

Laboratoire Image Ville Environnement

UMR7362, CNRS, Université de Strasbourg

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Contributors: EPAC team and other LIVE members



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earth system sciences (SOFIE)
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CCTV2



A territory with a social, cultural, economical and political context ...



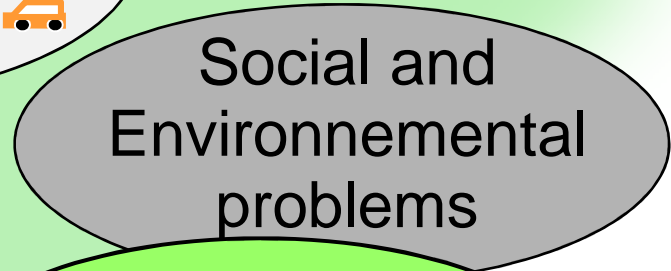
Description/modelling of this territory



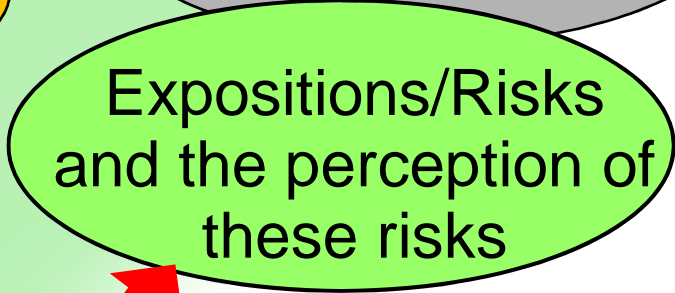
Description/modelling of daily and residential mobility



Description/modelling of physical/chemical processes involved in the risk for the ecosiosystems due to human activities.



Description/modelling of the risks, perception of risks

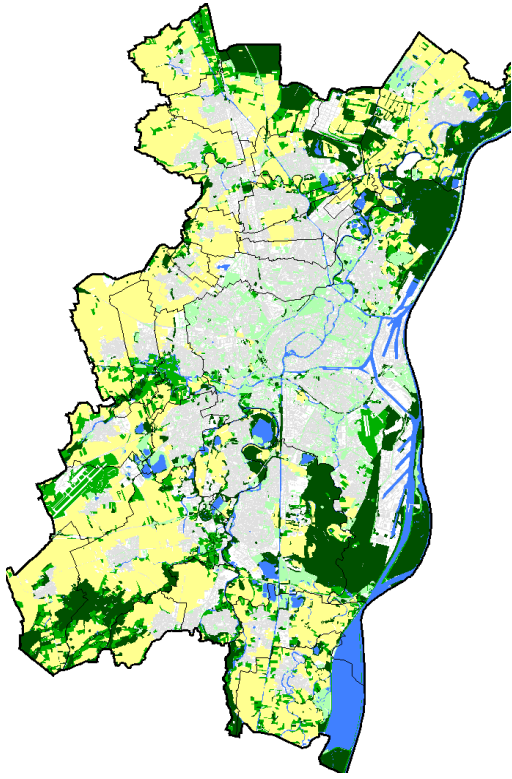


Description of decisional processes and individual behaviors

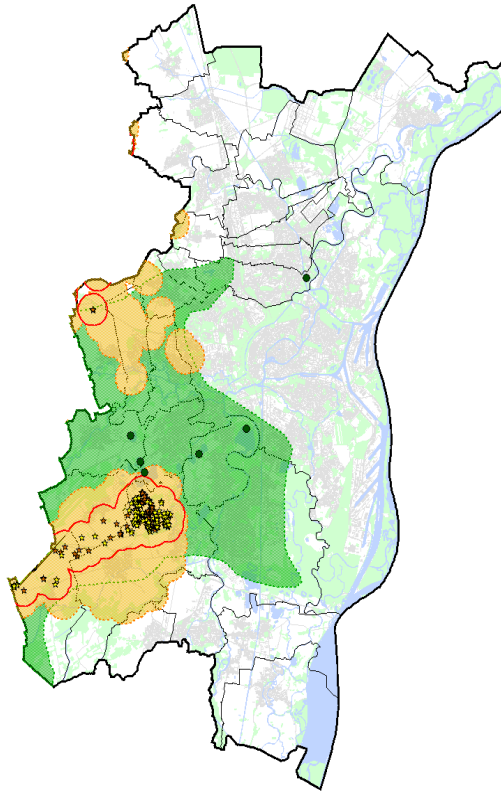
Political decisions/individual behaviors



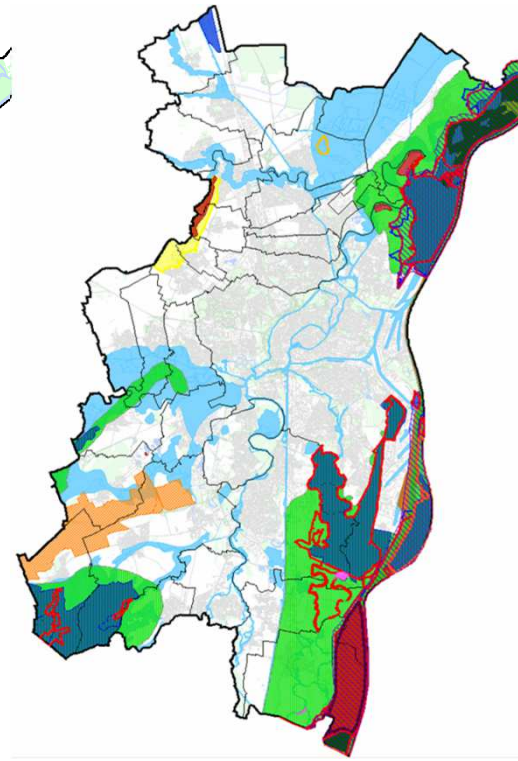
A common question



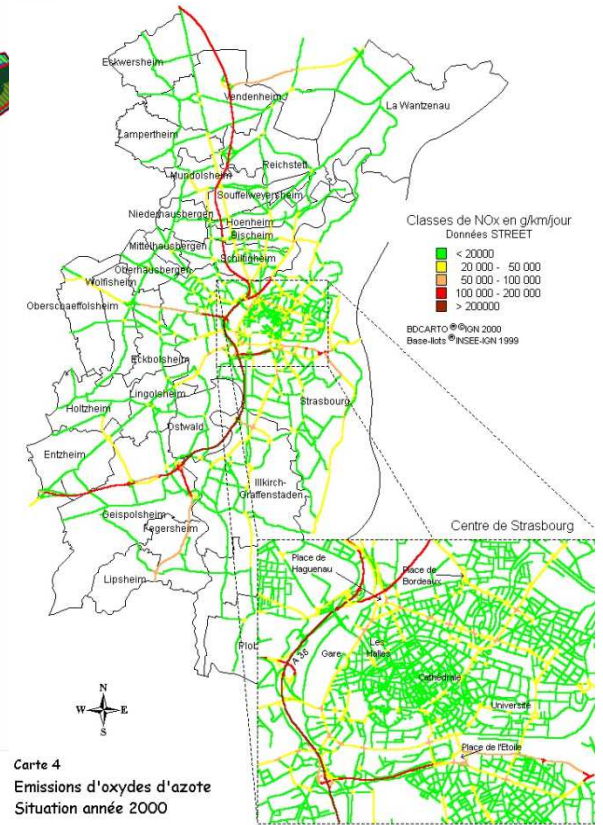
An initial structure



Protected species living in this structure



Protected zones or protection norms



Carte 4
Emissions d'oxydes d'azote
Situation année 2000

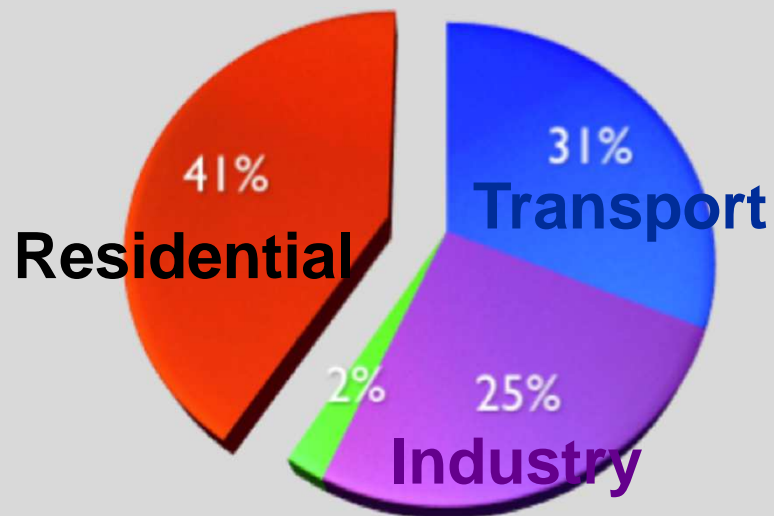
Air pollutant emissions

How to organize urban areas to reduce our impact on resources, reduce social and environmental problems, risk exposure, respect protection norms, costs of impacts, costs of implementation of new strategies?

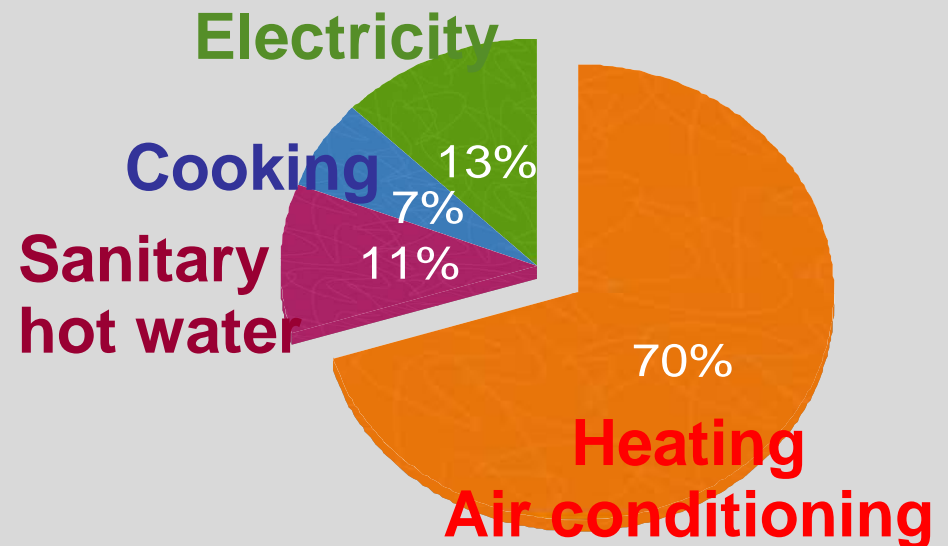
Urban areas and energy consumption

- 49% of global population is living in cities (2005) → 60% in 2030
- 60-80% of worldwide energy production is consumed in cities

Energy consumption/sector



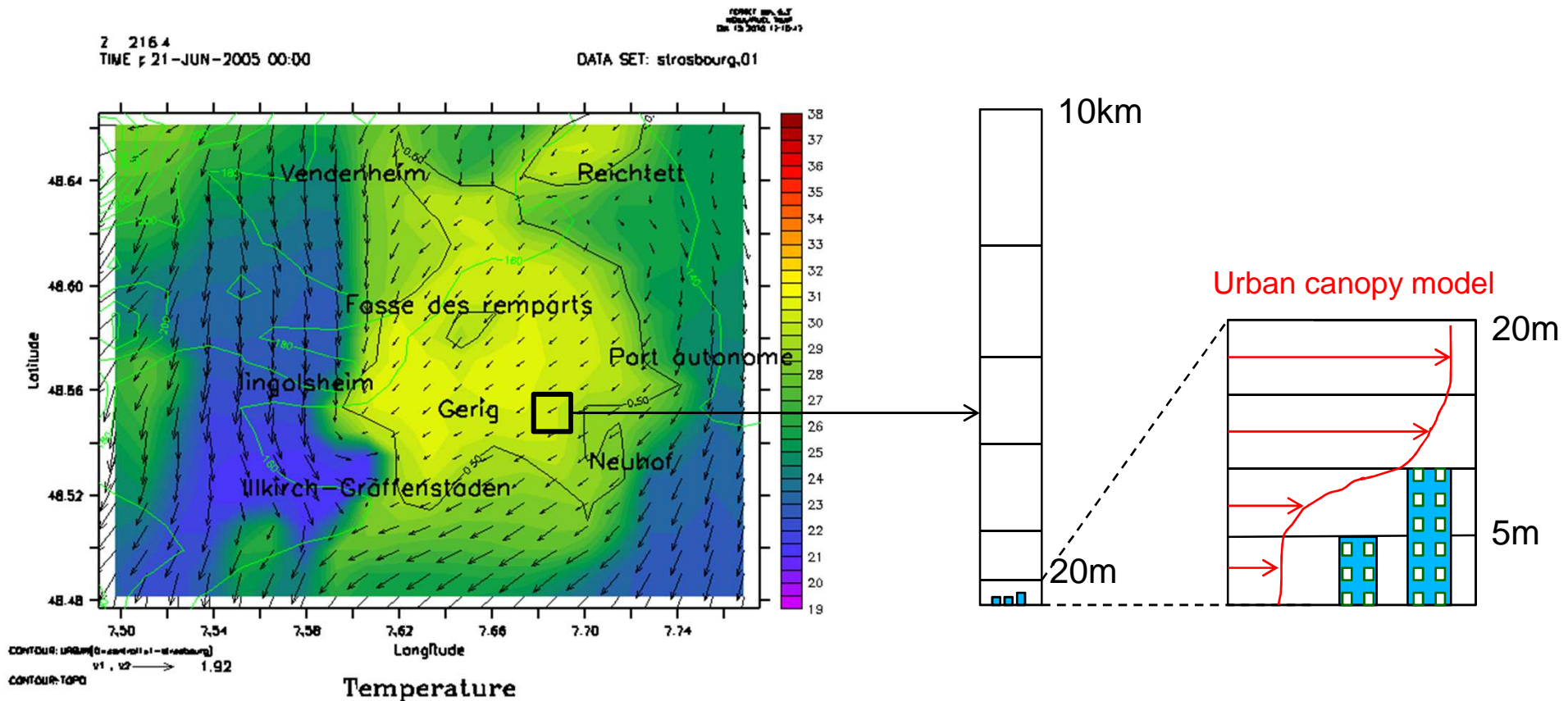
Energy use inside buildings



Energy consumption leads to local and global air pollution
Residential sector is responsible of 21% of GHG emissions

Team Energy Air pollution and Climate

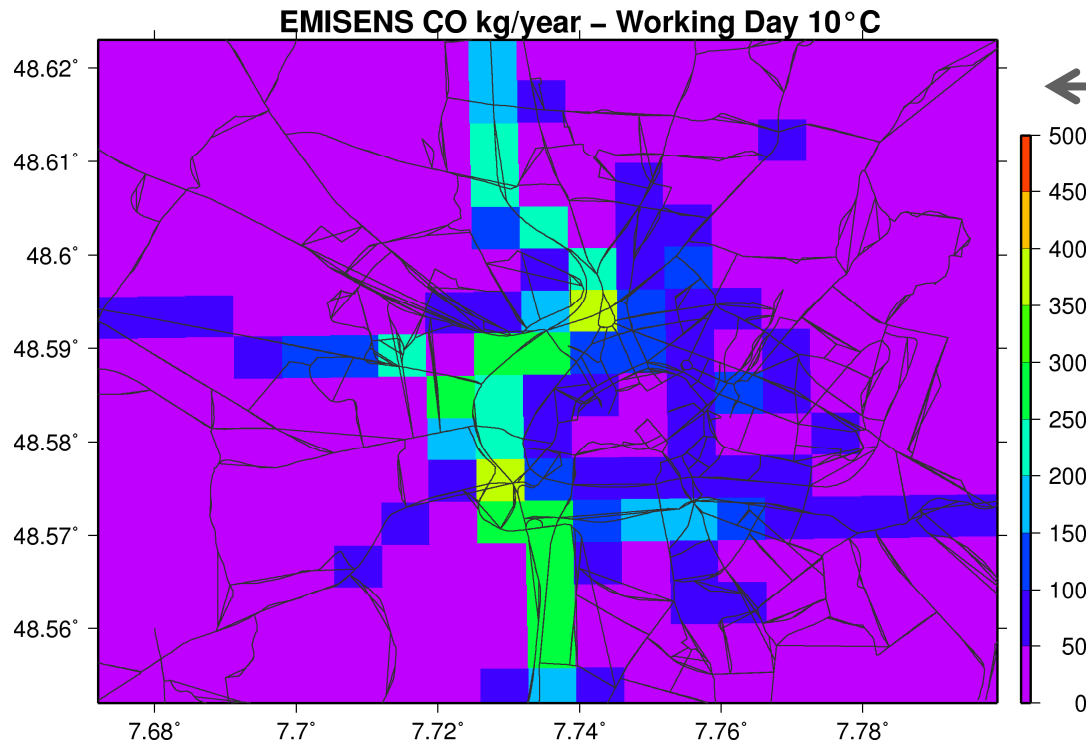
Urban meteorology and building energy consumption



Development of a multiscale model to compute building energy consumption

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Road traffic emissions



Development of EMISENS,
a model to compute road-
traffic emissions

Development of a methodology
to estimate emission factors per
vehicle category





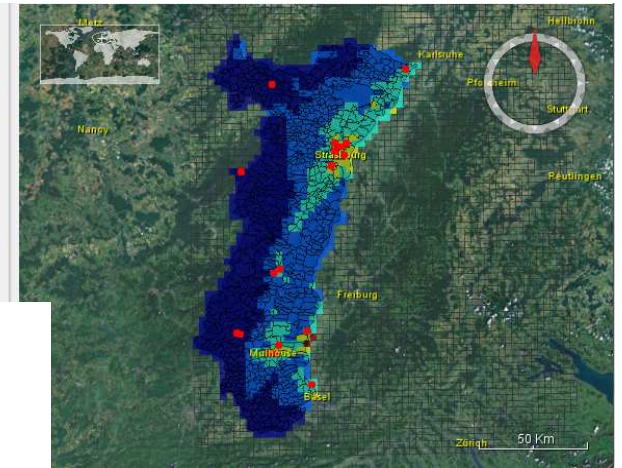
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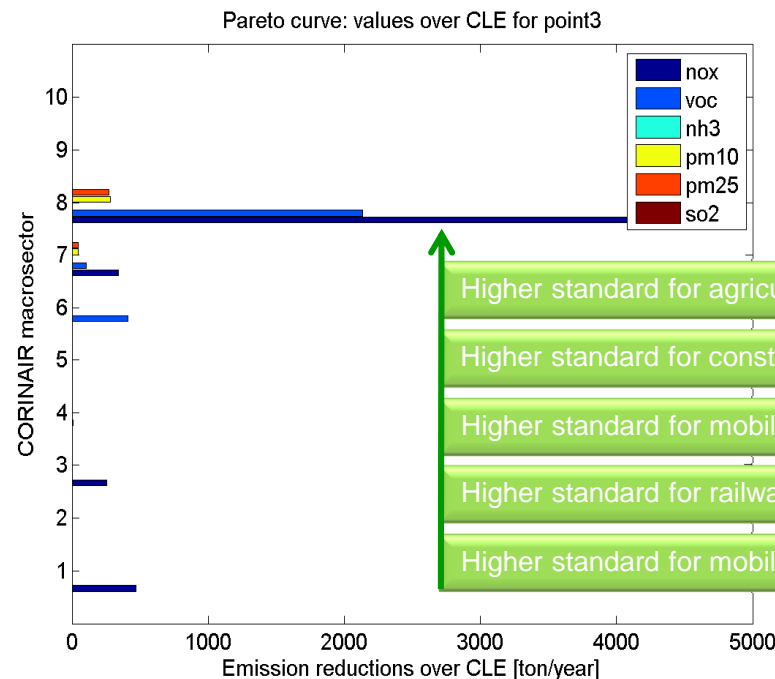
Air quality planning using Integrated Assessment methodologies

OPERA project (www.operatool.eu):
Development of RIAT+ for cost-effective optimization of air quality plans

- 10 Agriculture and forests
- 9 Waste treatment and disposal
- 8 Other mobile sources
- 7 Road transport
- 6 Solvent and other product use
- 5 Extraction and distribution of fossil fuels
- 4 Production processes
- 3 Combustion in manufacturing industry
- 2 Combustion in agriculture and the third sector
- 1 Combustion in energy and transformation industries



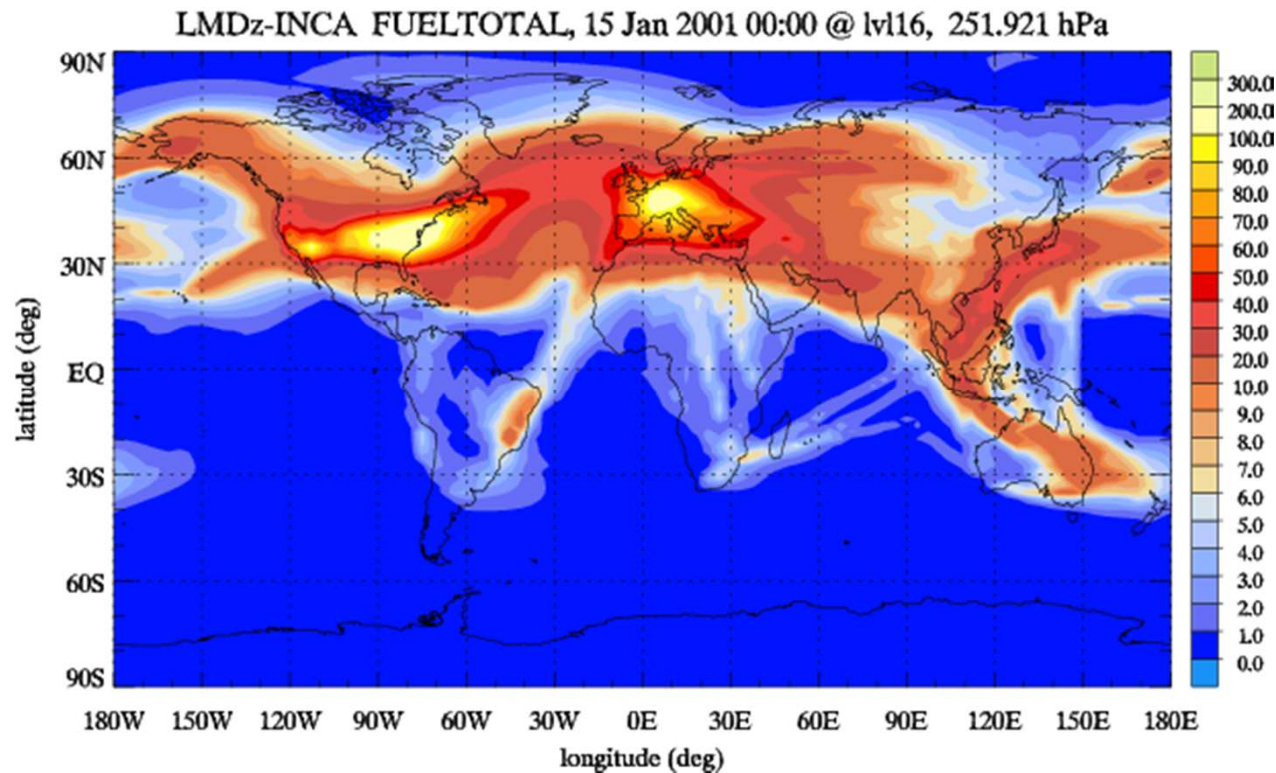
NOx concentrations for CLE



- Higher standard for agriculture and forestry mobile sources
- Higher standard for construction industry mobile sources
- Higher standard for mobile sources on the Rhine
- Higher standard for railway mobile sources
- Higher standard for mobile sources on the Rhine

Team Energy Air pollution and Climate

Impact of air traffic on atmospheric composition and climate



Development of LMDz-INCA in order to improve the representation of the chemical processes involved in the upper troposphere and lower stratosphere

Thanks for your attention

EPAC team composition

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