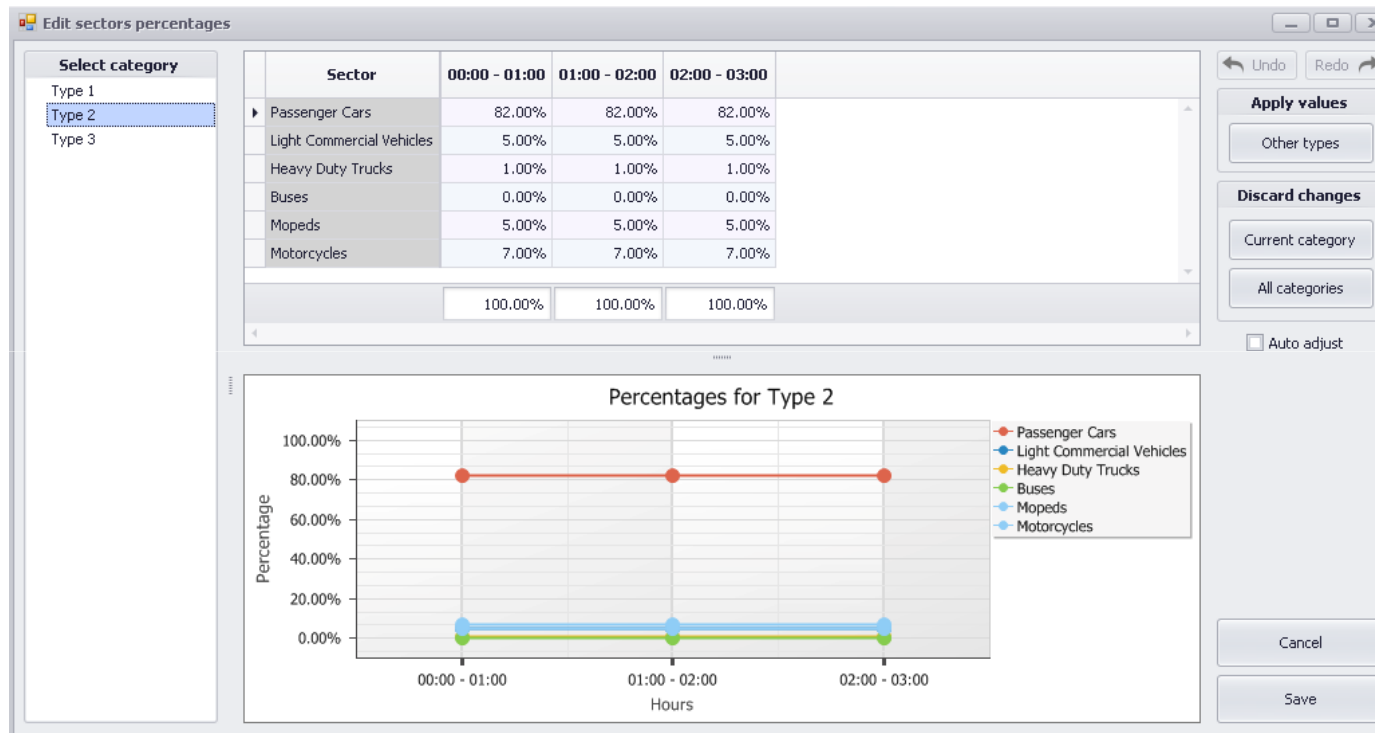
# Emissions map



# Fleet composition per fuel type



# Fleet composition per vehicle category



# Online presentation

<https://www.youtube.com/watch?v=OCs4UJAzIBI>

