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Structural Funds
2007 - 2013



ENVIROBANAT
Common History, Common Future

CERC-ADMS air dispersion software's. Possibilities and case studies for Banat area

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ENVIROBANAT CONFERENCE

28 - 29 May 2014, Timisoara, Romania

In the frame of the project

Sustainable development of an research center in Banat region and Danube flow area through scientific research and environmental simulation tools to asses and evaluate potential threats

www.envirobanat.ro

ADMS 5

World leading software for modelling industrial air pollution

ADMS 5 is a dispersion model used to model the air quality impact of existing and proposed industrial installations. Current and future air quality can be assessed with respect to the air quality standards such as the EU Air Quality Directive and WHO guidelines.

Typical applications include:

- ✓ permitting/IPPC authorizations,
- ✓ stack height determination,
- ✓ odour modelling,
- ✓ environmental impact assessments and
- ✓ safety and emergency planning.

Why choice of ADMS 5?

ADMS 5 is a new generation Gaussian plume air dispersion model, which means that the atmospheric boundary layer properties are characterized by two parameters:

- ✓ the boundary layer depth, and
- ✓ the Monin-Obukhov length

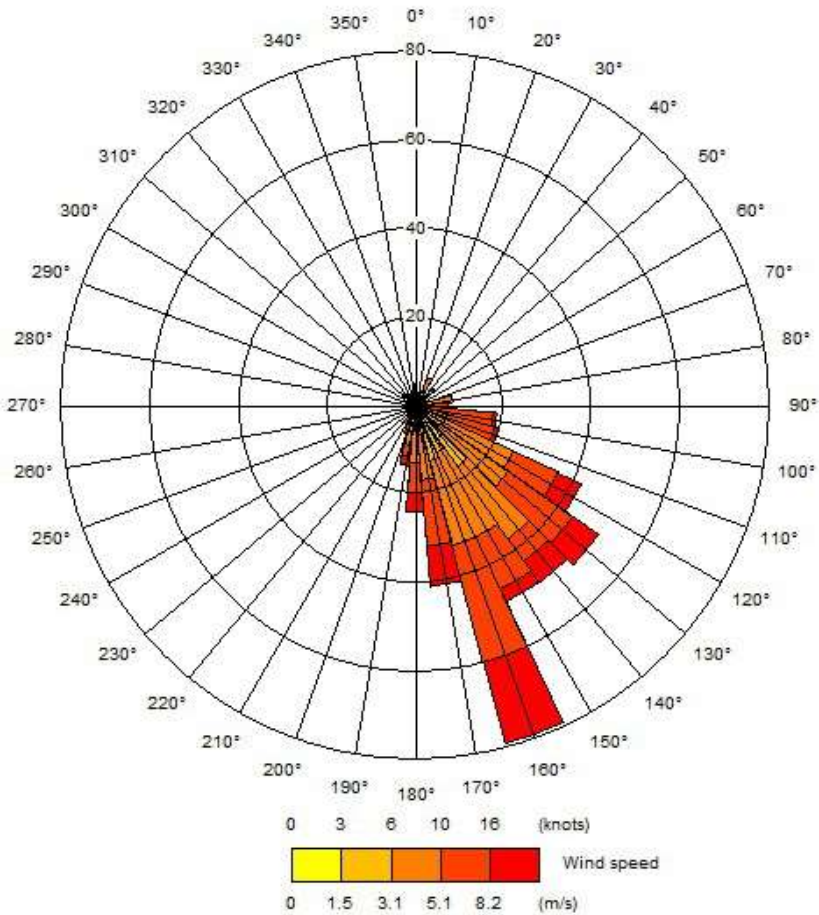
(rather than in terms of the single parameter Pasquill-Gifford class)

	ADMS 5	AERMOD
Meteorology		
Meteorological pre-processor	✓	✓
Dispersion		
Boundary-layer structure	h , L_{MO} scaling	h , L_{MO} scaling
Plume rise	Advanced integral model	Briggs empirical expressions
Concentration distribution	Advanced Gaussian	Advanced Gaussian
Complex effects		
Buildings	ADMS buildings module ¹	PRIME buildings module ¹
Complex terrain	Based on calculation of flow field and turbulence field by FLOWSTAR model	Interpretation between identified representation of plume flow displacement over terrain (neutral), plume inspection (stable)
Deposition (wet and dry)	✓	✓
Chemistry	Reaction of NO with O ₃ , photolysis of NO ₂ , amine chemistry ²	Ozone limiting or plume volume molar ratio models
Other options		
Modelling the effect of wind turbines on dispersion	✓	✗
Concentration fluctuations	✓	✗
Visible plumes	Condensed plume visibility	✗
Temperature and humidity	In-plume temperature and humidity output	✗
Radioactivity	Radioactive decay / γ -ray dose; decay chain database	Simple decay
Puff model	✓	✗
Coastline module	✓	✗
Marine boundary layer	✓	✗
Input of vertical profiles of meteorological data	✓	✓

Why choice of ADMS 5?

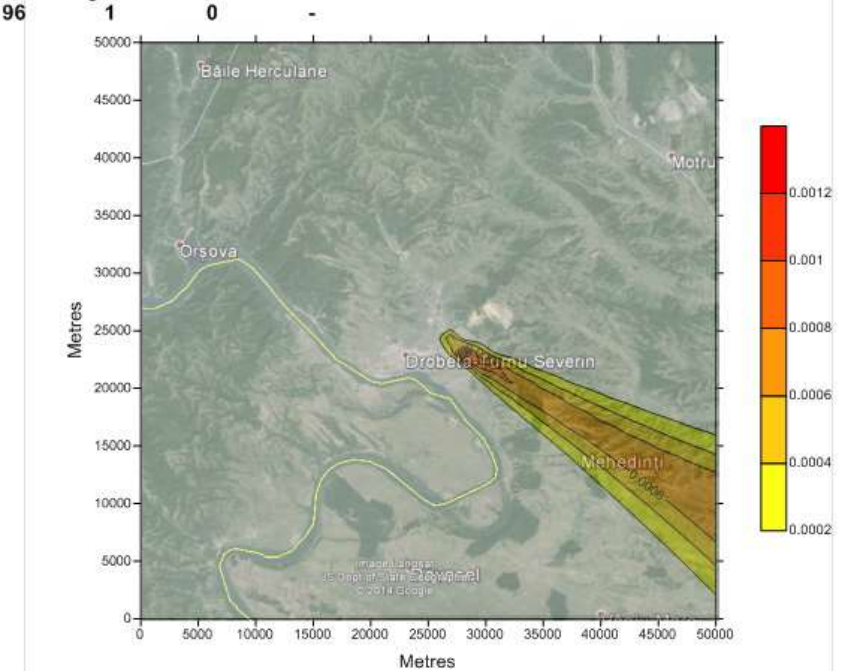
ADMS features contrasted with US-EPA model AERMOD

ADMS5 case study.



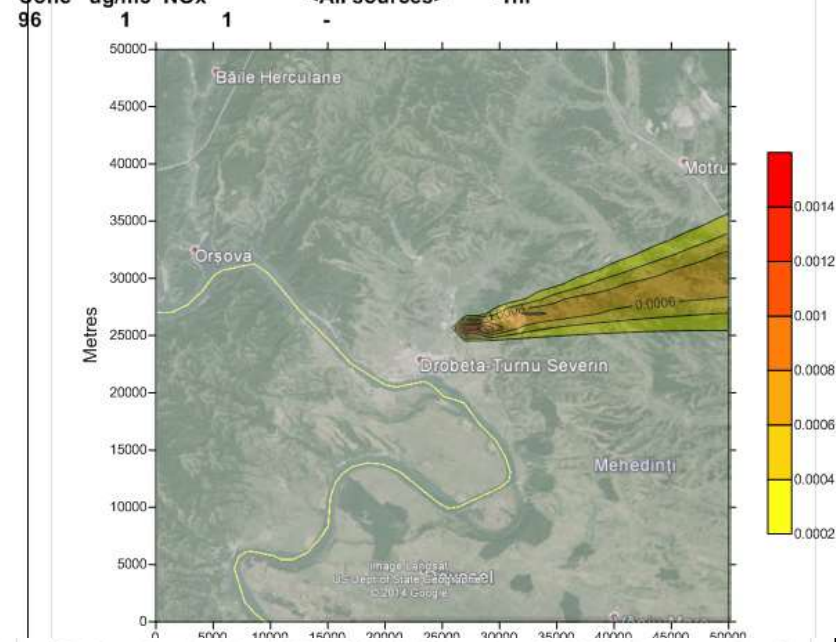
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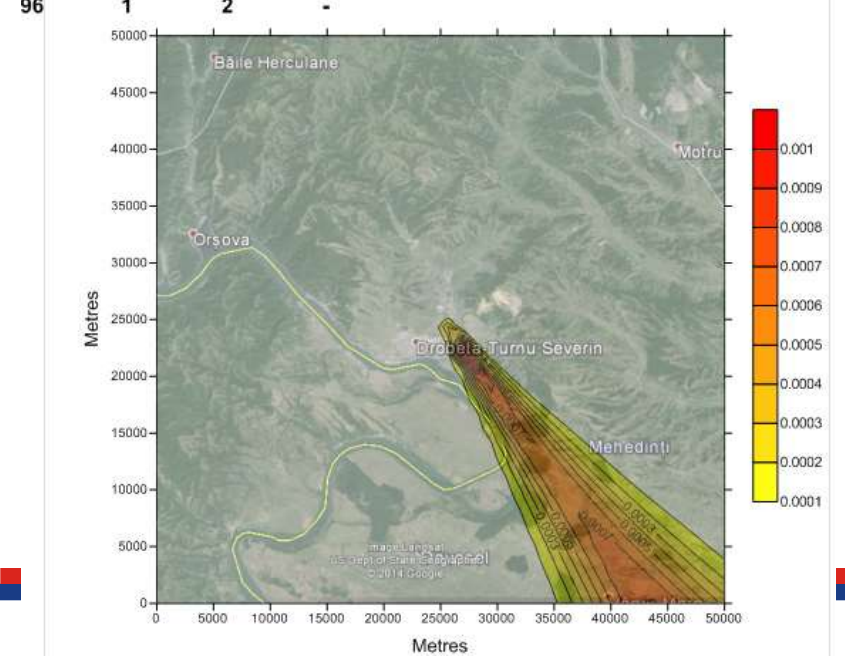
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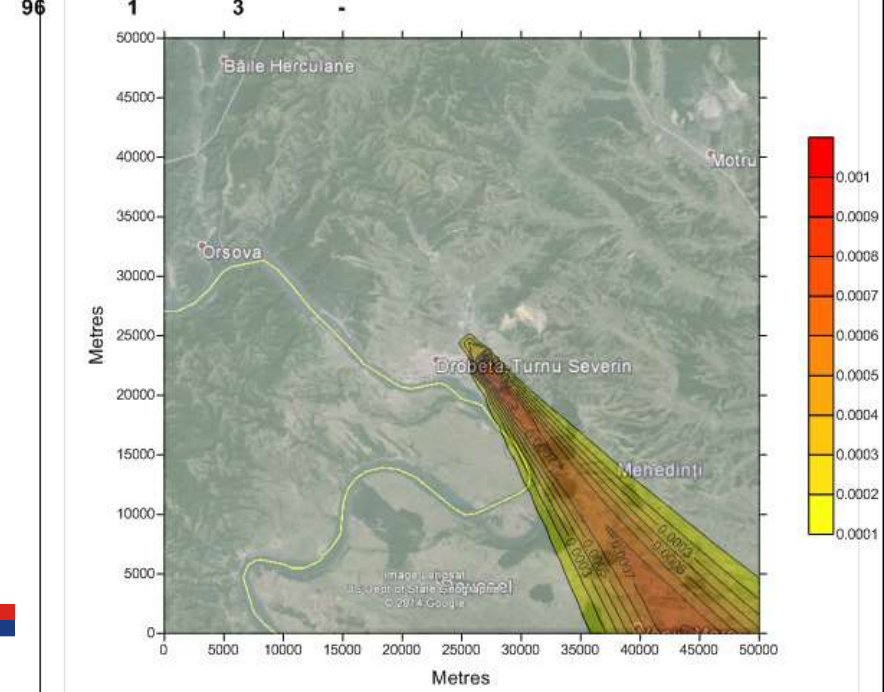
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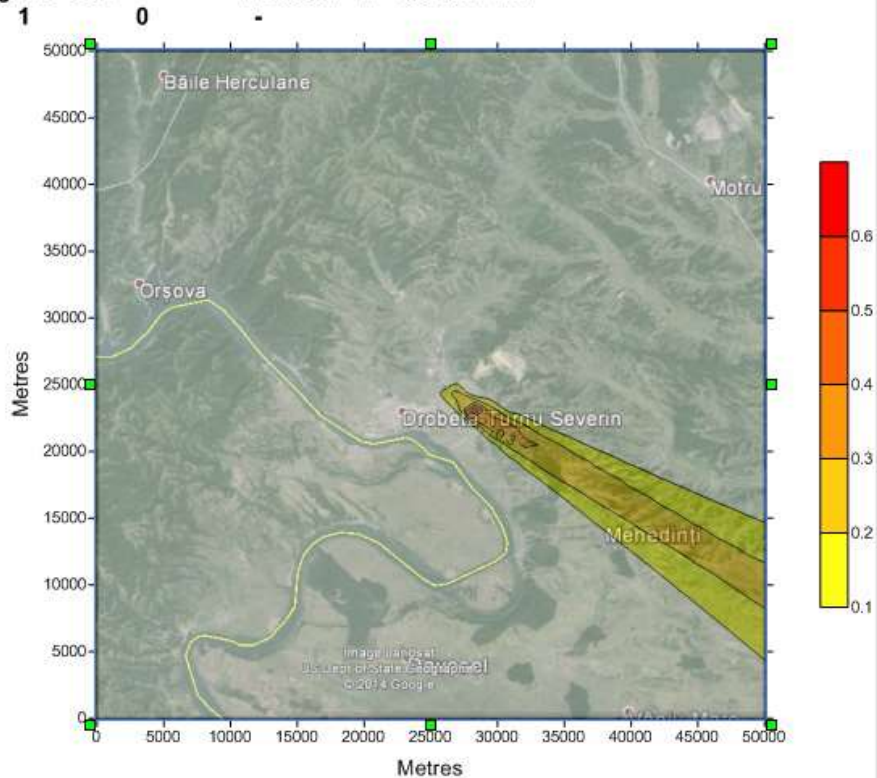
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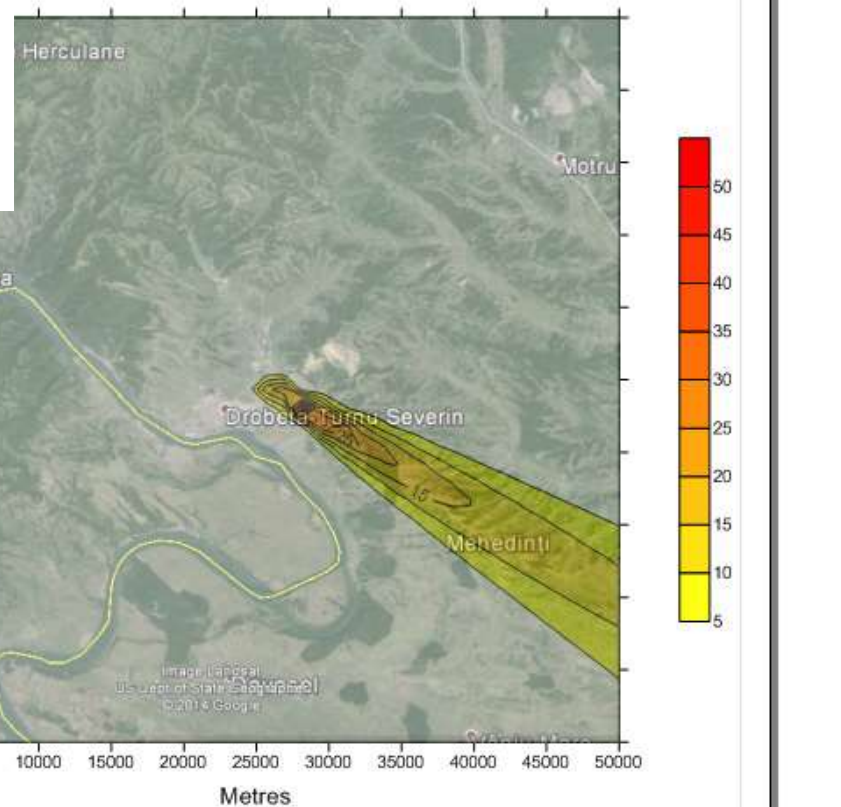
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More data are available to download from
envirobanat.ro/Database.php



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